



August 30, 2023

Mr. James C. Bennett
Source Water & UIC Section
Water Division
U.S. EPA Region 3
Four Penn Center
1600 John F. Kennedy Blvd.
Philadelphia, PA 19103

Mr. Bennett:

EnerVest is submitting this permit application to renew Permit #VAS2D932BDIC Class II-D fluid disposal well in the Cane Creek area of Dickenson County, Virginia. Attachment 1 details information included for updating the UIC permit renewal application.

Please contact me with any questions and/or further requested information (276) 926-1292.

Sincerely,

Jon Lawson
HSE Specialist
jlawson@enervest.net



UNDERGROUND INJECTION CONTROL

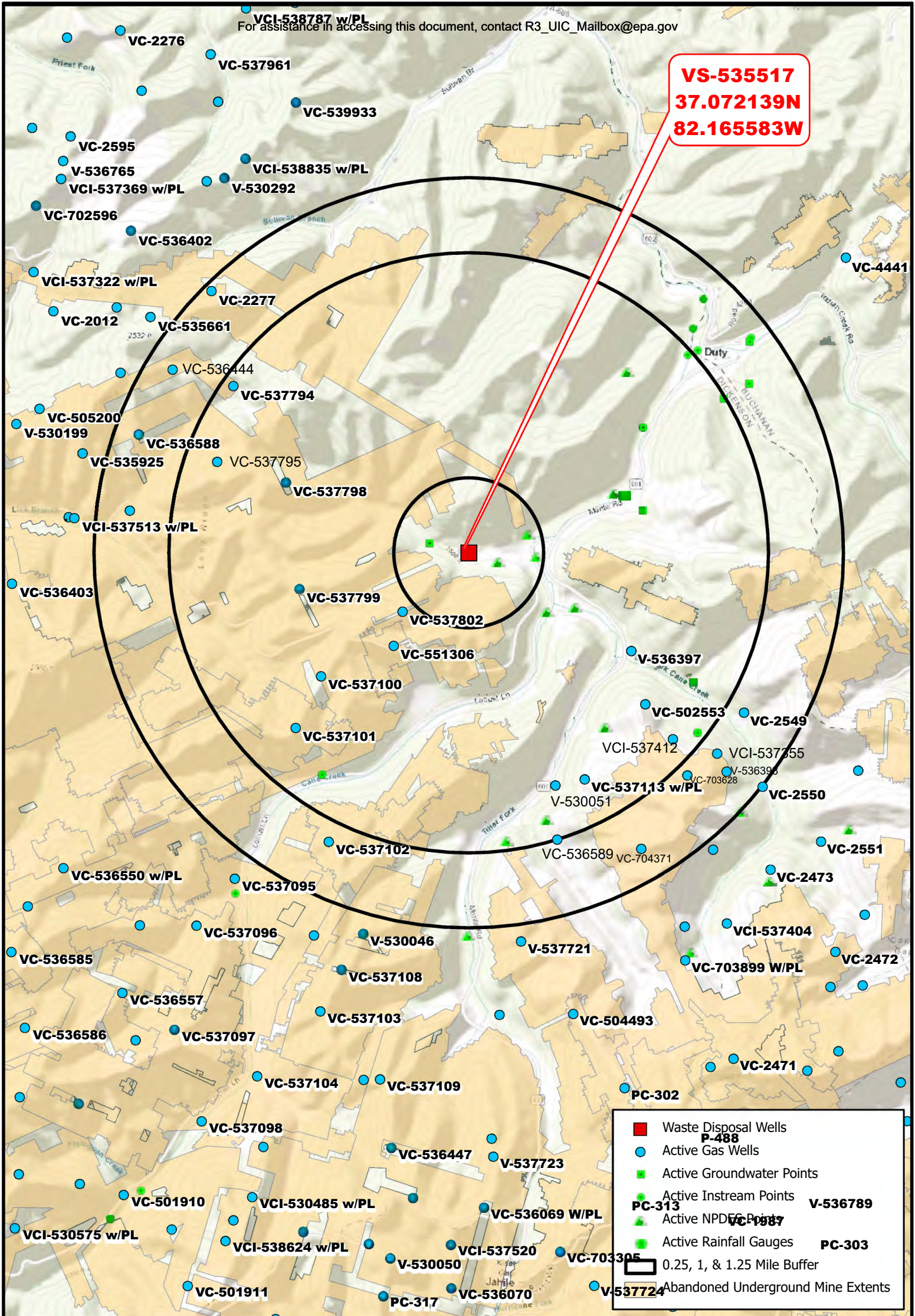
PERMIT RENEWAL APPLICATION

FOR CLASS II-D PRODUCTION FLUID DISPOSAL WELL

EXISTING WELL VS-535517
EPA # VAS2D932BDIC

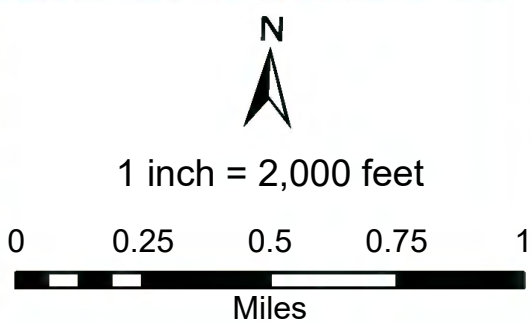
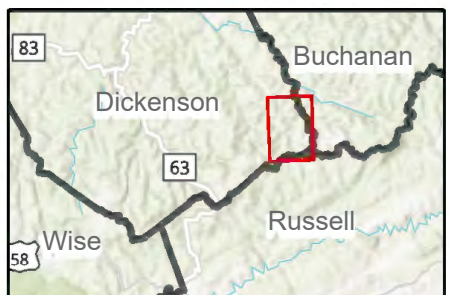
NORA FIELD
DICKENSON COUNTY, VIRGINIA

AUGUST 2023




VS-535517
37.072139N
82.165583W

- Waste Disposal Wells **P-488**
- Active Gas Wells
- Active Groundwater Points
- Active Instream Points **PC-313**
- Active NPDES Point **VC-1987**
- Active Rainfall Gauges **PC-303**
- 0.25, 1, & 1.25 Mile Buffer
- Abandoned Underground Mine Extents



VS-535517
Dickenson Co., Virginia

 <p>United States Environmental Protection Agency</p> <p>Underground Injection Control</p> <p>Permit Application for a Class II Well</p> <p><i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, and 40 CFR Part 144)</i></p>				<p>For Official Use Only</p> <p>Date Received</p> <p>Permit Number</p>	
Read Attached Instructions Before Starting					
<p>I. Owner Name, Address, Phone Number and/or Email</p> <p>EnerVest Operating LLC 809 Happy Valley Dr. Clintwood, VA 24228 276-926-1300 jlawson@enervest.net</p>			<p>II. Operator Name, Address, Phone Number and/or Email</p> <p>EnerVest Operating LLC 809 Happy Valley Dr Clintwood, VA 24228 276-926-1300 jlawson@enervest.net</p>		
<p>III. Commercial Facility</p> <p>Yes <input checked="" type="checkbox"/> No</p>	<p>IV. Ownership</p> <p><input checked="" type="checkbox"/> Private Federal State/Tribal/ Municipal</p>	<p>V. Permit Action Requested</p> <p>New Permit <input checked="" type="checkbox"/> Permit Renewal Modification Add Well to Area Permit Other</p>		<p>VI. SIC Code(s)</p> <p>1311</p>	<p>VII. Indian Country</p> <p>Yes <input checked="" type="checkbox"/> No</p>
VIII. Type of Permit (For multiple wells, use additional page(s) to provide the information requested for each additional well)					
<p><input checked="" type="checkbox"/> A. Individual B. Area</p>		<p>Number of Wells</p> <p>1</p>	<p>Well Field and/or Project Names</p> <p>Nora</p>		
IX. Class and Type of Well (see reverse)					
<p>A. Class</p> <p>II</p>	<p>B. Type (enter code(s))</p> <p>D</p>	<p>C. If type code is "X," explain.</p>			
<p>X. Well Status</p> <p><input checked="" type="checkbox"/> A. Operating Date Injection Started 04/21/2004</p> <p>B. Conversion Date Well Constructed 02/01/2004</p> <p>C. Proposed</p>			<p>XI. Well Information</p> <p>API Number 450510114400</p> <p>Permit (or EPA ID) Number VAS2D932BDIC</p> <p>Full Well Name VWD-535517 Cane Creek SWD</p>		
XII. Location of Well or, for Multiple Wells, Approximate Center of Field or Project					
<p>Locate well in two directions from nearest lines of quarter section and drilling unit</p> <p>Surface Location</p> <p>1/4 of 1/4 of Section Township Range</p> <p>ft. from (N/S) Line of quarter section</p> <p>ft. from (E/W) Line of quarter section.</p>				<p>Latitude 37 04 19.7</p> <p>Longitude -82 09 56.10</p>	
XIII. Attachments					
<p><i>In addition to this form, complete Attachments A-U (as appropriate for the specific well class) on separate sheets. Submit complete information, as required in the instructions and list all attachments, maps or other figures, by the applicable letter.</i></p>					
XIV. Certification					
<p>I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR § 144.32)</p>					
<p>Name and Official Title (Please Type or Print)</p> <p>Kevin Miller, VP</p>			<p>Signature</p> <p><i>Kevin Miller</i></p>		<p>Date Signed</p> <p>06/01/2023</p>

INSTRUCTIONS FOR FORM 7520-6 (CLASS II WELLS)

A permit application must be completed by all owners or operators of current or proposed Class I, II, and III wells, and some Class V injection wells subject to the requirement to obtain an Underground Injection Control (UIC) permit as described at 40 CFR 144.31 and others directed by a UIC official to apply for a UIC permit. Please note that the information needs vary by well class. These instructions are specific to Class III wells; other versions are available for other well classes. Please note that this form must be signed by a responsible entity as described at 40 CFR 144.32, even if the attachments are prepared by contractors or service companies. If the application covers multiple wells, use additional pages as necessary to provide all the requested information.

I. OWNER NAME, ADDRESS, PHONE AND/OR EMAIL: Enter the name and street address, city/town, state, and ZIP code of the owner of the well, well field, or company. Also provide an email address (if available) and/or a phone number.

II. OPERATOR NAME, ADDRESS, PHONE AND/OR EMAIL: Enter the name and street address, city/town, state, and ZIP code of the operator of well or well field; also provide an email address (if available) and/or a phone number. If the operator is the same as the owner, enter "same as owner."

III. COMMERCIAL FACILITY: Check the appropriate box to indicate the type of facility. A commercial facility is a single or multiple well facility that is specifically engaged in the business of injecting waste fluids generated by third party producers that is originated off-site and transported to the facility by truck for a fee or compensation.

IV. OWNERSHIP: Check the appropriate box to indicate whether the owner of the well/facility is a private, Federal, or State/Tribal/Municipal entity.

V. TYPE OF PERMIT ACTION REQUESTED: Check "new permit" if the well has never been subject to a UIC permit (e.g., for a newly constructed or converted well). Check "permit renewal" for an application associated with extending an expiring UIC permit. Check "modification" for an application to modify an existing permit that is not expiring. Check "add well to area permit" if additional wells are to be covered under an existing UIC area permit. Check "other," if needed and describe the situation.

VI. SIC CODES: List at least one and no more than four Standard Industrial Classification (SIC) Codes that best describe the nature of the business in order of priority. A list of SIC codes is available from the U.S. Department of Labor at <https://www.osha.gov/pls/imis/sicsearch.html>.

VII. INDIAN COUNTRY: Check yes if the well is located in Indian country. Indian country (as defined in 18 U.S.C. 1151) includes: all land within the limits of any Indian reservation under the jurisdiction of the U.S. government; all dependent Indian communities within the borders of the U.S.; and all Indian allotments, the Indian titles to which have not been extinguished.

VIII. TYPE OF PERMIT: Check "Individual" or "Area" to indicate the type of permit requested. Individual permits cover a single injection well, while area permits may cover more than one injection well. Note that area permits are issued at the discretion of the Director and that wells covered by an area permit must: be at one contiguous site, be under the control of one entity, and may not inject hazardous waste. If an area permit is requested, enter the **number of wells** to be included in the permit. In the case of a project or field that crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in all affected States (each such case will be considered individually). Also provide the **name of the well field or project**.

IX. CLASS AND TYPE OF WELL: Enter the class (as defined in 40 CFR 144.6) and type of injection well for which a permit is requested. Use the most pertinent code selected from the table below. When selecting type "X", please explain in the space provided.

TABLE OF CLASS II WELL TYPES

A	Annular Disposal Well.
D	Produced Fluid Disposal Well.
H	Hydrocarbon Storage Well (excluding natural gas).
R	Enhanced Recovery Well.
X	Other Class II Wells (not included in Type "A," "D," "H," or "R").

X. WELL STATUS: Check **Box A, Operating** if the well currently operates as an injection well (e.g., if a permit renewal is requested or a permit is sought for an existing rule-authorized injection well). Check **Box B, Conversion** for an existing well not currently being utilized for injection that is proposed to be converted to an injection well. Check **Box C, Proposed** for an underground injection well not yet constructed or completed. Provide relevant dates if A or B are checked.

XI. WELL INFORMATION: Enter the **API number** (the number assigned by the local jurisdiction (usually a State Oil and Gas Agency) using the American Petroleum Institute standard numbering system). Enter the **Permit or EPA ID number** assigned to the injection well by the EPA or the permitting authority. If you do not have a number (e.g., for a new well), this will be provided by EPA or the permitting authority, and you can leave the field blank. Also enter the **Full Name of the Well** or project.

XII. LOCATION: For individual permit applications, in the fields provided, enter the location of the well using latitude and longitude and/or the Public Land Survey System. When using latitude and longitude, use decimal degrees to five or six places after the decimal, if possible; be sure to include a negative sign for the longitude of a well in the Western Hemisphere and a

negative sign for the latitude of a well in the Southern Hemisphere. When using the Public Land Survey System, fill in the complete township, range, and section to the nearest quarter-quarter section. A township is north or south of the baseline, and a range is east or west of the principal meridian (e.g., T12N, R34W). Also include the distance, in feet, from the nearest north or south line and nearest east or west line of the quarter-section. For area permit applications, provide the latitude and longitude of the approximate center of the area.

XIII. ATTACHMENTS: Specific instructions for completing the attachments are presented on pages 3 through 6. Place the permit or EPA ID number (or, if none has been assigned, other identifying information such as an API number or the project name) in the upper right hand corner of each page of the attachments.

XIV. CERTIFICATION: All permit applications must be signed by either: a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, or by a principal executive or ranking elected official for a public agency, or a duly authorized representative of that person.

PAPERWORK REDUCTION ACT NOTICE: The public reporting and recordkeeping burden for this collection of information is estimated to average 61 hours per response for a Class II well permit application. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, DC 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

Instructions for Completing Attachments to Form 7520-6 (Class II Wells)

The Underground Injection Control (UIC) program, as promulgated under the Safe Drinking Water Act (SDWA), is designed to prevent injection activity from allowing the movement of fluid containing any contaminant into underground sources of drinking water (USDWs), if the presence of that contaminant may cause a violation of any primary drinking water regulation or may otherwise adversely affect the health of persons as found at Title 40 of the Code of Federal Regulations (40 CFR) section 144.12. Any applicant for a permit under this program shall have the burden of showing that their proposed construction, operation, maintenance, conversion, plugging, abandonment, and injection activity, does not endanger USDWs.

The attachments below have been constructed to provide applicants with clear expectations as to what information EPA needs to make a determination that an applicant's proposed activities will not endanger USDWs.

Pre-Application Coordination

Coordination between the UIC program and the permit applicant prior to submittal of the permit application is an important step for efficient and effective permitting. Early discussions will ensure that the applicant is aware of all the permit application requirements, including state specific requirements found at 40 CFR part 147. These discussions may also help the applicant plan how to invest time and resources needed to develop a comprehensive and complete permit application.

Applicants are encouraged to contact their EPA regional UIC program for a pre-application coordination meeting.

Note: If the owner or operator of *existing rule authorized Class II UIC well(s)* is required by the EPA to apply for a permit (40 CFR § 144.25), consult with EPA staff during the pre-application coordination for additional requirements that may apply.

When completing each attachment, please be sure to specify the units reported, e.g., of depth, pressure, temperature, etc.

Attachment A. Map(s) and Area of Review

Part I. Well Location(s)

For Individual Permits: If the surface location provided in the accompanying 7520-6 form does not adequately describe the well location (i.e., due to deviation, directional, or horizontal drilling), please describe the well's orientation and provide the top- and bottom-hole coordinates, as appropriate. If any monitoring wells are proposed as part of this permit application, provide coordinates for all monitoring wells.

For Area Permits (40 CFR § 144.33): Provide information similar to what is outlined above for individual permits for each well (existing or proposed) to be covered by this permit. In addition, provide a description of the proposed permitted area. At a minimum, this area should include all the proposed or existing wells known at the time of permit application submittal. For circular areas, this description should consist of a defined-radius from a singular point whose coordinates have been given. For polygonal areas, use a series of coordinates describing the vertices or corners of the area. Submit a Geographic Information System (GIS) file, if available.

Part II. Area of Review Size Determination (40 CFR § 146.6)

For All Permits. Give the method (fixed radius or equation) and, if appropriate, all calculations used to determine the size of the area of review (AOR). If you are uncertain as to which method to use, consult with your regional EPA office.

The AOR must be a minimum radius of one-fourth (1/4) mile from the well bore, including a well's lateral, or the proposed area permit boundary for area permits, unless the use of an equation is approved by the Director.

In addition, for Class II enhanced oil recovery well(s). The AOR will be at a minimum the larger of the following: one-fourth (1/4) mile radius or the distance to the nearest active producer in the production formation.

Part III. Map(s) (40 CFR §§ 144.31 & 146.24)

Submit a topographic map (or other map if a topographic map is unavailable) extending one mile beyond the facility property boundary showing:

- project injection well(s), well pad(s) and/or project area,
- applicable area of review,
- all outcrops of injection and confining formations,
- all surface water intake and discharge structures, and
- all hazardous waste treatment, storage, or disposal facilities.

Consult with your EPA regional office for the definition of the facility property boundary.

The information below does not apply to existing rule authorized Class II well(s).

Within the one-fourth (1/4) mile beyond the facility property boundary or the AOR, whichever is larger, the map will also show the:

- name and location of all production wells, injection wells, abandoned wells, dry holes, and all water wells, noting their types (public water system, domestic drinking water, stock, etc.),

- springs and surface bodies of water,
- mines (surface and subsurface) and quarries, and
- other pertinent surface features, including residences, schools, hospitals, and roads.

Only information of public record and pertinent information known to the applicant is required to be included on this map. Multiple maps may be needed to display this information clearly. If a certain feature is not present in the area covered, please state so definitively (e.g., *"There are no known outcrops of the confining formation in the mapped area."*).

Part IV, below does not apply to existing rule authorized Class II well(s).

Part IV. Area of Review Wells and Corrective Action Plans (40 CFR §§ 144.55 & 146.24)

Submit a tabulation of data and wellbore diagrams reasonably available from public records or otherwise known to the applicant on all wells within the AOR included on the map, which penetrate the proposed confining zone(s). Such information will include:

- well name, location and depth,
- well type,
- date well was drilled,
- well construction that includes casing and cement details, including demonstrated or calculated top of cement,
- cement bond logs (if available), and
- record of well completion and plugging (if applicable).

For such wells which are improperly sealed, completed, or abandoned, also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into USDWs.

Part V. Landowners Information (40 CFR § 144.31 and part 147)

Identify and submit a list with the names and addresses of all owners of record of land within one-fourth (1/4) mile of the facility property boundary. This requirement may be waived by the Regional Administrator if the site is in a populous area and the Regional Administrator determines that the requirement would be impracticable.

Consult with your regional EPA office, as additional state landowner notification requirements may apply (40 CFR part 147).

Attachment B. Geological and Geophysical Information

Part I. Geological Data (40 CFR § 146.24)

Provide the following information:

- geological data on all formations from the surface to the base of the injection well, identifying all USDWs and confining and injection zone(s). This data includes the lithologic description, geological name, thickness, depth, and total dissolved solids (TDS) concentrations from these formations (if known),
- source of information for the geologic data and formation TDS,
- porosity and permeability of injection formation (if available),
- geological cross-sections (if available) proximate to the injection well that includes the confining and injection zones. The cross-sections should illustrate the regional geologic setting and show the thickness and lateral continuity of the confining zone(s) through the area of review,
- within the AOR, identify known or suspected faults and fracture systems. If identified, provide proximity to the injection zone and the effect the fault/fracture system may have on the injection activities, and
- a history of seismic activity in the area and proximity to crystalline (i.e., granitic) basement.

Part II. Proposed Formation Testing Program (40 CFR § 146.22)

Provide a formation testing program to obtain data on:

- fluid pressure,
- estimated fracture pressure, and
- physical and chemical characteristics of the injection zone.

Attachment C. Well Construction/Conversion Information

Part I. Well Schematic Diagram (40 CFR § 146.24)

Provide a detailed proposed well schematic diagram that includes:

- identification of USDWs and confining and injection zones,
- casing and cementing details, including demonstrated or calculated top of cement,
- tubing and packer (if applicable),
- open hole or perforated intervals, and

- surface trace (if horizontal or deviated well).

For wells that are drilled and to be converted to an injection well, also provide the current well schematic diagram.

Part II. Well Construction or Conversion Procedures (40 CFR §§ 144.52, 146.22, & 146.24)

Provide detailed description of well construction or conversion procedures, that includes:

- proposed logs and other tests conducted during the drilling and construction of new well(s),
- proposed stimulation plan(s), if planned, and
- description of alarms and shut-down systems at the well (if applicable).

For wells that are drilled and to be converted to an injection well, also provide:

- well completion and cementing records, and
- previously run logs/tests.

Attachment D. Injection Operation and Monitoring Program (40 CFR §§ 146.23 & 146.24)

Submit the following information:

- flow diagram of fluid flow through the facility,
- contingency plan(s) to cope with well failure, so as to prevent migration of contaminating fluids into a USDW,
- drawing of the surface construction,
- locations of all monitoring devices (show on the map(s) referenced in section A.III. above), and
- description of sampling and monitoring devices to monitor the nature of the injected fluids, injection pressure, annulus pressure (if applicable), flowrate, and cumulative volume.

Hydrocarbon storage and enhanced recovery may be monitored on a field or project basis rather than on an individual well basis by manifold monitoring. If a manifold monitoring program is utilized, describe details of the monitoring program and how the program is comparable to individual well monitoring. Also, include on the map in section A.III.B, the distribution manifold applying injection fluid to all wells in the area, including location of all system monitoring locations.

Additionally, submit the following proposed operating data for each well in the individual or area permit:

- average and maximum daily rate and volume of fluids to be injected,
- average and maximum injection pressure,
- source(s) of injection fluids (including field and formation names),
- proposed annular fluid, and
- analysis of the chemical and physical characteristics of the injection fluid. At a minimum, this should include pH, specific gravity, TDS, and conductivity. Consult with the regional EPA office for additional guidance.

Attachment E. Plugging and Abandonment Plan (40 CFR §§ 144.31, 144.51 & 146.24)

Submit a plugging and abandonment (P&A) plan of the well on EPA Form 7520-19 along with a P&A diagram. The plan should include:

- type, and number of plugs to be used,
- placement of each plug including the elevation of top and bottom,
- type, grade, and quantity of cement to be used, and
- method of placement of the plugs.

Provide one or more cost estimates from an independent firm in the business of plugging and abandoning wells to conduct the work proposed in the P&A plan for EPA to contract plugging of the well. This is to ensure that EPA has adequate funding to plug the well(s) if the operator is unable to plug the well(s).

Consult with the regional EPA office for additional guidance on developing the P&A plan and cost estimate calculations.

Attachment F. Financial Assurance (40 CFR § 144.52)

Submit evidence of financial resources, such as a surety bond or financial statement, necessary for a third party to close, plug, or abandon the well in the event an owner or operator is unable to do so. The monetary amount is based on the P&A plan cost estimate provided in Attachment E.

Attachment G. Site Security and Manifest Requirements (Commercial Wells Only)

Provide a proposed site security plan. This could include fencing around the perimeter of the facility. Consult with the regional EPA office for additional guidance on manifest requirements.

Attachment H. Aquifer Exemptions (40 CFR §§ 144.7 & 146.4)

If an aquifer exemption (AE) is requested, submit the information required at 40 CFR § 144.7 and to demonstrate that the criteria found at 40 CFR § 146.4 are met. Consult with your regional EPA office for additional guidance.

Attachment I. Existing EPA Permits (40 CFR § 144.31)

Submit a listing of all permits or construction approvals received or applied for under any of the following programs:

- Hazardous Waste Management program under RCRA,
- UIC program under SDWA,
- NPDES program under CWA,
- Prevention of Significant Deterioration (PSD) program under the Clean Air Act,
- Nonattainment program under the Clean Air Act,
- National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act.
- Ocean dumping permits under the Marine Protection Research and Sanctuaries Act,
- Dredge and fill permits under section 404 of CWA, and
- Other relevant environmental permits, including State permits.

Attachment J. Description of Business (40 CFR § 144.31)

Provide a brief description of the nature of the business.

Attachment K. Optional Additional Project Information (40 CFR § 144.4)

The following is a list of Federal laws that may apply prior to the issuance of permits. When any of these laws are applicable, EPA must ensure that they are followed. The optional additional information requested below will assist EPA in its analyses to satisfy these laws.

- The Wild and Scenic Rivers Act, 16 U.S.C. 1273 et seq.
Identify any national wild and scenic river that may be impacted by the activities associated with the proposed project.
- The National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq.
Identify properties listed or eligible for listing in the National Register of Historic Places that may be affected by the activities associated with the proposed project. If previous historic and cultural resource survey(s) have been conducted, provide the results of the survey(s).
- The Endangered Species Act, 16 U.S.C. 1531 et seq.
Identify any endangered or threatened species that may be affected by the activities associated with the proposed project. If a previous endangered or threatened species survey has been conducted, provide the results of the survey.
- The Coastal Zone Management Act, 16 U.S.C. 1451 et seq.
Identify any coastal zones that may be affected by the activities associated with the proposed project.

INTRODUCTION AND AREA OF REVIEW

ATTACHMENT

INTRODUCTION

EnerVest Operating, LLC (EnerVest) in Clintwood, Virginia is submitting this permit application for a renewal of a Class II-D oil and gas production fluid disposal well. The existing permit VAS2D932BDIC and state number VS-535517 in Dickenson County, VA is a private injection well owned and operated by EnerVest.

The VS-535517 injection well is in the Cane Creek watershed of Dickenson County, Virginia. This permit application will present the necessary information and supporting documentation for renewing the well.

1.0 WELL LOCATION

State	Virginia
County	Dickenson
District	Ervinton
Latitude/Longitude	37.072121 N 82.165604 W
911 Address	3426 Monte Road Bee, VA 24217

INTRODUCTION AND AREA OF REVIEW

ATTACHMENT

Virginia Injection Well VS-535517 - Digital Plat attached

2.0 AREA OF REVIEW

The fixed radius of $\frac{1}{4}$ - miles from well VS-535517 was used for the area of review (AOR). All information presented and mapping provided are based upon the $\frac{1}{4}$ - mile radius using the proposed well as the center.

On some selective mapping, a radius of one mile, using Well VWD-535517 and the $\frac{1}{4}$ -mile AOR as the center, will be the area of review as required by this permit application.

3.0 AREA OF REVIEW MAPPING

Drawing 1 identifies the area within a one mile and $\frac{1}{4}$ -mile radius from the proposed renewal UIC well and all coalbed methane wells/conventional wells existing within area. Additional drawings include active mining within 1-mile of UIC well; inactive mining and water monitoring points within 1-mile of UIC well, and abandoned underground mine extents within 1-mile of UIC well.

MAP

- ☐ See mapping insert page. Injection Well Location, Area of Review Boundary (0.25-mile, 1.00-mile, and 1.25-mile), Name and Location of all known features (wells, mining, water bodies, etc.)
- ☐ The map was created from EnerVest's GIS department using company records and Division of Gas and oil files.

INTRODUCTION AND AREA OF REVIEW

ATTACHMENT

4.0 AOR Review Wells

Within the one (1) mile radius of proposed UIC Well VS-535517, a total of 25 wells exist, based upon EnerVest and Virginia Division of Gas and Oil records in December 2022. These 25 wells consist of:

- **Coal Bed Methane Wells** – Twenty-one of the wells are coalbed methane (CBM) wells ranging in depth from 1,341 to 2,529 feet and are extracting methane gas from the shallow coal seams. No CBM wells are within ¼-mile of the proposed well. The CBM wells are identified further in Appendix C.
- **Underground Injection Control Well** – No UIC wells are active in the 1-mile radius of the Class II-D UIC VAS2D932BDIC
 - EPA Permit VAS2D932BDIC: injection formation Weir.
- **Conventional Natural Gas Wells** – four conventional wells exist within 1-mile radius of VS-535517. They range in depth from 5,080 feet in Berea formation to 6,312 feet in the Cleveland shale. No plugged or abandoned wells are known to exist within the ¼-mile radius of the UIC well.

The injection zone of this proposed UIC well is the Weir formation from 4,281 feet to 4,331 feet below surface elevation, the deepest coalbed methane well within the one-mile radius is 2,529 feet, which provides for a minimum separation of 1,752 feet from the top of the Weir to the deepest CBM in the one-mile area of review.

- **Tabulation of Area of Review Wells** - Appendix C follows this section with area of review wells. Along with drilling and completion reports for all wells in AOR.
- **Existing Well Information** – All wells within the Area of Review identified by operator's well number, state file number and well type for all known producing, abandoned, dry holes, and injection. This information was gathered from well and map records on file with the Virginia Division of Gas and Oil and from EnerVest's company files.

INTRODUCTION AND AREA OF REVIEW

ATTACHMENT

5.0 CORRECTIVE ACTION PLAN

The production fluid will be injected into proposed well VS-535517 at less than fracture pressure of the Weir formation. The maximum surface injection pressure will be 90% of Weir formation instantaneous shut-in pressure or less. Should this pressure or other operating and injection problems be encountered in Well VS-535517 the following will be undertaken:

- Immediately stop all injections and allow well to stabilize.
- If stabilization does not occur a plan will be submitted to correct the problem with workover or other means.
- If well cannot be stabilized and problems encountered cannot be corrected to satisfaction of the state and federal agencies, UIC Well will be plugged, as outlined in Attachment E of this renewal.

6.0 LANDOWNER INFORMATION

An information search for landowners in the ½ mile area of the proposed well bore includes one landowner. The ½-mile radius includes one public-owned surface owner but there are no houses or water wells on the property. The surface owner has purchased the tract from Heartwood Forest Fund.

Landowner	Contact Addresses
The Nature Conservancy c/o CF Highlands, LLC	CF Highlands, LLC c/o The Nature Conservancy 146 East Main Street Abingdon, VA 24210

1.0 INJECTION ZONE

The selected formation to receive the production fluids is known geologically as the Mississippian Weir Formation. The Weir Formation is generally divided into two (2) intervals. The lowermost is a dark organic shale approximately 400-feet in thickness. The uppermost portion of the Weir Formation consists of a very fine grained, dirty siltstone which is approximately 100 to 150-feet thick. The siltstone portion of the Weir is the injection zone, 4281-feet to 4331-feet below ground surface.

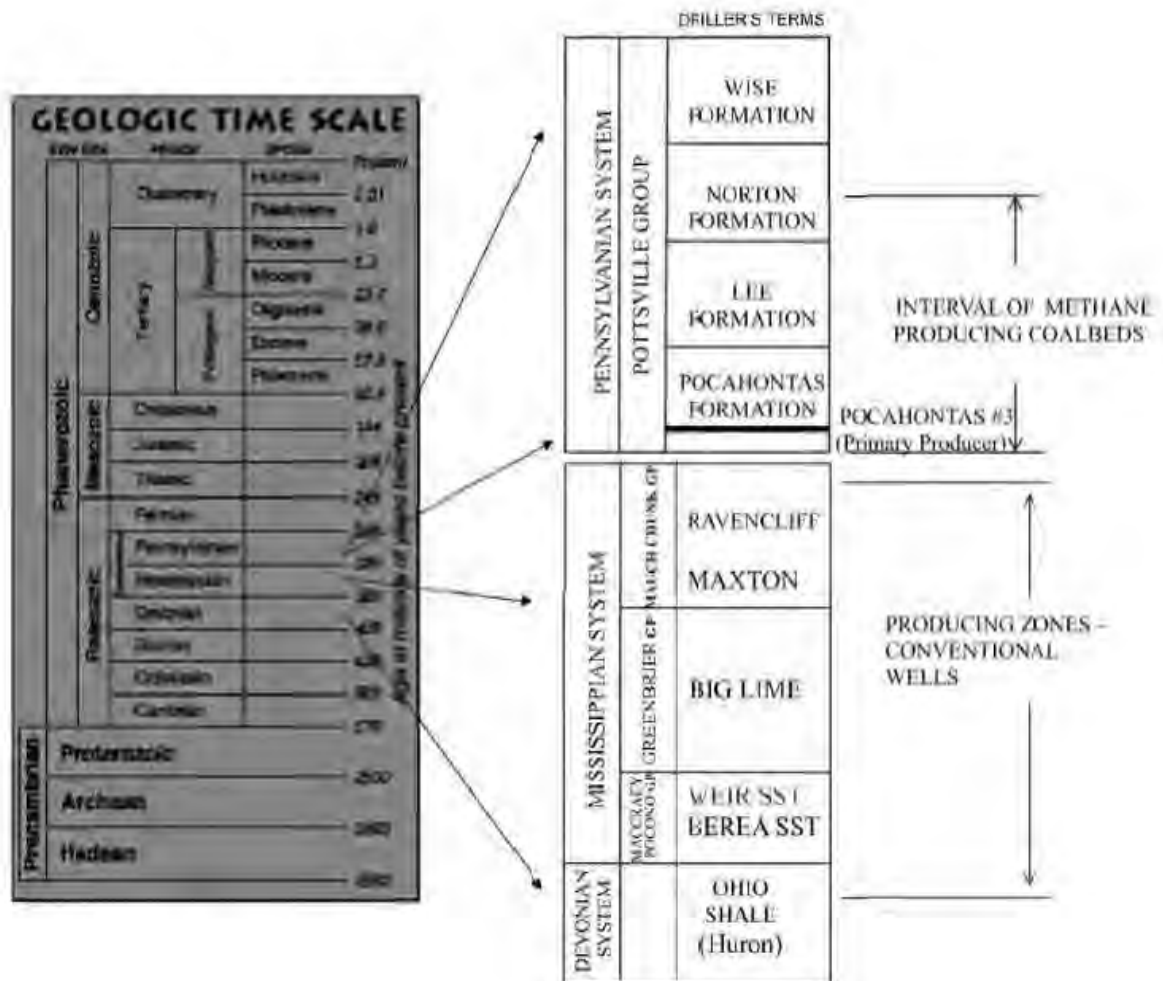


Figure B-1. Virginia Geologic Column

2.0 CONFINING ZONES

Laying directly on top of the Weir Formation is the Mississippian Keener, a 54-foot thick gray shale and the Mississippian Big Lime Formation consisting of dense carbonate, 518-feet thick. Situated below the Weir Formation is a 76-ft thick zone of dense, dark, highly organic "Sunbury" Shale, and a 74-foot thick section of Mississippian Berea formation, a fine-grained dirty siltstone. The bottom of the Big Lime Formation is located at 3,955-ft below ground surface and the top of the Berea Formation is located at 4,855-feet below ground surface.

GEOLOGICAL DATA (ESTIMATED)						
		DEPTH	THICKNESS			
FRESH WATER:	Possible at unknown depths					
SALT WATER:	Possible at unknown depths					
		NAME	DEPTH	THICKNESS	MINING IN AREA	MINE INDEX NUMBER
GAS AND OIL:	Base Lee Sand	1417'			No	
	Ravenclyff	2387'				
	Maxon	2830'				
	Little Lime	3429'				
	Big Lime	3437'				
	Weir	4181'				
	Sunbury	4789'				
	Berea	4855'				
	Cleveland	4860'				

Figure B-2. Geological Data

From the surface to Ravenclyff - sand, shale, and coal formations are found.

3.0 Fracture Pressure

The fracture pressure observed in UIC VWD-535517, where only the Weir was completed as reported by the completion report on file:

➤ **Fracture (breakdown and treatment pressures (surface pressures))**

Weir Formation

Fracture Pressure	-	1,401 psig
Treatment Pressure	-	2,087 psig

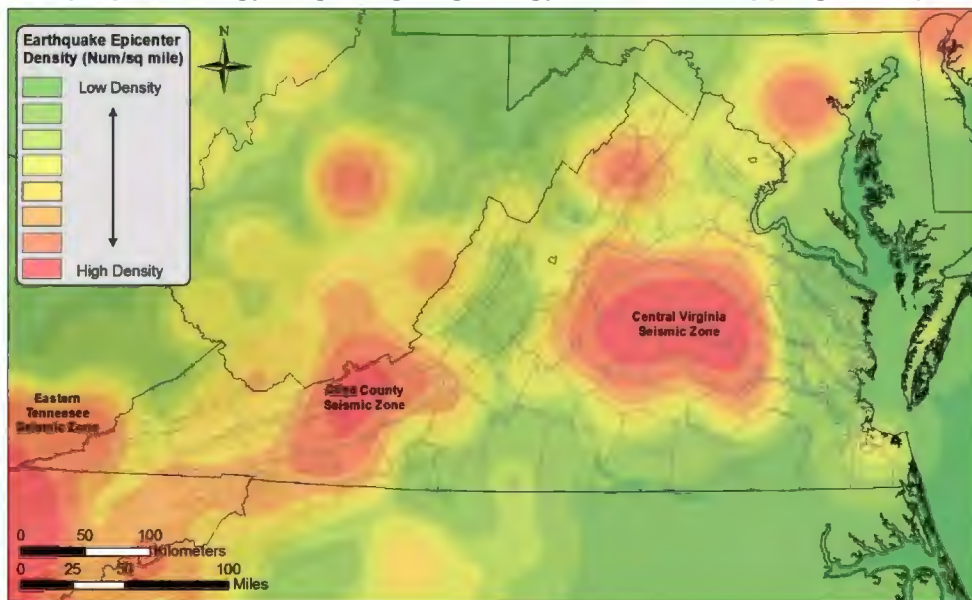
➤ **Instantaneous shut-in pressures (surface pressure)**

Weir Formation 1,941 psig

Weir Porosity	5 - 6%
Weir Permeability	0.059mD

4.0 Seismic Activity

Seismic Zones in Virginia
(<https://energy.virginia.gov/geology/EQHazardMapping.shtml>)



- ☐ **Local Seismic Activity.** Historically, seismic activity in Virginia has been minor. The faults that exist in the region were active during the Acadian and Alleghanian

Orogenies approximately 375 million to 260 million years ago. The VS-535517 well is in a region that is not susceptible to earthquakes since there are no active forces causing crustal movement.

5.0 Formation Testing Plan

Based upon EnerVest's extensive knowledge of the Weir formation in Dickenson and Buchanan County in Virginia and the operating history of the existing UIC wells operated by EnerVest, the Weir formation will continue to be utilized for the renewal of this well with no additional testing besides periodic mechanical integrity proposed.

6.0 Mechanical Integrity Testing

The renewed well's production casing will be integrity tested following the previously-approved procedures below.

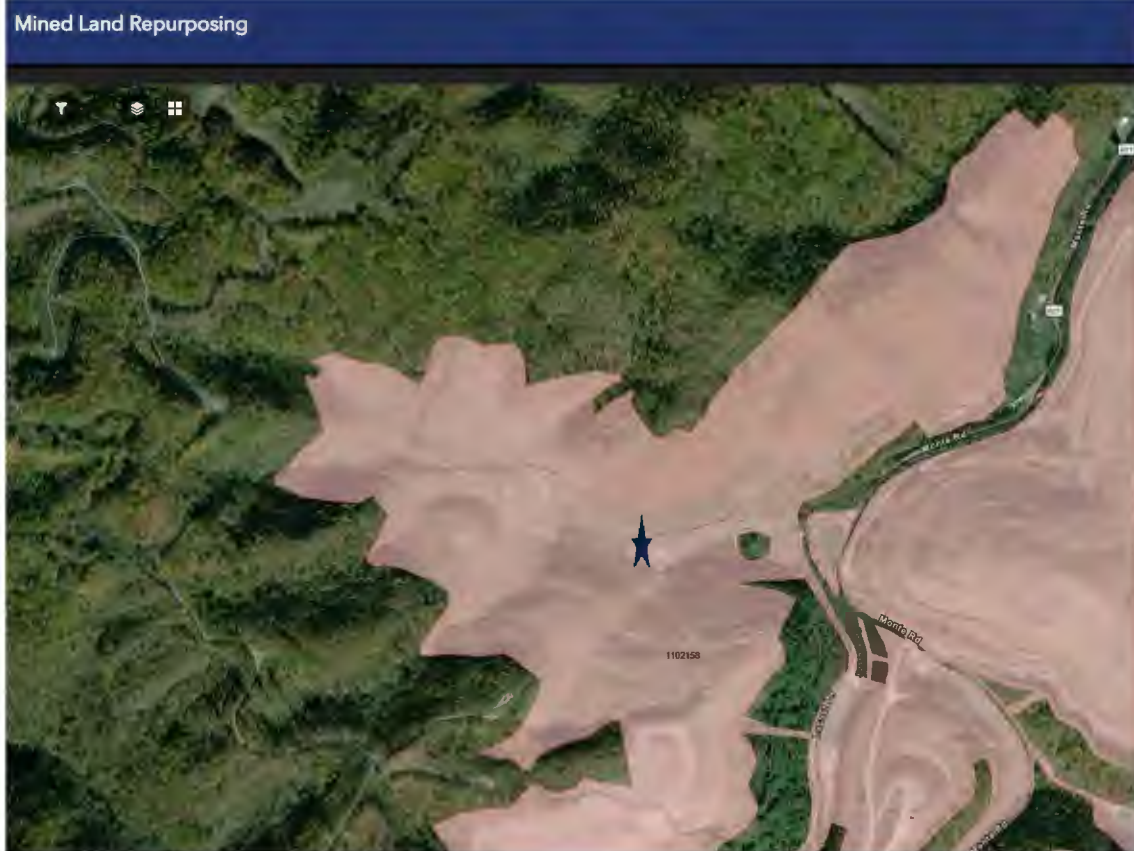
- ☐ Test to maximum surface injection pressure for the Weir Formation as approved in the permit and a safety factor of 110 percent.
- ☐ Fill the production casing to surface with freshwater and gradually pressure the casing to a minimum pressure described above at surface. Once the pressure has stabilized, it will be maintained (no more than 5% decrease) for 30 minutes at a minimum.
- ☐ The pressuring of the production casing and the test duration will be recorded by pressure chart and digital gauge, with the the pressure verified by a calibrated liquid filled pressure guage.
- ☐ The pressure will be monitored for 30 minutes and with no loss of pressure (no more than 5% decrease) during this time period the test will be terminated.
- ☐ Should a loss of pressure or the inability to establish the desired minimum test pressure occur, all testing will cease. The problem will be corrected and testing resumed based upon the concurrence of the Commonwealth of Virginia's Gas and Oil representative and US EPA Region III's representative present during the testing.
- ☐ The mechanical integrity testing will be witnessed by the VA DGO, US EPA Region III and EnerVest. With the successful completion of the mechanical integrity test, the pressure chart or form will be signed and dated by those witnessing the test.
- ☐ The test pressure will be relieved (vented) to normal operation following successful test.

Notifications will be made ten working days prior to commencing the testing programs.

7.0 MINING ACTIVITY

The area within ¼-mile radius of VS-535517 is a formerly surface mined area. This extensive surface mining was evident during field reconnaissance and documented by Virginia Division of Mine Land Reclamation (DMLR) files and mapping.

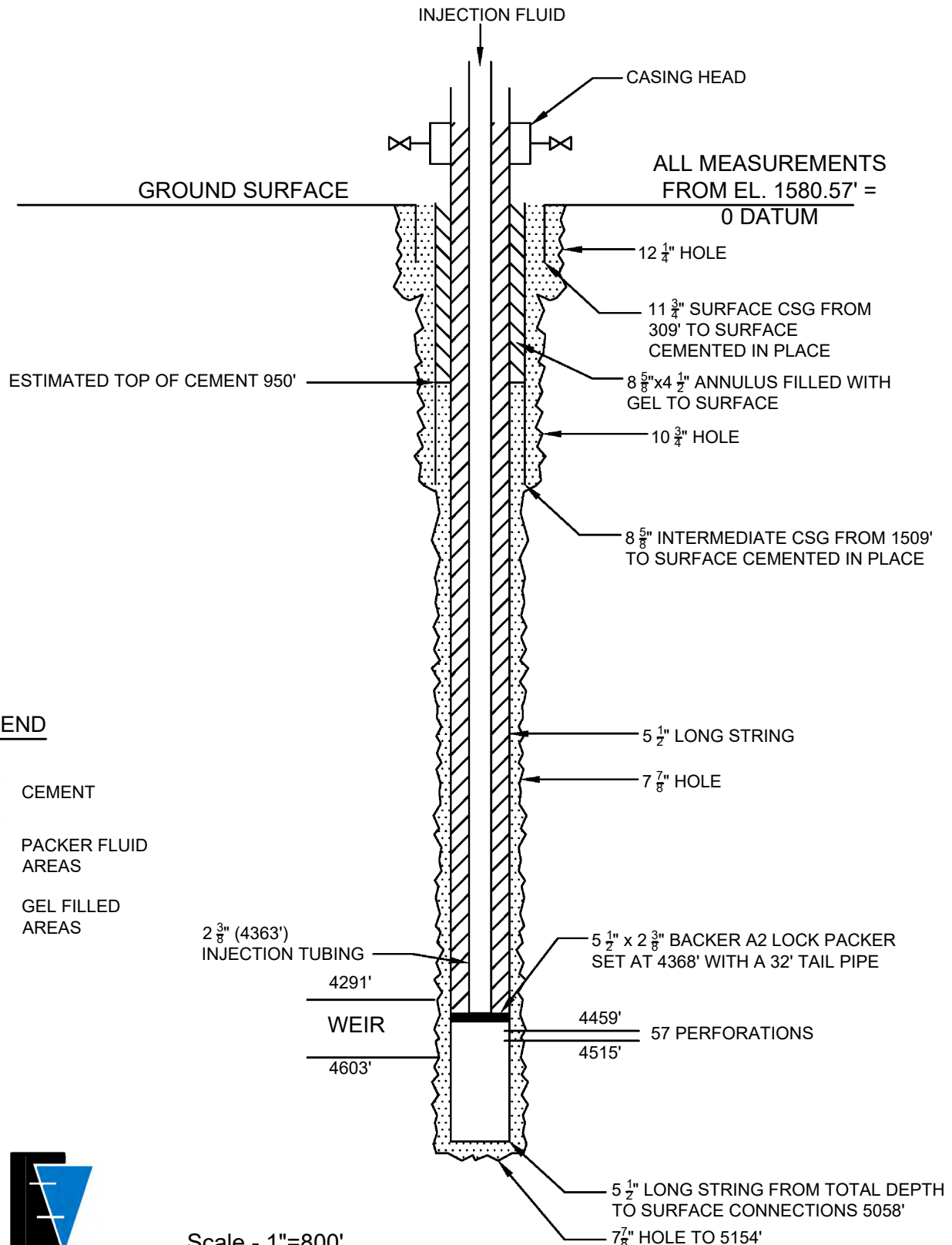
Virginia Energy Division of Mine Land Repurposing Mapping



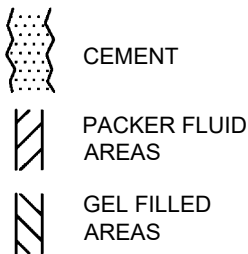
EnerVest works closely with the mining company to ensure seamless operations.

VWD-535517 SWD DOWNHOLE SCHEMATIC

Permit # VAS2D932BDIC API # 45-051-01144 VA File # DI-1144



LEGEND



Scale - 1"=800'
Hole & Casing Exaggerated
Date: 9/8/23

United States Environmental Protection Agency

**WELL REWORK RECORD, PLUGGING AND ABANDONMENT PLAN,
OR PLUGGING AND ABANDONMENT AFFIDAVIT****Name and Address, Phone Number and/or Email of Permittee**

EnerVest Operating, LLC
809 Happy Valley Drive
Clintwood, VA 24228
276-926-1300
ilandon@enervest.net

Permit or EPA ID Number

VAS2D932BDIC

API Number

45-051-0114400

Full Well Name

VS-535517 SWD Cane Creek

State

Virginia

County

Dickenson

Locate well in two directions from nearest lines of quarter section and drilling unit

Latitude 37.072121

Surface Location

Longitude -82.165604

1/4 of 1/4 of Section Township Range

ft. from (N/S) Line of quarter section

ft. from (E/W) Line of quarter section.

Well Class**Timing of Action (pick one)****Type of Action (pick one)**

Class I

☒ Class II

Class III

Class V

☒ Notice Prior to Work

Date Expected to Commence

☐ Report After Work

Date Work Ended

☐ Well Rework☒ Plugging and Abandonment☐ Conversion to a Non-Injection Well

Provide a narrative description of the work planned to be performed, or that was performed. Use additional pages as necessary. See instructions.

See Original (attached)

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR § 144.32)

Name and Official Title (Please type or print)

Kevin Miller, VP-Land

Signature**Date Signed**

08/05/2023

INSTRUCTIONS FOR FORM 7520-19

This form replaces forms 7520-12 and 7520-14. Use this form only when work is planned or has occurred that affects the well's construction or operation as an injection well, including work on the casing, tubing or packer (or for shallow Class V wells, the subsurface fluid emplacement network). Use one form per injection well. While reports or other information developed by contractors or service companies may be attached, this form must be signed by a responsible entity as described at 40 CFR 144.32. Note: operators closing Class V wells should use Form 7520-17.

NAME, ADDRESS, PHONE AND/OR EMAIL OF PERMITTEE: Enter the name and street address, city/town, state, and ZIP code of the permittee. Also provide an email address (if available) and/or a phone number.

PERMIT OR EPA ID NUMBER: Enter the well identification number or permit number assigned to the well by the EPA or the permitting authority.

API NUMBER: Enter the number assigned by the local jurisdiction (usually a State Oil and Gas Agency) using the American Petroleum Institute standard numbering system.

FULL WELL NAME: Enter the full name of the well or project.

Enter the **STATE** and **COUNTY** where the well is located. For States that do not have counties, use the name of that State's equivalent jurisdiction at a more local level.

WELL LOCATION: Fill in the complete township, range, and section to the nearest quarter-quarter section. A township is north or south of the baseline, and a range is east or west of the principal meridian (e.g., T12N, R34W). Also include the distance, in feet, from the nearest north or south line and nearest east or west line of the quarter-section. Also, enter the **latitude** and **longitude** of the well in decimal degrees, to five or six places if possible; be sure to include a negative sign for the longitude of a well in the Western Hemisphere and a negative sign for the latitude of a well in the Southern Hemisphere.

Enter the **WELL CLASS**, i.e., the class of injection well as defined in 40 CFR 144.6.

TIMING OF THE ACTION: Check **Notice prior to work** if the activity has not yet occurred (i.e., is planned). Check **Report after work** if the activity described has already occurred. As appropriate, include the date the activity is expected to start or the date the activity was completed. (Note this may not be available, e.g., for a plugging plan submitted with a permit application.)

TYPE OF ACTION: Check the appropriate box to describe the kind of activity being reported. Check **Well Rework** for work that was/will be performed on the well after it has already been in operation as an injection well. Check **Plugging and Abandonment** to report on plans for or descriptions of final closure/plugging after use as an injection well. Check **Conversion to a Non-Injection Well** if the well is to be converted to something other than an injection well.

Provide a **NARRATIVE DESCRIPTION** of the work planned to be performed, or that was performed. The narrative should include a description of the main procedures planned or that occurred during the work activity. A service company report, daily report, or similar document may be attached if it includes all the requested information and is clear and legible.

For well reworks, include the following information: The reason for the well rework; depths of activity; type of activity; changes to injection well configuration, well casing, or cement behind casing; any plug added to the well and its depth; any newly drilled interval and its depth; method(s) to demonstrate that the well has mechanical integrity (as applicable); and any deviations from the approved rework plan (as applicable).

For a well plugging plan, include the following information: Reason for the well plugging; number of plugs placed, and their depths; materials used as plugs (e.g., cast iron bridge plug, cement, cement retainer); method to set plugs; and wait-on-cement times, if any. Also provide one or more cost estimates from an independent firm in the business of plugging and abandoning wells to plug the well as described in the plan.

For well plugging affidavit, include the following information: Reason for the well plugging; number of plugs placed, and their depths; materials used as plugs (e.g., cast iron bridge plug, cement, cement retainer); method to set plugs; wait-on-cement times, if any; and any deviations from the approved plugging plan (if applicable).

For conversion to a non-injection well, include the following information: Depths of activity; type of activity; changes to injection well configuration, well casing, or cement behind casing; any plug added to the well and its depth; any newly drilled interval and its depth; depths of new perforations; and method(s) to demonstrate that the well has mechanical integrity (as applicable).

For all of the above activities, include a well sketch depicting the work, results of well tests/logging performed, service company tickets, and any other available information demonstrating how the work was/is to be performed. Also, specify whether depths are below ground surface, relative to Kelly bushing, etc.

CERTIFICATION: This form must be signed and dated by either: a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, or by a principal executive or ranking elected official for a public agency.

PAPERWORK REDUCTION ACT NOTICE: The public reporting and recordkeeping burden for this collection of information is estimated to average between 6.0 and 7.9 hours per response, depending on the injection well class. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

OMB No. 2040-0042

Approval Expires 11/30/2014


 United States Environmental Protection Agency
 Washington, DC 20460

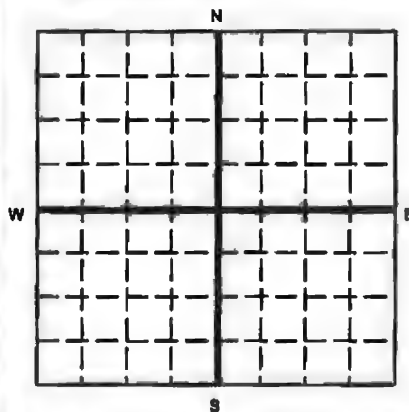
PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility

 Class II-D injection Well 535517
 Nora Field, Ervinton District, Dickenson County, VA

Name and Address of Owner/Operator

 EnerVest Operating, LLC
 300 Capitol Street, Suite 200, Charleston, WV 25301

**Locate Well and Outline Unit on
Section Plat - 640 Acres**

State

Virginia

County

Dickenson

Permit Number

837

Surface Location Description

1/4 of ____ 1/4 of ____ 1/4 of ____ 1/4 of ____ Section ____ Township ____ Range ____

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface

Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section.

TYPE OF AUTHORIZATION

- ☒ Individual Permit
☐ Area Permit
☐ Rule

Number of Wells ____

WELL ACTIVITY

- ☐ CLASS I
☒ CLASS II
☒ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage
☐ CLASS III

Lease Name Campbell Carter

Well Number 535517

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
11 3/4	38	300'	300'	12 1/4"
8 5/8	24	1467'	1467'	10 3/4"
5 1/2	14	5060'	3710'	7 7/8"
2 3/8	4.7	4230'	0	---

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☒ The Balance Method
☐ The Dump Bailer Method
☐ The Two-Plug Method
☐ Other

CEMENTING TO PLUG AND ABANDON DATA:

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (Inches)	5 1/2"	5 1/2"	5.5-8 5/8"	8 5/8"			
Depth to Bottom of Tubing or Drill Pipe (ft)	5060	5060	1467	1467			
Sacks of Cement To Be Used (each plug)	25	25	30	38			
Slurry Volume To Be Pumped (cu. ft.)	129.8	129.8	115.7	197.2			
Calculated Top of Plug (ft.)	4595	4210	1300	Surface			
Measured Top of Plug (if tagged ft.)	---	---	---	---			
Slurry Wt. (Lb./Gal.)	14.8	14.8	14.8	14.8			
Type Cement or Other Material (Class III)	Class A	Class A	Class A	Class A			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
4281'	4331'	Weir	Perforated Interval

Estimated Cost to Plug Wells

\$35,000

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

James McKinney, Senior VP & General Manager

Signature
Date Signed

VWD-535517

PLUGGING AND ABANDONMENT PLAN

ATTACHMENT

Q

1.0 PLUGGING AND ABANDONMENT PLAN

The plugging and abandonment plan to be used to abandon the UIC well is illustrated by Figure 4. A review of this schematic will provide the following information:

- ☐ Move in service rig.
- ☐ Rig up service company and pump cement plug down injection tubing. Run enough cement to cover from injection perforations back to the bottom of tubing plus 100% excess to squeeze off the formation.
- ☐ Displace cement to below bottom of injection tubing.
- ☐ Let cement set.
- ☐ Release the packer and pull tubing. (If tubing cannot be pulled, cut the tubing off just above the packer and pull the tubing.)
- ☐ Set a solid bridge plug 20' above the setting depth of the packer (4,190').
- ☐ Set a 100-foot cement plug from 3,487 feet to 3,387 feet.
- ☐ Cut 5 1/2-inch casing off at 1,350 feet.
- ☐ Pull 5 1/2-inch casing to surface and cement from 300 feet to surface.
- ☐ Install vent on the top of the 8 5/8-inch casing.
- ☐ The cement blend to be used will be Class A with 2% gel and 2% calcium chloride. Also, the fluid between the cement plugs will be 6% bentonite gel.

With the plugging and abandonment of the UIC well, all surface equipment and facilities will be removed and the well site reclaimed and vegetated.

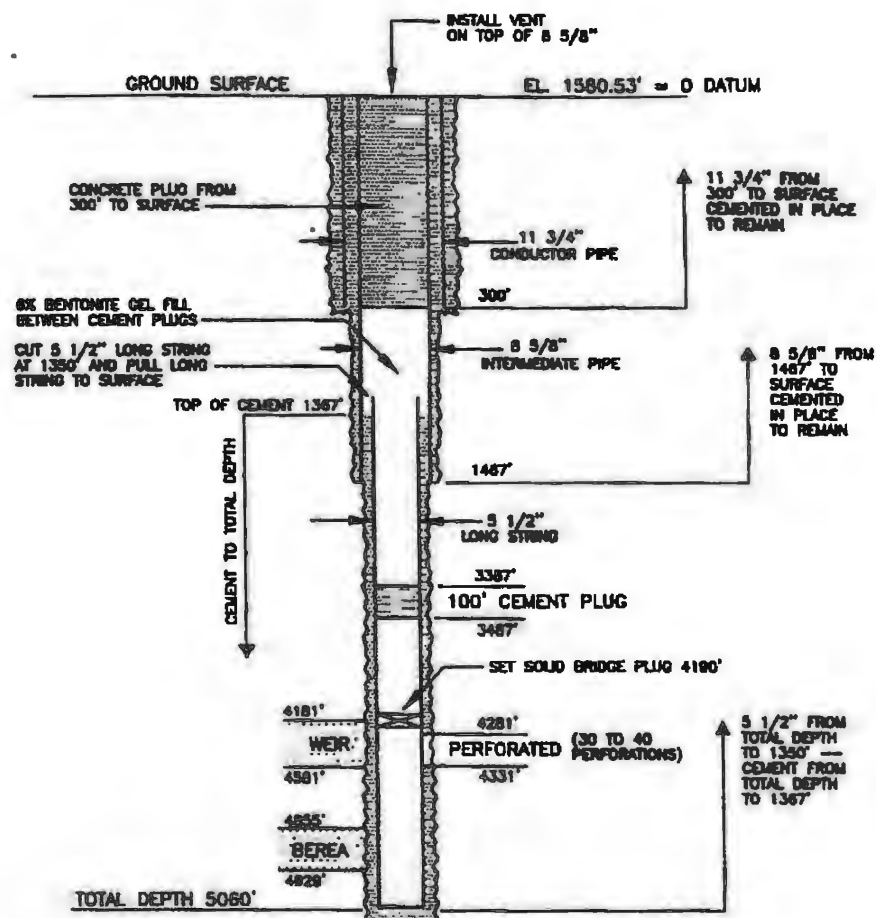
NOTES

1. ALL MEASUREMENTS FROM 0 DATUM OR GROUND SURFACE.
2. THE CEMENT BLEND WILL BE CLASS A WITH 2% DEL AND 2% CALCIUM CHLORIDE.

LEGEND



CEMENT



COMPANY WELL NO. VWD 535517
NOT TO SCALE

FIGURE 4
SCHEMATIC DIAGRAM
UIC WELL
PLUGGING & ABANDONMENT
EPC PRODUCTION COMPANY
NOVEMBER 2002
REVISED APRIL 8, 2003

MSES

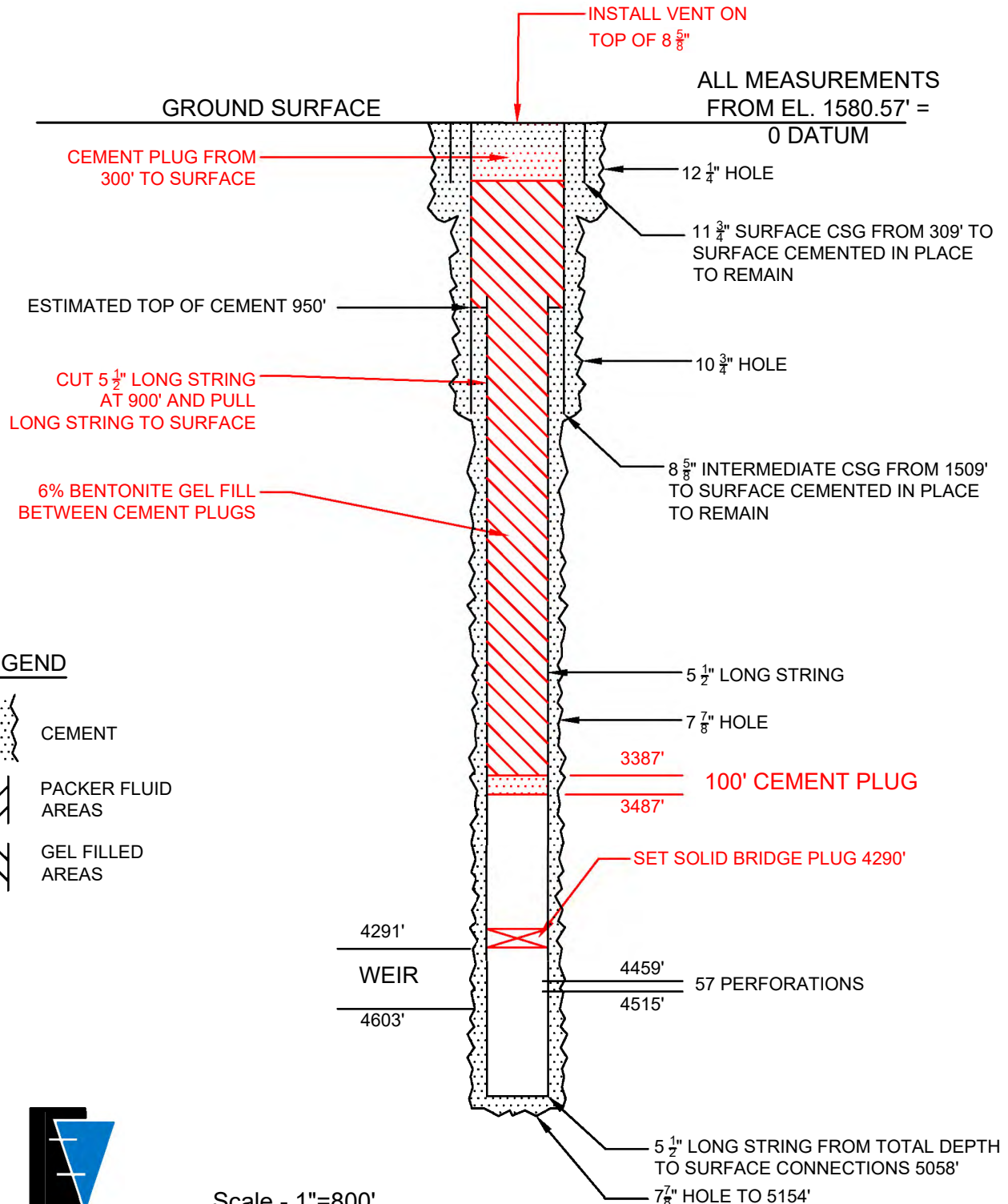
Environmental & Engineering Consultants

CAD FILE NO. 02-335-4 / DISK 1699

Drawn	RLA/SAC	12/02
Engineer	LJR	12/02
Checked	LJR	12/02
		Date

VWD-535517 SWD PLUGGING SCHEMATIC

Permit # VAS2D932BDIC API # 45-051-01144 VA File # DI-1144



LEGEND



CEMENT



PACKER FLUID AREAS



GEL FILLED AREAS



EWS

EAGLE WELL SERVICE INC

SALYERSVILLE, KY

CONTACT

Eagle Well Service Inc
PO Box 1666
Salysersville, KY 41465
(606) 349-4141

August 24, 2023

Mr. Landon,

Eagle Well Service Inc, would like to submit the following bid to plug Enervest Operating's salt water disposal well in VA for a turnkey price of \$96,500.00

This turnkey bid will include:

Rig time and labor

- Up to 8 days total to include rig time and labor along with power swivel, mills, and mud pump

Cementing services – cement mixing and pumping equipment

Cement – Class A (Class L) with 2% gel and 2% CaCl

Wireline services – including Cast Iron Bridge plug, perforating and casing cutting as listed in plugging procedure.

All hauling to and from location and well fluid disposal

All labor per deim and lodging

If changes to the plugging procedure are made, this bid will be adjusted accordingly. If you should have any questions, please do not hesitate to call. Thank you for this opportunity to quote this job for you!

Sincerely,
Brent Wright
Eagle Well Service Inc.
Cell: (740) 502-6171

Proposed Plugging Procedure

Well: 535517 SWD

File #:

Permit #:

API #:

Procedure:

- Miru
- Kill well w/### lb/gal mud down tbg
- Release on/off tool and circulate out annulus w/### lb/gal mud
- Sting back on packer and release packer
- TOOH w/tbg and packer, removing SealTite collar inserts
- Set 5-1/2" CIBP w/wireline at 4190'
- TIH w/2-3/8" tbg to 4190', load hole w/6% gel
- TOOH to 3487', spot 100' cement plug (Class A + 2% gel + 2% CaCl₂), TOOH w/tbg, WOC
- Tag TOC w/wireline
- Cut 5-1/2" csg at 1350', TOOH w/csg
- TIH w/2-3/8" tbg to 300'
- Spot cem plug from 300' to surface (Class A + 2% gel + 2% CaCl₂)
- TOOH w/tbg, top off cem
- Install permanent marker at least 30" high with permittee's name (Enervest Operating, LLC), well name, permit number, and date the well was plugged.
- Rdmo

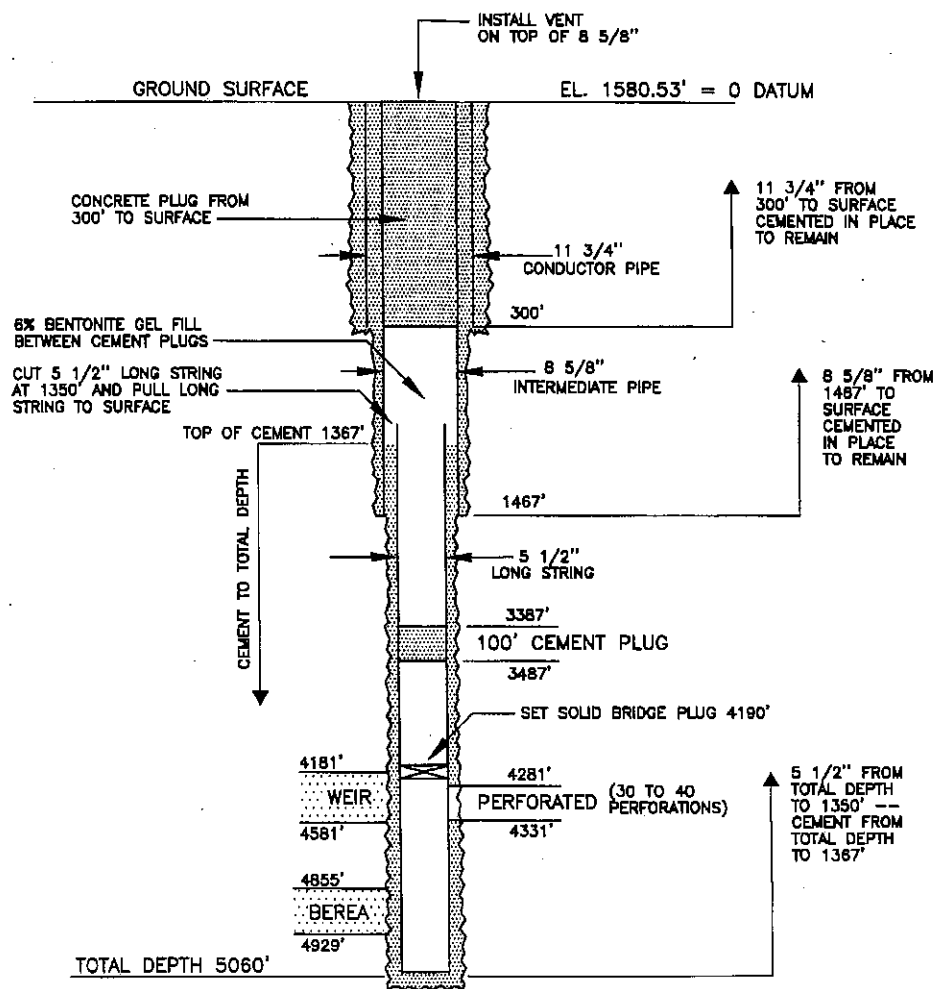
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LEGEND



CEMENT



COMPANY WELL NO. VWD 535517
NOT TO SCALE

FIGURE 4
SCHEMATIC DIAGRAM
UIC WELL
PLUGGING & ABANDONMENT
EPC PRODUCTION COMPANY
NOVEMBER 2002
REVISED APRIL 9, 2003

CAD FILE NO. 02-335-4 / DISK 1699

Drawn	KLA/SARC	12/02
Engineer	LMR	12/02
Checked	LMR	12/02
		Date

MSES
Environmental & Engineering Consultant:
8-81

OMB No. 2040-0042

Approval Expires 11/30/2014


 United States Environmental Protection Agency
 Washington, DC 20460

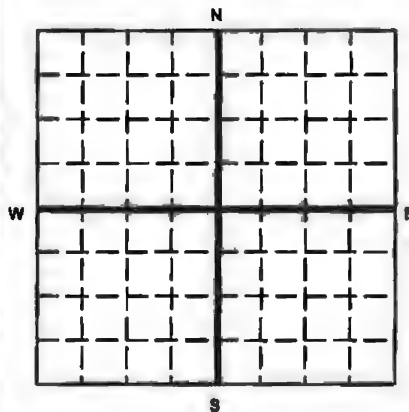
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 EnerVest Operating, LLC
 300 Capitol Street, Suite 200, Charleston, WV 25301

 Locate Well and Outline Unit on
 Section Plat - 640 Acres

 State
 Virginia

 County
 Dickenson

 Permit Number
 837

Surface Location Description

1/4 of ____ 1/4 of ____ 1/4 of ____ 1/4 of Section ____ Township ____ Range ____

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

 Location ____ ft. from (N/S) ____ Line of quarter section
 and ____ ft. from (E/W) ____ Line of quarter section.

TYPE OF AUTHORIZATION

- ☒ Individual Permit
☐ Area Permit
☐ Rule

Number of Wells ____

WELL ACTIVITY

- ☐ CLASS I
☒ CLASS II
☒ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage
☐ CLASS III

Lease Name Campbell Carter

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☐ Other

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Slurry Volume To Be Pumped (cu. ft.)	129.8	129.8	115.7	197.2			
Calculated Top of Plug (ft.)	4595	4210	1300	Surface			
Measured Top of Plug (if tagged ft.)	---	---	---	---			
Slurry Wt. (Lb/Gal.)	14.8	14.8	14.8	14.8			
Type Cement or Other Material (Class III)	Class A	Class A	Class A	Class A			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
4281'	4331'	Weir	Perforated Interval

Estimated Cost to Plug Wells

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Certification

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Name and Official Title (Please type or print)

James McKinney, Senior VP & General Manager

Signature

Date Signed

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

VWD-535517

PLUGGING AND ABANDONMENT PLAN

ATTACHMENT

Q

1.0 PLUGGING AND ABANDONMENT PLAN

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- ☐ Let cement set.
- ☐ Release the packer and pull tubing. (If tubing cannot be pulled, cut the tubing off just above the packer and pull the tubing.)
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- ☐ Set a 100-foot cement plug from 3,487 feet to 3,387 feet.
- ☐ Cut 5 1/2-inch casing off at 1,350 feet.
- ☐ Pull 5 1/2-inch casing to surface and cement from 300 feet to surface.
- ☐ Install vent on the top of the 8 5/8-inch casing.
- ☐ The cement blend to be used will be Class A with 2% gel and 2% calcium chloride. Also, the fluid between the cement plugs will be 6% bentonite gel.

With the plugging and abandonment of the UIC well, all surface equipment and facilities will be removed and the well site reclaimed and vegetated.

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

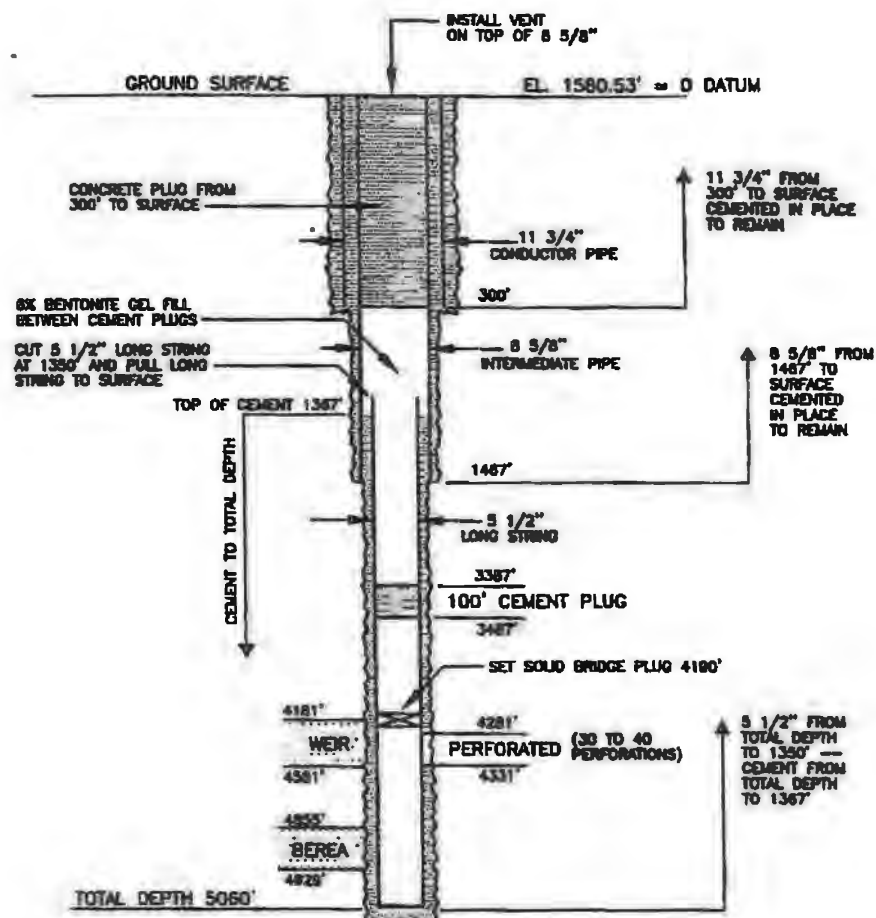
NOTES

1. ALL MEASUREMENTS FROM 0 DATUM OR GROUND SURFACE.
2. THE CEMENT BLEND WILL BE CLASS A WITH 2% GEL AND 2% CALCIUM CHLORIDE.

LEGEND



CEMENT



COMPANY WELL NO. VWD 535517
NOT TO SCALE

FIGURE 4
SCHEMATIC DIAGRAM
UIC WELL
PLUGGING & ABANDONMENT
EPC PRODUCTION COMPANY
NOVEMBER 2002
REVISED APRIL 8, 2003

CAD FILE NO. 02-335-4 / DISK 1699

Drawn	RLA/SARC	12/02
Engineer	LJR	12/02
Checked	LJR	12/02
		Date

MSES
Environmental & Engineering Consultants

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FINANCIAL ASSURANCE

ATTACHMENT

F

1.0 SURETY BOND

EnerVest has provided information to EPA Region 3 on the current surety bond for previous injection wells.

The surety is active and renewed annually with the third party insurer

EXISTING U.S. EPA PERMITS

ATTACHMENT



1.0 EXISTING U.S. EPA PERMITS

EnerVest operates six existing UIC wells, recently plugging VAS2D927BDIC, and has permits for two undrilled UIC wells (Table I-1) in Dickenson County and Buchanan County, Virginia.

Table I-1. Existing EPA Permits

UIC Wells		
NORA		
State File #	Operation Name	EPA #
DI-0192	P-750132 WD	VAS2D947BDIC
DI-0203	P-143 (750143)	VAS2D907BDIC
DI-0220	P-148 (PLUGGED)	VAS2D927BDIC
DI-0230	P-750171 WD	VAS2D937BDIC
DI-0249	P-750205 WD	VAS2D957BDIC
DI-1144	VWD-535517	VAS2D932BDIC
not drilled	VWD-539572	VAS2D697BDIC
HAYSI		
BU-1614	23606 w/PL	VAS2D950BBUC
not drilled	900146	VAS2D955BBUC

DESCRIPTION OF BUSINESS

ATTACHMENT

J

1.0 DESCRIPTION OF BUSINESS

EnerVest (www.EnerVest.net) is a private oil and gas company with 10,000 wells across 4 states, 1.5 million acres under lease and \$3 billion in assets under management. Operational Fund XIV owns proved reserves of 6.5 TCF and operations in Appalachia and the Southwestern United States. The December 2015 purchase of Range Resources – Pine Mountain included the operations in the southern Appalachian Basin. EnerVest now owns or has leased the oil, gas and coal bed methane on approximately 350,000 acres in Virginia and produces gas from Pennsylvania age coal seams, as well as deeper formations, including the Devonian Shale, Berea, Weir and Mississippian Big Lime. EnerVest currently operates approximately 3,500 wells in Virginia and plans to drill several hundred additional wells in the next 5 years. Along with coal bed methane and the deeper formation gas production, produced fluid is also extracted. It is these produced fluids that EnerVest will dispose of in the renewed Class II-D disposal well.

V-535517 Waste Disposal Facility



502553 Final Completion Report.pdf

502553 Final Drilling Report.pdf

530051 Final Completion Report.pdf

530051 Final Drilling Report.pdf

536397 Final Completion Report.pdf

536397 Final Drilling Report.pdf

536398 Final Completion Report.pdf

536398 Final Drilling Report.pdf

536444 Final Completion Report.pdf

536444 Final Drilling Report.pdf

536588 Final Completion Report.pdf

536588 Final Drilling Report.pdf

536589 Final Completion Report.pdf

536589 Final Drilling Report.pdf

537100 Final Completion Report.pdf

537100 Final Drilling Report.pdf

537101 Final Completion Report.pdf

537101 Final Drilling Report.pdf

537102 Final Completion Report.pdf

537102 Final Drilling Report.pdf

537355 Final Completion Report.pdf

537355 Final Drilling Report.pdf

537412 Final Completion Report.pdf

537412 Final Drilling Report.pdf

537513 Final Completion Report.pdf

537513 Final Drilling Report.pdf

537713 Final Completion Report.pdf

537713 Final Drilling Report.pdf

537794 Final Completion Report.pdf

[537794 Final Drilling Report.pdf](#)

[537795 Final Completion Report.pdf](#)

[537795 Final Drilling Report.pdf](#)

[537798 Final Completion Report.pdf](#)

[537798 Final Drilling Report.pdf](#)

[537799 Final Completion Report.pdf](#)

[537799 Final Drilling Report.pdf](#)

[537802 Final Completion Report.pdf](#)

[537802 Final Drilling Report.pdf](#)

[551306 Final Completion Report.pdf](#)

[551306 Final Drilling Report.pdf](#)

[703628 Final Completion Report.pdf](#)

[703628 Final Drilling Report.pdf](#)

[704371 Final Completion Report.pdf](#)

[704371 Final Drilling Report.pdf](#)

[2277 Final Completion Report.pdf](#)

[2277 Final Drilling Report.pdf](#)

[2549 Final Completion Report.pdf](#)

[2549 Final Drilling Report.pdf](#)

[2550 Final Completion Report.pdf](#)

[2550 Final Drilling Report.pdf](#)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 85
Company: Equitable Production Company
File Number: DI-1551
Operations Name: VC-502553 W/PL
Operation Type: Coalbed/Pipeline
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coalbed/Pipeline	Date Well Completed:	9/7/2006
Driller's Total Depth:	1,618	Log's Total Depth:	1,627

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

☒ Stimulated ☐ Not Stimulated ☐ Gob

Description	FileName
502553	502553 COMPLETION.pdf

3. Final Production

Description	FileName
502553	502553 FINAL PRODUCTION.jpg

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 1/11/2007 8:49:56 AM (Company)

Permit: 7448

Well: VC502553

Well: VC502553
 Date Well Completed: 09/07/2006
 Total Depth of Well: 1,618.00
 Permit: 7448

Formation Record

Stage1		Stage2		Stage3	
Date	08/29/2006	Date	08/29/2006	Date	08/29/2006
FracType 70Q	Foam	FracType 70Q	Foam	FracType 70Q	Foam
Zone	L Hrspn/x sm/poca#5	Zone	Unnamed C/ Beckley	Zone	M Hrspn/C Sm Rdr/C Sm/WrC.
# of Perfs	28	# of Perfs	32	# of Perfs	34
From/To	1,016— 1,422	From/To	923— 959	From/To	760— 879
BD Press	1,573	BD Press	2,498	BD Press	3,095
ATP Psi	2,760	ATP Psi	2,740	ATP Psi	3,074
Avg Rate	33	Avg Rate	36	Avg Rate	13
Max Press Psi	3,004	Max Press Psi	3,370	Max Press Psi	3,792
ISIP Psi	1,690	ISIP Psi	1,821	ISIP Psi	3,088
10min SIP	1,429 5 min.	10min SIP	1,402 5 min.	10min SIP	2,654 5 min.
Frac Gradient	1.79	Frac Gradient	2.10	Frac Gradient	4.19
Sand Proppant	50.25	Sand Proppant	74.03	Sand Proppant	15.74
Water-bbl	211	Water-bbl	268	Water-bbl	119
SCF N2	233,420	SCF N2	328,700	SCF N2	76,417
Acid-gal	500 gal 10%MSA	Acid-gal	1,000 gal 10%MSA	Acid-gal	1,000 gal 10%MSA

Final Production

Final Production if Gas Zones
are commingled

After Stimulation

BOD

MCFD

Hours Tested

Rock Pressure

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71
(In line)

0

250



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Box 1416; Abingdon, VA 24212
 Telephone: (276) 676-5423

Tracking Number: 106
 Company: Equitable Production Company
 File Number: DI-1551
 Operations Name: VC-502553 W/PL
 Operation Type: Coalbed/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 8/16/2006 Drilling Contractor: GASCO
 Date drilling completed: 8/22/2006 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 1,618
 Log Total Depth (feet): 1,627 Coal Seam At Total Depth PENN COAL

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X 933,893 Final Plat State Plane X: 933,892
 Permitted State Plane Y: 287,033 Final Plat State Plane Y: 287,034

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
502553	502553 WELL LOCATION PLAT (FINAL).pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
1,210	1/2	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams

List of Attached Items:

Description	FileName
502553	502553 COAL SEAMS.jpg

Gas and Oil Shows

List of Attached Items:

Description	FileName
502553	502553 GAS AND OIL SHOWS.jpg

4. Electric Logs (As required by 4VAC25-150-280.A.)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? ☒ Yes ☐ No

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
502553	502553 SURVEY RESULTS.jpg

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
502553	502553 CASING AND TUBING.jpg

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Cement Baskets: 88

8. Drillers Log

Compiled By: Todd Tetrick

List of Attached Items:

Description	FileName
502553	502553 DRILLERS LOG.pdf

9. Comments

10. Signature

Permitee: Equitable Production Company Date: 1/11/2007 (Company)

Signed By: Todd Tetrick Title: Manager (Signature)

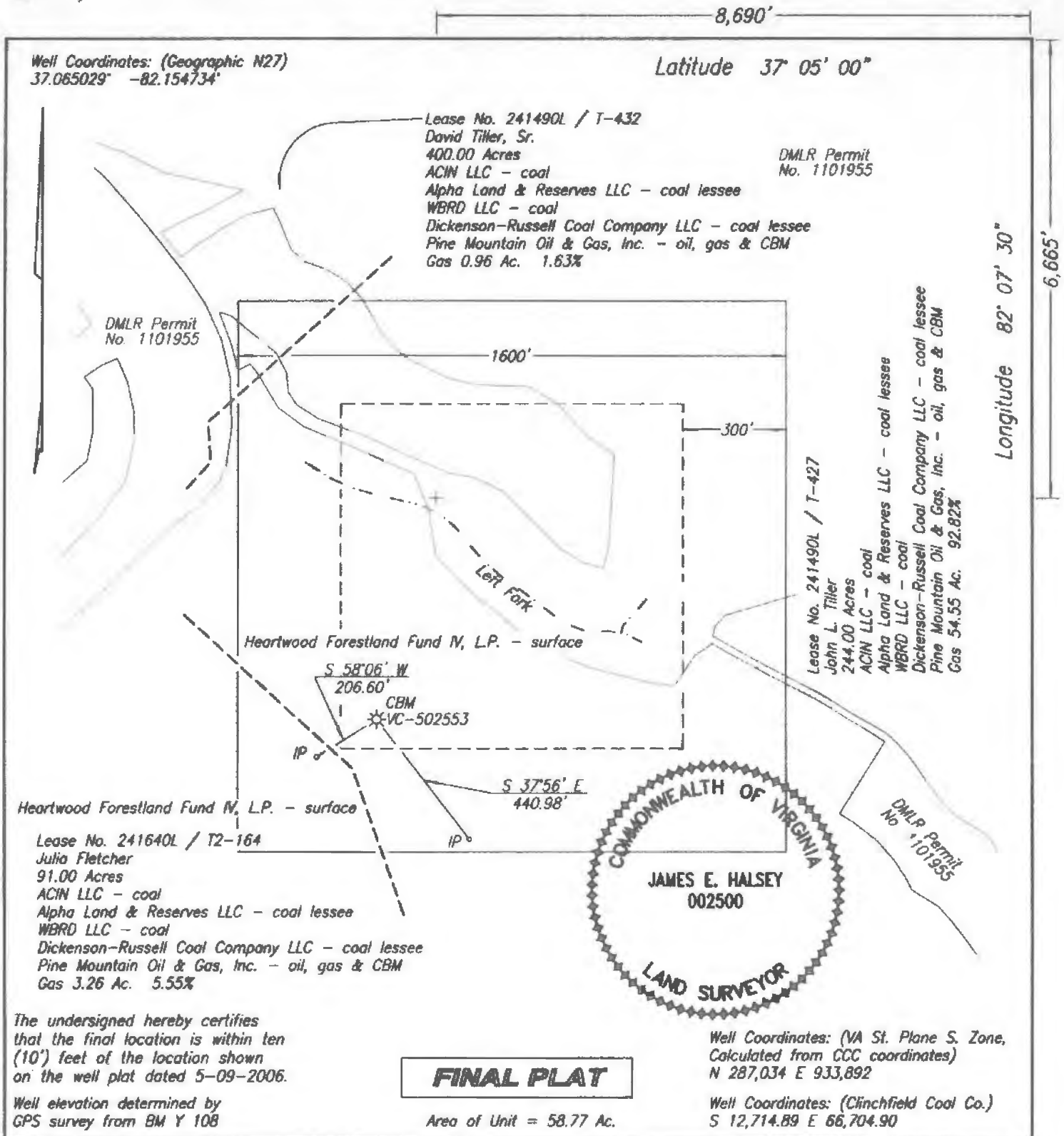
INTERNAL USE ONLY

Submit Date: 1/11/2007

Status: Inspr Approved

Date: 2/23/2007

Final PDF Date: 2/26/2007



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-502553
TRACT NO. T-427 ELEVATION 1,834.54' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 8-18-2006
This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor

Coal Seams & Open Mines

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

<u>Type</u>	<u>From</u>
Coal	196'-97',298'-99',417'-19',425'-26',530'-31',535'-36',
Coal	660'-62',760'-61',822'-23',840'-41',849'-50',
Coal	881'-82',962'-63',1002'-03',1058'-59',1410'-13'

Gas and Oil Shows

Gas Tests

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

<u>Depth</u>	<u>Remarks</u>
195	No Show
415	No Show
603	No Show
791	No Show
1,010	No Show
1,197	No Show
1,415	No Show
1,618	TSTM

Survey Results

Depth	Direction/Distance/Degrees From True Vertical
195	1/4
415	1/4
603	1/4
791	1/4
1,010	1/4
1,197	1/4
1,415	1/2
1,618	1/4

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

Casing Data

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

Casing Outside Diameter	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
12 3/4	0- 53	15				
8 5/8	0- 327	12 1/4	212.40	Y	08/16/2006	88
4 1/2	0- 1577	6 1/2	327.54	Y	08/21/2006	

Tubing Size

2 3/8

5/8

Footage

1,476.05

1480.1

Drillers Log

Permit: 7448

Well: VC502553

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Greasv Creek	402.00	403.80	1.80
shale	403.80	524.00	120.20
Middle Seaboard	524.00	526.00	2.00
shale	526.00	575.50	49.50
Lower Seaboard	575.50	577.70	2.20
shale	577.70	660.50	82.80
Unnamed A	660.50	664.80	4.30
shale	664.80	721.00	56.20
Upper Horsenen	721.00	722.00	1.00
shale	722.00	760.50	38.50
Middle Horsenen	760.50	762.50	2.00
shale	762.50	825.00	62.50
C Seam Rider	825.00	825.80	0.80
shale	825.80	846.00	20.20
C Seam	846.00	847.00	1.00
shale	847.00	877.50	30.50
War Creek	877.50	878.50	1.00
sandy shale	878.50	923.50	45.00
Unnamed C	923.50	924.50	1.00
sandy shale	924.50	953.00	28.50
Becklev	953.00	958.00	5.00
sandy shale	958.00	996.00	38.00
Lower Horsenen	996.00	997.20	1.20
sandy shale	997.20	1,049.00	51.80
X Seam	1,049.00	1,051.00	2.00
shale	1,051.00	1,067.00	16.00
Pocahontas #9	1,067.00	1,067.30	0.30
sand & shale	1,067.30	1,390.50	323.20
Pocahontas #5 Rider	1,390.50	1,391.30	0.80
sandy shale	1,391.30	1,420.50	29.20
Pocahontas #5	1,420.50	1,421.50	1.00
sandy shale	1,421.50	1,627.00	205.50

Total Depth of Well: 1,618.00

Permittee: EQUITABLE PRODUCTION COMPANY (Company)By:  (Signature)

12/20/06



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9650

Tracking Number: 2406
Company: Range Resources-Pine Mountain
File Number: DI-2322
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Gas	Date Well Completed:	12/4/2009
Driller's Total Depth:	5080.00	Log's Total Depth:	5084.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
V-530051 Stimulation Record	V-530051 Stimulation.doc

3. Final Production

Description	FileName
V-530051 Final Production	Final_Prod.xls

4. Comments

Notes:

5. Signature

Permittee: Range Resources-Pine Mountain Date: 3/22/2010 (Company)

By: Laura Murray Title: Permit Specialist (Signature)

INTERNAL USE ONLY

Submit Date: 3/22/2010

Status: Approved

Date: 3/5/2012

Final PDF Date: 3/6/2012

STIMULATION RECORD

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

ZONE 1: Weir Formation Stimulated With: 75Q Foam
Perforated 4463 to 4486 feet No. of Perforations 20 Perforation Size .52
Formation Broke down at: 1568 PSIG Average Injection Rate: 36.8 BPM
ISIP 656 PSIG 2 Min SIP 0 PSIG Average Downhole Injection Pressure 2903 PSIG
Stimulated: ☒ Yes ☐ No Date Stimulated: 12/4/2009

ZONE 2: Big Lime Formation Stimulated With: 50Q Foam
Perforated 3730 to 4225 feet No. of Perforations 34 Perforation Size .33
Formation Broke down at: 1610 PSIG Average Injection Rate: 18.3 BPM
ISIP 920 PSIG 2 Min SIP 890 PSIG Average Downhole Injection Pressure 3065 PSIG
Stimulated: ☒ Yes ☐ No Date Stimulated: 12/4/2009

ZONE 3: Maxton Formation Stimulated With: 65Q Foam
Perforated 3032 to 3094 feet No. of Perforations 24 Perforation Size .42
Formation Broke down at: 3018 PSIG Average Injection Rate: 26.9 BPM
ISIP 992 PSIG 2 Min SIP 932 PSIG Average Downhole Injection Pressure 2673 PSIG
Stimulated: ☒ Yes ☐ No Date Stimulated: 12/4/2009

ZONE 4: Ravenclyff Formation Stimulated With: 65Q Foam
Perforated 2218 to 2304 feet No. of Perforations 24 Perforation Size .42
Formation Broke down at: 1503 PSIG Average Injection Rate: 31.5 BPM
ISIP 3247 PSIG 2 Min SIP 3098 PSIG Average Downhole Injection Pressure 3201 PSIG
Stimulated: ☒ Yes ☐ No Date Stimulated: 12/4/2009

Final Production After Stimulation				
	BOD	MCFD	Hours Tested	Rock Pressure
Zone 1				
Zone 2				
Zone 3				
Final/Commingled Zones		1612	3	500



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2467
Company:	Range Resources-Pine Mountain
File Number:	DI-2322
Operations Name:	V-530051
Operation Type:	Gas
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	11/10/2009	Drilling Contractor:	SW Jack #18
Date drilling completed:	11/17/2009	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	5080.00		
Log Total Depth (feet):	5084.00	Formation At Total Depth	Cleveland Shale

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10415295.3700	Final Plat State Plane X:	10415293.2800
Permitted State Plane Y:	3566479.3300	Final Plat State Plane Y:	3566482.4900

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
V530051 Final Plat	V-530051 Final Plat.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
30	Damp	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure

Coal Seams:

List of Attached Items:

Description	FileName
V-530051 Coal Seams	V-530051 Coal.xls

Gas and Oil Shows:

List of Attached Items:

Description	FileName
V-530051 Gas Shows	Shows.xls

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: Hi Res GR/Dens/Temp/Audio/PE/Caliper Data Pack

Did logs disclose vertical locations of a coal seam? £

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
V-530051 Survey	Survey.xls

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
V-530051 Casing	Casing.xls

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: Range Resources - Pine Mountain, Inc.

List of Attached Items:

Description	FileName
V-530051 Driller's Log	V-530051 Log.xls

9. Comments

Inspection report shows 1601' of 7". Please double check. [3/5/2012, gje]

10. Signature

Permitee: Range Resources-Pine Mountain Date: 11/10/2011

Signed By: Laura Murray Title: Permit Specialist

_____	_____
_____	_____



V-530051 PLAT
TRACT OWNERSHIP INFORMATION SCHEDULE
7/14/2009

1. Elaine Duty
51.27 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Lease No. 245255L
Charlton Tiller - oil & gas
Heartwood Forestland Fund IV, L.P. - surface
51.27 Acres
Gas 32.80 Ac. 29.11%
2. Lease No. 906889L / T2-173
Rebecca Deel
27.36 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 14.88 Ac. 13.21%
3. H.M.C. Tiller
30.60 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Lease No.
Eivens Tiller Heirs - oil & gas
Gas 18.32 Ac. 16.26%
4. Radford Powers
14.00 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Lease No.
S.J. Tiller Heirs - oil & gas
Gas 9.47 Ac. 8.40%

- 5 . Lease No. 906889L / T2-164
Julia Fletcher
91.00 Acres
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 22.73 Ac. 20.17%
- 6 . Lease No. 906889L / T2-166
Elaine Duty
0.13 Acres, p/o 51.27 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 0.20 Ac. 0.18%
- 7 . Lease No. 906889L / T2-163
Lon Kiser
32.00 Acres
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 1.13 Ac. 1.00%
- 8 . Lease No. 906889L / T2-162
W.H. Sheckler
48 Acres
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 1.38 Ac. 1.23%
- 9 . Lease No.
J.B. Tiller
11.47 Acres
J.B. Tiller Heirs - oil & gas
Gas 0.16 Ac. 0.14%
- 10 . Evans Tiller
7.5 Acres
Lease No.
Eivens Tiller Heirs - oil & gas
Gas 2.64 Ac. 2.34%
- 11 . Lease No. 906889L / T2-253
Rosie Jessee Tiller
10.08 Acres
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 2.10 Ac. 1.86%

- 12 . Lease No. 906889L / T2-167
H.M.C. Tiller
30.60 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 5.68 Ac. 5.04%
- 13 . Lease No. 906889L / T2-166
Elaine Duty
51.27 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Range Resources - Pine Mountain, Inc. - oil & gas
Gas 1.20 Ac. 1.06%

Coal Seams

				MINING IN AREA		
NAME	TOP	BOTTOM	THICKNESS	YES	NO	MINED OUT
No coals listed in driller's book.						

Gas and Oil Shows

FORMATION	DEPTH	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
Ravencliff	2050		NS		
Ravencliff	2690		NS		
Maxton	3360		NS		
Big Lime	4810		odor		
Berea	5080		odor		

Survey Results

Depth of Survey	Direction/Distance/Degree From True Vertical
200'	$\frac{1}{4}^{\circ}$
400'	$\frac{1}{4}^{\circ}$
600'	$\frac{1}{4}^{\circ}$
800'	$\frac{1}{4}^{\circ}$
1000'	$\frac{1}{2}^{\circ}$
1200'	$\frac{1}{2}^{\circ}$
1400'	$\frac{1}{2}^{\circ}$
1800'	$\frac{1}{2}^{\circ}$

Casing Program

Casing Type	Casing Size	Casing Interval	Hole Size	Cement Used In Cubic Ft.	Cemented To Surface Yes/No	Date Cemented	Packers Or Bridge Plugs Kind/Size/Set	Cement Baskets (ft)
Conductor	13 ³ / ₈ "	0-44'	15"					
Water Protection	9 ⁵ / ₈ "	0-336'	12 ¹ / ₄ "	242	Yes	11/06/09		84'
Coal Protection	7"	0-2362'	8 ⁷ / ₈ "	604.2	Yes	11/09/09		252'
Production Casing	4 ¹ / ₂ "	0-4704'	6 ¹ / ₄ "	349.7	No	11/13/09		3528' 4238'
Other Casing And Tubing Left In Well	2 ³ / ₈ "	0-3974'						
Liners								

Driller's Log

Geologic Age	Formation	General Lithology	Color	Depth Top	Depth Bottom	Thickness	Remarks
Pennsylvanian		Sandy Shale		0	820	820	
Pennsylvanian	Lee	Sandstone		820	1664	844	
Pennsylvanian		Sandy Shale		1664	2199	535	
Mississippian	Ravenclyff	Sandstone		2199	2368	169	
Mississippian		Shale		2368	3030	662	
Mississippian	Maxton	Sandstone		3030	3095	65	
Mississippian		Sandy Shale		3095	3152	57	
Mississippian		Sandstone		3152	3180	28	
Mississippian		Sandy Shale		3180	3245	65	
Mississippian		Sandstone		3245	3370	125	
Mississippian		Sandy Shale		3370	3427	57	
Mississippian	Little Lime	Limestone		3427	3634	207	
Mississippian		Shale		3634	3709	75	
Mississippian	Big Lime	Limestone		3709	4268	559	
Mississippian	Weir	Siltstone		4268	4584	316	
Mississippian	Weir Shale	Shale		4584	4874	290	
Mississippian	Sunbury	Shale		4874	4956	82	
Mississippian	Berea	Sandstone		4956	5005	49	
Devonian	Cleveland	Shale		5005			
					5084 TD		



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	9297
Company:	EnerVest Operating, LLC
File Number:	DI-1304
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Gas	Date Well Completed:	4/13/2005
Driller's Total Depth:	6018.00	Log's Total Depth:	6023.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

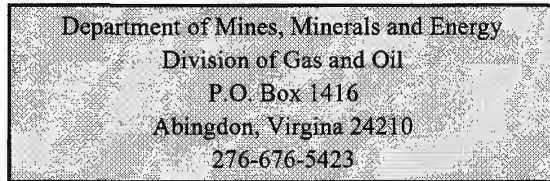
Description	FileName
STIM	5DI1304_V536397WPL_EQT_DICKENSON.pdf

3. Final Production

Description	FileName
FINAL	5DI1304_V536397WPL_EQT_DICKENSON.pdf

4. Comments

DI-1304
JAH



Permit: 6410 Well: V536397

Completion Report

Well Type: Gas Well

Date Well Completed 04/13/2005 Total Depth of Well: 6,018.00 LTD: 6,023.00

Attach the drilling report if not previously submitted. In addition, submit any changes in casing and tubing that were approved after the drilling report was submitted.

Stimulation Record

Zone 1

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Zone 2

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Zone 3

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Zone 4

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Final Production

After Stimulation

Final Production if Gas Zones
are commingled

<u>BOD</u>	<u>MCFD</u>	<u>Hours Tested</u>	<u>Rock Pressure</u>
797	0	0	

Permitee: EQUITABLE PRODUCTION COMPANY (Company)

By: Victoria Dugan (Signature)

Form DGO-GO-15
Rev 7/00

ENTERED



JAB
12/29/05

Well: V536397

Formation Record

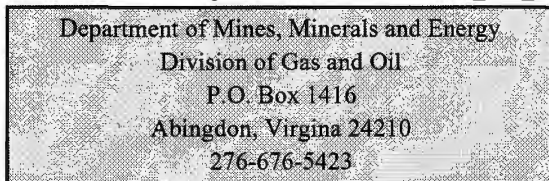
Date Well Completed: 04/13/2005

Total Depth of Well: 6,018.00

Permit: 6410

Stage1			Stage2			Stage3			Stage4			Stage5		
Date 04/09/2005			Date 06/25/2005			Date 06/26/2005			Date 06/26/2005			Date 06/28/2005		
FracType 85Q Foam			FracType 65Q Foam			FracType 75Q Foam			FracType Acid w/ N2			FracType 65Q Foam		
Zone Lower Huron			Zone Upper Shale			Zone Weir			Zone Big Lime			Zone Ravencliff		
# of Perfs 40			# of Perfs 30			# of Perfs 25			# of Perfs 20			# of Perfs 20		
From/To 5,866— 5,933			From/To 4,850— 5,103			From/To 4,397— 4,431			From/To 3,894— 3,913			From/To 2,212— 2,235		
BD Press 0			BD Press 3,036			BD Press 3,269			BD Press 4,181			BD Press 2,719		
ATP Psi 3,251			ATP Psi 2,992			ATP Psi 2,782			ATP Psi 3,701			ATP Psi 2,781		
Avg Rate 19			Avg Rate 42			Avg Rate 35			Avg Rate 27			Avg Rate 26		
Max Press Psi 3,654			Max Press Psi 3,077			Max Press Psi 2,988			Max Press Psi 4,181			Max Press Psi 2,860		
ISIP Psi 2,683			ISIP Psi 2,206			ISIP Psi 1,802			ISIP Psi 3,140			ISIP Psi 1,924		
10min SIP 2,586 5 min.			10min SIP 2,027 5 min.			10min SIP 1,655 5 min.			10min SIP 2,795 5 min.			10min SIP 1,570 5 min.		
Frac Gradient 0.60			Frac Gradient 0.64			Frac Gradient 0.60			Frac Gradient 0.92			Frac Gradient 1.09		
Sand Proppant 514.92			Sand Proppant 503.26			Sand Proppant 207.30			Sand Proppant 0.00			Sand Proppant 305.91		
Water-bbl 375			Water-bbl 310			Water-bbl 110			Water-bbl 0			Water-bbl 395		
SCF N2 1,604,788			SCF N2 823,370			SCF N2 272,200			SCF N2 233,793			SCF N2 370,500		
Acid-gal 500 gal 0% MSA			Acid-gal 500 gal 7.5%			Acid-gal 500 gal 15%HCL			Acid-gal 2,500 gal 15%HCL			Acid-gal 500 gal 15%HCL		

DI-1304
JAH



Permit: 6410 Well: V536397

Completion Report

Well Type: Gas Well

Date Well Completed 04/13/2005 Total Depth of Well: 6,018.00 LTD: 6,023.00

Attach the drilling report if not previously submitted. In addition, submit any changes in casing and tubing that were approved after the drilling report was submitted.

Stimulation Record

Zone 1

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Zone 2

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Zone 3

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Zone 4

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:
Formation Broke Down at: PSIG Average Injection Rate: BPM
ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG
Stimulated: Yes: X No: Date Stimulated:

Final Production

After Stimulation

Final Production if Gas Zones
are commingled

<u>BOD</u>	<u>MCED</u>	<u>Hours Tested</u>	<u>Rock Pressure</u>
797		0	0

Permitee: EQUITABLE PRODUCTION COMPANY (Company)

By: Victoria Dugan (Signature)

Form DGO-GO-15
Rev 7/00

ENTERED



JAB
12/29/05

Well: V536397

Formation Record

Date Well Completed: 04/13/2005

Total Depth of Well: 6,018.00

Permit: 6410

Stage1			Stage2			Stage3			Stage4			Stage5		
Date 04/09/2005			Date 06/25/2005			Date 06/26/2005			Date 06/26/2005			Date 06/28/2005		
FracType 85Q Foam			FracType 65Q Foam			FracType 75Q Foam			FracType Acid w/ N2			FracType 65Q Foam		
Zone Lower Huron			Zone Upper Shale			Zone Weir			Zone Big Lime			Zone Ravencliff		
# of Perfs 40			# of Perfs 30			# of Perfs 25			# of Perfs 20			# of Perfs 20		
From/To 5,866— 5,933			From/To 4,850— 5,103			From/To 4,397— 4,431			From/To 3,894— 3,913			From/To 2,212— 2,235		
BD Press 0			BD Press 3,036			BD Press 3,269			BD Press 4,181			BD Press 2,719		
ATP Psi 3,251			ATP Psi 2,992			ATP Psi 2,782			ATP Psi 3,701			ATP Psi 2,781		
Avg Rate 19			Avg Rate 42			Avg Rate 35			Avg Rate 27			Avg Rate 26		
Max Press Psi 3,654			Max Press Psi 3,077			Max Press Psi 2,988			Max Press Psi 4,181			Max Press Psi 2,860		
ISIP Psi 2,683			ISIP Psi 2,206			ISIP Psi 1,802			ISIP Psi 3,140			ISIP Psi 1,924		
10min SIP 2,586 5 min.			10min SIP 2,027 5 min.			10min SIP 1,655 5 min.			10min SIP 2,795 5 min.			10min SIP 1,570 5 min.		
Frac Gradient 0.60			Frac Gradient 0.64			Frac Gradient 0.60			Frac Gradient 0.92			Frac Gradient 1.09		
Sand Proppant 514.92			Sand Proppant 503.26			Sand Proppant 207.30			Sand Proppant 0.00			Sand Proppant 305.91		
Water-bbl 375			Water-bbl 310			Water-bbl 110			Water-bbl 0			Water-bbl 395		
SCF N2 1,604,788			SCF N2 823,370			SCF N2 272,200			SCF N2 233,793			SCF N2 370,500		
Acid-gal 500 gal 0% MSA			Acid-gal 500 gal 7.5%			Acid-gal 500 gal 15%HCL			Acid-gal 2,500 gal 15%HCL			Acid-gal 500 gal 15%HCL		



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	9367
Company:	EnerVest Operating, LLC
File Number:	DI-1304
Operations Name:	V-536397
Operation Type:	Gas
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	3/21/2005	Drilling Contractor:	GASCO
Date drilling completed:	3/29/2005	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	6018.00		
Log Total Depth (feet):	6023.00	Formation At Total Depth	LOWER HURON

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10416628.7200	Final Plat State Plane X:	10416628.0000
Permitted State Plane Y:	3568849.0700	Final Plat State Plane Y:	3568849.0000

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
PLAT	1DI1304_V536397WPL_EQT_DICKENSON.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
230	2	INCH
380	WET	
97	1.5	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
COAL	2DI1304_V536397WPL_EQT_DICKENSON.pdf

Gas and Oil Shows:

List of Attached Items:

Description	FileName
GAS	2DI1304_V536397WPL_EQT_DICKENSON.pdf

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/DEN/TEMP/IND/NEU

Did logs disclose vertical locations of a coal seam?

☒

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
SURVEY	3DI1304_V536397WPL_EQT_DICKENSON.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
CASING	3DI1304_V536397WPL_EQT_DICKENSON.pdf

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
LOG	4DI1304_V536397WPL_EQT_DICKENSON.pdf

9. Comments

MATERIAL INSERTED BY DGO [8/5/2016, jhh]

10. Signature

Permitee: EnerVest Operating, LLC Date: 8/5/2016

Signed By: VICTORIA DUGAN Title: ***

INTERNAL USE ONLY

Submit Date: 8/5/2016

Status: A

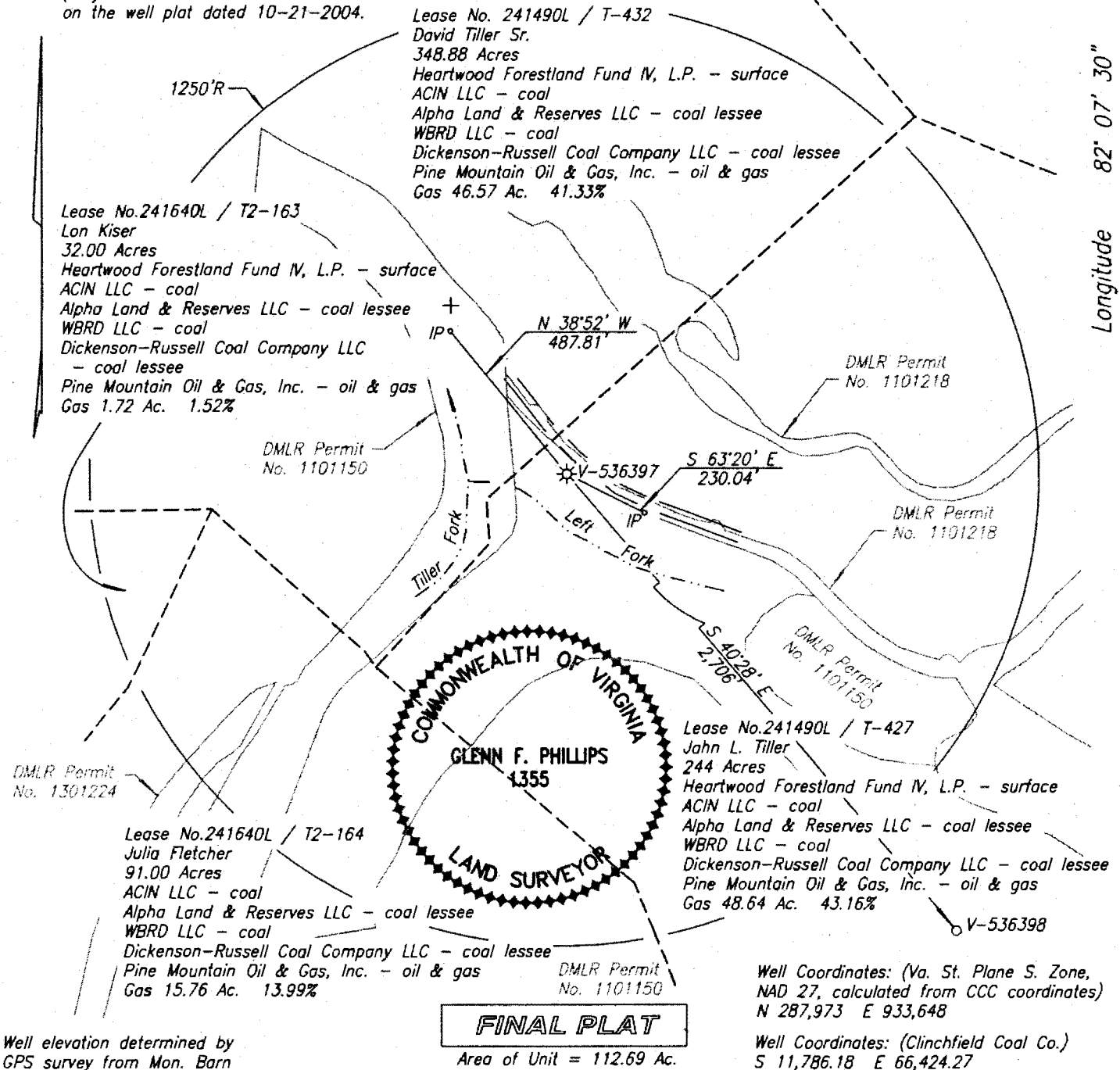
Date: 8/10/2016

Final PDF Date: 8/10/2016

Well Coordinates: (Geographic N27)
37.067579' -82.155697'

Latitude 37° 05' 00"

The undersigned hereby certifies
that the final location is within ten
(10') feet of the location shown
on the well plat dated 10-21-2004.



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER V-536397
TRACT NO. T-427 ELEVATION 1,593.74' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervington SCALE 1" = 400' DATE 3-23-2005

This Plat is a new plat ____; an updated plat ____; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

Glenn F. Phillips

~~Licensed Professional Engineer or~~ Licensed Land Surveyor

Department of Mines, Minerals and Energy
 Division of Gas and Oil
 P.O. Box 1416
 Abingdon, Virginia 24210
 276-676-5423

Drilling Report

Attach a final location Plat as required by 4 VAC 25-150-360.C

Drilling Data

Date Drilling Commenced: 03/21/2005 Drilling Contractor: Gasco
 Date Drilling Completed: 03/29/2005
 Date Well Completed: 04/13/2005 Rig Type: Rotary: X Cable Tool:
 DTD: 6,018.00
 LTD: 6,023.00

Geological Data

Type	From / GPM per Inch
Fresh water	1.5" stream @ 97' 2" stream @ 230
Fresh water	Went wet @ 380'

Coal Seams & Open Mines

Type	From
Coal	160'-61',200'-01',335'-36',385'-86',465'-66'
Coal	568'-69',635'-36',720'-21',755'-56',820'-21'
Coal	870'-70',1150'-51',1270'-71'
Coal	1388'-89',1420'-21',1520'-21'

Gas and Oil Shows

Gas Tests

Depth	Remarks
2,354	no show
3,109	no show
4,210	no show

Department of Mines, Minerals and Energy
 Division of Gas and Oil
 P.O. Box 1416
 Abingdon, Virginia 24210
 276-676-5423

Drilling Report

Attach a final location Plat as required by 4 VAC 25-150-360.C

Drilling Data

Date Drilling Commenced: 03/21/2005 Drilling Contractor: Gasco
 Date Drilling Completed: 03/29/2005
 Date Well Completed: 04/13/2005 Rig Type: Rotary: X Cable Tool:
 DTD: 6,018.00
 LTD: 6,023.00

Geological Data

Type	From / GPM per Inch
Fresh water	1.5" stream @ 97' 2" stream @ 230
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Coal	1388'-89',1420'-21',1520'-21'

Gas and Oil Shows

Gas Tests

Depth	Remarks
2,354	no show
3,109	no show
4,210	no show

Cuttings or samples are not available for examination by a member of the Virginia Division of Mineral Resources

Cuttings or samples have not been furnished to the Virginia Division of Mineral Resources

Electric Logs and Surveys

List logs run on wellbore: GR/Density/Temp/Induction/Neutron

Did Logs disclose vertical location of a coal seam? Yes: ☐ No: ☒

Survey Results

Depth	Direction/Distance/Degrees From True Vertical
197	1/4
380	1/4
569	1/4
757	1/4
945	1/4
1,134	1/4

Casing Data

Casing Outside Diameter	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
16	0- 20	17 1/2				
11 3/4	0- 270	15	177.50		03/22/2005	88
7	0- 1295	8 7/8	443.20		03/23/2005	309
4 1/2	0- 6002	6 3/8	591.80		03/29/2005	

Tubing Size

2 3/8

Footage

5,839.85

Cuttings or samples are not available for examination by a member of the Virginia Division of Mineral Resources
 Cuttings or samples have not been furnished to the Virginia Division of Mineral Resources

Electric Logs and Surveys

List logs run on wellbore: GR/Density/Temp/Induction/Neutron

Did Logs disclose vertical location of a coal seam? Yes: ☐ No: ☒

Survey Results

Depth	Direction/Distance/Degrees From True Vertical
197	1/4
380	1/4
569	1/4
757	1/4
945	1/4
1,134	1/4

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11 3/4	0- 270	15	177.50		03/22/2005	88
7	0- 1295	8 7/8	443.20		03/23/2005	309
4 1/2	0- 6002	6 3/8	591.80		03/29/2005	

Tubing Size

2 3/8

Footage

5,839.85

Drillers Log

Permit: 6410

Well: V536397

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Base LEE	0.00	1,268.00	0.00
RVCF	2,160.00	2,327.00	167.00
AVIS	2,327.00	2,402.00	75.00
MXTN	2,478.00	2,676.00	198.00
LLIM	3,370.00	3,437.00	67.00
BGLM	3,419.00	4,212.00	793.00
WEIR	4,212.00	4,510.00	298.00
WEIR Sh	4,510.00	4,792.00	282.00
SNBY	4,792.00	4,865.00	73.00
BEREA	4,865.00	4,873.00	8.00
CLEV	4,873.00	0.00	0.00
LHRN	5,851.00	0.00	0.00

Total Depth of Well: 6,018.00Permitee: EQUITABLE PRODUCTION COMPANY (Company)By: Victoria Dugan (Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	9265
Company:	EnerVest Operating, LLC
File Number:	DI-1281
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Gas	Date Well Completed:	6/7/2005
Driller's Total Depth:	6300.00	Log's Total Depth:	6312.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
STIM	5DI1281_V536398 WPL_EQT_DICKENSON.pdf

3. Final Production

Description	FileName
FINAL	5DI1281_V536398 WPL_EQT_DICKENSON.pdf

4. Comments

Notes:

MATERIAL INSERTED BY DGO [8/1/2016, jhh]

5. Signature

Permittee: EnerVest Operating, LLC Date: 8/1/2016 (Company)

By: VICTORIA DUGAN Title: *** (Signature)

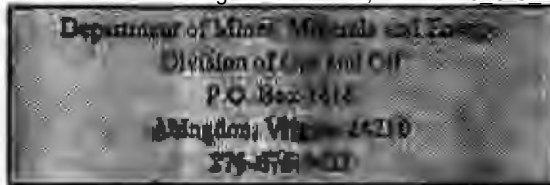
INTERNAL USE ONLY

Submit Date: 8/1/2016

Status: _____

Date: 8/10/2016

Final PDF Date: 8/10/2016



Permit: 6321

Well: VS36398

DI-1281
JAH**Completion Report**

Well Type: Gas Well

Date Well Completed 06/07/2005

Total Depth of Well: 6,300.00

LTD: 6,312.00

Attach the drilling report if not previously submitted. In addition, submit any changes in casing and tubing that were approved after the drilling report was submitted.

Stimulation Record**Zone 1**

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Zone 2

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Zone 3

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Zone 4

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Final Production**After Stimulation**

Final Production if Gas Zones
are commingled

BOD**MCED****Hours Tested****Rock Pressure**

677

0

240

Permitee: EQUITABLE PRODUCTION COMPANY

(Company)

By: Victoria Dugan

(Signature)

Form DGO-GO-15
Rev 7/00

JAH
12/29/05

ENTERED

Well: V536398

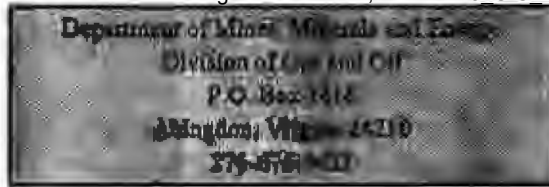
Formation Record

Date Well Completed: 06/07/2005

Total Depth of Well: 6,300.00

Permit: 6321

Stage1			Stage2			Stage3		
Date 05/28/2005			Date 05/28/2005			Date 05/28/2005		
FracType 75Q Foam			FracType 75Q Foam			FracType 65Q Foam		
Zone Lower Huron			Zone Weir			Zone Maxton		
# of Perfs 40			# of Perfs 30			# of Perfs 36		
From/To 6,065— 6,177			From/To 4,496— 4,676			From/To 3,326— 3,334		
BD Press 1,820			BD Press 2,621			BD Press 1,112		
ATP Psi 3,376			ATP Psi 3,470			ATP Psi 2,732		
Avg Rate 33			Avg Rate 43			Avg Rate 30		
Max Press Psi 3,640			Max Press Psi 3,605			Max Press Psi 2,910		
ISIP Psi 2,732			ISIP Psi 0			ISIP Psi 1,849		
10min SIP 2,522 5 min.			10min SIP 0 5 min.			10min SIP 1,700 5 min.		
Frac Gradient 0.66			Frac Gradient 0.70			Frac Gradient 0.78		
Sand Proppant 502.20			Sand Proppant 409.53			Sand Proppant 205.74		
Water-bbl 332			Water-bbl 238			Water-bbl 180		
SCF N2 1,208,031			SCF N2 582,820			SCF N2 349,264		
Acid-gal 500 gal 7.5%			Acid-gal 500 gal 15%HCL			Acid-gal 500 gal 15%HCL		



Permit: 6321

Well: VS36398

DI-1281
JAH**Completion Report**

Well Type: Gas Well

Date Well Completed 06/07/2005

Total Depth of Well: 6,300.00

LTD: 6,312.00

Attach the drilling report if not previously submitted. In addition, submit any changes in casing and tubing that were approved after the drilling report was submitted.

Stimulation Record**Zone 1**

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Zone 2

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Zone 3

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Zone 4

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG 5 Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes: X No: Date Stimulated:

Final Production**After Stimulation**

Final Production if Gas Zones
are commingled

BOD**MCED****Hours Tested****Rock Pressure**

677

0

240

Permitee: EQUITABLE PRODUCTION COMPANY (Company)By: Victoria Dugan (Signature)

Form DGO-GO-15
Rev 7/00

JAH
12/29/05

ENTERED

Well: V536398

Formation Record

Date Well Completed: 06/07/2005

Total Depth of Well: 6,300.00

Permit: 6321

Stage1			Stage2			Stage3		
Date 05/28/2005			Date 05/28/2005			Date 05/28/2005		
FracType 75Q Foam			FracType 75Q Foam			FracType 65Q Foam		
Zone Lower Huron			Zone Weir			Zone Maxton		
# of Perfs 40			# of Perfs 30			# of Perfs 36		
From/To 6,065— 6,177			From/To 4,496— 4,676			From/To 3,326— 3,334		
BD Press 1,820			BD Press 2,621			BD Press 1,112		
ATP Psi 3,376			ATP Psi 3,470			ATP Psi 2,732		
Avg Rate 33			Avg Rate 43			Avg Rate 30		
Max Press Psi 3,640			Max Press Psi 3,605			Max Press Psi 2,910		
ISIP Psi 2,732			ISIP Psi 0			ISIP Psi 1,849		
10min SIP 2,522 5 min.			10min SIP 0 5 min.			10min SIP 1,700 5 min.		
Frac Gradient 0.66			Frac Gradient 0.70			Frac Gradient 0.78		
Sand Proppant 502.20			Sand Proppant 409.53			Sand Proppant 205.74		
Water-bbl 332			Water-bbl 238			Water-bbl 180		
SCF N2 1,208,031			SCF N2 582,820			SCF N2 349,264		
Acid-gal 500 gal 7.5%			Acid-gal 500 gal 15%HCL			Acid-gal 500 gal 15%HCL		



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	9335
Company:	EnerVest Operating, LLC
File Number:	DI-1281
Operations Name:	V-536398
Operation Type:	Gas
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	5/13/2005	Drilling Contractor:	GASCO
Date drilling completed:	5/18/2005	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	6300.00		
Log Total Depth (feet):	6312.00	Formation At Total Depth	Olentangy

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10418309.7800	Final Plat State Plane X:	10418309.0000
Permitted State Plane Y:	3566725.0300	Final Plat State Plane Y:	3566725.0000

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
PLAT	1DI1281_V536398 WPL_EQT_DICKENSON.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
120	WET	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
COAL	2DI1281_V536398 WPL_EQT_DICKENSON.pdf

Gas and Oil Shows:

List of Attached Items:

Description	FileName
GAS	2DI1281_V536398 WPL_EQT_DICKENSON.pdf

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/DEN/TEMP/IND/NEU

Did logs disclose vertical locations of a coal seam?

☒

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
SURVEY	3DI1281_V536398 WPL_EQT_DICKENSON.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
CASING	3DI1281_V536398 WPL_EQT_DICKENSON.pdf

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
LOG	4DI1281_V536398 WPL_EQT_DICKENSON.pdf

9. Comments

MATERIAL INSERTED BY DGO [8/1/2016, jhh]

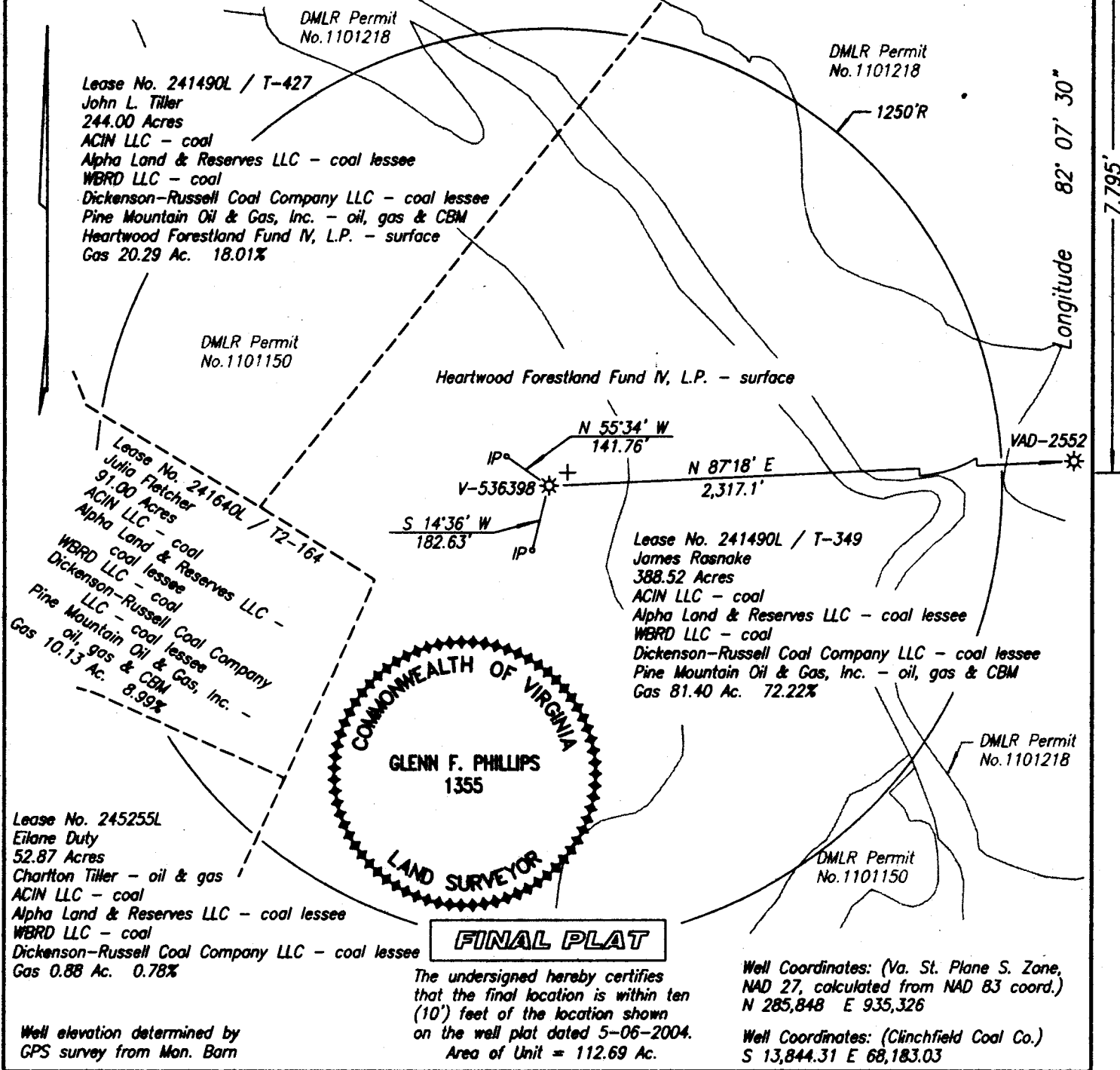
10. Signature

Permitee: EnerVest Operating, LLC Date: 8/1/2016
Signed By: VICTORIA DUGAN Title: ***

_____		_____

Well Coordinates: (Geographic N27)
37.061927° -82.149666°

Latitude 37° 05' 00"



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER V-536398
TRACT NO. T-349 ELEVATION 1,928.5' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 5-24-2005

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

Glenn F. Phillips

Licensed Professional Engineer or Licensed Land Surveyor

Department of Mines, Minerals and Energy
 Division of Gas and Oil
 P.O. Box 1416
 Abingdon, Virginia 24210
 276-676-5423

Drilling Report

Attach a final location Plat as required by 4 VAC 25-150-360.C

Drilling Data

Date Drilling Commenced: 05/13/2005 Drilling Contractor: Gasco
 Date Drilling Completed: 05/18/2005
 Date Well Completed: 06/07/2005 Rig Type: Rotary: X Cable Tool:
 DTD: 6,300.00
 LTD: 6,312.00

Geological Data

Type From / GPM per Inch
 Fresh water Went wet @ 120'

Coal Seams & Open Mines

Type	From
Coal	130'-31',210'-11',255'-56',408'-09',439'-40'
Coal	570'-71',610'-11',620'-621',703'-04',712'-13'
Coal	1390'-91',1415'-16'

Gas and Oil Shows

Gas Tests

Depth	Remarks
2,456	no show
3,300	no show
4,403	no show
5,052	no show

Department of Mines, Minerals and Energy
 Division of Gas and Oil
 P.O. Box 1416
 Abingdon, Virginia 24210
 276-676-5423

Drilling Report

Attach a final location Plat as required by 4 VAC 25-150-360.C

Drilling Data

Date Drilling Commenced: 05/13/2005 Drilling Contractor: Gasco
 Date Drilling Completed: 05/18/2005
 Date Well Completed: 06/07/2005 Rig Type: Rotary: X Cable Tool:
 DTD: 6,300.00
 LTD: 6,312.00

Geological Data

Type From / GPM per Inch
 Fresh water Went wet @ 120'

Coal Seams & Open Mines

Type	From
Coal	130'-31',210'-11',255'-56',408'-09',439'-40'
Coal	570'-71',610'-11',620'-621',703'-04',712'-13'
Coal	1390'-91',1415'-16'

Gas and Oil Shows

Gas Tests

Depth	Remarks
2,456	no show
3,300	no show
4,403	no show
5,052	no show

Cuttings or samples are **not** available for examination by a member of the Virginia Division of Mineral Resources
 Cuttings or samples **have not** been furnished to the Virginia Division of Mineral Resources

Electric Logs and Surveys

List logs run on wellbore: GR/Density/Temp/Induction/Neutron

Did Logs disclose vertical location of a coal seam? Yes: ☐ No: ☒

Survey Results

Depth	Direction/Distance/Degrees From True Vertical
198	1/4
387	1/4
575	1/4
763	1/4
952	1/4
1,141	1/4
1,330	1/4
1,519	1/4

Casing Data

Casing Outside Diameter	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
20	0- 43	21 1/2				
16	0- 58	17 1/2				
11 3/4	0- 358	15	241.40	Y	05/14/2005	88
7	0- 1601	8 7/8	420.60	Y	05/16/2005	398
4 1/2	0- 6282	6 3/8	589.60	Y	05/18/2005	

Tubing Size	Footage
2 3/8	6,127.40

Cuttings or samples are **not** available for examination by a member of the Virginia Division of Mineral Resources
 Cuttings or samples **have not** been furnished to the Virginia Division of Mineral Resources

Electric Logs and Surveys

List logs run on wellbore: GR/Density/Temp/Induction/Neutron

Did Logs disclose vertical location of a coal seam? Yes: ☐ No: ☒

Survey Results

Depth	Direction/Distance/Degrees From True Vertical
198	1/4
387	1/4
575	1/4
763	1/4
952	1/4
1,141	1/4
1,330	1/4
1,519	1/4

Casing Data

Casing Outside Diameter	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
20	0- 43	21 1/2				
16	0- 58	17 1/2				
11 3/4	0- 358	15	241.40	Y	05/14/2005	88
7	0- 1601	8 7/8	420.60	Y	05/16/2005	398
4 1/2	0- 6282	6 3/8	589.60	Y	05/18/2005	

Tubing Size	Footage
2 3/8	6,127.40

Drillers Log**Permit:** 6321**Well:** V536398

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Base LEE	0.00	1,744.00	0.00
RVCF	2,372.00	2,528.00	156.00
AVIS	2,528.00	2,610.00	82.00
MXTN	3,172.00	3,337.00	165.00
LLIM	3,582.00	3,634.00	52.00
BGLM	3,634.00	4,437.00	803.00
WEIR	4,437.00	4,730.00	293.00
WEIR Sh	4,730.00	5,030.00	300.00
SNBY	5,030.00	5,070.00	40.00
BEREA	5,070.00	5,095.00	25.00
CLEV	5,095.00	0.00	0.00
LHRN	5,995.00	6,239.00	244.00
OLNG	6,239.00	0.00	0.00

Total Depth of Well: 6,300.00Permitee: EQUITABLE PRODUCTION COMPANY (Company)By: Victoria Dugan (Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number: 1879
Company: Equitable Production Company
File Number: DI-2131
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	<u>Coal Bed</u>	Date Well Completed:	<u>6/12/2009</u>
Driller's Total Depth:	<u>2531.00</u>	Log's Total Depth:	<u>2529.00</u>

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 536444	Stage1.doc

3. Final Production

Description	FileName
Final Production 536444	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 8/25/2009 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 8/25/2009

Status: _____

Date: 8/28/2009

Final PDF Date: 8/28/2009

Stage1

Date **06/06/2009**

FracType 65Q Foam
Zone Poca #9,#5,#3

of Perfs 30

From/To 2,358 1,882

BD Press 1,110

ATP Psi 2,963

Avg Rate 47

Max Press Psi 3,144

ISIP Psi 1,013

10min SIP 951 5 min.
0.69

Frac Gradient

Sand Proppant 100.00

Water-bbl 279
SCF N2 396,000

Acid-gal gal 937
 15%HCL

Date **06/06/2009**

FracType 65Q Foam
Zone WrCrk/Bckly/X Sm

of Perfs 42

From/To 1,819 1,657

BD Press 1,715

ATP Psi 2,539

Avg Rate 48

Max Press Psi	2,781	
ISIP Psi	1,647	
10min SIP	1,485	5 min. 1.15
Frac Gradient		
Sand Proppant		175.00
Water-bbl	437	
SCF N2		601,000
Acid-gal	gal 7.5%HCL	350



Date	06/06/2009	
FracType	65Q	Foam
Zone	M Hrspn/C Sm Rdr/C Sm	
# of Perfs	24	
From/To	1,611	1,512
BD Press	1,586	
ATP Psi	3,242	
Avg Rate	41	
Max Press Psi	3,400	
ISIP Psi	2,137	
10min SIP	1,495	5 min. 1.56
Frac Gradient		
Sand Proppant		75.00
Water-bbl	253	
SCF N2		412,000

Acid-gal gal 350
7.5%HCL



Date 06/06/2009

FracType 65Q Foam
Zone M&L Sbrd/Unnmd A&B

of Perfs 36

From/To 1,453 1,309

BD Press 1,646

ATP Psi 2,554

Avg Rate 50

Max Press Psi 2,618

ISIP Psi 1,193

10min SIP 1,119 5 min.
1.06

Frac Gradient

Sand Proppant 113.00

Water-bbl 305
SCF N2 402,000

Acid-gal gal 350
7.5%HCL



Date 06/06/2009

FracType 65Q Foam
Zone U Sbrd A/U Sbrd/GrsyCrk

of Perfs 38

From/To 1,245 1,029

BD Press	1,632	
ATP Psi	2,715	
Avg Rate	49	
Max Press Psi	3,008	
ISIP Psi	1,397	
10min SIP	800	5 min. 1.51
Frac Gradient		
Sand Proppant		128.00
Water-bbl	329	
SCF N2		470,000
Acid-gal	gal 7.5%HCL	500

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

15

0

175



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	1939
Company:	Equitable Production Company
File Number:	DI-2131
Operations Name:	VC-536444
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	<u>3/26/2009</u>	Drilling Contractor:	<u>Crossrock Drilling</u>
Date drilling completed:	<u>3/29/2009</u>	Rig Type:	<u>R Rotary</u> <u>F Cable</u>
Driller's Total Depth (feet):	<u>2531.00</u>		
Log Total Depth (feet):	<u>2529.00</u>	Coal Seam At Total Depth	<u>POCAHONTAS #3</u>

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	<u>10408550.4700</u>	Final Plat State Plane X:	<u>10408550.6400</u>
Permitted State Plane Y:	<u>3573800.3200</u>	Final Plat State Plane Y:	<u>3573798.5300</u>

Plat Previously Submitted Or... F

List of Attached Items:

Description	FileName
Final Plat 536444	VC-536444 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
200	1	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seams 536444	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 536444	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? R

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 536444	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 536444	Casing Data.doc
Tubing 536444	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Did not encounter Open Mine @ 844' while drilling. Lost Circ @ 833' while cementing 7" csg. (broken formation) Did balance job.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers Log 536444	Drillers Log.doc

9. Comments

10. Signature

Permitee: Equitable Production Company Date: 8/25/2009

Signed By: Michael D. Butcher Title: Director of Drilling

INTERNAL USE ONLY

Submit Date: 8/25/2009

Status: A

Date: 8/28/2009

Final PDF Date: 9/29/2009

3,000

1,110'

Well Coordinates: (Geographic N27)
37.080301° -82.184041°

Latitude 37° 05' 00"

Longitude 82° 10' 00"

Lease No. 906889 / T-409

J.N.R. Sutherland

430.65 Acres

ACIN LLC - coal

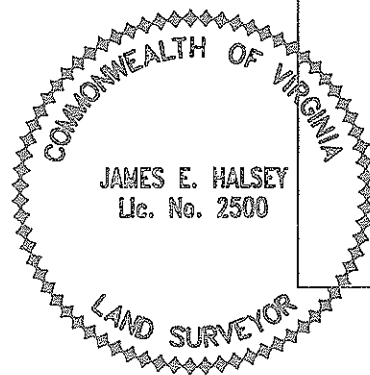
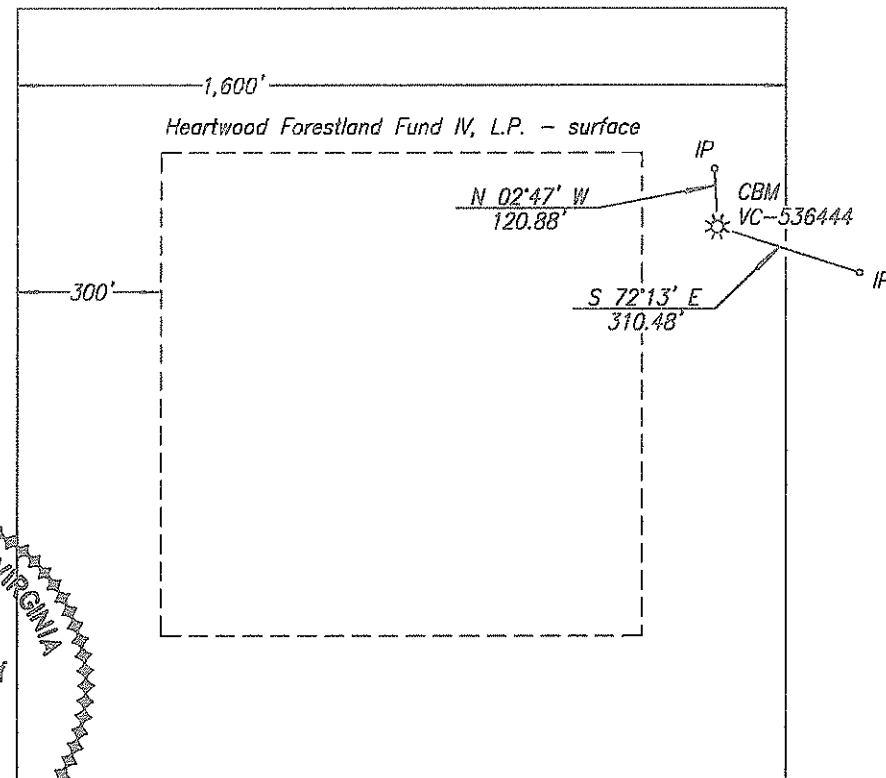
Alpha Land & Reserves LLC - coal lessee

WBRD LLC - coal

Dickenson-Russell Coal Company LLC - coal lessee

Range Resources-Pine Mountain, Inc. - oil, gas & CBM

Gas 58.77 Ac. 100.00%



Well Coordinates: (VA St. Plane S. Zone, NAD 83)
N 3,573,798.53 E 10,408,550.64

Well Coordinates: (VA St. Plane NAD27, S. Zone,
Calculated from NAD 83 coordinates)
N 292,922.73 E 925,564.77

Well Coordinates: (Clinchfield Coal Co., Calculated
from NAD 83 coordinates)
S 7,152.94 E 58,157.28

The undersigned hereby certifies
that the final location is within ten
(10') feet of the location shown
on the well plat dated 11-26-2008.

FINAL PLAT

Well elevation determined by GPS
survey from HARN Monument P-424

Area of Unit = 58.77 Ac.

WELL LOCATION PLAT (Nora Grid BF-73)

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-536444TRACT NO. Tr. No. 906889/T-409 ELEVATION 2,307.79' QUADRANGLE DutyCOUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 3-27-2009This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to
24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor



Type

Coal

Coal

Coal

Coal

From

86'-87', 128'-29', 157'-58', 180'-81', 300'-01', 354'-55', 428'-29', 485'-86',
625'-26', 658'-59', 842'-43', 1018'-19', 1061'-62', 1115'-16', 1232'-33', 1300'-
01',
1360'-61', 1415'-16', 1418.5'-19.2', 1451.5'-52.3', 1512.5'-13.4', 1596'-96.8',
1609'-09.8', 1657.5'-58.4',
1724'-28.1', 1770.5'-71.1', 1816.5'-18.1', 1882.5'-83.9', 2178.5'-79', 2202'-
02.8', 2355.5'-57.1'



Gas Tests

<u>Depth</u>	<u>Result</u>
1 / 4	No Show
354	No Show
534	No Show
714	No Show
904	No Show
1,084	No Show
1,264	No Show
1,444	No Show
1,624	No Show
1,804	No Show
1,984	No Show
2,164	No Show
2,344	No Show
2,524	No Show
2,488	No Show
2,531	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
174	1/8
354	1/4
534	1/4
714	1/4
904	1/8
1,084	1/4
1,264	1/8
1,444	1/8
1,624	1/4
1,804	1/4
1,984	1/8
2,164	1/8
2,344	1/4
2,524	1/4

Casing Outside Diameter	<div></div>	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
13 3/8		42	17 1/2				
7		935	8 7/8	237.18	y	03/27/2009	780,802
4 1/2		2488	6 3/8	462.50	y	03/29/2009	

Tubing Size
2 3/8

5/8"

Footage
2,406.65
2391.9

Well Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Fill	0.00	25.00	25.00
Sand and Shale	25.00	86.00	61.00
Coal	86.00	87.00	1.00
Sand and Shale	87.00	128.00	41.00
Coal	128.00	129.00	1.00
Sand and Shale	129.00	157.00	28.00
Coal	157.00	158.00	1.00
Sand and Shale	158.00	180.00	22.00
Coal	180.00	181.00	1.00
Sand	181.00	300.00	119.00
Coal	300.00	301.00	1.00
Sand and Shale	301.00	354.00	53.00
Coal	354.00	355.00	1.00
Sand and Shale	355.00	428.00	73.00
Coal	428.00	429.00	1.00
Sand and Shale	429.00	485.00	56.00
Coal	485.00	486.00	1.00
Sand and Shale	486.00	583.00	97.00
Sand	583.00	625.00	42.00
Coal	625.00	626.00	1.00
Sand	626.00	658.00	32.00
Coal	658.00	659.00	1.00
Sand	659.00	842.00	183.00
Broken Formation	842.00	843.00	1.00
Sand	843.00	925.00	82.00
Sand and Shale	925.00	1,018.00	93.00
Coal	1,018.00	1,019.00	1.00
Sand	1,019.00	1,061.00	42.00
Coal	1,061.00	1,062.00	1.00
Sand	1,062.00	1,115.00	53.00
Coal	1,115.00	1,116.00	1.00
Sand	1,116.00	1,185.00	69.00
Sand and Shale	1,185.00	1,232.00	47.00
Coal	1,232.00	1,233.00	1.00
Sand and Shale	1,233.00	1,300.00	67.00
Coal	1,300.00	1,301.00	1.00
Sand	1,301.00	1,360.00	59.00
Coal	1,360.00	1,361.00	1.00
Sand and Shale	1,361.00	1,415.00	54.00
Coal	1,415.00	1,416.00	1.00
Sand and Shale	1,416.00	1,418.50	2.50
Unnamed A	1,418.50	1,419.20	0.70
sand & shale	1,419.20	1,451.50	32.30
Unnamed B	1,451.50	1,452.30	0.80
sand & shale	1,452.30	1,512.50	60.20

Middle Horsepen	1,512.50	1,513.40	0.90
sand & shale	1,513.40	1,596.00	82.60
C Seam Rider	1,596.00	1,596.80	0.80
sand & shale	1,596.80	1,609.00	12.20
C Seam	1,609.00	1,609.80	0.80
sand & shale	1,609.80	1,657.50	47.70
War Creek	1,657.50	1,658.40	0.90
sand & shale	1,658.40	1,724.00	65.60
Beckley	1,724.00	1,728.10	4.10
sand & shale	1,728.10	1,770.50	42.40
Lower Horsepen	1,770.50	1,771.10	0.60
sand & shale	1,771.10	1,816.50	45.40
X Seam	1,816.50	1,818.10	1.60
sand & shale	1,818.10	1,882.50	64.40
Pocahontas #9	1,882.50	1,883.90	1.40
sand & shale	1,883.90	2,178.50	294.60
Pocahontas #6	2,178.50	2,179.00	0.50
sand & shale	2,179.00	2,202.00	23.00
Pocahontas #5	2,202.00	2,202.80	0.80
sand & shale	2,202.80	2,355.50	152.70
Pocahontas #3	2,355.50	2,357.10	1.60
sand & shale	2,357.10	2,531.00	173.90



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2022
Company:	EQT Production Company
File Number:	DI-2179
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	7/23/2009
Driller's Total Depth:	2358.00	Log's Total Depth:	2333.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 536588	Stage1.doc

3. Final Production

Description	FileName
Final Production 536588	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: EQT Production Company Date: 10/6/2009 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 10/6/2009

Status: _____

Date: 12/22/2009

Final PDF Date: 12/23/2009

Stage1

Date **07/09/2009**

FracType 65Q Foam
Zone Poca #3/Poca #5/Poca #6/P.

of Perfs 40

From/To 2,257 2,047

BD Press 3,629

ATP Psi 2,832

Avg Rate 47

Max Press Psi 3,300

ISIP Psi 1,905

10min SIP 1,722 5 min.
 1.08

Frac Gradient

Sand Proppant
 157.38

Water-bbl 467
SCF N2 751,420

Acid-gal gal 850
 7.5%HCL

Date **07/09/2009**

FracType 65Q Foam
Zone Poca #8/#9/X Sm

of Perfs 28

From/To 1,859 1,711

BD Press 2,160

ATP Psi 3,103

Avg Rate 44

Max Press Psi	3,658	
ISIP Psi	1,765	
10min SIP	1,582	5 min. 1.18
Frac Gradient		
Sand Proppant		109.09
Water-bbl	347	
SCF N2		563,981
Acid-gal	gal 7.5%HCL	350



Date 07/09/2009

FracType	65Q	Foam
Zone	Beckley	

of Perfs 18

From/To	1,614	1,610
---------	-------	-------

BD Press	2,588
----------	-------

ATP Psi	2,975
Avg Rate	39

Max Press Psi	3,791
---------------	-------

ISIP Psi	1,910
----------	-------

10min SIP	1,523	5 min. 1.34
-----------	-------	----------------

Frac Gradient

Sand Proppant		105.48
---------------	--	--------

Water-bbl	338	
SCF N2		453,091

Acid-gal gal 350
7.5%HCL

Stage4

Date 07/09/2009

FracType 65Q Foam
Zone WrCrk/C Sm Rdr/M&U
Hrspn/.

of Perfs 40

From/To 1,551 1,241

BD Press 2,057

ATP Psi 0

Avg Rate 42

Max Press Psi 3,611

ISIP Psi 1,748

10min SIP 1,339 5 min.
1.56

Frac Gradient

Sand Proppant 185.12

Water-bbl 517
SCF N2 764,934

Acid-gal gal 350
7.5%HCL

Date 07/09/2009

FracType 65Q Foam
Zone M Sbrd/GrSyCrk/U Sbrd

of Perfs 34

From/To 1,194 961

BD Press	2,429	
ATP Psi	0	
Avg Rate	0	
Max Press Psi	3,666	
ISIP Psi	1,544	
10min SIP	1,221	5 min. 1.76
Frac Gradient		
Sand Proppant		161.77
Water-bbl	479	
SCF N2		597,159
Acid-gal	gal 7.5%HCL	350

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

7

0

260



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2078
Company:	EQT Production Company
File Number:	DI-2179
Operations Name:	VC-536588
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	6/21/2009	Drilling Contractor:	Crossrock Drilling
Date drilling completed:	6/23/2009	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2358.00		
Log Total Depth (feet):	2333.00	Coal Seam At Total Depth	POCAHONTAS #3

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10407953.6600	Final Plat State Plane X:	10407953.2100
Permitted State Plane Y:	3572658.2800	Final Plat State Plane Y:	3572658.0400

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
Final Plat 536588	VC-536588 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seams 536588	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 536588	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? R

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 536588	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 536588	Casing Data.doc
Tubing 536588	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Did not circ. Broken formation @ 713'. Did not hit open mine @ 729'. TD'd the hole 41' short of est.TD of 2399' because of broken hammer & bit.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers Log 536588	Drillers Log.doc

9. Comments

10. Signature

Permitee: EQT Production Company Date: 10/6/2009

Signed By: Michael D. Butcher Title: Director of Drilling

INTERNAL USE ONLY

Submit Date: 10/6/2009

Status: A

Date: 12/22/2009

Final PDF Date: 12/23/2009

LATITUDE 37°05'00"

FINAL PLAT

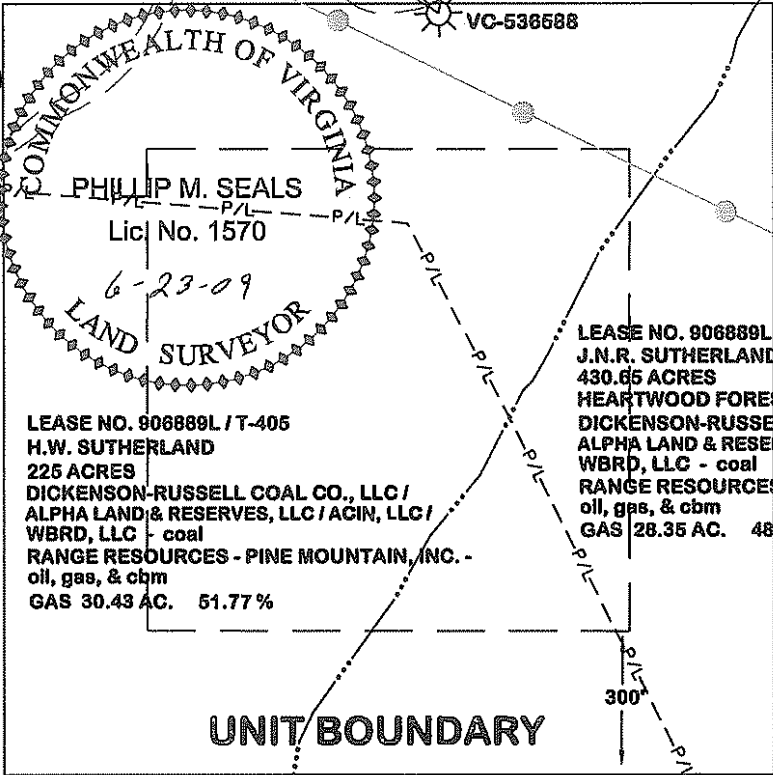
The undersigned hereby certifies that the final location is within ten (10') feet of the location shown on the well plat dated 1-15-09.

LONGITUDE 82°10'00"

STATE PLANE
NAD 83 COORDINATES OF
WELL VC-536588
N 3,572,658.04
E 10,407,953.21

LAT. & LONG.
(NAD 27 DECIMAL DEGREES)
OF WELL VC-536588
37.077104
82.185933

CCC
COORDINATES OF
WELL VC-536588
S 8,317.24
E 57,805.87



LEASE NO. 906889L / T-405
H.W. SUTHERLAND
225 ACRES
DICKENSON-RUSSELL COAL CO., LLC /
ALPHA LAND & RESERVES, LLC / ACIN, LLC /
WBRD, LLC - coal
RANGE RESOURCES - PINE MOUNTAIN, INC. -
oil, gas, & cbm
GAS 30.43 AC. 51.77 %

LEASE NO. 906889L / T-409
J.N.R. SUTHERLAND
430.65 ACRES
HEARTWOOD FORESTLAND FUND IV, L.P. - surface
DICKENSON-RUSSELL COAL CO., LLC /
ALPHA LAND & RESERVES, LLC / ACIN, LLC /
WBRD, LLC - coal
RANGE RESOURCES - PINE MOUNTAIN, INC. -
oil, gas, & cbm
GAS 28.35 AC. 48.23 %

UNIT BOUNDARY

NOTE:

ELEVATIONS WERE DETERMINED BY GPS & TRIGONOMETRIC
METHODS BASED ON CORS STA LS 01.
THE BOUNDARY LINES SHOWN HEREON ARE BASED ON DEEDS, PLATS, AND MAPS
OF RECORD OR SURVEYS BY OTHERS, AND DO NOT DEPICT A CURRENT BOUNDARY SURVEY.
PROPERTY INFORMATION PROVIDED BY EQUITABLE PRODUCTION COMPANY.

**TOTAL UNIT AREA
= 58.78 ACRES**

WELL LOCATION PLAT

COMPANY EQUITABLE PRODUCTION CO. WELL NAME OR NUMBER VC-536588
TRACT NO. T-409 QUADRANGLE DUTY
DISTRICT Ervinton
WELL COORDINATES (VIRGINIA STATE PLANE 27) N 291,781.00 E 924,967.75
ELEVATION 2204.43 METHOD USED TO DETERMINE ELEVATION: GPS & TRIG.
COUNTY Dickenson SCALE: 1" = 400' DATE 06-23-09
THIS PLAT IS A NEW PLAT ; AN UPDATED PLAT ; OR A FINAL LOCATION PLAT X

+ DENOTES THE LOCATION OF A WELL ON UNITED STATES TOPOGRAPHIC MAPS, SCALE 1 TO 24,000,
LATITUDE AND LONGITUDE LINES BEING REPRESENTED BY BORDER LINES AS SHOWN.

Phillip M. Seals

LICENSED LAND SURVEYOR

(AFFIX SEAL)



Type

Coal

Coal

Coal

Coal

From

58'-59',76'-77',88'-89',210'-11',310'-11',354'-55',398'-99',443'-44',500'-01'

534'-35',577'-78',654'-55',729'-30',910'-11',915'-16.5',961'-62.5',1128'-30.08',1192'-93.58'

1240.5'-42.42',1296.5'-96.83',1311'-11.25,1335'-36',1373'-74.17',1489'-89.75',1549'-

50.17',1610'-13.5'

1653.5'-53.83',1711'-12.58',1801'-02.25',1857.5'-58.17',2046.5'-48.08',2078'-78.58',2102'-

03.33',2255'-56.5'



Gas Tests

<u>Depth</u>	<u>Result</u>
182	No Show
362	No Show
542	No Show
722	No Show
902	No Show
1,082	No Show
1,262	No Show
1,442	No Show
1,622	No Show
1,802	No Show
1,982	No Show
2,162	No Show
2,342	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
182	1/8
362	1/8
542	1/8
722	1/4
902	1/8
1,082	1/4
1,262	1/8
1,442	1/8
1,622	1/8
1,802	1/4
1,982	1/4
2,162	1/4
2,342	1/8

Casing Outside Diameter	Casing Data		Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
13 3/8			31	17 1/2				
7			811	8 7/8	286.74	y	06/21/2009	641, 683
4 1/2			2320	6 3/8	432.50	y	06/23/2009	

Tubing Size
2 3/8
5/8"

Footage
2,317.40
2375

<u>Wellbore</u>			
<u>Formation Name</u>			
<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Fill	0.00	4.00	4.00
Sand	4.00	40.00	36.00
Sand and Shale	40.00	58.00	18.00
Coal	58.00	59.00	1.00
Sand and Shale	59.00	76.00	17.00
Coal	76.00	77.00	1.00
Sand and Shale	77.00	88.00	11.00
Coal	88.00	89.00	1.00
Sand and Shale	89.00	110.00	21.00
Sand	110.00	210.00	100.00
Coal	210.00	211.00	1.00
Sand	211.00	310.00	99.00
Coal	310.00	311.00	1.00
Sand and Shale	311.00	354.00	43.00
Coal	354.00	355.00	1.00
Sand	355.00	398.00	43.00
Coal	398.00	399.00	1.00
Sand	399.00	443.00	44.00
Coal	443.00	444.00	1.00
Sand and Shale	444.00	500.00	56.00
Coal	500.00	501.00	1.00
Sand and Shale	501.00	534.00	33.00
Coal	534.00	535.00	1.00
Sand and Shale	535.00	577.00	42.00
Coal	577.00	578.00	1.00
Sand and Shale	578.00	654.00	76.00
Coal	654.00	655.00	1.00
Sand and Shale	655.00	729.00	74.00
Coal	729.00	730.00	1.00
Sand and Shale	730.00	910.00	180.00
Coal	910.00	911.00	1.00
Sand and Shale	911.00	915.00	4.00
Upper Seaboard A	915.00	916.50	1.50
sand & shale	916.50	961.00	44.50
Upper Seaboard	961.00	962.50	1.50
sand & shale	962.50	1,128.00	165.50
Greasy Creek	1,128.00	1,130.08	2.08
sand & shale	1,130.08	1,192.00	61.92
Middle Seaboard	1,192.00	1,193.58	1.58
sand & shale	1,193.58	1,240.50	46.92
Lower Seaboard	1,240.50	1,242.42	1.92
sand & shale	1,242.42	1,296.50	54.08
Unnamed A	1,296.50	1,296.83	0.33
sand & shale	1,296.83	1,311.00	14.17
Unnamed B	1,311.00	1,311.25	0.25
sand & shale	1,311.25	1,335.00	23.75

Upper Horsepen	1,335.00	1,336.00	1.00
sand & shale	1,336.00	1,373.00	37.00
Middle Horsepen	1,373.00	1,374.17	1.17
sand & shale	1,374.17	1,489.00	114.83
C Seam Rider	1,489.00	1,489.75	0.75
sand & shale	1,489.75	1,549.00	59.25
War Creek	1,549.00	1,550.17	1.17
sand & shale	1,550.17	1,610.00	59.83
Beckley	1,610.00	1,613.50	3.50
sand & shale	1,613.50	1,653.50	40.00
Lower Horsepen	1,653.50	1,653.83	0.33
sand & shale	1,653.83	1,711.00	57.17
X Seam	1,711.00	1,712.58	1.58
sand & shale	1,712.58	1,801.00	88.42
Pocahontas #9	1,801.00	1,802.25	1.25
sand & shale	1,802.25	1,857.50	55.25
Pocahontas #8	1,857.50	1,858.17	0.67
sand & shale	1,858.17	2,046.50	188.33
Pocahontas #6 Rider	2,046.50	2,048.08	1.58
sand & shale	2,048.08	2,078.00	29.92
Pocahontas #6	2,078.00	2,078.58	0.58
sand & shale	2,078.58	2,102.00	23.42
Pocahontas #5	2,102.00	2,103.33	1.33
sand & shale	2,103.33	2,255.00	151.67
Pocahontas #3	2,255.00	2,256.50	1.50
sand & shale	2,256.50	2,358.00	101.50



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 727
Company: Equitable Production Company
File Number: DI-1740
Operations Name: VC-536589 W/PL
Operation Type: Coalbed/Pipeline
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type: <u>Coalbed/Pipeline</u>	Date Well Completed: <u>6/17/2007</u>
Driller's Total Depth: <u>1,853</u>	Log's Total Depth: <u>1,853</u>

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

☒ Stimulated ☐ Not Stimulated ☐ Gob

Description	FileName
treatment summaries 536589	Stage 536589.doc

3. Final Production

Description	FileName
final production 536589	Final Production 536589.doc

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 10/31/2007 5:53:53 AM (Company)

Stage1

Date	06/09/2007		
FracType	70Q	Foam	
Zone	Poca #2 & Poca #3		
# of Perfs	20		
From/To	1,598	1,731	
BD Press	2,968		
ATP Psi	2,872		
Avg Rate	24		
Max Press Psi	3,554		
ISIP Psi	2,310		
10min SIP	1,912		5 min.
		1.50	
Frac Gradient			
Sand Proppant	22.00		
Water-bbl	99		
SCF N2	167,875		
Acid-gal	500	gal	
		10%MSA	

Stage2

Date	06/09/2007		
FracType	70Q	Foam	
Zone	X-Sm/ Poca #6		
# of Perfs	32		
From/To	1,005	1,335	
BD Press	3,031		

ATP Psi		2,817	
Avg Rate		0	
Max Press Psi		3,543	
ISIP Psi		1,710	
10min SIP	1,418		5 min.
		1.50	
Frac Gradient			
Sand Proppant		35.00	
Water-bbl		147	
SCF N2		187,000	
Acid-gal	600	gal	
		10%MSA	

Stage3

Date	06/09/2007		
FracType	70Q	Foam	
Zone	Unnamed C/ Bckly/L Hrspn/.		
# of Perfs		40	
From/To		881	981
BD Press		1,376	
ATP Psi		2,388	
Avg Rate		34	
Max Press Psi		2,961	
ISIP Psi		1,463	
10min SIP	1,301		5 min.
		1.70	
Frac Gradient			

Sand Proppant		69.33
Water-bbl		191
SCF N2		266,000
Acid-gal	800	gal 10%MSA

Stage4

Date	06/09/2007		
FracType	70Q	Foam	
Zone	C Seam/ Warcreek		
# of Perfs	24		
From/To	806	844	
BD Press	2,570		
ATP Psi	2,071		
Avg Rate	24		
Max Press Psi	3,161		
ISIP Psi	1,610		
10min SIP	1,364		5 min.
		2.00	
Frac Gradient			
Sand Proppant		30.00	
Water-bbl		107	
SCF N2		154,982	
Acid-gal	600	gal 10%MSA	

Final Production

Final Production if Gas Zones are
commingled

**After
Simulation
POD**

MOED

Hours

**Back
Simulation**

61 0 230



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Box 1416; Abingdon, VA 24212
 Telephone: (276) 676-5423

Tracking Number: 800
 Company: Equitable Production Company
 File Number: DI-1740
 Operations Name: VC-536589 W/PL
 Operation Type: Coalbed/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 5/24/2007 Drilling Contractor: Gasco
 Date drilling completed: 5/30/2007 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 1,853
 Log Total Depth (feet): 1,853 Coal Seam At Total Depth POCAHONTAS #2

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X 932,339 Final Plat State Plane X: 932,339
 Permitted State Plane Y: 284,657 Final Plat State Plane Y: 284,656

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
final plat 536589	VC-536589 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams

List of Attached Items:

Description	FileName
coal seams 536589	Coal Seams 536589.doc

Gas and Oil Shows

List of Attached Items:

Description	FileName
gas shows 536589	Gas and Oil Shows 536589.doc

4. Electric Logs (As required by 4VAC25-150-280.A.)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? ☒ Yes ☐ No

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
surveys 536589	Survey Results 536589.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
csg 536589	Casing Dat 536589.doc
tbg 536589	Tubing Size 536589.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers log 536589	Drillers Log 536589.doc

9. Comments

10. Signature

Permitee: Equitable Production Company Date: 10/31/2007 (Company)

Signed By: L. Todd Tetrick Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 10/31/2007

Status: Inspr Approved

Date: 10/31/2007

Final PDF Date: 10/31/2007

Well Coordinates: (Geographic N27)
37.058336° -82.159738°

Latitude 37° 05' 00"

Longitude 82° 07' 30"

DMLR Permit
No. 1301224

DMLR Permit
No. 1301224

DMLR Permit
No. 1101150

DMLR Permit
No. 1301224

DMLR Permit
No. 1301224

DMLR Permit
No. 1101150

See attached Tract Ownership
Information Schedule

The undersigned hereby certifies
that the final location is within ten
(10') feet of the location shown
on the well plat dated 3-05-2007.

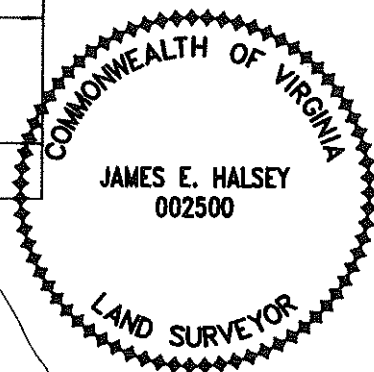
Well elevation determined by
GPS survey from Man. Hatchet

FINAL PLAT

Area of Unit = 58.77 Ac.

Well Coordinates: (VA St. Plane S. Zone,
Calculated from CCC coordinates)
N 284,656 E 932,339

Well Coordinates: (Cinchfield Coal Co.)
S 15,151.59 E 65,245.42



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-536589
TRACT NO. LS. No. 241640/T2-173 ELEVATION 1,805.33' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 5-25-2007

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor

Coal Seams & Open Mines

<u>Type</u>	<u>From</u>
Coal	49'-50',160'-61',220'-21',370'-71',484.5'-86.3'
Coal	532'-33.7';609'-13.7';673'-73.8';715.5'-17.5';781'-81.3';806'-07.3'
Coal	841.5'-843';881.5'-82.5';911.5'-16';949.5'-51.5';979'-79.5';1015.5'-17.5'
Coal	1156.5'-57';1330.5'-32.5';1438.5'-38.8';1598.5'-99.7'1728.5'-30'

Gas and Oil Shows

Gas Tests

<u>Depth</u>	<u>Result</u>
192	NO SHOW
412	No Show
599	No Show
818	No Show
1,004	No Show
1,192	No Show
1,413	No Show

Survey Results

<u>Depth</u>	<u>Direction/Distance/Degrees From True</u>
192	1/4
412	1/4
599	1/4
818	1/4
1,004	1/4
1,192	1/4
1,413	1/4
1,603	1/4
1,822	1/4
1,853	1/4

Casing Outside Diameter	Casing Data	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
12 3/4		21	15				
9 5/8		54	12 1/4				
7		315	8 7/8	106.20	y	05/29/2007	44
4 1/2		1809	6 1/2	339.15	y	05/30/2007	

<u>Tubing</u> <u>Size</u>	<u>Feet</u>
2 3/8	1,771.05
5/8"	1778.5'

Drillers
Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
OverBurden	0.00	40.00	40.00
Sand Stone	40.00	49.00	9.00
Coal	49.00	50.00	1.00
Sand Stone	50.00	160.00	110.00
Coal	160.00	161.00	1.00
Sandy Shale	161.00	220.00	59.00
Coal	220.00	221.00	1.00
Sand Stone	221.00	370.00	149.00
Jawbone	370.00	371.00	1.00
Sand Stone	371.00	484.50	113.50
Middle Seaboard	484.50	486.30	1.80
sand & shale	486.30	532.00	45.70
Lower Seaboard	532.00	533.70	1.70
sand & shale	533.70	609.00	75.30
Unnamed A	609.00	613.70	4.70
sand & shale	613.70	673.00	59.30
Upper Horsepen	673.00	673.80	0.80
sand & shale	673.80	715.50	41.70
Middle Horsepen	715.50	717.50	2.00
sand & shale	717.50	781.00	63.50
C Seam Rider	781.00	781.30	0.30
sand & shale	781.30	806.00	24.70
C Seam	806.00	807.30	1.30
sand & shale	807.30	826.50	19.20
War Creek Rider	826.50	826.50	0.00
sand & shale	826.50	841.50	15.00
War Creek	841.50	843.00	1.50
sand & shale	843.00	881.50	38.50
Unnamed C	881.50	882.20	0.70
sand & shale	882.20	911.50	29.30
Beckley	911.50	916.00	4.50
sand & shale	916.00	949.50	33.50
Lower Horsepen	949.50	951.50	2.00
sand & shale	951.50	979.00	27.50
X Seam Rider	979.00	979.50	0.50
sand & shale	979.50	1,015.50	36.00
X Seam	1,015.50	1,017.50	2.00
sand & shale	1,017.50	1,156.50	139.00
Pocahontas #8	1,156.50	1,157.00	0.50
sand & shale	1,157.00	1,330.50	173.50

Pocahontas #6	1,330.50	1,332.50	2.00
sand & shale	1,332.50	1,438.50	106.00
Pocahontas #4	1,438.50	1,438.80	0.30
sand & shale	1,438.80	1,598.50	159.70
Pocahontas #3	1,598.50	1,599.70	1.20
sand & shale	1,599.70	1,728.50	128.80
Pocahontas #2	1,728.50	1,730.00	1.50
sand & shale	1,730.00	1,853.00	123.00



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 669
Company: Equitable Production Company
File Number: DI-1651
Operations Name: VC-537100 W/PL
Operation Type: Coalbed/Pipeline
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type: <u>Coalbed/Pipeline</u>	Date Well Completed: <u>5/14/2007</u>
Driller's Total Depth: <u>2,395</u>	Log's Total Depth: <u>2,395</u>

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

☒ Stimulated ☐ Not Stimulated ☐ Gob

Description	FileName
treatment summaries 537100	Stage1.doc

3. Final Production

Description	FileName
final production 537100	Final Production 537100.doc

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 10/23/2007 5:54:40 PM (Company)

Stage1

Date	05/05/2007		
FracType	70Q	Foam	
Zone			X-sm/poca#5/poca#2
# of Perfs			36
From/To		1,693	2,227
BD Press		2,643	
ATP Psi		1,862	
Avg Rate		42	
Max Press Psi		2,228	
ISIP Psi		1,580	
10min SIP	1,343		5 min.
Frac Gradient		1.06	
Sand Proppant		60.88	
Water-bbl		279	
SCF N2		339,594	
Acid-gal	500	gal	
		10%MSA	

Stage2

Date	05/05/2007		
FracType	70Q	Foam	
Zone			Lower Horsepen
# of Perfs			20
From/To		1,570	1,575
BD Press		3,042	
ATP Psi		2,108	

Avg Rate		22	
Max Press Psi		2,212	
ISIP Psi		1,622	
10min SIP	1,365		5 min.
		1.16	
Frac Gradient			
Sand Proppant		44.19	
Water-bbl		188	
SCF N2		191,380	
Acid-gal	1,000	gal	
		10%MSA	



Date	05/05/2007		
FracType	70Q	Foam	
Zone		M Hrspn/Wr Crk Rdr/Wr Crk.	

# of Perfs		36	
From/To		1,322	1,539
BD Press		2,438	
ATP Psi		2,828	
Avg Rate		23	
Max Press Psi		3,665	
ISIP Psi		1,752	
10min SIP	1,372		5 min.
		1.46	
Frac Gradient			
Sand Proppant		59.38	
Water-bbl		232	
SCF N2		212,972	

Acid-gal 1,000 gal
10%MSA

Stage4

Date 05/05/2007

FracType 70Q Foam
Zone Unmd A/U Hrspn

of Perfs 30

From/To 1,283 1,202

BD Press 2,413

ATP Psi 2,878

Avg Rate 27

Max Press Psi 3,122

ISIP Psi 2,877

10min SIP 2,269 5 min.

2.37

Frac Gradient

Sand Proppant

60.84

Water-bbl 216

SCF N2 293,849

Acid-gal 1,000 gal
10%MSA

Date 05/05/2007

FracType 70Q Foam
Zone M&L Sbrd

of Perfs 22

From/To 1,153 1,078

BD Press		2,854	
ATP Psi		2,591	
Avg Rate		29	
Max Press Psi		2,730	
ISIP Psi		1,568	
10min SIP	1,196		5 min.
		1.49	
Frac Gradient			
Sand Proppant		41.32	
Water-bbl		171	
SCF N2		188,295	
Acid-gal	1,000	gal	
		10%MSA	

Final Production

After Stimulation

POD

MCED

Hours Tested

Booth

Final Production if Gas Zones are commingled

76

0

240



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Box 1416; Abingdon, VA 24212
 Telephone: (276) 676-5423

Tracking Number: 696
 Company: Equitable Production Company
 File Number: DI-1651
 Operations Name: VC-537100 W/PL
 Operation Type: Coalbed/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 4/24/2007 Drilling Contractor: Gasco
 Date drilling completed: 4/26/2007 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 2,395
 Log Total Depth (feet): 2,395 Coal Seam At Total Depth POCAHONTAS #2

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X 928,186 Final Plat State Plane X: 928,180
 Permitted State Plane Y: 287,526 Final Plat State Plane Y: 287,526

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
final plat	VC-537100 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
479	damp	
795	damp	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams

List of Attached Items:

Description	FileName
coal seams 537100	Coal Seams 537100.doc

Gas and Oil Shows

List of Attached Items:

Description	FileName
gas shows 537100	Gas and Oil Shows 537100.doc

4. Electric Logs (As required by 4VAC25-150-280.A.)

List all logs run: GR/Density/Temp/Induction/GR

Did logs disclose vertical locations of a coal seam? ☒ Yes ☐ No

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
surveys 537100	Survey Results 537100.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
casing 537100	Casing Dat1.doc
tbg 537100	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

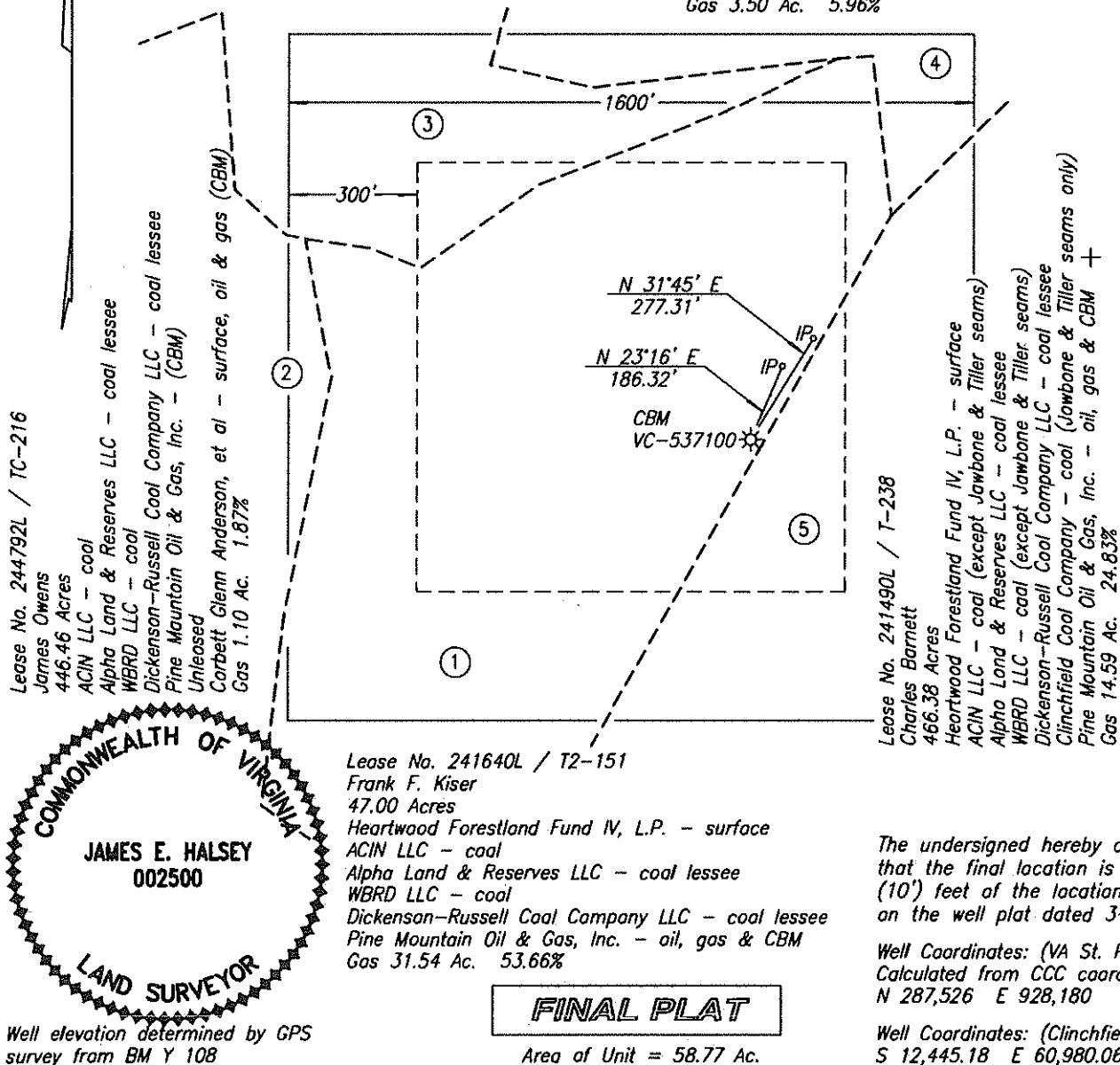
Description	FileName
Drillers log 537100	Drillers Log.doc

Well Coordinates: (Geographic N27)
37.065769° -82.174363°

Latitude 37° 05' 00"

Lease No. 241640L / T2-150
Robert Smith
55.00 Acres
Heartwood Forestland Fund IV, L.P. - surface
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Pine Mountain Oil & Gas, Inc. - oil, gas & CBM
Gas 8.04 Ac. 13.68%

Lease No. 241490L / T-238
David Tiller Jr.
245.00 Acres
Heartwood Forestland Fund IV, L.P. - surface
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Pine Mountain Oil & Gas, Inc. - oil, gas & CBM
Gas 3.50 Ac. 5.96%



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-537100
TRACT NO. T2-151 ELEVATION 2,223.76' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 5-1-2007
This Plat is a new plat ____; an updated plat ____; or a final location plat x
+ Denotes the location of a well on United States topographic Maps, scale 1 to
24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor

--

Type

Coal
Coal
Coal
Coal

From

190'-91',360'-61',460'-61',505'-06',680'-81'
1075'-76',1130'-31',1200'-01',1280'-81',1350'-51'
1500'-01',1620'-21',1705'-06',2010'-11',2110'-11'
2250'-51'

Gas Tests

<u>Depth</u>	<u>Remarks</u>
102	No Show
320	No Show
564	No Show
740	No Show
940	No Show
1,110	No Show
1,366	No Show
1,566	No Show
1,766	No Show
1,938	No Show
2,184	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees From True Vertical</u>
195	1/4
384	1/4
574	1/4
763	1/4
984	1/4
1,174	1/4
1,363	1/4
1,553	1/4
1,742	1/4
1,931	1/4
2,121	1/4
2,310	1/2

Casing Outside Diameter	<div></div>	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
12 3/4		21	15		n		
7		756	8 7/8	271.40	y	04/24/2007	624.3 & 669
4 1/2		2333	6 1/2	464.60	y	04/25/2007	

Total Size

2.5/8

Footage

4,400.15

Table
1

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
OverBurden	0.00	3.00	3.00
Sandy Shale	3.00	190.00	187.00
Coal	190.00	191.00	1.00
Sand Stone	191.00	360.00	169.00
Coal	360.00	361.00	1.00
Sandy Shale	361.00	385.00	24.00
Sand Stone	385.00	460.00	75.00
Coal	460.00	461.00	1.00
Sandy Shale	461.00	505.00	44.00
Coal	505.00	506.00	1.00
Sandy Shale	506.00	680.00	174.00
Coal	680.00	681.00	1.00
Sand Stone	681.00	795.00	114.00
Sandy Shale	795.00	859.50	64.50
Upper Seaboard A	859.50	860.80	1.30
sand & shale	860.80	878.50	17.70
Upper Seaboard	878.50	879.30	0.80
sand & shale	879.30	1,032.00	152.70
Greasy Creek	1,032.00	1,032.30	0.30
sand & shale	1,032.30	1,078.00	45.70
Middle Seaboard	1,078.00	1,079.80	1.80
sand & shale	1,079.80	1,151.00	71.20
Lower Seaboard	1,151.00	1,152.50	1.50
sand & shale	1,152.50	1,202.00	49.50
Unnamed A	1,202.00	1,204.10	2.10
sand & shale	1,204.10	1,268.00	63.90
Upper Horsepen	1,268.00	1,270.90	2.90
sand & shale	1,270.90	1,322.00	51.10
Middle Horsepen	1,322.00	1,323.80	1.80
sand & shale	1,323.80	1,444.00	120.20
War Creek Rider	1,444.00	1,444.70	0.70
sand & shale	1,444.70	1,456.00	11.30
War Creek	1,456.00	1,456.90	0.90
sand & shale	1,456.90	1,498.00	41.10
Unnamed C	1,498.00	1,498.70	0.70
sand & shale	1,498.70	1,537.50	38.80
Beckley	1,537.50	1,538.30	0.80
sand & shale	1,538.30	1,570.50	32.20
Lower Horsepen	1,570.50	1,574.30	3.80
sand & shale	1,574.30	1,693.50	119.20
X Seam	1,693.50	1,695.20	1.70
sand & shale	1,695.20	1,951.00	255.80
Pocahontas #6	1,951.00	1,951.00	0.00
sand & shale	1,951.00	1,994.50	43.50
Pocahontas #5	1,994.50	1,995.30	0.80
sand & shale	1,995.30	2,183.50	188.20

Pocahontas #3	2,183.50	2,183.80	0.30
sand & shale	2,183.80	2,223.00	39.20
Pocahontas #2	2,223.00	2,225.70	2.70
sand & shale	2,225.70	2,395.00	169.30



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 417
Company: Equitable Production Company
File Number: DI-1649
Operations Name: VC-537101 W/PL
Operation Type: Coalbed/Pipeline
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type: <u>Coalbed/Pipeline</u>	Date Well Completed: <u>3/22/2007</u>
Driller's Total Depth: <u>2,241</u>	Log's Total Depth: <u>2,238</u>

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

☒ Stimulated ☐ Not Stimulated ☐ Gob

Description	FileName
Treatment Summary 537101	Stage1.doc

3. Final Production

Description	FileName
Final Production 537101	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 6/26/2007 5:42:43 AM (Company)

Stage1

Date	03/17/2007		
FracType	70Q	Foam	
Zone	X Sm/Poca #6/Poca #5 Rdr/.		
# of Perfs	36		
From/To	1,658	2,158	
BD Press	2,755		
ATP Psi	2,674		
Avg Rate	43		
Max Press Psi	2,807		
ISIP Psi	1,999		
10min SIP	1,441		5 min.
Frac Gradient	1.34		
Sand Proppant	96.59		
Water-bbl	318		
SCF N2	344,967		
Acid-gal	1,000	gal	
		10%MSA	

Stage2

Date	03/17/2007		
FracType	70Q	Foam	
Zone	Unnmd C/Bckly/L Hrspn		
# of Perfs	34		
From/To	1,473	1,553	
BD Press	2,365		
ATP Psi	2,278		
Avg Rate	33		

Max Press Psi		2,616	
ISIP Psi		2,120	
10min SIP	1,582		5 min.
		1.57	
Frac Gradient			
Sand Proppant			
		65.72	
Water-bbl		220	
SCF N2		255,252	
Acid-gal	600	gal	
		10%MSA	

Stage3

Date	03/17/2007		
FracType	70Q	Foam	
Zone		C-Sm/WrCrk/WrCrk Rdr	
# of Perfs		26	
From/To		1,379	1,439
BD Press		2,991	
ATP Psi		3,627	
Avg Rate		10	
Max Press Psi		3,769	
ISIP Psi		2,920	
10min SIP	2,359		5 min.
		2.25	
Frac Gradient			
Sand Proppant			
		0.06	
Water-bbl		173	
SCF N2		107,000	

Acid-gal 1,000 gal
10%MSA

Stage4

Date 03/17/2007

FracType 70Q Foam
Zone U & M Horsepen

of Perfs 16

From/To 1,267 1,300

BD Press 3,479

ATP Psi 3,150

Avg Rate 14

Max Press Psi 3,361

ISIP Psi 3,071

10min SIP 2,659 5 min.

2.55

Frac Gradient

Sand Proppant

20.00

Water-bbl 99

SCF N2 102,853

Acid-gal 1,000 gal
10%MSA

Stage5

Date 03/17/2007

FracType 70Q Foam
Zone Grsy Crk/M&L Sbrd/Unmd A

of Perfs 37

From/To 1,022 1,218

BD Press		1,852	
ATP Psi		2,556	
Avg Rate		28	
Max Press Psi		2,961	
ISIP Psi		1,948	
10min SIP	0		5 min.
		2.04	
Frac Gradient			
Sand Proppant			
		147.30	
Water-bbl		425	
SCF N2		569,834	
Acid-gal	1,000	gal	
		10%MSA	

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

62

0

280



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Box 1416; Abingdon, VA 24212
 Telephone: (276) 676-5423

Tracking Number: 453
 Company: Equitable Production Company
 File Number: DI-1649
 Operations Name: VC-537101 W/PL
 Operation Type: Coalbed/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 1/20/2007 Drilling Contractor: Gasco
 Date drilling completed: 1/26/2007 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 2,241
 Log Total Depth (feet): 2,238 Coal Seam At Total Depth POCAHONTAS #2

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X 927,733 Final Plat State Plane X: 927,732
 Permitted State Plane Y: 286,615 Final Plat State Plane Y: 286,617

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
Final Plat 537101	VC-537101 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams

List of Attached Items:

Description	FileName
Coal Seams 537101	Coal Seams.doc

Gas and Oil Shows

List of Attached Items:

Description	FileName
Gas & Oil Show 537101	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A.)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? ☒ Yes ☐ No

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 537101	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Csg. 537101	Casing Data.doc
Tbg. 537101	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Lost circ @ open mine 462' - 470'

8. Drillers Log

Compiled By: _____

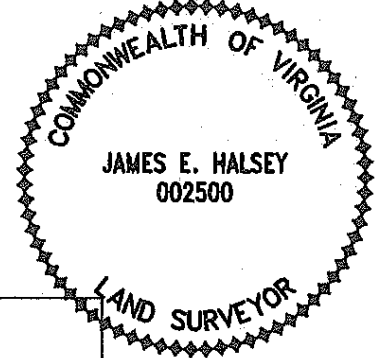
List of Attached Items:

Description	FileName
Drillers Log 537101	Drillers Log.doc

Well Coordinates: (Geographic N27)
37.063226° -82.175776°

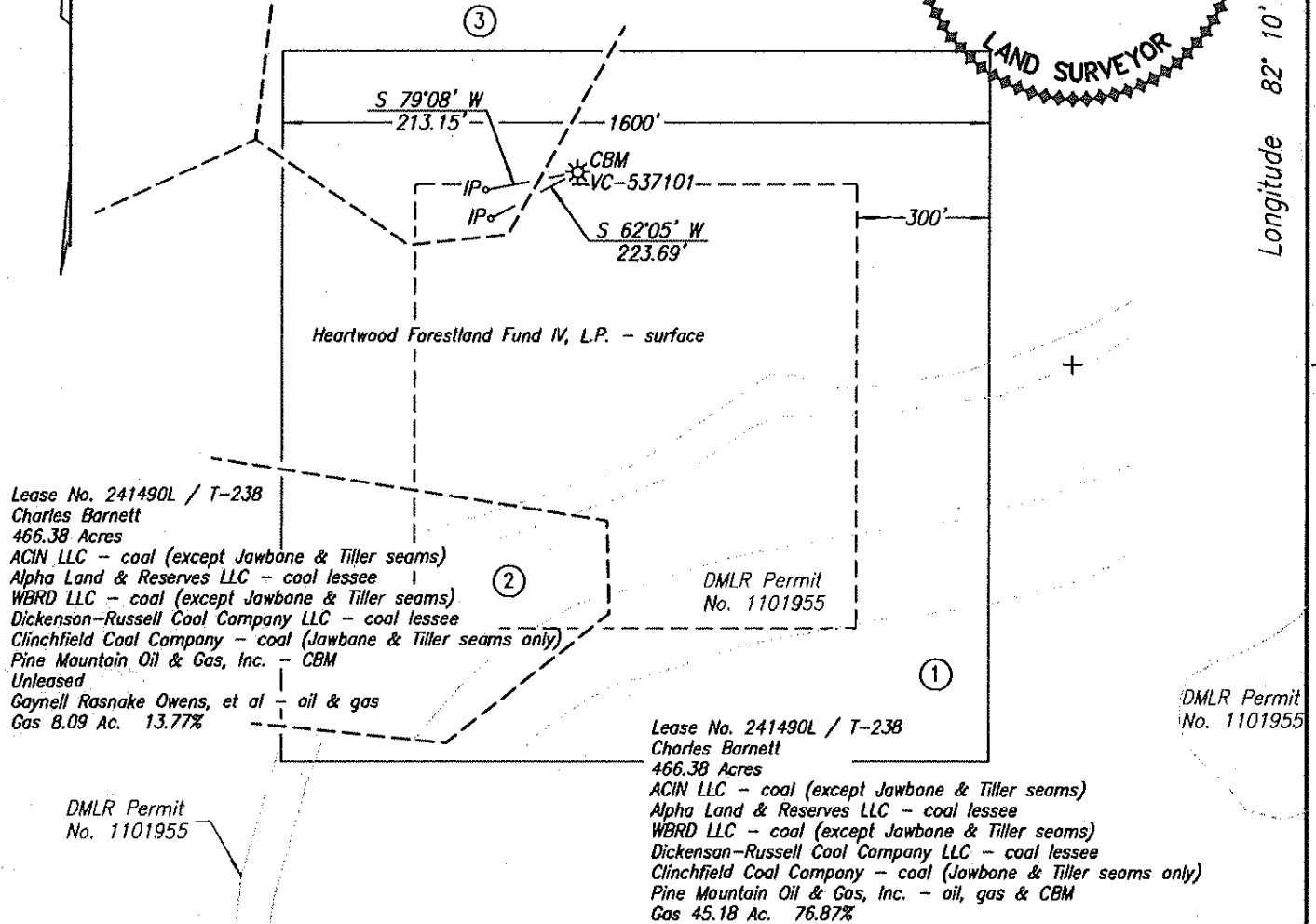
Latitude 37° 05' 00"

Lease No. 241490L / T-151
Frank F. Kiser
47.00 Acres
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Pine Mountain Oil & Gas, Inc. - oil, gas & CBM
Gas 5.50 Ac. 9.36%



Longitude 82° 10' 00"

7,325'



The undersigned hereby certifies
that the final location is within ten
(10') feet of the location shown
on the well plat dated 10-23-2006.

Well elevation determined by GPS
survey from BM Y 108

FINAL PLAT

Area of Unit = 58.77 Ac.

Well Coordinates: (VA St. Plane S. Zone,
Calculated from CCC coordinates)
N 286,617 E 927,732

Well Coordinates: (Clinchfield Coal Co.)
S 13,371.28 E 60,567.72

WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-537101
TRACT NO. Le. No. 241490L / T-238 ELEVATION 2,164.17' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 1-25-2007
This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to
24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor



Type

Coal

Coal

Coal

Open Mine

From

80'-81',130'-31',310'-11',415'-
16',621'-25'

995'-96',1032'-33',1095'-
96',1220'-21',1405'-06'

1515'-18',1930'-31',2160'-61'
462'-70'



Gas Tests

<u>Depth</u>	<u>Result</u>
200	No Show
400	No Show
470	No Show
599	No Show
624	No Show
800	No Show
1,000	No Show
1,200	No Show
1,400	No Show
1,518	No Show
1,600	No Show
1,800	No Show
2,000	No Show
2,200	No Show
2,241	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
200	0
400	1/4
470	1/4
599	1/4
624	1/4
800	1/4
1,000	1/4
1,200	1/4
1,400	1/4
1,518	1/2
1,600	1/2
1,800	1/2
2,000	1/2
2,200	1/2
2,241	1/2

Casing Outside Diameter	<div></div>	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
12 3/4		22	15				
9 5/8		534	12 1/4	365.80	Y	01/24/2007	446
4 1/2		2214	6 1/2	606.90	Y	01/26/2007	

Tubing Size
2 3/8

5/8"

Footage
2,153.95
2155

Drillers
Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
OverBurden	0.00	5.00	5.00
sandstone	5.00	40.00	35.00
Sandy Shale	40.00	80.00	40.00
Coal	80.00	81.00	1.00
Sandy Shale	81.00	130.00	49.00
Coal	130.00	131.00	1.00
Sandy Shale	131.00	310.00	179.00
Coal	310.00	311.00	1.00
Sandy Shale	311.00	415.00	104.00
Coal	415.00	416.00	1.00
Sandy Shale	416.00	460.00	44.00
Open Mine	462.00	470.00	8.00
Sandy Shale	470.00	570.00	100.00
Jawbone Rider	570.00	572.00	2.00
sand & shale	572.00	624.50	52.50
Jawbone	624.50	631.50	7.00
sand & shale	631.50	678.50	47.00
Tiller	678.50	679.50	1.00
sand & shale	679.50	805.00	125.50
Upper Seaboard A	805.00	805.60	0.60
sand & shale	805.60	821.50	15.90
Upper Seaboard	821.50	822.00	0.50
sand & shale	822.00	985.00	163.00
Greasy Creek	985.00	987.30	2.30
sand & shale	987.30	1,092.80	105.50
Middle Seaboard	1,092.80	1,094.50	1.70
sand & shale	1,094.50	1,143.50	49.00
Lower Seaboard	1,143.50	1,145.50	2.00
sand & shale	1,145.50	1,211.00	65.50
Unnamed A	1,211.00	1,213.80	2.80
sand & shale	1,213.80	1,267.50	53.70
Upper Horsepen	1,267.50	1,268.50	1.00
sand & shale	1,268.50	1,298.00	29.50
Middle Horsepen	1,298.00	1,298.80	0.80
sand & shale	1,298.80	1,380.00	81.20
C Seam	1,380.00	1,381.00	1.00
sand & shale	1,381.00	1,397.00	16.00
War Creek Rider	1,397.00	1,398.50	1.50
sand & shale	1,398.50	1,437.00	38.50
War Creek	1,437.00	1,438.00	1.00
sand & shale	1,438.00	1,473.50	35.50
Unnamed C	1,473.50	1,474.50	1.00
sand & shale	1,474.50	1,505.00	30.50
Beckley	1,505.00	1,508.70	3.70
sand & shale	1,508.70	1,551.30	42.60
Lower Horsepen	1,551.30	1,552.10	0.80

sand & shale	1,552.10	1,658.50	106.40
X Seam	1,658.50	1,660.50	2.00
sand & shale	1,660.50	1,919.50	259.00
Pocahontas #6	1,919.50	1,921.50	2.00
sand & shale	1,921.50	1,936.00	14.50
Pocahontas #5 Rider	1,936.00	1,937.00	1.00
sand & shale	1,937.00	1,997.00	60.00
Pocahontas #5	1,997.00	1,997.00	0.00
sand & shale	1,997.00	2,154.50	157.50
Pocahontas #2	2,154.50	2,157.70	3.20
sand & shale	2,157.70	2,241.00	83.30



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416, Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 779
Company: Equitable Production Company
File Number: DI-1743
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coalbed/Pipeline	Date Well Completed:	7/26/2007
Driller's Total Depth:	2364.00	Log's Total Depth:	2376.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
treatment summaries 537102	Stage 537102.doc

3. Final Production

Description	FileName
final production 537102	Final Production 537102.doc

4. Comments

Permittee:	<u>Equitable Production Company</u>	Date:	<u>12/13/2007</u>	(Company)
By:	<u>L. Todd Tetrick</u>	Title:	<u>Director of Drilling</u>	(Signature)

_____	_____
_____	_____
_____	_____

Stage1

Date	07/14/2007		
FracType	70Q	Foam	
Zone			Poco #9/#6
# of Perfs			32
From/To			1,722 1,961
BD Press			2,318
ATP Psi			2,414
Avg Rate			38
Max Press Psi			2,590
ISIP Psi			1,689
10min SIP	1,495		5 min.
			1.11
Frac Gradient			
Sand Proppant			48.05
Water-bbl			194
SCF N2			205,160
Acid-gal	1,000		gal
			10% MSA

Stage2

Date	07/14/2007		
FracType	70Q	Foam	
Zone			Beckley/ Lower Horsepen
# of Perfs			30
From/To			1,553 1,592
BD Press			2,288

ATP Psi		2,573	
Avg Rate		36	
Max Press Psi		2,975	
ISIP Psi		1,688	
10min SIP	1,469		5 min.
		1.22	
Frac Gradient			
Sand Proppant		46.19	
Water-bbl		209	
SCF N2		227,135	
Acid-gal	1,000	gal	
		10% MSA	

Stage3

Date	07/14/2007		
FracType	70Q	Foam	
Zone		C Sm/WrCrk	
		Rdr/WrCrk/Unmd.	
# of Perfs		32	
From/To		1,424	1,517
BD Press		1,564	
ATP Psi		2,651	
Avg Rate		37	
Max Press Psi		2,989	
ISIP Psi		1,737	
10min SIP	1,497		5 min.
		1.35	
Frac Gradient			

Sand Proppant		29.90
Water-bbl		154
SCF N2		169,032
Acid-gal	1,000	gal 10% MSA

Stage4

Date	07/14/2007		
FracType	70Q	Foam	
Zone		M&L Sbrd/Unmd A/U Hrspn	
# of Perfs		38	
From/To		1,113	1,251
BD Press		2,831	
ATP Psi		2,598	
Avg Rate		28	
Max Press Psi		3,355	
ISIP Psi		1,806	
10min SIP	1,500		5 min.
		1.75	
Frac Gradient			
Sand Proppant		53.96	
Water-bbl		221	
SCF N2		254,278	
Acid-gal	1,000	gal 10% MSA	

Final Production

Final Production if Gas Zones are
commingled

**After
Summation
POD**

MCED

**Hours
Produced**

**Back
Production**

90

0

240



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Box 1416; Abingdon, VA 24212
 Telephone: (276) 676-5423

Tracking Number: 820
 Company: Equitable Production Company
 File Number: DI-1743
 Operations Name: VC-537102 W/PL
 Operation Type: Coalbed/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 6/23/2007 Drilling Contractor: Driller's LLC
 Date drilling completed: 6/27/2007 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 2,364
 Log Total Depth (feet): 2,376 Coal Seam At Total Depth POCAHONTAS #6

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X 928,317 Final Plat State Plane X: 928,316
 Permitted State Plane Y: 284,612 Final Plat State Plane Y: 284,614

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
final plat 537102	VC-537102 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams

List of Attached Items:

Description	FileName
coal seams 537102	Coal Seams 537102.doc

Gas and Oil Shows

List of Attached Items:

Description	FileName
gas shows	Gas and Oil Shows 537102.doc

4. Electric Logs (As required by 4VAC25-150-280.A.)

List all logs run: Gr/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? ☒ Yes ☐ No

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
surveys 537102	Survey Results 537102.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
csg 537102	Casing Dat 537102.doc
tbg 537102	Tubing Size 537102.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

lost circ @ open mines @ 425'-428; 624'0627' & 641'-645', Grouted 9 5/8" and 7" casing back to surface

8. Drillers Log

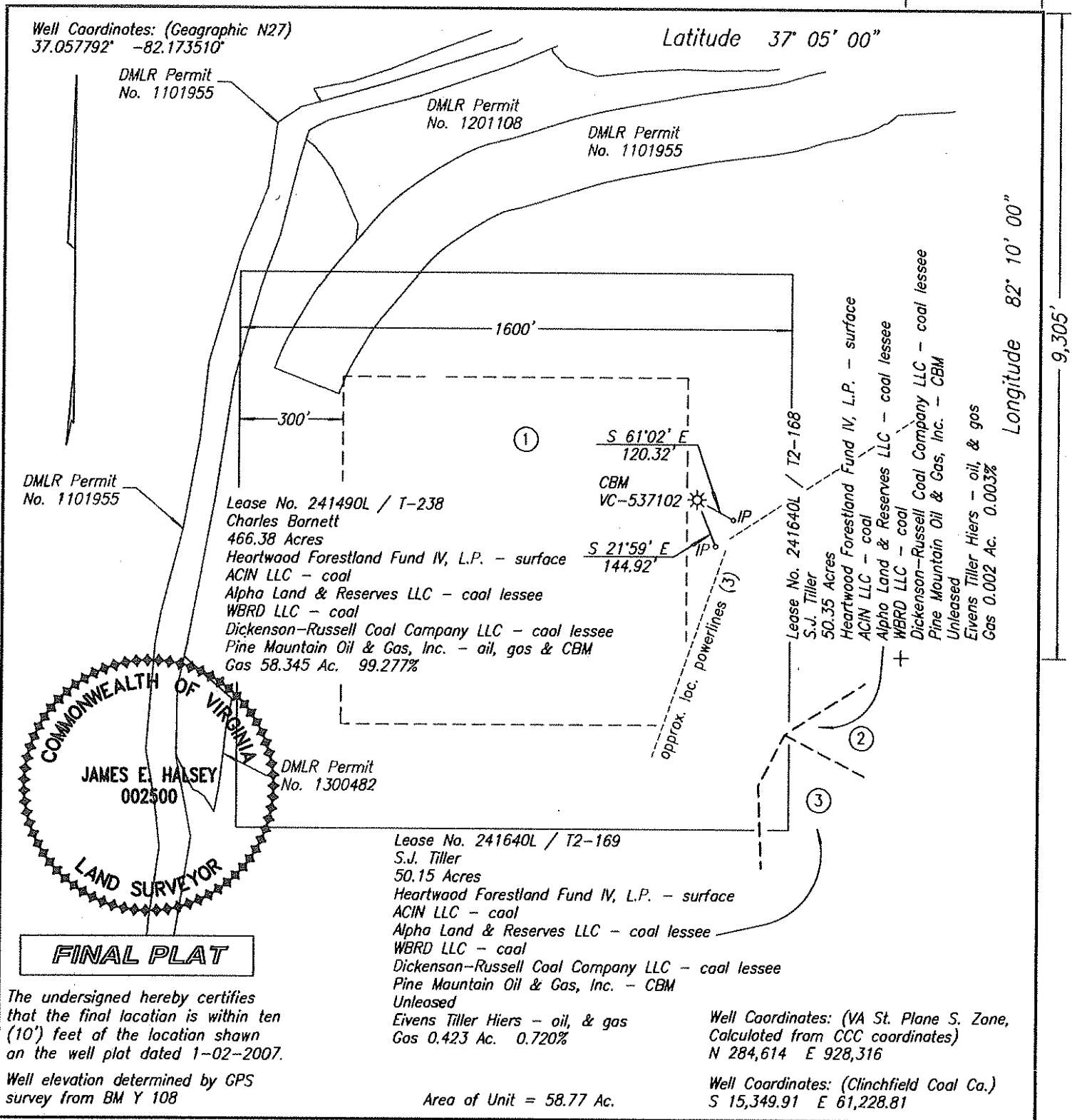
Compiled By: _____

List of Attached Items:

Description	FileName
driller's log 537102	Drillers Log 537102.doc

Well Coordinates: (Geographic N27)
37.057792° -82.173510°

Latitude 37° 05' 00"



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-537102
TRACT NO. Le. No. 241490L/T-238 ELEVATION 2,246.23' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 6-26-2007

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor

Coal Seams & Open Mines

<u>Type</u>	<u>Range</u>
Coal	580'-84',728.5'-29.5',815'-15.7',838.5'-39.3',998'-00.3'
Coal	1113'-14.4',1165'-66.5',1230.5'-32',1249'-50.3',1425'-25.5'
Coal	1441'-42',1477.5'-78.7',1515'-15.7',1553.5'-58',1590.5'-91.2'
Coal	1722'-24.4',1954'-56.8'
Open Mine	425'-28',624'-27',641'-645'

Gas and Oil Shows

Gas Tests

<u>Index</u>	<u>Remarks</u>
200	No Show
400	No Show
521	No Show
584	No Show
784	No Show
984	No Show
1,038	No Show
1,238	No Show
1,428	No Show
1,553	No Show
1,753	No Show
1,944	No Show
2,048	No Show
2,204	No Show
2,364	No Show

Survey Results

<u>Point</u>	<u>Direction/Distance/Degrees From True Vertical</u>
200	1/2
400	1/2
521	1/2
584	1/2
784	1/2
984	1/2
1,038	1/2
1,238	1/2
1,428	1/2
1,553	1/2
1,753	1/2
1,944	1/2
2,048	1/2
2,204	1/2
2,364	1/2

Casing Outside Diameter	Casing Data	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
13 3/8		44	17 1/2				
9 5/8		504	12 3/8	350.46	y	06/24/2007	391 & 406
7		727	7	205.32	y	06/25/2007	605 & 590
4 1/2		2084	6 1/2	255.00	y	06/27/2007	

Taking

2 3/8

5/8"

Footage

2,029.15

2034'

Drillers
Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Fill	0.00	4.00	4.00
Brown Sand	4.00	41.00	37.00
Sand & Shale	41.00	425.00	384.00
Open Mine	425.00	428.00	3.00
Sand & Shale	428.00	521.00	93.00
Sand & Shale	521.00	580.00	59.00
Coal	580.00	584.00	4.00
Sand & Shale	584.00	624.00	40.00
Open Mine	624.00	627.00	3.00
Sand & Shale	627.00	633.00	6.00
opening	641.00	645.00	4.00
Sand & Shale	645.00	728.50	83.50
Tiller	728.50	729.50	1.00
sand & shale	729.50	815.00	85.50
Upper Seaboard A	815.00	815.70	0.70
sand & shale	815.70	838.50	22.80
Upper Seaboard	838.50	839.30	0.80
sand & shale	839.30	998.00	158.70
Greasy Creek	998.00	1,000.30	2.30
sand & shale	1,000.30	1,113.00	112.70
Middle Seaboard	1,113.00	1,114.40	1.40
sand & shale	1,114.40	1,165.00	50.60
Lower Seaboard	1,165.00	1,166.50	1.50
sand & shale	1,166.50	1,230.50	64.00
Unnamed A	1,230.50	1,232.00	1.50
sand & shale	1,232.00	1,249.00	17.00
Upper Horsepen	1,249.00	1,250.30	1.30
sand & shale	1,250.30	1,297.00	46.70
sand & shale	1,297.00	1,425.00	128.00
C Seam	1,425.00	1,425.50	0.50
sand & shale	1,425.50	1,441.00	15.50
War Creek Rider	1,441.00	1,442.00	1.00
sand & shale	1,442.00	1,477.50	35.50
War Creek	1,477.50	1,478.70	1.20
sand & shale	1,478.70	1,515.00	36.30
Unnamed C	1,515.00	1,515.70	0.70
sand & shale	1,515.70	1,553.50	37.80
Beckley	1,553.50	1,558.00	4.50
sand & shale	1,558.00	1,590.50	32.50
Lower Horsepen	1,590.50	1,591.20	0.70

sand & shale	1,591.20	1,722.00	130.80
Pocahontas #9	1,722.00	1,724.40	2.40
sand & shale	1,724.40	1,954.00	229.60
Pocahontas #6	1,954.00	1,956.80	2.80
sand & shale	1,956.80	2,050.50	93.70
sand & shale	2,050.50	2,376.00	325.50



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Drawer 159, Lebanon, VA 24266
 Telephone: (276) 415-9700

Tracking Number: 10010
Company: EnerVest Operating, LLC
File Number: DI-2597
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type: Coalbed/Pipeline	Date Well Completed: 11/10/2017
Driller's Total Depth: 1960.00	Log's Total Depth: 1954.00

Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

Water Protection Casing Cement Bond Log

Description	FileName
Cement Report	VCI-537355 Surface Csg Cement Chart.pdf

Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well
 Chemical Disclosure submitted? On File
 Final Fracturing Ingredient Status: Approved 96

Description	FileName
Perf Report	VCI-537355 Perf Report.pdf
Stimulation Report	VCI-537355 Stimulation Report.pdf

Final Production

Description	FileName
Final Production	VCI-537355 Final_Prod.xls

Comments

Date: 1/19/2018 (Company)
Title: Associate Landman (Signature)

<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black;"></div>		
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**Perforation Report**

Asset Name	APPALACHIAN
Project	APPALACHIA SOUTH
Site	NORA
Well Common Name	537355
Operator	ENERVEST OPERATING, LLC
MD Top - MD Base	828.9 ft - 1,754.3 ft
Perf Length Gross	925.40 ft

Intervals

Report Date	Stage	Formation	MD top (ft)	MD base (ft)	Shot density (shot/ft)	# of Shots	Charge Phasing (°)	Carr size (in)	Charge weight (gram)	Charge Manufacturer	Hole Diameter
11/10/2017	STAGE 01	POCAHONTAS #02	1753	1754	3.00	6.000	60.00	2.500		Owens	0.32
11/10/2017	STAGE 01	POCAHONTAS #03	1696	1700	3.00	13.000	60.00	2.500		Owens	0.32
11/10/2017	STAGE 01	POCAHONTAS #03	1636	1637	3.00	6.000	60.00	2.500		Owens	0.32
11/10/2017	STAGE 02	POCAHONTAS #04	1542	1544	3.00	5.000	60.00	2.500		Owens	0.32
11/10/2017	STAGE 02	POCAHONTAS #05	1478	1480	3.00	4.000	60.00	2.500		Owens	0.32
11/10/2017	STAGE 02	POCAHONTAS #05	1441	1443	3.00	4.000	60.00	2.500		Owens	0.32
11/10/2017	STAGE 02	POCAHONTAS #06	1406	1409	3.00	7.000	60.00	2.500		Owens	0.32
11/10/2017	STAGE 03	POCAHONTAS #08	1205	1206	3.00	4.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 03	X SEAM	1075	1076	3.00	4.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 03	X SEAM	1056	1058	3.00	7.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 03	X SEAM RIDER	1041	1043	3.00	6.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 04	HORSEPEN LOWER	1014	1015	3.00	6.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 04	HORSEPEN LOWER	1008	1010	3.00	6.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 04	HORSEPEN LOWER	1001	1005	3.00	9.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 05	BECKLEY	967	970	3.00	7.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 05	BECKLEY	963	967	3.00	9.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 05	UNNAMED C	938	941	3.00	6.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 06	WAR CREEK	885	886	3.00	5.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 06	C SEAM	852	854	3.00	4.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 06	C SEAM	849	851	3.00	5.000	60.00	2.750		Owens	0.42
11/10/2017	STAGE 06	C SEAM	829	831	3.00	5.000	60.00	2.750		Owens	0.42



STIMULATION REPORT

Company / Asset	APPALACHIAN
Project / Basin	APPALACHIA SOUTH
Site / Field	NORA

Well common name:	537355	API no.:	4505102597
Well legal name:	VCI-537355	Bolo no.:	411002205
Wellbore name:	VCI-537355	Wellbore No.:	00
Report No.:	1	Report date:	11/11/2017
Job Date:	11/10/2017	Event type:	COMPLETION
Spud date:	10/31/2017	Event end date:	
Contractor:	C&J ENERGY SERVICES	Active datum:	GL @1,927.7ft (above Mean Sea Level)
Supervisor:	KEVIN DARBY		

Initial Wellhead Pressure (psi)	103.00
Water Source	FRESH

Summary for Stage No.: 1 - 11/10/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 1,635.9 ft	Frac Gradient: 1.6000 psi/ft
Interval Base MD: 1,754.3 ft	Breakdown Press: 2,683.00 psi
Stage Length: 118.4 ft	Breakdown Rate: 3.00 bbl/min
CO2 Energized Quality (%):	Max Rate: 48.40 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 46.00 bbl/min
No. of Perfs: 25	Max Treat. Press.: 3,828.00 psi
No. of Clusters: 3	Avg Treat. Press.: 3,761.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,978.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 11,700 lbm
	Total Propp. Format.: 11,700 lbm
	Slurry Vol: 152.30 bbl
	Clean Vol: 133.40 bbl
	Total Fluid Pumped: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
NITROGEN ENERGIZED		321900	
ACID	6.0		

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	11,700

Summary for Stage No.: 2 - 11/10/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 1,405.8 ft	Frac Gradient: 1.3900 psi/ft
Interval Base MD: 1,543.6 ft	Breakdown Press: 3,931.00 psi
Stage Length: 137.8 ft	Breakdown Rate: 4.80 bbl/min
CO2 Energized Quality (%):	Max Rate: 63.70 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 61.60 bbl/min
No. of Perfs: 20	Max Treat. Press.: 3,931.00 psi
No. of Clusters: 4	Avg Treat. Press.: 2,272.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,416.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 19,500 lbm
	Total Propp. Format.: 19,500 lbm
	Slurry Vol: 177.40 bbl
	Clean Vol: 150.30 bbl
	Total Fluid Pumped: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
NITROGEN ENERGIZED		302000	
ACID	6.0		

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	19,500

Summary for Stage No.: 3 - 11/10/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 1,040.8 ft	Frac Gradient: 1.4100 psi/ft
Interval Base MD: 1,206.3 ft	Breakdown Press: 2,381.00 psi
Stage Length: 165.5 ft	Breakdown Rate: 5.00 bbl/min
CO2 Energized Quality (%):	Max Rate: 57.00 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 53.80 bbl/min
No. of Perfs: 21	Max Treat. Press.: 3,440.00 psi
No. of Clusters: 4	Avg Treat. Press.: 2,766.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,097.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 27,900 lbm
	Total Propp. Format.: 27,900 lbm
	Slurry Vol: 220.20 bbl
	Clean Vol: 183.90 bbl
	Total Fluid Pumped: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
NITROGEN ENERGIZED		390000	
ACID	6.0		

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	27,900

Summary for Stage No.: 4 - 11/10/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 1,000.7 ft	Frac Gradient: 1.4500 psi/ft
Interval Base MD: 1,015.4 ft	Breakdown Press: 3,319.00 psi
Stage Length: 14.7 ft	Breakdown Rate: 3.80 bbl/min
CO2 Energized Quality (%):	Max Rate: 50.90 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 49.00 bbl/min
No. of Perfs: 21	Max Treat. Press.: 3,319.00 psi
No. of Clusters: 3	Avg Treat. Press.: 2,365.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,030.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 17,700 lbm
	Total Propp. Format.: 17,700 lbm
	Slurry Vol: 155.60 bbl
	Clean Vol: 130.30 bbl
	Total Fluid Pumped: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
ACID	6.0		
NITROGEN ENERGIZED		235700	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	17,700

Summary for Stage No.: 5 - 11/10/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 938.2 ft	Frac Gradient: 1.4200 psi/ft
Interval Base MD: 969.6 ft	Breakdown Press: 1,611.00 psi
Stage Length: 31.4 ft	Breakdown Rate: 3.00 bbl/min
CO2 Energized Quality (%):	Max Rate: 46.70 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 45.00 bbl/min
No. of Perfs: 22	Max Treat. Press.: 2,910.00 psi
No. of Clusters: 3	Avg Treat. Press.: 2,079.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 938.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 34,600 lbm
	Total Propp. Format.: 34,600 lbm
	Slurry Vol: 240.60 bbl
	Clean Vol: 197.20 bbl
	Total Fluid Pumped: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
NITROGEN ENERGIZED		327700	
ACID	6.0		

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	34,600

Summary for Stage No.: 6 - 11/10/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 828.9 ft	Frac Gradient: 2.7800 psi/ft
Interval Base MD: 886.4 ft	Breakdown Press: 4,209.00 psi
Stage Length: 57.5 ft	Breakdown Rate: 3.00 bbl/min
CO2 Energized Quality (%):	Max Rate: 40.60 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 38.90 bbl/min
No. of Perfs: 19	Max Treat. Press.: 4,209.00 psi
No. of Clusters: 4	Avg Treat. Press.: 2,752.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 2,017.00 psi
Coil Tubing Used: No	10 Min ISIP: 1,240.00 psi
Tracer Used: No	5 Min ISIP: 1,372.00
	15 Min ISIP:
	Total Proppant: 21,400 lbm
	Total Propp. Format.: 21,400 lbm
	Slurry Vol: 148.00 bbl
	Clean Vol: 124.90 bbl
	Total Fluid Pumped: 0.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
NITROGEN ENERGIZED		277000	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	21,400

Final Production After Stimulation		VCI-537355	
	BOD	MCFD	Hours Tested
Final/Commingled Zones			
Commingled		65	in-line



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	10067
Company:	EnerVest Operating, LLC
File Number:	DI-2597
Operations Name:	VCI-537355 w/PL
Operation Type:	Coalbed/Pipeline
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	10/31/2017	Drilling Contractor:	Gasco #5
Date drilling completed:	11/1/2017	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	1960.00		
Log Total Depth (feet):	1954.00	Coal Seam at Total Depth:	POCAHONTAS #1

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10418136.9800	Final Plat State Plane X:	10418141.7900
Permitted State Plane Y:	3567037.9800	Final Plat State Plane Y:	3567042.2200

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
VCI-537355 Final Plat	VCI-537355 Final Plat.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal	537355 Coals.xlsx

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Shows	537355 Shows.xlsx

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/CDL/PE/DIL/Neu/TEMP/Audio

Did logs disclose vertical locations of a coal seam?

☐

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Surveys	537355 Survey.xlsx

6. Casing, Centralizers and Tubing Program

List of Attached Items:

Description	FileName
Casing, Centralizers and Tubing	537355 Casing.xlsx

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Lost Circulation @ 170'

8. Drillers Log

Compiled By: EnerVest Operating, LLC

List of Attached Items:

Description	FileName
Driller's Log	537355 DrillersLog.xlsx

9. Comments

10. Signature

Permitee: EnerVest Operating, LLC

Date: 1/10/2018

Signed By: Laura Murray

Title: Associate Landman

INTERNAL USE ONLY

Submit Date: 1/10/2018

Status: A

Date: 1/11/2018

Final PDF Date: 1/11/2018

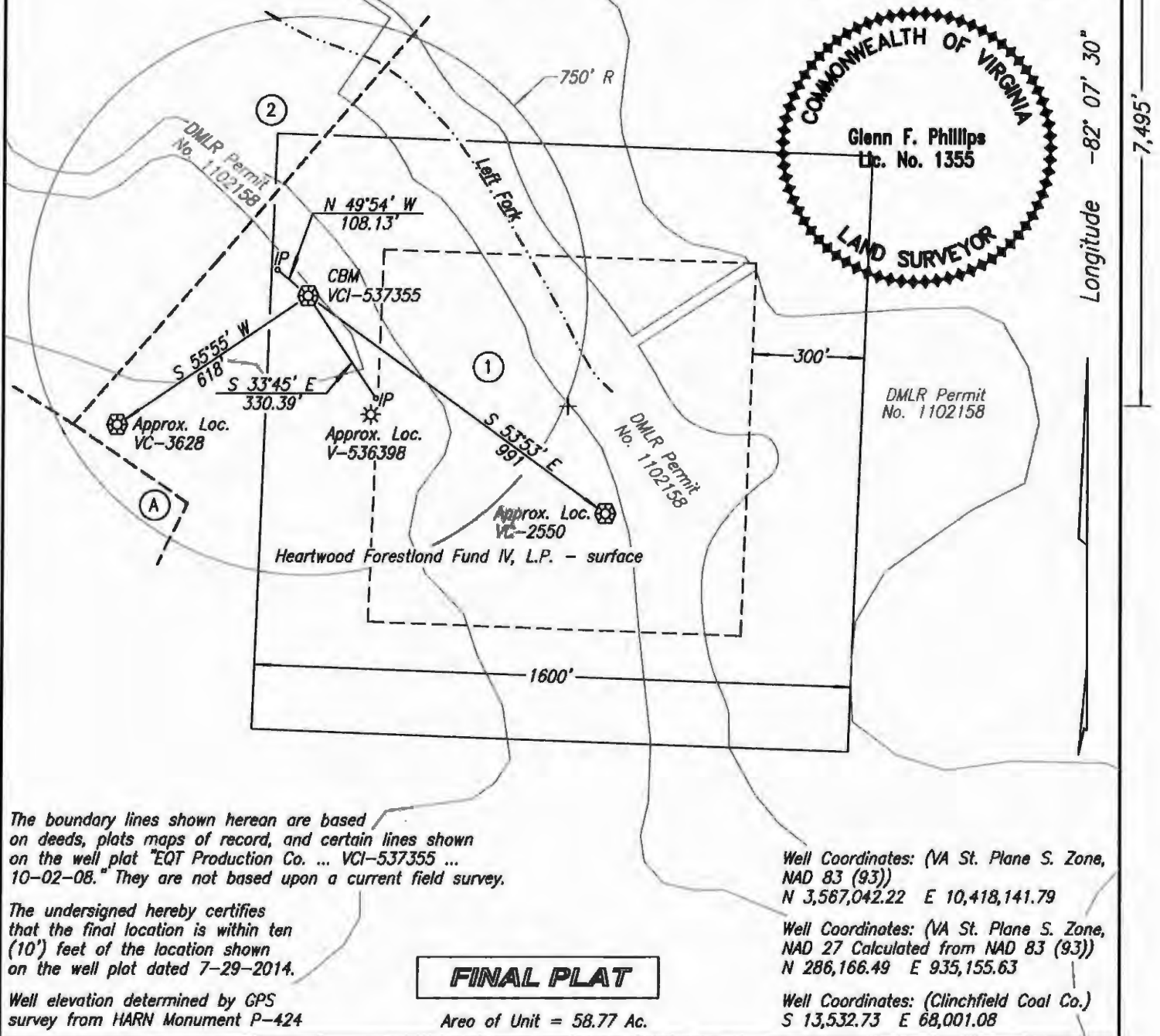
Well Coordinates: (Geographic N83)
37.062890° -82.150150°

Well Coordinates: (UTM N27, Zone 17)
N 13,458,806.32 E 1,304,890.02

Latitude 37° 05' 00"

Note: See Attached Tract
Ownership Information Schedule

--- Mineral Line
- - - Surface Line
- . - Lease Line



WELL LOCATION PLAT NORA GRID BJ-80

COMPANY EnerVest Operating, LLC WELL NAME AND NUMBER VCI-537355
TRACT NO. James Rasnake ELEVATION 1,917.81' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 11-6-2017

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

Glenn F. Phillips
Licensed Professional Engineer or Licensed Land Surveyor

VCI-537355 FINAL PLAT
TRACT OWNERSHIP INFORMATION SCHEDULE
11/6/2017

- 1 . T-349
James Rasnake
388.52 Acres
ACIN LLC - coal (except Tiller and Jawbone seams)
Paramont Contura, LLC - coal lessee
WBRD LLC - coal (except Tiller and Jawbone seams)
Dickenson-Russell Contura, LLC - coal lessee
Mullins Land & Mineral, Inc. - coal (Tiller and Jawbone seams only)
EnerVest Energy Institutional Fund XIV-A, L.P., EnerVest Energy Institutional Fund XIV-A1, L.P., &
EnerVest Energy Institutional Fund XIV-WIC, L.P. - oil, gas & CBM
Gas 58.53 Ac. 99.59%
- 2 . T-427
John L. Tiller
244.00 Acres
ACIN LLC - coal (except Tiller and Jawbone seams)
Paramont Contura, LLC - coal lessee
WBRD LLC - coal (except Tiller and Jawbone seams)
Dickenson-Russell Contura, LLC - coal lessee
Mullins Land & Mineral, Inc. - coal (Tiller and Jawbone seams only)
EnerVest Energy Institutional Fund XIV-A, L.P., EnerVest Energy Institutional Fund XIV-A1, L.P., &
EnerVest Energy Institutional Fund XIV-WIC, L.P. - oil, gas & CBM
Gas 0.24 Ac. 0.41%
- A . T2-164
Julia Fletcher
91.00 Acres
ACIN LLC - coal (except Tiller and Jawbone seams)
Paramont Contura, LLC - coal lessee
WBRD LLC - coal (except Tiller and Jawbone seams)
Dickenson-Russell Contura, LLC - coal lessee
Mullins Land & Mineral, Inc. - coal (Tiller and Jawbone seams only)
EnerVest Energy Institutional Fund XIV-A, L.P., EnerVest Energy Institutional Fund XIV-A1, L.P., &
EnerVest Energy Institutional Fund XIV-WIC, L.P. - oil, gas & CBM

Coal seams			Well #	537355		
Names	Depth Top	Depth Bottom	Thickness	Mining in Area		Mined Out
				Yes	No	
Middle Seaboard	514.40	516.00	1.60		No	No
Lower Seaboard	558.80	560.80	2.00		No	No
Unnamed A	631.00	632.00	1.00		No	No
Unnamed A	636.60	637.60	1.00		No	No
Unnamed B	677.30	677.90	0.60		No	No
Upper Horsepen	717.50	718.20	0.70		No	No
Middle Horsepen	753.00	755.00	2.00		No	No
C Seam Rider	829.40	830.40	1.00		No	No
C Seam	849.00	850.10	1.10		No	No
C Seam	852.60	853.10	0.50		No	No
War Creek	885.00	885.90	0.90		No	No
Unnamed C	938.70	940.00	1.30		No	No
Beckley	963.00	966.20	3.20		No	No
Beckley	967.20	969.10	1.90		No	No
Lower Horsepen	1001.20	1004.10	2.90		No	No
Lower Horsepen	1008.30	1009.10	0.80		No	No
Lower Horsepen	1014.20	1014.90	0.70		No	No
X Seam Rider	1041.30	1042.90	1.60		No	No
X Seam	1056.10	1057.90	1.80		No	No
X Seam	1075.20	1075.80	0.60		No	No
Pocahontas #9	1152.30	1152.80	0.50		No	No
Pocahontas #8	1205.20	1205.80	0.60		No	No
Pocahontas #7	1251.90	1252.20	0.30		No	No
Pocahontas #6	1406.30	1408.10	1.80		No	No
Pocahontas #5 Rider	1441.70	1442.10	0.40		No	No
Pocahontas #5	1478.70	1479.20	0.50		No	No
Pocahontas #4	1542.10	1543.10	1.00		No	No
Pocahontas #3	1636.40	1636.90	0.50		No	No
Pocahontas #3	1696.10	1699.00	2.90		No	No
Pocahontas #2	1753.20	1753.80	0.60		No	No
Pocahontas #1	1861.50	1861.60	0.10		No	No

Gas and Oil Shows

537355

[illegible]

Survey Results

537355

Depth of Survey	Direction/Distance/Degree From True Vertical
192	1/4
380	1/4
568	1/2
758.00	1/2
948.00	1/4
1,136.00	1/2
1,325.00	1/2
1,515.00	1/2
1,705.00	1/2

Drillers Log		537355			
Geologic Age	Formation	General Lithology	Depth Top	Depth Bottom	Thickness
Pennsylvanian	Lee	Sand/Shale/Coal	0.00	514.40	514.40
Pennsylvanian	Lee	Middle Seaboard	514.40	516.00	1.60
Pennsylvanian	Lee	Sand/Shale/Coal	516.00	558.80	42.80
Pennsylvanian	Lee	Lower Seaboard	558.80	560.80	2.00
Pennsylvanian	Lee	Sand/Shale	560.80	631.00	70.20
Pennsylvanian	Lee	Unnamed A	631.00	632.00	1.00
Pennsylvanian	Lee	Sand/Shale	632.00	636.60	4.60
Pennsylvanian	Lee	Unnamed A	636.60	637.60	1.00
Pennsylvanian	Lee	Sand/Shale	637.60	677.30	39.70
Pennsylvanian	Lee	Unnamed B	677.30	677.90	0.60
Pennsylvanian	Lee	Sand/Shale	677.90	717.50	39.60
Pennsylvanian	Lee	Upper Horsepen	717.50	718.20	0.70
Pennsylvanian	Lee	Sand/Shale	718.20	753.00	34.80
Pennsylvanian	Lee	Middle Horsepen	753.00	755.00	2.00
Pennsylvanian	Lee	Sand/Shale	755.00	829.40	74.40
Pennsylvanian	Lee	C Seam Rider	829.40	830.40	1.00
Pennsylvanian	Lee	Sand/Shale	830.40	849.00	18.60
Pennsylvanian	Lee	C Seam	849.00	850.10	1.10
Pennsylvanian	Lee	Sand/Shale	850.10	852.60	2.50
Pennsylvanian	Lee	C Seam	852.60	853.10	0.50
Pennsylvanian	Lee	Sand/Shale	853.10	885.00	31.90
Pennsylvanian	Lee	War Creek	885.00	885.90	0.90
Pennsylvanian	Lee	Sand/Shale	885.90	938.70	52.80
Pennsylvanian	Lee	Unnamed C	938.70	940.00	1.30
Pennsylvanian	Lee	Sand/Shale	940.00	963.00	23.00
Pennsylvanian	Lee	Beckley	963.00	966.20	3.20
Pennsylvanian	Lee	Sand/Shale	966.20	967.20	1.00
Pennsylvanian	Lee	Beckley	967.20	969.10	1.90
Pennsylvanian	Lee	Sand/Shale	969.10	1001.20	32.10
Pennsylvanian	Lee	Lower Horsepen	1001.20	1004.10	2.90
Pennsylvanian	Lee	Sand/Shale	1004.10	1008.30	4.20
Pennsylvanian	Lee	Lower Horsepen	1008.30	1009.10	0.80
Pennsylvanian	Lee	Sand/Shale	1009.10	1014.20	5.10
Pennsylvanian	Lee	Lower Horsepen	1014.20	1014.90	0.70
Pennsylvanian	Lee	Sand/Shale	1014.90	1041.30	26.40
Pennsylvanian	Lee	X Seam Rider	1041.30	1042.90	1.60
Pennsylvanian	Lee	Sand/Shale	1042.90	1056.10	13.20
Pennsylvanian	Lee	X Seam	1056.10	1057.90	1.80
Pennsylvanian	Lee	Sand/Shale	1057.90	1075.20	17.30
Pennsylvanian	Lee	X Seam	1075.20	1075.80	0.60
Pennsylvanian	Lee	Sand/Shale	1075.80	1152.30	76.50
Pennsylvanian	Lee	Pocahontas #9	1152.30	1152.80	0.50
Pennsylvanian	Lee	Sand/Shale	1152.80	1205.20	52.40

Pennsylvanian	Lee	Pocahontas #8	1205.20	1205.80	0.60
Pennsylvanian	Lee	Sand/Shale	1205.80	1251.90	46.10
Pennsylvanian	Lee	Pocahontas #7	1251.90	1252.20	0.30
Pennsylvanian	Lee	Sand/Shale	1252.20	1406.30	154.10
Pennsylvanian	Lee	Pocahontas #6	1406.30	1408.10	1.80
Pennsylvanian	Lee	Sand/Shale	1408.10	1441.70	33.60
Pennsylvanian	Lee	Pocahontas #5 Rider	1441.70	1442.10	0.40
Pennsylvanian	Lee	Sand/Shale	1442.10	1478.70	36.60
Pennsylvanian	Lee	Pocahontas #5	1478.70	1479.20	0.50
Pennsylvanian	Lee	Sand/Shale	1479.20	1542.10	62.90
Pennsylvanian	Lee	Pocahontas #4	1542.10	1543.10	1.00
Pennsylvanian	Lee	Sand/Shale	1543.10	1636.40	93.30
Pennsylvanian	Lee	Pocahontas #3	1636.40	1636.90	0.50
Pennsylvanian	Lee	Sand/Shale	1636.90	1696.10	59.20
Pennsylvanian	Lee	Pocahontas #3	1696.10	1699.00	2.90
Pennsylvanian	Lee	Sand/Shale	1699.00	1753.20	54.20
Pennsylvanian	Lee	Pocahontas #2	1753.20	1753.80	0.60
Pennsylvanian	Lee	Sand/Shale	1753.80	1861.50	107.70
Pennsylvanian	Lee	Pocahontas #1	1861.50	1861.60	0.10
Pennsylvanian	Lee	Sand/Shale	1861.60	1960.00	98.40



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2359
Company:	EQT Production Company
File Number:	DI-2109
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	1/5/2010
Driller's Total Depth:	1459.00	Log's Total Depth:	1469.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 537412	Stage1.doc

3. Final Production

Description	FileName
Final Production 537412	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: EQT Production Company Date: 2/11/2010 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 2/11/2010

Status: _____

Date: 5/19/2010

Final PDF Date: 6/1/2010

Stage1

Date 12/08/2009

FracType 65Q Foam
Zone X Sm/L Hrspn

of Perfs 18

From/To 1,018 973

BD Press 1,465

ATP Psi 2,976

Avg Rate 32

Max Press Psi 3,515

ISIP Psi 1,451

10min SIP 1,138 5 min.
1.61

Frac Gradient

Sand Proppant 76.53

Water-bbl 188
SCF N2 150,665

Acid-gal gal 850
7.5%HCL

Date 12/08/2009

FracType 65Q Foam
Zone Beckley/Unnamed C

of Perfs 38

From/To 929 896

BD Press 2,152

ATP Psi 3,218

Avg Rate 40

Max Press Psi	3,690	
ISIP Psi	1,553	
10min SIP	1,094	5 min. 1.85
Frac Gradient		
Sand Proppant		278.09
Water-bbl	429	
SCF N2		409,079
Acid-gal	gal 7.5%HCL	350



Date	12/08/2009	
FracType	65Q	Foam
Zone	WrCrk/M Hrspn/C Sm	
# of Perfs	26	
From/To	848	725
BD Press	2,927	
ATP Psi	3,420	
Avg Rate	37	
Max Press Psi	3,598	
ISIP Psi	1,634	
10min SIP	1,446	5 min. 2.23
Frac Gradient		
Sand Proppant		125.44
Water-bbl	212	
SCF N2		218,361

Acid-gal

gal
7.5% HCL

350

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

32

0

105

TIL date: 1/29/2010



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2407
Company:	EQT Production Company
File Number:	DI-2109
Operations Name:	VCI-537412
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	11/18/2009	Drilling Contractor:	Gasco Drilling
Date drilling completed:	11/19/2009	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	1459.00		
Log Total Depth (feet):	1469.00	Coal Seam At Total Depth	<input checked="" type="checkbox"/> X-SEAM

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10417361.9400	Final Plat State Plane X:	10417362.8500
Permitted State Plane Y:	3567295.3900	Final Plat State Plane Y:	3567295.2400

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
Final Plat 537412	VCI-537412 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seams 537412	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 537412	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? R

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 537412	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 537412	Casing Data.doc
Tubing 537412	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers Log 537412	Drillers Log.doc

9. Comments

10. Signature

Permittee: EQT Production Company Date: 2/11/2010

Signed By: Michael D. Butcher Title: Director of Drilling

INTERNAL USE ONLY

Submit Date: 2/11/2010

Status: A

Date: 3/31/2010

Final PDF Date: 4/5/2010

TOTAL UNIT AREA

= 58.80 ACRES

--- DENOTES MINERAL LINE

--- DENOTES SURFACE LINE

--- DENOTES SURFACE & MINERAL LINES

AS-DRILLED
STATE PLANE
NAD 27 COORDINATES
OF WELL VCI-537412
N 286418.20
E 934377.09
LAT 37.063390
LON -82.152992
NAD 83 COORDINATES
N 3567295.24
E 10417362.85

Lease No. 906889 / T-427

JOHN L. TILLER

244.00 ACRES

HEARTWOOD FORESTLAND FUND IV, LLC - Surface

DICKENSON-RUSSELL COAL COMPANY, LLC/ALPHA LAND &

RESERVES, LLC/ACIN, LLC/WBRD, LLC - Coal

RANGE RESOURCES-PINE MOUNTAIN, INC. - Oil, Gas & CBM

GAS 14.14 AC. - 24.05%

LATITUDE 37°05'00"

The undersigned hereby certifies that
the final location is within ten (10)
feet of the location shown on the
well plat dated OCTOBER 27, 2008.

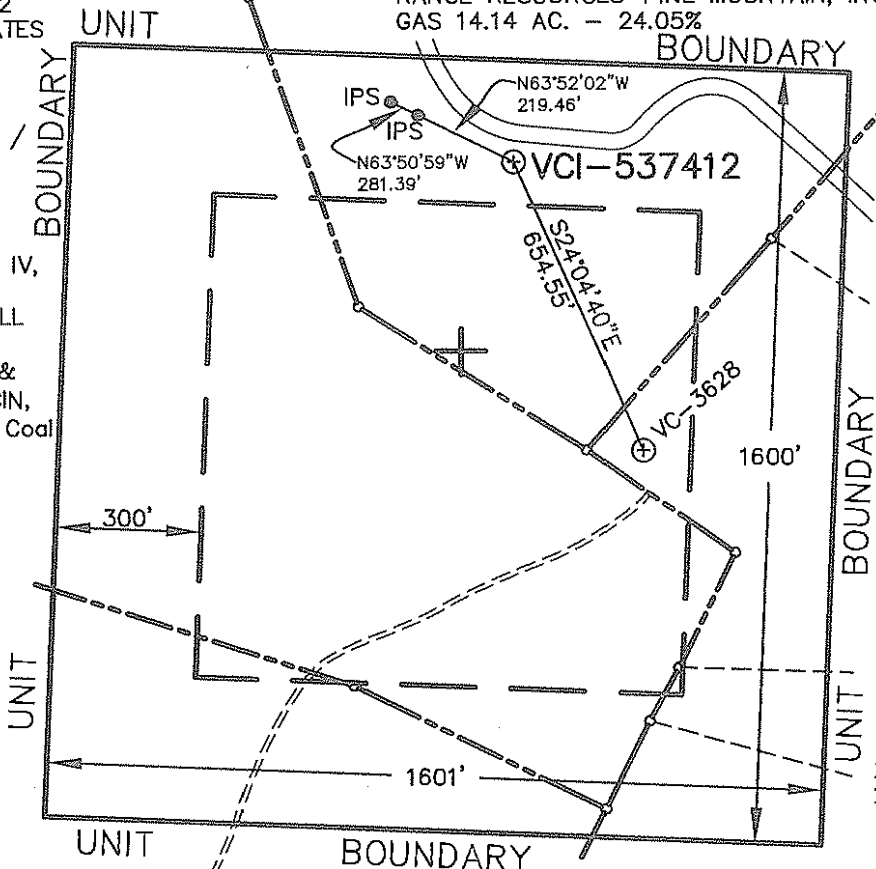
LONGITUDE 82°07'30"

7265'

AS-DRILLED
CCC COORDINATES
OF WELL VCI-537412
S 13311.69
E 67212.92

Lease No. 906889 /
T2-164
JULIA FLETCHER
91.00 ACRES
HEARTWOOD
FORESTLAND FUND IV,
LLC - Surface
DICKENSON-RUSSELL
COAL COMPANY,
LLC/ALPHA LAND &
RESERVES, LLC/ACIN,
LLC/WBRD, LLC - Coal
RANGE
RESOURCES-PINE
MOUNTAIN, INC. -
Oil, Gas & CBM
GAS 27.58 AC. -
46.90%

Lease No. 906889 / T-349
JAMES RASNAKE
388.52 ACRES
HEARTWOOD FORESTLAND
FUND IV, LLC - Surface
DICKENSON-RUSSELL COAL
COMPANY, LLC/ALPHA LAND
& RESERVES, LLC/ACIN,
LLC/WBRD, LLC - Coal
RANGE RESOURCES-PINE
MOUNTAIN, INC. - Oil, Gas &
CBM
GAS 9.34 AC. - 15.88%



Lease No. 245255L
CHARLTON TILLER - Oil, Gas (CBM)
52.87 ACRES

Lease No. 906889 / T2-166

EILANE DUTY

53.00 ACRES

HEARTWOOD FORESTLAND FUND IV, LLC - Surface

DICKENSON-RUSSELL COAL COMPANY, LLC/ALPHA LAND

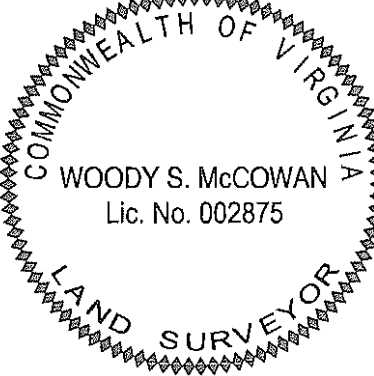
& RESERVES, LLC/ACIN, LLC/WBRD, LLC - Coal (CBM)

GAS 7.74 AC. - 13.17%

COORDINATES OF
BENCH MARK
N 3504914.8125
E 10370404.8448
ELEV. = 1753.40

NOTE !!!

WELL COORDINATES ARE BASED ON STATE PLANE NAD 83
COORDINATE SYSTEM. NAD 83 COORDINATES ARE MATHEMATICALLY
CONVERTED FROM CLINCHFIELD COAL COMPANY COORDINATES.
ELEVATIONS ARE BASED ON NGS CONTROL ST. PAUL 2.
PROPERTY INFORMATION PROVIDED BY EQUITABLE PRODUCTION
COMPANY. THE BOUNDARY LINES SHOWN HEREON ARE BASED ON
DEEDS, PLATS AND MAPS OF RECORD AND DO NOT DEPICT A
CURRENT BOUNDARY SURVEY.
THE WELL WILL BE DRILLED WITHIN 10' (TEN FEET) OF THE
PERMITTED COORDINATES.



WELL LOCATION PLAT

COMPANY EQT Production Company WELL NAME AND NUMBER VCI-537412(BJ-79)

TRACT No. LEASE NO. 906889 / T-427 ELEVATION 1853.13 (GPS) QUADRANGLE DUTY

COUNTY DICKENSON DISTRICT ERVINTON SCALE: 1" = 400' DATE NOVEMBER 23, 2009

THIS PLAT IS A NEW PLAT ; AN UPDATED PLAT ; OR A FINAL LOCATION PLAT x

PROPOSED TOTAL DEPTH OF WELL =

+ DENOTES THE LOCATION OF A WELL ON UNITED STATES TOPOGRAPHIC MAPS, SCALE 1 TO
24,000, LATITUDE AND LONGITUDE LINES BEING REPRESENTED BY BORDER LINES AS SHOWN.

Signature 11-23-09

(AFFIX SEAL)

T&L

LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR



T
Coal

Coal

Coal

Coal

R

45'-46', 368'-69.17', 480'-
81.58', 525.5'-27.5',
597.5'-00.25', 725.5'-27.25',
794'-94.33',
816.5'-17.42', 847.5'-48',
896'-87.08',
922'-27.75', 73.5'-74.17',
1016'-17.25',



Gas Tests

<u>Depth</u>	<u>Penetration</u>
195	No Show
380	No Show
600	No Show
821	No Show
1,010	No Show
1,199	No Show
1,419	No Show
1,459	No Show



<u>Depth</u>	<u>Direction/Distance/Damage</u>
195	1/4
380	1/4
600	1/4
821	1/4
1,010	1/4
1,199	1/4
1,419	1/4
1,459	1/4

Casing Outside Diameter	<div></div> Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
12 3/4	54	15 1/4				
7	343	8 7/8	103.84	y	11/19/2009	132
4 1/2	1147	6 1/2	265.00	y	11/19/2009	

Tubing Size
2 3/8
5/8"

Footage
1,097.80
1040

Well Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
	0.00	0.00	0.00
	0.00	0.00	0.00
Fill	0.00	45.00	45.00
Coal	45.00	46.00	1.00
sandstone	46.00	369.00	323.00
Greasy Creek	368.00	369.17	1.17
sand & shale	369.17	480.00	110.83
Middle Seaboard	480.00	481.58	1.58
sand & shale	481.58	525.50	43.92
Lower Seaboard	525.50	527.25	1.75
sand & shale	527.25	597.50	70.25
Unnamed A	597.50	600.25	2.75
sand & shale	600.25	725.50	125.25
Middle Horsepen	725.50	727.25	1.75
sand & shale	727.25	794.00	66.75
C Seam Rider	794.00	794.33	0.33
sand & shale	794.33	816.50	22.17
C Seam	816.50	817.42	0.92
sand & shale	817.42	847.50	30.08
War Creek	847.50	848.00	0.50
sand & shale	848.00	896.00	48.00
Unnamed C	896.00	897.08	1.08
sand & shale	897.08	922.00	24.92
Beckley	922.00	927.75	5.75
sand & shale	927.75	973.50	45.75
Lower Horsepen	973.50	974.17	0.67
sand & shale	974.17	1,016.00	41.83
X Seam	1,016.00	1,017.25	1.25
sand & shale	1,017.25	1,459.00	441.75



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Drawer 159, Lebanon, VA 24266
 Telephone: (276) 415-9700

Tracking Number: 9914
Company: EnerVest Operating, LLC
File Number: DI-2711
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type: Coalbed/Pipeline	Date Well Completed: 6/8/2017
Driller's Total Depth: 2843.00	Log's Total Depth: 2840.00

Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

Water Protection Casing Cement Bond Log

Description	FileName
537513 Cement Chart	VCI-537513 Cement Chart.pdf

Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Chemical Disclosure submitted? Date out of Range

Final Fracturing Ingredient Status: Approved 11

Description	FileName
Perf Report	VCI-537513 Perf Report.pdf
Stimulation Report	VCI-537513 Stimulation Report.pdf

Final Production

Description	FileName
Final Production	537513 Final_Prod.xls

Comments

Notes:

Ingredients are now listed on the Chemical Registry. [12/6/2017, gje]
Frac Focus has been corrected. [10/20/2017, lwmurray]
The API # was incorrect when the frac ingredients were uploaded to frad focus. Consequently, the ingredients cannot be downloaded to the chemical registry. [10/19/2017, gje]
Final Fracturing Ingredients updated. [9/26/2017, lwmurray]
Trade secret is not an acceptable designation, add the cement density report and frac ingredients need to be consistent among the various reports. [9/18/2017, gje]

Signature

Permittee: EnerVest Operating, LLC Date: 10/20/2017 (Company)
By: Laura Murray Title: Associate Landman (Signature)

INTERNAL USE ONLY

Submit Date: 10/20/2017
Status: _____ Date: 12/6/2017
Final PDF Date: 12/6/2017

**Perforation Report**

Asset Name	APPALACHIAN
Project	APPALACHIA SOUTH
Site	NORA
Well Common Name	537513
Operator	ENERVEST OPERATING, LLC
MD Top - MD Base	624.0 ft - 1,749.2 ft
Perf Length Gross	1,125.20 ft

Intervals

Report Date	Stage	Formation	MD top (ft)	MD base (ft)	Shot density (shot/ft)	# of Shots	Charge Phasing (°)	Carr size (in)	Charge weight (gram)	Charge Manufacturer	Hole Diameter
05/31/2017	01	POCAHONTAS #03	1747	1749	3.00	7.000	60.00	2.500		Owens	0.32
05/31/2017	01	POCAHONTAS #05	1593	1597	3.00	12.000	60.00	2.500		Owens	0.32
05/31/2017	01	POCAHONTAS #06	1577	1579	3.00	6.000	60.00	2.500		Owens	0.32
05/31/2017	01	POCAHONTAS #06	1573	1575	3.00	6.000	60.00	2.500		Owens	0.32
05/31/2017	01	POCAHONTAS #06	1532	1535	3.00	9.000	60.00	2.500		Owens	0.32
06/07/2017	02	X SEAM	1218	1221	3.00	10.000	60.00	2.500		Owens	0.32
06/07/2017	02	X SEAM RIDER	1182	1184	3.00	6.000	60.00	2.500		Owens	0.32
06/07/2017	02	HORSEPEN LOWER	1150	1152	3.00	7.000	60.00	2.500		Owens	0.32
06/07/2017	03	BECKLEY	1109	1114	3.00	18.000	60.00	2.750		Owens	0.42
06/07/2017	03	UNNAMED C	1100	1102	3.00	6.000	60.00	2.750		Owens	0.42
06/07/2017	04	WAR CREEK	1049	1052	3.00	8.000	60.00	2.750		Owens	0.42
06/07/2017	04	C SEAM	998	1001	3.00	9.000	60.00	2.750		Owens	0.42
06/07/2017	04	C SEAM	979	981	3.00	6.000	60.00	2.750		Owens	0.42
06/07/2017	05	HORSEPEN MIDDLE	895	897	3.00	7.000	60.00	2.750		Owens	0.42
06/07/2017	05	HORSEPEN UPPER	867	869	3.00	7.000	60.00	2.750		Owens	0.42
06/07/2017	05	UNNAMED A	783	785	3.00	6.000	60.00	2.750		Owens	0.42
06/07/2017	06	SEABOARD LOWER	729	732	3.00	9.000	60.00	2.750		Owens	0.42
06/07/2017	06	SEABOARD MIDDLE	684	687	3.00	8.000	60.00	2.750		Owens	0.42
06/07/2017	06	GREASY CREEK	624	627	3.00	10.000	60.00	2.750		Owens	0.42



STIMULATION REPORT

Company / Asset	APPALACHIAN
Project / Basin	APPALACHIA SOUTH
Site / Field	NORA

Well common name:	537513	API no.:	4505102711
Well legal name:	VCI-537513	Bolo no.:	411114929
Wellbore name:	VCI-537513	Wellbore No.:	00
Report No.:	1	Report date:	6/8/2017
Job Date:	6/8/2017	Event type:	COMPLETION
Spud date:	5/19/2017	Event end date:	
Contractor:	C&J ENERGY SERVICES	Active datum:	RKB @1,722.6ft (above Mean Sea Level)
Supervisor:	KEVIN DARBY		

Initial Wellhead Pressure (psi)	98.00
Water Source	STREAM

Summary for Stage No.: 1 - 6/7/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 1,532.4 ft	Frac Gradient: 1.2200 psi/ft
Interval Base MD: 1,749.2 ft	Breakdown Press: 1,646.00 psi
Stage Length: 216.8 ft	Breakdown Rate: 3.00 bbl/min
CO2 Energized Quality (%):	Max Rate: 65.60 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 59.80 bbl/min
No. of Perfs: 40	Max Treat. Press.: 2,583.00 psi
No. of Clusters: 5	Avg Treat. Press.: 2,244.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,289.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 37,700 lbm
	Total Propp. Format.: 37,700 lbm
	Slurry Vol: 208.10 bbl
	Clean Vol: 175.90 bbl
	Treated Water Vol: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
ACID	6.0		
NITROGEN ENERGIZED		336600	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	37,700

Summary for Stage No.: 2 - 6/7/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 1,150.2 ft	Frac Gradient: 1.3600 psi/ft
Interval Base MD: 1,221.4 ft	Breakdown Press: 1,675.00 psi
Stage Length: 71.2 ft	Breakdown Rate: 5.80 bbl/min
CO2 Energized Quality (%):	Max Rate: 59.30 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 54.50 bbl/min
No. of Perfs: 23	Max Treat. Press.: 3,272.00 psi
No. of Clusters: 3	Avg Treat. Press.: 2,254.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,099.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 30,700 lbm
	Total Propp. Format.: 30,700 lbm
	Slurry Vol: 189.20 bbl
	Clean Vol: 163.20 bbl
	Treated Water Vol: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
ACID	6.0		
NITROGEN ENERGIZED		320200	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	30,700

Summary for Stage No.: 3 - 6/7/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 1,100.2 ft	Frac Gradient: 1.4800 psi/ft
Interval Base MD: 1,114.4 ft	Breakdown Press: 1,621.00 psi
Stage Length: 14.2 ft	Breakdown Rate: 5.80 bbl/min
CO2 Energized Quality (%):	Max Rate: 51.80 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 48.50 bbl/min
No. of Perfs: 24	Max Treat. Press.: 1,963.00 psi
No. of Clusters: 2	Avg Treat. Press.: 1,759.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,157.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 40,300 lbm
	Total Propp. Format.: 40,300 lbm
	Slurry Vol: 228.60 bbl
	Clean Vol: 194.40 bbl
	Treated Water Vol: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
ACID	6.0		
NITROGEN ENERGIZED		274400	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	40,300

Summary for Stage No.: 4 - 6/7/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 979.2 ft	Frac Gradient: 1.6000 psi/ft
Interval Base MD: 1,051.6 ft	Breakdown Press: 4,189.00 psi
Stage Length: 72.4 ft	Breakdown Rate: 5.80 bbl/min
CO2 Energized Quality (%):	Max Rate: 46.60 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 42.30 bbl/min
No. of Perfs: 23	Max Treat. Press.: 4,077.00 psi
No. of Clusters: 3	Avg Treat. Press.: 2,170.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,189.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 29,600 lbm
	Total Propp. Format.: 29,600 lbm
	Slurry Vol: 160.10 bbl
	Clean Vol: 134.90 bbl
	Treated Water Vol: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
ACID	6.0		
NITROGEN ENERGIZED		221800	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	29,600

Summary for Stage No.: 5 - 6/7/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 783.4 ft	Frac Gradient: 1.4200 psi/ft
Interval Base MD: 896.6 ft	Breakdown Press: 2,539.00 psi
Stage Length: 113.2 ft	Breakdown Rate: 5.90 bbl/min
CO2 Energized Quality (%):	Max Rate: 43.80 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 37.70 bbl/min
No. of Perfs: 20	Max Treat. Press.: 3,013.00 psi
No. of Clusters: 3	Avg Treat. Press.: 2,202.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 830.00 psi
Coil Tubing Used: No	10 Min ISIP:
Tracer Used: No	5 Min ISIP:
	15 Min ISIP:
	Total Proppant: 20,900 lbm
	Total Propp. Format.: 20,900 lbm
	Slurry Vol: 139.60 bbl
	Clean Vol: 121.90 bbl
	Treated Water Vol: 6.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
ACID	6.0		
NITROGEN ENERGIZED		188500	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	20,900

Summary for Stage No.: 6 - 6/7/2017

Fluid System: ENERGIZED - SW/N2 TREATMENT	
Interval Top MD: 624.0 ft	Frac Gradient: 2.1800 psi/ft
Interval Base MD: 731.9 ft	Breakdown Press: 3,389.00 psi
Stage Length: 107.9 ft	Breakdown Rate: 5.80 bbl/min
CO2 Energized Quality (%):	Max Rate: 40.20 bbl/min
N2 Energized Quality (%): 70.000	Avg Rate: 37.00 bbl/min
No. of Perfs: 27	Max Treat. Press.: 2,230.00 psi
No. of Clusters: 3	Avg Treat. Press.: 2,085.00 psi
BP Removal Date:	Avg HHP:
Screened Out: No	ISIP: 1,185.00 psi
Coil Tubing Used: No	10 Min ISIP: 912.00 psi
Tracer Used: No	5 Min ISIP: 931.00
	15 Min ISIP:
	Total Proppant: 40,300 lbm
	Total Propp. Format.: 40,300 lbm
	Slurry Vol: 181.90 bbl
	Clean Vol: 148.60 bbl
	Treated Water Vol: 0.00 bbl

Fluids

Fluid name	Pumped (bbl)	Energized Fluid total	Density (ppg)
NITROGEN ENERGIZED		235100	

Proppants

Proppant name	Type	Size	Used (lbm)
WHITE	SAND	20/40	40,300

Final Production After Stimulation		VCI-537513	
	BOD	MCFD	Hours Tested
Final/Commingled Zones			
Commingled		54	in-line



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	9969
Company:	EnerVest Operating, LLC
File Number:	DI-2711
Operations Name:	VCI-537513 w/PL
Operation Type:	Coalbed/Pipeline
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	5/19/2017	Drilling Contractor:	Gasco #5
Date drilling completed:	5/20/2017	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2843.00		
Log Total Depth (feet):	2840.00	Coal Seam at Total Depth:	POCAHONTAS #1

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10406821.1200	Final Plat State Plane X:	10406820.4100
Permitted State Plane Y:	3571189.7100	Final Plat State Plane Y:	3571188.0000

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
VCI-537513 Final Plat	VCI-537513 Final Plat.pdf

VCI-537513 Plat Attachment	VCI-537513_ Final Plat Owner Info.pdf
----------------------------	---------------------------------------

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal	537513 Coals.xlsx

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Shows	537513 Shows.xlsx

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/CDL/PE/DIL/Neu/TEMP/Audio

Did logs disclose vertical locations of a coal seam?

☐

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Surveys	537513 Survey.xlsx

6. Casing, Centralizers and Tubing Program

List of Attached Items:

Description	FileName
Casing, Centralizers and Tubing	537513 Casing.xlsx

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: EnerVest Operating, LLC

List of Attached Items:

Description	FileName
Driller's Log	537513 DrillersLog.xlsx

9. Comments

Check well coordinates on pg. 1. [7/18/2017, gje]
The well coordinates were not correctly transcribed onto page 1. Coordinates as shown place the well > 10 away from permitted location. [7/18/2017, gje]

10. Signature

Permittee: EnerVest Operating, LLC

Date: 8/15/2017

Signed By: Laura Murray

Title: Associate Landman

INTERNAL USE ONLY

Submit Date: 8/15/2017

Status: A

Date: 8/15/2017

Final PDF Date: 8/24/2017

Well Coordinates: (Geographic N83)
37.073059° -82.189477°

Well Coordinates: (UTM N27, Zone 17)
N 13,462,649.14 E 1,293,465.42

Latitude 37° 05' 00"



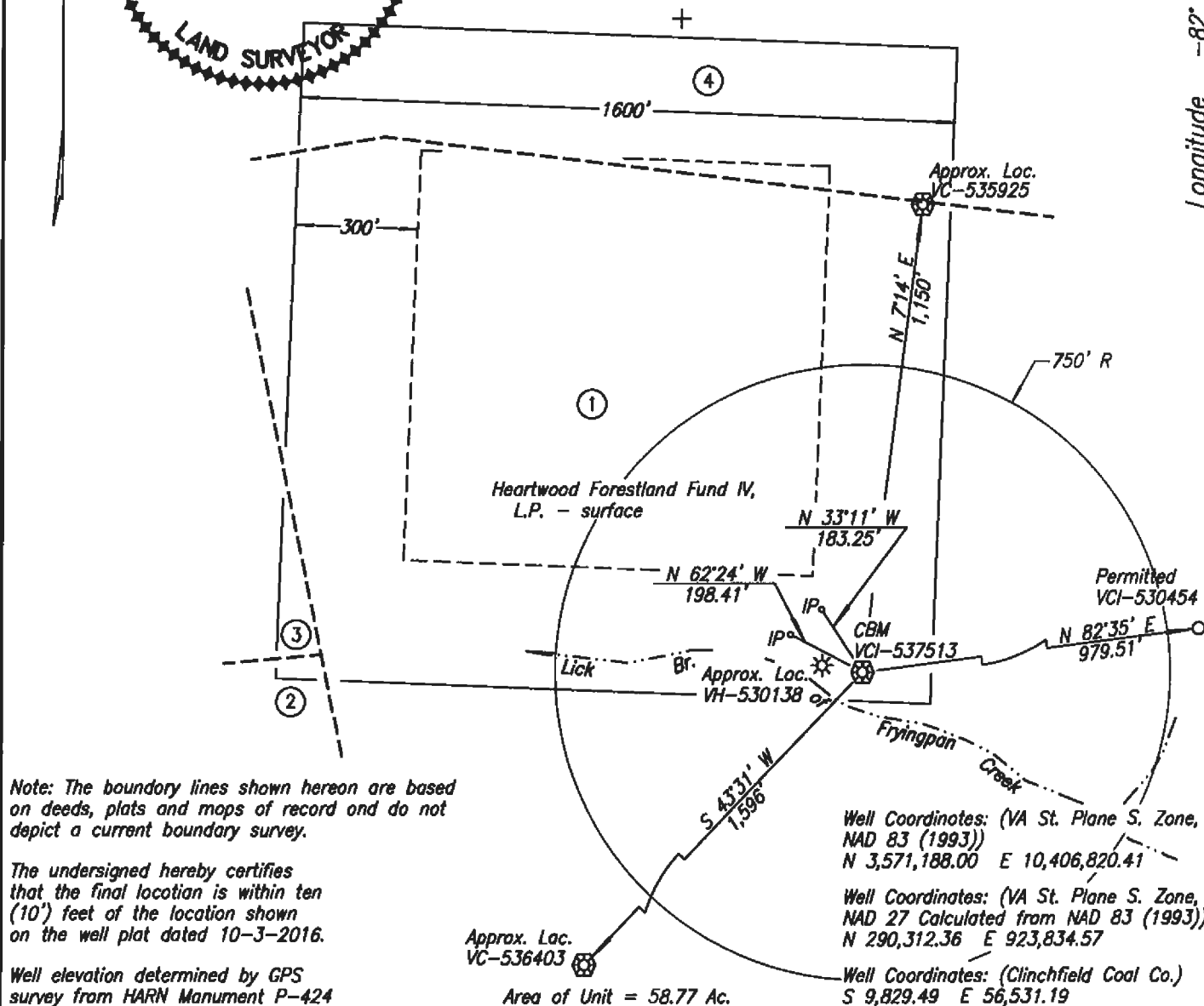
Note: See Attached Tract
Ownership Information Schedule

--- Mineral Line
- - - Surface Line
- . . Lease Line

FINAL PLAT

Longitude -82° 10' 00"

3,780'



WELL LOCATION PLAT NORA GRID BG-72

COMPANY EnerVest Operating, LLC WELL NAME AND NUMBER VCI-537513
TRACT NO. T-405 ELEVATION 1,715.03' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 5-22-2017
This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

Glenn F. Phillips

~~Licensed Professional Engineer or~~ Licensed Land Surveyor

VCI-537513 FINAL PLAT
TRACT OWNERSHIP INFORMATION SCHEDULE
5/22/2017

- 1 . T-405
H. W. Sutherland
225 Acres
ACIN LLC - coal (except Jawbone & Tiller seams)
Paramont Contura, LLC - coal lessee
WBRD LLC - coal (except Jawbone & Tiller seams)
Dickenson-Russell Contura, LLC - coal lessee
Mullins Land & Mineral, Inc. - coal (Jawbone & Tiller seams)
EnerVest Energy Institutional Fund XIV-A, L.P., EnerVest Energy Institutional Fund XIV-A1, L.P., &
EnerVest Energy Institutional Fund XIV-WIC, L.P. - oil, gas & CBM
Gas 46.21 Ac. 78.62%
- 2 . T2-222
Ezekiel Sutherland
178.67 Acres
ACIN LLC - coal (except Jawbone & Tiller seams)
Paramont Contura, LLC - coal lessee
WBRD LLC - coal (except Jawbone & Tiller seams)
Dickenson-Russell Contura, LLC - coal lessee
Mullins Land & Mineral, Inc. - coal (Jawbone & Tiller seams)
EnerVest Energy Institutional Fund XIV-A, L.P., EnerVest Energy Institutional Fund XIV-A1, L.P., &
EnerVest Energy Institutional Fund XIV-WIC, L.P. - oil, gas & CBM
Gas 0.15 Ac. 0.26%
- 3 . T-408
E. Sutherland
382.22 Acres
ACIN LLC - coal (except Jawbone & Tiller seams)
Paramont Contura, LLC - coal lessee
WBRD LLC - coal (except Jawbone & Tiller seams)
Dickenson-Russell Contura, LLC - coal lessee
Mullins Land & Mineral, Inc. - coal (Jawbone & Tiller seams)
EnerVest Energy Institutional Fund XIV-A, L.P., EnerVest Energy Institutional Fund XIV-A1, L.P., &
EnerVest Energy Institutional Fund XIV-WIC, L.P. - oil, gas & CBM
Gas 0.57 Ac. 0.97%
- 4 . T-409
J. N. R. Sutherland
430.65 Acres
ACIN LLC - coal (except Jawbone & Tiller seams)
Paramont Contura, LLC - coal lessee
WBRD LLC - coal (except Jawbone & Tiller seams)
Dickenson-Russell Contura, LLC - coal lessee
Mullins Land & Mineral, Inc. - coal (Jawbone & Tiller seams)
EnerVest Energy Institutional Fund XIV-A, L.P., EnerVest Energy Institutional Fund XIV-A1, L.P., &
EnerVest Energy Institutional Fund XIV-WIC, L.P. - oil, gas & CBM
Gas 11.84 Ac. 20.15%

Coal seams			Well #	537513		
Names	Depth Top	Depth Bottom	Thickness	Mining in Area		Mined Out
				Yes	No	
Jawbone	265.00	268.00	3.00	Yes	No	
Tiller	268.00	270.00	2.00	Yes	No	
Upper Seaboard A	415.10	416.30	1.20		No	No
Upper Seaboard	448.70	450.20	1.50		No	No
Greasy Creek	624.50	626.50	2.00		No	No
Middle Seaboard	684.70	686.10	1.40		No	No
Lower Seaboard	729.70	731.40	1.70		No	No
Unnamed A	783.90	784.40	0.50		No	No
Unnamed B	813.20	813.60	0.40		No	No
Upper Horsepen	867.20	868.30	1.10		No	No
Middle Horsepen	895.10	896.10	1.00		No	No
C Seam Rider	979.70	980.50	0.80		No	No
C Seam	998.70	1000.40	1.70		No	No
War Creek	1049.80	1051.10	1.30		No	No
Unnamed C	1100.70	1101.20	0.50		No	No
Beckley	1109.40	1113.90	4.50		No	No
Lower Horsepen	1150.70	1151.70	1.00		No	No
X Seam Rider	1182.80	1183.50	0.70		No	No
X Seam	1218.80	1220.90	2.10		No	No
Pocahontas #9	1280.50	1280.60	0.10		No	No
Pocahontas #8	1356.40	1356.60	0.20		No	No
Pocahontas #7	1425.00	1425.10	0.10		No	No
Pocahontas #6 Rider	1532.90	1534.40	1.50		No	No
Pocahontas #6	1573.60	1574.10	0.50		No	No
Pocahontas #6	1577.60	1578.10	0.50		No	No
Pocahontas #5 Rider	1593.40	1596.00	2.60		No	No
Pocahontas #5	1613.10	1613.20	0.10		No	No
Pocahontas #4	1680.50	1680.60	0.10		No	No
Pocahontas #3	1747.60	1748.70	1.10		No	No
Pocahontas #2	1783.00	1783.10	0.10		No	No
Pocahontas #1	1917.00	1917.40	0.40		No	No

Gas and Oil Shows

537490

FORMATION	DEPTH	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
	762		N/S		
	951		N/S		
	1140		N/S		
	1328		N/S		
	1516		N/S		
	2054		N/S		

Survey Results

537513

Depth of Survey	Direction/Distance/Degree From True Vertical
194	1/4
383	1/2
571	1/2
760	1/4
949.00	3/4
1,138.00	3/4
1,328.00	1/2
1,515.00	1/2
1,704.00	3/4
1,893.00	1
2,103.00	3/4

For assistance in accessing this document, contact R3_UIC_Mailbox@epa.gov

Casing Program

[illegible]

Drillers Log		537513			
Geologic Age	Formation	General Lithology	Depth Top	Depth Bottom	Thickness
Pennsylvanian	Lee	Sand/Shale/Coal	0.00	265.00	265.00
Pennsylvanian	Lee	Jawbone	265.00	268.00	3.00
Pennsylvanian	Lee	Tiller	268.00	270.00	2.00
Pennsylvanian	Lee	Sand/Shale	270.00	415.10	145.10
Pennsylvanian	Lee	Upper Seaboard A	415.10	416.30	1.20
Pennsylvanian	Lee	Sand/Shale	416.30	448.70	32.40
Pennsylvanian	Lee	Upper Seaboard	448.70	450.20	1.50
Pennsylvanian	Lee	Sand/Shale	450.20	624.50	174.30
Pennsylvanian	Lee	Greasy Creek	624.50	626.50	2.00
Pennsylvanian	Lee	Sand/Shale	626.50	684.70	58.20
Pennsylvanian	Lee	Middle Seaboard	684.70	686.10	1.40
Pennsylvanian	Lee	Sand/Shale	686.10	729.70	43.60
Pennsylvanian	Lee	Lower Seaboard	729.70	731.40	1.70
Pennsylvanian	Lee	Sand/Shale	731.40	783.90	52.50
Pennsylvanian	Lee	Unnamed A	783.90	784.40	0.50
Pennsylvanian	Lee	Sand/Shale	784.40	813.20	28.80
Pennsylvanian	Lee	Unnamed B	813.20	813.60	0.40
Pennsylvanian	Lee	Sand/Shale	813.60	867.20	53.60
Pennsylvanian	Lee	Upper Horsepen	867.20	868.30	1.10
Pennsylvanian	Lee	Sand/Shale	868.30	895.10	26.80
Pennsylvanian	Lee	Middle Horsepen	895.10	896.10	1.00
Pennsylvanian	Lee	Sand/Shale	896.10	979.70	83.60
Pennsylvanian	Lee	C Seam Rider	979.70	980.50	0.80
Pennsylvanian	Lee	Sand/Shale	980.50	998.70	18.20
Pennsylvanian	Lee	C Seam	998.70	1000.40	1.70
Pennsylvanian	Lee	Sand/Shale	1000.40	1049.80	49.40
Pennsylvanian	Lee	War Creek	1049.80	1051.10	1.30
Pennsylvanian	Lee	Sand/Shale	1051.10	1100.70	49.60
Pennsylvanian	Lee	Unnamed C	1100.70	1101.20	0.50
Pennsylvanian	Lee	Sand/Shale	1101.20	1109.40	8.20
Pennsylvanian	Lee	Beckley	1109.40	1113.90	4.50
Pennsylvanian	Lee	Sand/Shale	1113.90	1150.70	36.80
Pennsylvanian	Lee	Lower Horsepen	1150.70	1151.70	1.00
Pennsylvanian	Lee	Sand/Shale	1151.70	1182.80	31.10
Pennsylvanian	Lee	X Seam Rider	1182.80	1183.50	0.70
Pennsylvanian	Lee	Sand/Shale	1183.50	1218.80	35.30
Pennsylvanian	Lee	X Seam	1218.80	1220.90	2.10
Pennsylvanian	Lee	Sand/Shale	1220.90	1280.50	59.60
Pennsylvanian	Lee	Pocahontas #9	1280.50	1280.60	0.10
Pennsylvanian	Lee	Sand/Shale	1280.60	1356.40	75.80
Pennsylvanian	Lee	Pocahontas #8	1356.40	1356.60	0.20
Pennsylvanian	Lee	Sand/Shale	1356.60	1425.00	68.40
Pennsylvanian	Lee	Pocahontas #7	1425.00	1425.10	0.10

Pennsylvanian	Lee	Sand/Shale	1425.10	1532.90	107.80
Pennsylvanian	Lee	Pocahontas #6 Rider	1532.90	1534.40	1.50
Pennsylvanian	Lee	Sand/Shale	1534.40	1573.60	39.20
Pennsylvanian	Lee	Pocahontas #6	1573.60	1574.10	0.50
Pennsylvanian	Lee	Sand/Shale	1574.10	1577.60	3.50
Pennsylvanian	Lee	Pocahontas #6	1577.60	1578.10	0.50
Pennsylvanian	Lee	Sand/Shale	1578.10	1593.40	15.30
Pennsylvanian	Lee	Pocahontas #5 Rider	1593.40	1596.00	2.60
Pennsylvanian	Lee	Sand/Shale	1596.00	1613.10	17.10
Pennsylvanian	Lee	Pocahontas #5	1613.10	1613.20	0.10
Pennsylvanian	Lee	Sand/Shale	1613.20	1680.50	67.30
Pennsylvanian	Lee	Pocahontas #4	1680.50	1680.60	0.10
Pennsylvanian	Lee	Sand/Shale	1680.60	1747.60	67.00
Pennsylvanian	Lee	Pocahontas #3	1747.60	1748.70	1.10
Pennsylvanian	Lee	Sand/Shale	1748.70	1783.00	34.30
Pennsylvanian	Lee	Pocahontas #2	1783.00	1783.10	0.10
Pennsylvanian	Lee	Sand/Shale	1783.10	1917.00	133.90
Pennsylvanian	Lee	Pocahontas #1	1917.00	1917.40	0.40
Pennsylvanian	Lee	Sand/Shale	1917.40	2103.00	185.60



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 724
Company: Equitable Production Company
File Number: DI-1748
Operations Name: V-537713 W/PL
Operation Type: Gas/Pipeline
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Gas/Pipeline	Date Well Completed:	6/15/2007
Driller's Total Depth:	5,195	Log's Total Depth:	5,234

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

☒ Stimulated ☐ Not Stimulated ☐ Gob

Description	FileName
treatment sumamry 537713	Stage 537713.doc

3. Final Production

Description	FileName
final production 537713	Final Production 537713.doc

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 10/30/2007 7:43:43 AM (Company)

Stage1

Date	06/13/2007		
FracType	75Q	Foam	
Zone		Weir	
# of Perfs	28		
From/To	4,622	4,647	
BD Press	166		
ATP Psi	2,291		
Avg Rate	26		
Max Press Psi	2,400		
ISIP Psi	1,870		
10min SIP	1,611		5 min.
		0.53	
Frac Gradient			
Sand			
Proppant	563.17		
Water-bbl	268		
SCF N2	568,973		
Acid-gal	500	gal	
		7.5%	

Stage2

Date	06/13/2007		
FracType		Acid	
Zone		Big Lime	
# of Perfs	28		
From/To	4,148	4,209	
BD Press	1,844		

ATP Psi		1,832	
Avg Rate		13	
Max Press Psi		2,359	
ISIP Psi		2,160	
10min SIP	2,030		5 min.
		0.65	
Frac Gradient			
Sand Proppant		0.00	
Water-bbl		87	
SCF N2		50,064	
Acid-gal	4,350	gal	
		15%HCL	

Date **06/13/2007**

FracType	75Q	Foam
Zone		Ravenclyff

# of Perfs		27	
From/To		2,433	2,454
BD Press		829	
ATP Psi		2,096	
Avg Rate		20	
Max Press Psi		2,673	
ISIP Psi		1,576	
10min SIP	1,358		5 min.
		0.78	
Frac Gradient			
Sand			

Proppant

500.02

Water-bbl

290

SCF N2

420,531

Acid-gal

1,000

gal
15% HCL

Final Production

Final Production if Gas Zones are
commingled

**After
Stimulation
BOD**

MCFD

**Hours
Tested**

**Rock
Pressure**

677

0

800



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Box 1416; Abingdon, VA 24212
 Telephone: (276) 676-5423

Tracking Number: 797
 Company: Equitable Production Company
 File Number: DI-1748
 Operations Name: V-537713 W/PL
 Operation Type: Gas/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 5/31/2007 Drilling Contractor: Gasco
 Date drilling completed: 6/4/2007 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 5,195
 Log Total Depth (feet): 5,234 Formation At Total Depth: Cleveland Shale

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X: 934,580 Final Plat State Plane X: 934,583
 Permitted State Plane Y: 283,120 Final Plat State Plane Y: 283,121

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
final plat 537713	V-537713 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
193	1/4	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams

List of Attached Items:

Description	FileName
coal seams 537713	Coal Seams 537713.doc

Gas and Oil Shows

List of Attached Items:

Description	FileName
gas shows 537713	Gas and Oil Shows 537713.doc

4. Electric Logs (As required by 4VAC25-150-280.A.)

List all logs run: GR/Density/Induction/Temp/Neutron

Did logs disclose vertical locations of a coal seam? ☐ Yes ☒ No

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
surveys 537713	Survey Results 537713.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
csg 537713	Casing Dat 537713.doc
tbg 537713	Tubing Size 537713.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

9 5/8" casing was grouted to surface

8. Drillers Log

Compiled By: _____

List of Attached Items:

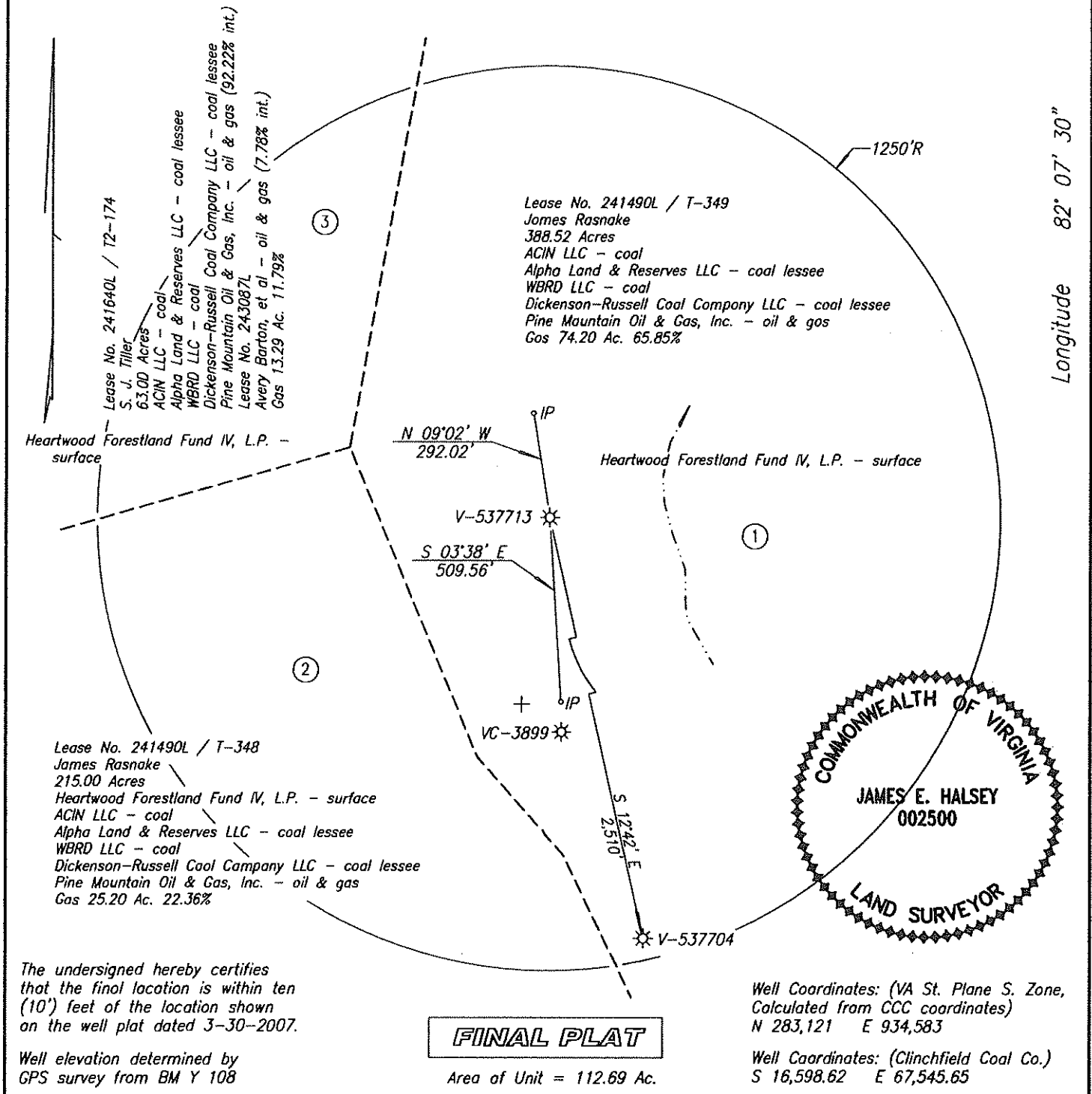
Description	FileName
drillers log 537713	Drillers Log 537713.doc

7,850'

Well Coordinates: (Geographic N27)
37.054362° -82.151852°

Latitude 37° 05' 00"

Longitude 82° 07' 30"



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER V-537713
TRACT NO. Lse. No. 241490L/T-349 ELEVATION 1,955.80' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 6-04-2007

This Plat is a new plat ____; an updated plat ____; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor

Coal Seams & Open Mines

To

Coal

Coal

From

195'-94',225'-26',500'-01',640'-41',840'-41'

885'-86',990'-91',1090'-91',1250'-51',1470'-71'

Gas and Oil Shows

Gas Tests

<u>Depth</u>	<u>Result</u>
193	NS
412	NS
600	NS
818	NS
1007	NS
1197	NS
1414	NS
1601	NS
1715	NS
2,356	TSTM
4,400	TSTM
4,450	TSTM
5,195	TSTM

Survey Results

<u>Point</u>	<u>Direction/Distance/Degrees From True Vertical</u>
193	1/4
412	1/4
600	1/4
818	1/4
1,007	1/4
1,197	1/4
1,414	1/4
1,601	1/4
1,715	1/4

Casing Outside Diameter	Casing Data	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
12 3/4		63	15				
9 5/8		314	12 1/4	273.76	y	05/31/2007	182
7		1688	8 7/8	387.60	y	06/01/2007	353 & 359
4 1/2		4748	6 3/8	453.25	n	06/04/2007	

Tubing
Size
2 3/8

Footage
4,631.50

Drillers
Log

<u>Formation</u> <u>Name</u>	<u>Depth Top</u>	<u>Depth</u> <u>Bottom</u>	<u>Formation</u> <u>Thickness</u>
OverBurden	0.00	40.00	40.00
Sand Stone	40.00	193.00	153.00
Coal	193.00	194.00	1.00
Sandy Shale	194.00	225.00	31.00
Coal	225.00	226.00	1.00
Sandy Shale	226.00	390.00	164.00
Sand Stone	390.00	500.00	110.00
Coal	500.00	501.00	1.00
Sandy Shale	501.00	640.00	139.00
Coal	640.00	641.00	1.00
Sandy Shale	641.00	840.00	199.00
Coal	840.00	841.00	1.00
Sandy Shale	841.00	885.00	44.00
Coal	885.00	886.00	1.00
Sand Stone	886.00	990.00	104.00
Coal	990.00	991.00	1.00
Sandy Shale	991.00	1,090.00	99.00
Coal	1,090.00	1,091.00	1.00
Sand Stone	1,091.00	1,185.00	94.00
Sandy Shale	1,185.00	1,250.00	65.00
Coal	1,250.00	1,251.00	1.00
Sand Stone	1,251.00	1,470.00	219.00
Coal	1,470.00	1,471.00	1.00
Sandy Shale	1,471.00	1,500.00	29.00
Sand Stone	1,500.00	1,645.00	145.00
Sandy Shale	1,645.00	1,960.00	315.00
Red Rock	1,960.00	1,980.00	20.00
Sand Stone	1,980.00	2,090.00	110.00
Sandy Shale	2,090.00	2,349.00	259.00
RVCF	2,349.00	2,456.00	107.00
AVIS	2,538.00	2,621.00	83.00
MXTN	3,208.00	0.00	0.00
LLIM	3,608.00	3,677.00	69.00
BGLM	3,677.00	4,445.00	768.00
WEIR	4,445.00	4,727.00	282.00
WEIR Sh	4,727.00	5,023.00	296.00
SNBY	5,023.00	5,078.00	55.00
BEREA	5,078.00	5,086.00	8.00
CLEV	5,086.00	0.00	0.00



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2098
Company:	EQT Production Company
File Number:	DI-2243
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	9/1/2009
Driller's Total Depth:	2376.00	Log's Total Depth:	2392.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 537794	Stage1.doc

3. Final Production

Description	FileName
Final Production 537794	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: EQT Production Company Date: 11/4/2009 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 11/4/2009

Status: _____

Date: 3/30/2010

Final PDF Date: 4/21/2010

Stage1

Date 08/27/2009

FracType 65Q Foam
Zone Poca #6 Rdr/Poca #5/Poca .

of Perfs 32

From/To 2,266 2,046

BD Press 3,579

ATP Psi 2,490

Avg Rate 44

Max Press Psi 2,560

ISIP Psi 1,810

10min SIP 1,601 5 min.
 1.04

Frac Gradient

Sand Proppant 106.15

Water-bbl 330
SCF N2 402,651

Acid-gal gal 850
 7.5%HCL

Stage2

Date 08/27/2009

FracType 65Q Foam
Zone L Hrspn/X Sm/Poca #9/Bckl.

of Perfs 40

From/To 1,798 1,630

BD Press 3,806

ATP Psi 2,629

Avg Rate 39

Max Press Psi	3,019	
ISIP Psi	1,824	
10min SIP	1,647	5 min. 1.27
Frac Gradient		
Sand Proppant		207.26
Water-bbl	588	
SCF N2		753,015
Acid-gal	gal 7.5%HCL	350

Stage3

Date	08/27/2009	
FracType	65Q	Foam
Zone	U&M Hrspn/C-Sm/Wcrk/Unmd.	
# of Perfs	40	
From/To	1,585	1,324
BD Press	3,289	
ATP Psi	2,562	
Avg Rate	44	
Max Press Psi	2,703	
ISIP Psi	1,951	
10min SIP	1,545	5 min. 1.63
Frac Gradient		
Sand Proppant		151.74
Water-bbl	419	
SCF N2		475,165

Acid-gal gal 350
7.5%HCL

Stage5

Date **08/27/2009**

FracType 65Q Foam
Zone GrsyCrk/ M&L Sbrd

of Perfs 39

From/To 1,256 1,151

BD Press 3,801

ATP Psi 2,467
Avg Rate 41

Max Press Psi 2,829

ISIP Psi 1,506

10min SIP 1,214 5 min.
1.46

Frac Gradient

Sand Proppant 166.58

Water-bbl 478
SCF N2 517,115

Acid-gal gal 350
7.5%HCL

Stage5

Date **08/27/2009**

FracType 65Q Foam
Zone U Sbrd A/U
Sbrd

of Perfs 18

From/To	969	923
BD Press	3,426	
ATP Psi	2,461	
Avg Rate	36	
Max Press Psi	3,278	
ISIP Psi	1,319	
10min SIP	0	5 min. 1.58
Frac Gradient		
Sand Proppant		58.96
Water-bbl	188	
SCF N2		189,593
Acid-gal	gal 7.5%HCL	350

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

15

0

240

TIL Date: 09/09/09 @ 16:30



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2156
Company:	EQT Production Company
File Number:	DI-2243
Operations Name:	VC-537794
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	8/15/2009	Drilling Contractor:	Crossrock Drilling
Date drilling completed:	8/18/2009	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2376.00		
Log Total Depth (feet):	2392.00	Coal Seam At Total Depth	POCAHONTAS #3

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10409620.9900	Final Plat State Plane X:	10409621.1000
Permitted State Plane Y:	3573508.6100	Final Plat State Plane Y:	3573508.4200

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
Final Plat 537794	VC-537794 final plat_0001.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
45'	1	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seams 537794	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 537794	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? R

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 537794	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 537794	Casing Data.doc
Tubing 537794	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Did Not hit anticipated Open Mine @ 743'

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers Log 537794	Drillers Log.doc

9. Comments

10. Signature

Permittee:	<u>EQT Production Company</u>	Date:	<u>11/4/2009</u>
Signed By:	<u>Michael D. Butcher</u>	Title:	<u>Director of Drilling</u>

INTERNAL USE ONLY

Submit Date: 11/4/2009

Status: A

Date: 1/11/2010

Final PDF Date: 1/12/2010

3,960'

Well Coordinates: (Geographic N27)
37.079620° -82.180335°

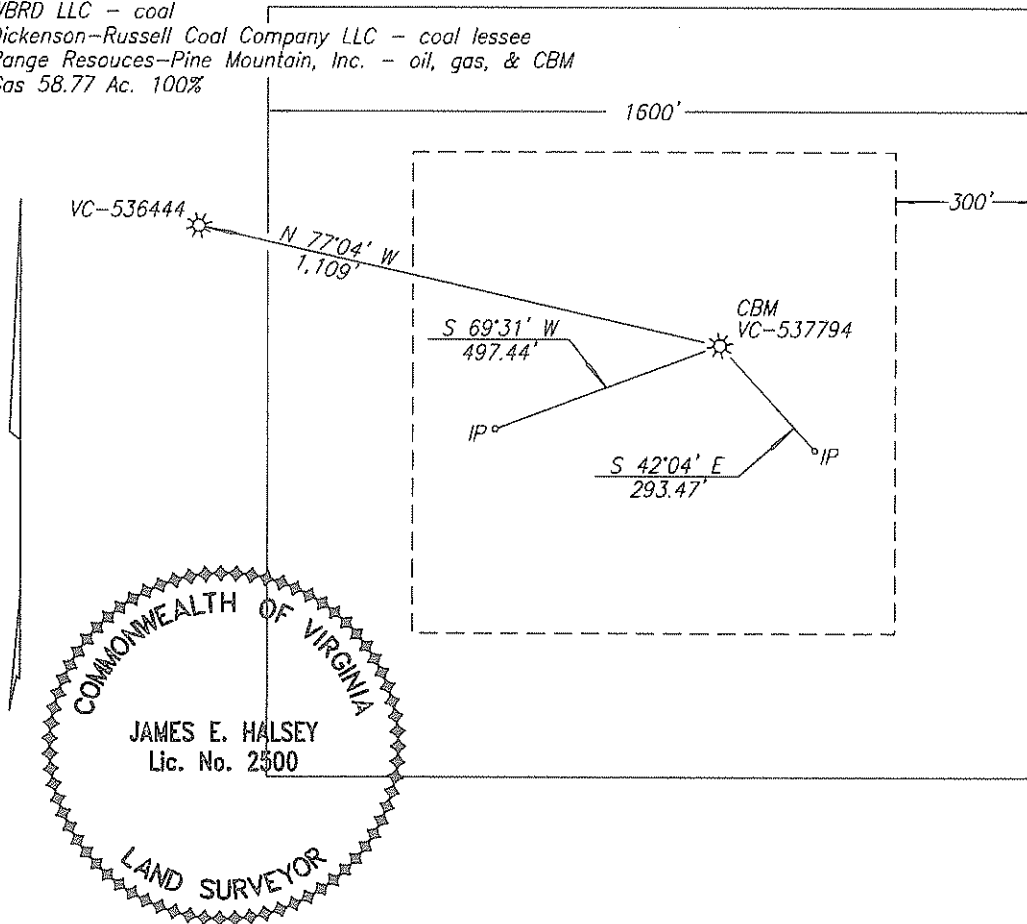
Latitude 37° 05' 00"

1,365'

Lease No. 906889 / T-409
J.N.R. Sutherland
430.65 Acres
Heartwood Forestland Fund IV, L.P. - surface
ACIN LLC - coal
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal
Dickenson-Russell Coal Company LLC - coal lessee
Range Resources-Pine Mountain, Inc. - oil, gas, & CBM
Gas 58.77 Ac. 100%

Note: The boundary lines shown hereon are based on deeds, plats and maps of record and do not depict a current boundary survey. The property ownership information was provided by Equitable Production Company.

Longitude 82° 10' 00"



The undersigned hereby certifies that the final location is within ten (10') feet of the location shown on the well plat dated 6-12-2009.

Well elevation determined by GPS survey from HARN Monument P-424

FINAL PLAT

Area of Unit = 58.77 Ac.

Well Coordinates: (VA St. Plane S. Zone, NAD 83)

N 3,573,508.42 E 10,409,621.10

Well Coordinates: (VA St. Plane S. Zone, NAD 27 Calculated from NAD 83)

N 292,632.61 E 926,635.20

Well Coordinates: (Clinchfield Coal Co.)

S 7,401.03 E 59,238.09

WELL LOCATION PLAT (Nora Grid BF-74)

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-537794
TRACT NO. Lease No. 906889 / T-409 ELEVATION 2,206.18' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 8-17-2009
This Plat is a new plat ; on updated plat ; or a final location plot x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor



Type

Coal

Coal

Coal

Coal

From

106'-07',441'-42',499'-00',571'-72',742'-43',923.5'-24.75',967'-68'

1152'-55.58',1204'-05.5',1254'-55.67',1325'-25.83',1370'-70.67',1390.5'-91.67',1420.5'-21.33'

1500.5'-00.92',1523.5'-24.83',1565'-67',1631'-34.67',1681.5'-82.75',1727.5'-29.08'

1796'-97.92',1864.5'-1865',2047'-48.33',2091.5'-91.67',2109.5'-10.67',2263.5'-65.42'



Gas Tests

<u>Depth</u>	<u>Description</u>
200	No Show
392	No Show
592	No Show
746	No Show
929	No Show
1,122	No Show
1,157	No Show
1,362	No Show
1,512	No Show
1,712	No Show
1,892	No Show
2,039	No Show
2,102	No Show
2,302	No Show
2,358	No Show
2,376	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
200	1/4
392	1/8
592	1/8
746	1/8
929	1/8
1,122	1/8
1,157	1/4
1,362	1/8
1,512	1/8
1,712	1/8
1,892	1/4
2,039	1/4
2,102	1/8
2,302	1/4

Casing Outside Diameter	<div></div>	Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
13 3/8		40	17 1/2				
7		806	8 7/8	277.30	y	08/16/2009	638, 680
4 1/2		2358	6 3/8	440.00	y	08/18/2009	

Tubing Size

2 3/8

5/8"

Footage

2,292.90

2302

Table
1

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Fill	0.00	18.00	18.00
Sand and Shale	18.00	106.00	88.00
Coal	106.00	107.00	1.00
Sand and Shale	107.00	441.00	334.00
Coal	441.00	442.00	1.00
Sand and Shale	442.00	499.00	57.00
Coal	499.00	500.00	1.00
Sand and Shale	500.00	542.00	42.00
Sand	542.00	571.00	29.00
Coal	571.00	572.00	1.00
Sand and Shale	572.00	673.00	101.00
Sand	673.00	730.00	57.00
Sand and Shale	730.00	742.00	12.00
Jawbone	742.00	743.00	1.00
Sand and Shale	743.00	923.50	180.50
Upper Seaboard A	923.50	924.75	1.25
sand & shale	924.75	967.00	42.25
Upper Seaboard	967.00	968.00	1.00
sand & shale	968.00	1,152.00	184.00
Greasy Creek	1,152.00	1,155.58	3.58
sand & shale	1,155.58	1,204.00	48.42
Middle Seaboard	1,204.00	1,205.50	1.50
sand & shale	1,205.50	1,254.00	48.50
Lower Seaboard	1,254.00	1,255.67	1.67
sand & shale	1,255.67	1,325.00	69.33
Unnamed A	1,325.00	1,325.83	0.83
sand & shale	1,325.83	1,370.00	44.17
Unnamed B	1,370.00	1,370.67	0.67
sand & shale	1,370.67	1,390.50	19.83
Upper Horsepen	1,390.50	1,391.67	1.17
sand & shale	1,391.67	1,420.50	28.83
Middle Horsepen	1,420.50	1,421.33	0.83
sand & shale	1,421.33	1,500.50	79.17
C Seam Rider	1,500.50	1,500.92	0.42
sand & shale	1,500.92	1,523.50	22.58
C Seam	1,523.50	1,524.83	1.33
sand & shale	1,524.83	1,565.00	40.17
War Creek	1,565.00	1,567.00	2.00
sand & shale	1,567.00	1,631.00	64.00
Beckley	1,631.00	1,634.67	3.67
sand & shale	1,634.67	1,681.50	46.83
Lower Horsepen	1,681.50	1,682.75	1.25
sand & shale	1,682.75	1,727.50	44.75
X Seam	1,727.50	1,729.08	1.58
sand & shale	1,729.08	1,796.00	66.92
Pocahontas #9	1,796.00	1,797.92	1.92

sand & shale	1,797.92	1,864.50	66.58
Pocahontas #8	1,864.50	1,865.00	0.50
sand & shale	1,865.00	2,047.00	182.00
Pocahontas #6 Rider	2,047.00	2,048.33	1.33
sand & shale	2,048.33	2,091.50	43.17
Pocahontas #6	2,091.50	2,091.67	0.17
sand & shale	2,091.67	2,109.50	17.83
Pocahontas #5	2,109.50	2,110.67	1.17
sand & shale	2,110.67	2,263.50	152.83
Pocahontas #3	2,263.50	2,265.42	1.92
sand & shale	2,265.42	2,376.00	110.58



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2067
Company:	EQT Production Company
File Number:	DI-2198
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	7/25/2009
Driller's Total Depth:	2387.00	Log's Total Depth:	2397.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 537795	Stage1.doc

3. Final Production

Description	FileName
Final Production 537795	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: EQT Production Company Date: 10/22/2009 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 10/22/2009

Status: _____

Date: 3/29/2010

Final PDF Date: 4/13/2010

Stage1

Date 07/15/2009

FracType 65Q Foam
Zone Poca #6/#6 Rdr/#5/#5 Rdr

of Perfs 36

From/To 2,103 2,022

BD Press 3,327

ATP Psi 2,593

Avg Rate 39

Max Press Psi 3,098

ISIP Psi 1,750

10min SIP 1,750 5 min.
1.02

Frac Gradient

Sand Proppant 109.07

Water-bbl 322
SCF N2 415,105

Acid-gal gal 350
7.5%HCL

Stage2

Date 07/15/2009

FracType 65Q Foam
Zone X Seam/Poca
#8

of Perfs 20

From/To 1,874 1,736

BD Press 3,514

ATP Psi 2,949

Avg Rate	34	
Max Press Psi	3,650	
ISIP Psi	1,570	
10min SIP	1,570	5 min. 1.06
Frac Gradient		
Sand Proppant		66.27
Water-bbl	205	
SCF N2		299,713
Acid-gal	gal 7.5%HCL	350



Date 07/15/2009

FracType 65Q Foam
Zone Beckley

of Perfs 16

From/To 1,625 1,621

BD Press 2,856

ATP Psi 2,791
Avg Rate 37

Max Press Psi 3,292

ISIP Psi 1,546

10min SIP 1,546 5 min.
1.11

Frac Gradient

Sand Proppant
76.21

Water-bbl 232
SCF N2 295,487

Date **07/15/2009**

Acid-gal	gal	350
	7.5% HCL	

Date 07/15/2009

From/To	1,251	960
---------	-------	-----

BD Press	2,140	
ATP Psi	2,312	
Avg Rate	44	
Max Press Psi	3,330	
ISIP Psi	1,143	
10min SIP	0	5 min. 1.34
Frac Gradient		
Sand Proppant		221.41
Water-bbl	618	
SCF N2		750,669
Acid-gal	gal 7.5%HCL	350

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

29

0

200



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2125
Company:	EQT Production Company
File Number:	DI-2198
Operations Name:	VC-537795
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	6/24/2009	Drilling Contractor:	Crossrock Drilling
Date drilling completed:	6/27/2009	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2387.00		
Log Total Depth (feet):	2397.00	Coal Seam At Total Depth	POCAHONTAS #5

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10409336.6500	Final Plat State Plane X:	10409336.2700
Permitted State Plane Y:	3572179.4300	Final Plat State Plane Y:	3572179.0200

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
Final Plat 537795	VC-537795 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
572	damp	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seams 537795	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 537795	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? R

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 537795	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 537795	Casing Data.doc
Tubing 537795	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Lost Circ. Hit Open Mine @ 742'-746'

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers Log 537795	Drillers Log.doc

9. Comments

10. Signature

Permitee:	<u>EQT Production Company</u>	Date:	<u>10/22/2009</u>
Signed By:	<u>Michael D. Butcher</u>	Title:	<u>Director of Drilling</u>

INTERNAL USE ONLY

Submit Date: 10/22/2009

Status: A

Date: 1/8/2010

Final PDF Date: 1/8/2010

Well Coordinates: (Geographic N27)
37.075941° -82.181133°

Lease No. 906889 / T-409

Latitude 37° 05' 00"

J.N.R. Sutherland

430.65 Acres

Heartwood Forestland Fund IV, L.P. - surface

ACIN LLC - coal

Alpha Land & Reserves LLC - coal lessee

WBRD LLC - coal

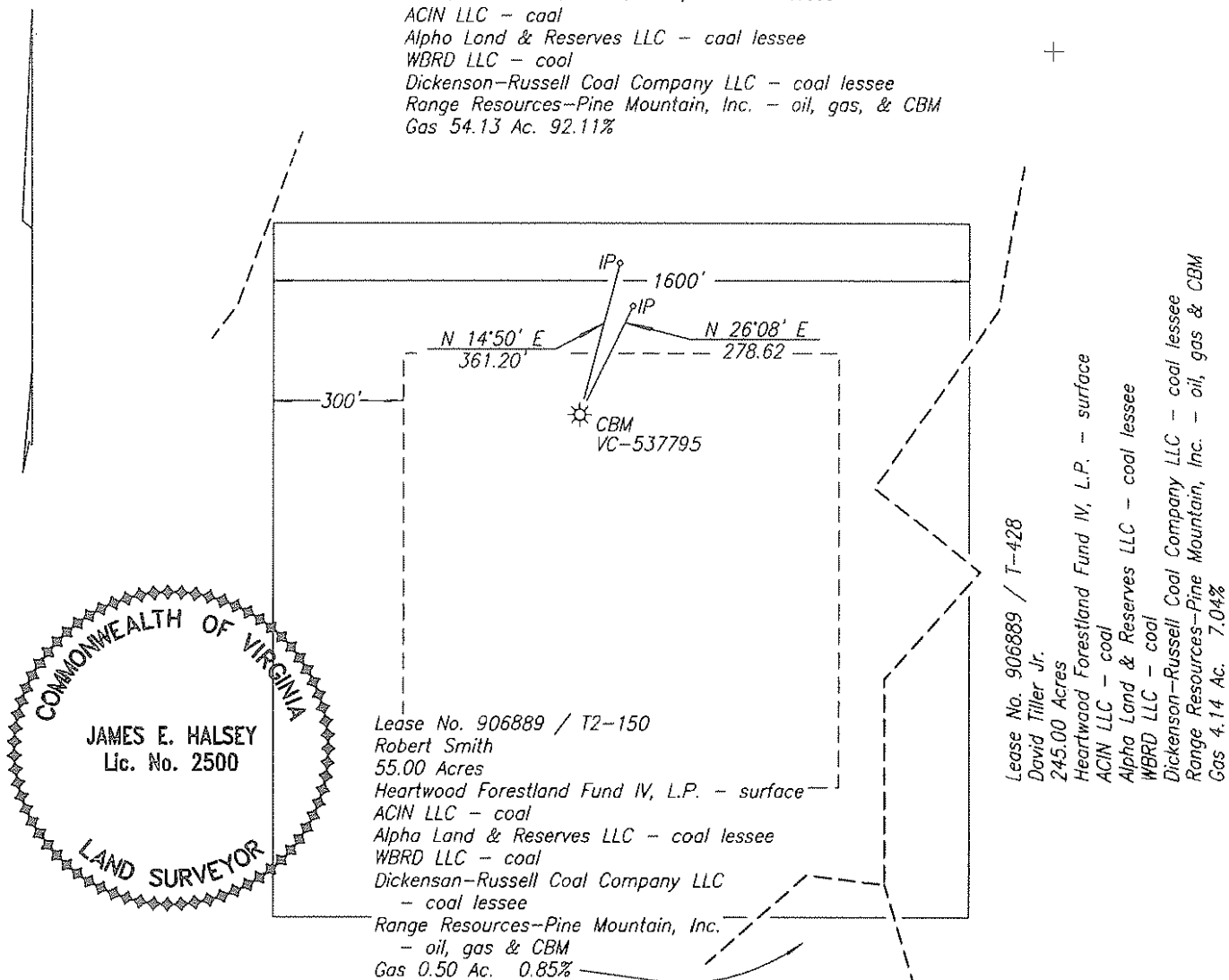
Dickenson-Russell Coal Company LLC - coal lessee

Range Resources-Pine Mountain, Inc. - oil, gas, & CBM

Gas 54.13 Ac. 92.11%

Longitude 82° 10' 00"

2,700'



Note: The boundary lines shown hereon are based on deeds, plats and maps of record and do not depict a current boundary survey. The property ownership information was provided by Equitable Production Company.

The undersigned hereby certifies that the final location is within ten (10') feet of the location shown on the well plat dated 4-29-2009.

Well elevation determined by GPS survey from HARN Monument P-424

FINAL PLAT

Area of Unit = 58.77 Ac.

Well Coordinates: (VA St. Plane S. Zone, NAD 83)

N 3,572,179.02 E 10,409,336.27

Well Coordinates: (VA St. Plane S. Zone, NAD 27 Calculated from NAD 83)

N 291,303.28 E 926,350.37

Well Coordinates: (Clinchfield Coal Co.)

S 8,740.57 E 59,005.35

WELL LOCATION PLAT (Nora Grid BG-74)

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-537795

TRACT NO. Lease No. 906889 / T-409 ELEVATION 2,214.87' QUADRANGLE Duty

COUNTY Dickenson DISTRICT Frvinton SCALE 1" = 400' DATE 6-26-2009

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor



T

Coal

Coal

Coal

Coal

Open Mine

P

05-00,108'-09',122'-23',182'-83',208'-09',265'-66',386'-87',408'-09'

451'-52',497'-98',506'-07',636'-37',684'-85',926.5'-27.83',960'-62.25',1143.5'-46.92'

1199.5'-00.83',1249'-50.83',1343.5'-44.17',1381.5'-84.08',1495'-95.58',1511.5'-13',1560'-61.17',1621.5'-24.67'

1736.5'-38.42',1829'-29.5',1872.5'-73.33',2022'-23.33',2046'-47.25',2088.5'-89.25',2101'-02'742'-746'



Gas Tests

<u>Depth</u>	<u>Result</u>
182	No Show
362	No Show
542	No Show
722	No Show
902	No Show
1,082	No Show
1,262	No Show
1,442	No Show
1,622	No Show
1,802	No Show
1,982	No Show
2,162	No Show
2,342	No Show
2,213	No Show
2,387	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
182	1/8
362	1/8
542	1/8
722	1/8
902	1/4
1,082	1/8
1,262	1/4
1,442	1/8
1,622	1/4
1,802	1/8
1,982	1/4
2,162	1/4
2,342	1/4

Casing Data		Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
Casing Outside Diameter							
13 3/8		42	17 1/2				
7		802	8 7/8	236.00	y	06/24/2009	492, 713
4 1/2		2210	6 3/8	432.50	y	06/26/2009	

Tubing Size
2 3/8

5/8"

Footage
2,174.10

2205'

Well Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Fill	0.00	35.00	35.00
Sand	35.00	65.00	30.00
Coal	65.00	66.00	1.00
Sand and Shale	66.00	108.00	42.00
Coal	108.00	109.00	1.00
Sand and Shale	109.00	122.00	13.00
Coal	122.00	123.00	1.00
Sand	123.00	182.00	59.00
Coal	182.00	183.00	1.00
Sand	183.00	208.00	25.00
Coal	208.00	209.00	1.00
Sand and Shale	209.00	265.00	56.00
Coal	265.00	266.00	1.00
Sand and Shale	266.00	386.00	120.00
Coal	386.00	387.00	1.00
Sand	387.00	408.00	21.00
Coal	408.00	409.00	1.00
Sand and Shale	409.00	451.00	42.00
Coal	451.00	452.00	1.00
Sand and Shale	452.00	497.00	45.00
Coal	497.00	498.00	1.00
Sand and Shale	498.00	506.00	8.00
Coal	506.00	507.00	1.00
Sand and Shale	507.00	636.00	129.00
Coal	636.00	637.00	1.00
Sand and Shale	637.00	684.00	47.00
Coal	684.00	685.00	1.00
Sand and Shale	685.00	742.00	57.00
Open Mine	742.00	746.00	4.00
Sand and Shale	746.00	926.50	180.50
Upper Seaboard A	926.50	927.83	1.33
sand & shale	927.83	960.00	32.17
Upper Seaboard	960.00	962.25	2.25
sand & shale	962.25	1,143.50	181.25
Greasy Creek	1,143.50	1,146.92	3.42
sand & shale	1,146.92	1,199.50	52.58
Middle Seaboard	1,199.50	1,200.83	1.33
sand & shale	1,200.83	1,249.00	48.17
Lower Seaboard	1,249.00	1,250.83	1.83
sand & shale	1,250.83	1,343.50	92.67
Unnamed B	1,343.50	1,344.17	0.67
sand & shale	1,344.17	1,381.50	37.33
Upper Horsepen	1,381.50	1,384.08	2.58
sand & shale	1,384.08	1,495.00	110.92
C Seam Rider	1,495.00	1,495.58	0.58
sand & shale	1,495.58	1,511.50	15.92

C Seam	1,511.50	1,513.00	1.50
sand & shale	1,513.00	1,560.00	47.00
War Creek	1,560.00	1,561.17	1.17
sand & shale	1,561.17	1,621.50	60.33
Beckley	1,621.50	1,624.67	3.17
sand & shale	1,624.67	1,736.50	111.83
X Seam	1,736.50	1,738.42	1.92
sand & shale	1,738.42	1,829.00	90.58
Pocahontas #9	1,829.00	1,829.50	0.50
sand & shale	1,829.50	1,872.50	43.00
Pocahontas #8	1,872.50	1,873.33	0.83
sand & shale	1,873.33	2,022.00	148.67
Pocahontas #6 Rider	2,022.00	2,023.33	1.33
sand & shale	2,023.33	2,046.00	22.67
Pocahontas #6	2,046.00	2,047.25	1.25
sand & shale	2,047.25	2,088.50	41.25
Pocahontas #5 Rider	2,088.50	2,089.25	0.75
sand & shale	2,089.25	2,101.00	11.75
Pocahontas #5	2,101.00	2,102.00	1.00
sand & shale	2,102.00	2,387.00	285.00



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number: 2173
Company: EQT Production Company
File Number: DI-2213
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	7/29/2009
Driller's Total Depth:	2397.00	Log's Total Depth:	2408.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 537798	Stage1.doc

3. Final Production

Description	FileName
Final Production 537798	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: EQT Production Company Date: 11/30/2009 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 11/30/2009

Status: _____

Date: 3/30/2010

Final PDF Date: 4/5/2010

Stage1

Date 07/18/2009

FracType 65Q Foam
Zone X Sm/Poca #6 Rdr/Poca #2

of Perfs 28

From/To 2,267 1,753

BD Press 3,061

ATP Psi 2,592

Avg Rate 45

Max Press Psi 3,090

ISIP Psi 1,670

10min SIP 1,355 5 min.
1.10

Frac Gradient

Sand Proppant 84.21

Water-bbl 276
SCF N2 314,668

Acid-gal gal 850
7.5%HCL

Stage2

Date 07/18/2009

FracType 65Q Foam
Zone C Sm Rdr/C
Sm/WrCrk/Bckly.

of Perfs 44

From/To 1,628 1,420

BD Press 2,579

ATP Psi 3,083

Avg Rate	35	
Max Press Psi	3,756	
ISIP Psi	1,746	
10min SIP	1,433	5 min. 1.38
Frac Gradient		
Sand Proppant		184.60
Water-bbl	551	
SCF N2		712,294
Acid-gal	gal 7.5%HCL	350

Stage3

Date	07/18/2009	
FracType	65Q	Foam
Zone	Unmd A&B/U Hrspn	
# of Perfs	34	
From/To	1,393	1,328
BD Press	2,602	
ATP Psi	2,739	
Avg Rate	40	
Max Press Psi	2,993	
ISIP Psi	1,893	
10min SIP	1,383	5 min. 1.58
Frac Gradient		
Sand Proppant		133.01
Water-bbl	407	
SCF N2		455,036

Acid-gal gal 350
 7.5%HCL

Stage4

Date **07/18/2009**

FracType 65Q Foam
Zone Greasy Crk/ M&L Seaboard

of Perfs 34

From/To 1,271 1,133

BD Press 2,602

ATP Psi 2,779

Avg Rate 39

Max Press Psi 3,619

ISIP Psi 1,063

10min SIP 0 5 min.
 1.09

Frac Gradient

Sand Proppant 128.78

Water-bbl 390
SCF N2 440,787

Acid-gal gal 350
 7.5%HCL

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

8

0

315



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2238
Company:	EQT Production Company
File Number:	DI-2213
Operations Name:	VC-537798
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	6/27/2009	Drilling Contractor:	Crossrock Drilling
Date drilling completed:	6/29/2009	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2397.00		
Log Total Depth (feet):	2408.00	Coal Seam At Total Depth	UNNAMED

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10410546.9000	Final Plat State Plane X:	10410546.3900
Permitted State Plane Y:	3571814.0500	Final Plat State Plane Y:	3571814.2000

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
Final Plat 537798	VC-537798 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seam 537798	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 537798	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? R

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 537798	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 537798	Casing Data.doc
Tubing 537798	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Lost Circ. Hit Open Mine @ 740'-756'

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers Log 537798	Drillers Log.doc

9. Comments

coal seam report (page 2) lists the deepest coal bed at 2265.5'-65.5'. Correct here or in drillers log, along with coal bed at total depth on page 1. [1/12/2010, jal]

10. Signature

Permitee: EQT Production Company Date: 1/19/2010

Signed By: Michael D. Butcher Title: Director of Drilling

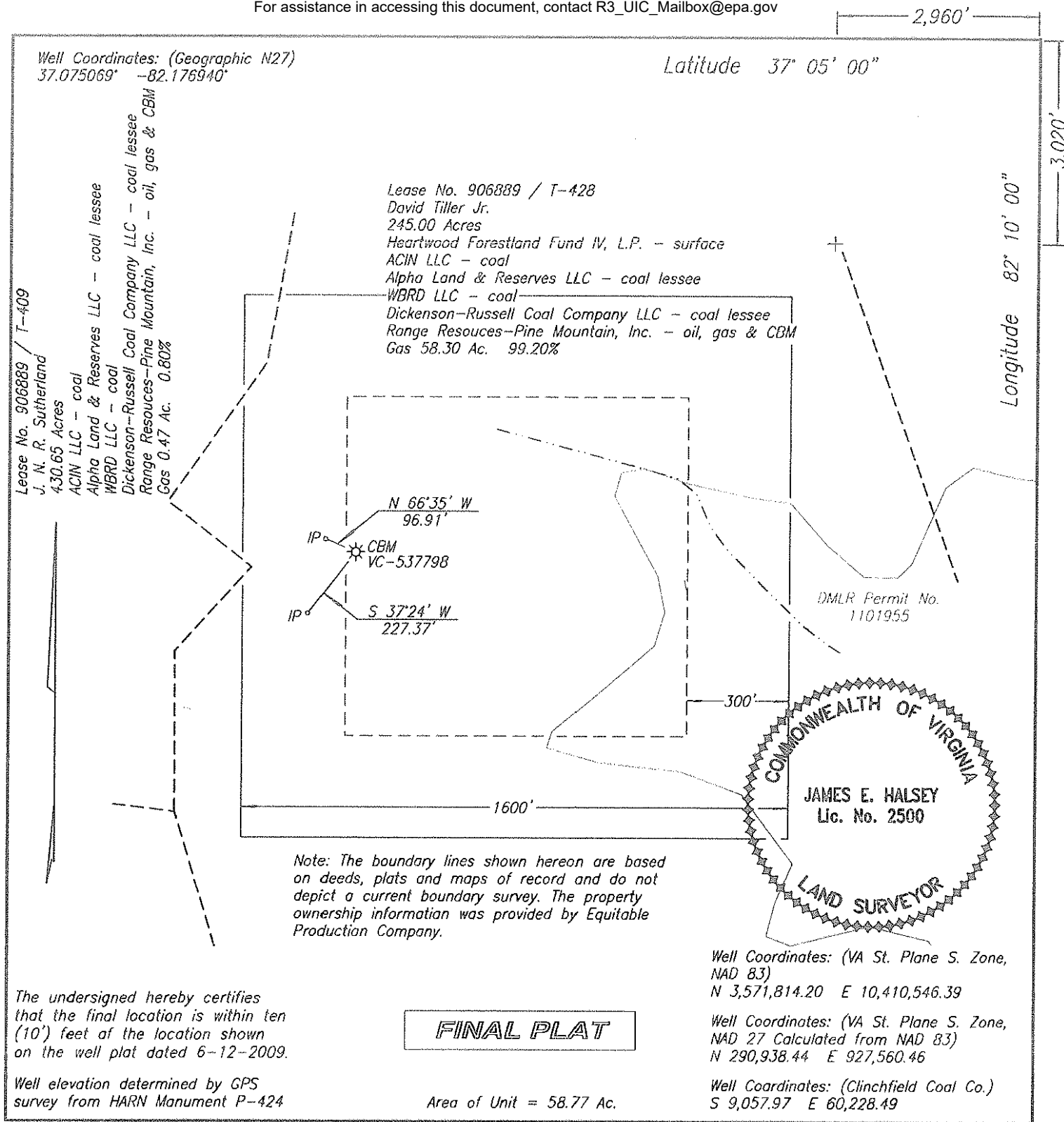
INTERNAL USE ONLY

Submit Date: 1/19/2010

Status: A

Date: 3/30/2010

Final PDF Date: 4/5/2010



WELL LOCATION PLAT (Nora Grid BG-75)

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-537798
TRACT NO. Lease No. 906889 / T-428 ELEVATION 2,229.30' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervington SCALE 1" = 400' DATE 6-29-2009

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor



<u>Type</u>	<u>From</u>
Coal	69'-70',202'-03',204'-05',399'-00',440'-41',486'-87'
Coal	520'-21',530'-31',558'-59',590'-91'
Coal	1320'-21.08',1351.5'-53.5',1404'-05.75'
Coal	1507'-08.5',1657'-60.42,1742'-45.5'
Open Mine	740'-756'



Gas Tests

<u>Depth</u>	<u>Result</u>
182	No Show
362	No Show
542	No Show
722	No Show
902	No Show
1,082	No Show
1,262	No Show
1,442	No Show
1,622	No Show
1,802	No Show
1,982	No Show
2,162	No Show
2,342	No Show
2,338	No Show
2,397	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
182	1/8
362	1/8
542	1/8
722	1/8
902	1/8
1,082	1/8
1,262	1/8
1,442	1/4
1,622	1/8
1,802	1/4
1,982	1/4
2,162	1/4
2,342	1/8

Casing Outside Diameter	Casing Data		Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
13 3/8			42	17 1/2				
7			813	8 7/8	236.00	y	06/27/2009	654,690
4 1/2			2337	6 3/8	432.50	y	06/29/2009	

Tubing Size

2 3/8

5/8"

Footage

2,304.55

2305.35

Table
1

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Jawbone	0.00	0.00	0.00
Pocahontas #8	0.00	0.00	0.00
Pocahontas #9	0.00	0.00	0.00
sand & shale	0.00	0.00	0.00
sand & shale	0.00	0.00	0.00
sand & shale	0.00	0.00	0.00
sand & shale	0.00	0.00	0.00
Tiller	0.00	0.00	0.00
Unnamed C	0.00	0.00	0.00
Fill	0.00	5.00	5.00
Sand and Shale	5.00	69.00	64.00
Coal	69.00	70.00	1.00
Sand and Shale	70.00	202.00	132.00
Coal	202.00	203.00	1.00
Sand and Shale	203.00	204.00	1.00
Coal	204.00	205.00	1.00
Sand and Shale	205.00	399.00	194.00
Coal	399.00	400.00	1.00
Sand and Shale	400.00	440.00	40.00
Coal	440.00	441.00	1.00
Sand and Shale	441.00	486.00	45.00
Coal	486.00	487.00	1.00
Sand and Shale	487.00	520.00	33.00
Coal	520.00	521.00	1.00
Sand and Shale	521.00	530.00	9.00
Coal	530.00	531.00	1.00
Sand and Shale	531.00	558.00	27.00
Coal	558.00	559.00	1.00
Sand and Shale	559.00	590.00	31.00
Coal	590.00	591.00	1.00
Sand and Shale	591.00	740.00	149.00
Open Mine	740.00	756.00	16.00
sand & shale	756.00	1,320.00	564.00
Upper Seaboard A	1,320.00	1,321.08	1.08
sand & shale	1,321.08	1,351.50	30.42
Upper Seaboard	1,351.50	1,353.50	2.00
sand & shale	1,353.50	1,404.00	50.50
Greasy Creek	1,404.00	1,405.75	1.75
sand & shale	1,405.75	1,507.00	101.25
Middle Seaboard	1,507.00	1,508.50	1.50
sand & shale	1,508.50	1,657.00	148.50
Unnamed B	1,657.00	1,660.42	3.42
sand & shale	1,660.42	1,742.00	81.58
Beckley	1,742.00	1,745.50	3.50
sand & shale	1,745.50	2,043.00	297.50

sand & shale	2,043.00	2,265.50	222.50
sand & shale	2,265.50	2,397.00	131.50



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416, Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 1504
Company: Equitable Production Company
File Number: DI-1835
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	11/15/2007
Driller's Total Depth:	2370.00	Log's Total Depth:	2385.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 537799	Stage1.doc

3. Final Production

Description	FileName
Final Production 537799	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 11/13/2008 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 11/13/2008

Status: _____

Date: 11/26/2008

Final PDF Date: 3/27/2009

Stage1

Date	11/08/2007		
FracType	70Q	Foam	
Zone			Poca #5/ Poca #2
# of Perfs			18
From/To		2,000	2,238
BD Press		3,089	
ATP Psi		2,736	
Avg Rate		33	
Max Press Psi		2,956	
ISIP Psi		1,805	
10min SIP	1,416		5 min.
Frac Gradient		1.03	
Sand Proppant		32.27	
Water-bbl		155	
SCF N2		174,777	
Acid-gal	500	gal	
		10%MSA	

Stage2

Date	11/08/2007		
FracType	70Q	Foam	
Zone			Bckly/L Hrspn/X Sm
# of Perfs			40
From/To		1,536	1,707
BD Press		2,340	
ATP Psi		2,452	
Avg Rate		43	

Max Press Psi		2,554	
ISIP Psi		1,821	
10min SIP	1,533		5 min.
		1.32	
Frac Gradient			
Sand Proppant			
		83.74	
Water-bbl		284	
SCF N2		343,592	
Acid-gal	1,000	gal	
		10%MSA	

Stage3

Date	11/08/2007		
FracType	70Q	Foam	
Zone			M Hrspn/WrCrk Rdr/WrCrk/U.
# of Perfs		40	
From/To		1,338	1,508
BD Press		2,318	
ATP Psi		3,179	
Avg Rate		31	
Max Press Psi		3,535	
ISIP Psi		2,347	
10min SIP	1,489		5 min.
		1.88	
Frac Gradient			
Sand Proppant			
		61.29	
Water-bbl		249	
SCF N2		290,631	

Acid-gal 1,000 gal
10%MSA

Stage4

Date 11/08/2007

FracType 70Q Foam
Zone U Horsepen

of Perfs 20

From/To 1,280 1,293

BD Press 3,327

ATP Psi 3,279

Avg Rate 18

Max Press Psi 3,582

ISIP Psi 2,907

10min SIP 1,845 5 min.

2.40

Frac Gradient

Sand Proppant

33.05

Water-bbl 139

SCF N2 180,045

Acid-gal 1,000 gal
10%MSA

Stage5

Date 11/08/2007

FracType 70Q Foam
Zone M&L Sbrd/Unmd A

of Perfs 40

From/To 1,091 1,213

BD Press		2,557	
ATP Psi		2,835	
Avg Rate		25	
Max Press Psi		3,142	
ISIP Psi		1,719	
10min SIP	1,250		5 min.
		1.71	
Frac Gradient			
Sand Proppant			
		89.40	
Water-bbl		272	
SCF N2		325,564	
Acid-gal	1,000	gal	
		10%MSA	

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

30

0

260



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416, Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number:	1556
Company:	Equitable Production Company
File Number:	DI-1835
Operations Name:	VC-537799
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	10/29/2007	Drilling Contractor:	Gasco rig 6
Date drilling completed:	10/31/2007	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2370.00		
Log Total Depth (feet):	2385.00	Coal Seam At Total Depth	POCAHONTAS #2

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10410779.5500	Final Plat State Plane X:	10410785.5500
Permitted State Plane Y:	3569939.9900	Final Plat State Plane Y:	3569938.9900

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
Final Plat 537799	VC-537799 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
604	wet	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seams 537799	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 537799	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? ☒

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 537799	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 537799	Casing Data.doc
Tubing 537799	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Lost Circ. Hit Open Mine @ 690'-695'

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Driller Log 537799	Drillers Log.doc

9. Comments

10. Signature

Permittee: Equitable Production Company Date: 11/13/2008

Signed By: Michael D. Butcher Title: Director of Drilling

INTERNAL USE ONLY

Submit Date: 11/13/2008

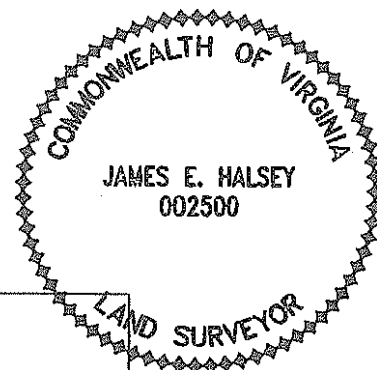
Status: A

Date: 11/26/2008

Final PDF Date: 3/25/2009

Well Coordinates: (Geographic N27)
37.069944° -82.175869°

Latitude 37° 05' 00"



Longitude 82° 10' 00"

4,890'

Lease No. 906889 / T2-150

Robert Smith

55.00 Acres

Heartwood Forestland Fund IV, L.P. - surface

ACIN LLC - coal

Alpha Land & Reserves LLC - coal lessee

WBRD LLC - coal

Dickenson-Russell Coal Company LLC - coal lessee

Pine Mountain Oil & Gas, Inc. - oil, gas & CBM

Gas 10.08 Ac. 17.15%

N 25°37' W
116.53'

IP

CBM
VC-537799

IP

S 16°19' W

177.12'

Lease No. 906889 / T-428

David Tiller Jr.

245.00 Acres

Heartwood Forestland Fund IV, L.P. - surface

ACIN LLC - coal

Alpha Land & Reserves LLC - coal lessee

WBRD LLC - coal

Dickenson-Russell Coal Company LLC - coal lessee

Pine Mountain Oil & Gas, Inc. - oil, gas & CBM

Gas 48.69 Ac. 82.85%

The undersigned hereby certifies
that the final location is within ten
(10') feet of the location shown
on the well plat dated 9-13-2007.

Well elevation determined by GPS
survey from HARN Manument P-424

FINAL PLAT

Area of Unit = 58.77 Ac.

Well Coordinates: (VA St. Plane NAD27, S. Zone,
Calculated from CCC coordinates)
N 289,062 E 927,800

Well Coordinates: (Clinchfield Coal Co.)
S 10,925.09 E 60,540.68

WELL LOCATION PLAT

COMPANY Equitable Production CompanyWELL NAME AND NUMBER VC-537799TRACT NO. Lse. No. 906889/T2-150 ELEVATION 2,201.89'QUADRANGLE DutyCOUNTY DickensonDISTRICT ErvintonSCALE 1" = 400'DATE 11-1-2007This Plat is a new plat ____; an updated plat ____; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to
24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
~~Licensed Professional Engineer or~~ Licensed Land Surveyor



Type

Coal

Coal

Coal

Coal

Open Mine

From

85'-6', 320'-21', 410'-11', 630'-31', 655'-56',
803'-04.1', 882'-83.5', 904.5'-05.7', 1091.5'-
94.', 1158.5'-60.3', 1209'-11.4',
1280'-82.7', 1338.5'-40.8', 1453.5'-54.2',
1465'-66', 1506'-07',
1536'-37.3', 1567'-70.8', 1704.5'-06.3',
2000.5'-02', 2236'-37.1'
690'-95'



Gas Tests

<u>Depth</u>	<u>Penetration</u>
190	No Show
418	No Show
604	No Show
830	No Show
1,008	No Show
1,197	No Show
1,418	No Show
1,670	No Show
1,794	No Show
2,016	No Show
2,206	No Show
2,370	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
196	1/4
418	1/4
604	1/4
830	1/4
1,008	1/4
1,197	1/4
1,418	1/4
1,670	1/4
1,794	1/4
2,016	1/4
2,206	1/4
2,370	1/4

Casing Outside Diameter	<div></div> Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
12 3/4	22	15				
7	801	8 7/8	542.80	y	10/30/2007	487',531'
4 1/2	2335	6 1/2	438.60	y	10/31/2007	

Tubing Size
2 3/8

5/8"

Footage
2,282.65

2289.5"

Well Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
	0.00	0.00	0.00
	0.00	0.00	0.00
OverBurden	0.00	10.00	10.00
sandstone	10.00	85.00	75.00
Coal	85.00	86.00	1.00
Sand Stone	86.00	190.00	104.00
Sand Stone	191.00	320.00	129.00
Coal	320.00	321.00	1.00
Sand Stone	321.00	410.00	89.00
Coal	410.00	411.00	1.00
sandstone	411.00	630.00	219.00
Coal	630.00	631.00	1.00
Sand Stone	631.00	655.00	24.00
Coal	655.00	656.00	1.00
Sand Stone	656.00	690.00	34.00
VTD	690.00	695.00	5.00
Sand & Shale	695.00	803.00	108.00
Tiller	803.00	804.10	1.10
sand & shale	804.10	882.00	77.90
Upper Seaboard A	882.00	883.50	1.50
sand & shale	883.50	904.50	21.00
Upper Seaboard	904.50	905.70	1.20
sand & shale	905.70	1,048.50	142.80
sand & shale	1,048.50	1,091.50	43.00
Middle Seaboard	1,091.50	1,094.00	2.50
sand & shale	1,094.00	1,158.50	64.50
Lower Seaboard	1,158.50	1,160.30	1.80
sand & shale	1,160.30	1,209.00	48.70
Unnamed A	1,209.00	1,211.40	2.40
sand & shale	1,211.40	1,280.00	68.60
Upper Horsepen	1,280.00	1,282.70	2.70
sand & shale	1,282.70	1,338.50	55.80
Middle Horsepen	1,338.50	1,340.80	2.30
sand & shale	1,340.80	1,453.50	112.70
War Creek Rider	1,453.50	1,454.20	0.70
sand & shale	1,454.20	1,465.00	10.80
War Creek	1,465.00	1,466.00	1.00
sand & shale	1,466.00	1,506.00	40.00
Unnamed C	1,506.00	1,507.00	1.00
sand & shale	1,507.00	1,536.00	29.00
Beckley	1,536.00	1,537.30	1.30
sand & shale	1,537.30	1,567.00	29.70
Lower Horsepen	1,567.00	1,570.80	3.80
sand & shale	1,570.80	1,643.00	72.20
sand & shale	1,643.00	1,704.50	61.50
X Seam	1,704.50	1,706.30	1.80

sand & shale	1,706.30	2,000.50	294.20
Pocahontas #5	2,000.50	2,002.00	1.50
sand & shale	2,002.00	2,236.00	234.00
Pocahontas #2	2,236.00	2,237.10	1.10
sand & shale	2,237.10	2,370.00	132.90



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number: 2153
Company: EQT Production Company
File Number: DI-2245
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	9/4/2009
Driller's Total Depth:	2186.00	Log's Total Depth:	2193.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
Treatment Summary 537802	Stage1.doc

3. Final Production

Description	FileName
Final Production 537802	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: EQT Production Company Date: 11/16/2009 (Company)

By: Michael D. Butcher Title: Director of Drilling (Signature)

INTERNAL USE ONLY

Submit Date: 11/16/2009

Status: _____

Date: 3/30/2010

Final PDF Date: 4/5/2010

Stage1

Date 08/28/2009

FracType	65Q	Foam
Zone	Poca #2/Poca #5	
# of Perfs	28	
From/To	2,068	1,829
BD Press	3,394	
ATP Psi	2,759	
Avg Rate	36	
Max Press Psi	3,005	
ISIP Psi	1,906	
10min SIP	1,538	5 min. 1.19
Frac Gradient		
Sand Proppant		108.72
Water-bbl	339	
SCF N2		435,846
Acid-gal	gal	850
	7.5% HCL	

Stage2

Date 08/28/2009

FracType	65Q	Foam
Zone	X Seam Rider/X Seam	
# of Perfs	20	
From/To	1,517	1,499
BD Press	2,632	
ATP Psi	2,644	

Avg Rate	39	
Max Press Psi	2,836	
ISIP Psi	1,724	
10min SIP	1,432	5 min. 1.30
Frac Gradient		
Sand Proppant		71.36
Water-bbl	219	
SCF N2		245,487
Acid-gal	gal 7.5%HCL	350

Stage3

Date	08/28/2009	
FracType	65Q	Foam
Zone	Lower Horsepen	
# of Perfs	18	
From/To	1,399	1,394
BD Press	3,646	
ATP Psi	2,563	
Avg Rate	38	
Max Press Psi	2,969	
ISIP Psi	1,504	
10min SIP	0	5 min. 1.23
Frac Gradient		
Sand Proppant		87.23
Water-bbl	263	

SCF N2 270,844

Acid-gal gal 350
7.5%HCL

Stage4

Date 08/28/2009

FracType 65Q Foam
Zone C Sm/WrCrk/Unnmd C

of Perfs 26

From/To 1,331 1,192

BD Press 2,924

ATP Psi 2,671
Avg Rate 38

Max Press Psi 2,928

ISIP Psi 1,633

10min SIP 1,285 5 min.
1.52

Frac Gradient

Sand Proppant 83.01

Water-bbl 253
SCF N2 275,267

Acid-gal gal 350
7.5%HCL

Stage5

Date 08/28/2009

FracType 65Q Foam
Zone L Sbrd/ Unmd A/ U&M
Hrspn

of Perfs 38

From/To	1,141	980
BD Press	2,352	
ATP Psi	2,512	
Avg Rate	37	
Max Press Psi	2,864	
ISIP Psi	1,667	
10min SIP	1,027	5 min. 1.85
Frac Gradient		
Sand Proppant		182.11
Water-bbl	523	
SCF N2		522,585
Acid-gal	gal 7.5%HCL	350

Final Production

After Stimulation

BOD

MCFD

Hours Tested

**Rock
Pressure**

Final Production if Gas Zones are commingled

17

0

300

TIL Date: 9/16/09



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	2212
Company:	EQT Production Company
File Number:	DI-2245
Operations Name:	VC-537802
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	8/18/2009	Drilling Contractor:	Crossrock Drilling
Date drilling completed:	9/21/2009	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2186.00		
Log Total Depth (feet):	2193.00	Coal Seam At Total Depth	POCAHONTAS #2

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10412601.6500	Final Plat State Plane X:	10412602.2800
Permitted State Plane Y:	3569540.8700	Final Plat State Plane Y:	3569540.9300

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
Final Plat 537802	VC-537802 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
1560	damp	
615	1/2	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
Coal Seams 537802	Coal Seams.doc

Gas and Oil Shows:

List of Attached Items:

Description	FileName
Gas & Oil Shows 537802	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? R

5. Survery Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
Survey Results 537802	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing 537802	Casing Data.doc
Tubing 537802	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

Lost Circ. Hit Open Mine @ 498'-501'

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
Drillers Log 537802	Drillers Log.doc

9. Comments

10. Signature

Permitee:	<u>EQT Production Company</u>	Date:	<u>11/16/2009</u>
Signed By:	<u>Michael D. Butcher</u>	Title:	<u>Director of Drilling</u>

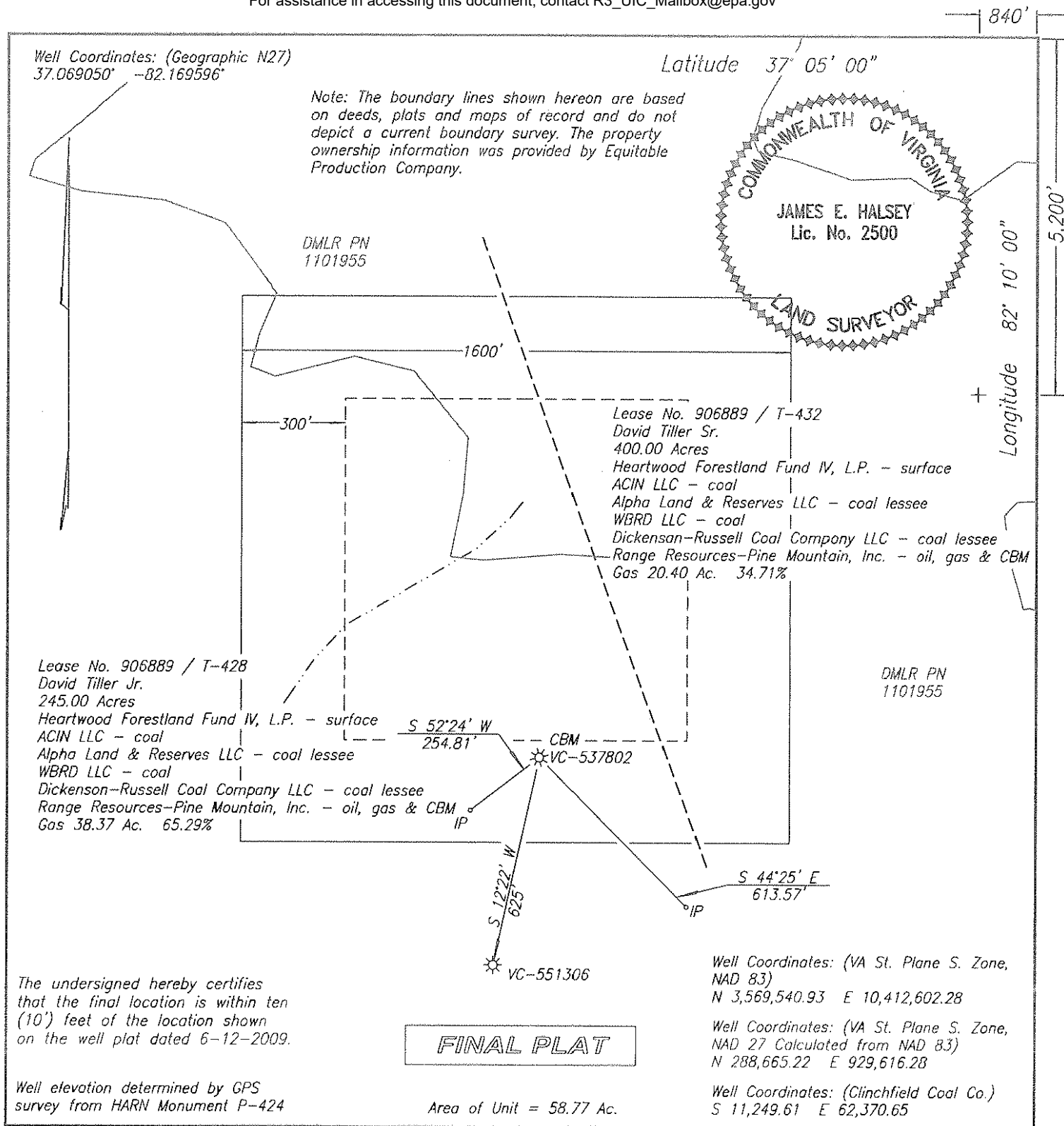
INTERNAL USE ONLY

Submit Date: 11/16/2009

Status: A

Date: 1/12/2010

Final PDF Date: 1/14/2010



WELL LOCATION PLAT (Nora Grid BH-76)

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-537802
TRACT NO. Lease No. 906889 / T-428 ELEVATION 2,074.82' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 8-19-2009
This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor



Type

Coal

Coal

Coal

Coal

Open Mine

From

109'-10',160'-61',197'-99',338'-39',520'-25',553'-54'

599.5'-00.33',695.5'-96.67',718.5'-19.33',908.5'-10.58',980.5'-82.25',1031'-33'

1095.5'-98.33',1139.5'-40.17',1193'-94.17',1272'-72.67',1290'-90.92',1329'-30.25

1395'-98.5',1499.5'-00.42',1514.5'-16.5',1829.5'-30.67',2064'-67.42'

498'-01'



Gas Tests

<u>Depth</u>	<u>Result</u>
197	No Show
397	No Show
498	No Show
520	No Show
720	No Show
862	No Show
1,020	No Show
1,103	No Show
1,303	No Show
1,386	No Show
1,504	No Show
1,704	No Show
1,904	No Show
2,104	No Show
2,186	No Show



<u>Depth</u>	<u>Direction/Distance/Degrees</u> <u>From True Vertical</u>
197	1/8
397	1/8
498	1/8
520	1/4
720	1/4
862	1/4
1,020	1/8
1,103	1/8
1,303	1/4
1,386	1/4
1,504	1/8
1,704	1/8
1,904	1/8
2,104	1/8
2,186	1/4

Casing Outside Diameter	<div></div> Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented	Cement Baskets
13 3/8	44	17 1/2				
7	553	8 7/8	289.10	y	08/19/2009	384, 426
4 1/2	2148	6 3/8	392.50	y	08/20/2009	

Tubing Size
2 3/8

5/8"

Footage
2,100.45
2100.45

Table
1

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Fill	0.00	5.00	5.00
Sand and Shale	5.00	109.00	104.00
Coal	109.00	110.00	1.00
Sand and Shale	110.00	160.00	50.00
Coal	160.00	161.00	1.00
Sand	161.00	197.00	36.00
Coal	197.00	199.00	2.00
Sand and Shale	199.00	260.00	61.00
Sand	260.00	338.00	78.00
Coal	338.00	339.00	1.00
Sand and Shale	339.00	376.00	37.00
Sand	376.00	498.00	122.00
Open Mine	498.00	501.00	3.00
Sand and Shale	501.00	520.00	19.00
Coal	520.00	525.00	5.00
Sand and Shale	525.00	553.00	28.00
Coal	553.00	554.00	1.00
Sand and Shale	554.00	599.50	45.50
Tiller	599.50	600.33	0.83
sand & shale	600.33	695.50	95.17
Upper Seaboard A	695.50	696.67	1.17
sand & shale	696.67	718.50	21.83
Upper Seaboard	718.50	719.33	0.83
sand & shale	719.33	908.50	189.17
Middle Seaboard	908.50	910.58	2.08
sand & shale	910.58	980.50	69.92
Lower Seaboard	980.50	982.25	1.75
sand & shale	982.25	1,031.00	48.75
Unnamed A	1,031.00	1,033.00	2.00
sand & shale	1,033.00	1,095.50	62.50
Upper Horsepen	1,095.50	1,098.33	2.83
sand & shale	1,098.33	1,139.50	41.17
Middle Horsepen	1,139.50	1,140.17	0.67
sand & shale	1,140.17	1,193.00	52.83
C Seam	1,193.00	1,194.17	1.17
sand & shale	1,194.17	1,272.00	77.83
War Creek Rider	1,272.00	1,272.67	0.67
sand & shale	1,272.67	1,290.00	17.33
War Creek	1,290.00	1,290.92	0.92
sand & shale	1,290.92	1,329.00	38.08
Unnamed C	1,329.00	1,330.25	1.25
sand & shale	1,330.25	1,395.00	64.75
Lower Horsepen	1,395.00	1,398.50	3.50
sand & shale	1,398.50	1,499.50	101.00
X Seam Rider	1,499.50	1,500.42	0.92
sand & shale	1,500.42	1,514.50	14.08

X Seam	1,514.50	1,516.50	2.00
sand & shale	1,516.50	1,829.50	313.00
Pocahontas #5	1,829.50	1,830.67	1.17
sand & shale	1,830.67	2,064.00	233.33
Pocahontas #2	2,064.00	2,067.42	3.42
sand & shale	2,067.42	2,186.00	118.58



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (276) 676-5423

Tracking Number: 120
Company: Equitable Production Company
File Number: DI-1573
Operations Name: VC-551306 W/PL
Operation Type: Coalbed/Pipeline
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coalbed/Pipeline	Date Well Completed:	12/2/2006
Driller's Total Depth:	2,193	Log's Total Depth:	2,206

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

☒ Stimulated ☐ Not Stimulated ☐ Gob

Description	FileName
treatment summary	Stage1.doc

3. Final Production

Description	FileName
final production 551306	Final Production.doc

4. Comments

Notes:

5. Signature

Permittee: Equitable Production Company Date: 4/5/2007 3:41:33 PM (Company)

Stage1

Date	11/18/2006		
FracType	70Q	Foam	
Zone	X Sm Rdr/X Sm/Poca #5 Rdr.		
# of Perfs	39		
From/To	1,459	2,053	
BD Press	2,699		
ATP Psi	2,698		
Avg Rate	36		
Max Press Psi	2,961		
ISIP Psi	1,764		
10min SIP	1,523		5 min.
		1.10	
Frac Gradient			
Sand Proppant	95.00		
Water-bbl	307		
SCF N2	415,000		
Acid-gal	500	gal	
		10%MSA	

Stage2

Date	11/18/2006		
FracType	70Q	Foam	
Zone	Lower Horsepen		
# of Perfs	22		
From/To	1,386	1,392	
BD Press	3,077		

ATP Psi		3,094	
Avg Rate		24	
Max Press Psi		3,412	
ISIP Psi		1,971	
10min SIP	1,526		5 min.
		1.50	
Frac Gradient			
Sand Proppant		48.00	
Water-bbl		184	
SCF N2		244,000	
Acid-gal	1,000	gal	
		10%MSA	

Stage3

Date	11/18/2006		
FracType	70Q	Foam	
Zone	C Sm/WrCrk/Unmd C/ Bckly		
# of Perfs		34	
From/To		1,211	1,366
BD Press		2,038	
ATP Psi		2,990	
Avg Rate		31	
Max Press Psi		3,326	
ISIP Psi		1,712	
10min SIP	1,437		5 min.
		1.40	
Frac Gradient			

Sand Proppant		48.00
Water-bbl		209
SCF N2		262,000
Acid-gal	1,000	gal 10%MSA

Stage4

Date	11/18/2006		
FracType	70Q	Foam	
Zone	Unnmd A/ U&M Hrspn		
# of Perfs	32		
From/To	1,016	1,131	
BD Press	2,431		
ATP Psi	2,748		
Avg Rate	34		
Max Press Psi	2,912		
ISIP Psi	1,688		
10min SIP	1,252		5 min.
		1.70	
Frac Gradient			
Sand Proppant		78.00	
Water-bbl		251	
SCF N2		275,000	
Acid-gal	1,000	gal 10%MSA	

Date	11/18/2006
------	------------

FracType	70Q	Foam	
Zone			M&L Sbrd
# of Perfs			28
From/To			907
BD Press			2,145
ATP Psi			2,170
Avg Rate			44
Max Press Psi			2,421
ISIP Psi			1,183
10min SIP	978		5 min.
Frac Gradient			1.40
Sand Proppant			67.00
Water-bbl			242
SCF N2			267,000
Acid-gal	1,000		gal
			10%MSA

Final Production

**After
Stimulation**

BOD

MCFD

**Hours
Tested**

Final Production if Gas Zones are
commingled

68

0



Commonwealth of Virginia
 Department of Mines, Minerals, and Energy
 Division of Gas and Oil
 P.O. Box 1416; Abingdon, VA 24212
 Telephone: (276) 676-5423

Tracking Number: 134
 Company: Equitable Production Company
 File Number: DI-1573
 Operations Name: VC-551306 W/PL
 Operation Type: Coalbed/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 10/31/2006 Drilling Contractor: Gasco
 Date drilling completed: 11/7/2006 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 2,193
 Log Total Depth (feet): 2,206 Coal Seam At Total Depth POCAHONTAS #2

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X 929,459 Final Plat State Plane X: 929,459
 Permitted State Plane Y: 288,056 Final Plat State Plane Y: 288,062

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
final plat 551306	VC-551306 final plat.tif

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams

List of Attached Items:

Description	FileName
coal 551306	Coal Seams.doc

Gas and Oil Shows

List of Attached Items:

Description	FileName
GT 551306	Gas and Oil Shows.doc

4. Electric Logs (As required by 4VAC25-150-280.A.)

List all logs run: GR/Density/Temp/Induction/Neutron

Did logs disclose vertical locations of a coal seam? ☒ Yes ☐ No

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
surveys 551306	Survey Results.doc

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
csg 551306	Casing Data.doc
tbg	Tubing Size.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

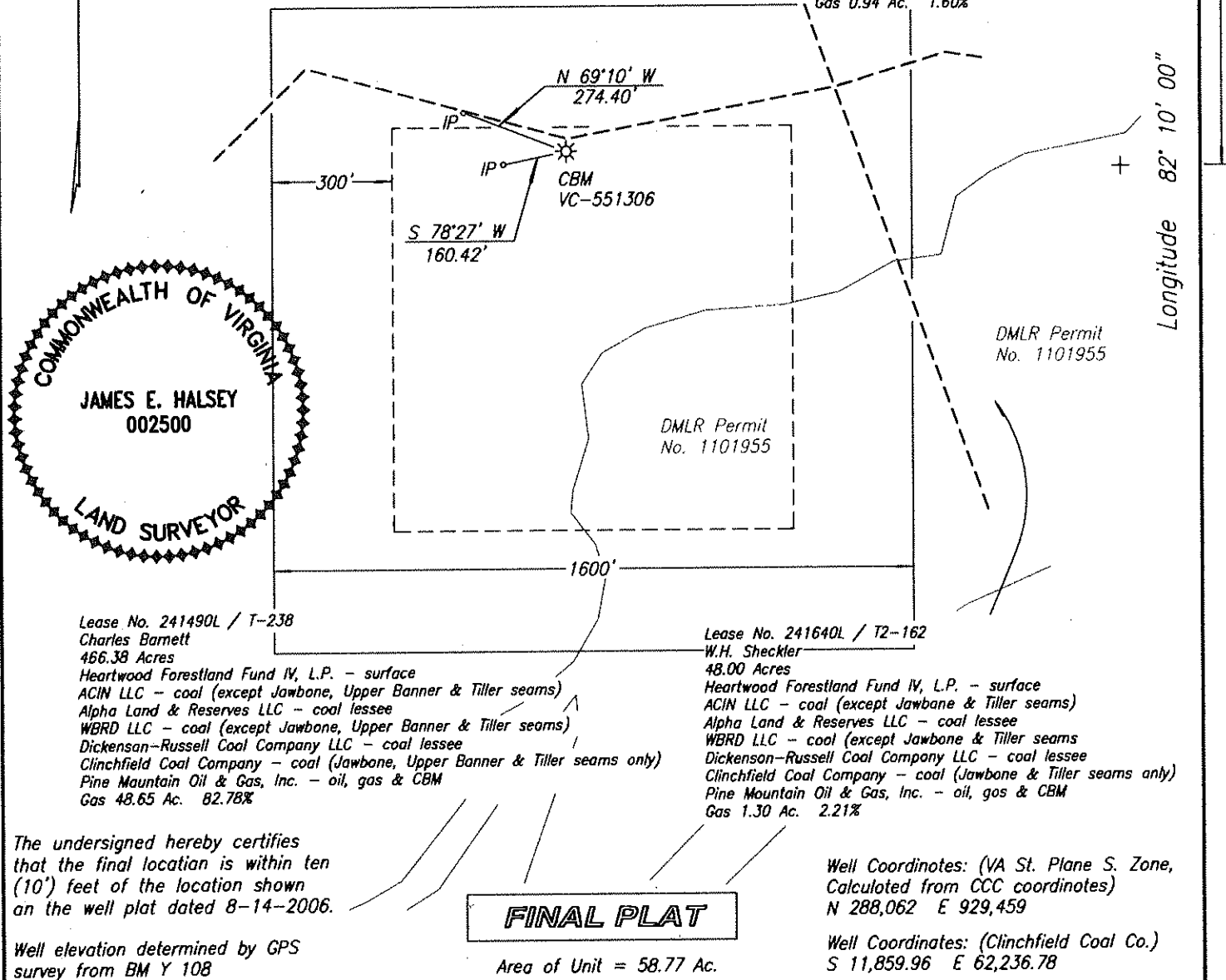
Description	FileName
formations 551306	Drillers Log.doc

Well Coordinates: (Geographic N27)
37.067377° -82.170054°

Latitude 37° 05' 00"

Lease No. 241490L / T-428
David Tiller Jr.
245.00 Acres
Heartwood Forestland Fund IV, L.P. - surface
ACIN LLC - coal (except Jawbone & Tiller seams)
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal (except Jawbone & Tiller seams)
Dickenson-Russell Coal Company LLC - coal lessee
Clinchfield Coal Company - coal (Jawbone & Tiller seams only)
Pine Mountain Oil & Gas, Inc. - oil, gas & CBM
Gas 7.88 Ac. 13.41%

Lease No. 241490L / T-432
David Tiller Sr.
348.88 Acres
ACIN LLC - coal (except Jawbone & Tiller seams)
Alpha Land & Reserves LLC - coal lessee
WBRD LLC - coal (except Jawbone & Tiller seams)
Dickenson-Russell Coal Company LLC - coal lessee
Clinchfield Coal Company - coal (Jawbone & Tiller seams only)
Pine Mountain Oil & Gas, Inc. - oil, gas & CBM
Gas 0.94 Ac. 1.60%



WELL LOCATION PLAT

COMPANY Equitable Production Company WELL NAME AND NUMBER VC-551306
TRACT NO. T-238 ELEVATION 2,056.47' QUADRANGLE Duty
COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 11-03-2006
This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

James E. Halsey
Licensed Professional Engineer or Licensed Land Surveyor

Coal Seams & Open Mines

<u>Type</u>	<u>From</u>
Coal	63'-64',180'-81',326'-27',450'-51',850'-51',908'-12',
Coal	955'-56',1105'-08',1320'-21',1375'-76',1450'-51',
Coal	1800'-04',2040'-45'
Open Mine	315'-319',485'-490'

**Gas and
Oil Shows**

Gas Tests

<u>Depth</u>	<u>Remarks</u>
199	No Show
512	No Show
622	No Show
804	No Show
912	No Show
1,108	No Show
1,329	No Show
1,551	No Show
1,772	No Show
2,045	No Show
2,193	No Show

Survey Results

<u>Depth</u>	<u>Direction/Distance/Degrees From True</u>
199	1/4
512	1/4
622	1/4
804	1/4
912	1/4
1,108	1/2
1,329	1/2
1,551	1/2
1,772	1/2
2,045	1/2
2,193	1/2

Casing Outside Diameter		Casing Interval	Hole Size	Cement used in Cu. ft.	Cmtd To Surface	Date Cemented Cement Baskets
12 3/4		21	15			
9 5/8		407	12 3/8	330.40	11/01/2006	220.65, 265
7		598	8 7/8	228.92	11/02/2006	466
4 1/2		2151	6 1/2	377.40	11/06/2006	

Tubing
Size
2 3/8

Footage
2,075.70

Drillers
Log

<u>Formation Name</u>	<u>Depth Top</u>	<u>Depth Bottom</u>	<u>Formation Thickness</u>
Upper Horsepen	677.00	678.50	1.50
sand & shale	678.50	1,129.00	450.50
Upper Seaboard	700.50	701.50	1.00
sand & shale	701.50	852.00	150.50
Greasy Creek	852.00	852.00	0.00
sand & shale	852.00	907.00	55.00
Middle Seaboard	907.00	910.50	3.50
sand & shale	910.50	963.50	53.00
Lower Seaboard	963.50	965.30	1.80
sand & shale	965.30	1,015.80	50.50
Unnamed A	1,015.80	1,018.10	2.30
sand & shale	1,018.10	677.00	0.00
Middle Horsepen	1,129.00	1,130.00	1.00
sand & shale	1,130.00	1,212.00	82.00
C Seam	1,212.00	1,212.80	0.80
sand & shale	1,212.80	1,266.00	53.20
War Creek Rider	1,266.00	1,266.40	0.40
sand & shale	1,266.40	1,282.00	15.60
War Creek	1,282.00	1,283.00	1.00
sand & shale	1,283.00	1,321.00	38.00
Unnamed C	1,321.00	1,322.20	1.20
sand & shale	1,322.20	1,355.00	32.80
Beckley	1,355.00	1,356.00	1.00
sand & shale	1,356.00	1,386.80	30.80
Lower Horsepen	1,386.80	1,390.80	4.00
sand & shale	1,390.80	1,459.00	68.20
X Seam Rider	1,459.00	1,459.80	0.80
sand & shale	1,459.80	1,493.50	33.70
X Seam	1,493.50	1,495.30	1.80
sand & shale	1,495.30	1,546.00	50.70
Pocahontas #9	1,546.00	1,546.00	0.00
sand & shale	1,546.00	1,591.00	45.00
Pocahontas #8	1,591.00	1,591.00	0.00
sand & shale	1,591.00	1,783.00	192.00
Pocahontas #6	1,783.00	1,783.00	0.00
sand & shale	1,783.00	1,806.50	23.50
Pocahontas #5 Rider	1,806.50	1,807.50	1.00
sand & shale	1,807.50	1,822.00	14.50
Pocahontas #5	1,822.00	1,823.00	1.00

sand & shale	1,823.00	1,982.00	159.00
Pocahontas #3	1,982.00	1,982.00	0.00
sand & shale	1,982.00	2,049.00	67.00
Pocahontas #2	2,049.00	2,052.30	3.30
sand & shale	2,052.30	2,206.00	153.70



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8855
Company:	EnerVest Operating, LLC
File Number:	DI-0838
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	7/15/1997
Driller's Total Depth:	1801.00	Log's Total Depth:	1811.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
STIM	5DI_0838_VC_3628_EQTPN_DICKENSON.pdf

3. Final Production

Description	FileName
FINAL	5DI_0838_VC_3628_EQTPN_DICKENSON.pdf

4. Comments

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE
Permit #: 3337

Well #: VC3628
VA File #: DL-0838

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
540/676-5423

COMPLETION REPORT

WELL TYPE: Oil ☐ Gas ☐ Coalbed Methane ☒ or Injection ☐ well

Date Well Completed: 7/15/97 Total Depth of Well: LTD - 1811 DTD - 1801

Attach the Drilling Report; if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD

Zone 1: COAL SEAMS* Formation Stimulated With: 70Q FOAM W/
14800# 12/20 SAND - 596000 SCF N2 - 540 BF
Perforated: 908.5 to: 1213 No. of Perforations: 14 Size: 0.34"
Formation Broke Down at: 2187 PSIG Average Injection Rate: 48 BPM
ISIP: 1565 PSIG 5 Min SIP: 1584 PSIG Average Injection Pressure 3517
Date Stimulated: 7/11/97

* M HORSEPEN, C-SEAM RIDER, C-SEAM, WARCREEK, UNNAMED "C", BECKLEY, X-SEAM

Zone 2: _____ Formation Stimulated With: _____
Perforated: _____ to: _____ No. of Perforations: _____ Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP: _____ PSIG 5 Min SIP: _____ PSIG Average Injection Pressure _____
Date Stimulated: _____

Zone 3: _____ Formation Stimulated With: _____
Perforated: _____ to: _____ No. of Perforations: _____ Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP: _____ PSIG 5 Min SIP: _____ PSIG Average Injection Pressure _____
Date Stimulated: _____

FINAL PRODUCTION: _____ Natural _____ X _____ After Stimulation
BOD MCFD HOURS TESTED ROCK PRESSURE HOURS TESTED
Zone (1)
Zone (2)
Zone (3)
Final Production if Gas
Zones are Commingled 33 MCFD 6 Hours Tested 200 PSIG 48 Hours Tested

*Use additional sheets with this format, if more than three (3) zones were stimulated.

Permittee: EQUITABLE RESOURCES ENERGY COMPANY (Company)

By: Joseph B. Cherry (Signature)

ENTERED

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE
Permit #: 3337

Well #: VC3628
VA File #: DL-0838

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
540/676-5423

COMPLETION REPORT

WELL TYPE: Oil ☐ Gas ☐ Coalbed Methane ☒ or Injection ☐ well

Date Well Completed: 7/15/97 Total Depth of Well: LTD - 1811 DTD - 1801

Attach the Drilling Report; if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD

Zone 1: COAL SEAMS* Formation Stimulated With: 70Q FOAM W/
14800# 12/20 SAND - 596000 SCF N2 - 540 BF
Perforated: 908.5 to: 1213 No. of Perforations: 14 Size: 0.34"
Formation Broke Down at: 2187 PSIG Average Injection Rate: 48 BPM
ISIP: 1565 PSIG 5 Min SIP: 1584 PSIG Average Injection Pressure 3517
Date Stimulated: 7/11/97

* M HORSEPEN, C-SEAM RIDER, C-SEAM, WARCREEK, UNNAMED "C", BECKLEY, X-SEAM

Zone 2: _____ Formation Stimulated With: _____
Perforated: _____ to: _____ No. of Perforations: _____ Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP: _____ PSIG 5 Min SIP: _____ PSIG Average Injection Pressure _____
Date Stimulated: _____

Zone 3: _____ Formation Stimulated With: _____
Perforated: _____ to: _____ No. of Perforations: _____ Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP: _____ PSIG 5 Min SIP: _____ PSIG Average Injection Pressure _____
Date Stimulated: _____

FINAL PRODUCTION: _____ Natural ☒ After Stimulation
BOD MCFD HOURS TESTED ROCK PRESSURE HOURS TESTED
Zone (1)
Zone (2)
Zone (3)
Final Production if Gas
Zones are Commingled 33 MCFD 6 Hours Tested 200 PSIG 48 Hours Tested

*Use additional sheets with this format, if more than three (3) zones were stimulated.

Permittee: EQUITABLE RESOURCES ENERGY COMPANY (Company)

By: Joseph B. Cherry (Signature)

ENTERED



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8924
Company:	EnerVest Operating, LLC
File Number:	DI-0838
Operations Name:	VC-3628
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	7/8/1997	Drilling Contractor:	UNION DRILLING
Date drilling completed:	7/11/1997	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	1801.00		
Log Total Depth (feet):	1811.00	Coal Seam At Total Depth	Pocahontas

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10417630.0000	Final Plat State Plane X:	10417629.8910
Permitted State Plane Y:	3566697.6300	Final Plat State Plane Y:	3566697.6380

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
PLAT	1DI_0838_VC_3628_EQTPN_DICKENSON.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
675	DAMP	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
COAL	2DI_0838_VC_3628_EQTPN_DICKENSON.pdf

Gas and Oil Shows:

List of Attached Items:

Description	FileName
GAS	2DI_0838_VC_3628_EQTPN_DICKENSON.pdf

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: DEN/TEMP/GR

Did logs disclose vertical locations of a coal seam?



5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
SURVEY	3DI_0838_VC_3628_EQTPN_DICKENSON.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
CASING	3DI_0838_VC_3628_EQTPN_DICKENSON.pdf

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
LOG	4DI_0838_VC_3628_EQTPN_DICKENSON.pdf

9. Comments

MATERIAL INSERTED BY DGO [5/3/2016, jhh]

10. Signature

Permitee: EnerVest Operating, LLC Date: 5/3/2016
Signed By: JOSEPH A. AWNY Title: ENGINEER

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE
Permit #: 3337

Well #: VC3628
VA File #: DI-0838

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
540/676-5423

DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well VCP3628 in the
ERVINTON District of the DICKENSON County, Virginia on 12TH day,
SEPTEMBER month, 1997.

LOCATION

County: DICKENSON District: ERVINTON
Surface Elevation: 2074.0 Elev of Kelly Bushing: 2084.0 Quadrangle: DUTY
7980 Ft. S of Latitude 37 05 00 and 7875 Ft. W of Longitude 82 07 30

DRILLING DATA

Date Drilling Commenced: 7/8/97 Drilling Contractor: UNION DRILLING
Date Drilling Completed: 7/11/97 Rig Type: X Rotary Cable Tool
Total Depth of Well: LTD - 1811 DTD - 1801

GEOLOGICAL DATA

Fresh Water at:	675	feet	DAMP	GPM	feet	GPM
		feet		GPM	feet	GPM
		feet		GPM	feet	GPM
Salt Water at:		feet		GPM	feet	GPM
		feet		GPM	feet	GPM
		feet		GPM	feet	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA		
				YES	NO	MINED OUT
M SEABOARD	677	679	2			
L SEABOARD	721	723	2			
M HORSEPEN	908	910	2			
BECKLEY	1109	1115	6			
X-SEAM	1211	1213	2			
POCO #6	1565	1567	2			

GAS AND OIL SHOWS:

<u>FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>	<u>IPF (MCFD/BOPD)</u>	<u>PRESSURE</u>	<u>HOURS TESTED</u>
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Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE
Permit #: 3337

Well #: VC3628
VA File #: DI-0838

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
540/676-5423

DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well VCP3628 in the
ERVINTON District of the DICKENSON County, Virginia on 12TH day,
SEPTEMBER month, 1997.

LOCATION

County: DICKENSON District: ERVINTON
Surface Elevation: 2074.0 Elev of Kelly Bushing: 2084.0 Quadrangle: DUTY
7980 Ft. S of Latitude 37 05 00 and 7875 Ft. W of Longitude 82 07 30

DRILLING DATA

Date Drilling Commenced: 7/8/97 Drilling Contractor: UNION DRILLING
Date Drilling Completed: 7/11/97 Rig Type: X Rotary Cable Tool
Total Depth of Well: LTD - 1811 DTD - 1801

GEOLOGICAL DATA

Fresh Water at:	675	feet	DAMP	GPM	feet	GPM
		feet		GPM	feet	GPM
		feet		GPM	feet	GPM
Salt Water at:		feet		GPM	feet	GPM
		feet		GPM	feet	GPM
		feet		GPM	feet	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA		
				YES	NO	MINED OUT
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X-SEAM	1211	1213	2			
POCO #6	1565	1567	2			

GAS AND OIL SHOWS:

<u>FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>	<u>IPF (MCFD/BOPD)</u>	<u>PRESSURE</u>	<u>HOURS TESTED</u>
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Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKEWell #: VC3628Permit #: 3337VA File #: DI-0838

Cuttings or samples are ☐ are not available for examination by a member of the Virginia Division of Mineral Resources
Cuttings or samples have ☐ have not been furnished to the Virginia Division of Mineral Resources

ELECTRIC LOGS AND SURVEYSList logs run on wellbore: GR/ DEN/TMPDid log disclose vertical location of a coal seam? Yes ☒ No ☐SURVEY RESULTS

DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL	DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL
400	1/2°	1557	3/4°
560	1/2°	1600	3/4°
600	1/2°	1627	3/4°
800	3/4°		
865	3/4°		
1000	3/4°		
1147	3/4°		
1200	3/4°		
1349	3/4°		
1400	3/4°		

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUGS KIND SIZE SET AT
<u>Conductor</u>	11 3/4		160	160	GROUTED		
<u>Surface</u>							
<u>Water Protection</u>							
<u>Coal Protection</u>	8 5/8		320	310	108(127)	7/9/97	
<u>Other Casing and Tubing Left in Well</u>	4 1/2 1 1/2		1749 1342.85	1739	390(503)	7/11/97	

Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKEWell #: VC3628Permit #: 3337VA File #: DI-0838

Cuttings or samples are ☐ are not available for examination by a member of the Virginia Division of Mineral Resources
Cuttings or samples have ☐ have not been furnished to the Virginia Division of Mineral Resources

ELECTRIC LOGS AND SURVEYSList logs run on wellbore: GR/ DEN/TMPDid log disclose vertical location of a coal seam? Yes ☒ No ☐SURVEY RESULTS

DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL	DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL
400	1/2°	1557	3/4°
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600	1/2°	1627	3/4°
800	3/4°		
865	3/4°		
1000	3/4°		
1147	3/4°		
1200	3/4°		
1349	3/4°		
1400	3/4°		

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUGS KIND SIZE SET AT
<u>Conductor</u>	11 3/4		160	160	GROUTED		
<u>Surface</u>							
<u>Water Protection</u>							
<u>Coal Protection</u>	8 5/8		320	310	108(127)	7/9/97	
<u>Other Casing and Tubing Left in Well</u>	4 1/2		1749	1739	390(503)	7/11/97	
	1 1/2		1342.85				

Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE
Permit #: 3337

Well #: VC3628
VA File #: DI-0838

DRILLER'S LOG

Compiled by: ENGINEERING

AGE	FORMATION	GENERAL LITHOLOGY	COLOR	DEPTH		THICKNESS	REMARKS
				TOP	BOTTOM		
PENN	SAND, SHALE & THIN COALS			0	677	677	
	M SEABOARD			677	679	2	
	SAND, SHALE & THIN COALS			679	721	42	
	L SEABOARD			721	723	2	
	SAND, SHALE & THIN COALS			723	908	185	
	M HORSEPEN			908	910	2	
	SAND, SHALE & THIN COALS			910	1109	199	
	BECKLEY			1109	1115	6	
	SAND, SHALE & THIN COALS			1115	1211	96	
	X-SEAM			1211	1213	2	
	SAND, SHALE & THIN COALS			1213	1565	352	
	POCO #6			1565	1567	2	
	SAND, SHALE & THIN COALS			1567	1811	244	

LOGGER'S TOTAL DEPTH

1811

Permittee: EQUITABLE RESOURCES ENERGY COMPANY (Company)

By:  (Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9650

Tracking Number:	3637
Company:	EQT Production Company
File Number:	DI-1002
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coalbed/Pipeline	Date Well Completed:	8/8/2000
Driller's Total Depth:	1878.00	Log's Total Depth:	1885.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
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2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
DI-1002 Stimulation	DI-1002 Stimulation & Final Prod.pdf

3. Final Production

Description	FileName
DI-1002 Final Prod	DI-1002 Stimulation & Final Prod.pdf

4. Comments

Notes:

Approved [3/6/2013, bdb]

Material inserted by DGO [2/5/2013, jhh]

5. Signature

Permittee: EQT Production Company Date: 2/5/2013 (Company)

By: EQT Title: xxxxx (Signature)

Permit: **4476** Well: **VC-4371**

Department of Mines, Minerals and Energy
 Division of Gas and Oil
 P O Box 1416
 Abingdon, Virginia 24210
 540-676-5423

COMPLETION REPORT**Well Type:** Gas Well**Date Well Completed:** **8/8/2000****Total Depth of Well:** **1878** **LTD:** **1885**

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing and tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD**Zone 1: L & M Seaboard/M & L Horsepen/C Seam/Warcreek/Unnamed C/Beckley/X Seam**Formation Stimulated With: **70 Q Foam**Perforated: **761** to **1306.5** No. of Perforations: **18** Perforation Size: **0.34"**Formation Broke Down at: **1204** PSIG Average Injection Rate: **61** BPMISIP: **1800** PSIG 5 Min SIP: **838** PSIG Average Downhole Injection Pressure: **3233** PSIGStimulated: Yes: **X** No: Date Stimulated: **8/7/2000****Zone 2:**

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes No Date Stimulated:

Zone 3:

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes No Date Stimulated:

Zone 4:

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

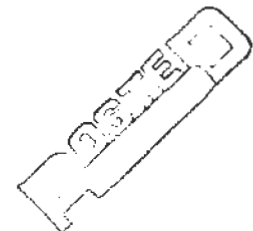
Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes No Date Stimulated:

FINAL PRODUCTION:**After Stimulation**

	BOD	MCFD	HOURS TESTED	ROCK PRESSURE	HOURS TESTED
Final Production if Gas Zones are Commingled:		37		90	

PERMITTEE: **EQUITABLE PRODUCTION COMPANY** (Company)BY: *John A. Davis* (Signature)

Permit: **4476** Well: **VC-4371**

Department of Mines, Minerals and Energy
 Division of Gas and Oil
 P O Box 1416
 Abingdon, Virginia 24210
 540-676-5423

COMPLETION REPORT**Well Type:** Gas Well**Date Well Completed:** **8/8/2000****Total Depth of Well:** **1878** **LTD:** **1885**

Attach the Drilling Report if not previously submitted. In addition, submit any changes in casing and tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD**Zone 1: L & M Seaboard/M & L Horsepen/C Seam/Warcreek/Unnamed C/Beckley/X Seam**Formation Stimulated With: **70 Q Foam**Perforated: **761** to **1306.5** No. of Perforations: **18** Perforation Size: **0.34"**Formation Broke Down at: **1204** PSIG Average Injection Rate: **61** BPMISIP: **1800** PSIG 5 Min SIP: **838** PSIG Average Downhole Injection Pressure: **3233** PSIGStimulated: Yes: **X** No: Date Stimulated: **8/7/2000****Zone 2:**

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes No Date Stimulated:

Zone 3:

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes No Date Stimulated:

Zone 4:

Formation Stimulated With:

Perforated: to No. of Perforations: Perforation Size:

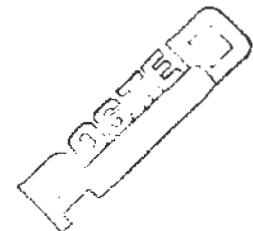
Formation Broke Down at: PSIG Average Injection Rate: BPM

ISIP: PSIG Min SIP PSIG Average Downhole Injection Pressure: PSIG

Stimulated: Yes No Date Stimulated:

FINAL PRODUCTION:**After Stimulation**

	<u>BOD</u>	<u>MCFD</u>	<u>HOURS</u> <u>TESTED</u>	<u>ROCK</u> <u>PRESSURE</u>	<u>HOURS</u> <u>TESTED</u>
Final Production if Gas Zones are Commingled:		37		90	

PERMITTEE: **EQUITABLE PRODUCTION COMPANY** (Company)BY: *John A. Dina* (Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	3647
Company:	EQT Production Company
File Number:	DI-1002
Operations Name:	VC-4371 W/PL
Operation Type:	Coalbed/Pipeline
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	<u>7/23/2000</u>	Drilling Contractor:	<u>Union Drilling</u>
Date drilling completed:	<u>7/27/2000</u>	Rig Type:	<u>R</u> Rotary <u>F</u> Cable
Driller's Total Depth (feet):	<u>1878.00</u>		
Log Total Depth (feet):	<u>1885.00</u>	Coal Seam at Total Depth:	<u>X-SEAM</u>

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	<u>10416803.9000</u>	Final Plat State Plane X:	<u>10416804.1980</u>
Permitted State Plane Y:	<u>3565367.0200</u>	Final Plat State Plane Y:	<u>3565367.8920</u>

Plat Previously Submitted Or... F

List of Attached Items:

Description	FileName
DI-1002 Plat	DI-1002 Plat.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
170	damp	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure

Coal Seams:

List of Attached Items:

Description	FileName
DI-1002 Coal Seams	DI-1002 Drillers Log & Coal Seams.pdf

Gas and Oil Shows:

List of Attached Items:

Description	FileName
DI-1002 Gas	DI-1002 Gas Shows.pdf

4. Electric Logs (As required by 4VAC25-150-280.A)

List all logs run: GR, Density, Temp, Enhanced Coal Log

Did logs disclose vertical locations of a coal seam? R

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
DI-1002 Survey	DI-1002 Survey & Casing.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
DI-1002 Casing	DI-1002 Survey & Casing.pdf

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: Geologist

List of Attached Items:

Description	FileName
DI-1002 Drillers Log	DI-1002 Drillers Log & Coal Seams.pdf

9. Comments

Approved [3/6/2013, bdb]
Material inserted by DGO [2/5/2013, jhh]

10. Signature

Permitee: EQT Production Company Date: 2/5/2013
Signed By: EQT Title: xxxxx

INTERNAL USE ONLY

Submit Date: 2/5/2013

Status: A

Date: 3/6/2013

Final PDF Date: 3/6/2013



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8712
Company:	EnerVest Operating, LLC
File Number:	DI-0687
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	4/23/1993
Driller's Total Depth:	2445.00	Log's Total Depth:	2441.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
STIM	5DI0687_VC_2277_EQTPN_DICKENSON.pdf

3. Final Production

Description	FileName
FINAL	5DI0687_VC_2277_EQTPN_DICKENSON.pdf

4. Comments

D1-687

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J.N.R. SUTHERLAND VCP2277
Permit #: 2366

Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1416
Abingdon, Virginia 24210
703/676-5423

COMPLETION REPORT

WELL TYPE: Oil ___ Gas ___ Coalbed Methane X or Injection ___ wellDate Well Completed: 4-23-93 Total Depth of Well: 2441' DTD=2445'

Attach the Drilling Report, if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD

Zone 1: COAL SEAMS* Formation Stimulated With: 70 Q FOAM
W/16000 # 12/20 SAND - 859300 SCF N2 - 2128 BF
Perforated: 1270 TO 2283.5 No. of Perforations: 17 Perforation Size: .34"
Formation Broke Down at: 1580 PSIG Average Injection Rate: 19.2 BPM (64DH)
ISIP 1731 PSIG 5 MIN SIP 1538 PSIG Average Injection Pressure 3200 PSIG
Date Stimulated 4-23-93

*L. SEABOARD, C-SEAM, WARCREEK, BECKLEY, X-SEAM, POCO #6, POCO #3

Zone 2: _____ Formation Stimulated With: _____
Perforated: _____ TO _____ No. of Perforations: _____ Perforation Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP _____ PSIG _____ MIN SIP _____ PSIG Average Injection Pressure _____ PSIG
Date Stimulated _____

Zone 3: _____ Formation Stimulated With: _____
Perforated: _____ TO _____ No. of Perforations: _____ Perforation Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP _____ PSIG _____ MIN SIP _____ PSIG Average Injection Pressure _____ PSIG
Date Stimulated _____

FINAL PRODUCTION: _____ Natural X After Stimulation
BOD MCFD HOURS TESTED ROCK PRESSURE HOURS TESTED
Zone (1) _____
Zone (2) _____
Zone (3) _____
Final Production if Gas Zones are Commingled 67 MCFD 6 Hours Tested 225 PSIG 48 Hours Tested

* Use additional sheets with this format, if more than three (3) zones were stimulated.

Permittee: EQUITABLE RESOURCES EXPLORATION (Company)By: Joseph R. [Signature] (Signature)

D1-687

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J.N.R. SUTHERLAND VCP2277
Permit #: 2366

Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1416
Abingdon, Virginia 24210
703/676-5423

COMPLETION REPORT

WELL TYPE: Oil ___ Gas ___ Coalbed Methane X or Injection ___ wellDate Well Completed: 4-23-93 Total Depth of Well: 2441' DTD=2445'

Attach the Drilling Report, if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD

Zone 1: COAL SEAMS* Formation Stimulated With: 70 Q FOAM
W/16000 # 12/20 SAND - 859300 SCF N2 - 2128 BF
Perforated: 1270 TO 2283.5 No. of Perforations: 17 Perforation Size: .34"
Formation Broke Down at: 1580 PSIG Average Injection Rate: 19.2 BPM (64DH)
ISIP 1731 PSIG 5 MIN SIP 1538 PSIG Average Injection Pressure 3200 PSIG
Date Stimulated 4-23-93

*L. SEABOARD, C-SEAM, WARCREEK, BECKLEY, X-SEAM, POCO #6, POCO #3

Zone 2: _____ Formation Stimulated With: _____
Perforated: _____ TO _____ No. of Perforations: _____ Perforation Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP _____ PSIG _____ MIN SIP _____ PSIG Average Injection Pressure _____ PSIG
Date Stimulated _____

Zone 3: _____ Formation Stimulated With: _____
Perforated: _____ TO _____ No. of Perforations: _____ Perforation Size: _____
Formation Broke Down at: _____ PSIG Average Injection Rate: _____
ISIP _____ PSIG _____ MIN SIP _____ PSIG Average Injection Pressure _____ PSIG
Date Stimulated _____

FINAL PRODUCTION: _____ Natural _____ X After Stimulation
BOD MCFD HOURS TESTED ROCK PRESSURE HOURS TESTED
Zone (1) _____
Zone (2) _____
Zone (3) _____
Final Production if Gas Zones are Commingled 67 MCFD 6 Hours Tested 225 PSIG 48 Hours Tested

* Use additional sheets with this format, if more than three (3) zones were stimulated.

Permittee: EQUITABLE RESOURCES EXPLORATION (Company)By: Joseph R. [Signature] (Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8779
Company:	EnerVest Operating, LLC
File Number:	DI-0687
Operations Name:	VC-2277
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	4/13/1993	Drilling Contractor:	UNION DRILLING
Date drilling completed:	4/17/1993	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	2445.00		
Log Total Depth (feet):	2441.00	Coal Seam At Total Depth	Pocahontas

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10409237.0000	Final Plat State Plane X:	10409235.4700
Permitted State Plane Y:	3575182.1600	Final Plat State Plane Y:	3575182.1640

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
PLAT	1DI0687_VC_2277_EQTPN_DICKENSON.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
103	1/4	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
COAL	2DI0687_VC_2277_EQTPN_DICKENSON.pdf

Gas and Oil Shows:

List of Attached Items:

Description	FileName
GAS	2DI0687_VC_2277_EQTPN_DICKENSON.pdf

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: GR/PDS/TEMP

Did logs disclose vertical locations of a coal seam?



5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
SURVEY	3DI0687_VC_2277_EQTPN_DICKENSON.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
CASING	3DI0687_VC_2277_EQTPN_DICKENSON.pdf

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
LOG	4DI0687_VC_2277_EQTPN_DICKENSON.pdf

9. Comments

MATERIAL INSERTED BY DGO [3/29/2016, jhh]

10. Signature

Permitee: EnerVest Operating, LLC Date: 3/29/2016
Signed By: JOSEPH A. AWNY Title: ENGINEER

_____	_____
_____	_____
_____	_____

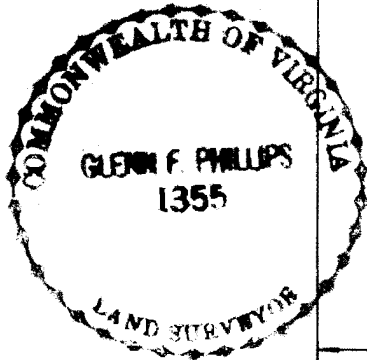
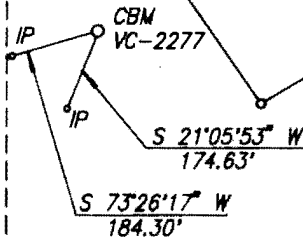
Latitude 37° 07' 30"

Longitude 82° 10' 00"

Lease No. PO-148 / T-389
 S. D. Sutherland
 76.30 Acres
 Clinchfield Coal Company /
 Pyxis Resources Company - surface & coal
 Pine Mountain Oil & Gas, Inc. - oil & gas
 gas 8.14 Ac. 13.85%

Adverse
 oil & gas
 gas 8.55 Ac. 14.55%

Henry Sutherland - oil & gas
 8.55 Acres
 gas 8.55 Ac. 14.55%



Lease No. PO-148 / T-409
 J. N. R. Sutherland
 430.65 Acres
 Clinchfield Coal Company /
 Pyxis Resources Company - surface & coal
 Pine Mountain Oil & Gas, Inc. - oil & gas
 gas 42.08 Ac. 71.60%

FINAL PLAT

Well Coordinates: (Va. State Plane, S. Zone)
 Calculated from CCC coordinates
 N 294,305 E 926,250

+

Well Coordinates: (Clinchfield Coal Company)
 S 5,746.52 E 58,787.88

Well elevation determined by trigonometric
 leveling from BM 1631 VA

Area of Unit = 58.77 Ac.

WELL LOCATION PLAT

COMPANY Equitable Resources Exploration, Inc. WELL NAME AND NUMBER VC-2277
 TRACT NO. PO-148 / T-409 ELEVATION 2201.49 QUADRANGLE Duty
 COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 7-02-1993

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

Glen F. Phillips

~~Licensed Professional Engineer or~~ Licensed Land Surveyor

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J. N. R. SUTHERLAND VCP2277

Permit #: 2366

Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1416
Abingdon, Virginia 24210
703/676-5423

DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well VCP2277 in the ERVINTON District of the DICKENSON County, Virginia on 14th day, JUNE month, 19 93.

LOCATION

County: DICKENSON District: ERVINTON
Surface Elevation: 2204.41' Elevation of Kelly Bushing: 2214.41' Quadrangle: DUTY
14825 FT. S. of Latitude 37° 07' 30" and 4400 FT. W. of Longitude 82° 10' 00"

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 4-13-93 Drilling Contractor: UNION DRILLING
Date Drilling Completed: 4-17-93 Rig Type: X Rotary Cable Tool
Total Depth of Well: LTD=2441 DTD=2445

GEOLOGICAL DATA

Fresh Water at: 103 Feet 1/4" STREAM GPM Feet GPM
 Feet GPM Feet GPM
Salt Water at: Feet GPM Feet GPM
 Feet GPM Feet GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA		
				YES	NO	MINED OUT
U. SEABOARD	980	982	2			
GREASY CREEK	1162	1164	2			
L. SEABOARD	1270	1272	2			
BECKLEY	1651	1654	3			
POCO #3	2282	2284	2			

GAS AND OIL SHOWS: NONE REPORTED

FORMATION	TOP	BOTTOM	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J. N. R. SUTHERLAND VCP2277

Permit #: 2366

Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1416
Abingdon, Virginia 24210
703/676-5423

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POCO #3	2282	2284	2			

GAS AND OIL SHOWS: NONE REPORTED

FORMATION	TOP	BOTTOM	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J. N. R. SUTHERLAND VCP2277
Permit #: 2366

Cuttings or samples are are not X available for examination by a member of the Virginia Division of Mineral Resources
Cuttings or samples have have not X been furnished to the Virginia Division of Mineral Resources

ELECTRIC LOGS AND SURVEYS

List logs run on wellbore: GR/PDS/TEMP

Did log disclose vertical location of a coal seam? Yes X No

SURVEY RESULTS

DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL	DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL
228	1/4°	1877	1/2°
414	0°	2098	1/2°
620	3/4°	2319	1/2°
826	3/4°		
1024	3/4°		
1211	1/2°		
1433	1/2°		
1650	1/2°		

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED (IN CU/FT)	DATE CEMENTED	PACKERS OR BRIDGE PLUGS KIND SIZE SET AT
<u>Conductor</u>	13 3/8"		29'	21'			
<u>Surface</u>	8 5/8"		802'	792'	325(384)	4-14-93	

Water Protection

Coal Protection

<u>Other Casing</u>	4 1/2"	2352'	2342'	524(676)	4-17-93
<u>and Tubing Left in Well</u>	2 3/8"	2321.7'			

Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J. N. R. SUTHERLAND VCP2277Permit #: 2366

Cuttings or samples are are not X available for examination by a member of the Virginia Division of Mineral Resources
Cuttings or samples have have not X been furnished to the Virginia Division of Mineral Resources

ELECTRIC LOGS AND SURVEYSList logs run on wellbore: GR/PDS/TEMPDid log disclose vertical location of a coal seam? Yes X No SURVEY RESULTS

DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL	DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL
228	1/4°	1877	1/2°
414	0°	2098	1/2°
620	3/4°	2319	1/2°
826	3/4°		
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1211	1/2°		
1433	1/2°		
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Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J. N. R. SUTHERLAND VCP2277Permit #: 2366

DRILLER'S LOG

Compiled by ENGINEERING

GEOLOGIC AGE	FORMATION	GENERAL LITHOLOGY	COLOR	DEPTH		THICKNESS	REMARKS
				TOP	BOTTOM		
PENNSYLVANIAN	SAND, SHALE & THIN COALS			0	980	980	
	UPPER SEABOARD COAL			980	982	2	
	SAND, SHALE & THIN COALS			982	1162	180	
	GREASY CREEK			1162	1164	2	
	SAND, SHALE & THIN COALS			1164	1270	106	
	LOWER SEABOARD COAL			1270	1272	2	
	SAND, SHALE & THIN COALS			1272	1651	379	
	BECKLEY COAL			1651	1654	3	
	SAND, SHALE & THIN COALS			1654	2282	628	
	POCO #3 COAL			2282	2284	2	
	SAND, SHALE & THIN COALS			2284	2441	157	
	LOGGER'S DEPTH				2441		

Permittee: EQUITABLE RESOURCES EXPLORATION (Company)By: Joseph A. Denny (Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8887
Company:	EnerVest Operating, LLC
File Number:	DI-0872
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	3/18/1998
Driller's Total Depth:	1635.00	Log's Total Depth:	1641.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
STIM	5DI0872_VC2549_EQTPN_DICKENSON.pdf

3. Final Production

Description	FileName
FINAL	5DI0872_VC2549_EQTPN_DICKENSON.pdf

4. Comments

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
540/676-5423

COMPLETION REPORT

WELL TYPE: COALBED METHANE

Date Well Completed 03/18/1998 Total Depth of Well: LTD - 1641 DTD - 1635

Attach the Drilling Report; if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD

Zone 1 : M HORS, CSEAM, WARCK, UNC, BECKLY, L HORS, XSEAM

Formation Stimulated With: 70Q FOAM

Total Sand Used: 17790 lbs Sand Size: 12/20 Total Acid: 0 gal. Acid Strength:

N2 Used: 580900 SCF Total Fluid Injected: 542 bbls.

Perforated: 562 to 821 No. of Perforations: 15 Size: 0.34 "

Formation Broke Down at: 1455 PSIG Average Injection Rate: 69 BPM

ISIP: 1465 PSIG 5 Min SIP: 1107 PSIG Average Injection Pressure: 3552

Date Stimulated: 03/18/1998

FINAL PRODUCTION: _____ Natural X After Stimulation
BOD MCFD HOURS TESTED ROCK PRESSURE HOURS TESTED

Final Production If Gas
Zones are Commingled

36 MCF 6 Hours Tested 230 PSIG 48 Hours Tested

Permittee: Equitable Resources Energy Company (Company)

By: James M. Cuel (Signature)

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
540/676-5423

COMPLETION REPORT

WELL TYPE: COALBED METHANE

Date Well Completed 03/18/1998 Total Depth of Well: LTD - 1641 DTD - 1635

Attach the Drilling Report; if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD

Zone 1 : M HORS, CSEAM, WARCK, UNC, BECKLY, L HORS, XSEAM

Formation Stimulated With: 70Q FOAM

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Date Stimulated: 03/18/1998

FINAL PRODUCTION: _____ Natural X After Stimulation
BOD MCFD HOURS TESTED ROCK PRESSURE HOURS TESTED

Final Production If Gas
Zones are Commingled

36 MCF 6 Hours Tested 230 PSIG 48 Hours Tested

Permittee: Equitable Resources Energy Company (Company)

By: James M. Reed (Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8956
Company:	EnerVest Operating, LLC
File Number:	DI-0872
Operations Name:	VC-2549
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	3/2/1998	Drilling Contractor:	UD 15
Date drilling completed:	3/5/1998	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	1635.00		
Log Total Depth (feet):	1641.00	Coal Seam At Total Depth	Pocahontas

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10418616.0000	Final Plat State Plane X:	10418615.7910
Permitted State Plane Y:	3567762.0700	Final Plat State Plane Y:	3567762.0770

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
PLAT	1DI0872_VC2549_EQTPN_DICKENSON.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
1090	1/4	INCH
170	1	INCH
775	DAMP	

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
COAL	2DI0872_VC2549_EQTPN_DICKENSON.pdf

Gas and Oil Shows:

List of Attached Items:

Description	FileName
GAS	2DI0872_VC2549_EQTPN_DICKENSON.pdf

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: NA

Did logs disclose vertical locations of a coal seam?



5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
-------------	----------

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
CASING	NO CASING INFORMATION.doc

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
LOG	4DI0872_VC2549_EQTPN_DICKENSON.pdf

9. Comments

MATERIAL INSERTED BY DGO [5/10/2016, jhh]

10. Signature

Permittee: EnerVest Operating, LLC Date: 5/10/2016

Signed By: JAMES G. CREED Title: ***

INTERNAL USE ONLY

Submit Date: 5/10/2016

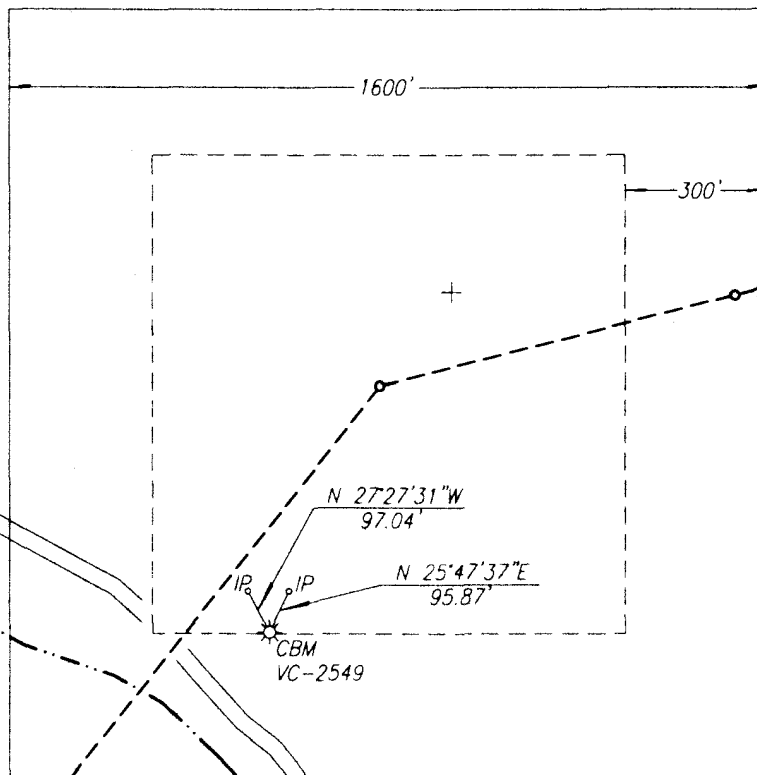
Status: A

Date: 8/12/2016

Final PDF Date: 11/30/2016

Latitude 37° 05' 00"

Lease No. 241490L / T-427
 John L. Tiller
 244.0 Acres
 Clinchfield Coal Company /
 Pyxis Resources Company - coal
 Pine Mountain Oil & Gas, Inc. - oil & gas
 Gas 35.30 Ac. 60.07%

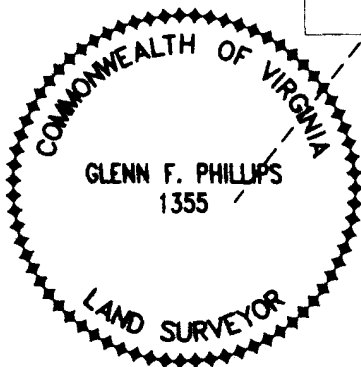


Longitude 82° 07' 30"

6,720'

Lease No. 241490L / T-572
 J. W. Barton
 236.0 Acres
 Clinchfield Coal Company /
 Pyxis Resources Company - coal
 Pine Mountain Oil & Gas, Inc. - oil & gas
 Gas 0.02 Ac. 0.03%

Lease No. 241490L / T-349
 James Rasnake
 388.52 Acres
 Clinchfield Coal Company /
 Pyxis Resources Company - surface & coal
 Pine Mountain Oil & Gas, Inc. - oil & gas
 Gas 23.45 Ac. 39.90%



Well elevation determined by trigonometric
 leveling from U.S. Army Corp. BM 1B

FINAL PLAT

Area of Unit = 58.77 Ac.

Well Coordinates: (VA St. Plane S. Zone,
 Calculated from CCC coordinates)
 N 286,885 E 935,630

Well Coordinates: (Clinchfield Coal Co.)
 S 12,796.84 E 68,446.41

WELL LOCATION PLAT

COMPANY Equitable Resources Energy Company WELL NAME AND NUMBER VC-2549
 TRACT NO. T-349 ELEVATION 1717.68 QUADRANGLE Duty
 COUNTY Dickenson DISTRICT Ervinton SCALE 1" = 400' DATE 5-20-1998

This Plat is a new plat ; an updated plat ; or a final location plat x

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

Glenn F. Phillips

Licensed Professional Engineer or Licensed Land Surveyor

Department of Mines, Minerals and Energy

Division of Gas and Oil

P.O. Box 1416

Abingdon, Virginia 24210

540/676-5423

DRILLING REPORT

Pursuant to VR-480-05-22.1 § 1.36, the undersigned Permittee submits this report on Well VCP2549 in the ERVINTON
 District of DICKENSON County, Virginia on the 9 day, September month, 1998.

LOCATIONCounty: DickensonDistrict: ERVINTONSurface Elevation: 1717.78Elev of Kelly Bushing: 1727.78Quadrangle: DUTY

6720 Ft. S of Latitude 37 ° 05 ' 00 " and 6910 Ft. W of Longitude 82 ° 07 ' 30 "

DRILLING DATADate Drilling Commenced: 03/02/1998 Drilling Contractor: UD 15Date Drilling Completed: 03/05/1998 Rig Type: X Rotary Cable ToolTotal Depth of Well: LTD - 1641 DTD - 1635GEOLOGICAL DATA

Fresh Water at:

170 feet 1" STREAM 775 feet DAMP

1090 feet 1/4" STREAM

Salt Water at:

COAL SEAMS:

<u>NAME</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>	<u>MINING IN AREA</u>		
				<u>YES</u>	<u>NO</u>	<u>MINED OUT</u>
L SEABOARD	373	375	2			
UNNAMED A	443	445	2			
BECKLY	762	770	8			
L HORSEPEN	814	821	7			
X SEAM	862	864	2			

GAS AND OIL SHOWS:

FORMATION TOP BOTTOM THICKNESS IPF (MCFD/BOPD) PRESSURE HOURS TESTED

Department of Mines, Minerals and Energy

Division of Gas and Oil

P.O. Box 1416

Abingdon, Virginia 24210

540/676-5423

DRILLING REPORT

Pursuant to VR-480-05-22.1 § 1.36, the undersigned Permittee submits this report on Well VCP2549 in the ERVINTON
District of DICKENSON County, Virginia on the 9 day, September month, 1998.

LOCATIONCounty: DickensonDistrict: ERVINTONSurface Elevation: 1717.78Elev of Kelly Bushing: 1727.78Quadrangle: DUTY

6720 Ft. S of Latitude 37 ° 05 ' 00 " and 6910 Ft. W of Longitude 82 ° 07 ' 30 "

DRILLING DATADate Drilling Commenced: 03/02/1998 Drilling Contractor: UD 15Date Drilling Completed: 03/05/1998 Rig Type: X Rotary Cable ToolTotal Depth of Well: LTD - 1641 DTD - 1635GEOLOGICAL DATA

Fresh Water at:

170 feet 1" STREAM 775 feet DAMP

1090 feet 1/4" STREAM

Salt Water at:

COAL SEAMS:

<u>NAME</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>	<u>MINING IN AREA</u>		
				<u>YES</u>	<u>NO</u>	<u>MINED OUT</u>
L SEABOARD	373	375	2			
UNNAMED A	443	445	2			
BECKLY	762	770	8			
L HORSEPEN	814	821	7			
X SEAM	862	864	2			

GAS AND OIL SHOWS:

FORMATION TOP BOTTOM THICKNESS IPF (MCFD/BOPD) PRESSURE HOURS TESTED

NO CASING INFORMATION

DRILLER'S LOG

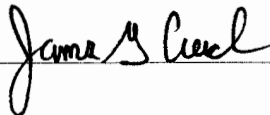
Compiled by: Engineering

<u>AGE</u>	<u>FORMATION*</u>	<u>GENERAL LITHOLOGY</u>	<u>COLOR</u>	<u>DEPTH</u>		<u>THICKNESS</u>	<u>REMARKS</u>
				<u>TOP</u>	<u>BOTTOM</u>		
PENN	L SEABOARD			373	375	2	
PENN	UNNAMED A			443	445	2	
PENN	BECKLY			762	770	8	
PENN	L HORSEPEN			814	821	7	
PENN	X SEAM			862	864	2	
LOGGER'S TOTAL DEPTH				1641			

*Formations between coal seams are Sand, Shale and Thin Coals

Permittee: Equitable Resources Energy Company (Company)

By:



(Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8801
Company:	EnerVest Operating, LLC
File Number:	DI-0792
Completion Report Type:	Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coal Bed	Date Well Completed:	5/31/1996
Driller's Total Depth:	1333.00	Log's Total Depth:	1341.00

1. Changes In Casing/Tubing from Approved Drilling Report

Description	FileName
-------------	----------

2. Stimulation Record

Stimulation Status: ☒ Stimulated ☐ GOB ☐ Not Stimulated ☐ Service Well

Description	FileName
STIM	5DI0792_VC2550_EQTPN_DICKENSON.pdf

3. Final Production

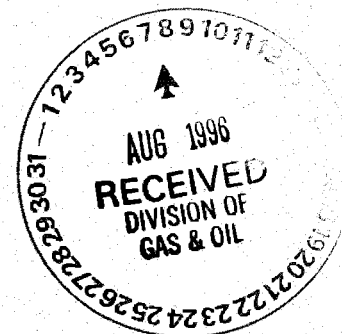
Description	FileName
FINAL	5DI0792_VC2550_EQTPN_DICKENSON.pdf

4. Comments

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE VCP2550
Permit #: 3066 DI-792

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
703/676-5423



COMPLETION REPORT

WELL TYPE: Oil ☐ Gas ☐ Coalbed Methane ☒ or Injection ☐ well

Date Well Completed: 5-31-96

Total Depth of Well: LTD = 1341 DTD = 1333

Attach the Drilling Report; if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

STIMULATION RECORD

Zone 1: COAL SEAMS*

Formation Stimulated With: 70Q FOAM

W/21650# 12/20 SAND - 1,160,820 SCF N2 - 688 BF

Perforated: 394.5 to 822.5

No. of Perforations: 16

Perforation size: .34

Formation Broke Down at: 1620

PSIG Average Injection Rate: 19.2 (DH) BPM

ISIP: 633

PSIG 5

Min SIP: 554

PSIG Average Injection Pressure: 2794

Date Stimulated: 5-31-96

* UNNAMED "A", U.HORSEPEN, M.HORSEPEN, C-SEAM RIDER, C-SEAM, WARCREEK, UNNAMED "C", BECKLEY, L HORSEPEN, X-SEAM

Zone 2:

Formation Stimulated With:

Perforated: to

No. of Perforations:

Perforation size:

Formation Broke Down at:

PSIG Average Injection Rate:

ISIP: PSIG

Min SIP:

PSIG Average Injection Pressure:

Date Stimulated:

Zone 3:

Formation Stimulated With:

Perforated: to

No. of Perforations:

Perforation size:

Formation Broke Down at:

PSIG Average Injection Rate:

ISIP: PSIG

Min SIP:

PSIG Average Injection Pressure:

Date Stimulated:

FINAL PRODUCTION:

 Natural X After Stimulation

BOD

MCFD

HOURS TESTED

ROCK PRESSURE

HOURS TESTED

Zone (1)

Zone (2)

Zone (3)

Final Production if Gas Zones are Commingled 62 MCFD 6 Hours Tested 94 PSIG 48 Hours Tested

* Use additional sheets with this format, if more than three (3) zones were stimulated.

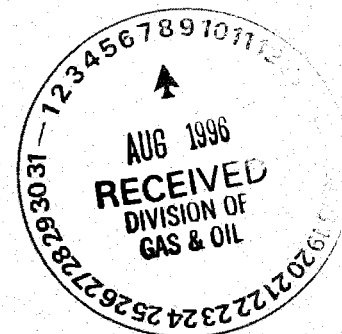
Permittee: EQUITABLE RESOURCES EXPLORATION (Company)

By: Joseph A. [Signature] (Signature)

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE VCP2550
Permit #: 3066 DI-792

Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416
Abingdon, Virginia 24210
703/676-5423



COMPLETION REPORT

WELL TYPE: Oil ☐ Gas ☐ Coalbed Methane ☒ or Injection ☐ well

Date Well Completed: 5-31-96

Total Depth of Well: LTD = 1341 DTD = 1333

Attach the Drilling Report; if not previously submitted. In addition, submit any changes in casing or tubing that were approved after the Drilling Report was submitted.

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Zone 1: COAL SEAMS*

Formation Stimulated With: 70Q FOAM

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Perforation size: .34

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PSIG Average Injection Rate: 19.2 (DH) BPM

ISIP: 633

PSIG 5

Min SIP: 554

PSIG Average Injection Pressure: 2794

Date Stimulated: 5-31-96

* UNNAMED "A", U.HORSEPEN, M.HORSEPEN, C-SEAM RIDER, C-SEAM, WARCREEK, UNNAMED "C", BECKLEY, L HORSEPEN, X-SEAM

Zone 2:

Formation Stimulated With:

Perforated: to

No. of Perforations:

Perforation size:

Formation Broke Down at:

PSIG Average Injection Rate:

ISIP: PSIG

Min SIP:

PSIG Average Injection Pressure:

Date Stimulated:

Zone 3:

Formation Stimulated With:

Perforated: to

No. of Perforations:

Perforation size:

Formation Broke Down at:

PSIG Average Injection Rate:

ISIP: PSIG

Min SIP:

PSIG Average Injection Pressure:

Date Stimulated:

FINAL PRODUCTION:

 Natural X After Stimulation

BOD

MCFD

HOURS TESTED

ROCK PRESSURE

HOURS TESTED

Zone (1)

Zone (2)

Zone (3)

Final Production if Gas Zones are Commingled 62 MCFD 6 Hours Tested 94 PSIG 48 Hours Tested

* Use additional sheets with this format, if more than three (3) zones were stimulated.

Permittee: EQUITABLE RESOURCES EXPLORATION (Company)

By: Joseph A. [Signature]

(Signature)



Commonwealth of Virginia
Department of Mines, Minerals, and Energy
Division of Gas and Oil
P.O. Drawer 159, Lebanon, VA 24266
Telephone: (276) 415-9700

Tracking Number:	8870
Company:	EnerVest Operating, LLC
File Number:	DI-0792
Operations Name:	VC-2550
Operation Type:	Coal Bed
Drilling Report Type:	Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced:	5/24/1996	Drilling Contractor:	UNION DRILLING
Date drilling completed:	5/26/1996	Rig Type:	<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable
Driller's Total Depth (feet):	1333.00		
Log Total Depth (feet):	1341.00	Coal Seam At Total Depth	Pocahontas

2. Final Location Plat (as required by 4 VAC25-150-360.C.)

Permitted State Plane X:	10418943.0000	Final Plat State Plane X:	10418943.0000
Permitted State Plane Y:	3566459.0300	Final Plat State Plane Y:	3566459.0000

Plat Previously Submitted Or... ☐

List of Attached Items:

Description	FileName
PLAT	1DI0792_VC2550_EQTPN_DICKENSON.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
1025	DAMP	
70	1	INCH

Salt Water At:

Depth (in feet)	Rate	Unit of Measure
-----------------	------	-----------------

Coal Seams:

List of Attached Items:

Description	FileName
COAL	2DI0792_VC2550_EQTPN_DICKENSON.pdf

Gas and Oil Shows:

List of Attached Items:

Description	FileName
GAS	2DI0792_VC2550_EQTPN_DICKENSON.pdf

4. Geophysical Logs (As required by 4VAC25-150-280.A)

List all logs run: DEN/TEMP/GR

Did logs disclose vertical locations of a coal seam?

☒

5. Survey Results (As required by 4VAC25-150-280.B.2)

List of Attached Items:

Description	FileName
SURVEY	3DI0792_VC2550_EQTPN_DICKENSON.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
CASING	3DI0792_VC2550_EQTPN_DICKENSON.pdf

7. Remarks

Use this space to note any conditions or occurrences, such as lost circulation, fishing jobs, junk left in hole, sidetracks, squeeze jobs, etc., not shown above. Include data and depth of condition/occurrence.

8. Drillers Log

Compiled By: _____

List of Attached Items:

Description	FileName
LOG	4DI0792_VC2550_EQTPN_DICKENSON.pdf

9. Comments

MATERIAL INSERTED BY DGO [4/27/2016, jhh]

10. Signature

Permittee: EnerVest Operating, LLC Date: 4/27/2016
Signed By: JOSEPH A. AWNY Title: ENGINEER

INTERNAL USE ONLY

Submit Date: 4/27/2016

Status: A

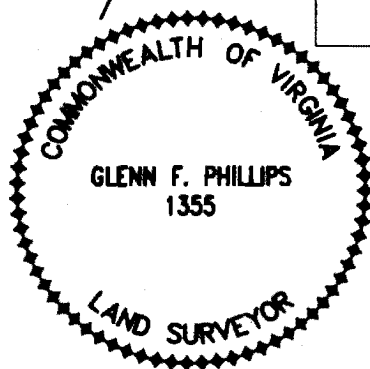
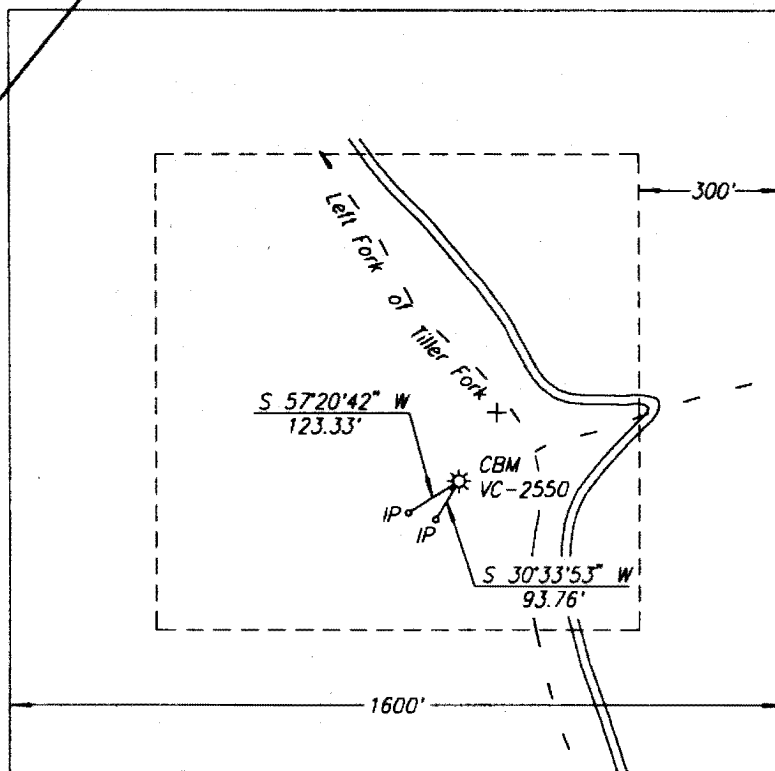
Date: 8/12/2016

Final PDF Date: 8/12/2016

77E
6/10/86

Longitude 82° 07' 30"

8,000'



FINAL PLAT

Well Coordinates: (Clinchfield Coal Co.)
S 14.085.91 E 68.823.62

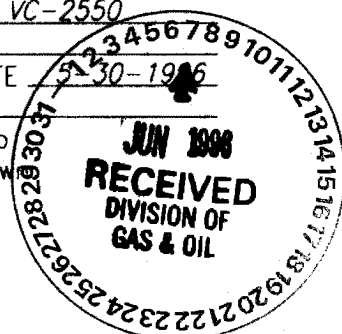
Area of Unit = 58.77 Ac.

WELL LOCATION PLAT

+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

John F. Phillips

~~Licensed Professional Engineer or Licensed Land Surveyor~~



Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE VCP2550
Permit #: 3066 DI-792

Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1410
Abingdon, Virginia 24210
703/676-5423

DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well VCP2550 in the ERVINTON District of the DICKENSON County, Virginia on 6TH day, AUGUST month, 19 96.

LOCATION

County: DICKENSON District: ERVINTON
Surface Elevation: 1699.90 Elevation of Kelly Bushing: 1709.90 Quadrangle: DUTY
8000 FT S. of Latitude 37° 05' 00" and 6560 FT W. of Longitude 82° 07' 30"

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 05-24-96 Drilling Contractor: Union Drilling
Date Drilling Completed: 05-26-96 Rig Type: x Rotary Cable Tool
Total Depth of Well: LTD=1341 DTD=1333

GEOLOGICAL DATA

Fresh Water at:	70 feet	1" STREAM	GPM	feet	GPM
	1025 feet	DAMP	GPM	feet	GPM
Salt Water at:	feet		GPM	feet	GPM
	feet		GPM	feet	GPM

COAL SEAMS:

<u>NAME</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>	<u>MINING IN AREA</u>		
				<u>YES</u>	<u>NO</u>	<u>MINED OUT</u>
UNNAMED "A" (SPLIT)	395	399	4			
MIDDLE HORSEPEN	512	514	2			
BECKLEY (SPLIT)	708	714	6			

GAS AND OIL SHOWS:

<u>FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>	<u>IPF (MCFD/BOPD)</u>	<u>PRESSURE</u>	<u>HOURS TESTED</u>
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Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE VCP2550
Permit #: 3066 DI-792

Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1410
Abingdon, Virginia 24210
703/676-5423

DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well VCP2550 in the ERVINTON District of the DICKENSON County, Virginia on 6TH day, AUGUST month, 19 96.

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Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 05-24-96 Drilling Contractor: Union Drilling
Date Drilling Completed: 05-26-96 Rig Type: x Rotary Cable Tool
Total Depth of Well: LTD=1341 DTD=1333

GEOLOGICAL DATA

Fresh Water at:	70 feet	1" STREAM	GPM	feet	GPM
	1025 feet	DAMP	GPM	feet	GPM
Salt Water at:	feet		GPM	feet	GPM
	feet		GPM	feet	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA		
				YES	NO	MINED OUT
UNNAMED "A" (SPLIT)	395	399	4			
MIDDLE HORSEPEN	512	514	2			
BECKLEY (SPLIT)	708	714	6			

GAS AND OIL SHOWS:

FORMATION	TOP	BOTTOM	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
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Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE VCP2550
Permit #: 3066 DI-792

Cuttings or samples are are not X available for examination by a member of the Virginia Division of Mineral Resources
Cuttings or samples have have not X been furnished to the Virginia Division of Mineral Resources

ELECTRIC LOGS AND SURVEYS

List logs run on wellbore: DEN/TMP/GR

Did log disclose vertical location of a coal seam? Yes X No

SURVEY RESULTS

DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL	DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL
174	3/4°	1146	1/2°
182	3/4°	1333	3/4°
200	3/4°		
396	1-1/4°		
593	3/4°		
619	3/4°		
820	3/4°		
1020	3/4°		

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED (IN CU/FT)	DATE CEMENTED	PACKERS OR BRIDGE PLUGS KIND SIZE SET AT
<u>Conductor</u>							
<u>Surface</u>	11-3/4"	31'	34'				
<u>Water Protection</u>	8-5/8"	348'	338'		100(118)	5-25-96	
<u>Coal Protection</u>							
<u>Other Casing and Tubing Left in Well</u>	4 1/2" 2 3/8"	1316' 1262'	1306'		200(252)	5-26-96	

Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE VCP2550
Permit #: 3066 DI-792

Cuttings or samples are are not X available for examination by a member of the Virginia Division of Mineral Resources
Cuttings or samples have have not X been furnished to the Virginia Division of Mineral Resources

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List logs run on wellbore: DEN/TMP/GR

Did log disclose vertical location of a coal seam? Yes X No

SURVEY RESULTS

DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL	DEPTH OF SURVEY	DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL
174	3/4°	1146	1/2°
182	3/4°	1333	3/4°
200	3/4°		
396	1-1/4°		
593	3/4°		
619	3/4°		
820	3/4°		
1020	3/4°		

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED (IN CU/FT)	DATE CEMENTED	PACKERS OR BRIDGE PLUGS KIND SIZE SET AT
<u>Conductor</u>							
<u>Surface</u>	11-3/4"		31'	34'			
<u>Water Protection</u>	8-5/8"		348'	338'	100(118)	5-25-96	
<u>Coal Protection</u>							
<u>Other Casing and Tubing Left in Well</u>	4 1/2" 2 3/8"		1316' 1262'	1306'	200(252)	5-26-96	

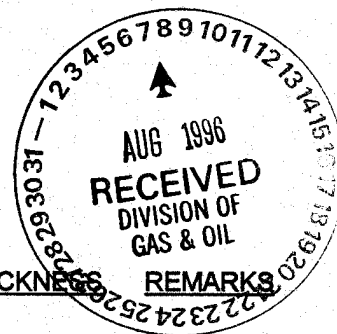
Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: J RASNAKE VCP2550
Permit #: 3066 DI-792

DRILLER'S LOG

Compiled by Engineering

<u>AGE</u>	<u>FORMATION</u>	<u>GENERAL LITHOLOGY</u>	<u>COLOR</u>	<u>DEPTH</u>		<u>THICKNESS</u>	<u>REMARKS</u>
				<u>TOP</u>	<u>BOTTOM</u>		
Pennsylvanian	Sand, Shale & Thin Coals			0	395		
	UNNAMED "A" (SPLIT)			395	399	4	
	Sand, Shale & Thin Coals			399	512	113	
	MIDDLE HORSEPEN			512	514	2	
	Sand, Shale & Thin Coals			514	708	194	
	BECKLEY (SPLIT)			708	714	6	
	Sand, Shale & Thin Coals			714	1341	627	

Logger's Total Depth

1341

Permittee: EQUITABLE RESOURCES EXPLORATION (Company)By: Joseph A. [Signature] (Signature)

United States Environmental Protection Agency
Underground Injection Control (UIC) Program
Class II Permit Application Completeness Review Checklist

Permit Number:
Well Name:
Well Type: <input type="checkbox"/> Class II EOR <input type="checkbox"/> Class II SWD <input type="checkbox"/> Class II Commercial SWD
Permit Applicant:
Date Application Received:
Application Reviewed By:
CHECK BOX IF ITEM IS PROVIDED; IF NOT APPLICABLE, WRITE "NA"
<input type="checkbox"/> Completed Permit Application Form 7520-6, including signature of an authorized representative
Attachment A. Maps and Area of Review
<input type="checkbox"/> I. Well Location(s) and Permitted Area Description (if area permit) (40 CFR 144.26; 144.33)
<input type="checkbox"/> II. Area of Review Size Determination – fixed radius or equation (40 CFR 144.6)
III. Maps (40 CFR 144.31; 146.24) Topographic Map extending one-mile beyond facility property boundary showing: <input type="checkbox"/> injection well, well pad, and project area <input type="checkbox"/> area of review boundary <input type="checkbox"/> outcrops of injection and confining formation, <i>if present</i> <input type="checkbox"/> surface water intake and discharge structures, <i>if present</i> <input type="checkbox"/> hazardous waste treatment, storage or disposal facility, <i>if present</i> Map showing within ¼ - mile beyond facility property boundary or AOR (whichever is larger): <input type="checkbox"/> name and location of production wells, injection wells, abandoned wells, dry holes, and all water wells, noting its type (public water system, domestic drinking water, stock, etc.), <i>if present</i> <input type="checkbox"/> springs and surface bodies of waters, <i>if present</i> <input type="checkbox"/> mines (surface and subsurface) and quarries, <i>if present</i> <input type="checkbox"/> residences, schools, hospitals, and roads, <i>if present</i>
IV. Area of Review (AOR) Wells and Corrective Action Plan (CAP) (40 CFR 144.55; 146.24) <input type="checkbox"/> tabulation of AOR wells, <i>if present</i> <input type="checkbox"/> well bore diagrams, CBL, completion records of AOR wells, <i>if available</i> <input type="checkbox"/> AOR CAP, <i>if applicable</i>
V. Landowner Information (40 CFR 144.31 and part 147) <input type="checkbox"/> list of landowners and address within ¼-mile <input type="checkbox"/> evidence of notification to landowner of intent to apply for permit, <i>if applicable</i>
Attachment B. Geological and Geophysical Information
I. Geological Data (40 CFR 146.24) <input type="checkbox"/> list of formations from surface to the base of the injection well, identifying all the USDWs and confining and injection zone(s). List includes the lithologic description, geological name, thickness, depth, and total dissolved solids (TDS) concentrations from these formations, <i>if known</i> <input type="checkbox"/> source of information for the geologic data and formation TDS

<input type="checkbox"/> porosity and permeability of injection formation, <i>if available</i> <input type="checkbox"/> geological cross-sections, <i>if available</i> <input type="checkbox"/> known or suspected faults and fracture systems within AOR. If identified, provide proximity to the injection zone and affect fault/fracture system may have on the injection activities <input type="checkbox"/> history of seismic activity in the area and proximity to crystalline (i.e., granitic) basement, <i>if applicable</i>
II. Formation Testing Plan (40 CFR 146.22) <input type="checkbox"/> fluid pressure <input type="checkbox"/> estimated fracture pressure <input type="checkbox"/> physical and chemical characteristics of the injection zone
Attachment C. Well Construction/Conversion Information
I. Well Schematic Diagram (40 CFR 146.24) Detailed proposed well schematic diagram that includes: <input type="checkbox"/> identification of USDWs and confining and injection zones <input type="checkbox"/> casing and cementing details, including demonstrated or calculated top of cement <input type="checkbox"/> tubing and packer, <i>if applicable</i> <input type="checkbox"/> open hole or perforated intervals <input type="checkbox"/> surface trace, <i>if horizontal or deviated well</i> <i>If conversion to injection well:</i> <input type="checkbox"/> current well schematic diagram
II. Well Construction or Conversion Procedures (40 CFR 144.52; 146.22; 146.24) Description of well construction or conversion procedures that includes: <input type="checkbox"/> proposed logs and other tests conducted during the drilling and construction of new well(s) <input type="checkbox"/> proposed stimulation plan(s), <i>if applicable</i> <input type="checkbox"/> description of alarms and shut-down systems at the well, <i>if applicable</i> <i>If conversion to injection well:</i> <input type="checkbox"/> well completion and cementing records <input type="checkbox"/> previously run logs/tests
Attachment D. Injection Operation and Monitoring Program (40 CFR 146.23; 146.24)
<input type="checkbox"/> flow diagram of fluid flow through facility <input type="checkbox"/> contingency plan(s) to respond to with well failures <input type="checkbox"/> drawing of the surface construction <input type="checkbox"/> location of monitoring ports (show on the map(s) referenced in section A.III. above) <input type="checkbox"/> description of sampling and monitoring devices to monitor the nature of the injected fluids, injection pressure, annulus pressure (if applicable), flowrate, and cumulative volume <input type="checkbox"/> description of manifold monitoring program and how the program is comparable to individual well monitoring Operating Data Information: <input type="checkbox"/> average and maximum daily rate and volume of fluids to be injected <input type="checkbox"/> average and maximum injection pressure <input type="checkbox"/> source(s) of injection fluids (including field and formation names) <input type="checkbox"/> proposed annular fluid, <i>if applicable</i> <input type="checkbox"/> analysis of the chemical and physical characteristics of the injection fluid. At a minimum, this should include pH, specific gravity, TDS, and conductivity
Attachment E. Plugging and Abandonment (P&A) Plan (40 CFR 144.31; 144.51; 146.24)
<input type="checkbox"/> P&A plan of the well on EPA Form 7520-19

P&A diagram that includes:

- ☐ type, and number of plugs to be used
- ☐ placement of each plug including the elevation of top and bottom
- ☐ type, grade, and quantity of cement to be used
- ☐ method of placement of the plugs
- ☐ at least one cost estimates from an independent firm in the business of plugging and abandoning wells for third party (EPA) to complete proposed P&A plan

Attachment F. Financial Assurance (40 CFR 144.52)

- ☐ evidence of financial resources, such as a surety bond or financial statement, necessary to close, plug, or abandon the well

Attachment G. Site Security and Manifest Requirements (Commercial Wells Only; Form 7520)

- ☐ site security plan
- ☐ description of manifest system

Attachment H. Aquifer Exemption (AE) (40 CFR 144.7; 146.4)

- ☐ supporting documentation for proposed AE, *if applicable*

Attachment I. Existing EPA Permits (40 CFR 144.31)

- ☐ list of existing EPA permits, *if applicable*

Attachment J. Description of Business (40 CFR 144.31)

- ☐ description of the nature of the business

Attachment K. Optional Additional Project Information (40 CFR 144.4)

- ☐ The Wild and Scenic Rivers Act, 16 U.S.C. 1273 et seq.
list of national wild and scenic rivers that may be impacted by the activities associated with proposed project, *if applicable*
- ☐ The National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq.
list of properties listed or eligible for listing in the National Register of Historic Places. If available, historic and cultural resource survey(s) that have been conducted, *if applicable*
- ☐ The Endangered Species Act, 16 U.S.C. 1531 et seq.
list of endangered or threatened species that may be affected by the activities associated with proposed project. If available, previous endangered or threatened species surveys that have been conducted, *if applicable*
- ☐ The Coastal Zone Management Act, 16 U.S.C. 1451 et seq.
list of coastal zones that may be affected by the activities associated with the proposed project, *if applicable*