



Andy Statzer
Manager-Water Systems & Infrastructure
Work: 276-596-5048
Email: andrewstatzer@cnx.com

Pocahontas Gas
PO Box 570
Pounding Mill, VA 24637
cnx.com

May 18, 2022

Mr. Kevin Rowsey
US EPA Region 3
Office Source Water & UIC Section Water Division
1650 Arch Street
Philadelphia, PA 19103-2029

RE: Ball A-1 UIC Permit Application Renewal

Mr. Rowsey,
Pocahontas Gas LLC hereby submits the above referenced UIC permit application **renewal**. This application is for a Class II, Type D disposal well in Buchanan County, Virginia. This well is used for final disposal of produced fluids (brine water) from our coalbed methane and conventional shallow oil and gas wells. If you should have any questions or require additional information, please let us know.

Sincerely,

A handwritten signature in blue ink, appearing to read 'A. Statzer', written over a horizontal line.

Andy Statzer
Manager Water Virginia Operations
(276) 596-5048

A handwritten signature in blue ink, appearing to read 'Beverly Webb', written over a horizontal line.

Beverly Webb
Senior Permitting Agent
(276) 596-5075



United States Environmental Protection Agency
Underground Injection Control
Permit Application for a Class II Well
 (Collected under the authority of the Safe Drinking Water Act,
 Sections 1421, 1422, and 40 CFR Part 144)

For Official Use Only

Date Received

Permit Number

Read Attached Instructions Before Starting**I. Owner Name, Address, Phone Number and/or Email**

Pocahontas Gas LLC
 PO Box 570
 Pounding Mill, VA 24637
 276-596-5048
 andrewstatzer@cnx.com

II. Operator Name, Address, Phone Number and/or Email

Pocahontas Gas LLC
 PO Box 570
 Pounding Mill, VA 24637
 276-596-5048
 andrewstatzer@cnx.com

III. Commercial Facility

☐ Yes
☒ No

IV. Ownership

☒ Private
☐ Federal
☐ State/Tribal/
 Municipal

V. Permit Action Requested

☐ New Permit
☒ Permit Renewal
☐ Modification
☐ Add Well to Area Permit
☐ Other

VI. SIC Code(s)

1311

VII. Indian Country

☐ Yes
☒ No

VIII. Type of Permit (For multiple wells, use additional page(s) to provide the information requested for each additional well)

☒ A. Individual
☐ B. Area

Number of Wells
 1 (one)

Well Field and/or Project Names
 Oakwood Field

IX. Class and Type of Well (see reverse)**A. Class**

II

B. Type (enter code(s))

D

C. If type code is "X," explain.**X. Well Status**

☒ A. Operating
 Date Injection Started 2/9/1993
☐ B. Conversion
 Date Well Constructed 9/2/1992
☐ C. Proposed

XI. Well Information

API Number 450270038000
 Permit (or EPA ID) Number VAS2D921BBUC
 Full Well Name Ball A-1 UIC

XII. Location of Well or, for Multiple Wells, Approximate Center of Field or Project

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

Surface Location

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.

Latitude 37° 8' 42.60"

Longitude -82° 04' 50.20"

XIII. Attachments

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.

XIV. 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)

Mary Beth McGlothlin

Signature

Date Signed

5-17-22

Tract No.	Tax Info.	Owner	Address
1	2HH142027	Virginia Ball	1045 Rocky Hill Rd Honaker, VA 24260
2	2HH142038	James Ball, et ux	17401 Morrison Rd Meadowview, VA 24361
3	2HH143011	Harrison-Wyatt LLC	PO Box 11000 Danville, VA 24543
4	2HH143012	Harrison-Wyatt LLC	PO Box 11000 Danville, VA 24543
5	2HH143012	Harrison-Wyatt LLC	PO Box 11000 Danville, VA 24543
6	2HH142027	Virginia Ball	1045 Rocky Hill Rd Honaker, VA 24260
7	2HH142003	Cansada Looney	102 Holly Dr Warner Robins, GA 31088
8	2HH142004	Mary L. McGlothlin	PO Box 909 Grundy, VA 24614
9	not assessed	Martin Edd Boyd, et al	3909 Bluegrass Trail Bland VA 24315
10	2HH142051	Dorothy Boyd Hess Estate	27052 Leesburg, FL 34748
11	2HH142044	Harrison-Wyatt LLC	PO Box 11000 Danville, VA 24543
12	not assessed	Woodrow Presley	1134 Shady Rest Rd Vansant, VA 24656
13	not assessed	Woodrow Presley	1134 Shady Rest Rd Vansant, VA 24656
14	2HH142036	Roy Ball, et ux	1393 Roy Ball Hollow Rd Vansant VA 24656
15	not assessed	Harrison-Wyatt LLC	PO Box 11000 Danville, VA 24543
16	2HH142043	Charlotte Webb, et al	126 Mill Race Dr Winchester, VA 22602
17	2HH142035	John Brown Estate	PO Box 365 Surveyor, WV 25932
18	2HH142037	Dewey Ray, et al	7131 Miller Creek Rd Swords Creek VA 24649
19	2Hh142023	Kevin Ratliff, et ux	PO Box 396 Davenport, VA 24239
20	2HH142045	Harrison-Wyatt LLC	PO Box 11000 Danville, VA 24543
21	2HH143040	MC Arms Heirs	1000 Consol Energy Dr Canonsburg, PA 15317

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

Skyline Contracting Inc.
PO Box 663
Oakwood, VA 24631
(276) 498-3560

CNX Resources LLC.
1000 Consol Energy Drive
Canonsburg, PA 15317

April, 28 2022

RE: **Well Plugging Proposal Ball A-1**

Mr. Statzer,

We are pleased to present the following proposal for your consideration. If you have questions please feel free to call on us at any time.

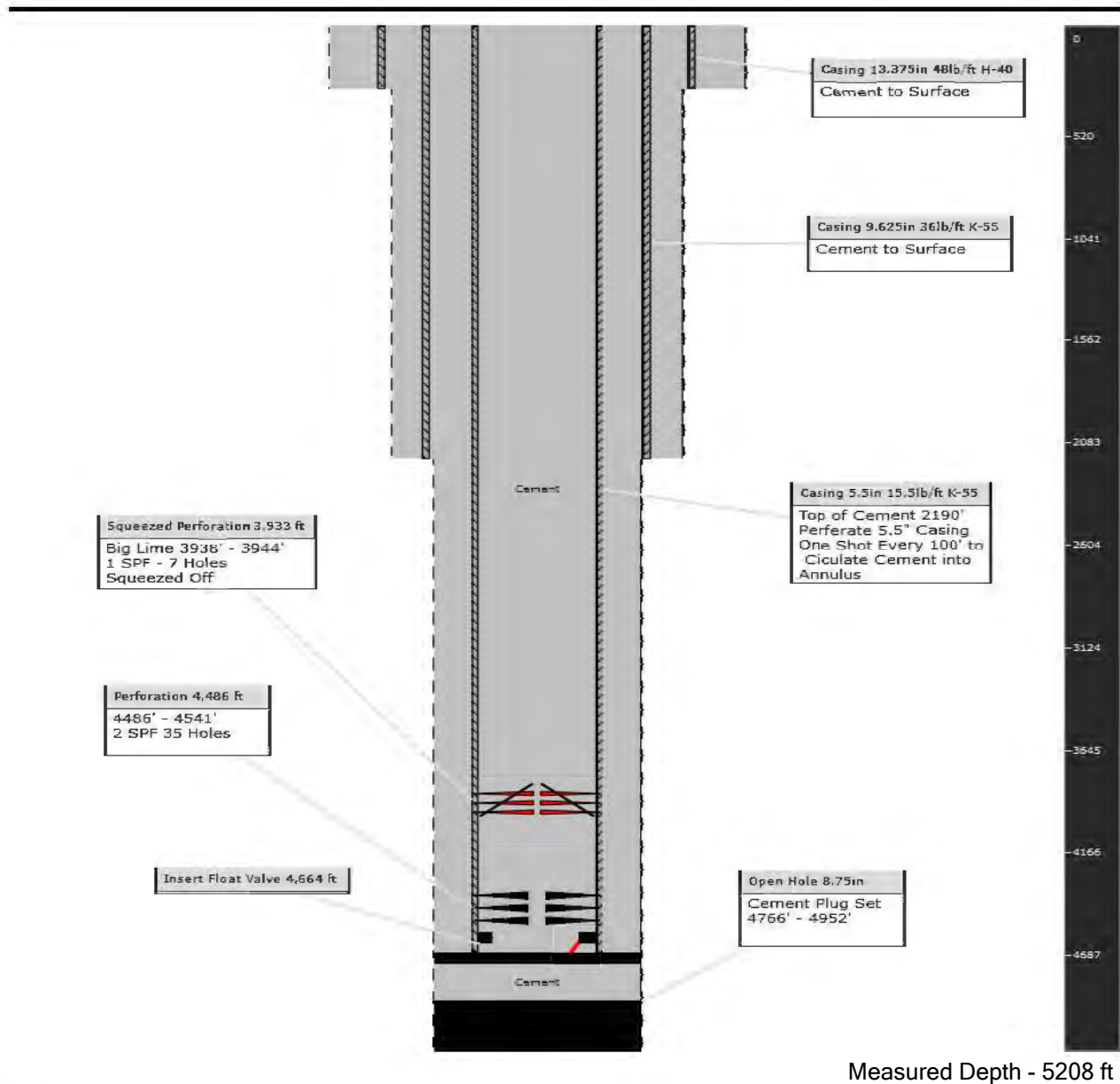
Scope of Work:

- | | |
|---|-------------------------|
| 1. Move service rig on location and rig up, release packer and pull tubing, establish well total depth. | Total Cost: \$5,275.00 |
| 2. Set steel bridge plug and perforate | Total Cost: \$15,200.00 |
| 3. Pump cement, trip out tubing, and install plug monument. | Total Cost: \$4,970.00 |
| 4. Cement | Total Cost: \$15,750.00 |
| 5. Move all equipment, tubing, and casing off location. | Total Cost: \$1,575.00 |

Total Plugging Cost for this well:	\$42,770.00
------------------------------------	-------------

Regards,

Kenneth Horne, Pres.
Skyline Contracting Inc.

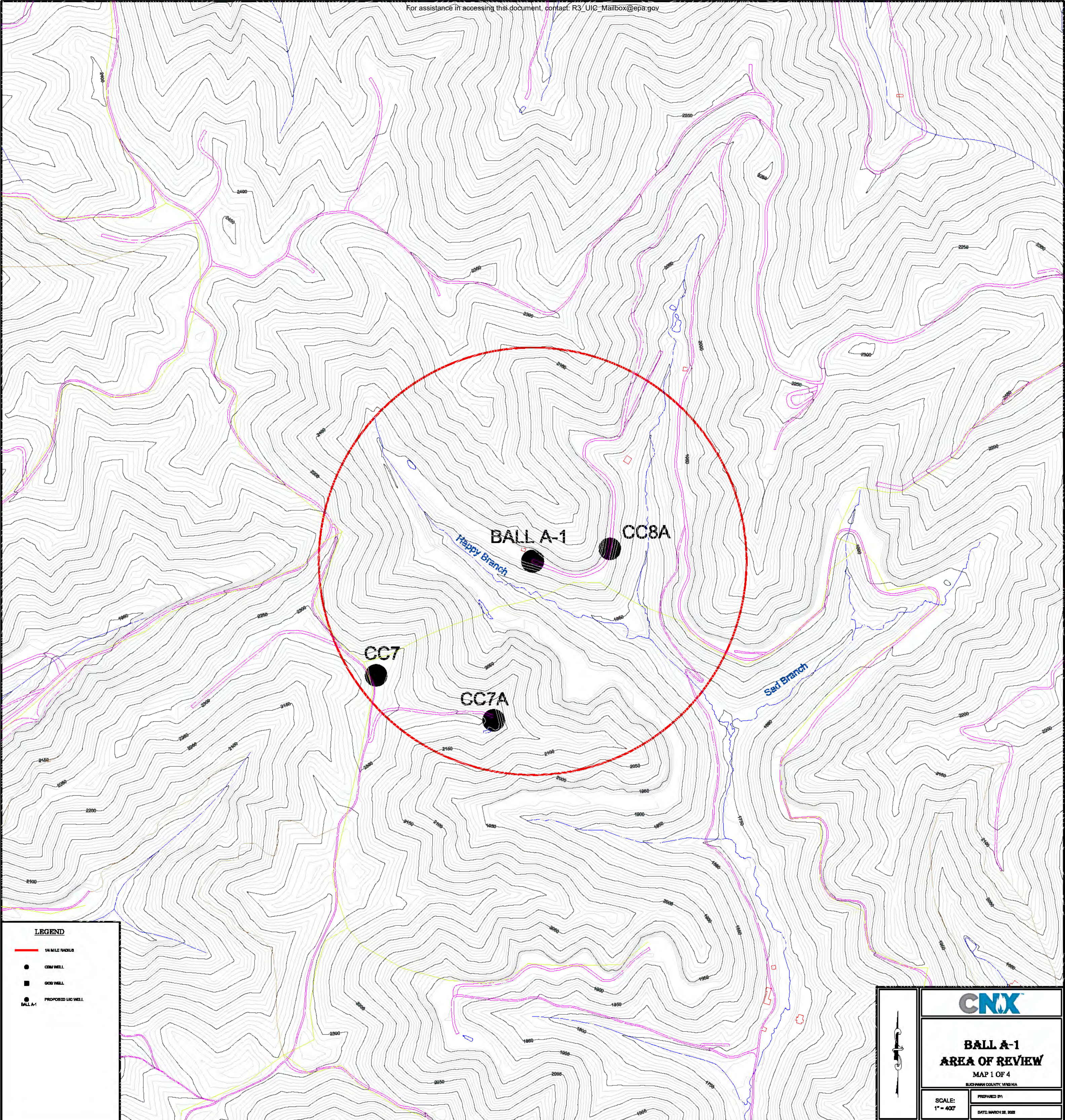


Legend:

- Open Hole
- Casing
- Perforation
- Insert Float Valve
- Squeezed Perforation

Ball A-1 Plug to Abandon Plan

- Release packer and pull injection tubing
- Set cast iron bridge plug below Weir Injection Zone using wireline
- Cement to 5.5" casing to 2202'
- Perforate 5.5" casing one shot every 100'
- Circulate cement to surface
- Remove wellhead and install Plugging Monument according to state regulations.



LEGEND

- 14 MILE RADIUS
- OBM WELL
- GOM WELL
- PROPOSED UIC WELL
- BALL A-1

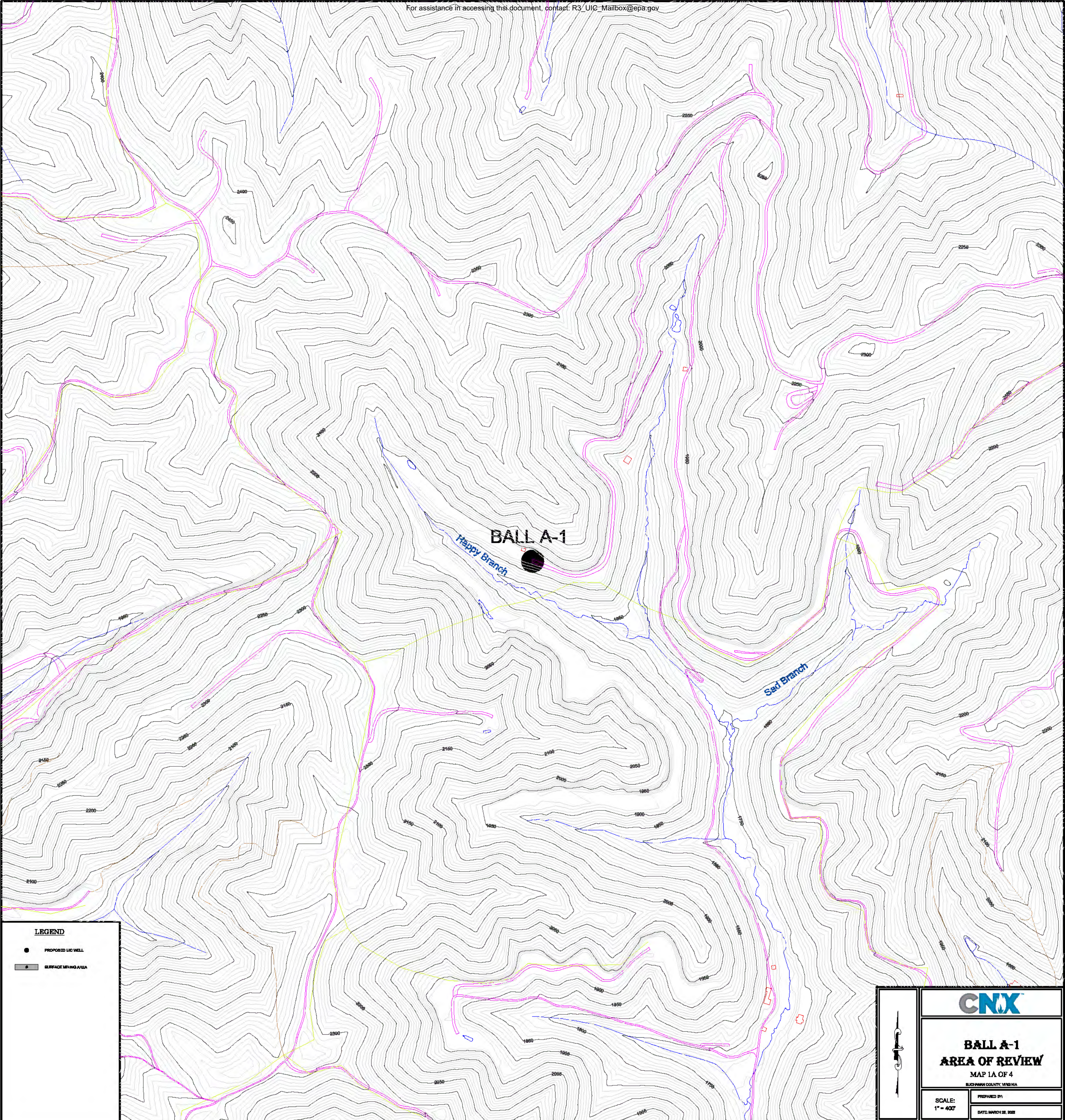


**BALL A-1
AREA OF REVIEW**

MAP 1 OF 4
BUCHANAN COUNTY, VIRGINIA

SCALE:
1" = 400'

PREPARED BY:
DATE: MARCH 28, 2008



LEGEND

● PROPOSED LUG WELL

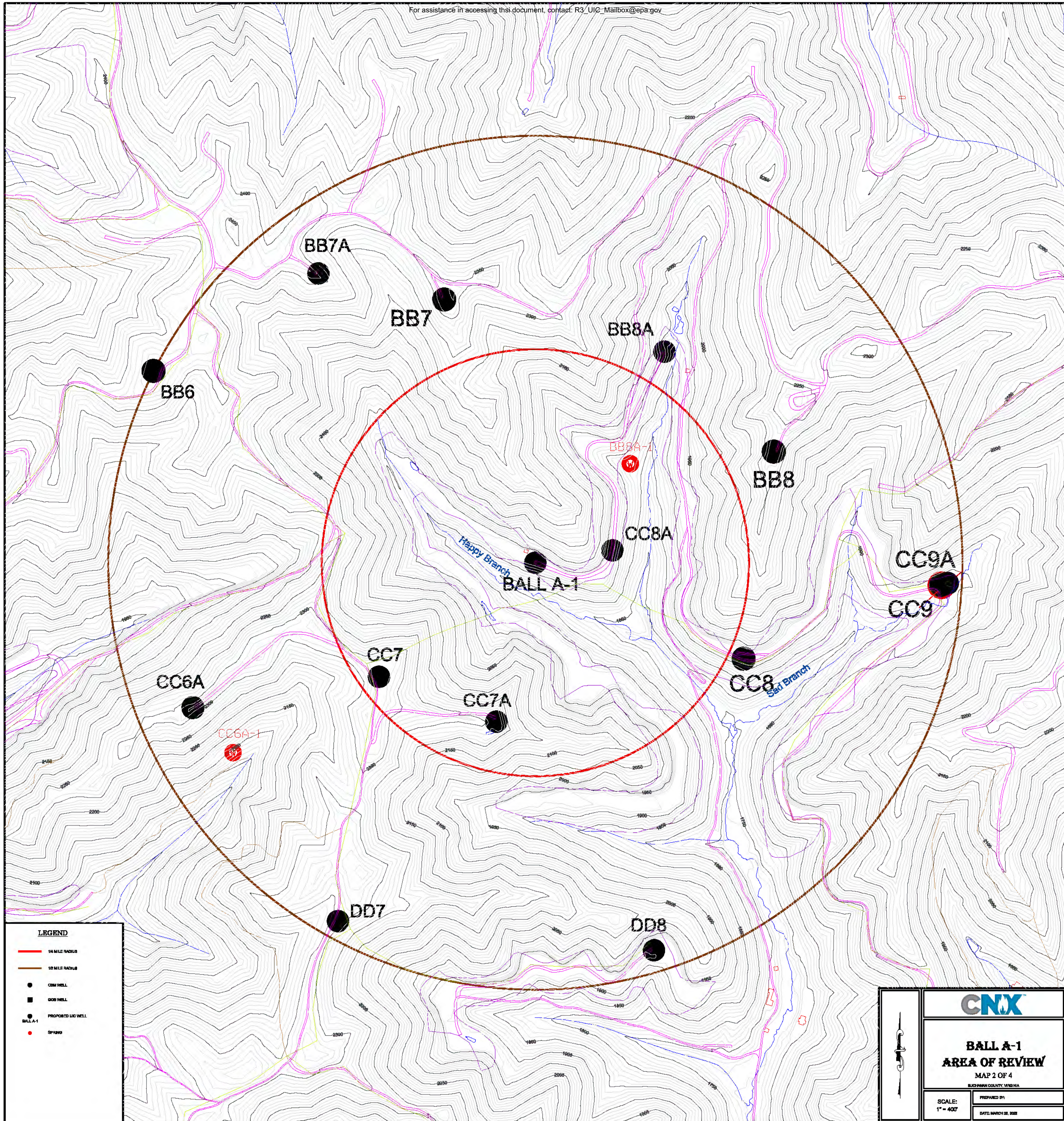
■ SURFACE MINING AREA





BALL A-1
AREA OF REVIEW
MAP 1A OF 4
BUCHANAN COUNTY, VIRGINIA

SCALE: 1" = 400'	PREPARED BY: DATE: MARCH 28, 2025
---------------------	--------------------------------------



LEGEND

- 14 MILE RADIUS
- 10 MILE RADIUS
- COM WELL
- DOB WELL
- PROPOSED LUG WELL
- BALL A-1
- SPRING

CNX

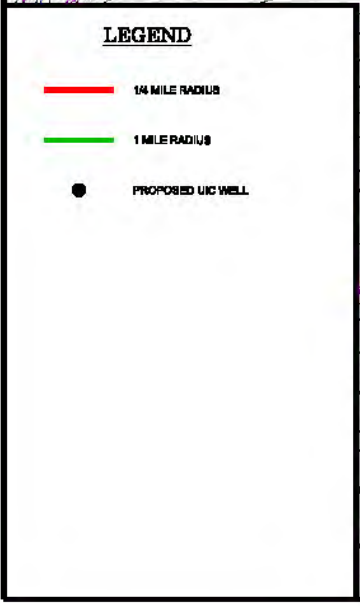
**BALL A-1
AREA OF REVIEW**

MAP 2 OF 4

BUCHANAN COUNTY, VIRGINIA

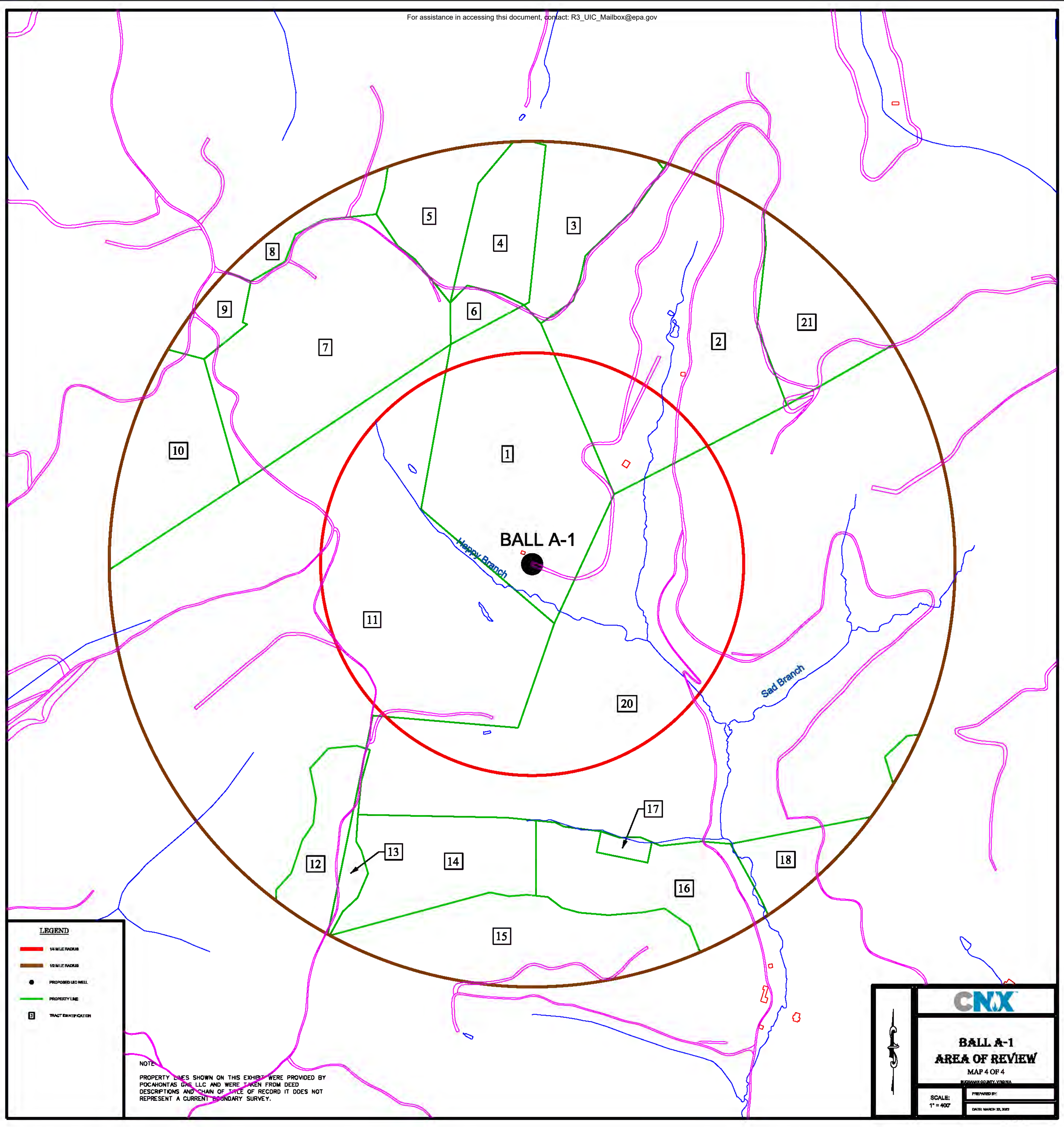
SCALE:
1" = 400'

PREPARED BY:
DATE: MARCH 28, 2008



BALL A-1
AREA OF REVIEW
MAP 3 OF 4
BUCHANAN COUNTY, VIRGINIA

DATE: MARCH 22, 2022







**BALL A-1
AREA OF REVIEW**
MAP 4 OF 4
POCAHONTAS COUNTY, VIRGINIA

SCALE: 1" = 400'	PREPARED BY: DATE: MARCH 22, 2023
---------------------	--------------------------------------

TABLE OF CONTENTS

1. Introduction
2. Delegation of Authority
3. Permit Application
4. Area of Review Methods Attachment
5. Maps of Wells/Area and Area of Review Attachment
6. Corrective Action Plan and Well Data Attachment
7. Name and Depth of USDWs Attachment
8. Geological Data on Injection and Confining Zones Attachment
9. Operating Data Attachment
10. Formation Testing Program Attachment
11. Stimulation Program Attachment
12. Injection Procedures Attachment
13. Construction Procedures Attachment
14. Construction Details Attachment
15. Plans for Well Failures Attachment
16. Monitoring Program Attachment
17. Plugging and Abandonment Plan Attachment
18. Necessary Resources Attachment
19. Existing EPA Permits Attachment
20. Description of Business Attachment

INTRODUCTION

1. This permit application is for the conversion of OXY USA Inc.'s Ball A-1, an existing natural gas well determined to be not commercially productive, to a UIC Class II Type "D" well. The Ball A-1 is located in Buchanan County, Virginia.
2. The permit application is presented to Region III of the U.S. Environmental Protection Agency's Underground Injection Control Section of the Drinking Water Branch for approval to conduct injection operations at the Ball A-1.
3. Included with this application is a "Delegation of Authority" document, authorized by an officer of OXY USA Inc., to provide selected Mid-Continent Region personnel with signatory authority for reports and permit applications.
4. Additionally included with the application are the results of the Weir sandstone injectivity test at the Ball A-1 well.

CONFIDENTIAL

CONFIDENTIAL CLAIMS

(In accordance with 40 CFR Sec. 2.203, information submitted to the EPA which is claimed as confidential is identified by the "CONFIDENTIAL" stamp. OXY USA Inc. has successfully protected this information from disclosure and intends to continue this practice in the future. Failure to protect this information from disclosure would cause substantial harm to OXY USA Inc.'s competitive position.

OXY USA Inc.

CERTIFICATE

I, LINDA FRICK, Assistant Secretary of OXY USA Inc., a Delaware corporation, DO HEREBY CERTIFY that the following is a true and correct copy of ARTICLE V, SECTION 5 of the By-Laws of said Corporation as it exists and is in force on the date hereof:

ARTICLE V

CORPORATE OFFICERS

SECTION 5. GENERAL POWERS.--Except as otherwise provided by law, the Chairman of the Board, the President, each Executive Vice President, Senior Vice President, corporate Vice President, the Secretary and the Treasurer shall have power to sign contracts, instruments of conveyance, authorized bonds and debentures, checks, drafts, notes, orders for the payment of money and similar obligations, and other instruments for and on behalf of the Corporation.

I FURTHER CERTIFY, that MR. JAMES R. NIEHAUS has been duly elected by the Board of Directors as an Executive Vice President of the Corporation, and that he presently holds such office; and as such Executive Vice President has delegated authority as described in the attached Delegation of Authority to the individuals assigned to the positions set out therein.


Assistant Secretary

DATED: November 16, 1990

DELEGATION OF AUTHORITY

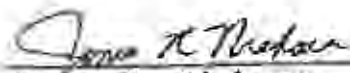
I, James R. Niehaus, Executive Vice President of OXY USA Inc., a Delaware corporation, do hereby delegate full corporate authority to the persons occupying the below named Mid-Continent Region positions, to sign environmental monitoring reports made to the U. S. Environmental Protection Agency on behalf of said corporation, and ratifying and confirming any such reports previously made by such persons:

Region Environmental Advisor
Operations Manager - Coalbed Methane

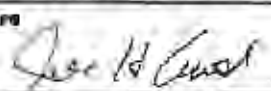
I further do hereby delegate full corporate authority to the persons occupying the below named Mid-Continent Region positions, to sign environmental permit applications made to the U. S. Environmental Protection Agency on behalf of said corporation, and ratifying and confirming any such applications previously made by such persons:

Region Vice President
Operations Manager - Coalbed Methane
Manager, Engineering

Dated this 28th day of January, 1992.


James R. Niehaus
Executive Vice President

Form Approved, UMG No. 2000-0002 Expires 3-31-00

Form 4 UIC		UNITED STATES ENVIRONMENTAL PROTECTION AGENCY UNDERGROUND INJECTION CONTROL PERMIT APPLICATION <i>(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)</i>				I. EPA ID NUMBER	
						UIC 17A 1 C	
READ ATTACHED INSTRUCTIONS BEFORE STARTING FOR OFFICIAL USE ONLY							
Application approved mo day year		Date Received mo day year		Permit/Well Number		Comments	
II. FACILITY NAME AND ADDRESS				III. OWNER/OPERATOR AND ADDRESS			
Facility Name BALL A-1 SMD Well				Owner/Operator Name OXY USA Inc.			
Street Address				Street Address P.O. Drawer Q			
City Buchanan County		State VA		ZIP Code		City Richlands State VA ZIP Code 24641	
IV. OWNERSHIP STATUS (Mark 'x')				V. SIC CODES			
☐ A. Federal ☐ B. State ☒ C. Private ☐ D. Public ☐ E. Other (Explain)				1311			
VI. WELL STATUS (Mark 'x')							
☐ A. Operating Date Started mo day year		☐ B. Modification/Conversion ☒ C. Proposed					
VII. TYPE OF PERMIT REQUESTED (Mark 'x' and specify if required)							
☒ A. Individual ☐ B. Area		Number of Existing wells 0		Number of Proposed wells 1		Name(s) of field(s) or project(s) BALL A-1 SMD WELL	
VIII. CLASS AND TYPE OF WELL (see reversal)							
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code "x," explain		D. Number of wells per type of area permit	
II		D		NA		NA	
IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT							
A. Latitude		B. Longitude		Township and Range		☒ INDIAN LANDS (Mark 'x')	
Deg Min Sec 37 10 00		Deg Min Sec 82 02 30		Township and Range 7.820'S of Lat 37° 10' 00"		Feet from Line 11,380'W of Town 82° 02' 10"	
XI. ATTACHMENTS (Complete the following questions on a separate sheet(s) and number accordingly; see instructions) FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-8) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application: A, B, C, E, G, H, I, J, K, L, M, O, P, Q, R, T, U							
XII. 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)							
A. Name and Title (Type or Print) Joe H. Crosby Vice President and General Manager						B. Phone No. (Area Code and No.) (405) 749-2122	
C. Signature 						D. Date Signed January 27, 1992	

AREA OF REVIEW METHODS

1. The area of review shall be a fixed radius of 1/4 mile from the Ball A-1 wellbore. Mapping will be extended to a fixed radius of one mile from the Ball A-1 wellbore when specified in the UIC permit application instructions.

MAPS OF WELLS/AREA AND AREA OF REVIEW

I. The following maps and publications are submitted for review:

- A. Ball A-1 Well Location Map (Well Plat) previously submitted to the Virginia Division of Gas and Oil with the Ball A-1 drilling permit application.
- B. Ball A-1 Access Road Topographic Map previously submitted to the Virginia Division of Gas and Oil with the Ball A-1 drilling permit application.
- C. Vansant Quadrangle USGS Topographic Map from the Virginia Division of Gas and Oil with permitted commercial wells identified. No commercial wells were identified within a 1/4 mile radius of the Ball A-1 wellbore. Ten OXY USA Inc. coalbed methane wells and one plugged and abandoned gas well were identified within a one mile radius of the Ball A-1 wellbore. Virginia Division of Gas and Oil records for these wells are submitted in the "Corrective Action Plan and Well Data" attachment.
- D. Vansant Quadrangle USGS Topographic Map from the Virginia Division of Mineral Resources with coal outcrops and mines identified. One subsurface Kennedy coal seam mine is identified within a one mile radius of the Ball A-1 wellbore.
- E. "Explanation of the Regional Tectonic Map of the Southwestern Coal Field of Virginia", compiled by Thomas F. McLoughlin, MSHA Geologist, Norton, Virginia. The Ball A-1 is located near the hinge line of an anticline fold. No faults are identified within a one mile radius of the Ball A-1.
- F. "Geology of the Prater and Vansant Quadrangles, Virginia", by J. E. Nolde and M. L. Mitchell, Virginia Division of Mineral Resources, Publication 52. The Ball A-1 wellsite is located on a bench resulting from a reclaimed Kennedy coal seam surface mine.
- G. Vansant Quadrangle USGS Topographic Map with water wells identified within a one mile radius of the Ball A-1 wellbore. One abandoned water well was identified within a 1/4 mile radius of the Ball A-1 wellbore. The Buchanan County Health Department does not have any records available for this well.

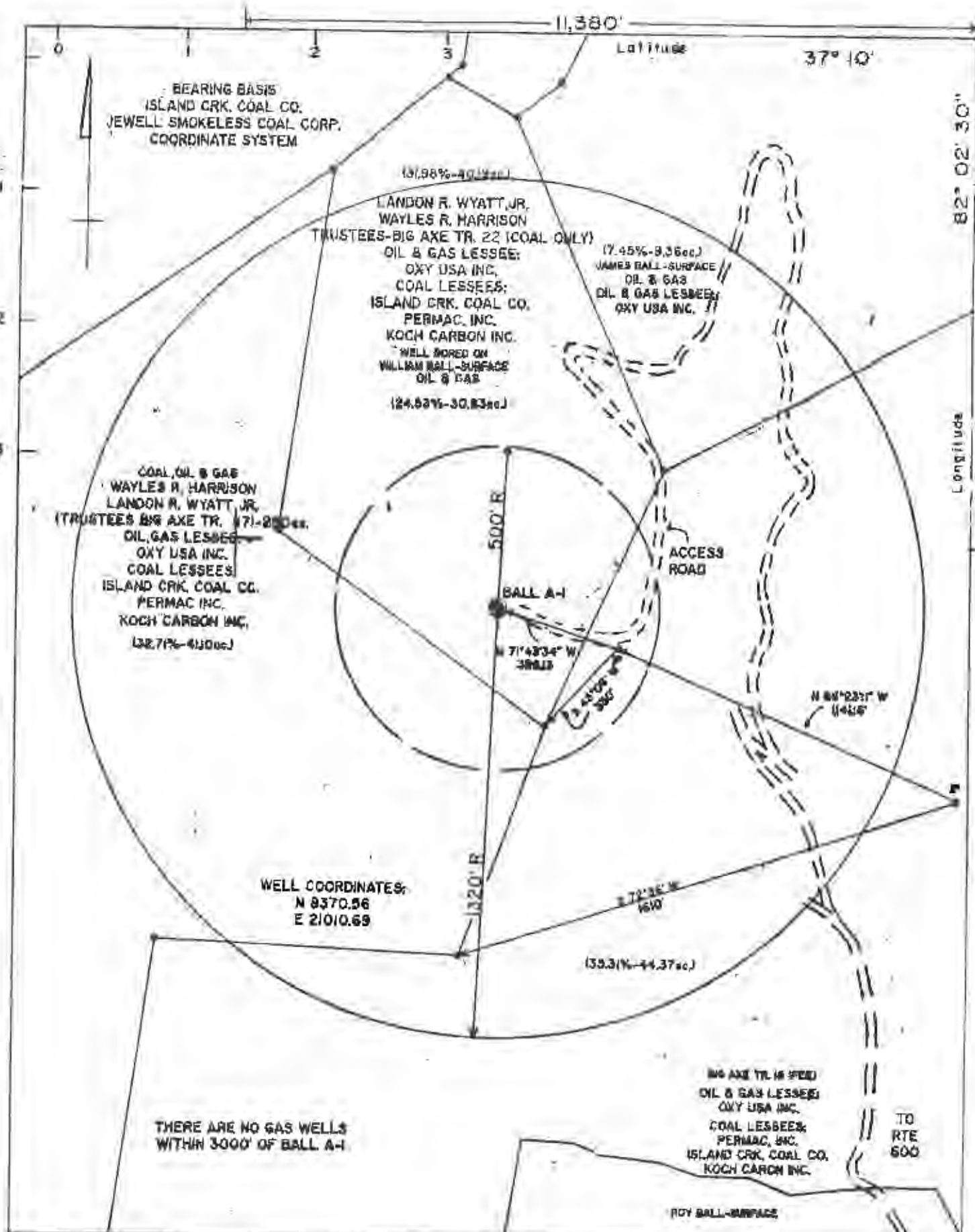
2. The surface owner of the Ball A-1 wellsite is:

A. Mr. William A. Ball
HC-4, Box 108-A
Council, VA 24260

3. The surface owners of property within a 1/4 mile radius of the Ball A-1 wellsite are:

A. Mr. James L. Ball
Route A, Box 51
Honaker, VA 24260

B. Mr. Landon R. Wyatt, Jr.
Mr. Wayles R. Harrison, Jr.
Trustees
P. O. Box 1566
Danville, VA 24543



COMPANY OXY USA INC.
ADDRESS DRAWER Q RICHLANDS, VA 24641
WELL NAME BALL A-1
FARM TRACT BIG AXE TR. 22
LEASE NO. ELEVATION 1925.28
ACRES 400 QUADRANGLE VANSANT

WELL LOCATION MAP **WELL NO. BALL A-1**

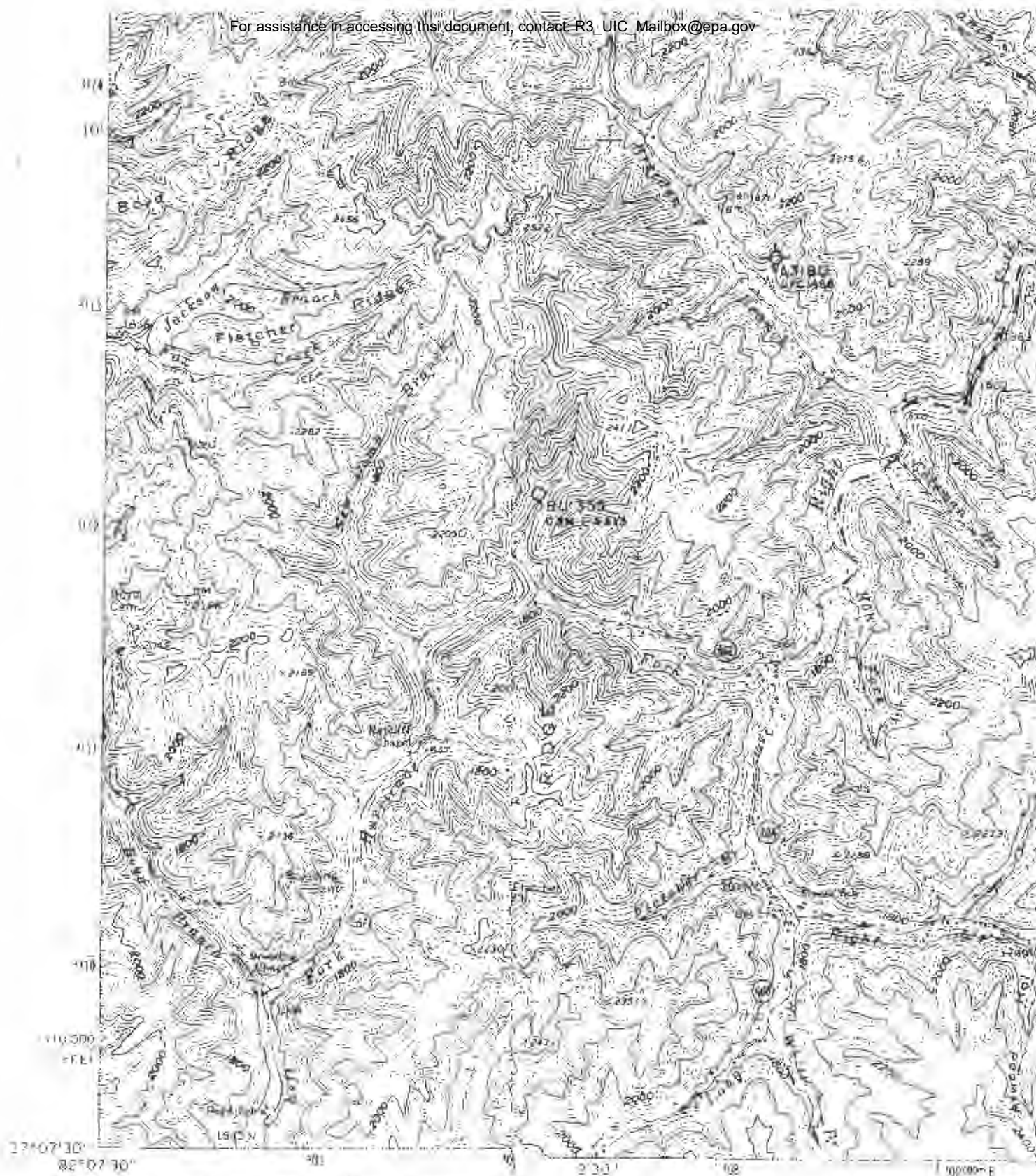
+ Denotes location of well on United States
Topographic Maps. scale 1 to 24,000 Int.



OXY USA Inc

ACCESS ROAD

BALL A-1 WELL LOCATION



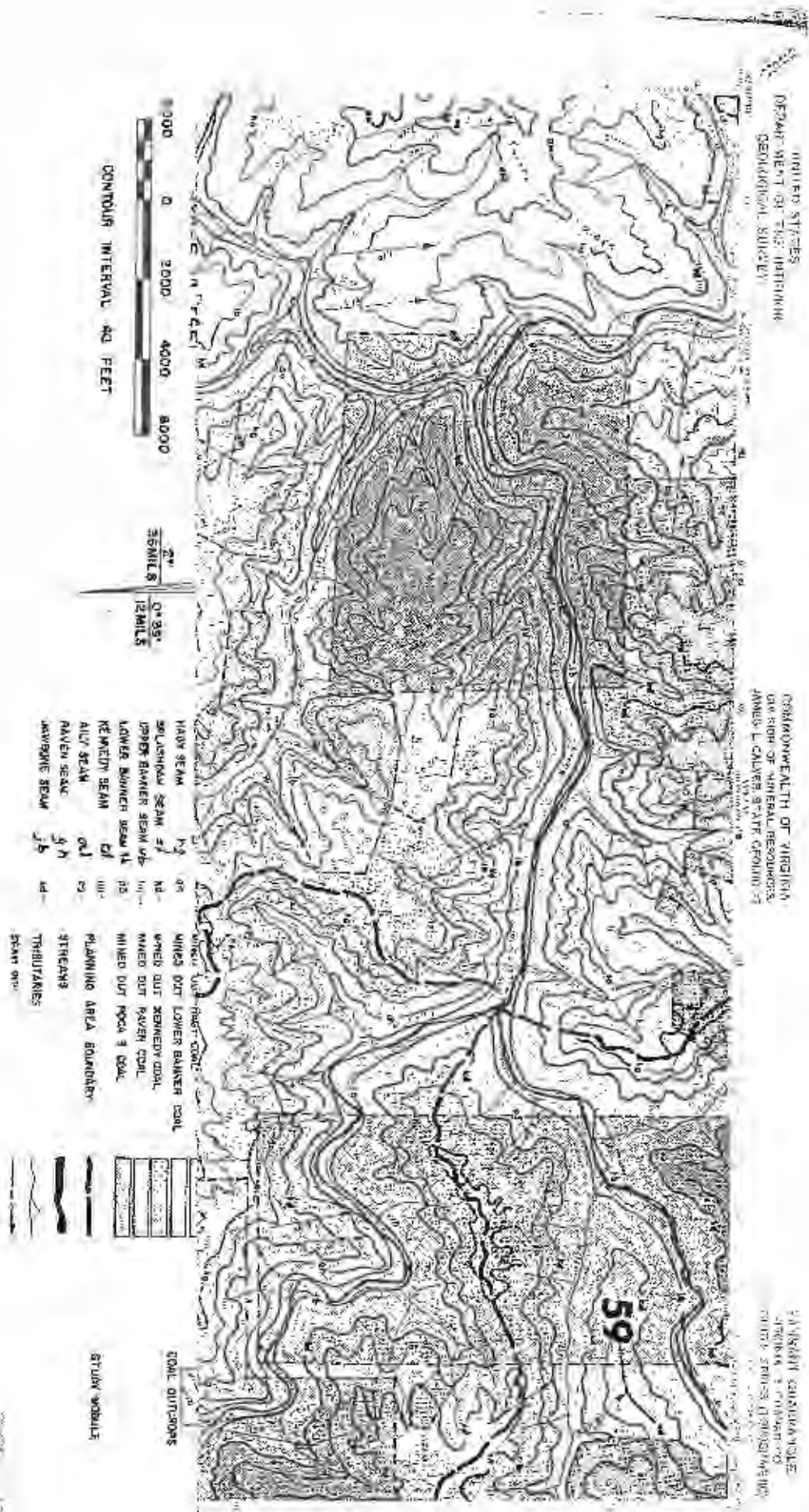
Map made, edited, and published by the Geological Survey

of the United States

Topography by photogrammetric methods from aerial photographs taken 1950-1961. Field checked 1963

Scale 1:50,000. 1927 North American edition. 10' contour interval. Based on Virginia coordinate system, south zone.

1950 (major) Universal Transverse Mercator grid lines and 10' contour in blue.



Explanation of the Regional Tectonic Map of the Southwestern Coal Field of Virginia



U.S. Department of Labor
William E. Brock, Secretary

Mine Safety and Health Administration
David A. Zegeer, Assistant Secretary

Informational Report
IR 1177

1986



Information Report
IR 1177

Explanation of the Regional Tectonic Map of the
Southwestern Coal Field of Virginia

By Thomas F. McLoughlin, Geologist
Roof Control Department
MSHA, Norton, Virginia

UNITED STATES DEPARTMENT OF LABOR
Raymond J. Donovan, Secretary
Mine Safety and Health Administration
David A. Zegeer, Assistant Secretary

Information Report
IR 1177

Explanation of the Regional Tectonic Map of the
Southwestern Coal Field of Virginia

By Thomas E. McLoughlin, Geologist
Roof Control Department
MSHA, Norton, Virginia

UNITED STATES DEPARTMENT OF LABOR
Raymond J. Donovan, Secretary
Mine Safety and Health Administration
David A. Zegeer, Assistant Secretary

**This publication has been reviewed and approved
for distribution by the Office of the Assistant
Secretary for Mine Safety and Health.**

CONTENTS

	<u>Page</u>
Abstract -----	1
Introduction -----	1
Generation of Tectonic Map -----	2
Regional Topography -----	4
Regional Geologic Structure -----	4
Discussion -----	13
References -----	15

ILLUSTRATIONS

1. Regional Tectonic Map of the Southwestern Coal Field of Virginia -----	3
2. Generalized tectonic map of the Cumberland overthrust block -----	6
3. High angle normal fault in the Lyons and Dorchester coal beds exposed in road cut at the junction of routes 23 and 213 near Wise in Wise County, Virginia -----	10
4. Zone of slickensided shear joints in sandy shale interval between the Blair Marker coal bed bench and Lyons coal bed located 80 feet (24 m) West of the fault shown in Figure 3 -----	10
5. Shear joints and release joints in sandstone interval above the Blair coal bed or Blair Marker coal bed exposed in road cut on alternate route 23 at Hamiltontown in Wise County, Virginia -----	11

EXPLANATION OF THE
REGIONAL TECTONIC MAP OF THE SOUTHWESTERN COAL FIELD OF VIRGINIA

by

Thomas F. McLoughlin 1/

ABSTRACT

The result of this study is a single tectonic map of the southwestern coal field of Virginia, which lies within the southern portion of the Cumberland Plateau. The tectonic map was produced by compiling previously identified and plotted major structural geologic features situated in southwestern Virginia and adjacent portions of Kentucky and West Virginia. Remote sensing imagery and published geologic reports were also utilized in the generation of this tectonic map. Except for the Cumberland overthrust block and its related thrust faults, the major faults within the southwestern Virginia coal field are high-angle normal and right-lateral strike-slip faults showing apparent displacements ranging from a few tens of feet (few tens of meters) to several miles (several kilometers). Folds within the coal field are broad, gentle flexures which include anticlines, synclines and a monocline with amplitudes measured in tens of feet to hundreds of feet (tens of meters to hundreds of meters). Brief descriptions of the general geometry and structural characteristics of the tectonic features are included for use with the regional map as an aid in conducting detailed geologic and environmental investigations. Evidence of structural faulting associated with the Gladeville anticline ("Indian Creek" lineament) is also presented.

INTRODUCTION

Availability of published detailed structural geologic maps for southwestern Virginia is limited. Also, several major faults located in Virginia and West Virginia were not mapped in detail on a regional basis or even recognized until the advent of Landsat and SLAR (Side Looking Airborne Radar) imagery technology. The objective of this study is to compile the major structural folds and faults into a single tectonic map for southwestern Virginia and adjacent portions of Kentucky and West Virginia. Because many of these structural features can be readily observed on remote sensing imagery scenes as lineaments, this map can be a valuable interpretive tool when conducting geologic and environmental investigations. This is especially true when developing remote sensing imagery linear analysis maps for use in coal

1/ Geologist, Roof Control Group.

mine design, development planning and hydrocarbon exploration. Methods for delineating and geologically classifying Landsat satellite imagery linears, which represent zones of structural weakness that may lead to unstable coal mine roof and rib conditions, based in part on previously mapped geologic features, have been demonstrated by Hylbert (20) 2/, Hylbert and McLoughlin (21), and McLoughlin (26).

GENERATION OF TECTONIC MAP

The resulting regional tectonic map (Figure 1) is based largely on information obtained from illustrations, figures, plates and maps found in published geologic reports along with quadrangle and state geologic maps of Virginia, Kentucky and West Virginia. References are listed and indexed in an abbreviated form on the tectonic map and in more detail at the end of this report. A letter/number type grid coordinate system is superimposed on the margins of Figure 1 for correlating the geologic and geographic features described in the report with their location on the tectonic map. Beginning and ending coordinates of each fault and fold plotted on the tectonic map are listed along with the "key to geologic features" in Figure 1.

The base map used for compiling tectonic features is a composite of portions of the Winston-Salem, Johnson City, Jenkins and Bluefield 1:250,000 series United States topographic quadrangle maps. Since the majority of the source data maps was at a scale of 1:62,500 the structural features were first plotted on a 7.5 minute series (1:24,000 scale) topographic quadrangle map and then transferred onto the regional base map. Many of the faults are classified as prominent lineaments and were plotted from Landsat satellite imagery scenes directly onto the base map (e.g. Russell Fork, Pine Mountain, Coeburn and Bishop-Bradshaw Crack Faults). These scenes were enlarged to a scale which equaled that of the base map in order to transfer the data with minimum distortion. The imagery used was standard black and white multi-spectrum scanner band 7 scenes recorded by the earth orbital satellite during late winter and early spring. Of the numerous folds present in the study area, the Gladeville and Powell Mountain anticlines are the only features within the overthrust block that are easily recognized on the Landsat imagery scenes. These features are topographically expressed and coincide for the most part with major imagery lineaments. The accuracy in the location of these structures was determined by comparing them with published geologic maps.

Most of the structural features illustrated on the tectonic map are exposed at the surface or evident in underground coal mines and were originally mapped by direct field observations. However, the unnamed folds within the mapped area and the Jess Fork fault were established indirectly by subsurface studies using numerous core hole samples. No effort was made to determine if any of these features maintained expression at the surface (29).

2/ Underlined numbers in parentheses refer to items in the list of references at the end of this report.

REGIONAL TOPOGRAPHY

The area covered by the tectonic map lies between $36^{\circ}46'35''$ and $37^{\circ}30'00''$ North latitudes and $81^{\circ}33'00''$ and $83^{\circ}10'30''$ West longitudes encompassing approximately 2208 square miles (5741 square km). It includes all of Buchanan, Dickenson, and Wise Counties along with portions of Tazewell, Russell, Scott, and Lee Counties in southwestern Virginia. Also included are portions of Harlan, Letcher, and Pike Counties in southeastern Kentucky and McDowell County in southwestern West Virginia.

Physiographically, the study area lies within the southern portion of the Cumberland-Allegheny Plateau Province in Virginia and is bounded on the southeast by the folded Valley and Ridge Province, also known as the Appalachian Valley, the Folded Appalachians or simply the Valley and Ridge (5, 7, 39). In Virginia, northeast of Cumberland Gap, the boundary between these two landforms is placed at the Cumberland escarpment or Cumberland Mountains (5). From St. Paul, Virginia, northeastward to Marlinton, West Virginia, there is no definite scarp and the boundary between the Cumberland-Allegheny Plateau Province and the Valley and Ridge is placed along the southwest margin of the coal fields, which is defined by the St. Clair and Hunter Valley (St. Paul) thrust faults (8, 41). These faults along with the zone of thrust faulting in Russell and Tazewell Counties combine to form the Cumberland-Allegheny Front (7, 8). The Allegheny Front is a "conspicuous east-facing topographic escarpment" from central West Virginia into Pennsylvania (7).

The Plateau area includes Pine, Cumberland and Stone Mountains, which are northwest-facing homoclinal structures capped by the resistant Pennsylvanian age sandstones of the Lee Formation. Valleys at the bases of these linear ridges parallel a series of major bedding plane thrust faults (16). Therefore, most of these physiographic features and provinces are readily distinguishable on remote sensing imagery scenes.

The Cumberland and Appalachian Plateaus are underlain by essentially flat-lying sedimentary rocks and are dissected by narrow, winding streams. The elevation ranges from less than 1000 feet (305 m) to more than 3300 feet (1068 m) above sea level.

REGIONAL GEOLOGIC STRUCTURE

Much of the coal field of southwestern Virginia lies within the northeast portion of the Cumberland overthrust block. This block, which occurs in portions of Kentucky, Tennessee and Virginia, is rectangular in shape measuring about 125 miles (208 km) long and 25 miles (42 km) wide. It is bounded by four major faults: the Hunter Valley (St. Paul)-Wallen Valley thrust fault zones to the southeast, the Pine Mountain thrust fault to the northwest, the Jacksboro left-lateral strike-slip "tear" fault to the southwest, and Russell Fork right-lateral strike-slip "tear" fault to the northeast (See Figure 2). The overthrust block is subdivided lengthwise into two prominent structural features; the Powell Valley anticline, which lies in the Valley and Ridge

Province and the Middlesboro synclinal basin, which lies in the Cumberland Plateau Province (See Figure 2). The northeasterly-southwesterly trend of the overthrust block is parallel with that of Appalachian folding (29). The complex structural features of the southwestern Virginia coal field are primarily limited to the faulted zones which mark the boundaries of the Cumberland overthrust block.

The regional dip of the surface rocks and those at shallow depths is to the northwest at a rate of 75 feet per mile (14 m per km) as indicated by structure contours drawn on Pennsylvanian age coal beds. At depth there is a southwestward divergence of the Mississippian age rock sequence (29).

The fact that the Cumberland thrust sheet was transported from the southeast to the northwest was established by Bates (1), Englund (12), Giles (14), and Wentworth (40, 41). However, this movement was not uniform throughout the overthrust sheet. The thrust sheet rotated as it moved, which is evidenced by lateral displacements of about 10 miles (16 km) along the Jacksboro fault and 2 miles (3 km) along the Russell Fork fault (H24-P34) 3/, with only slight vertical movement amounting to not more than 500 feet (152 m) of overthrust (40). This rotational movement, pivoting on the northeast end of the overthrust sheet, was confirmed by Butts (3). However, during his investigation of newly discovered fensters near the center of the overthrust sheet, Butts (3) found evidence which indicated a distance of movement of about 7 miles (11 km). This distance of tectonic transport was later modified to 6 miles (10 km) by Miller and Fuller (34). The amount of lateral movement along the Russell Fork fault (H24-P34) was found by Miller (29) to be approximately 4 miles (6 km) as determined by subsurface drill hole data. During an investigation of geologic aspects related to roof stability of 36 underground coal mines in Wise County (K18-V10), evidence was found which suggests that, at least locally, the Dorchester, Imboden, Banner and Raven coal seam horizons also served as surfaces of "incipient décollements" with undetermined distances of transport (29).

It is generally accepted geologic opinion that surface-visible Appalachian faults and folds are essentially shallow or "thin-skinned" features that have no roots in the crystalline basement rocks, but are confined between the surface and the one or more large-scale flat bottomed thrust or sole faults underlying the Cumberland overthrust block (7). The coal-bearing portions of the Pennsylvanian age formations between the Pine and Cumberland Mountains were warped into a series of large-scale, elongate, very low amplitude folds contained within a flat bottomed synclinorium (13). The dips along these flexures are so slight that in most parts of the mapped area shown in Figure 1, the strata are essentially flat lying (29). Based on structure contours drawn on Pennsylvanian age coal beds, Miller (29) delineated six unnamed folds in Dickenson and Buchanan Counties (P22, O26, J33, H34, I37, and I39). All of these folds displayed dips of less than 1° and appeared to become more distinctive with increased depth (29).

3/ Numbers and indices refer to grid coordinates shown on Figure 1.

With the exception of the Pine Mountain anticline (G27-H24), the steepest dips along folds within the Virginia coal field may be encountered along portions of the Gladeville anticline (9). The most prominent of the minor folds within the mapped area is the Gladeville structure (N17-T18), which was first named by Butts (5) and described in detail by Eby (9). According to Eby (9) it is the sharpest fold north of Powell Mountain and is the only fold in the area to expose the Pennsylvanian age Lee Formation at the surface. The Gladeville fold is symmetrical near its southernmost terminus near Ramsey (T18), but becomes increasingly more asymmetrical to the north, with the steeper rock inclinations (up to 21°) on the western limb which develops into a sharp monoclinial fold having dips of zero to 2° east of its axial trace. The axial trace is also marked by two local, elongate structural closures (or domes); one near Wise (R18) where the rocks dip up to 14° to the west, and the other is centered under Indian Gap near Gladeville (Q17) where the rocks dip up to 21° to the west (9).

Associated with the Gladeville anticline-monoclinial fold are the Buck Knob anticline (N16-T15) and Dorchester syncline (M17-T16), both of which were mapped and named by Eby (9). In general, the Buck Knob anticline is symmetrical having dips of 2° on its western limb and 1° on the eastern limb. The Dorchester syncline is a shallow trough, which forms a structural basin, 250 feet (76 m) deep where its axis approaches that of the Middlesboro syncline (O16) approximately 1.5 miles (2.4 km) southwest of Pound (9).

The Middlesboro syncline (G29-V1) is a broad trough-shaped fold 12 to 20 miles (19 to 32 km) wide and extends southwestward from Buchanan County (G29) into Tennessee. It lies to the southeast of and generally parallel to both the Pine Mountain thrust fault (G26-T1) and the Pine Mountain anticline (G27-H4). The syncline is not recognized beyond the Levisa Fork drainage (F29) in Buchanan County (10). The Pine Mountain thrust fault first appears 2 miles (3.2 km) northeast of Hunts Creek in Buchanan County (G26) and extends southwestward into Tennessee along the northern slope of Pine Mountain. The maximum vertical displacement along the fault is 5300 feet (1611 m), which was recorded just southwest of Skegg Gap in Dickenson County (I24). Mississippian and Devonian age strata have been thrust over part of Pennsylvanian age strata in the northeastern area of Dickenson County (H25) (10).

The abrupt contact between the sharply upturned rocks and the essentially horizontal sedimentary strata within the Cumberland overthrust block has been previously mapped by Miller and Roen (32, 33) as the North Fork flexure (Y7-Y5) in the vicinity of Keokee (W10) and Pennington Gap (Y5) in Lee County. It was originally referred to as the North Fork fault based on the apparent displacement of about 1100 feet (334 m) for the rocks involved along the North Fork valley (1). But, to the northeast, the structure was called the Pigeon Creek fault (T18-W10) due to reported rock displacements of zero at its northeast end near Tacoma (T18) and 1200 to 1400 feet (364 to 426 m) near Purcell (Y7) along Pigeon Creek valley (9). The structure was first described by

crushed shale. Steep irregular dips in the associated strata were found to be restricted to within approximately 33 feet (10 m) of the fault zone. Other evidence of faulting along the trace of the lineament included folded, tilted or abundantly jointed beds, slickensides, and crushed shale (22, p. 291). The amount of strike-slip movement, if any, could not be determined. The upthrown block is on the west (22). The lineament seemed to be traceable for approximately 5 miles (8 km) north of its northernmost recorded field evidence of faulting, but no field evidence of structural displacement could be found to substantiate a northward extension of the fault (22).

Eby (9), on his geologic map and in his report on the geology of Wise County, recognized a very sharply flexed monoclinial feature near Wise (S18) (i.e. the Gladeville anticline), which may represent a previously unrecognized major fault or fault zone (22). This structure, which is visible as an 11 mile (18 km) long curvilinear feature in Landsat satellite imagery, has also been referred to as the "Indian Creek" lineament (N17-T18) and was named for the unusually straight valley which expresses the northern half of the feature (26). It lies about 6 miles (10 km) west of and parallel to the Coeburn fault, and begins about 0.5 miles (0.8 km) west of and parallel to the axis of the Gladeville fold. In fact, beginning at a point just north of Wise (R18), the "Indian Creek" lineament coincides with the axial trace of the Gladeville anticline. Johnston (22) and McLoughlin (26) presented no direct evidence for structural displacement along any part of the lineament. However, during the present study, a newly developed outcrop near Wise (S18) revealed a 350-foot (105 m) wide zone of high-angle normal faulting of the Blair, Lyons and Dorchester coal beds. The fault shown in Figure 3 is but one of a series of at least three such faults that first appear approximately 2700 feet (813 m) west of the axis of the Gladeville anticline and extend westward to the "Indian Creek" lineament. The downthrown side of each fault is consistently on the west. Also, associated with the faulting are slickensided joints and abundantly jointed strata as shown in Figures 4 and 5, respectively. Such jointing and steeply dipping beds along route 23 have been observed to date as far North as Glamorgan (Q18). Although as much as four feet (1.2 m) of vertical displacement has been observed along the faults, the amount of strike-slip movement, if any, could not be determined.

East of the Russell Fork and Little Pawpaw faults, the Middlesboro syncline and the Pine Mountain thrust fault die out and the Virginia coal field becomes dominated by broad, open, gentle folds that are cut longitudinally by the Keen Mountain (K34) and Bishop-Bradshaw Creek (Canebrake) right-lateral strike-slip faults (H41). Unlike the Cumberland overthrust sheet, this portion of the coal field is bounded only on the southeast by zones of complex thrust faults. These thrust faults, which are part of the Allegheny Front, separate the Carboniferous coal-bearing strata from the thick, noncoal-bearing carbonate (Cambrian and Ordovician age) strata to the southeast (7).

The Little Pawpaw fault (K28-N29) was first mapped by Wentworth (40), a short distance up Little Pawpaw Creek in Dickinson County (M29). It is considered a branch of, and genetically related to, the Russell Fork fault according to the evidence presented by Wentworth (40). The Little Pawpaw fault



Figure 5 - Shear joints (S) and release joints (R) in sandstone interval above the Blair coal bed or Blair Marker coal bed exposed in road cut on alternate route 23 at Hamiltontown at coordinate S17 (Figure 1) located 1000 feet (300 m) southwest of fault shown in Figure 3. Outcrop is located in the Wise quadrangle, Wise County, Virginia. Strike of shear joints is $N3^{\circ}E$ dipping to the northeast 70° , and strike of the release joints is $N25^{\circ}W$ dipping to the southwest 63° . Height of outcrop about 15 feet (5 meters),

fault near Jolo, West Virginia (F38) along a $N80^{\circ}W$ trend for a distance of 26 miles (42 km) to about 1 mile (1.6 km) west of Big Rock, Virginia (F28). Because it makes a 15° angular relationship with the fault, McLoughlin (26) suggested that the "spur", which was not described by Elder (10), may represent a possible second-order shear direction as predicted by wrench fault tectonics concepts. Field measurements of rock fractures indicated that the lineament is associated with parallel trending systematic joints and coal face cleats ranging from $N77^{\circ}W$ to East-West. Also, evidence was found suggesting a pattern of structural overprinting as reflected in the coal cleat systems. However, no direct evidence of faulting along the feature was reported (26, p. 45).

Another right-lateral strike-slip fault, which trends $N25^{\circ}W$, is located northeast of the Russell Fork fault and follows more or less the course of Jess Fork of Bull Creek (H28) and is here named the Jess Fork fault (F27-H28). It was recognized by Miller (29) through closely spaced borehole data control. Miller (29) reported the amount of horizontal movement to be about 1 mile (1.6 km). Although no efforts were made by Miller (29) to establish evidence for the fault trace on the surface, the structure was traced for a distance of at least 6 miles (10 km) in Landsat satellite imagery scenes during the compilation of the tectonic map (Figure 1). On the basis of the fault's spatial relationship with the Pine Mountain thrust fault and the Russell Fork fault, Miller (29, p. 15) proposed that "a thrust sheet (exists) northeast of the larger Cumberland overthrust sheet is roughly 7 miles (11 km) wide and extends southwestward for an undetermined distance as suggested by the subsurface data," and the same tectonic forces that resulted in the formation of the Cumberland thrust sheet apparently produced the smaller sheet. He also proposed the possibility that the Jess Fork fault may actually represent the northernmost expression of the Little Pawpaw fault (K28-N29).

The largest fold mapped in the area between the Russell Fork fault and the Bishop-Bradshaw Creek (Canebrake) fault is the Dry Fork anticline. Its axial trace extends for about 115 miles (72 km) across Russell ($N34-N37$) and Tazewell Counties ($K37-K43$), Virginia and into McDowell County, West Virginia ($K44-K46$). The fold measures up to 16 miles (10 km) in width and about 645 feet (215 m) in amplitude (Johnston, 22, p. 288). According to Harnsberger (15, p. 36) the fold is slightly asymmetrical as evidenced by dips on the northwest side ranging from 1° to 5° , whereas the dips on the southeast side range from 2° to 7.5° . Between Russell and McDowell Counties the anticline displays a plunge of about 3° to the southwest.

For summaries of the structural history of the southwestern Virginia area the reader is referred to the combined works of Burts (5), Campbell (6), Elder (10), Froelich (13), Harris (16), Hylbert (19), Lidlak and Zietz (25), and Padgett and Ehrlich (35).

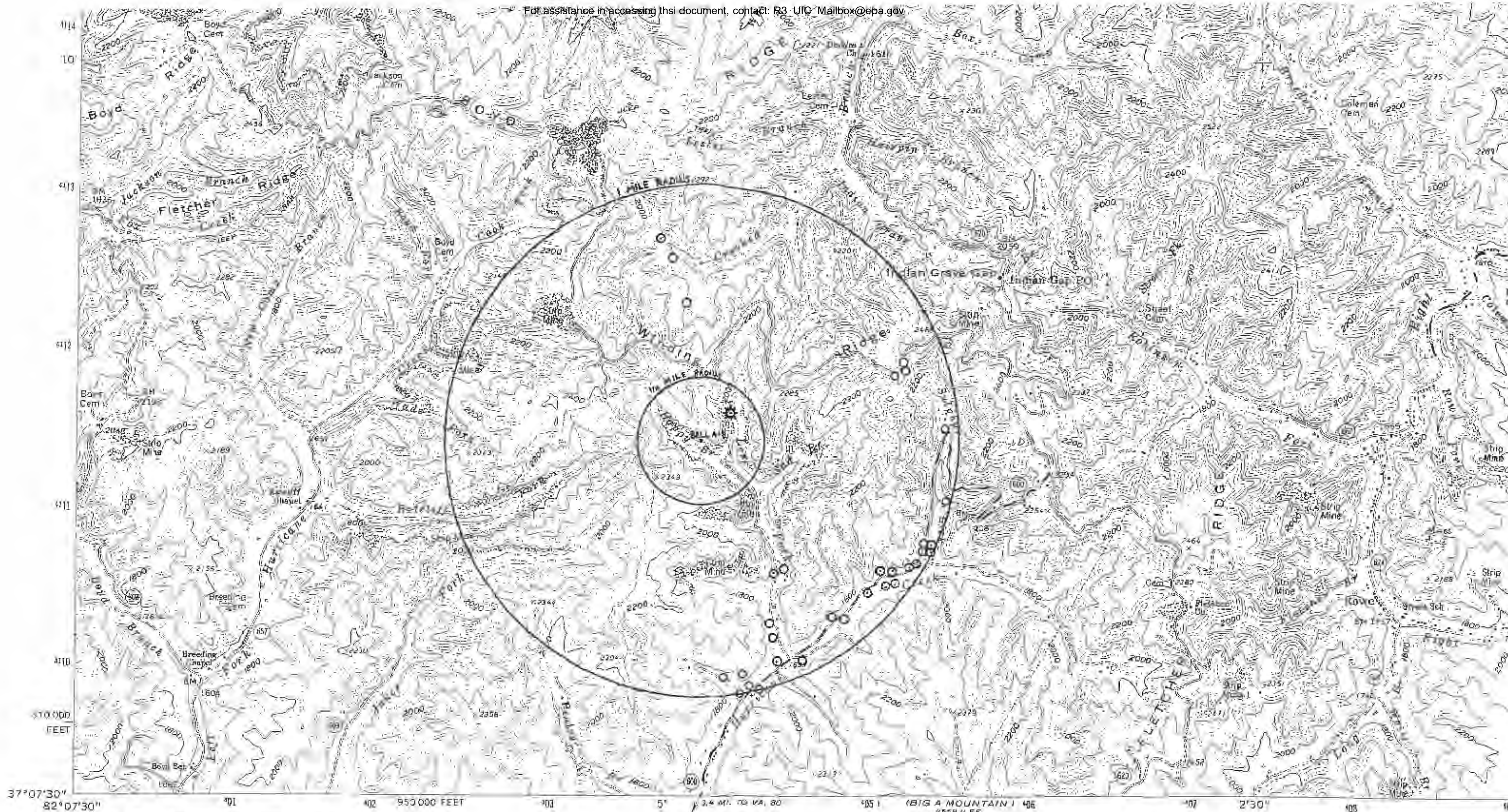
DISCUSSION

As presented in this study, the complexity of the geologic structure of the southwestern Virginia coal field is revealed in the synoptic view offered

REFERENCES

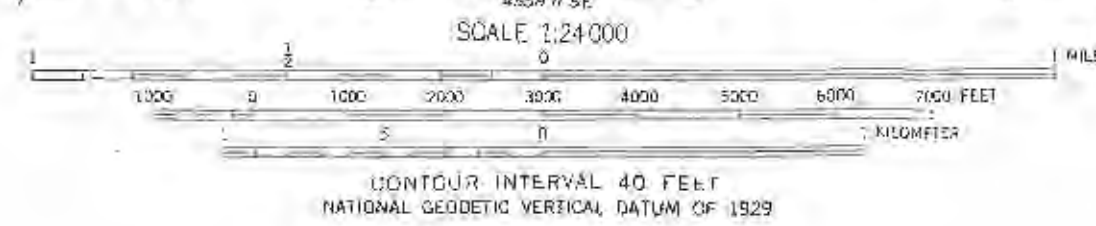
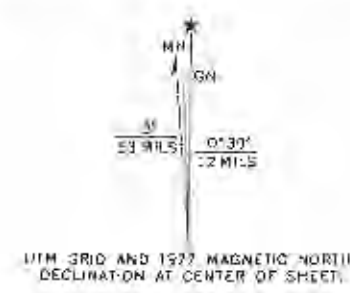
1. Bates, R. L. The Big A Mountain area, Virginia. Va. Geol. Survey Bull. 46-M, 1936, pp. 167-204.
2. _____. Geology of Powell Valley in northeastern Lee County, Virginia. in Va. Geol. Survey Contributions to VA. Geology-II, Bull. 51-8, 1939, pp. 37-87.
3. Butts, C. Fensters in the Cumberland overthrust block in southwestern Virginia. Va. Geol. Survey, Bull. 28, 1927, pp. 1-12.
4. _____. Geologic map of the Appalachian Valley of Virginia with explanatory text. Va. Geol. Survey Bull. 42, 1933, 56 pp.
5. _____. Geology of the Appalachian Valley in Virginia. Va. Geol. Survey Bull. 52, Pt. 1, (geologic text), 1940, 368 pp.
6. Campbell, M. R. Geology of the Big Stone Gap coal field of Virginia and Kentucky, U.S. Geol. Survey Bull., v. 3, 1893, 106 pp.
7. Cardwell, D. H., and others. Geologic map of West Virginia. W. Va. Geol. and Econ. Survey, State Geologic Map, 1968, scale 1:250,000.
8. Cooper, B. N. Industrial limestones and dolomites in Virginia: Clinch Valley District. Va. Geol. Survey Bull. 66, 1945, 259 pp.
9. Eby, J. B. The geology and mineral resources of Wise County and the coal-bearing portion of Scott County, Virginia. Va. Geol. Survey Bull. 24, 1923, 617 pp.
10. Elder, C. H., and others. Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Virginia. BuMines RI 7869, 1974, 29 pp.
11. Englund, K. J. Rotational block of the Cumberland overthrust sheet in southeastern Kentucky and northeastern Tennessee. U.S. Geol. Survey Professional Paper 424, 1961, pp. 674-C76.
12. _____. Displacement of the Pocahontas Formation by the Russell Fork, southwestern Virginia. in Geol. Survey Research. U.S. Geol. Survey Professional Paper 750-B, 1971, pp. B13-B16.
13. Froelich, A. J. Preliminary report of the oil and gas possibilities between Pine and Cumberland Mountains, southeastern Kentucky. Ky. Geol. Survey, RI 14, ser. X, 1973, 12 pp.
14. Giles, A. W. The geology and coal resources of Dickenson County, Virginia. Va. Geol. Survey, Bull. 21, 1921, 224 pp.

28. Milici, R. C., and others. Geologic factors related to coal mine roof falls in Wise County, Virginia. Div. Min. Resources, Dept. Conservation and Econ. Development Commonwealth of Va., Appalachian Regional Commission Report ARC-CO-7232-80-1-302-0206, (in press), 103 pp.
29. Miller, M. S. Stratigraphy and coal beds of Upper Mississippian and Lower Pennsylvanian rocks in southwestern Virginia. Va. Div. Min. Resources Bull. 84, 1974, 211 pp.
30. Miller, R. L. Geologic map of the Big Stone Gap Quadrangle, Virginia. U.S. Geol. Survey GQ-424, 1965, scale 1:24,000.
31. Miller, R. L., and C. R. Meissner, Jr. Geologic map of the Big A Mountain Quadrangle, Buchanan and Russell Counties, Virginia. U.S. Geol. Survey GQ-1350, 1977, scale 1:24,000.
32. Miller, R. L., and J. B. Roen. Geologic map of the Keokee Quadrangle, Lee County, Virginia and Harlan County, Kentucky. U.S. Geol. Survey GQ-851, 1971, scale 1:24,000.
33. _____, Geologic map of the Fennington Gap Quadrangle, Lee County, Virginia and Harlan County, Kentucky. U.S. Geol. Survey GQ-1098, 1973, scale 1:24,000.
34. Miller, R. L., and J. O. Fuller. Geology and oil resources of the Rose Hill District - the Fenster area of the Cumberland overthrust block - Lee County, Virginia. Va. Geol. Survey Bull., v. 71, 1954, 383 pp.
35. Padgett, G., and R. Ehrlich. Analysis of two tectonically controlled integrated drainage nets of Mid-Carboniferous age in southern West Virginia. in *Fluvial Sedimentology*, ed. by A. D. Meall, Canadian Soc. of Petroleum Geologists Memoir 5, 1978, pp. 789-799.
36. Potts, R. B. Generalized geologic map of Kentucky. Ky. Geol. Survey, 1979, scale 1:1,000,000.
37. Rich, J. L. Mechanics of low-angle overthrust faulting as illustrated by the Cumberland thrust block, Virginia, Kentucky, and Tennessee. AAPG Bull., v. 18, no. 12, 1934, pp. 1584-1596.
38. Rodgers, J. Evolution of thought on structure of middle and southern Appalachians. AAPG Bull., v. 33, no. 10, 1949, pp. 1643-1654.
39. Thornbury, W. D., 1969, *Principles of Geomorphology*, second edition. John Wiley and Sons, Inc., New York, London, Sydney and Toronto, 594 pp.
40. Wentworth, C. K. Russell Fork fault of southwest Virginia. Jour. Geol., v. 29, 1921, pp. 351-369.
41. _____, Geology and coal resources of Russell County, Virginia. Va. Geol. Survey Bull. 22, 1922, 179 pp.

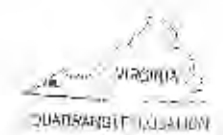


37°07'30" 82°07'30" 950 000 FEET 5' 2.4 MI. 70 VA, 80 185 1 (BIG A MOUNTAIN) 406 4559 II SE 107 2'30" 108

Mapped, edited, and published by the Geological Survey
 Control by USGS and USCGS
 Topography by photogrammetric methods from aerial photographs taken 1960-1961. Field checked 1963
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Virginia coordinate system, south zone
 1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue
 Reservoirs shown in purple compiled in cooperation with State of Pennsylvania agencies from aerial photographs taken 1969 and 1975
 This information not field checked. Map edited 1977



From: OXY USA Inc. Field Inspection
 Date: January 3, 1992
 Abandoned Water Well
 Water Well



CORRECTIVE ACTION PLAN AND WELL DATA

1. The following Virginia Division of Gas and Oil records are submitted for review:
 - A. OXY USA Inc. CBM I Z-8 Drilling Report
 - B. OXY USA Inc. CBM I AA-7 Drilling Report
 - C. OXY USA Inc. CBM I AA-8 Drilling Report
 - D. OXY USA Inc. CBM I AA-9 Drilling Report
 - E. OXY USA Inc. CBM I BB-7 Drilling Report
 - F. OXY USA Inc. CBM I BB-8 Drilling Report
 - G. OXY USA Inc. CBM I BB-9 Drilling Report
 - H. OXY USA Inc. CBM I CC-8 Drilling Report
 - I. OXY USA Inc. CBM I CC-9 Drilling Report
 - J. OXY USA Inc. CBM I CC-10 Drilling Report
 - K. Columbia Gas #9721-T well records
2. At this time, OXY USA Inc. is preparing to complete all of the above listed coalbed methane wells. An EPA UIC Class II permit will allow OXY USA Inc. to dispose of the produced water from these coalbed methane wells in an environmentally responsible manner and provide for the economical development of the resource.
3. The Columbia Gas #9721-T well has been plugged and abandoned.
4. Based on Virginia Division of Gas and Oil records, no active or inactive wells penetrate the Weir sandstone within a 1/4 mile radius of the Ball A-1 wellbore.

CORRECTIVE ACTION PLAN AND WELL DATA

1. The following Virginia Division of Gas and Oil records are submitted for review:
 - A. OXY USA Inc. CBM I Z-8 Drilling Report
 - B. OXY USA Inc. CBM I AA-7 Drilling Report
 - C. OXY USA Inc. CBM I AA-8 Drilling Report
 - D. OXY USA Inc. CBM I AA-9 Drilling Report
 - E. OXY USA Inc. CBM I BB-7 Drilling Report
 - F. OXY USA Inc. CBM I BB-8 Drilling Report
 - G. OXY USA Inc. CBM I BB-9 Drilling Report
 - H. OXY USA Inc. CBM I CC-8 Drilling Report
 - I. OXY USA Inc. CBM I CC-9 Drilling Report
 - J. OXY USA Inc. CBM I CC-10 Drilling Report
 - K. Columbia Gas #9721-T well records
2. At this time, OXY USA Inc. is preparing to complete all of the above listed coalbed methane wells. An EPA UIC Class II permit will allow OXY USA Inc. to dispose of the produced water from these coalbed methane wells in an environmentally responsible manner and provide for the economical development of the resource.
3. The Columbia Gas #9721-T well has been plugged and abandoned.
4. Based on Virginia Division of Gas and Oil records, no active or inactive wells penetrate the Weir sandstone within a 1/4 mile radius of the Ball A-1 wellbore.

5. The only well which is located within a 1/4 mile radius of the Ball A-1 is the abandoned water well identified in the "Maps of Wells/Area and Area of Review" attachment. The Buchanan County Health Department does not have any records available for this well.
6. Any unplugged well, which is found to be abandoned within the "Area of Review" and is penetrating the Weir sandstone, will be plugged and abandoned in accordance with Virginia Division of Gas and Oil regulation.
7. The Ball A-1 injection operating pressure will not exceed the fracture pressure of the Weir sandstone. Injection pumping equipment will automatically shut-down if the 2-3/8" tubing pressure reaches 1200 psig.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I Z-8
Permit # 1841



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 CBM I Z-8 in the South Grundy District of the Buchanan City/County, Virginia on 20th day September month, 1991.

LOCATION

City/County: Buchanan District: South Grundy
Surface Elevation: 1717.49' Elevation of Kelly Bushing: 1723.99' Quadrangle: Versant
3.220 FT. S. of Latitude 37° 10' 00" and 9.780 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 319,815.98 and E 858,296.70

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 05/14/91 Drilling Contractor: Gasco Drilling, Inc.
Date Drilling Completed: 05/17/91 Rig Type: X Rotary Cable Tool
Total Depth of Well: 1610' KB

GEOLOGICAL DATA

Fresh Water At:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	YES	MINING IN AREA	NO	MINED OUT
------	-----	--------	-----------	-----	----------------	----	-----------

See Attached

GAS AND OIL SHOWS:

NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
------	-----------	-----------------	----------	--------------

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 12-8
Permit #: 1641

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:

Log logs run on wellbore: High Resolution Density, Caliper, and Gamma Ray Logs

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
<u>200'</u>	<u>1/4°</u>	<u>1400'</u>	<u>3/4°</u>
<u>400'</u>	<u>1/4°</u>	<u>1500'</u>	<u>5/8°</u>
<u>600'</u>	<u>1/2°</u>	<u> </u>	<u> </u>
<u>800'</u>	<u>1/2°</u>	<u> </u>	<u> </u>
<u>1000'</u>	<u>3/4°</u>	<u> </u>	<u> </u>
<u>1200'</u>	<u>3/4°</u>	<u> </u>	<u> </u>

*Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET
<u>Conductor</u>	<u>12-3/4"</u>	<u>G.L.</u>	<u>38'</u>	<u>38'</u>			
<u>Surface</u>	<u>9-5/8"</u>	<u>G.L.</u>	<u>353'</u>	<u>353'</u>	<u>212</u>	<u>05/14/91</u>	
<u>Water Protection</u>	<u>N/A</u>						
<u>Coal Protection</u>	<u>5-1/2"</u>	<u>G.L.</u>	<u>1,510'</u>	<u>1,510'</u>	<u>517</u>	<u>05/19/91</u>	<u>IRP 8-3/4" x 5-1/2' External Packer Shoe set @ 1510'.</u>
<u>Other Casing and Tubing Left in Well</u>							

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: CBM 12-8
Permit #: 1541

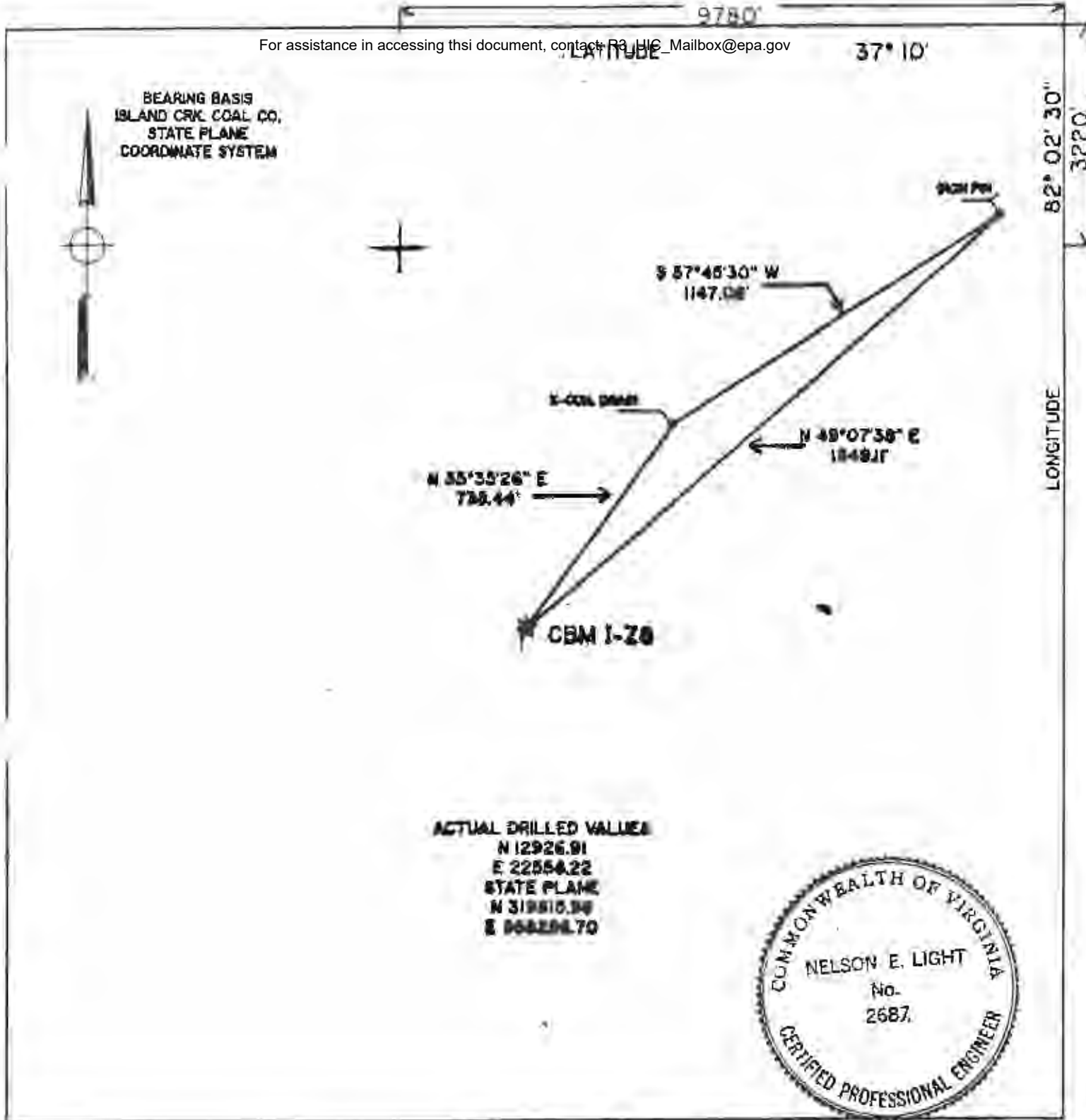
DRILLER'S LOG

Compiled by: Mike McClure

GEOLOGIC AGE	FORMATION	GENERAL LITHOLOGY	COLOR	DEPTH		THICKNESS	REMARKS
				TOP	BOTTOM		
Pennsylvanian	Leo/Norton	SURFACE HOLE Raven #2 Seam		77'	79'	2'	Coal

PRODUCTION HOLE
See Attached Geological Log

Permitter: OXY USA Inc [Signature] (Company)
By: [Signature] (Signature)



WELL LOCATION PLAT

COMPANY OXY USA INC. WELL NAME and No. CBM I-28
 TRACT No. BIG AXE TR 22 ELEVATION 1717.49 QUADRANGLE VANSANT
 COUNTY BUCHANAN DISTRICT SOUTH GRUNDY SCALE: 1"=400' DATE 9/12/91

THIS PLAT IS A NEW PLAT ; AN UPDATED PLAT ; OR A FINAL 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.

[illegible]

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL

CONFIDENTIAL

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1AA-7
Permit # 1541



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 CBM 1AA-7
in the South Grundy District of the Buchanan City/County, Virginia on 20th day,
September month, 1991.

LOCATION

City/County: Buchanan District: South Grundy
Surface Elevation: 2276.88' Elevation of Kelly Bushing: 2263.18' Quadrangle: Versant
4880 FT. S. of Latitude 37° 10' 00" and 420 FT. W. of Longitude 82° 05' 00"
or, State Plane Coordinates: N 318,287.62 and E 955,816.98

Attach a final location plot as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 1/27/90 Drilling Contractor: Gasco Drilling, Inc.
Date Drilling Completed: 11/30/90 Rig Type: X Rotary Cable Tool
Total Depth of Well: 2125' KB

GEOLOGICAL DATA

Fresh Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	YES	MINING IN AREA	MINED OUT
					<u>NO</u>	

See Attached

GAS AND OIL SHOWS:

NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1 AA-7
Permit #: 1341

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: High Resolution Density, Caliper, and Gamma Ray Logs

Did log disclose vertical location of a coal seam? Yes X No

SURVEY RESULTS:

<u>DEPTH OF SURVEY</u>	<u>DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL</u>	<u>DEPTH OF SURVEY</u>	<u>DIRECTION/DISTANCE/DEGREES FROM TRUE VERTICAL</u>
<u>235'</u>	<u>1 1/2°</u>	<u>1,400'</u>	<u>3/4°</u>
<u>415'</u>	<u>1 1/2°</u>	<u>1,600'</u>	<u>3/4°</u>
<u>600'</u>	<u>1°</u>	<u>1,800'</u>	<u>3/4°</u>
<u>800'</u>	<u>1 1/2°</u>	<u>2,000'</u>	<u>2 1/2°</u>
<u>1,000'</u>	<u>3/4°</u>		
<u>1,200'</u>	<u>3/4°</u>		

*Use additional sheets if necessary.

CASING AND TUBING

<u>SIZE</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>LENGTH</u>	<u>CEMENT USED IN CU/FT</u>	<u>DATE CEMENTED</u>	<u>PACKERS OR BRIDGE PLUG KIND SIZE SET</u>
<u>Conductor</u>						
<u>12-3/4"</u>	<u>G.L.</u>	<u>29'</u>	<u>29'</u>			
<u>Surface</u>						
<u>9-5/8"</u>	<u>G.L.</u>	<u>439'</u>	<u>439'</u>	<u>263.2</u>	<u>11/27/90</u>	
<u>Water Protection</u>						
<u>N/A</u>						
<u>Coal Protection</u>						
<u>5-1/2"</u>	<u>G.L.</u>	<u>2,054'</u>	<u>2,054'</u>	<u>679.2</u>	<u>11/29/90</u>	<u>IRP 8-3/4" x 5-1/2" External Packer Shoe set @ 2054.40'</u>

Other Casing
and Tubing Left in Well

Liners

REMARKS: Shut down, fishing jobs, depths and dates, seeping, lost circulation, etc.
Kosh Carbon Sealed Surface Hole

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1A5-7
Permit #: 1541

DRILLER'S LOG

Compiled by: Mike McClure

<u>GEOLOGIC 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	Lee/Norton	SURFACE HOLE Kennedy Seam		374'	376'	2'	Coal

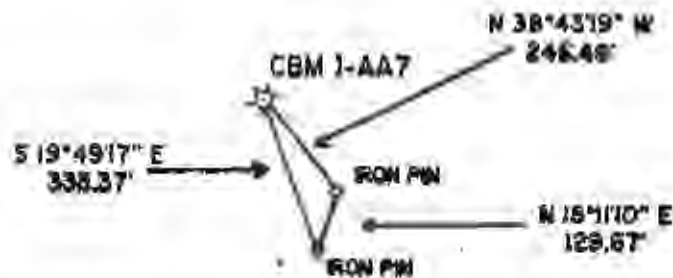
PRODUCTION HOLE,
See Attached Geological Log

Permitted: OXY USA Inc.  (Company)
By: _____ (Signature)

LATITUDE

37° 10'

BEARING BASIS
ISLAND CRK.
JEWELL SMOKELESS
STATE PLANE
COORDINATE SYSTEMS



02° 05'

LONGITUDE

ACTUAL DRILLED VALUES
N 11323.39
E 19923.05
STATE PLANE
N 318287.62
E 955616.98



WELL LOCATION PLAT

COMPANY OXY USA INC. WELL NAME and No. CBM 1-AA7
TRACT No. LEVISA TR. 66 ELEVATION 2275.68' QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT SOUTH GRUNDY SCALE: 1"=400' DATE 9/19/91

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

L&P (by Seal)

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

[REDACTED]

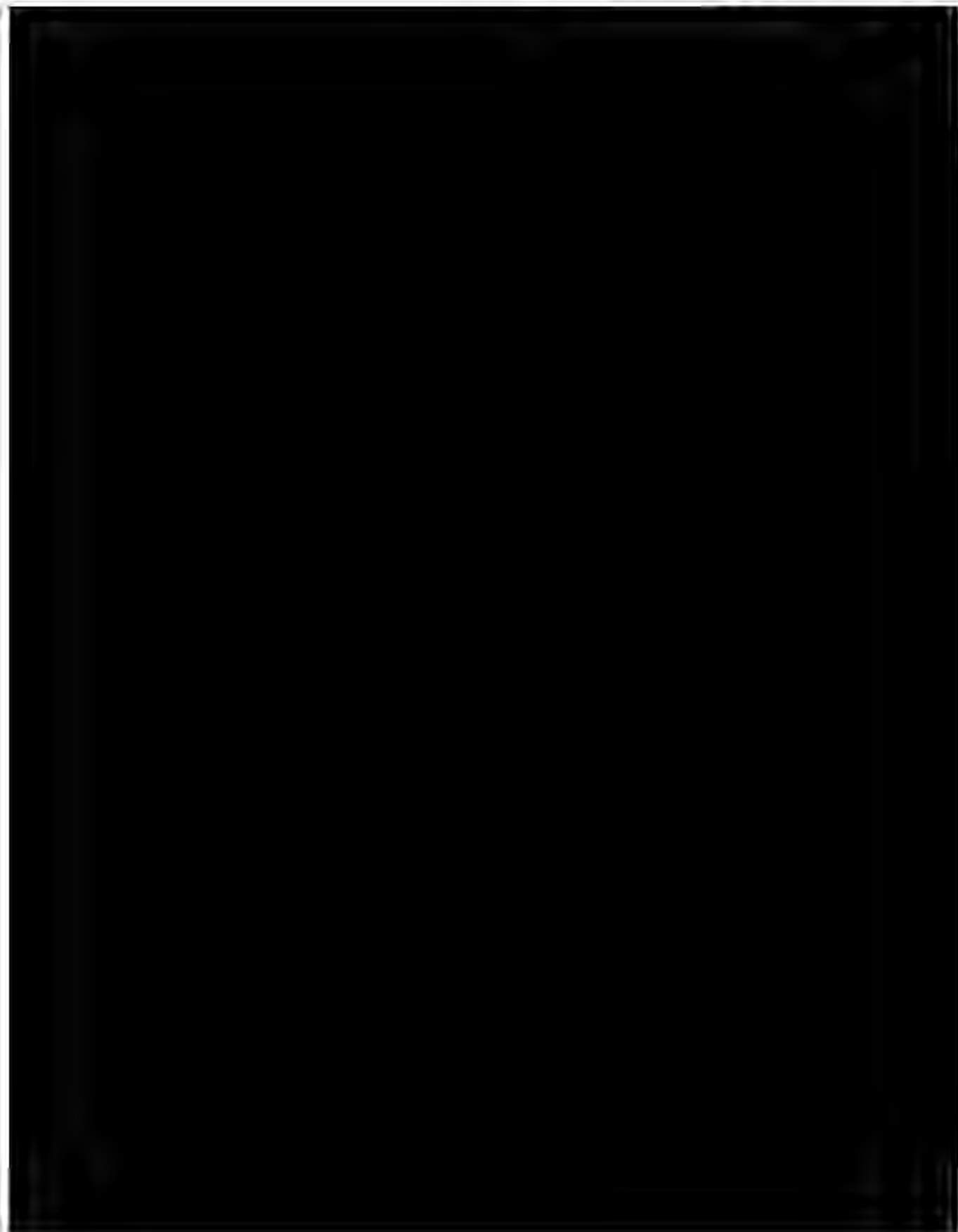
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL



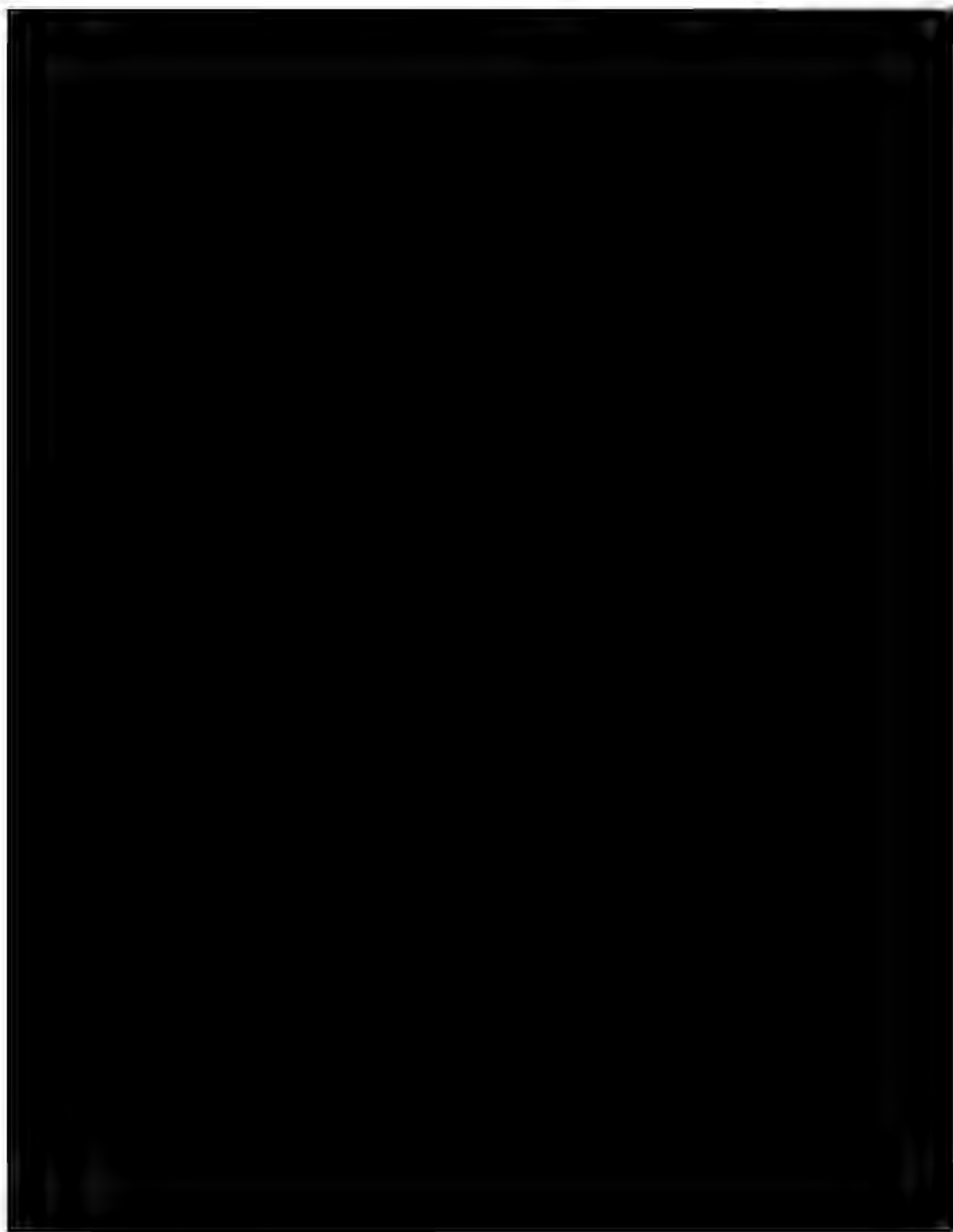
[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

CONFIDENTIAL



[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1AA-8
Permit #: 1531



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 CBM 1AA-8
in the South Grundy District of the Buchanan City/County, Virginia on 20th day,
September month, 1991.

LOCATION

City/County: Buchanan District: South Grundy
Surface Elevation: 2214.96' Elevation of Kelly Bushing: 2221.45' Quadrangle: Versant
4,680 FT. S. of Latitude 37° 10' 00" and 10,220 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 318,391.76 and E 957,959.20.

Attach a final location plot as required by VR 480-05-22.1, § 1.38.

DRILLING DATA

Date Drilling Commenced: 11/10/90 Drilling Contractor: Gasco Drilling, Inc.
Date Drilling Completed: 11/13/90 Rig Type: X Rotary Cable Tool
Total Depth of Well: 2072' KB

GEOLOGICAL DATA

Fresh Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	YES	MINING IN AREA NO	MINED OUT
------	-----	--------	-----------	-----	----------------------	-----------

See Attached

GAS AND OIL SHOWS:

NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
------	-----------	-----------------	----------	--------------

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM / AA-B
Permit #: 1531

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: High Resolution Density, Caliper, and Gamma Ray Logs

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
200'	1/2°	1,400'	1/2°
400'	1/2°	1,600'	1/2°
600'	3/4°	1,800'	3/4°
800'	1/2°	2,000'	1°
1,000'	1/2°		
1,200'	3/4°		

* Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET
<u>Conductor</u>	12-3/4"	G.L.	28'	28'			
<u>Surface</u>	9-5/8"	G.L.	434'	434'	294	11/11/90	
<u>Water Protection</u>	N/A						
<u>Coal Protection</u>	5-1/2"	G.L.	2,005'	2,005'	717	11/13/90	Halco 8-3/4" x 5-1/2" External Packer Shoe set @ 2005'

Other Casing
and Tubing Left In Well

Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

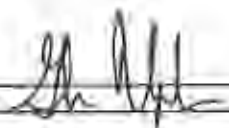
Operations Name: CBM / AA-B
Permit #: 1531

DRILLER'S LOG

Compiled by: Mike McClure

GEOLOGIC AGE	FORMATION	GENERAL LITHOLOGY	DEPTH		THICKNESS	REMARKS
			COLOR	TOP - BOTTOM		
Pennsylvanian	Lae/Norton	SURFACE HOLE Kennedy Seam		329' - 331'	2'	Coal

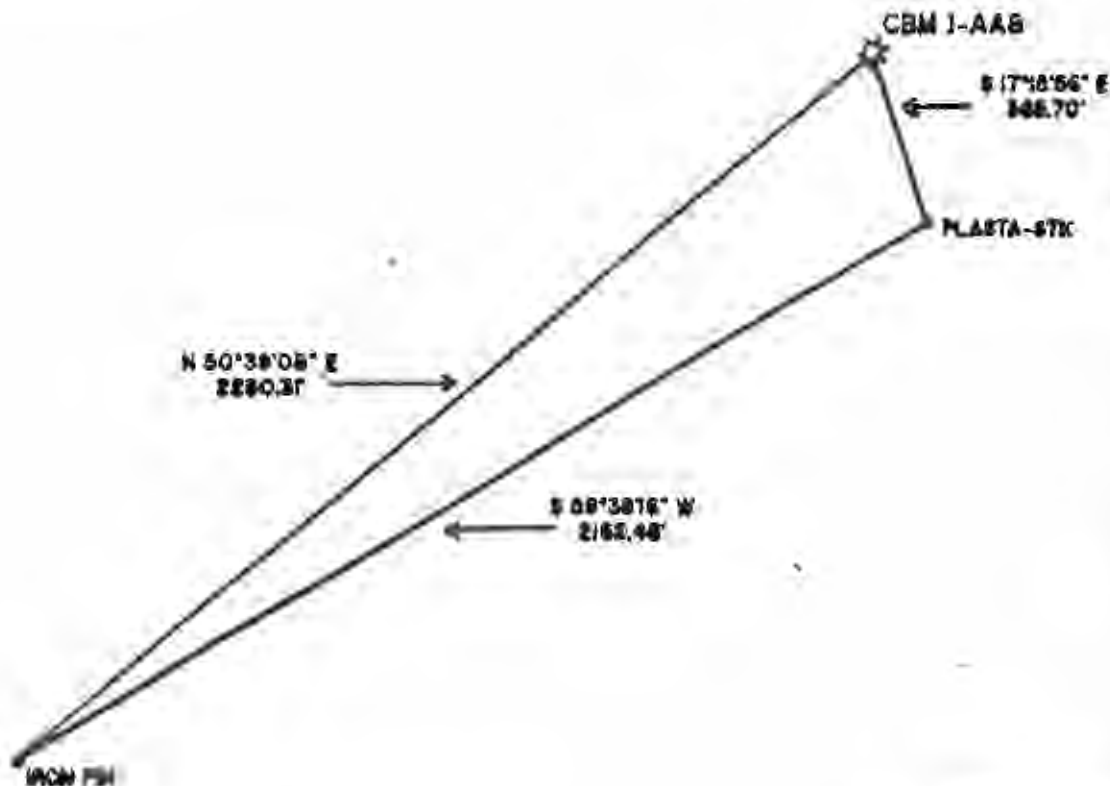
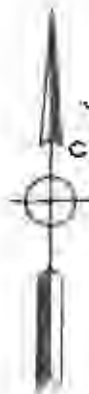
PRODUCTION HOLE
See Attached Geological Log

Permittee: OXY USA Inc  (Company)
By: _____ (Signature)

LATITUDE

37° 10'

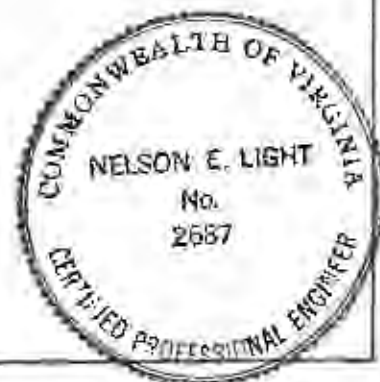
BEARING BASIS
ISLAND CRK.
JEWELL SMOKELESS
STATE PLANE
COORDINATE SYSTEMS



82° 02' 30"

LONGITUDE

ACTUAL DRILLED VALUES
N 11493.69
E 2226.06
STATE PLANE
N 318391.76
E 957959.20



WELL LOCATION PLAT

COMPANY OXY USA INC. WELL NAME and No. CBM I-AAB
TRACT No. BIG AXE TR 22 ELEVATION 2214.95' QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT SOUTH BRUNSWICK SCALE: 1"=400' DATE 9/17/91

THIS PLAT IS A NEW PLAT ☐ ; AN UPDATED PLAT ☐ ; OR A FINAL 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.

NELSON E. LIGHT

LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR

(ATTN: 3rd)

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

[REDACTED]

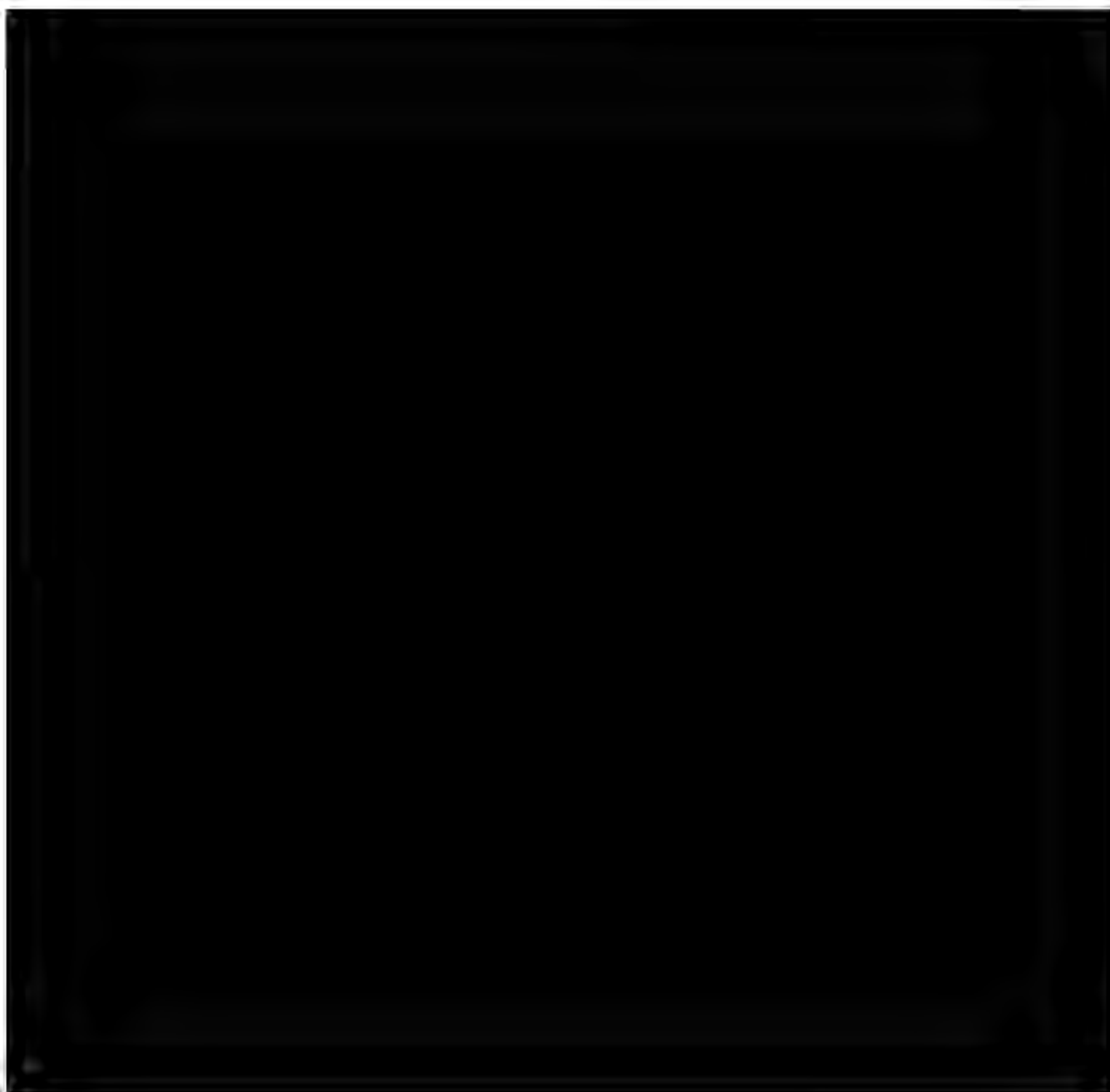
[REDACTED]

CONFIDENTIAL

[REDACTED]

CONFIDENTIAL

[REDACTED]
[REDACTED]
CONFIDENTIAL



Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I AA-9
Permit # 1812



Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1418
Abingdon, Virginia 24210
703-676-5423



DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.38, the undersigned Permittee submits this report on Well CBM I AA-9
in the South Grundy District of the Buchanan City/County, Virginia on 20th day,
September month, 1991.

LOCATION

City/County: Buchanan District: South Grundy
Surface Elevation: 2255.98' Elevation of Kelly Bushing: 2262.48' Quadrangle: Versant
4.840 FT. S. of Latitude 37° 10' 00" and 7.820 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 318,409.35 and E 960,314.92

Attach a final location plat as required by VR 480-05-22.1, § 1.38.

DRILLING DATA

Date Drilling Commenced: 04/28/91
Date Drilling Completed: 5/02/91
Total Depth of Well: 2220' KB

Drilling Contractor: Gasco Drilling, Inc.
Rig Type: X Rotary Cable Tool

GEOLOGICAL DATA

Fresh Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	YES	MINING IN AREA NO	MINED OUT
------	-----	--------	-----------	-----	----------------------	-----------

See Attached

GAS AND OIL SHOWS:

NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
------	-----------	-----------------	----------	--------------

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1 AA-8
Permit #: 1812

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: High Resolution Density, Caliper, and Gamma Ray Logs

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
<u>200'</u>	<u>1/2°</u>	<u>1,400'</u>	<u>1/2°</u>
<u>400'</u>	<u>1/2°</u>	<u>1,600'</u>	<u>3/4°</u>
<u>600'</u>	<u>1/4°</u>	<u>1,800'</u>	<u>1/2°</u>
<u>800'</u>	<u>1/4°</u>	<u>2,000'</u>	<u>3/4°</u>
<u>1,000'</u>	<u>1/2°</u>	<u>2,200'</u>	<u>3/4°</u>
<u>1,200'</u>	<u>3/4°</u>		

* Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET
<u>Conductor</u>	<u>12-3/4"</u>	<u>G.L.</u>	<u>15'</u>	<u>15'</u>			
<u>Surface</u>	<u>9-5/8"</u>	<u>G.L.</u>	<u>485'</u>	<u>485'</u>	<u>277</u>	<u>4/28/91</u>	
<u>Water Protection</u>	<u>N/A</u>						
<u>Coal Protection</u>	<u>5-1/2"</u>	<u>G.L.</u>	<u>2,102'</u>	<u>2,102'</u>	<u>583</u>	<u>12/22/90</u>	<u>IRP 8-3/4" x 5-1/2" External Packer Shoe Set @ 2102'</u>

Other Casing
and Tubing Left in Well

Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.
Mine Works @ 390'.

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1 AA-3
Permit #: 1812

DRILLER'S LOG

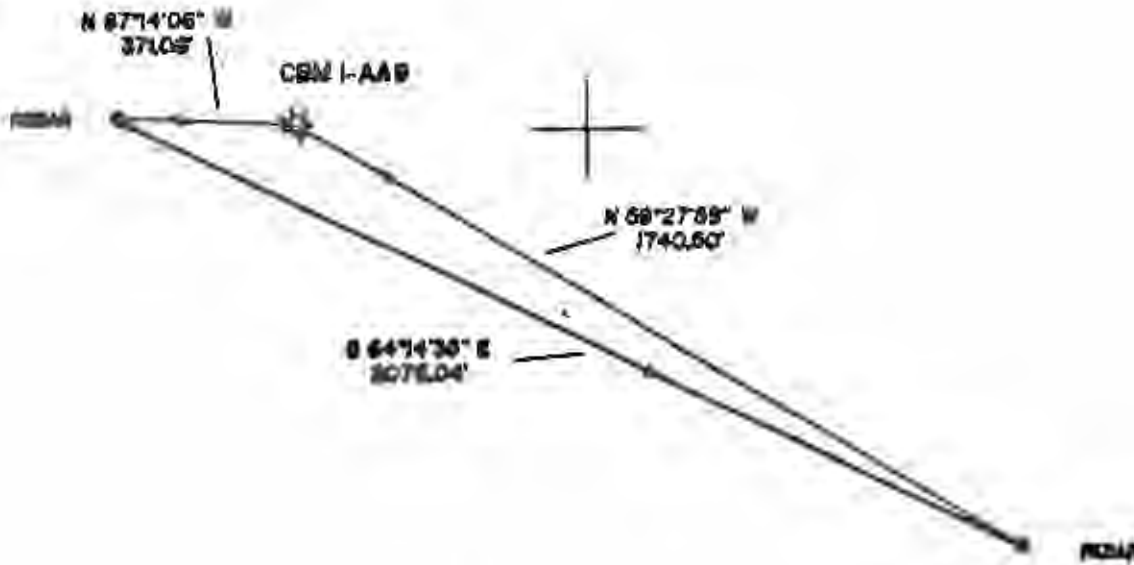
Compiled by: Mike McClure

GEOLOGIC AGE	FORMATION	GENERAL LITHOLOGY	COLOR	DEPTH		THICKNESS	REMARKS
				TOP	BOTTOM		
Pennsylvanian	Lee/Norton	SURFACE HOLE Kennedy Seam		390'	393'	3'	Mined-out

PRODUCTION HOLE
See Attached Geological Log

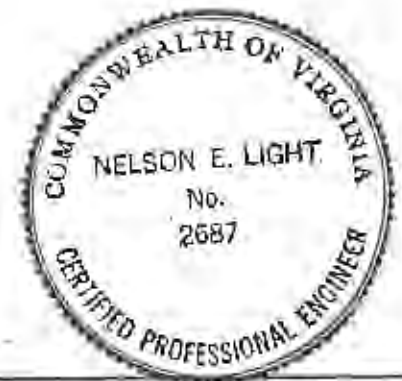
Permittee: OXY USA Inc  (Company)
By: _____ (Signature)

BEARING BASIS
ISLAND CRK.
JEWELL SMOKELESS
STATE PLANE
COORDINATE SYSTEMS



82° 02' 30"
4640'
LONGITUDE

ACTUAL DRILLED VALUES
N 11,577.95
E 24,615.44
STATE PLANE
N 318409.35
E 960314.92



WELL LOCATION PLAT

COMPANY OXY USA, INC. WELL NAME and No. CBM I-AA9
TRACT No. BIG AXE 22 ELEVATION 2255.98 QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT SOUTH DISTRICT SCALE: 1"=400' DATE 9-19-91

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.

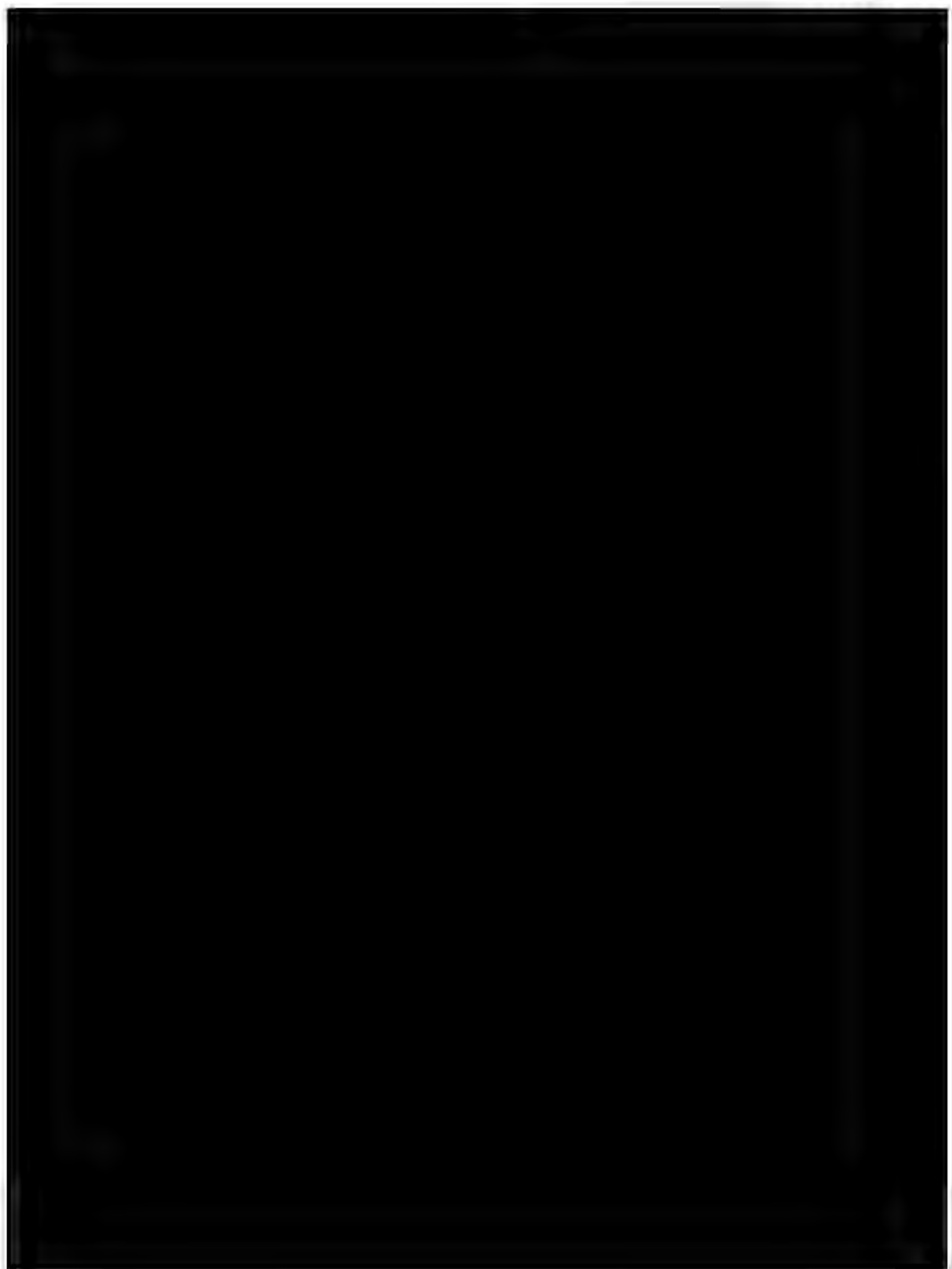
N. E. Light

LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR

(Attch 5-6)

CONFIDENTIAL

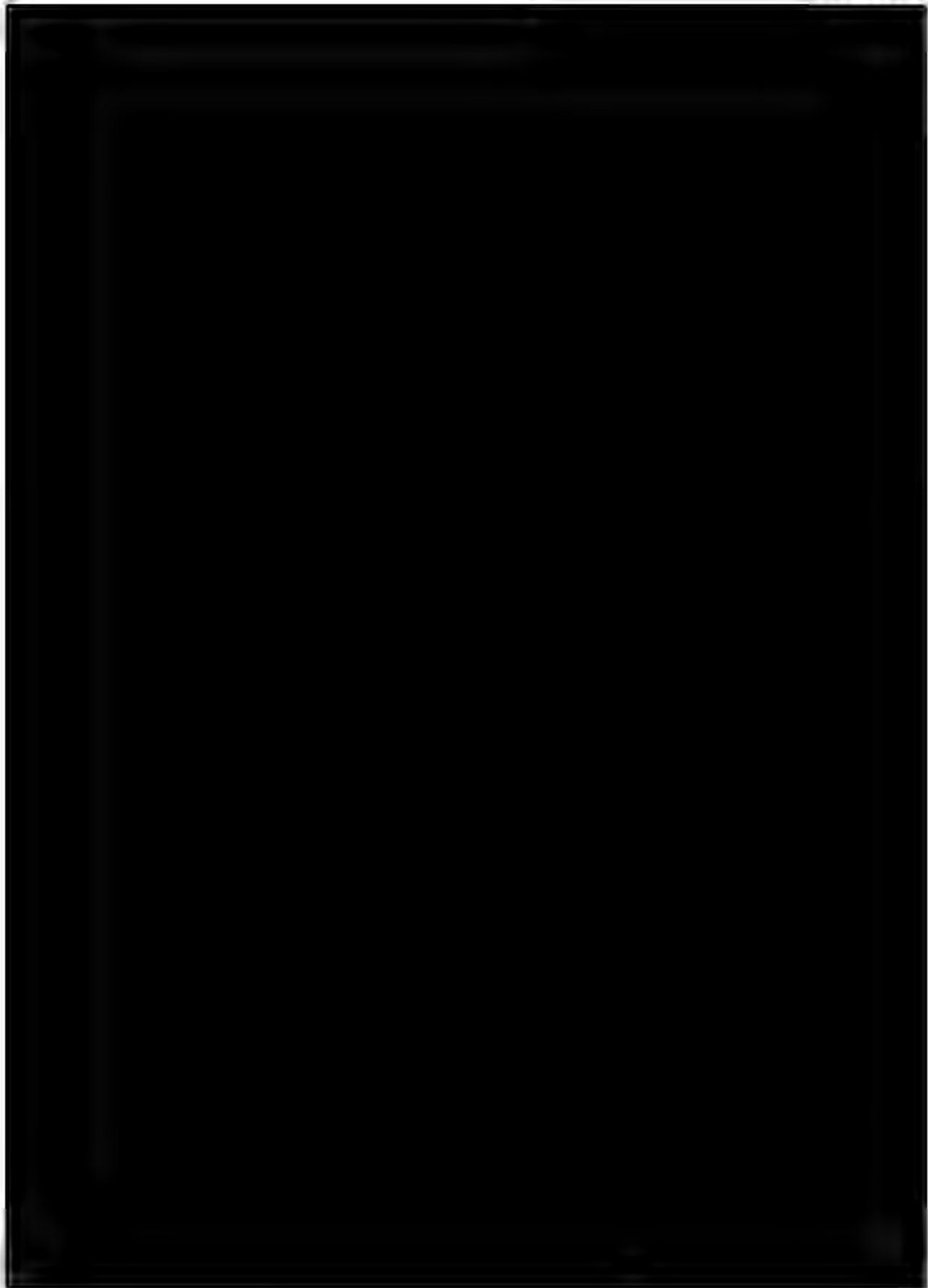
CONFIDENTIAL



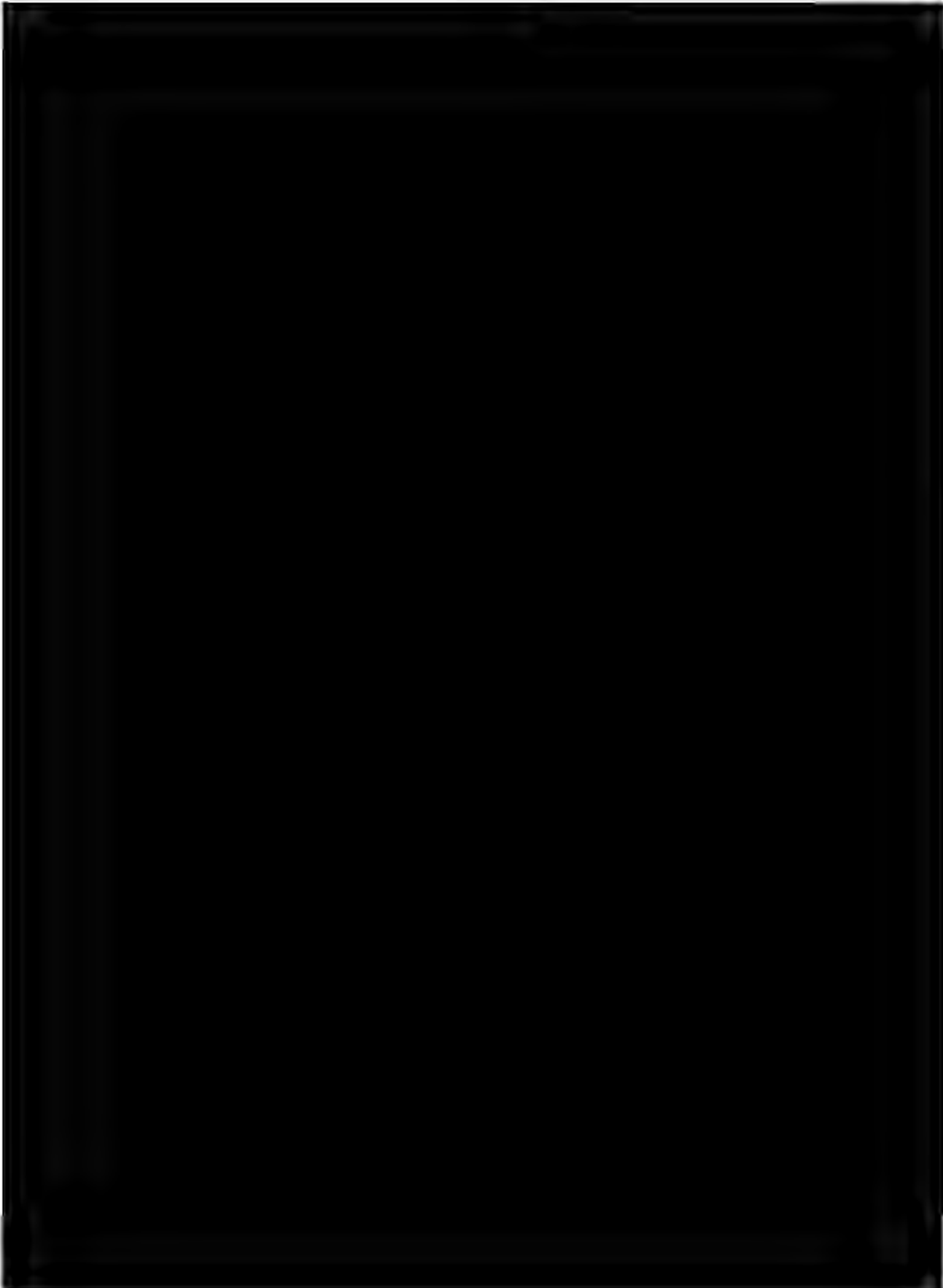
CONFIDENTIAL



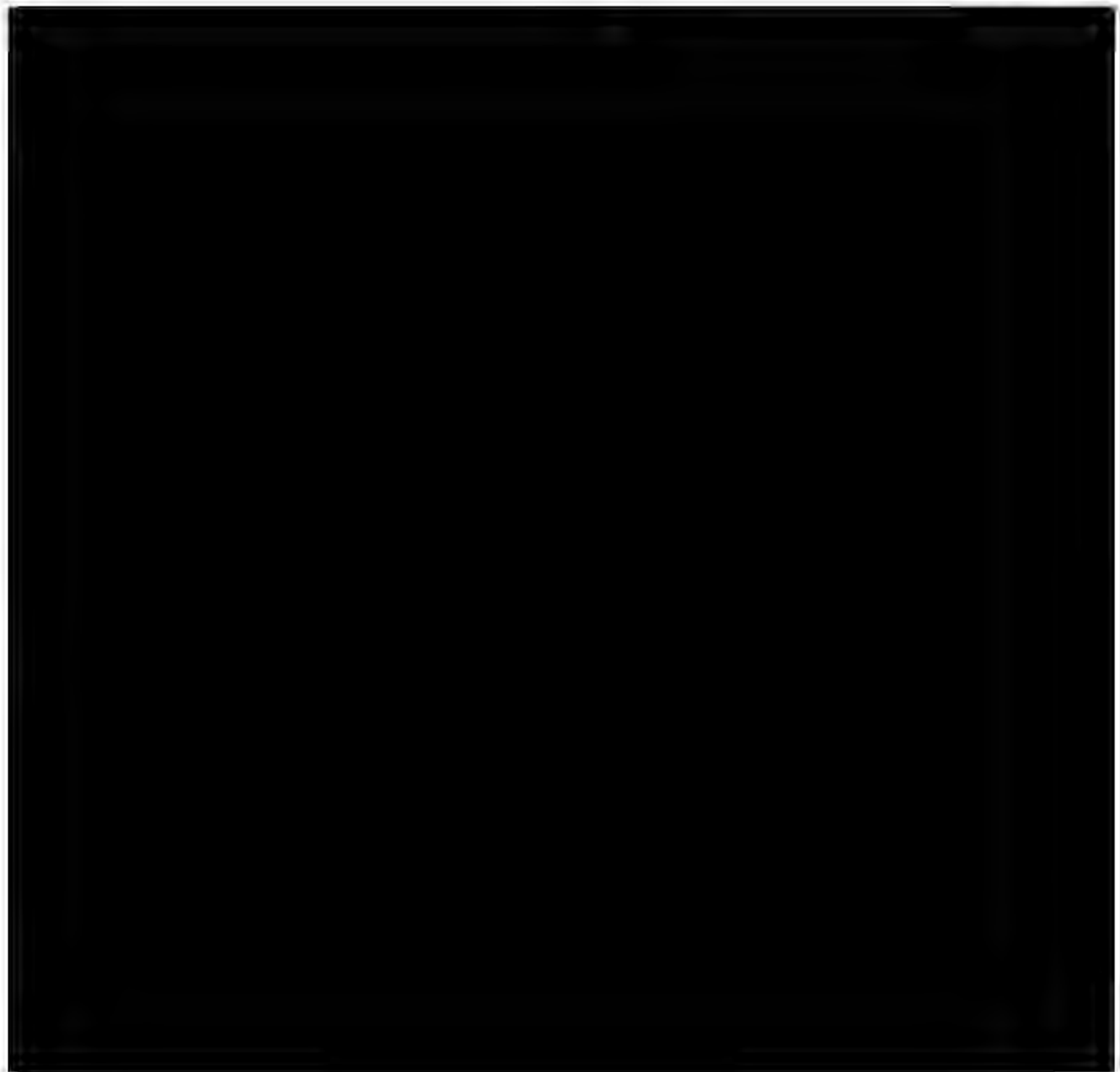
CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL



Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1 BB-7
Permit # 1 B30



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 CBM 1 BB-7 in the Hurricane District of the Buchanan City/County, Virginia on 20th day, September month, 1991.

LOCATION

City/County: Buchanan District: Hurricane
Surface Elevation: 2349.31' Elevation of Kelly Bushing: 2355.81' Quadrangle: Versant
S 240 FT. S. of Latitude 37° 10' 00" and 12.060 FT. W. of Longitude 82° 02' 30"
of, State Plane Coordinates: N 318,918.28 and E 956,048.17

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 11/14/90 Drilling Contractor: Gasco Drilling, Inc.
Date Drilling Completed: 11/18/90 Rig Type: X Rotary Cable Tool
Total Depth of Well: 2200' KB

GEOLOGICAL DATA

Fresh Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:	MINING IN AREA					
NAME	TOP	BOTTOM	THICKNESS	YES	NO	MINED OUT

See Attached

GAS AND OIL SHOWS:	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
NAME				

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I BB-7
Permit #: 1530

Cuttings or samples are or 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: High Resolution Density, Caliper, and Gamma Ray Logs

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
<u>200'</u>	<u>1/4°</u>	<u>1,400'</u>	<u>1°</u>
<u>400'</u>	<u>1/2°</u>	<u>1,650'</u>	<u>1°</u>
<u>600'</u>	<u>1/2°</u>	<u>1,800'</u>	<u>1°</u>
<u>800'</u>	<u>1/2°</u>	<u>2,000'</u>	<u>1°</u>
<u>1,000'</u>	<u>1/2°</u>	<u>2,200'</u>	<u>1°</u>
<u>1,200'</u>	<u>3/4°</u>		

*Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	CEMENT USED LENGTH IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET
<u>Conductor</u>	<u>12-3/4"</u>	<u>G.L.</u>	<u>30'</u>	<u>30'</u>		
<u>Surface</u>	<u>8-5/8"</u>	<u>G.L.</u>	<u>526'</u>	<u>526'</u>	<u>40'</u>	<u>11/14/90</u>
<u>Water Protection</u>	<u>N/A</u>					
<u>Coal Protection</u>	<u>5-1/2"</u>	<u>G.L.</u>	<u>2,138'</u>	<u>2,138'</u>	<u>736</u>	<u>11/17/90</u>
						<u>IRP 8-3/4" x 5-1/2" External Packer Shoe set @ 2138'</u>

Other Casing
and Tubing Left in Well

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: CBM / BG-3
Permit #: 1530

DRILLER'S LOG

Compiled by: Mike McClure

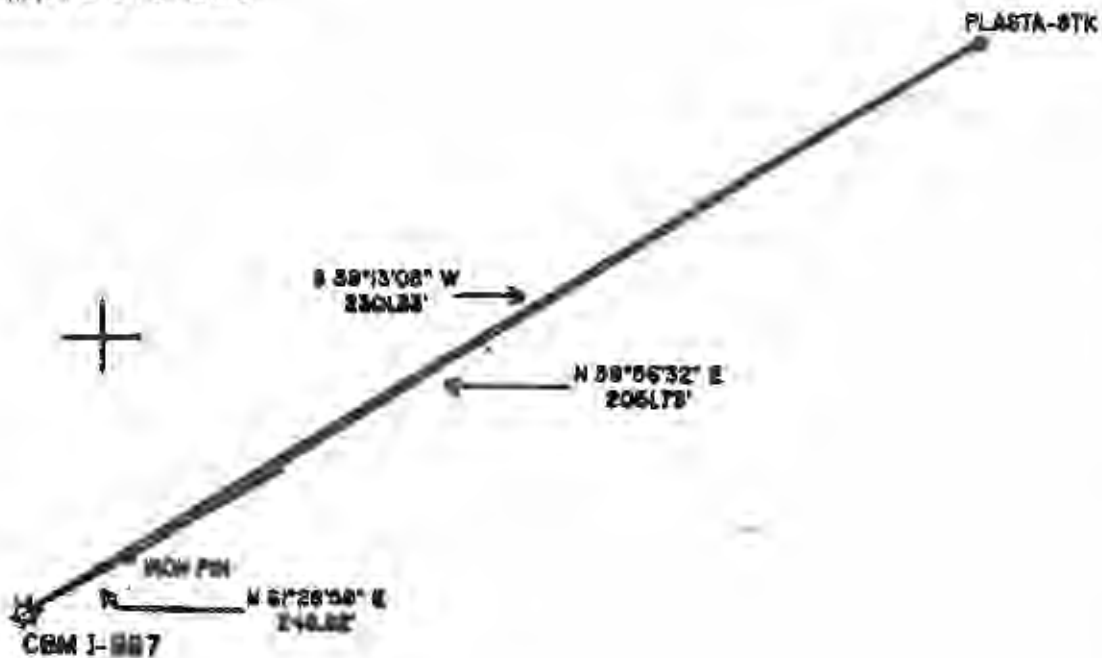
<u>GEOLOGIC</u> <u>AGE</u>	<u>FORMATION</u>	<u>GENERAL</u> <u>LITHOLOGY</u>	<u>COLOR</u>	<u>DEPTH</u> <u>TOP</u>	<u>BOTTOM</u>	<u>THICKNESS</u>	<u>REMARKS</u>
Pennsylvanian	East Norton	SURFACE HOLE No Coal Strata Identified from Gamma Log					

PRODUCTION HOLE
See Attached Geological Log

Permittee: OXY USA Inc  (Company)
By: _____ (Signature)

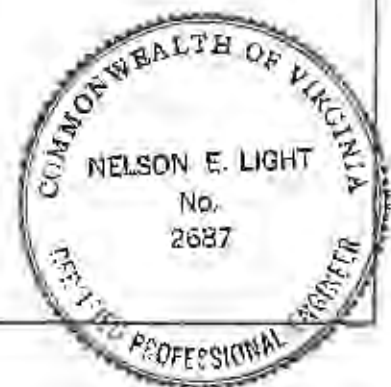
37° 10'

BEARING BASIS
ISLAND CRK.
JEWELL SMOKELESS
STATE PLANE
COORDINATE SYSTEMS



82° 02' 30"
LONGITUDE

ACTUAL DRILLED VALUES
N 9966.71
E 20392.58
STATE PLANE
N 316918.29
E 956046.17



WELL LOCATION PLAT

COMPANY OXY USA INC. WELL NAME and No. CBM I-887
TRACT No. LEVISA TR. 66 ELEVATION 2349.31' QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT HURRICANE SCALE: 1"=400' DATE 9/17/'91

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.

[Signature]

LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR

LATH: Seal

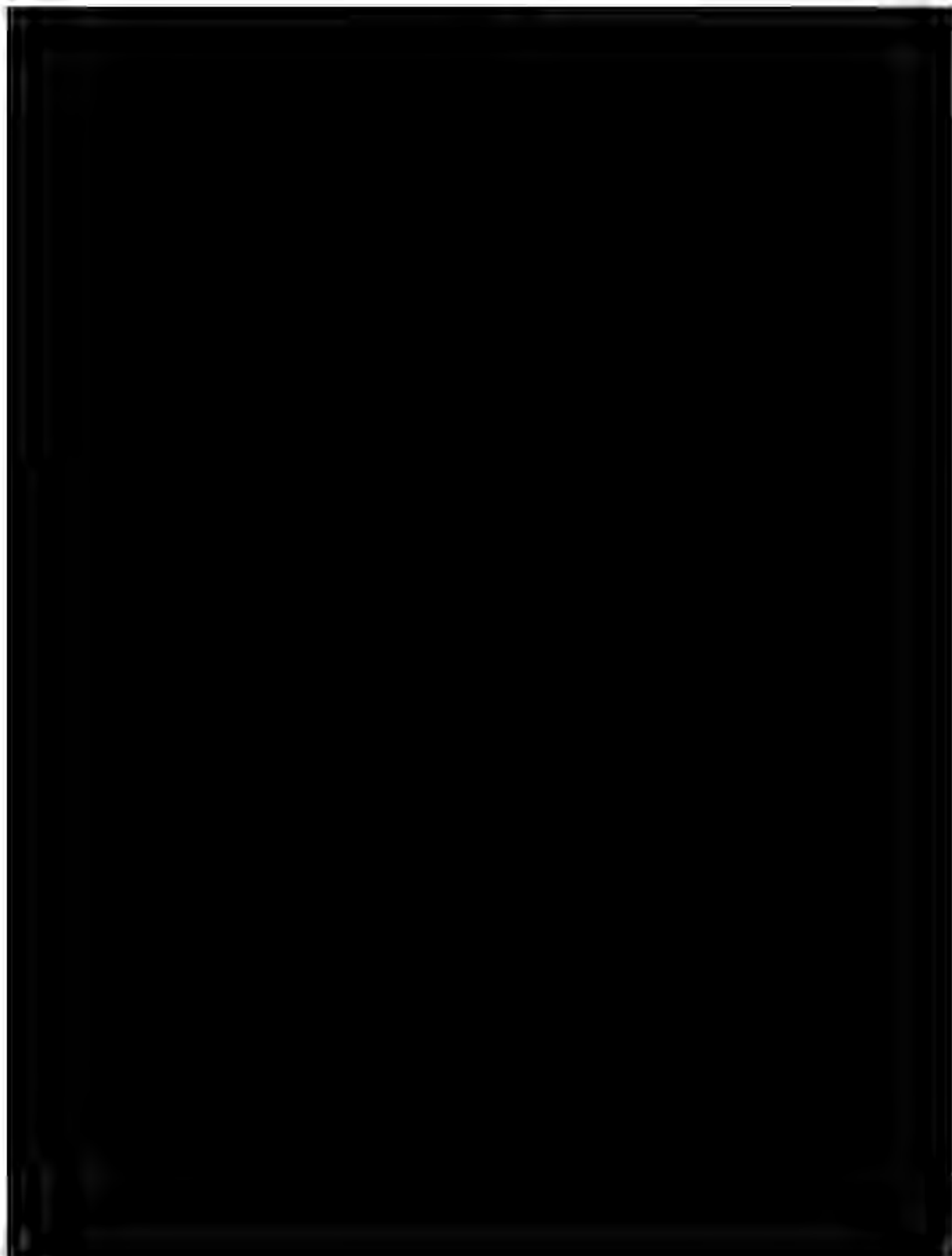
CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I BB-8
Permit # 1532



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 CBM I BB-8
in the South Grundy District of the Buchanan City/County, Virginia on 20th day,
September month, 1991.

LOCATION

City/County: Buchanan District: South Grundy
Surface Elevation: 2205.01' Elevation of Kelly Bushing: 2211.51' Quadangle: Versant
7.090 FT. S. of Latitude 37° 10' 00" and 9.950 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 315.880.57 and E 958.087.47.

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 11/05/90
Date Drilling Completed: 11/08/90
Total Depth of Well: 2140 KB

Drilling Contractor: Gasco Drilling, Inc.
Rig Type: X Rotary Cable Tool

GEOLOGICAL DATA

Fresh Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	YES	MINING IN AREA NO	MINED OUT
------	-----	--------	-----------	-----	----------------------	-----------

See Attached

GAS AND OIL SHOWS:

NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
------	-----------	-----------------	----------	--------------

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I 88-B
Permit #: 1532

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: High Resolution Density, Caliper, and Gamma Ray Logs

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
200'	1 1/2°	1,400'	1 1/4°
400'	1 1/2°	1,600'	3/4°
600'	1 1/2°	1,800'	3/4°
800'	3/4°	2,000'	3/4°
1,000'	1 1/2°		
1,200'	3/4°		

*Use additional sheets if necessary.

CASING AND TUBING

SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET
<u>Conductor</u> 12-3/4"	G.L.	27'	27'			
<u>Surface</u> 9-5/8"	G.L.	439'	439'	331	11/08/90	-
<u>Water Protection</u> N/A						
<u>Coal Protection</u> 6-1/2"	G.L.	2,010'	2,010'	717	11/08/90	Halco 8-3/4" x 5-1/2" External Packer Shoe set @ 2009.5'
<u>Other Casing and Tubing Left In Well</u>						

liners

REMARKS: Shut down, fishing jobs, depths and dates, paving, lost circulation, etc.

Department of Mines, Minerals and Energy
Division of Gas and Oil

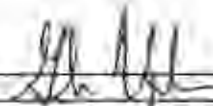
Operations Name: CBM I BB-8
Permit #: 1532

DRILLER'S LOG

Compiled by: Mike McClure

GEOLOGIC AGE	FORMATION	GENERAL LITHOLOGY	COLOR	DEPTH		THICKNESS	REMARKS
				TOP	BOTTOM		
Pennsylvanian	Lee/Norton	SURFACE HOLE No Coal Seams Identified From Gamma Log					

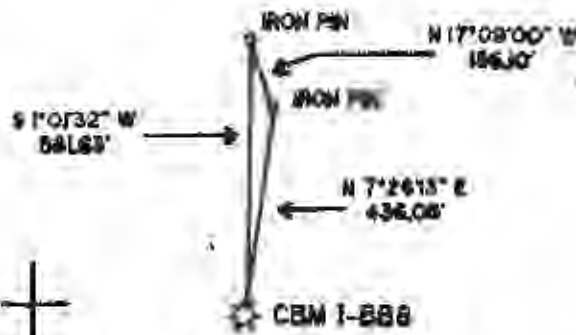
PRODUCTION HOLE
See Attached Geological Log

Permittee: OXY USA Inc  (Company)
By: _____ (Signature)

LATITUDE

37° 10'

BEARING BASIS
ISLAND CRK.
JEWELL SMOKELESS
STATE PLANE
COORDINATE SYSTEMS



82° 02' 30"

LONGITUDE

ACTUAL DRILLED VALUES
N 9087.09
E 22457.61
STATE PLANE
N 315980.57
E 958087.47



WELL LOCATION PLAT

COMPANY OXY USA INC. WELL NAME and No. CBM I-888
TRACT No. BIG AXE TR 19 ELEVATION 2205.01 QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT SOUTH GRUNDY SCALE: 1"=400' DATE 9/17/91

THIS PLAT IS A NEW PLAT ☐; AN UPDATED PLAT ☐; OR A FINAL 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.

(Affix Seal)

CONFIDENTIAL

CONFIDENTIAL

[REDACTED]

CONFIDENTIAL



CONFIDENTIAL

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I BB-8
Permit #: 1370



Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1415
Abingdon, Virginia 24210
703-678-5423



DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.35, the undersigned Permittee submits this report on Well CBM I BB-8
in the Hurricane District of the Buchanan City/County, Virginia on 30th day,
September month, 1991.

LOCATION

City/County: Buchanan District: Hurricane
Surface Elevation: 2388.74' Elevation of Kelly Bushing: 2335.24' Quadrangle: Versant
6.850 FT. S. of Latitude 37° 10' 00" and 7.620 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 316,134.96 and E 960,383.18

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 10/31/90 Drilling Contractor: Gasco Drilling, Inc.
Date Drilling Completed: 11/02/90 Rig Type: X Rotary Cable Tool
Total Depth of Well: 2325' KB

GEOLOGICAL DATA

Fresh Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:						MINING IN AREA
NAME	TOP	BOTTOM	THICKNESS	YES	NO	MINED OUT

See Attached

GAS AND OIL SHOWS:				
NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I 88-9
Permit #: 1379

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: High Resolution Density, Caliper, and Gemma Ray Logs

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
<u>200'</u>	<u>1/2°</u>	<u>1,600'</u>	<u>1/2°</u>
<u>400'</u>	<u>1/2°</u>	<u>1,800'</u>	<u>3/4°</u>
<u>500'</u>	<u>1/2°</u>	<u>2,000'</u>	<u>Wireline Broke</u>
<u>800'</u>	<u>1/2°</u>	<u>2,032'</u>	<u>3/4°</u>
<u>1,000'</u>	<u>1/2°</u>	<u> </u>	<u> </u>
<u>1,200'</u>	<u>1/2°</u>	<u> </u>	<u> </u>
<u>1,400'</u>	<u>1/2°</u>	<u> </u>	<u> </u>

* Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET
<u>Conductor</u>	<u>12-3/4"</u>	<u>G.L.</u>	<u>28'</u>	<u>28'</u>			
<u>Surface</u>	<u>9-5/8"</u>	<u>G.L.</u>	<u>627'</u>	<u>627'</u>	<u>338.8</u>	<u>10/31/91</u>	
<u>Water Protection</u>	<u>N/A</u>						
<u>Coal Protection</u>	<u>5-1/2"</u>	<u>G.L.</u>	<u>2,235'</u>	<u>2,235'</u>	<u>862.8</u>	<u>11/02/90</u>	<u>IRP 5-3/4" x 5-1/2" External Packer Shoe set @ 2235'</u>
<u>Other Casing and Tubing Left in Well</u>							

Liners

REMARKS: Shut down, fishing jobs, depths and dates, casing, lost circulation, etc.
Log Surface hole for Koch Carbon

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1 BB-9
Permit #: 1370

DRILLER'S LOG

Compiled by: Mike McClure

<u>GEOLOGIC</u> <u>AGE</u>	<u>FORMATION</u>	<u>GENERAL</u> <u>LITHOLOGY</u>	<u>COLOR</u>	<u>DEPTH</u> <u>TOP</u> <u>BOTTOM</u>	<u>THICKNESS</u>	<u>REMARKS</u>
Pennsylvanian	Lee/Norton	SURFACE HOLE Kennedy Seam		514' - 516'	2'	Coal

PRODUCTION HOLE
See Attached Geological Log

Permitted: OXY USA Inc  (Company)
By: _____ (Signature)

Latitude $37^{\circ}10'00''$

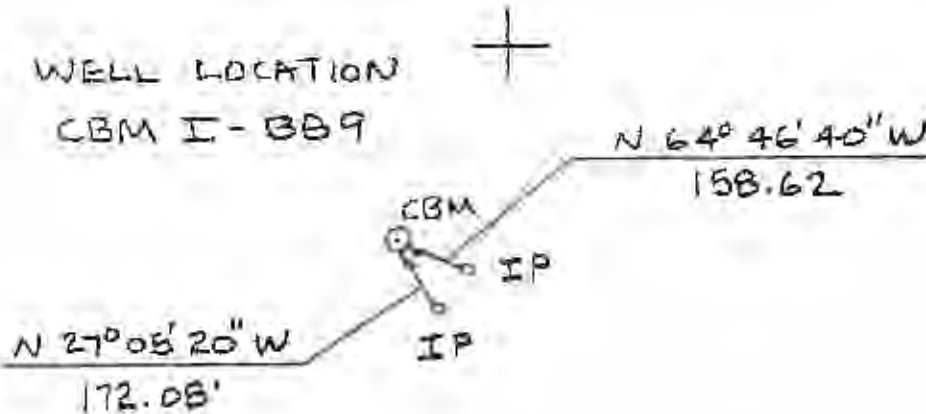


BEARING BASIS;

ISLAND CREEK COAL CO.
COORD. SYSTEM



WELL LOCATION
CBM I-BB9



Longitude $82^{\circ}02'30''$

6850'

COORDINATES OF WELL

ISLAND CREEK	N 9,295.05	E 24,768.59
VIRGINIA STATE PLANE	N 316,134.96	E 960,383.16

WELL LOCATION PLAT

Company OXY USA INC Well Name and Number CBM I-BB9
 Tract No. BIG AXE 15 Elevation 2389.74 Quadrangle VANSANT
 County BUCHANAN District HURRICANE Scale: 1" = 400' Date 9-21-91
 This Plat is a new plat ☐; an updated plat ☐; or a final location plat ☐

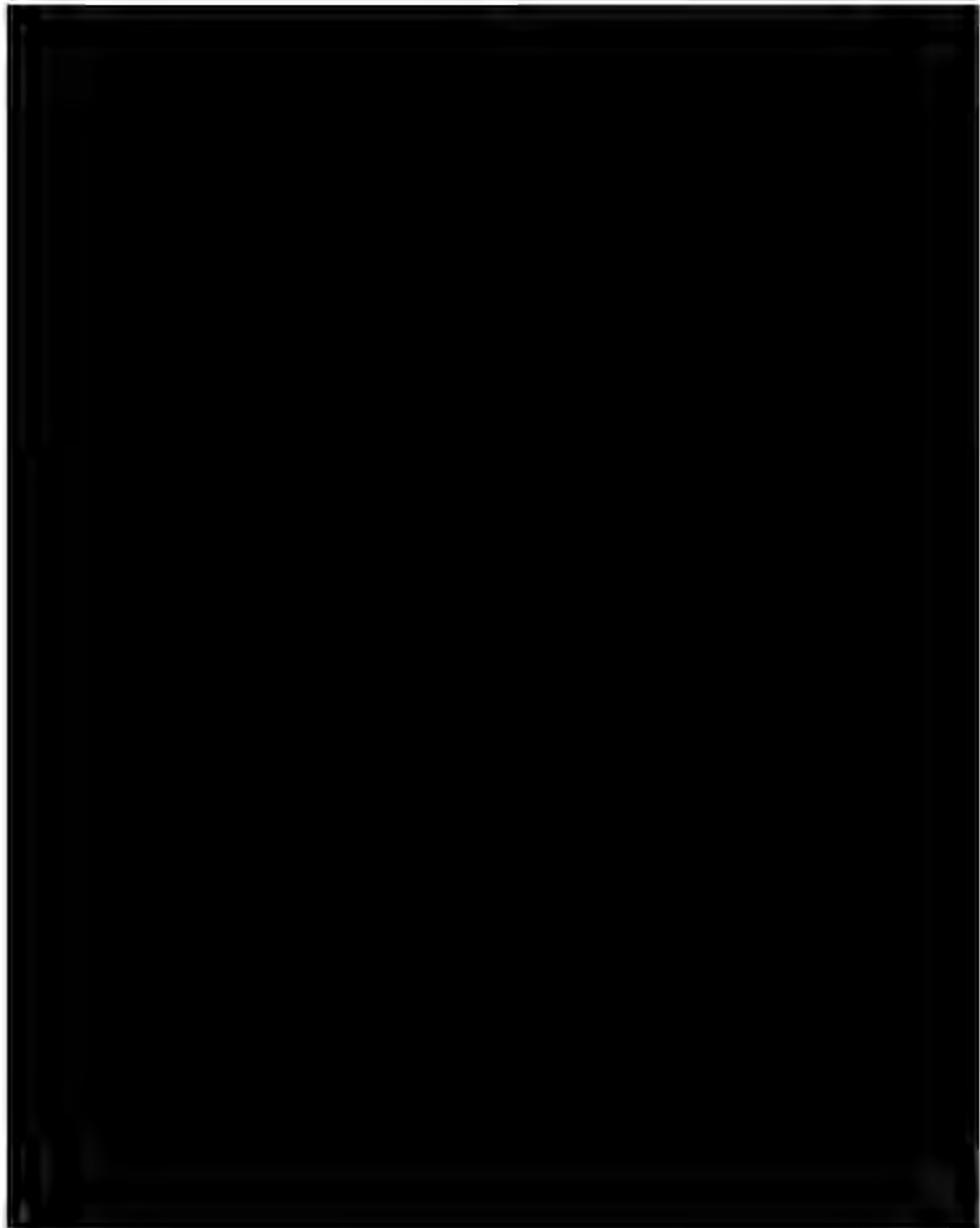
+ Denotes the location of a well on United States topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

D. R. Price
 Licensed Professional Engineer or Licensed Land Surveyor

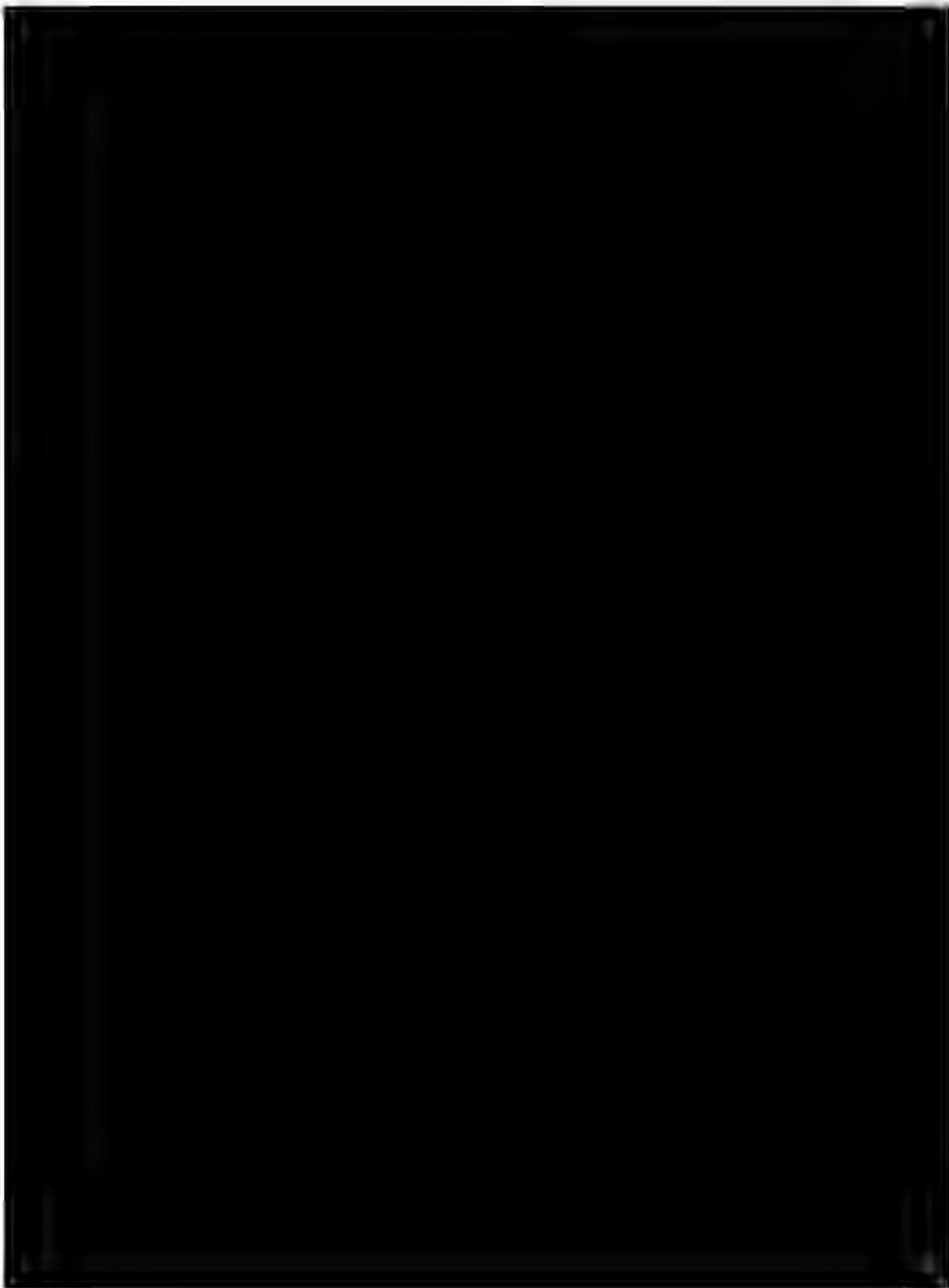
(Affix Seal)

CONFIDENTIAL

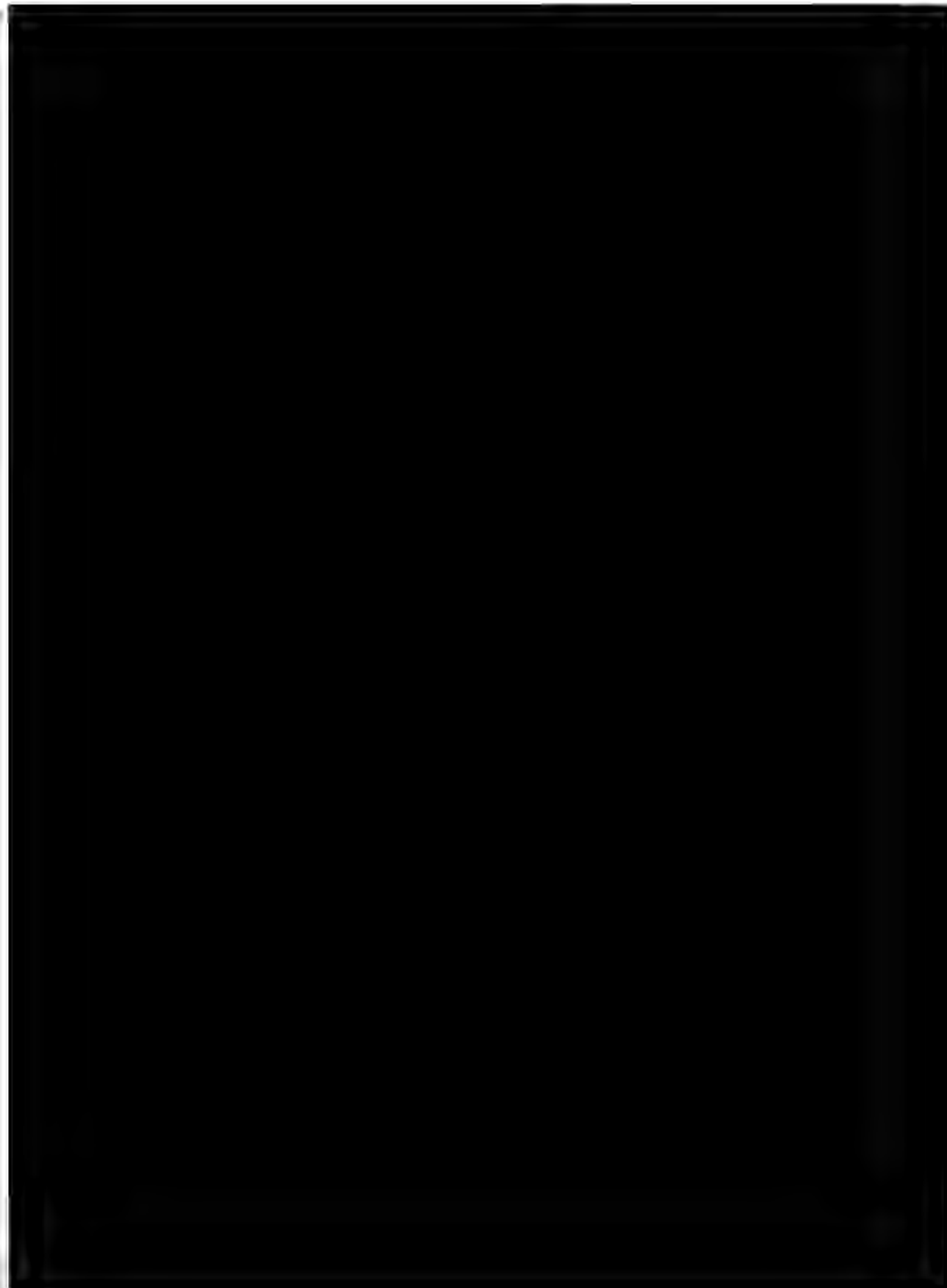
CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL

CONFIDENTIAL

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I CC-8
Permit # 1682



Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1416
Abingdon, Virginia 24210
703-678-5423



DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well CBM I CC-8
in the Hurricane District of the Buchanan City/County, Virginia on 20th day,
September month, 19 91.

LOCATION

City/County: Buchanan District: Hurricane
Surface Elevation: 1898.58' Elevation of Kelly Bushing: 1905.08' Quadrangle: Versant
8.400 FT. S. of Latitude 37° 10' 00" and 19.100 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 314,719.24 and E 957,895.02

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 08/08/91 Drilling Contractor: Gason Drilling, Inc.
Date Drilling Completed: 08/12/91 Rig Type: R Rotary Cable Tool
Total Depth of Well: 1803 KB

GEOLOGICAL DATA

Fresh Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
	<u> </u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:				MINING IN AREA		
NAME	TOP	BOTTOM	THICKNESS	YES	NO	MINED OUT

See Attached

GAS AND OIL SHOWS:				
NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM 1 CC-8
Permit #: 1683

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: High Resolution Density, Caliper, and Gamma Ray Logs

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
200'	1/4°	1,400'	1/4°
400'	1/2°	1,600'	3/4°
600'	1/2°	1,800'	3/4°
800'	1/2°		
1,000'	3/4°		
1,200'	1/2°		

*Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET
<u>Conductor</u>	12-3/4"	G.L.	23'	23'			
<u>Surface</u>	8-5/8"	G.L.	403'	403'	254	2/09/81	
<u>Water Protection</u>	N/A						
<u>Coal Protection</u>	5-1/2"	G.L.	1,752'	1,752'	586	2/11/81	

Other Casing
and Tubing Left In Well

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: CBM 1 CC-B
Permit #: 1683

DRILLER'S LOG

Compiled by: Mike McClure

<u>GEOLOGIC</u> <u>AGE</u>	<u>FORMATION</u>	<u>GENERAL</u> <u>LITHOLOGY</u>	<u>COLOR</u>	<u>DEPTH</u>		<u>THICKNESS</u>	<u>REMARKS</u>
				<u>TOP</u>	<u>BOTTOM</u>		
Pennsylvanian	Leo/Norton	SURFACE HOLE See attached driller's log.					

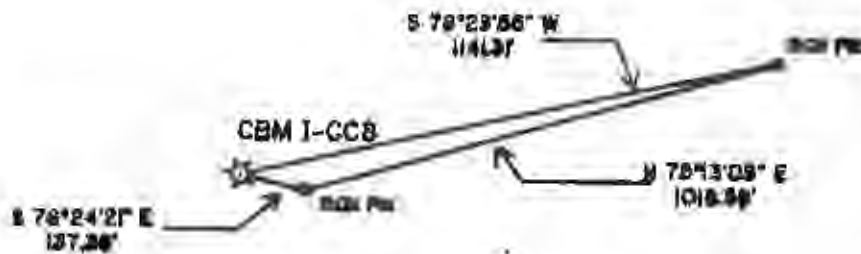
PRODUCTION HOLE ~
See Attached Geological Log

Permitted: OXY USA Inc.  (Company)
By: _____ (Signature)

LATITUDE

37° 10'

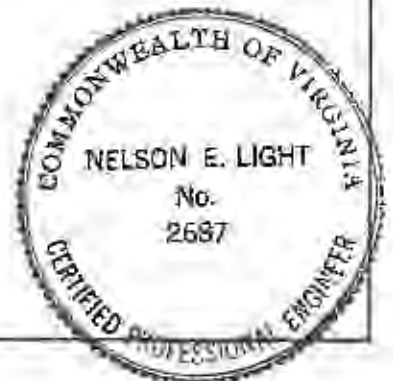
BEARING BASIS
ISLAND CRK.
JEWELL SMOKELESS
STATE PLANE
COORDINATE SYSTEMS



LONGITUDE 82° 02' 30"



ACTUAL DRILLED VALUES
N 7820.85
E 22300.93
STATE PLANE
N 314719.24
E 957895.02



WELL LOCATION PLAT

COMPANY OXY USA INC WELL NAME and No. CBM I-CC8
TRACT No. BIG AXE TR. 15 ELEVATION 1898.58' QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT HURRICANE SCALE: 1"=400' DATE 9/16/91

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.

NELSON E. LIGHT

LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR

(Affix Seal)

OXY USA DRILLING LOG

Well Name: CBM 1 CC-8			Date Spud: 8/11/91
Rig: Gasco #1			
ROCK TYPE	DEPTH		COMMENTS
	FROM	TO	
Overburden	GL	21	
Sandstone	21	150	
Shale	150	195	
Coal	195	197	
Shale	197	225	
Coal	225	226	Raven #2
Shale	226	245	
Sandstone	245	350	
Shale	350	375	
Coal	375	376	Jawbone #2
Sandstone	376	455	
Coal	455	456	
Shale	456	495	
Coal	495	497	
Sand/Shale	497	510	
Sandstone	510	680	
Shale	680	720	
Sand/Shale	720	780	
Shale	780	830	
Sandstone	830	850	
Coal	850	852	
Shale/Sand	852	885	
Coal	885	886	
Shale	886	950	
Sand/Shale	950	970	
Coal	970	972	
Shale	972	990	
Sandy Shale	990	1150	
Coal	1150	1152	
Sandy Shale	1152	1185	
Coal	1185	1186	
Shale	1186	1280	
Sandy Shale	1280	1290	
Coal	1290	1292	
Sandy Shale	1292	1325	
Sandstone	1325	1505	
Shale	1505	1530	

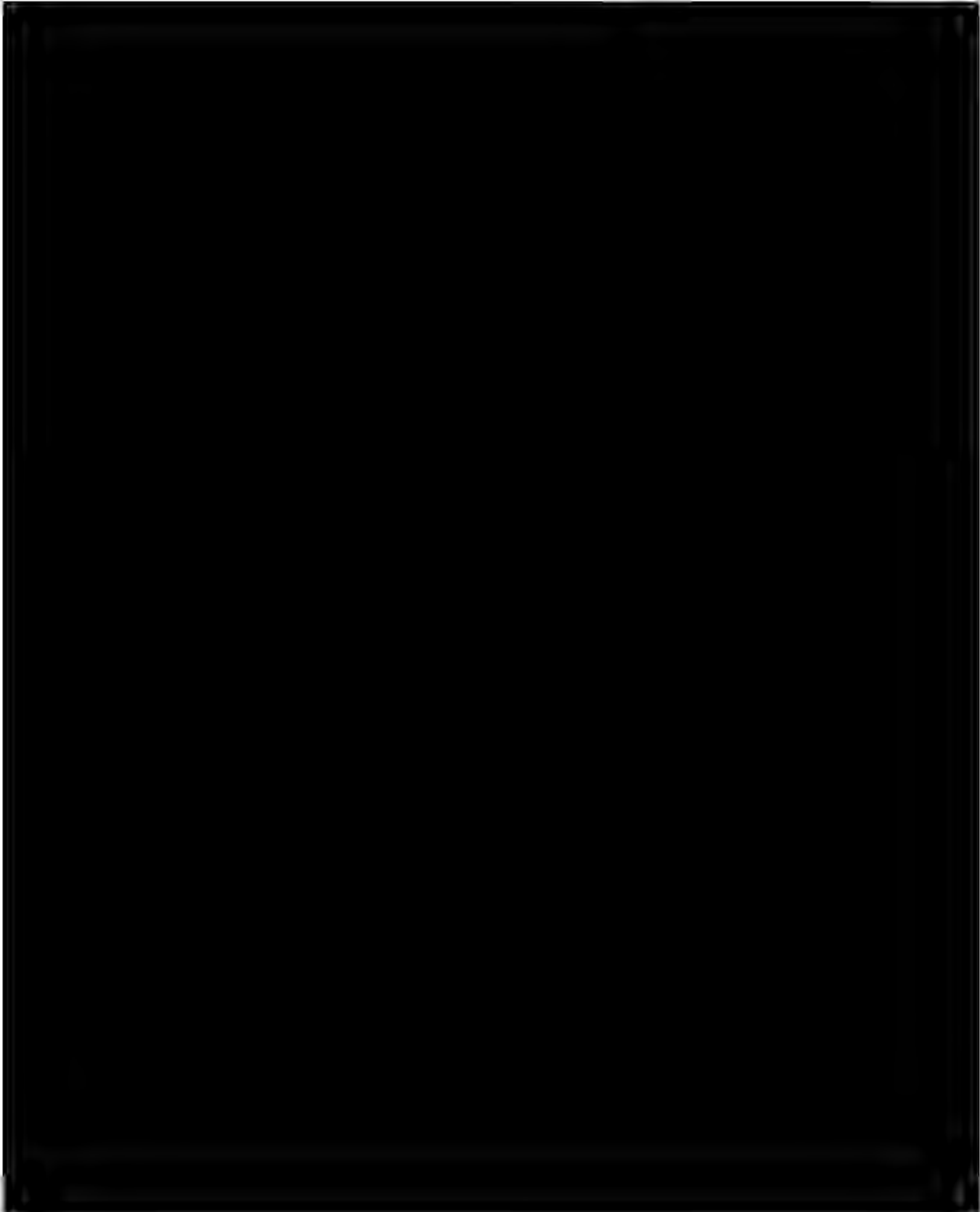
[REDACTED]

[REDACTED]

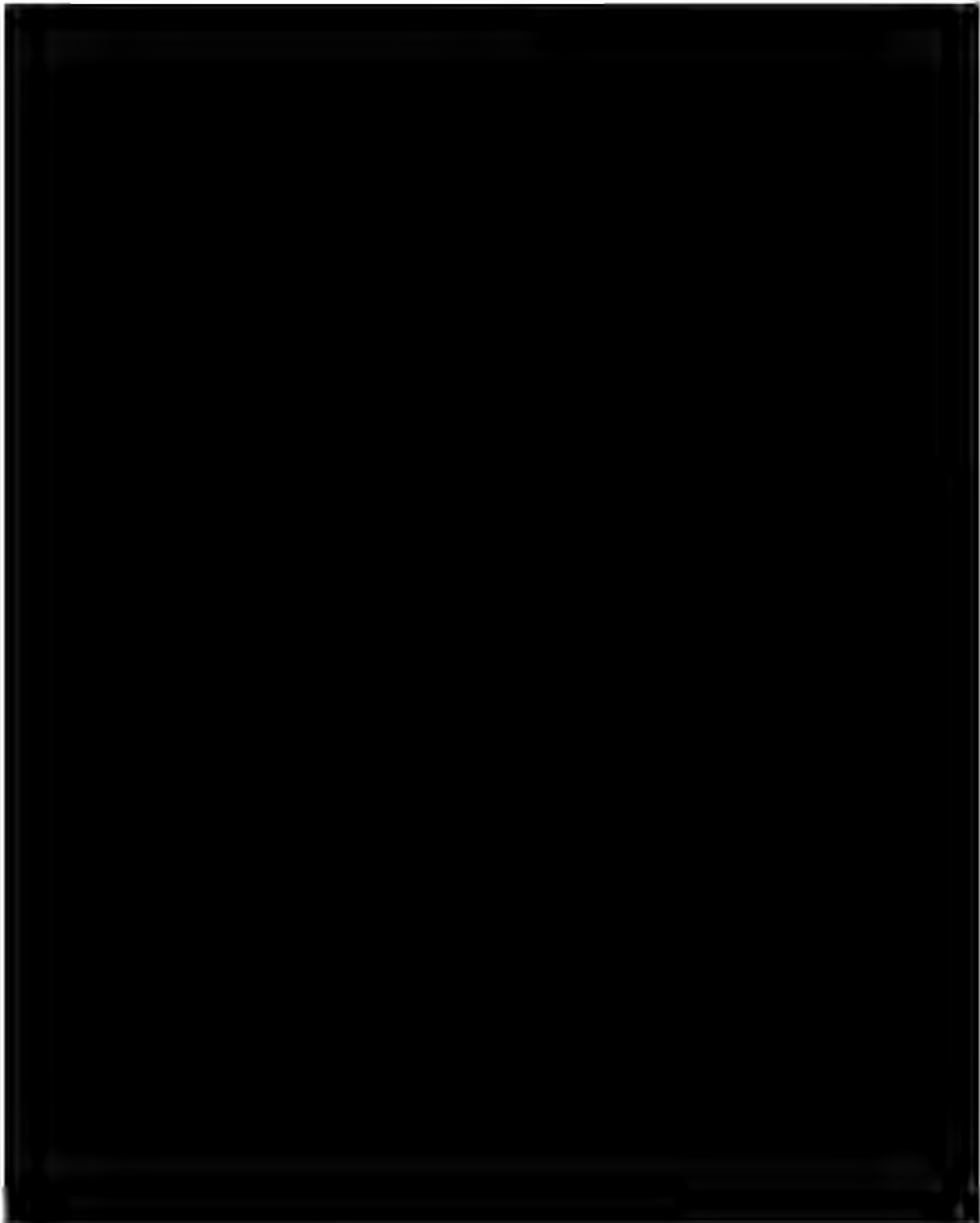
CONFIDENTIAL

[REDACTED]

CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL

[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I CC-9
Permit # 1654



Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1416
Abingdon, Virginia 24210
703-676-6423



DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well CBM I CC-9
in the Hurricane District of the Buchanan City/County, Virginia on 20th day,
September month, 1991.

LOCATION

City/County: Buchanan District: Hurricane
Surface Elevation: 1879.81' Elevation of Kelly Bushing: 1886.11' Quadrangle: Vansant
7,860 FT. S. of Latitude 37° 10' 00" and 8,840 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 315,166.65 and E 959,103.96

Attach a final location plat as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 08/11/91 Drilling Contractor: Gasco Drilling, Inc.
Date Drilling Completed: 08/13/91 Rig Type: R Rotary C Cable Tool
Total Depth of Well: 1800' KB

GEOLOGICAL DATA

Fresh Water at:	<u>None</u> Feet	<u> </u> GPM	<u> </u> Feet	<u> </u> GPM
	<u> </u> Feet	<u> </u> GPM	<u> </u> Feet	<u> </u> GPM
	<u> </u> Feet	<u> </u> GPM	<u> </u> Feet	<u> </u> GPM
Salt Water at:	<u>None</u> Feet	<u> </u> GPM	<u> </u> Feet	<u> </u> GPM
	<u> </u> Feet	<u> </u> GPM	<u> </u> Feet	<u> </u> GPM
	<u> </u> Feet	<u> </u> GPM	<u> </u> Feet	<u> </u> GPM

COAL SEAMS:	MINING IN AREA					
	NAME	TOP	BOTTOM	THICKNESS	YES	NO

See Attached

GAS AND OIL SHOWS:

NAME	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
------	-----------	-----------------	----------	--------------

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM I CC-8
Permit #: 1534

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:

Log logs run on wellbore: High Resolution Density, Caliper, and Gamma Ray Logs

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
<u>200'</u>	<u>1 1/2°</u>	<u>1,400'</u>	<u>1 1/2°</u>
<u>400'</u>	<u>3/4°</u>	<u>1,600'</u>	<u>3/4°</u>
<u>600'</u>	<u>3/4°</u>	<u>1,800'</u>	<u>3/4°</u>
<u>800'</u>	<u>3/4°</u>	<u> </u>	<u> </u>
<u>1,000'</u>	<u>3/4°</u>	<u> </u>	<u> </u>
<u>1,200'</u>	<u>3/4°</u>	<u> </u>	<u> </u>

*Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET		
<u>Conductor</u>	<u>12-3/4"</u>	<u>G.L.</u>	<u>28'</u>	<u>28'</u>					
<u>Surface</u>	<u>9-5/8"</u>	<u>G.L.</u>	<u>394'</u>	<u>394'</u>	<u>396</u>	<u>8/12/81</u>			
<u>Water Protection</u>	<u>N/A</u>								
<u>Coal Protection</u>	<u>5-1/2"</u>	<u>G.L.</u>	<u>1,791'</u>	<u>1,791'</u>	<u>357</u>	<u>8/13/81</u>			
<u>Other Casing and Tubing Left in Well</u>									

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: CBM LOC-5
Permit #: 1864

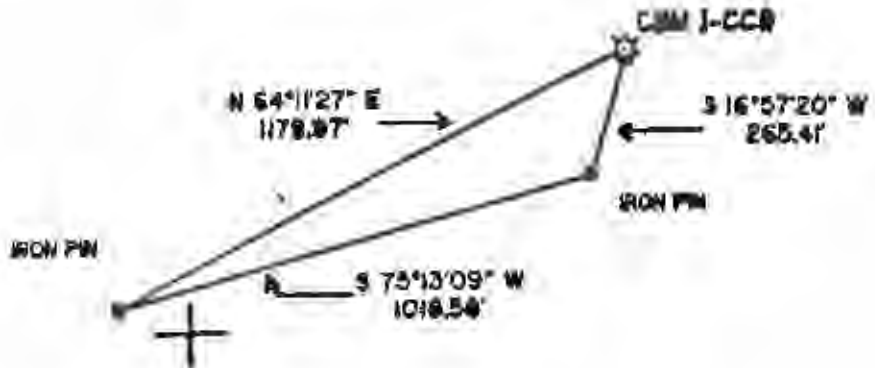
DRILLER'S LOG

Compiled by: Mike McClure

<u>GEOLOGIC</u> <u>AGE</u>	<u>FORMATION</u>	<u>GENERAL</u> <u>LITHOLOGY</u>	<u>COLOR</u>	<u>DEPTH</u>		<u>THICKNESS</u>	<u>REMARKS</u>
				<u>TOP</u>	<u>BOTTOM</u>		
Pennsylvanian	Lee/Norton	SURFACE HOLE Raven #2 Sdm		228'	230'	2'	Coal

PRODUCTION HOLE
See Attached Geological Log

Permitter: OXY USA Inc  [Compens]
By: [Signature] [Signature]



LONGITUDE 82° 02' 30" 7860'

ACTUAL DRILLED VALUES
N 8302.29
E 23496.73
STATE PLANE
N 315166.65
E 959103.96



WELL LOCATION PLAT

COMPANY OXY USA INC. WELL NAME and No. CBM 1-CC9
TRACT No. BIG AXE TR 15 ELEVATION 1879.61' QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT HURRICANE SCALE: 1"=400' DATE 9/18/91

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.

NELSON E. LIGHT

LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR

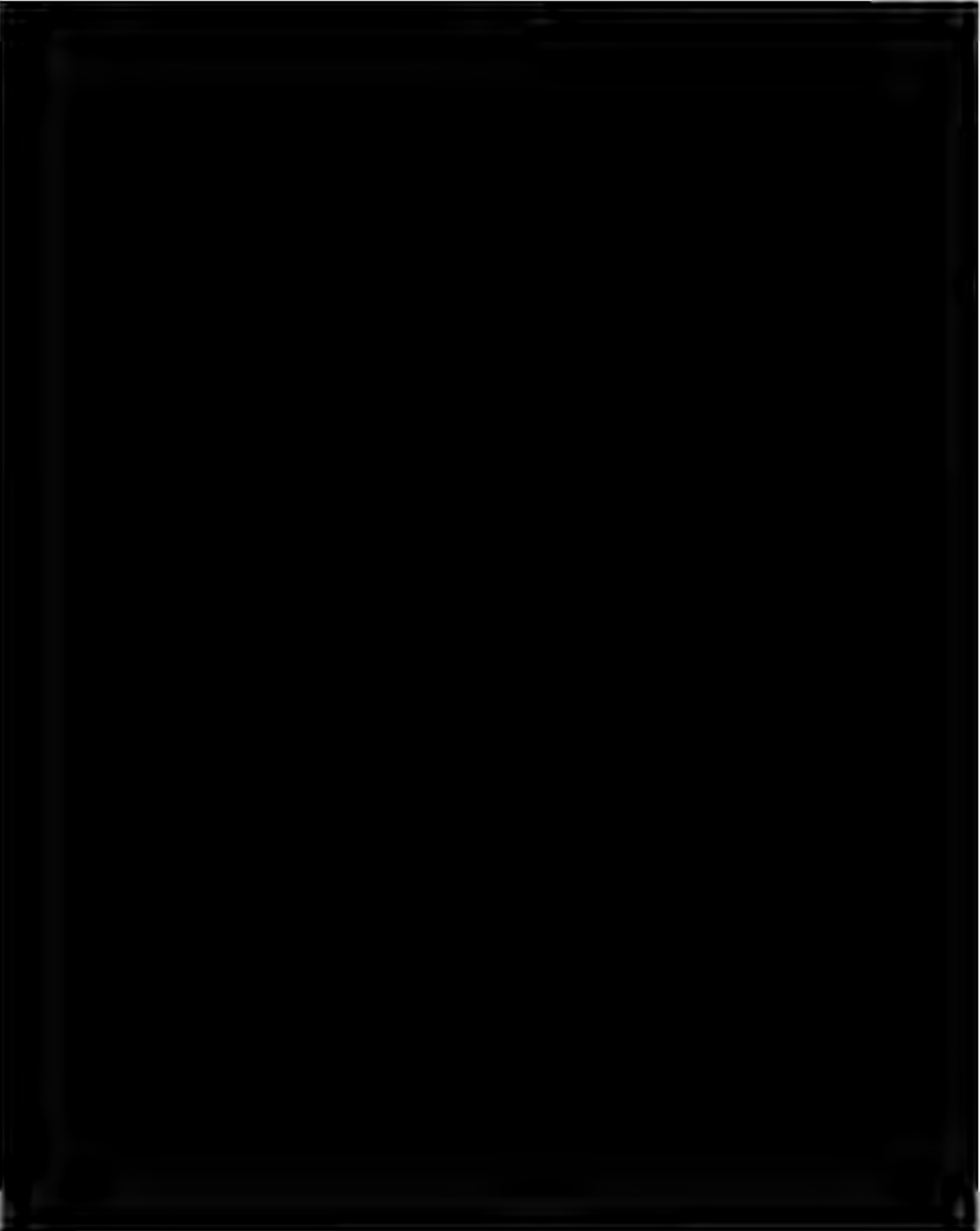
LATEX 5000

CONFIDENTIAL

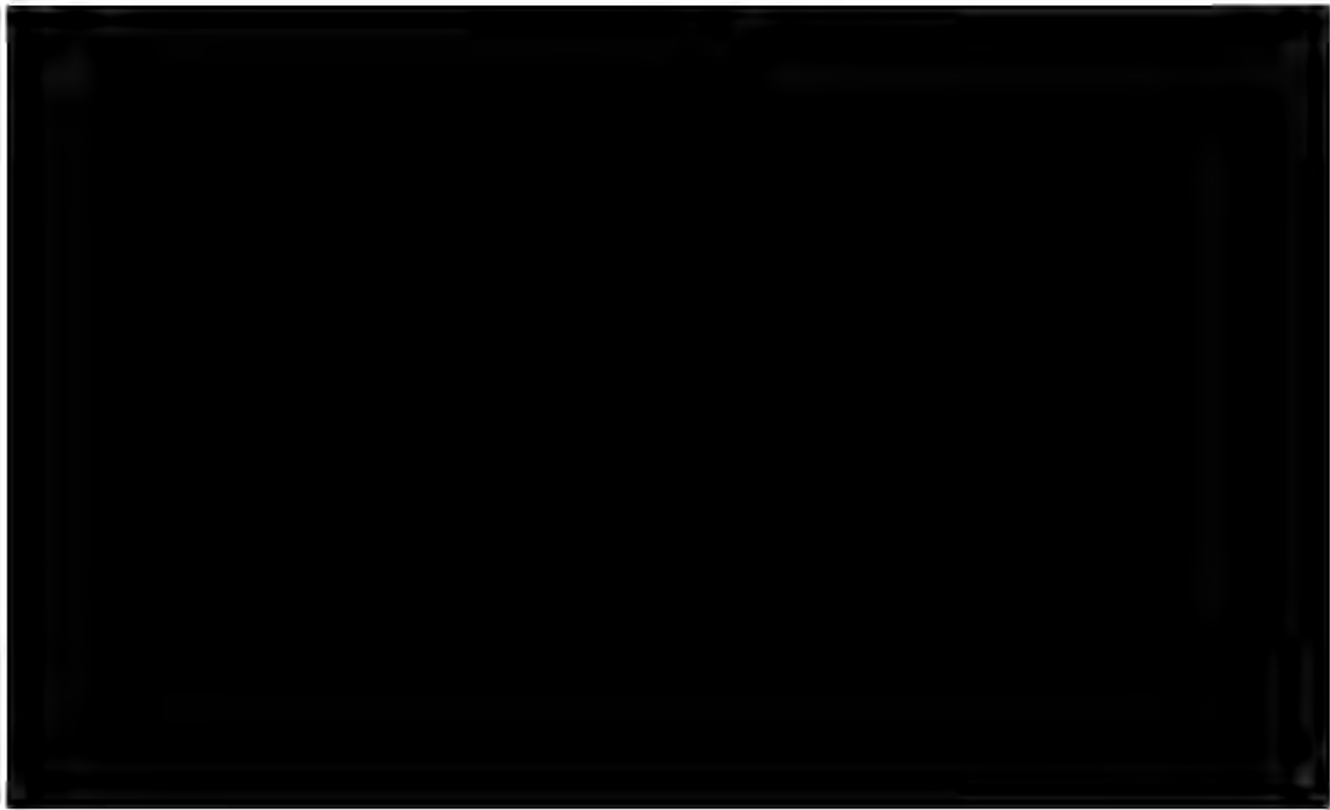
CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL



CONFIDENTIAL



Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM ICC-10
Permit #: 1625



Department of Mines, Minerals and Energy
Division of Gas and Oil
P. O. Box 1418
Abingdon, Virginia 24210
703-678-5423



DRILLING REPORT

Pursuant to VR-480-05-22.1, § 1.36, the undersigned Permittee submits this report on Well CBM ICC-10
in the Hurricane District of the Buchanan City/County, Virginia on 20th day,
September month, 1991.

LOCATION

City/County: Buchanan District: Hurricane
Surface Elevation: 1863.18' Elevation of Kelly Bushing: 1869.68' Quadangle: Versant
8,360 FT. S. of Latitude 37° 10' 00" and 5,420 FT. W. of Longitude 82° 02' 30"
or, State Plane Coordinates: N 314,468.80 and E 961,549.78

Attach a final location plot as required by VR 480-05-22.1, § 1.36.

DRILLING DATA

Date Drilling Commenced: 08/23/91 Drilling Contractor: Gasco Drilling, Inc.
Date Drilling Completed: 08/27/91 Rig Type: X Rotary Cable Tool
Total Depth of Well: 1888 KB

GEOLOGICAL DATA

Free Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
Salt Water at:	<u>None</u>	Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM
		Feet	<u> </u>	GPM	<u> </u>	Feet	<u> </u>	GPM

COAL SEAMS:						
NAME	TOP	BOTTOM	THICKNESS	YES	MINING IN AREA	MINED OUT
					NO	

See Attached

GAS AND OIL SHOWS:				
NAME	THICKNESS	IPF (MCFO/BOPD)	PRESSURE	HOURS TESTED

See Attached

Department of Mines, Minerals and Energy
Division of Gas and Oil

Operations Name: CBM1 CC-10
Permit #: 1825

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: High Resolution Density, Caliper, and Gamma Ray Logs

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
200'	1/2°	1,400'	1°
400'	1/2°	1,500'	1°
600'	1/2°	1,800'	1-1/4°
800'	3/4°		
1,000'	1/2°		
1,200'	3/4°		

*Use additional sheets if necessary.

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	CEMENT USED IN CU/FT	DATE CEMENTED	PACKERS OR BRIDGE PLUG KIND SIZE SET		
<u>Conductor</u>	12-3/4"	G.L.	28'	28'					
<u>Surface</u>	9-5/8"	G.L.	386'	386'	215	8/23/81			
<u>Water Protection</u>	N/A								
<u>Coal Protection</u>	5-1/2"	G.L.	1,782'	1,782'	608	8/27/81			
<u>Other Casing and Tubing Left in Well</u>									

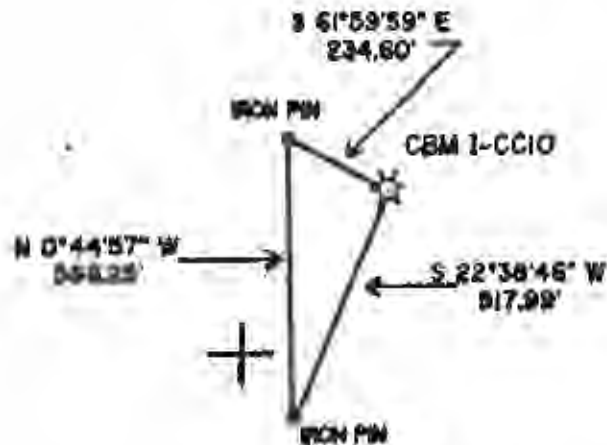
Liners

REMARKS: Shut down, fishing jobs, depths and dates, caving, lost circulation, etc.
Shut down 8/23/81 - 8/25/81

LATITUDE

37° 10'

BEARING BASIS
ISLAND CRK.
JEWELL SMOKELESS
STATE PLANE
COORDINATE SYSTEMS



82° 02' 30"

LONGITUDE

ACTUAL DRILLED VALUES

N 7673.92
E 25961.32
STATE PLANE
N 314468.80
E 961549.78



WELL LOCATION PLAT

COMPANY OXY USA INC. WELL NAME and No. CBM 1-CC10
TRACT No. BIG AXE TR. 15 ELEVATION 1863.8' QUADRANGLE VANSANT
COUNTY BUCHANAN DISTRICT HURRICANE SCALE: 1"=400' DATE 9/18/91

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

NELSON E. LIGHT

(Affix Seal)

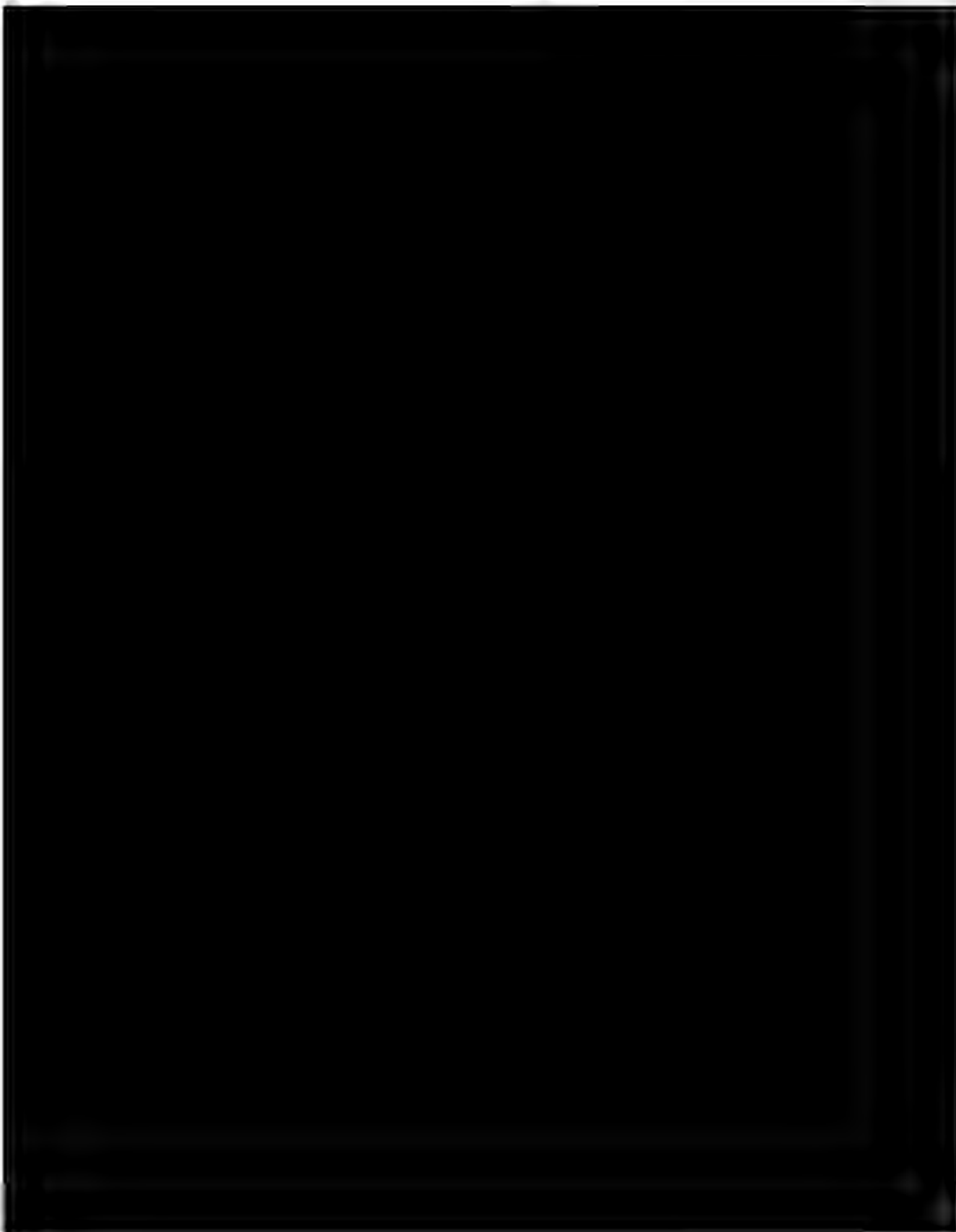
OXY USA DRILLING LOG

Well Name: CBM I CC-10			Date Spud: 8/22/91
Rig: Gasco #1			
ROCK TYPE	DEPTH		COMMENTS
	FROM	TO	
Overburden	GL	22	Kennedy Bench
Sandstone	22		
Sandstone	408	495	
Shale	495	615	
Coal	615	617	
Shale	617	780	
Coal	780	782	
Shale	782	790	
Sandstone	790	800	
Shale	800	840	
Coal	840	844	Middle Seaboard 20
Shale	844	870	
Coal	870	872	Lower Seaboard 10
Sand/Shale	872	905	
Shale	905	915	
Coal	915	916	
Shale	916	980	
Coal	980	982	Middle Horsepen 10
Sandstone	982	1020	
Coal	1020	1021	
Sandstone	1021	1065	
Coal	1065	1067	
Sandstone	1067	1135	
Coal	1135	1137	War Creek 10
Shale	1137	1160	
Coal	1160	1161	War Creek 15
Shale	1161	1220	
Sandstone	1220	1380	
Shale	1380	1410	
Sandstone	1410	1715	
Coal	1715	1718	Pocahontas #3-10
Sandy Shale	1718	1742	
Coal	1742	1744	Pocahontas #3-30
Sandstone	1744	1790	
Coal	1790	1793	Pocahontas #2

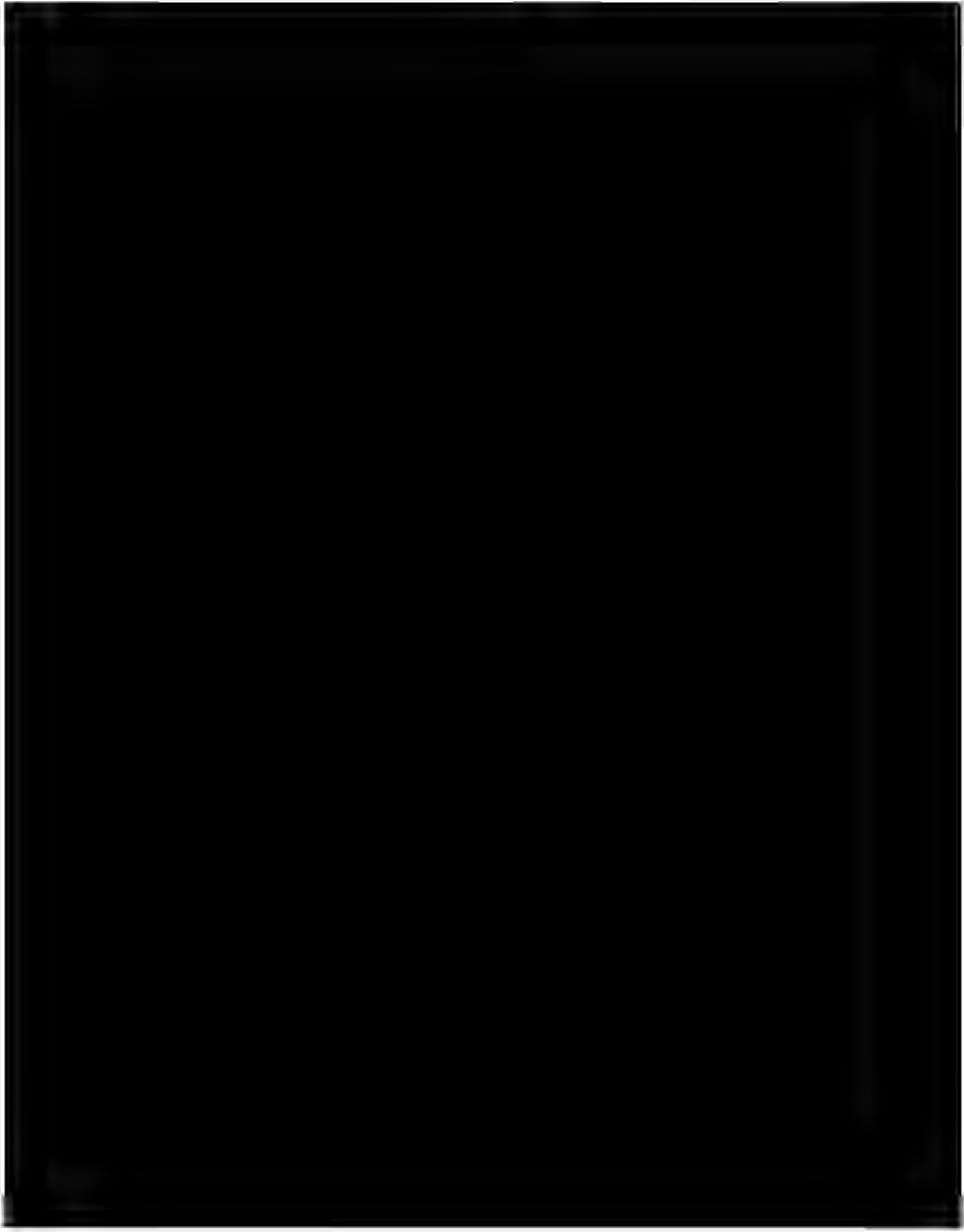
CONFIDENTIAL



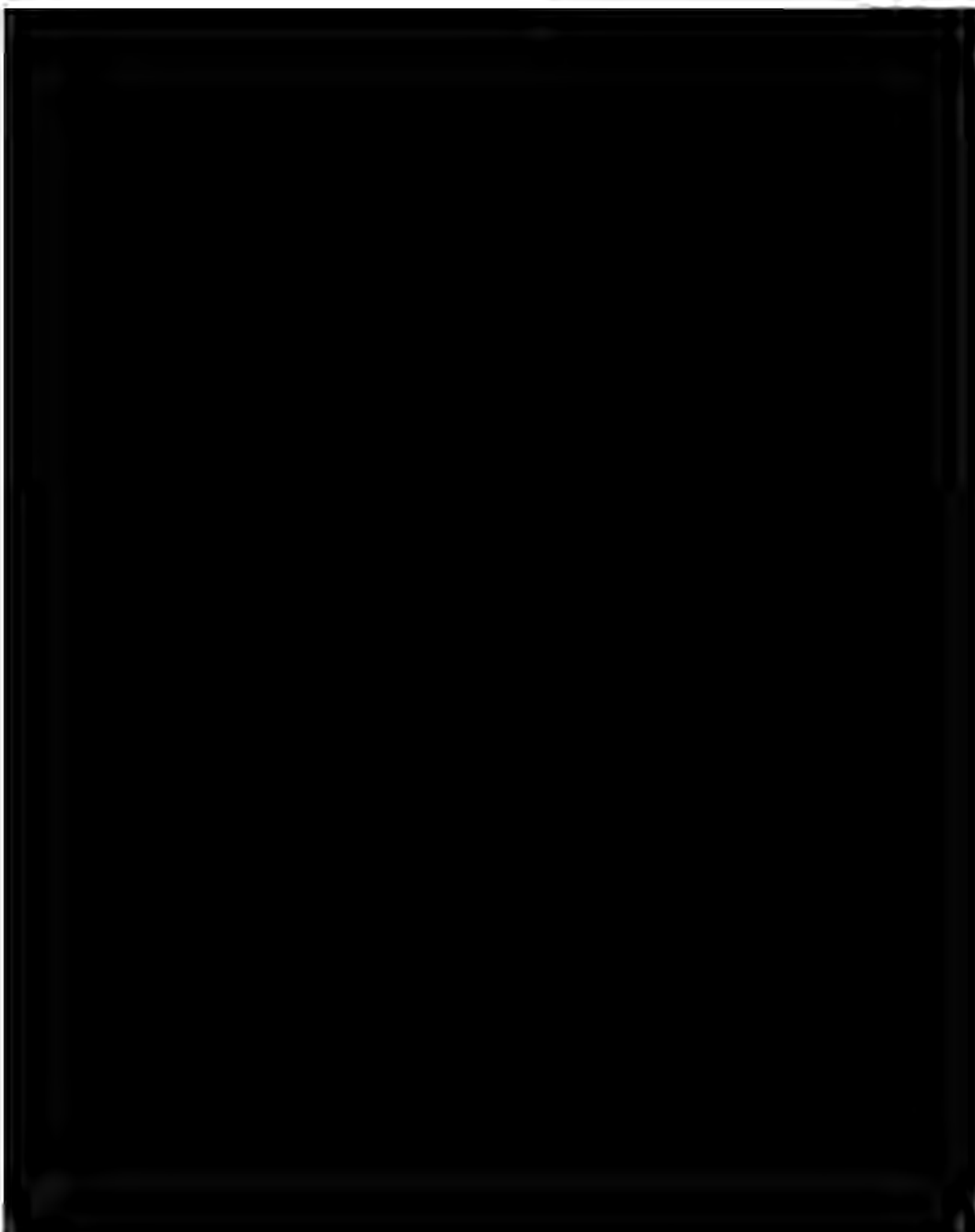
CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL



[REDACTED]

[REDACTED]

CONFIDENTIAL

[REDACTED]

MEMORANDUM

To: The Files
From: Jay Henderson *JH*
Subject: File BU-120
Date: November 1, 1988

The above referenced well file has been removed from the active inspection list. This action was taken because:

- ☒ The well was plugged more than 3 years ago. *1974*
- ☐ The well was not drilled and the permit has been cancelled.
- ☐ The well was not drilled and the company is no longer active in the state. This file will be put on the active inspection list when and if any activities are performed at the site.
- ☐ Other _____

DEPARTMENT OF LABOR AND INDUSTRY
DIVISION OF MINES AND QUARRIES
BIG STONE GAP, VIRGINIA 24219

AFFIDAVIT OF PLUGGING AND FILLING WELL

(Required by Section 45.1-128, Code of Virginia, 1966)

(Affidavit should be made in Triplicate: One copy mailed to the Division of Mines, one copy retained by the well operator, and the third copy (additional copies if required) mailed to any (each) interested mine owner or operator.)

<u>Junior Ratliff</u> Mine Operator or Owner <u>Grundy, Virginia 24614</u> Address Address	<u>Adjoining Well Operator</u> Address Address (Submit additional names and addresses, if any, on attached sheet.)
--	---

<u>Department of Labor and Industry</u> <u>Division of Mines and Quarries</u> <u>Big Stone Gap, Virginia 24219</u> September 16, 1974 Date	<u>Columbia Gas Transmission Corporation</u> <u>Well Operator</u> <u>P. O. Box 1273</u> Address <u>Charleston, West Virginia 25325</u> Address
--	---

<u>Well No. 9721-T</u> <u>Permit No. 108</u>	<u>Well and Location</u> <u>Hurricane</u> <u>Buchanan</u> <u>Landon R. Wyatt, et. al.</u> <u>Form</u>	<u>District</u> <u>County</u>
---	---	----------------------------------

AFFIDAVIT

State of Virginia Kentucky
County of Buchanan Johnson
Harry Roberts and Curtis Allen
being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by Columbia Gas Transmission Corp.
t well operator, and participated in the work of plugging and filling the above well; that said work was commenced on the 29th day of August, 1974, and that the well was plugged and filled in the following manner:
(over)

RECEIVED
MINE DIVISION
VA. DEPT. OF LABOR & INDUSTRY
OCT 18 1974
7:18, 9, 10, 11, 12, 1, 2, 3, 4, 5, 6 PM

Sand or Zone		Filling Material		Plugs Used	Casing	
Formation	Content	From	To	Size and Type	CGS Pulled	CGS Left In
Sandy Shale			2980	4 1/2" Cast Iron Bridge Plug		
Sandy Shale		2980	2950	Cement		
Shale & Sand		2590	1942	Gel	2590	497' of 4 1/2" Casing
Red Rock		1942	1806	Cement		
Sand & Shale		1806	1036	Gel		1935' of 8 5/8" Cs
Hard Sand		1036	924	Cement		
Shale, Coal and Sand		924	95	Gel		
Surface		95	Surface	Cement		31' of 13 3/8" Csg Cemented in
Coal Seams ALL COAL SEAMS CEMENTED BEHIND 8-5/8" CASING.				Description of Monument		
(Name)				Left 8 5/8" casing filled with cement with		
(Name)				Company Name, date plugged and number of		
(Name)				Well inscribed in top of monument.		
(Name)						
(Name)						
(Name)						

(Give additional information on supplemental sheet and attach same hereto.)

that the work of plugging and filling said well was completed on the 5th day of Sept., 1974 that a "bleeder pipe" was (or was not) installed, and that a permanent monument of concrete (or concrete and iron) was erected over the well location in compliance with the provisions of Chapter 12, Title 45, Code of Virginia, 1960 and the 1972 Cumulative Supplement.

And further deponents saith not.

Harry S. Roberts
Garth Allen

Sworn to and subscribed before me this 2nd day of October, 1974.

Margaret J. Wells
 Notary Public
State of Large

My commission expires September 28, 1977.

ALSO NOTIFY:

Hensley Price
Address not available

Thompson & Litton, Inc.
P.O. Box 1307
Wise, Virginia 24293

Wyatt Buick Sales
P.O. Box 1566
Danville, Virginia 24540

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF LABOR AND INDUSTRY
DIVISION OF MINES
Big Stone Gap, Virginia

NOTICE OF INTENTION TO PLUG AND ABANDON WELL

(Required by Section 45-128, Code of Virginia, 1950)

TO: Department of Labor and Industry
Division of Mines
Big Stone Gap, Virginia

August 7, 1974

Junior Ratliff

Mine Operator or Owner

Grundy, Virginia 24614

Address

Address

Hensley Price

Lessee or Property Owner

Not Available

Address

Address

Adjoining Well Operator

Address

Address

Adjoining Property Owner

Address

Address

(Submit additional names and addresses, if any, on attached sheet.)

Well to be abandoned and plugged

Hurricane District

Buchanan County

Well No. 9721-T

Landon R. Wyatt, Sr., et al Farm

Permit No. 108

Exploratory Field

Columbia Gas Transmission Corporation

Name of Operator

J. Wyatt Buick Sales

Address

Box 1566

Danville, Virginia 24540

Gentlemen:

The undersigned well operator is about to abandon the above described well and will commence the work of plugging, filling and abandoning said well on the _____ of August 1974, (which date shall not be less than seven days after the day on which this notice is mailed).

You are hereby notified that whether you are represented or are not represented the undersigned will proceed on that date to plug and fill said well in the manner required by Sections 45-128 and 45-129, Code of Virginia, 1950, and given in detail in the "Work Order" on the reverse side of this notice.

This notice is being sent by registered mail to each of you at the above addresses on the above date.

Very truly yours,

Columbia Gas Transmission Corporation

Well Operator

P. O. Box 1273

Address

Charleston, West Virginia 25325

Address


This form must be signed by authorized person
Superintendent of Production & Pipelines

Permit No. 108

File No. BU-100

(over)

NOTE:

Also Notify

Thompson and Litton, Inc.

P. O. Box 1307

Wise, Virginia 24293

RECEIVED
MINE DIVISION
VA. DEPT. OF LABOR & INDUSTRY
AUG - 9 1974
AM 8 18 9 10 11 12 1 2 3 4 5 6 PM

(Required by Section 45-124, Code of Virginia, 1950.)

DEPARTMENT OF LABOR AND INDUSTRY

DIVISION OF MINES

Big Stone Gap, Virginia

WORK ORDER

Well to be plugged and filled as follows:

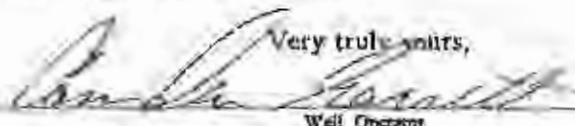
1. Set bridge plug at 2980 feet and cement back to 2780 with 17 cubic feet or 15 sacks of cement.
2. Back 4-1/2 inch casing off at 2030 feet and circulate hole with 137 barrels of 6% gel.
3. Pull 4-1/2 inch casing to 1950 feet and cement from 1950 to 1850 with 30 cubic feet or 25 sacks of cement.
4. Pull 4-1/2 inch casing to 1050 and cement from 1050 to 950 with 25 cubic feet or 21 sacks of cement.
5. Pull 4-1/2 inch casing to 100 feet and cement from 100 to Surface with 25 cubic feet or 21 sacks of cement.
6. Erect a 3 foot monument with company name, serial number of well and date plugged inscribed on monument.

TO: The Division of Mines
and other interested persons

Gentlemen:

This "work order" is submitted for your approval and concurrence and unless notified of your disapproval or nonconcurrence, the undersigned will proceed with the plugging and filling of said well in the above described manner on the date stated in the Notice of Intention to Plug and Abandon Well on the opposite side of this sheet.

Very truly yours,


Well Operator

Columbia Gas Transmission Corporation

The plugging and filling of the aforementioned well in the manner designated in the "Work Order" and in compliance with the provisions of Chapter 8, Title 45, Code of Virginia, 1950, is hereby approved this 9th day of August, 1958

DIVISION OF MINES

By


Title

Note: This "work order" shall be filed in triplicate; one copy for the files of the Division of Mines; one to be approved or corrected by the Division of Mines and returned to the well operator as his authority for plugging and filling said well; and one (additional copies, if required) to be sent interested parties cited in Chapter 8, Title 45, Code of Virginia, 1950.

Well No. 9721-T
 Landon R. Wyatt, et al
 Lease No. 65313
 Left Fork of Hurricane Creek
 Buchanan County, Virginia

Fill	0	5
Blue Mud	5	20
Shale	20	72
Sand	75	140
Shale	140	230
Sand	230	310
Shaly Sand	310	470
Shale	470	588
Coal	588	590
Sand	590	630
Sand & Shale	630	890
Sandy Shale	890	1020
Hard White Sand	1020	1535
Black Shale	1535	1655
White Sand	1655	1750
Shaly Sand	1750	1796
Sand	1796	1845
Red Rock	1845	1865
Shale	1865	1905
Red Rock	1905	1960
Shale	1960	2040
Sandy Shale	2040	2248
Shale	2248	2360
Ravencliff Sand	2360	2545
Shale	2545	2620
Sand	2620	2665
Sandy Shale	2665	2735
U. Maxon Sand	2735	2793
Sandy Shale	2793	3000
M. Maxon Sand	3000	3089
Sandy Shale	3089	3118
Sand	3118	3140
Shale	3140	3208
Sand	3208	3228
Sandy Shale	3228	3288
L. Maxon Sand	3288	3350
Shale	3350	3494
Lime	3494	3552
Shale	3552	3586
Little Lime	3586	3668
Pencil Shale	3668	3672
Big Lime	3672	4220
Injun	4220	4274
Weir Shells	4274	4512
Gray Shale	4512	4816
Coffee Shale	4816	4883
Berea Sand	4883	4895
Gray Shaly Shale	4895	5864
Brown Shale	5864	6160
Gray Shale	6160	6497
Brown Shale	6497	6760
Total Depth		6750

FORMATIONS: (RKE ELEVATION)

Salt Sand	1020-1845
Avoncliff Sand	2360-2545
Upper Maxon Sand	2735-2793
Middle Maxon Sand	3000-3089
Lower Maxon Sand	3288-3350
Big Lime	3672-4220
Berea Sand	4883-4895
Brown Shale	4895-6760
Total Depth	6760

Brown Shale Shot from 5567-6760
with 12,400 lbs. of 80% gelatin.
Gas gauged before Shot 280 mcf
Gas gauged after shot 270 mcf
Well was plugged back to 3085 feet

Gas Pys: (RKE Elevation)

Gas gauged 4 1/2" W 2" at 3005 feet

Casing Points - Cemented

20"	21'	21 to Surface
13-3/8"	30'	30 to Surface
8-5/8"	1909'	1909 to Surface
4-1/2"	3068'	3068 to 2650

Left-Right Wipple and Collar at 2030
Fractured Middle Maxon Sand from
3004-3010 with 21,462 barrels of
sand laden fluid and 22,000 lbs.
of 20/40 mesh sand .
Open flow before frac 270 mcf
Open flow after frac - dry

1. Set bridge plug at 2980 feet and cement back to 2780 with 17 cubic feet or 15 sacks of cement.
2. Back 4-1/2 inch casing off at 2030 feet and circulate hole with 137 barrels of 6% gel.
3. Pull 4-1/2 inch casing to 1950 feet and cement from 1950 to 1850 with 30 cubic feet or 25 sacks of cement.
4. Pull 4-1/2 inch casing to 1050 and cement from 1050 to 950 with 25 cubic feet or 21 sacks of cement.
5. Pull 4-1/2 inch casing to 100 feet and cement from 100 to Surface with 25 cubic feet or 21 sacks of cement.
6. Erect a 3 foot monument with company name, serial number of well and date plugged inscribed on monument.

(To be filled in by
Division of Mines)

COMMONWEALTH OF VIRGINIA

(To be filled in by
Division of Mines)

For assistance in accessing this document, contact R3-5113 Mailbox@epa.gov

DICKINSON
County

DIVISION OF MINES

Well No. 9221-THILKRICANE
District

BIG STONE GAE, VIRGINIA

Permit No. 1628VANSANT QUAD
MapDEEPEENED
OIL AND GAS WELL COMPLETION REPORT
ABANDONMENT

Office No. _____

Location Plat. _____

B11-120
File(This report and a copy of electrical log, if made, must
be submitted to the Division of Mines within 30 days after
abandonment or completion of well, as required by Section
45-113, Code of Virginia, 1950.)Company Columbia Gas Transmission Corporation

F. O. Box 1273

Farm Landon R. Wyatt, et. al.Address Charleston, West Virginia 25325County BuchananAcres 17,596 17/48Well No. (Company) 9721-TDistrict HilkricaneElevation (ground surface) 1713.51 ft.

Location: (Give direction and distance in feet or tenths of a mile from two (2) location reference points or map coordinates shown on location plat or map previously filed with the Division of Mines or shown on quadrangle topographic map of area.)

200 feet South East of The Mouth of Sad Branch and2650 feet South East of The Mouth of Happy BranchSurface of tract is owned in fee simple by Landon R. Wyatt, Trustee
Address P.O. Box 1546 - Danville, Virginia 24540Mineral rights are owned by sameAddress J. B. Reynolds 1/5/72Location made by September 23, 1972Drilling commenced October 7, 1972Drilling completed Plugged and Abandoned 9/5/74Well completed as gas well on _____Well abandoned at September 5, feet on 19 7/8 Reason September 16,Well plugged on 6739 38 feet. Steel line measurement 6739 feet.Total depth Not productive feet.

Commenced producing on _____

Oil Well

Initial production, oil: 1st 24 hours _____ bbls.; 2nd 24 hours _____ bbls.

After shot on _____ from _____ feet to _____ feet with _____ lbs.

After shot on _____ from _____ feet to _____ feet with _____ lbs.

1st 24 hours _____ bbls.; 2nd 24 hours _____ bbls.

Settled production _____ bbls. per day after producing _____ days

Gravity and grade of oil _____

Oil pays at (1) _____ feet to _____ feet. Oil shows at (1) _____ feet to _____ feet.

(2) _____ feet to _____ feet. (2) _____ feet to _____ feet.

(3) _____ feet to _____ feet. (3) _____ feet to _____ feet.

(4) _____ feet to _____ feet. (4) _____ feet to _____ feet.

Main production at _____ feet to _____ feet. (5) _____ feet to _____ feet.

Gas Well

Initial open flow, gas: _____ cu. ft. Gaged _____ /10ths. Water in _____ inch.

Volume _____ Oct 9, 1972 from _____ feet to _____ feet with _____ lbs. Galathea

After shot on _____ from _____ feet to _____ feet with _____ lbs.

After shot on _____ from _____ feet to _____ feet with _____ lbs.

1st 24 hours _____ cu. ft. 2nd 24 hours _____ cu. ft.

Rock pressure: Initial _____ lbs.; after _____ hours _____ lbs.

Settled production _____ cu. ft. per day after producing _____ weeks

Gas pays at (1) _____ feet to _____ feet. Gas shows at (1) _____ feet to _____ feet.

(2) _____ feet to _____ feet. (2) _____ feet to _____ feet.

(3) _____ feet to _____ feet. (3) _____ feet to _____ feet.

(4) _____ feet to _____ feet. (4) _____ feet to _____ feet.

Main production _____ feet to _____ feet. (5) _____ feet to _____ feet.

Fresh water at (1) 120 feet, _____ GPM; (2) _____ feet, _____ GPM; (3) _____ feet, _____ GPM.

Salt water at (1) _____ feet; (2) _____ feet; (3) _____ feet; (4) _____ feet.

Coal: from _____ feet _____ inches to _____ feet _____ inches; from _____ feet _____ inches to _____ feet _____ inches.

Well acidized from _____ feet to _____ feet with _____ (quantity) of _____ acid.

from _____ feet to _____ feet with _____ (quantity) of _____ acid.

from _____ feet to _____ feet with _____ (quantity) of _____ acid.

Remarks: Test before fracture - 280 acf. Fractured Mason Formation with 540 Gallons H₂O.22,000 20/40 sand and 591 barrels fluid from 3004' to 3010' - 25 perforations.Test after fracture 0 acf after bleeding open 6 hours.

Casing and Tubing				Packer		
Size	Time in Drilled	Left in Well	Perforations	Size	Set at	
(inch)	(feet)	(feet)	(feet to feet)			
20	21	21				

After shot on _____ from _____ feet to _____ feet with _____ lbs. gts.

1st 24 hours _____ cu. ft., 2nd 24 hours _____ cu. ft.

Rock pressure: Initial _____ lbs.; after _____ hours _____ lbs. days

Settled production _____ cu. ft. per day after producing _____ weeks

Is pays at (1) _____ feet to _____ feet. Gas shows at (1) **3004** feet to **3006** feet.
(2) _____ feet to _____ feet. (2) _____ feet to _____ feet.
(3) _____ feet to _____ feet. (3) _____ feet to _____ feet.
(4) _____ feet to _____ feet. (4) _____ feet to _____ feet.
Main production _____ feet to _____ feet. (5) _____ feet to _____ feet.

Fresh water at (1) **120** feet, _____ GPM; (2) _____ feet, _____ GPM; (3) _____ feet, _____ GPM.
Salt water at (1) **588** feet; (2) **590** feet; (3) _____ feet; (4) _____ feet.
Coal: from _____ feet _____ inches to _____ feet _____ inches; from _____ feet _____ inches to _____ feet _____ inches; from _____ feet _____ inches, to _____ feet _____ inches.
Well acidized from _____ feet to _____ feet with _____ (quantity) of _____ acid.
from _____ feet to _____ feet with _____ (quantity) of _____ acid.
from _____ feet to _____ feet with _____ (quantity) of _____ acid.
Remarks: **Test before fracture - 280 mcf. Fractured Maxon Formation with 500 Gallons MCA, 22,000# 20/40 sand and 591 barrels fluid from 3004' to 3010'; 25 perforations. Test after fracture 0 mcf. after blowing open 6 hours.**

CASING AND TUBING				PACKERS		
Size	USED IN DRILLING	LEFT IN WELL	PERFORATED	KIND	SIZE	SET AT
(inch)	(feet)	(feet)	(feet) to (feet)			
	21	21			NONE	
3 3/8	30	30				
5/8	1924	1924				
4 1/2	3087	497	3004-3010 25 holes			
				LINERS		
Size	USED IN DRILLING	LEFT IN WELL	PERFORATED			
(inch)	(ft.)	(ft.)	(ft. to ft.)			
					NONE	

Casing Cemented: **13 3/8** inch, from **Surface** feet to **30** feet. Date **Sept. 26, 1972**
8 5/8 inch, from **1908** feet to **Surface** feet. Date **October 1, 1972**
4 1/2 inch, from **3065** feet to **2650** feet. Date **October 12, 1972**

Remarks: (Shut down, depths, dates; fishing jobs, depths, dates; caving; other notes)

Samples or cuttings will be available for examination by a member of the Virginia Geological Survey **Yes** (Yes) (No)
Will be furnished the Virginia Geological Survey upon request **Yes** (Yes) (No), if sacks for same are furnished by the
Survey **Yes** (Yes) (No)
Electrical log made **X** or not made _____ (check which).
Copy furnished herewith _____ or will be submitted on or by _____ 19

LOG

Furnished by _____ Date _____
 Compiled by R. Robinson Date 10/8/74

RECEIVED
 MINE DIVISION
 VA. DEPT. OF MINES & MINING
 OCT 18 1974
 PM
 7:18 PM 10/18/74

Surf No.	FORMATION	Color	Hard as Burr	Top (feet)	Bottom (feet)	Thickness (feet)	Remarks On Gas, Ways Down, Start Down, Finger, etc.
	Fill			0	3	3	
	Blue Mud			5	20	15	
	Shale			20	75	55	
	Mud			75	140	65	
	Shale			140	230	90	
	Shale			230	310	80	
	Sandy Sand			310	470	160	
	Silt			470	588	118	
	Coal			588	590	2	
	Sand			590	630	40	
	Sand & Shale			630	895	265	
	Sandy Shale			895	1020	125	
	White Sand			1020	1535	515	
	Shale	Black		1535	1655	120	
	Sand	White		1655	1750	95	
	Sandy Shale	White		1750	1796	46	
	Sand	White		1796	1845	49	
	Red Rock			1845	1865	20	
	Shale			1865	1905	40	
	Red Rock			1905	1960	55	
	Shale			1960	2040	80	
	Sandy Shale			2040	2248	208	
	Shale			2248	2360	112	
	Shale			2360	2545	185	
	Leveecliff			2545	2620	75	
	Shale			2620	2665	45	
	Sand			2665	2735	70	
	Sandy Shale			2735	2793	58	
	Upper Mazon			2793	3000	207	
	Sandy Shale			3000	3089	89	
	Shale			3089	3118	29	
	Sand			3118	3140	22	
	Shale			3140	3208	68	
	Sand			3208	3228	20	
	Sandy Shale			3228	3288	60	
	Lower Mazon			3288	3350	62	
	Shale			3350	3494	144	
	Idms			3494	3552	58	
	Shale			3552	3596	44	
	Little Idms			3596	3672	76	
	Pencil Shale			3672	4220	548	
	Big Idms			4220	4274	54	
	Idms			4274	4511	236	
	Shale			4511	4816	304	
	Shale			4816	4843	27	
	Shale			4843	4893	50	
	Shale			4893	5864	969	
	Shale			5864	6160	296	
	Shale			6160	6497	337	
	Total Depth			6497	6760	263	

All gas at total depth capped 14/20 W 1" or 280 W.P.
 at bridge plug at 3088 and capped was made of Cal steel back to 3085'.

MINED AND APPROVED Sept. 5, 1974

For assistance in accessing this document, contact: R3-UNC-Mailbox@ncpa.gov

Gray Shale	4816	4883	67
Office Shale	4883	4895	12
Brown Sand	4895	5884	969
Gray Sandy Shale	5864	6160	296
Brown Shale	6160	6497	337
Gray Shale	6497	6760	263
Brown Shale	6760		
Total Depth			

All gas at total depth gauged 44/10 W 2" or 280 MP.

Set Bridge Plug at 3088 and dumped one sack of Calceal back to 3085'.

PLUGGED AND ABANDONED Sept. 5, 1974

THIS FORM MUST BE SIGNED BY AUTHORIZED PERSON:

Carroll Garrett

DEPARTMENT OF LABOR AND INDUSTRY
DIVISION OF MINES
Big Stone Gap, Virginia~~MINING~~
APPLICATION FOR PERMIT TO DRILL OIL OR GAS WELL
~~MINING~~

(Required by Section 45-115, Code of Virginia, 1950. To be accompanied by Permit fee of twenty-five dollars and bond and surety therefor, as specified by Section cited. To be submitted in duplicate, one copy to be returned to applicant after action by Division of Mines.)

TO: Department of Labor and Industry
Division of Mines
Big Stone Gap, Virginia

Charleston, West Virginia 25325

Place

July 31, 1972

Date

Gentlemen:

The undersigned hereby makes application for a Permit to drill, ~~with extension~~ (strike out two) a well for oil or gas on the L.R. Wyatt, et al farm, comprising 17,596.17/48 acres, in the Hurricane District of Buchanan County, Virginia, having the fee title thereto, or as the case may be, under grant or lease dated April 9, 19 71 made by Landon R. Wyatt, Sr., et al to United Fuel Gas Company

and recorded on the 20 day of April, 19 71 in the office of the County Clerk for the said County in Book 199 page 565.

The proposed location of the well is shown on a location plat or map submitted to the Division of Mines, by the undersigned, together with Notice of Intention to Drill, Redrill or Deepen a Well for Oil or Gas (Form 2) on the 31st day of July, 19 72.

The proposed well will be known as Well No. 9721-T of Columbia Gas Transmission Corp. (company, etc.) It is proposed to drill this well to a depth of about 6525 feet.

The proposed location is about 694 feet distant from the nearest property or lease line; about - feet distant from the nearest mine opening, or quarry (strike out words not applicable); and/or about - feet distant from the nearest drilling, abandoned, producing, or applied for (strike out words not applicable) oil or gas (strike out words not applicable) well.

There is enclosed herewith a certified check or U. S. Postal Money Order, in the amount of twenty-five dollars (\$25.00), payable to the Treasurer of Virginia, covering fee for a Permit to Drill a Well for Oil or Gas, as required by Section 45-115, Code of Virginia, 1950.

Bond and surety therefor to insure compliance with the provisions of Chapter 2, Title 45, Code of Virginia, 1950, for this well, in the amount of \$6,400.00 is submitted herewith of (give status of) Policy No. 91-332102

Correspondence regarding this well should be addressed to A. E. Hardman, Civil Eng. Dept.
P. O. Box 1273 Charleston, W. Va. 25325

Very truly yours,

Signature of officer or certifying party:

COLUMBIA GAS TRANSMISSION CORP.

Drilling Company or Operator

P. O. Box 1273

Street

Charleston

City or Town

West Virginia 25325

State

Supervising Engr., Civil Eng. Dept.

Title

Space below this line is for the use of the Board only.

ACTION OF DIVISION OF MINES

Received on 8-4, 1972

Approved and Permit (No. 102) granted on 8-15, 1972

Denied

Reasons for denial

DIVISION OF MINES

By E. J. D. [Signature]

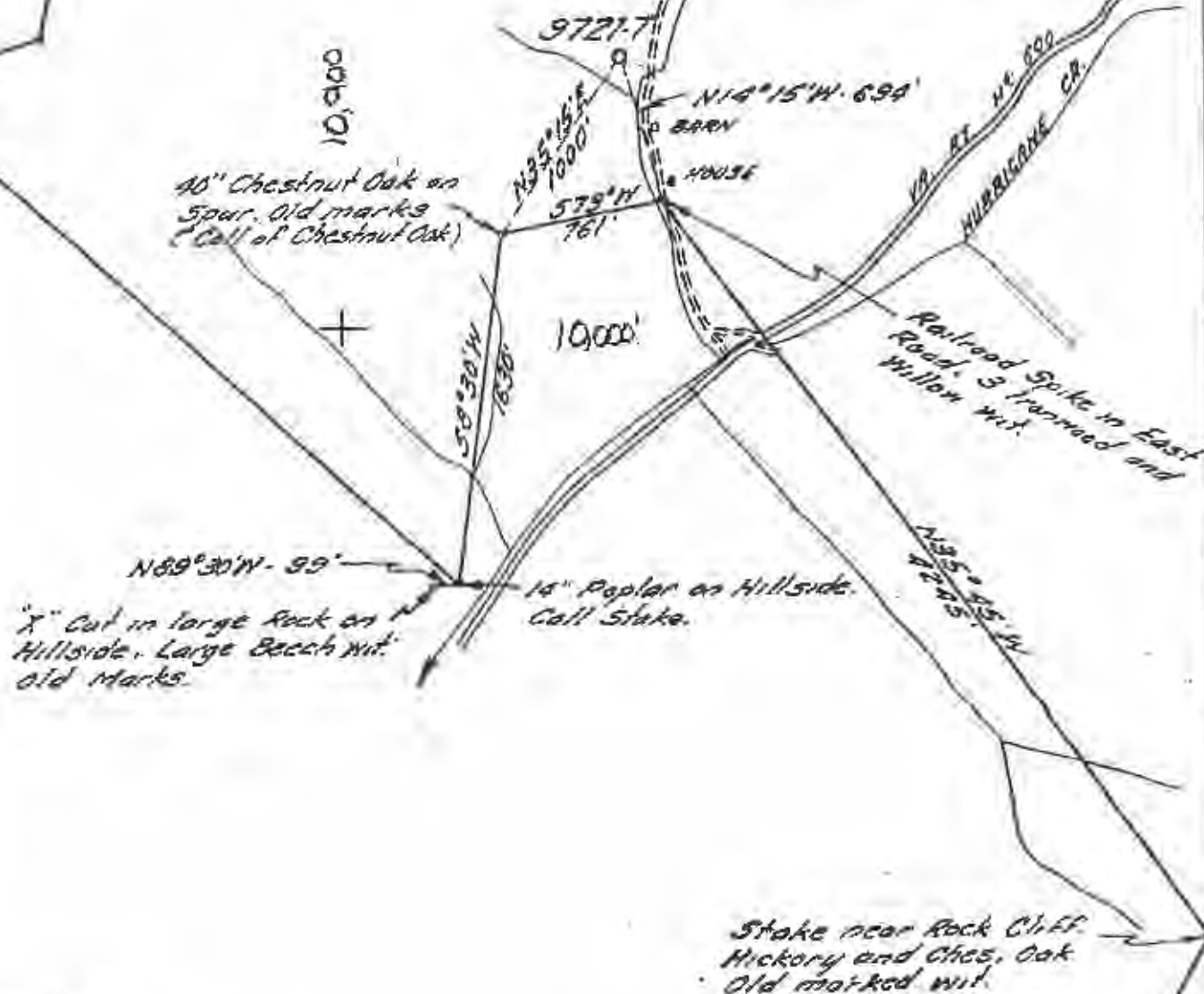
Title

File No: B4-730 Well No. 9721-T Permit No. 108

Latitude 37° 10' 00"

Longitude 82° 02' 30"

LANDON R. WYATT ET AL.



New Location ☒
 Drill Deeper ☐
 Abandonment ☐

Longitude 82° 02' 30"
 Latitude 37° 10' 00"

Company COLUMBIA GAS TRANSMISSION CORP.
 Address CHARLESTON W. VA.
 Farm LANDON R. WYATT ET AL.
 Tract 1748 Acres 17,596 Lease No. 65313
 Well (Farm) No. 1717.91 Serial No. 9721-T
 Elevation (Spirit Level) 1717.91'
 Quadrangle VANSANT
 County BUCHANAN District HURRICANE
 Engineer William H. Bradman
 Engineer's Registration No. 2330 (W. VA.)
 File No. 38-385 Drawing No. 1717.91
 Date 7-5-72 Scale 1" = 800'

COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF LABOR & INDUSTRY
 DIVISION OF MINES
 BIG STONE GAP, VIRGINIA

WELL LOCATION MAP
 FILE NO. BU-120

Permit No. 108

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

- Denotes one inch spaces on border line of original tracing.

NAME AND DEPTH OF USDWs

1. Ground water in Buchanan County, Virginia is more a function of topography than of any specific water bearing formations. It is not possible to delineate specific bed-rock aquifers with any degree of confidence throughout Buchanan County. The same stratum that yields abundant ground water next to a large stream in a valley will be dry beneath a ridge. Generally, the ground water table imitates the topographic surface in a subdued form and at a lower level.
2. The most reliable source of ground water is found in valleys or lower slopes within unconsolidated alluvial or colluvial deposits. Most useable ground water occurs within 300' of local stream levels.
3. Most domestic wells are 50' to 250' deep with yields of three to ten gallons per minute. Almost all wells are located in valleys. Formations at higher elevations such as ridge tops and those at greater depths (below stream level) are dry. Due to their high elevations, the Wise Formation and Gladeville Sandstone are not considered good sources of ground water nor is the deep-lying Pocahontas Formation. Sandstones of the Norton Formation, due to their medial topographic position along the lower slopes and valley floors, are better candidates for good quantities of ground water.
4. Ground water occurrence in Buchanan County can better be defined in terms of major stream basins including: Levisa Fork (above Oakwood), Garden Crock, Big Praier Creek, Levisa Fork (between Vansant and Oakwood), Ball Creek, Russell Fork (above Davenport), and Hurricane Creek Basins.
5. Water in Buchanan County is highly variable in chemical character and composition. Bicarbonate is the dominant water type. In some of Buchanan County's ground waters, sulfate, chlorides, iron and manganese occur at levels exceeding the recommended limits for drinking water. Buchanan County's ground water is characteristically acidic to slightly alkaline (6.3 to 8.2 pH), high in iron, hard and may have a sulfurous odor.
6. OXY USA Inc. based this information on a paper by Ms. Susan Epps, "Buchanan County Groundwater: Present Conditions and Prospects", Virginia State Water Control Board and a paper by Mr. Stanley Rogers and Mr. John Powell, "Quality of Ground Water in Southern Buchanan County", United States Geological Survey Water Resources Investigations 82-4022.
7. OXY USA Inc. has set surface and intermediate casings at the Ball A-1 to protect underground sources of drinking water and shallow coal seams.

GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES

1. The zone selected for injection is the Mississippian-age Weir sandstone. In the Ball A-1, the top and bottom of the Weir formation are located at 4465 and 4922 feet RKB, respectively (GL at 1923 feet above sea level, KB at 1933 feet above sea level). The Weir formation can be divided into a lower dark organic shale interval and an upper sandstone interval consisting of interbedded fine grained sandstones, siltstones and shaly siltstones. The shale interval is 370 feet thick and the sandstone interval is 87 feet thick. Evaluation of electric logs reveals a total of 16 net feet of sandstone with porosity greater than 7% within the upper sandstone interval. This porous sandstone is located in three intervals: 4486-4492, 4513-4518 and 4536-4541 feet RKB. The Weir sandstone has been perforated in these three intervals as described in the "Stimulation Program" attachment. Fracture pressure for the Weir sandstone perforated intervals is calculated to be 3308 psi (based on a fracture gradient of 0.733 psi/foot).
2. The Weir formation is directly overlain by low permeability shales and siltstones known geologically as the Mississippian-age Keener silty shale (4320-4373 feet RKB) and the Mississippian-age Big Injun dirty sandstone (4373-4465 feet RKB). In the Ball A-1, an 11 foot thick shale separates the Weir sandstone from the overlying Big Injun dirty sandstone. Above the Keener silty shale is the Mississippian-age Big Lime formation (3752-4308 feet RKB) which consists of dense carbonates. Below the Weir formation is the highly organic, Mississippian-age, Sunbury shale (4922-4960 feet RKB). Beneath the Sunbury shale is the Mississippian-age Berea formation (4960-4991 feet RKB) which consists of shale and low permeability shaly siltstone.

Ballwell

OPERATING DATA

1. The average daily rate of fluid to be injected is estimated to be 500 barrels (21,000 gallons) per day. This is based on injecting fluid at one barrel (42 gallons) per minute over a time period of eight hours and 20 minutes. The ~~average rate~~ of fluid to be injected is estimated to be ~~2,580 barrels~~ (120,960 gallons) per day. This is based on injecting fluid at two barrels (84 gallons) per minute over a time period of 24 hours. These volumes are dependent upon the operating pressure of the well and produced water volumes.
2. A produced water analysis is not submitted. OXY USA Inc. has not produced water from any of its wells in Buchanan County, Virginia to date. OXY USA Inc. will analyze the injection fluid once production and gathering operations commence.
3. The average injection pressure measured at the surface is estimated to be 500 psig. The maximum injection pressure is dependent upon the presently unknown specific gravity of the injection fluid. Tentatively, the maximum injection pressure measured at the surface shall be approximately 1200 psig. This approximation is based on an estimated injection fluid specific gravity of 1.08.
4. The annulus between the 2-3/8" tubing and the 5-1/2" injection casing will contain a corrosion inhibitor fluid. A cathodic protection system will be utilized to additionally protect wellbore tubulars from corrosion.
5. The source of the injection fluid will be from production and gathering operations throughout the Buchanan County, Virginia area.

187808 1018.48608 442.952332 1.08835026 2606.99355
 187840 1022.98584 442.952332 1.08783031 2607.57373
 187872 1018.48608 438.429871 1.08987045 2608.15381
 187904 1022.98584 438.429871 1.08834028 2608.73438
 187936 1022.98584 442.952332 1.08732033 2609.31445
 187968 1018.48608 442.952332 1.08834028 2609.89453
 188000 1022.98584 442.952332 1.08783031 2610.47461
 188032 1022.98584 442.952332 1.08936048 2611.05469
 188064 1022.98584 442.952332 1.09089041 2611.63574
 188096 1022.98584 442.952332 1.0919106 2612.21777
 188128 1022.98584 438.429871 1.0919106 2612.7998
 188160 1018.48608 442.952332 1.08987045 2613.38184
 188192 1022.98584 442.952332 1.0919106 2613.96338
 188224 1022.98584 442.952332 1.09038043 2614.54541
 188256 1022.98584 442.952332 1.0919106 2615.12744
 188288 1022.98584 442.952332 1.09038043 2615.70947
 188320 1022.98584 442.952332 1.08936048 2616.2915
 188352 1022.98584 442.952332 1.08835026 2616.87158
 188384 1018.48608 442.952332 1.08783031 2617.45166
 188416 1022.98584 442.952332 1.09089041 2618.03223
 188448 1022.98584 442.952332 1.08936048 2618.61377
 188480 1022.98584 438.429871 1.08835026 2619.19385
 188512 1022.98584 433.907898 1.08783031 2619.77393
 188544 1022.98584 433.907898 1.08732033 2620.354
 188576 1018.48608 438.429871 1.08681035 2620.93408
 188608 1022.98584 438.429871 1.08630013 2621.51367
 188640 1018.48608 442.952332 1.08732033 2622.09326
 188672 1022.98584 442.952332 1.08835026 2622.67334
 188704 1022.98584 442.952332 1.08732033 2623.25342
 188736 1022.98584 442.952332 1.08987045 2623.83447
 188768 1022.98584 442.952332 1.08936048 2624.41553
 188800 1022.98584 442.952332 1.08732033 2624.99609
 188832 1018.48608 438.429871 1.08783031 2625.57617
 188864 1022.98584 433.907898 1.08579016 2626.15625
 188896 1022.98584 438.429871 1.08783031 2626.73633
 188928 1022.98584 442.952332 1.08834028 2627.31641
 188960 1022.98584 442.952332 1.08835026 2627.89697
 188992 1018.48608 442.952332 1.08936048 2628.47754
 189024 1018.48608 442.952332 1.08783031 2629.05762
 189056 1022.98584 442.952332 1.08834028 2629.6377
 189088 1022.98584 433.907898 1.08835026 2630.21777
 189120 1018.48608 433.907898 1.08834028 2630.79785
 189152 1022.98584 438.429871 1.08834028 2631.37793
 189184 1018.48608 438.429871 1.08732033 2631.95801
 189216 1018.48608 442.952332 1.08681035 2632.53809
 189248 1018.48608 442.952332 1.08987045 2633.11865
 189280 1018.48608 442.952332 1.08936048 2633.69922
 189312 1022.98584 438.429871 1.08936048 2634.28027
 189344 1022.98584 442.952332 1.08630013 2634.86035
 189376 1022.98584 442.952332 1.08579016 2635.43994
 189408 1022.98584 442.952332 1.08579016 2636.01807
 189440 1018.48608 442.952332 1.0847702 2636.59668
 189472 1018.48608 442.952332 1.08732033 2637.17529
 189504 1022.98584 442.952332 1.08732033 2637.75537
 189536 1022.98584 442.952332 1.08681035 2638.33545
 189568 1022.98584 438.429871 1.08834028 2638.91553
 189600 1022.98584 442.952332 1.08732033 2639.49561
 189632 1022.98584 442.952332 1.08732033 2640.07568
 189664 1022.98584 442.952332 1.08783031 2640.65576
 189696 1022.98584 442.952332 1.08681035 2641.23584
 189728 1018.48608 438.429871 1.08681035 2641.81592
 189760 1022.98584 442.952332 1.08732033 2642.396
 189792 1022.98584 442.952332 1.08681035 2642.97607
 189824 1022.98584 447.474365 1.08783031 2643.55615
 189856 1022.98584 442.952332 1.08681035 2644.13623
 189888 1027.48608 442.952332 1.08732033 2644.71631
 189920 1022.98584 433.907898 1.08783031 2645.29639
 189952 1027.48608 438.429871 1.08681035 2645.87646
 189984 1022.98584 442.952332 1.08834028 2646.45654
 190016 1022.98584 442.952332 1.08834028 2647.03662
 190048 1022.98584 442.952332 1.08987045 2647.61668
 190080 1027.48608 442.952332 1.08987045 2648.19673
 190112 1022.98584 442.952332 1.08681035 2648.77681
 190144 1022.98584 442.952332 1.0847702 2649.35693
 190176 1027.48608 438.429871 1.08528018 2649.93696
 190208 1022.98584 433.907898 1.08528018 2650.51667
 190240 1018.48608 442.952332 1.08528018 2651.09678
 190272 1022.98584 442.952332 1.08681035 2651.67639
 190304 1027.48608 438.429871 1.08328018 2652.25651
 190336 1022.98584 442.952332 1.08579016 2652.83613
 190368 1022.98584 438.429871 1.08579016 2653.41674
 190400 1022.98584 438.429871 1.08579016 2653.99633
 190432 1022.98584 433.907898 1.08630013 2654.57643

193184 1027.48608 438.429871 1.08273005 2704.25732
 193216 1027.48608 442.952332 1.08426023 2704.83545
 193248 1027.48608 433.907898 1.08375001 2705.41357
 193280 1027.48608 442.952332 1.0847702 2705.9917
 193312 1031.98584 438.429871 1.08579016 2706.56982
 193344 1031.98584 442.952332 1.08579016 2707.14844
 193376 1027.48608 438.429871 1.08528018 2707.72754
 193408 1031.98584 438.429871 1.08222008 2708.30566
 193440 1027.48608 438.429871 1.08222008 2708.8833
 193472 1027.48608 442.952332 1.08273005 2709.46094
 193504 1031.98584 438.429871 1.0847702 2710.03906
 193536 1027.48608 442.952332 1.0847702 2710.61719
 193568 1031.98584 442.952332 1.08426023 2711.19531
 193600 1027.48608 438.429871 1.08681035 2711.77393
 193632 1031.98584 438.429871 1.08579016 2712.35305
 193664 1027.48608 438.429871 1.08732033 2712.93311
 193696 1031.98584 438.429871 1.08426023 2713.51172
 193728 1027.48608 442.952332 1.08528018 2714.08984
 193760 1031.98584 442.952332 1.08783031 2714.66992
 193792 1027.48608 442.952332 1.08783031 2715.25
 193824 1027.48608 447.874365 1.08732033 2715.83008
 193856 1027.48608 442.952332 1.08528018 2716.40918
 193888 1027.48608 438.429871 1.08579016 2716.98779
 193920 1031.98584 442.952332 1.08324003 2717.56592
 193952 1031.98584 442.952332 1.08324003 2718.14404
 193984 1031.98584 442.952332 1.08375001 2718.72217
 194016 1031.98584 442.952332 1.08528018 2719.30029
 194048 1027.48608 442.952332 1.08630013 2719.87988
 194080 1031.98584 442.952332 1.08528018 2720.4585
 194112 1027.48608 442.952332 1.08579016 2721.03662
 194144 1031.98584 442.952332 1.08379001 2721.61475
 194176 1031.98584 442.952332 1.08426023 2722.19287
 194208 1027.48608 442.952332 1.0847702 2722.771
 194240 1027.48608 442.952332 1.08630013 2723.3501
 194272 1027.48608 442.952332 1.08630013 2723.93018
 194304 1027.48608 438.429871 1.08375001 2724.5083
 194336 1031.98584 438.429871 1.08375001 2725.08643
 194368 1027.48608 442.952332 1.08324003 2725.66455
 194400 1031.98584 442.952332 1.08528018 2726.24268
 194432 1027.48608 438.429871 1.0847702 2726.8208
 194464 1031.98584 438.429871 1.08528018 2727.39893
 194496 1031.98584 438.429871 1.08579016 2727.97705
 194528 1027.48608 442.952332 1.0847702 2728.55518
 194560 1027.48608 438.429871 1.08579016 2729.1333
 194592 1027.48608 438.429871 1.08426023 2729.71143
 194624 1027.48608 438.429871 1.0847702 2730.28955
 194656 1031.98584 438.429871 1.08426023 2730.86768
 194688 1031.98584 438.429871 1.0847702 2731.4458
 194720 1031.98584 438.429871 1.0847702 2732.02393
 194752 1031.98584 442.952332 1.08273005 2732.60205
 194784 1027.48608 442.952332 1.08375001 2733.18018
 194816 1031.98584 438.429871 1.08273005 2733.7583
 194848 1031.98584 442.952332 1.08426023 2734.33643
 194880 1027.48608 442.952332 1.08324003 2734.91455
 194912 1027.48608 442.952332 1.08579001 2735.49268
 194944 1027.48608 442.952332 1.08579016 2736.0708
 194976 1031.98584 442.952332 1.0847702 2736.64941
 195008 1031.98584 442.952332 1.0847702 2737.22754
 195040 1027.48608 442.952332 1.08324003 2737.80566
 195072 1027.48608 442.952332 1.0847702 2738.38379
 195104 1031.98584 438.429871 1.0847702 2738.96191
 195136 1027.48608 447.874365 1.08426023 2739.54004
 195168 1027.48608 438.429871 1.0847702 2740.11816
 195200 1027.48608 442.952332 1.07966995 2740.69531
 195232 1031.98584 442.952332 1.07966995 2741.27148
 195264 1027.48608 438.429871 1.08068991 2741.84766
 195296 1031.98584 438.429871 1.08222008 2742.4248
 195328 1027.48608 442.952332 1.08222008 2743.00195
 195360 1031.98584 433.907898 1.08119988 2743.57861
 195392 1031.98584 438.429871 1.0817101 2744.15527
 195424 1027.48608 442.952332 1.08119988 2744.73193
 195456 1027.48608 442.952332 1.08017993 2745.30811
 195488 1027.48608 438.429871 1.08119988 2745.88428
 195520 1027.48608 438.429871 1.07915998 2746.46045
 195552 1031.98584 442.952332 1.0817101 2747.03662
 195584 1027.48608 442.952332 1.08068991 2747.61279
 195616 1027.48608 442.952332 1.0817101 2748.18896
 195648 1027.48608 442.952332 1.08222008 2748.76511
 195680 1027.48608 442.952332 1.08222008 2749.34175
 195712 1027.48608 442.952332 1.08426023 2749.91888
 195744 1031.98584 438.429871 1.08273005 2750.5
 195776 1031.98584 442.952332 1.08273005 2751.07813
 195808 1031.98584 442.952332 1.07966995 2751.6543

195840	1027.48608	442.952332	1.0817101	2752.23047
195872	1027.48608	442.952332	1.0847702	2752.30959
195904	1027.48608	442.952332	1.08426023	2753.38672
195936	1027.48608	442.952332	1.08375001	2753.96484
195968	1027.48608	442.952332	1.08273005	2754.56297
196000	1027.48608	438.429871	1.0817101	2755.12012
196032	1027.48608	442.952332	1.08017993	2755.69629
196064	1031.98584	442.952332	1.08068991	2756.27246
196096	1027.48608	442.952332	1.0817101	2756.84863
196128	1027.48608	442.952332	1.07966995	2757.4248
196160	1031.98584	442.952332	1.08119988	2758.00098
196192	1027.48608	442.952332	1.08222008	2758.57764
196224	1027.48608	442.952332	1.08222008	2759.15479
196256	1027.48608	442.952332	1.08375001	2759.73291
196288	1027.48608	438.429871	1.08222008	2760.31104
196320	1027.48608	442.952332	1.0817101	2760.88818
196352	1027.48608	442.952332	1.07915998	2761.46436
196384	1027.48608	442.952332	1.08068991	2762.04053
196416	1027.48608	438.429871	1.0817101	2762.6167
196448	1027.48608	442.952332	1.08119988	2763.19336
196480	1027.48608	442.952332	1.08273005	2763.77051
196512	1027.48608	442.952332	1.08375001	2764.34814
196544	1031.98584	447.474365	1.0847702	2764.92627
196576	1027.48608	442.952332	1.08375001	2765.50439
196608	1027.48608	442.952332	1.08222008	2766.08252
196640	1027.48608	442.952332	1.08375001	2766.66016
196672	1027.48608	447.474365	1.0817101	2767.23779
196704	1027.48608	442.952332	1.08426023	2767.81592
196736	1027.48608	442.952332	1.08273005	2768.39404
196768	1027.48608	447.474365	1.08119988	2768.97168
196800	1027.48608	442.952332	1.08068991	2769.54785
196832	1027.48608	438.429871	1.07966995	2770.12402
196864	1027.48608	442.952332	1.08375001	2770.70166
196896	1027.48608	442.952332	1.08375001	2771.27979
196928	1027.48608	438.429871	1.08426023	2771.85791
196960	1027.48608	438.429871	1.08324003	2772.43604
196992	1031.98584	442.952332	1.08426023	2773.01416
197024	1027.48608	438.429871	1.0847702	2773.59229
197056	1027.48608	442.952332	1.0847702	2774.17041
197088	1027.48608	433.907895	1.0847702	2774.74854
197120	1027.48608	438.429871	1.08324003	2775.32666
197152	1027.48608	442.952332	1.08273005	2775.90479
197184	1027.48608	442.952332	1.0817101	2776.48193
197216	1027.48608	442.952332	1.0847702	2777.06006
197248	1027.48608	447.474365	1.0847702	2777.63818
197280	1027.48608	438.429871	1.0847702	2778.21631
197312	1027.48608	442.952332	1.08426023	2778.79443
197344	1027.48608	442.952332	1.08273005	2779.37256
197376	1027.48608	438.429871	1.08426023	2779.95068
197408	1027.48608	442.952332	1.08324003	2780.52881
197440	1027.48608	442.952332	1.08426023	2781.10693
197472	1027.48608	442.952332	1.08324003	2781.68506
197504	1027.48608	438.429871	1.08528018	2782.26318
197536	1027.48608	438.429871	1.0847702	2782.84131
197568	1027.48608	442.952332	1.08375001	2783.41943
197600	1027.48608	442.952332	1.08375001	2783.99756
197632	1027.48608	438.429871	1.08222008	2784.57568
197664	1027.48608	442.952332	1.08222008	2785.15332
197696	1027.48608	438.429871	1.08222008	2785.72998
197728	1027.48608	442.952332	1.08426023	2786.30811
197760	1027.48608	442.952332	1.08528018	2786.88623
197792	1027.48608	442.952332	1.0847702	2787.46436
197824	1027.48608	442.952332	1.08783031	2788.04249
197856	1027.48608	447.474365	1.08630013	2788.6205
197888	1027.48608	442.952332	1.08732033	2789.19813
197920	1027.48608	442.952332	1.08375001	2789.77625
197952	1027.48608	438.429871	1.08579016	2790.35438
197984	1027.48608	442.952332	1.08579016	2790.93246
198016	1027.48608	442.952332	1.08783031	2791.51057
198048	1027.48608	442.952332	1.08528018	2792.08866
198080	1027.48608	442.952332	1.08528018	2792.66673
198112	1027.48608	438.429871	1.08579016	2793.24439
198144	1031.98584	442.952332	1.0847702	2793.82252
198176	1027.48608	438.429871	1.08426023	2794.40064
198208	1027.48608	438.429871	1.0847702	2794.97877
198240	1027.48608	442.952332	1.08834028	2795.55685
198272	1027.48608	447.474365	1.08681035	2796.13493
198304	1027.48608	447.474365	1.08528018	2796.71303
198336	1027.48608	438.429871	1.08375001	2797.29115
198368	1027.48608	442.952332	1.08426023	2797.86928
198400	1027.48608	442.952332	1.08426023	2798.4474
198432	1027.48608	442.952332	1.08375001	2799.02553
198464	1027.48608	442.952332	1.08528018	2799.60365
198496	1027.48608	442.952332	1.0847702	2800.18176

201216	1027.48608	442.952332	1.0847702	2849.35352
201248	1031.98584	438.429871	1.08579016	2849.95184
201280	1031.98584	438.429871	1.08426023	2850.50977
201312	1031.98584	438.429871	1.08579016	2851.08789
201344	1031.98584	438.429871	1.0847702	2851.66602
201376	1031.98584	442.952332	1.0847702	2852.24414
201408	1036.48608	442.952332	1.08630013	2852.82324
201440	1036.48608	442.952332	1.08631035	2853.40234
201472	1031.98584	438.429871	1.08579016	2853.98193
201504	1031.98584	442.952332	1.0847702	2854.56006
201536	1027.48608	438.429871	1.08783031	2855.13965
201568	1031.98584	438.429871	1.08681035	2855.71973
201600	1031.98584	438.429871	1.08630013	2856.29988
201632	1031.98584	438.429871	1.08579016	2856.87891
201664	1031.98584	438.429871	1.08732033	2857.45898
201696	1031.98584	442.952332	1.08732033	2858.03906
201728	1036.48608	442.952332	1.08528018	2858.61865
201760	1027.48608	438.429871	1.0847702	2859.19676
201792	1031.98584	438.429871	1.08375001	2859.7749
201824	1027.48608	438.429871	1.08579016	2860.35303
201856	1027.48608	438.429871	1.08528018	2860.93164
201888	1031.98584	442.952332	1.08528018	2861.50977
201920	1031.98584	442.952332	1.08528018	2862.08789
201952	1036.48608	438.429871	1.08426023	2862.66602
201984	1031.98584	442.952332	1.0847702	2863.24414
202016	1036.48608	442.952332	1.08528018	2863.82275
202048	1031.98584	442.952332	1.0847702	2864.40088
202080	1031.98584	442.952332	1.08426023	2864.979
202112	1031.98584	442.952332	1.08324003	2865.55713
202144	1036.48608	442.952332	1.0847702	2866.13525
202176	1036.48608	438.429871	1.08324003	2866.71338
202208	1036.48608	438.429871	1.08375001	2867.2915
202240	1036.48608	438.429871	1.08324003	2867.86963
202272	1031.98584	447.474365	1.08273005	2868.44727
202304	1031.98584	438.429871	1.08222008	2869.0249
202336	1036.48608	438.429871	1.08068991	2869.60107
202368	1031.98584	438.429871	1.08375001	2870.17871
202400	1036.48608	438.429871	1.08324003	2870.75684
202432	1036.48608	442.952332	1.08426023	2871.33496
202464	1036.48608	442.952332	1.08579016	2871.91357
202496	1031.98584	438.429871	1.08579016	2872.49219
202528	1031.98584	438.429871	1.08579016	2873.07129
202560	1036.48608	442.952332	1.08375001	2873.64941
202592	1031.98584	442.952332	1.08783031	2874.229
202624	1036.48608	438.429871	1.08732033	2874.80908
202656	1036.48608	442.952332	1.08579016	2875.38867
202688	1036.48608	442.952332	1.0847702	2875.9668
202720	1036.48608	442.952332	1.0817101	2876.54492
202752	1036.48608	442.952332	1.08375001	2877.12296
202784	1036.48608	438.429871	1.08375001	2877.70068
202816	1031.98584	442.952332	1.0847702	2878.27881
202848	1031.98584	438.429871	1.08273005	2878.85693
202880	1036.48608	438.429871	1.08068991	2879.43399
202912	1031.98584	438.429871	1.08222008	2880.01025
202944	1036.48608	442.952332	1.08375001	2880.58838
202976	1031.98584	442.952332	1.08324003	2881.1665
203008	1031.98584	438.429871	1.08273005	2881.74463
203040	1031.98584	438.429871	1.0817101	2882.32176
203072	1036.48608	438.429871	1.08528018	2882.8999
203104	1036.48608	442.952332	1.0847702	2883.47803
203136	1036.48608	438.429871	1.08528018	2884.05615
203168	1036.48608	438.429871	1.08375001	2884.63428
203200	1031.98584	442.952332	1.0847702	2885.2124
203232	1031.98584	442.952332	1.08528018	2885.79053
203264	1031.98584	442.952332	1.08579016	2886.36814
203296	1036.48608	442.952332	1.08630013	2886.94624
203328	1031.98584	442.952332	1.08426023	2887.52437
203360	1036.48608	442.952332	1.08630013	2888.10498
203392	1036.48608	447.474365	1.0847702	2888.68408
203424	1036.48608	442.952332	1.0847702	2889.26221
203456	1031.98584	438.429871	1.08375001	2889.84033
203488	1031.98584	442.952332	1.08426023	2890.41846
203520	1036.48608	438.429871	1.08783031	2890.99805
203552	1036.48608	447.474365	1.08579016	2891.57813
203584	1036.48608	438.429871	1.0847702	2892.15674
203616	1036.48608	438.429871	1.08324003	2892.73486
203648	1036.48608	438.429871	1.08324003	2893.31299
203680	1036.48608	438.429871	1.08375001	2893.89111
203712	1036.48608	433.907898	1.08324003	2894.46875
203744	1040.98584	438.429871	1.08426023	2895.04688
203776	1036.48608	433.907898	1.0817101	2895.625
203808	1036.48608	438.429871	1.08119983	2896.20117
203840	1036.48608	451.996765	1.0817101	2896.77734
203872	1036.48608	442.952332	1.08273005	2897.35498

203904 1036.48608 442.952332 1.08375001 2897.03311
203936 1036.48608 438.429871 1.08324003 2898.91123
203968 1036.48608 438.429871 1.0847702 2899.08936
204000 1036.48608 438.429871 1.0847702 2899.66748
204032 1036.48608 442.952332 1.0847702 2900.24561
204064 1036.48608 442.952332 1.0847702 2900.82373
204096 1036.48608 442.952332 1.08324003 2901.40186
204128 1036.48608 442.952332 1.0847702 2901.97998
204160 1040.98584 442.952332 1.08426023 2902.55811
204192 1036.48608 442.952332 1.08528018 2903.13623
204224 1036.48608 442.952332 1.08528018 2903.71436
204256 1036.48608 442.952332 1.08375001 2904.29248
204288 1036.48608 438.429871 1.08630013 2904.87109
204320 1036.48608 442.952332 1.08630013 2905.45117
204352 1036.48608 442.952332 1.08681035 2906.03076
204384 1036.48608 442.952332 1.08426023 2906.60938
204416 1036.48608 442.952332 1.08426023 2907.1875
204448 1036.48608 438.429871 1.08579016 2907.76563
204480 1036.48608 438.429871 1.08426023 2908.34375
204512 1036.48608 438.429871 1.08426023 2908.92188
204544 1036.48608 438.429871 1.08375001 2909.5
204576 1036.48608 442.952332 1.08119988 2910.07715
204608 1031.98584 438.429871 1.08017993 2910.65332
204640 1036.48608 442.952332 1.0817101 2911.22949
204672 1036.48608 442.952332 1.08324003 2911.80713
204704 1036.48608 442.952332 1.08222008 2912.38525
204736 1036.48608 442.952332 1.08375001 2912.96338
204768 1040.98584 442.952332 1.08324003 2913.5415
204800 1036.48608 442.952332 1.08426023 2914.11963
204832 1031.98584 438.429871 1.08426023 2914.69775
204864 1036.48608 442.952332 1.0847702 2915.27588
204896 1036.48608 442.952332 1.08528018 2915.854
204928 1036.48608 442.952332 1.0847702 2916.43213
204960 1036.48608 442.952332 1.08528018 2917.01025
204992 1036.48608 442.952332 1.08426023 2917.58838
205024 1036.48608 442.952332 1.08528018 2918.1665
205056 1036.48608 442.952332 1.0847702 2918.74512
205088 1036.48608 438.429871 1.0847702 2919.32324
205120 1036.48608 438.429871 1.08375001 2919.90137
205152 1036.48608 442.952332 1.0847702 2920.47949
205184 1036.48608 442.952332 1.08528018 2921.05811
205216 1036.48608 442.952332 1.08528018 2921.63672
205248 1036.48608 442.952332 1.08579016 2922.21484
205280 1036.48608 438.429871 1.08528018 2922.79297
205312 1036.48608 442.952332 1.08579016 2923.37207
205344 1036.48608 438.429871 1.08528018 2923.9502
205376 1036.48608 442.952332 1.08579016 2924.52832
205408 1036.48608 438.429871 1.08630013 2925.10742
205440 1036.48608 442.952332 1.08579016 2925.68604
205472 1036.48608 438.429871 1.08579016 2926.26465
205504 1036.48608 438.429871 1.08834028 2926.84473
205536 1036.48608 442.952332 1.08834028 2927.4248
205568 1040.98584 442.952332 1.08732033 2928.00488
205600 1036.48608 438.429871 1.08528018 2928.58398
205632 1031.98584 438.429871 1.08732033 2929.16406
205664 1036.48608 438.429871 1.08579016 2929.74365
205696 1036.48608 438.429871 1.08528018 2930.32275
205728 1036.48608 438.429871 1.08426023 2930.90088
205760 1040.98584 442.952332 1.08732033 2931.47998
205792 1036.48608 442.952332 1.08681035 2932.06006
205824 1036.48608 447.474365 1.08630013 2932.64014
205856 1036.48608 442.952332 1.0847702 2933.21875
205888 1036.48608 442.952332 1.08579016 2933.79688
205920 1036.48608 442.952332 1.08630013 2934.37666
205952 1036.48608 442.952332 1.0847702 2934.95459
205984 1036.48608 442.952332 1.08375001 2935.53271
206016 1036.48608 447.474365 1.08273005 2936.11084
206048 1036.48608 442.952332 1.08375001 2936.68996
206080 1036.48608 442.952332 1.08273005 2937.26709
206112 1036.48608 438.429871 1.08222008 2937.84473
206144 1036.48608 442.952332 1.08068991 2938.4209
206176 1036.48608 442.952332 1.08273005 2938.99854
206208 1036.48608 442.952332 1.08273005 2939.57666
206240 1036.48608 438.429871 1.08375001 2940.15479
206272 1036.48608 442.952332 1.08273005 2940.73291
206304 1036.48608 442.952332 1.0847702 2941.31104
206336 1036.48608 442.952332 1.08324003 2941.88916
206368 1036.48608 442.952332 1.08324003 2942.46729
206400 1036.48608 442.952332 1.08273005 2943.04492
206432 1040.98584 442.952332 1.08273005 2943.62305
206464 1036.48608 438.429871 1.08273005 2944.20117
206496 1036.48608 438.429871 1.08017993 2944.77734
206528 1031.98584 438.429871 1.08119988 2945.35352
206560 1036.48608 438.429871 1.08119988 2945.93018

206592 1036.48608 438.429871 1.08324003 2946.50781
206624 1036.48608 438.429871 1.08324003 2946.50781
206656 1036.48608 433.907898 1.08375001 2947.66357
206688 1036.48608 438.429871 1.08426023 2948.2417
206720 1036.48608 438.429871 1.08528018 2948.81982
206752 1036.48608 438.429871 1.08723031 2949.3999
206784 1036.48608 442.952332 1.08936048 2949.97998
206816 1036.48608 442.952332 1.09038043 2950.56201
206848 1036.48608 442.952332 1.09089041 2951.14664
206880 1036.48608 438.429871 1.09140058 2951.72607
206912 1036.48608 433.907898 1.08936048 2952.30762
206944 1036.48608 442.952332 1.09038043 2952.88916
206976 1036.48608 442.952332 1.09038043 2953.4707
207008 1036.48608 442.952332 1.08936048 2954.05176
207040 1036.48608 438.429871 1.08885026 2954.63232
207072 1036.48608 442.952332 1.08885026 2955.2124
207104 1036.48608 442.952332 1.09038043 2955.79346
207136 1036.48608 442.952332 1.08834028 2956.37451
207168 1036.48608 438.429871 1.08783031 2956.95459
207200 1036.48608 433.907898 1.08834028 2957.53467
207232 1036.48608 438.429871 1.08834028 2958.11475
207264 1036.48608 438.429871 1.08987045 2958.6958
207296 1036.48608 442.952332 1.08681035 2959.27588
207328 1036.48608 438.429871 1.08732033 2959.85596
207360 1036.48608 442.952332 1.08528018 2960.43506
207392 1036.48608 442.952332 1.08732033 2961.01465
207424 1036.48608 442.952332 1.08681035 2961.59473
207456 1036.48608 442.952332 1.08681035 2962.1748
207488 1036.48608 442.952332 1.08681035 2962.75488
207520 1036.48608 442.952332 1.08630013 2963.33447
207552 1036.48608 442.952332 1.08732033 2963.91406
207584 1036.48608 442.952332 1.08579016 2964.49365
207616 1036.48608 442.952332 1.08579016 2965.07178
207648 1036.48608 438.429871 1.0847702 2965.6499
207680 1036.48608 442.952332 1.08681035 2966.22852
207712 1036.48608 438.429871 1.08528018 2966.80811
207744 1036.48608 438.429871 1.08528018 2967.38623
207776 1036.48608 438.429871 1.08528018 2967.96436
207808 1036.48608 438.429871 1.08630013 2968.54395
207840 1036.48608 442.952332 1.08732033 2969.12402
207872 1036.48608 438.429871 1.08324003 2969.70215
207904 1036.48608 438.429871 1.08375001 2970.28027
207936 1036.48608 438.429871 1.0847702 2970.8584
207968 1036.48608 442.952332 1.08681035 2971.4375
208000 1036.48608 442.952332 1.08528018 2972.01611
208032 1036.48608 438.429871 1.0817101 2972.59375
208064 1036.48608 438.429871 1.07966995 2973.16992
208096 1036.48608 438.429871 1.07813978 2973.74609
208128 1036.48608 438.429871 1.07966995 2974.32227
208160 1036.48608 438.429871 1.07864976 2974.89795
208192 1036.48608 442.952332 1.07966995 2975.47412
208224 1036.48608 433.907898 1.07915998 2976.05029
208256 1036.48608 433.907898 1.08068991 2976.62646
208288 1036.48608 438.429871 1.08068991 2977.20264
208320 1036.48608 438.429871 1.07814002 2977.77832
208352 1036.48608 442.952332 1.07814002 2978.35254
208384 1036.48608 438.429871 1.07711983 2978.92676
208416 1036.48608 433.907898 1.07915998 2979.50244
208448 1036.48608 438.429871 1.0776298 2980.07766
208480 1036.48608 438.429871 1.07864976 2980.65283
208512 1036.48608 438.429871 1.07813978 2981.22803
208544 1036.48608 442.952332 1.0776298 2981.80273
208576 1036.48608 433.907898 1.07813978 2982.37793
208608 1036.48608 438.429871 1.0776298 2982.95264
208640 1036.48608 442.952332 1.07915998 2983.52783
208672 1036.48608 442.952332 1.07915998 2984.104
208704 1036.48608 442.952332 1.07915998 2984.68018
208736 1036.48608 433.907898 1.07966995 2985.25586
208768 1036.48608 438.429871 1.07966995 2985.83203
208800 1036.48608 433.907898 1.08273005 2986.40869
208832 1036.48608 438.429871 1.08068991 2986.98584
208864 1036.48608 442.952332 1.08017993 2987.56201
208896 1036.48608 438.429871 1.07864976 2988.13818
208928 1036.48608 442.952332 1.08119988 2988.71436
208960 1036.48608 438.429871 1.08068991 2989.29053
208992 1036.48608 438.429871 1.07813978 2989.8667
209024 1036.48608 438.429871 1.07864976 2990.44189
209056 1036.48608 438.429871 1.0776298 2991.01709
209088 1036.48608 438.429871 1.07915998 2991.59229
209120 1036.48608 438.429871 1.07915998 2992.16846
209152 1036.48608 442.952332 1.08017993 2992.74463
209184 1036.48608 442.952332 1.07915998 2993.3208
209216 1036.48608 438.429871 1.07915998 2993.89648
209248 1036.48608 438.429871 1.08017993 2994.47266

209280 1036.48608 442.952332 1.07813978 2995.62402
 209312 1036.48608 442.952332 1.07813978 2995.62402
 209344 1036.48608 438.429871 1.07558966 2996.19824
 209376 1036.48608 438.429871 1.07660985 2996.77246
 209408 1036.48608 438.429871 1.07813978 2997.34668
 209440 1036.48608 442.952332 1.07813978 2997.9209
 209472 1036.48608 438.429871 1.07915998 2998.49658
 209504 1036.48608 438.429871 1.07813978 2999.07178
 209536 1036.48608 433.907898 1.07813978 2999.64648
 209568 1036.48608 438.429871 1.07660985 3000.2207
 209600 1036.48608 442.952332 1.07711983 3000.79492
 209632 1036.48608 438.429871 1.07864976 3001.36963
 209664 1036.48608 442.952332 1.07915998 3001.94531
 209696 1040.98584 438.429871 1.09068991 3002.52148
 209728 1036.48608 438.429871 1.07966995 3003.09765
 209760 1036.48608 438.429871 1.07915998 3003.67334
 209792 1036.48608 442.952332 1.07558966 3004.24805
 209824 1036.48608 442.952332 1.07711983 3004.82227
 209856 1036.48608 433.907898 1.07915998 3005.39746
 209888 1036.48608 442.952332 1.07915998 3005.97363
 209920 1036.48608 438.429871 1.07864976 3006.54932
 209952 1036.48608 438.429871 1.07660985 3007.12554
 209984 1036.48608 438.429871 1.07813978 3007.69775
 210016 1036.48608 438.429871 1.07711983 3008.27197
 210048 1036.48608 442.952332 1.07711983 3008.84619
 210080 1036.48608 442.952332 1.0776298 3009.42041
 210112 1036.48608 433.907898 1.07609963 3009.99463
 210144 1036.48608 438.429871 1.07660985 3010.56885
 210176 1036.48608 438.429871 1.07609963 3011.14307
 210208 1036.48608 442.952332 1.07711983 3011.71729
 210240 1036.48608 438.429871 1.0776298 3012.2915
 210272 1036.48608 438.429871 1.07813978 3012.86572
 210304 1036.48608 433.907898 1.07915998 3013.44141
 210336 1036.48608 438.429871 1.07864976 3014.01758
 210368 1036.48608 438.429871 1.0776298 3014.59277
 210400 1036.48608 438.429871 1.07558966 3015.16699
 210432 1036.48608 438.429871 1.07558966 3015.74072
 210464 1036.48608 438.429871 1.07609963 3016.31494
 210496 1036.48608 442.952332 1.07711983 3016.88916
 210528 1036.48608 438.429871 1.07864976 3017.46387
 210560 1036.48608 433.907898 1.0776298 3018.03906
 210592 1036.48608 438.429871 1.0776298 3018.61426
 210624 1036.48608 433.907898 1.07660985 3019.18848
 210656 1040.98584 438.429871 1.07660985 3019.7627
 210688 1036.48608 438.429871 1.07813978 3020.33691
 210720 1036.48608 433.907898 1.07660985 3020.91113
 210752 1036.48608 438.429871 1.0776298 3021.48535
 210784 1036.48608 438.429871 1.07660985 3022.05957
 210816 1036.48608 442.952332 1.07813978 3022.63379
 210848 1036.48608 433.907898 1.07813978 3023.20801
 210880 1036.48608 438.429871 1.07660985 3023.78223
 210912 1036.48608 433.907898 1.07813978 3024.35645
 210944 1036.48608 433.907898 1.07609963 3024.93066
 210976 1036.48608 438.429871 1.07558966 3025.50488
 211008 1036.48608 343.463379 1.10466003 3026.08496
 211040 1036.48608 397.730042 1.14036012 3026.68506
 211072 1036.48608 343.463379 1.17708015 3027.30469
 211104 1036.48608 370.596741 1.17657018 3027.93164
 211136 1036.48608 379.641174 1.17555022 3028.55957
 211168 1036.48608 325.374451 1.16433024 3029.18262
 211200 1040.98584 334.418884 1.08885026 3029.7876
 211232 1036.48608 320.85199 0.97155046 3030.33105
 211264 1036.48608 343.463379 0.98634052 3030.84668
 211296 1036.48608 338.930918 1.13067031 3031.41504
 211328 1036.48608 334.418884 1.16790032 3032.03613
 211360 1040.98584 329.896423 1.11588049 3032.64653
 211392 1040.98584 334.418884 1.09701037 3033.23096
 211424 1040.98584 329.896423 1.09803057 3033.81689
 211456 1036.48608 334.418884 1.10007071 3034.40283
 211488 1036.48608 325.374451 1.10102067 3034.98975
 211520 1040.98584 325.374451 1.10160065 3035.57764
 211552 1040.98584 320.85199 1.10059069 3036.16553
 211584 1040.98584 325.374451 1.10007071 3036.75195
 211616 1040.98584 325.374451 1.0995605 3037.33789
 211648 1040.98584 325.374451 1.10058045 3037.92529
 211680 1036.48608 329.896423 1.10160065 3038.5127
 211712 1045.48608 325.374451 1.09956074 3039.09961
 211744 1040.98584 325.374451 1.10058069 3039.6875
 211776 1040.98584 320.85199 1.10160065 3040.27539
 211808 1040.98584 320.85199 1.10160065 3040.86328
 211840 1040.98584 320.85199 1.10007071 3041.45068
 211872 1040.98584 320.85199 1.10160065 3042.0376
 211904 1045.48608 316.330017 1.10262084 3042.62549
 211936 1045.48608 316.330017 1.10364079 3043.21338

211968	1040.98584	316.330017	1.10211062	3045.80127
212000	1045.48608	316.330017	1.10364056	3044.38916
212032	1045.48608	316.330017	1.10211062	3044.97705
212064	1045.48608	316.330017	1.10211062	3045.56490
212096	1045.48608	316.330017	1.10211062	3046.15283
212128	1045.48608	316.330017	1.0995605	3046.73975
212160	1045.48608	316.330017	1.09599042	3047.3252
212192	1045.48608	320.85199	1.09197046	3047.90918
212224	1045.48608	320.85199	1.09446049	3048.49316
212256	1045.48608	316.330017	1.09395051	3049.07715
212288	1045.48608	320.85199	1.09293056	3049.66064
212320	1045.48608	311.807556	1.09395051	3050.24365
212352	1045.48608	311.807556	1.09344053	3050.82715
212384	1040.98584	307.285522	1.09191036	3051.41016
212416	1045.48608	311.807556	0.84099054	3051.94482
212448	1045.48608	307.285522	0.40392053	3052.26227
212480	1045.48608	307.285522	5.40912E-7	3052.34961
212512	1045.48608	311.807556	5.40912E-7	3052.34961
212544	1045.48608	307.285522	5.40912E-7	3052.34961
212576	1045.48608	307.285522	5.40912E-7	3052.34961
212608	1045.48608	307.285522	5.40912E-7	3052.34961
212640	1045.48608	307.285522	5.40912E-7	3052.34961
212672	1045.48608	307.285522	5.40912E-7	3052.34961
212704	1045.48608	307.285522	5.40912E-7	3052.34961
212736	1045.48608	307.285522	5.40912E-7	3052.34961
212768	1045.48608	307.285522	5.40912E-7	3052.34961
212800	1045.48608	307.285522	5.40912E-7	3052.34961
212832	1045.48608	307.285522	5.40912E-7	3052.34961
212864	1045.48608	307.285522	5.40912E-7	3052.34961
212896	1045.48608	307.285522	5.40912E-7	3052.34961
212928	1045.48608	307.285522	5.40912E-7	3052.34961
212960	1045.48608	307.285522	5.40912E-7	3052.34961
212992	1045.48608	307.285522	5.40912E-7	3052.34961
213024	1049.98584	307.285522	5.40912E-7	3052.34961
213056	1045.48608	307.285522	5.40912E-7	3052.34961
213088	1045.48608	302.763123	5.40912E-7	3052.34961
213120	1045.48608	307.285522	5.40912E-7	3052.34961
213152	1045.48608	307.285522	5.40912E-7	3052.34961
213184	1045.48608	307.285522	5.40912E-7	3052.34961
213216	1045.48608	307.285522	5.40912E-7	3052.34961
213248	1045.48608	307.285522	5.40912E-7	3052.34961
213280	1045.48608	302.763123	5.40912E-7	3052.34961
213312	1045.48608	307.285522	5.40912E-7	3052.34961
213344	1045.48608	307.285522	5.40912E-7	3052.34961
213376	1045.48608	302.763123	5.40912E-7	3052.34961
213408	1045.48608	302.763123	5.40912E-7	3052.34961
213440	1045.48608	302.763123	5.40912E-7	3052.34961
213472	1045.48608	302.763123	5.40912E-7	3052.34961
213504	1045.48608	307.285522	5.40912E-7	3052.34961
213536	1045.48608	307.285522	5.40912E-7	3052.34961
213568	1045.48608	307.285522	5.40912E-7	3052.34961
213600	1045.48608	302.763123	5.40912E-7	3052.34961
213632	1045.48608	302.763123	5.40912E-7	3052.34961
213664	1045.48608	302.763123	5.40912E-7	3052.34961
213696	1045.48608	302.763123	5.40912E-7	3052.34961
213728	1045.48608	307.285522	5.40912E-7	3052.34961
213760	1045.48608	302.763123	5.40912E-7	3052.34961
213792	1045.48608	302.763123	5.40912E-7	3052.34961
213824	1045.48608	302.763123	5.40912E-7	3052.34961
213856	1045.48608	302.763123	5.40912E-7	3052.34961
213888	1045.48608	302.763123	5.40912E-7	3052.34961
213920	1045.48608	302.763123	5.40912E-7	3052.34961
213952	1045.48608	298.241089	5.40912E-7	3052.34961
213984	1045.48608	298.241089	5.40912E-7	3052.34961
214016	1045.48608	298.241089	5.40912E-7	3052.34961
214048	1045.48608	298.241089	5.40912E-7	3052.34961
214080	1045.48608	298.241089	5.40912E-7	3052.34961
214112	1045.48608	298.241089	5.40912E-7	3052.34961
214144	1045.48608	298.241089	5.40912E-7	3052.34961
214176	1045.48608	302.763123	5.40912E-7	3052.34961
214208	1045.48608	298.241089	5.40912E-7	3052.34961
214240	1045.48608	302.763123	5.40912E-7	3052.34961
214272	1045.48608	298.241089	5.40912E-7	3052.34961
214304	1040.98584	298.241089	5.40912E-7	3052.34961
214336	1045.48608	0	5.40912E-7	3052.34961
214368	1040.98584	0	5.40912E-7	3052.34961
214400	1036.48608	0	5.40912E-7	3052.34961
214432	1036.48608	0	5.40912E-7	3052.34961
214464	1031.98584	0	5.40912E-7	3052.34961
214496	991.486084	0	5.40912E-7	3052.34961
214528	0	0	5.40912E-7	3052.34961
214560	0	0	5.40912E-7	3052.34961
214592	0	0	5.40912E-7	3052.34961

APPENDIX B

Pressure Fall-Off Test Tabulated Data

Bob Barnes



Reuben L. Graham, Inc.

Weldon Wilson

Oil & Gas Engineering Consultants
Suite 500, 1018 Kanawha Boulevard, East
Charleston, West Virginia 25301
Telephone (304) 344-5930

December 10, 1991

Mr. Pat Ranson
OXY USA, Inc.
P. O. Drawer Q
Richlands, Virginia 24641

Dear Pat:

Enclosed are the bottomhole pressure data from the pressure falloff test conducted on the Ball A #1 well from November 21, 1991 through December 9, 1991. The test began with 180-hour clocks which were replaced with 360-hour clocks on November 26, 1991 so that no data would be lost over the Thanksgiving Holiday.

Although we did not have pressure gauges on bottom until almost two hours into the falloff, I estimated a final bottomhole injection pressure of 2295.9 psia. This pressure assumes a wellbore fluid gradient of 0.434 psi/ft which I calculated at times when we collected both surface and bottomhole data. The estimated final bottomhole injection pressure also assumes a final surface injection pressure of 340 psig which I may have remembered incorrectly.

We enjoyed working with you on this falloff test and would appreciate the opportunity to perform future tests that OXY USA may require. RLG, Inc. also performs pressure transient analyses if you have a need for these services.

Please call me or Harold Hamby if you have any questions about the test or test data.

Sincerely,

Stan Shaw

Stan Shaw

JSS/kpb

Enclosures

**OXY USA, INC.
BALL A #1
PRESSURE FALLOFF TEST
11/21/91 - 12/9/91**

TEST OUTLINE

Test following 48-hour injection by Dowell/Schlumberger. Injection was terminated at 11:00 a.m. on 11/21/91. D/S monitored first 0.25 hour falloff at surface and then rigged down injection line.

11/21/91

Pressured up lubricator at 12:26 p.m.

Surface Pressure:

279 PSIG on tubing
1122 PSIG on casing

Two RPG-3 gauges on bottom at 12:48 p.m. Data reported from bottom gauge (Element SN 64678) set at 4480 ft KB.

11/26/91

Gauges off bottom at 1:47 p.m. to replace 180-hour clocks with 360-hour clocks.

Pressured up lubricator at 3:05 p.m.

Surface Pressure:

86 PSIG on tubing
1210 PSIG on casing

Two RPG-3 gauges back on bottom at 3:19 p.m. on 11/26/91.

12/9/91

Gauges off bottom at 8:36 a.m. to terminate test.

Surface Pressure:

9 PSIG on tubing
1280 PSIG on casing

OXY USA, INC.
BALL A. #1
PRESSURE FALLOFF TEST
11/21/91 - 12/9/91

FALLOFF TIME (HOURS)	BOTTOMHOLE PRESSURE (PSIA)
0.00	BNOB*
0.05	BNOB
0.10	BNOB
0.15	BNOB
0.20	BNOB
0.25	BNOB
0.30	BNOB
0.35	BNOB
0.40	BNOB
0.50	BNOB
0.60	BNOB
0.70	BNOB
0.80	BNOB
0.90	BNOB
1.00	BNOB
1.50	BNOB
2.00	2234.9
2.50	2231.1
3.00	2227.5
3.50	2224.2
4.00	2221.0
5.00	2216.0
6.00	2211.0
7.00	2206.5
8.00	2202.0
9.00	2198.2
10.00	2194.8
15.00	2179.6
20.00	2166.2
25.00	2156.5
30.00	2146.5

FALLOFF TIME (HOURS)	BOTTOMHOLE PRESSURE (PSIA)
35.00	2137.1
40.00	2130.4
50.00	2117.2
60.00	2105.2
70.00	2094.7
80.00	2085.3
90.00	2075.1
100.00	2067.0
110.00	2058.8
120.00	2051.3
130.00	2043.7
140.00	2037.1
150.00	2031.3
160.00	2025.6
170.00	2019.3
180.00	2013.0
190.00	2007.2
200.00	2001.5
220.00	1992.0
240.00	1982.6
260.00	1974.6
280.00	1967.4
300.00	1959.1
320.00	1951.5
340.00	1944.3
360.00	1938.9
380.00	1932.2
400.00	1925.9
420.00	1920.0
430.70	1917.3

*BNOB = Bombs not yet on bottom.

Depth = 4480 ft KB
 BHT = 97°F



OXY USA Inc.
MID-CONTINENT REGION
BOX 26100, Oklahoma City, OK 73126-0100
Telephone 405.749-2000

November 7, 1991

EXPRESS MAIL

Ms. Karen Johnson
UIC Section (3WM43)
Region III
United States Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

RE: Injectivity Test Authorization Request
Ball "A" #1
Buchanan County, Virginia

Dear Ms. Johnson:

OXY USA Inc. is interested in conducting an injectivity test on our Ball "A" #1 well, which was permitted and drilled as an exploratory gas well but was non-productive.

We have reviewed the EPA Region III Injectivity Testing Procedure, and we are providing the attached information in response to the list of criteria to be considered for a request of authorization to conduct an injectivity test.

We propose to initiate this test as soon as authorization is received.

Should any additional information be required, I can be contacted at (405) 749-2425.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Randy L. Pitre".

Randy L. Pitre
Region Environmental Advisor

RLP/qjs

Attachments

cc: Mr. G. M. Vangolen - OXY w/att.
Mr. Jay Henderson - Virginia DMME w/att.

File: Coalbed Methane-Ball "A" #1

bcc: B. D. Humphries
W. J. Wilson
R. M. Scott
J. R. Beckett

INJECTIVITY TEST AUTHORIZATION REQUEST

BALL "A" #1
BUCHANAN COUNTY, VIRGINIA

EPA Region III Required Information

- A. A topographic map showing the location of the well to be used in the test and any other well(s) located within one-quarter mile of this well, which penetrate the same zone of injection.

A topographic map showing the location of the proposed injection test well, the Ball "A" #1, is attached in Appendix A. There are no other wells located within one-quarter mile of this well which penetrate the same zone of injection.

- B. The well's identification number.

The proposed injection test well, the Ball "A" #1, has API # 45-027-21690.

- C. The well's depth.

The proposed test well has a TD of 5208' and a PBTD of 4664'.

- D. The geologic formation to be tested and its respective depth.

The formation selected for the injectivity test is the Mississippian-age Weir Formation. In OXY USA's Ball "A" No. 1 well, the top and bottom of the Weir Formation are located at 4,465 and 4,922 feet below the ground's surface, respectively. The Weir Formation can be divided into a lower dark organic shale interval and an upper dirty siltstone interval; in the Ball "A" #1 the shale is 370 feet thick and the siltstone is 87 feet thick. An evaluation of wireline logs revealed a net 16 feet of porosity greater than 7% in three zones within the upper siltstone interval. The proposed injection zone in the Weir Sand formation is the interval 4486'-4541'.

Injectivity Test Authorization Request
Ball "A" No. 1
Page 2

E. A schematic diagram of the well's construction.

A schematic diagram of the well's construction is attached in Appendix B.

F. The specific gravity of the fluid to be injected.

It is proposed to inject fresh water with 2% KCl (potassium chloride) in solution which has a specific gravity of 1.01 (8.43 lb/gal) at 60° F.

G. Instantaneous shut-in pressure (ISIP) data, if available.

On September 11, 1991 following perforation of the Weir Sand interval 4486'-4511', an acid breakdown and falloff using 2000 gal of 15% HCl acid was pumped down 2-3/8" tubing. The maximum injection pressure during this treatment was 1775 psi and an instantaneous shut-in pressure (ISIP) of 450 psi was obtained.

H. Estimated duration of the test.

Continuous injection for approximately 10 days followed by a falloff test of approximately 20 days gives a total estimated testing duration of 30 days.

I. Estimated maximum rate of injection and maximum volume to be injected daily and over the course of the test.

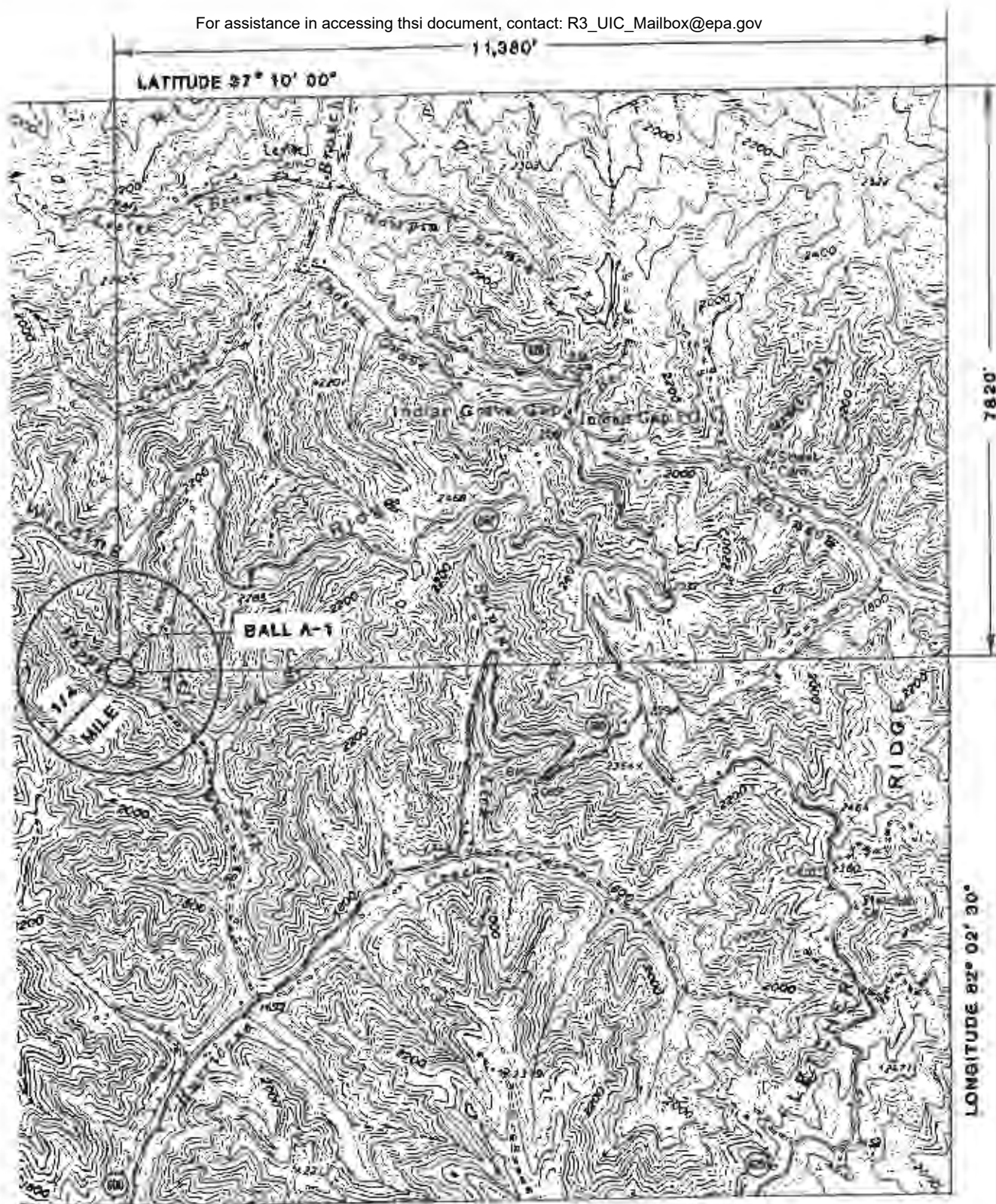
The primary objectives of the injectivity test will be to determine the maximum fluid acceptance rates of the Weir Sand and to determine if the Weir Sand is a limited reservoir in the Ball "A" #1. Accordingly, it is proposed to inject a total volume up to 5000 bbls at rates up to 2000 BPD subject to maximum pressure limitations.

J. Estimated maximum injection pressure (MIP).

It is proposed to keep the surface injection pressure during all testing under a maximum injection pressure (MIP) of 2000 psi.

APPENDIX A
Topographic Map

N



SCALE : 1" :: 2000'

REF: VANSANT, VA. 7.5' USGS
TOPOGRAPHIC QUADRANGLE
1963

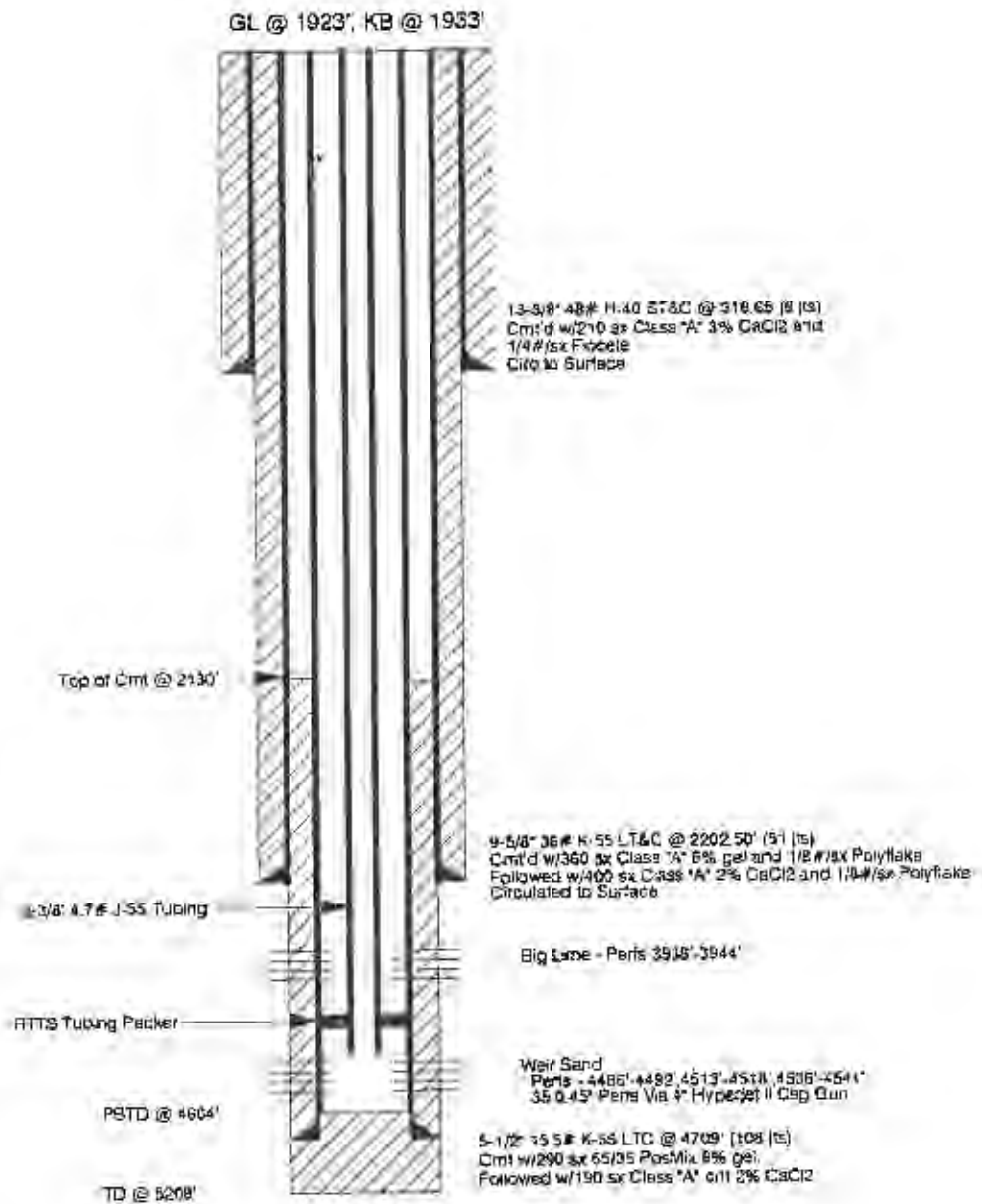
LOCATION OF WELL BALL A-1
OXY USA, Inc.
PERMIT NO. 1690
NOVEMBER, 1991

APPENDIX B

**Ball "A" #1
Wellbore Construction Diagram**

Ball "A" #1

Buchanan County, Virginia



Notes:

1. All Depths RKB.
2. Proposed Injection Test Configuration

WJW - 11/4/91

OXY USA, Inc.
MID-CONTINENT REGION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

RECEIVED

NOV 19 1991

MID-CONTINENT
ENGINEERING

Mr. Randy L. Pitre
Regional Environmental Advisor
Oxy USA Inc.
Mid-Continent Region
Box 26100
Oklahoma City, OK 73126-0100

NOV 14 1991

Dear Mr. Pitre:

Your letter and its attached information, submitted to support your request to conduct an injectivity test in the Weir Formation has been reviewed by EPA Region III staff. You are hereby granted permission to conduct this test, utilizing the Bell "A" # 1 well (API # 45-027-21690), located in Buchanan County, Virginia, under the following conditions.

1. Injection shall occur into the upper interval of the Weir Formation between 4486 feet and 4541 feet.
2. Testing shall be limited to a period not to exceed 30 consecutive days.
3. During the testing period, the total volume of fluid injected shall not exceed 5000 BBLs and no more than 2000 BBLs of fluid may be injected during any given 24 hour period.
4. The maximum injection pressure for this test shall not exceed 1327 PSI. This maximum injection pressure was determined using the regulatorily prescribed fracture gradient of .733 psi/ft. and the following equation:

$$P_{max} = [.733 - (.433 \times \text{S.G. of fluid})] \times \text{Depth}$$

Although you submitted information which indicated that the Weir Formation had an ISIP of 450 psi, we found this pressure to vary considerably from previous data we have reviewed for the Weir. Therefore, until such time as the data you submit shows otherwise, the regulatorily prescribed gradient of .733 psi/ft. will be used.

5. Injection volumes and pressures shall be recorded on a continuous basis.
6. Injection must occur through tubing and packer located immediately above the injection zone.

-2-

The final results of the injectivity test should be submitted to this office within 15 days of the completion of the test, unless the results are to be a part of a permit application submission, in which case they may be submitted at that time. In no case, however, shall the results of this test be submitted later than 45 days after the completion of this test. In addition, please notify this office at least 48 hours in advance of the commencement of this test.

If you should have any questions regarding the conditions imposed on this injectivity test, please give me a call at 215-597-2537.

Sincerely,

S. Stephen Platt
UIC Section (3WM43)
DW/GW Protection Branch

cc: Tom Fulmer, VA DMME

FORMATION TESTING PROGRAM

BALL "A" #1

I. FORMATION TESTING PROGRAM

INJECTION TEST

The injectivity testing program for the Ball "A" #1 was divided into two phases. The first phase was an injection test to assess the ability of the Weir sandstone (4486'-4541') to accept fluid. This was followed by the second phase in which injection was ceased and the bottomhole pressure was monitored for a pressure fall-off analysis.

The well configuration during both phases of the testing is shown in the attached wellbore diagram. It should be noted that the Big Lime perfs (3938'-3944') were open to the back side (tubing-casing annulus) during the Weir injection test. An R-4 tubing packer was run on 2-3/8" tubing and set at 4424' to isolate the Weir sandstone during the test.

On November 19, 1991 a Dowell-Schlumberger pump truck and pressure recording van were moved on location. The surface pipe connections with the pump truck were made and pressure tested for leaks. No leaks were detected and at approximately 10:48 AM EST the 2-3/8" tubing was loaded with 72 bbls of fresh water containing 2% potassium chloride (KCl) in solution and injection into the Weir sandstone was commenced. Continuous injection was maintained for the next 48 hours. The injection fluid throughout all the injection was fresh water containing 2% KCl in solution.

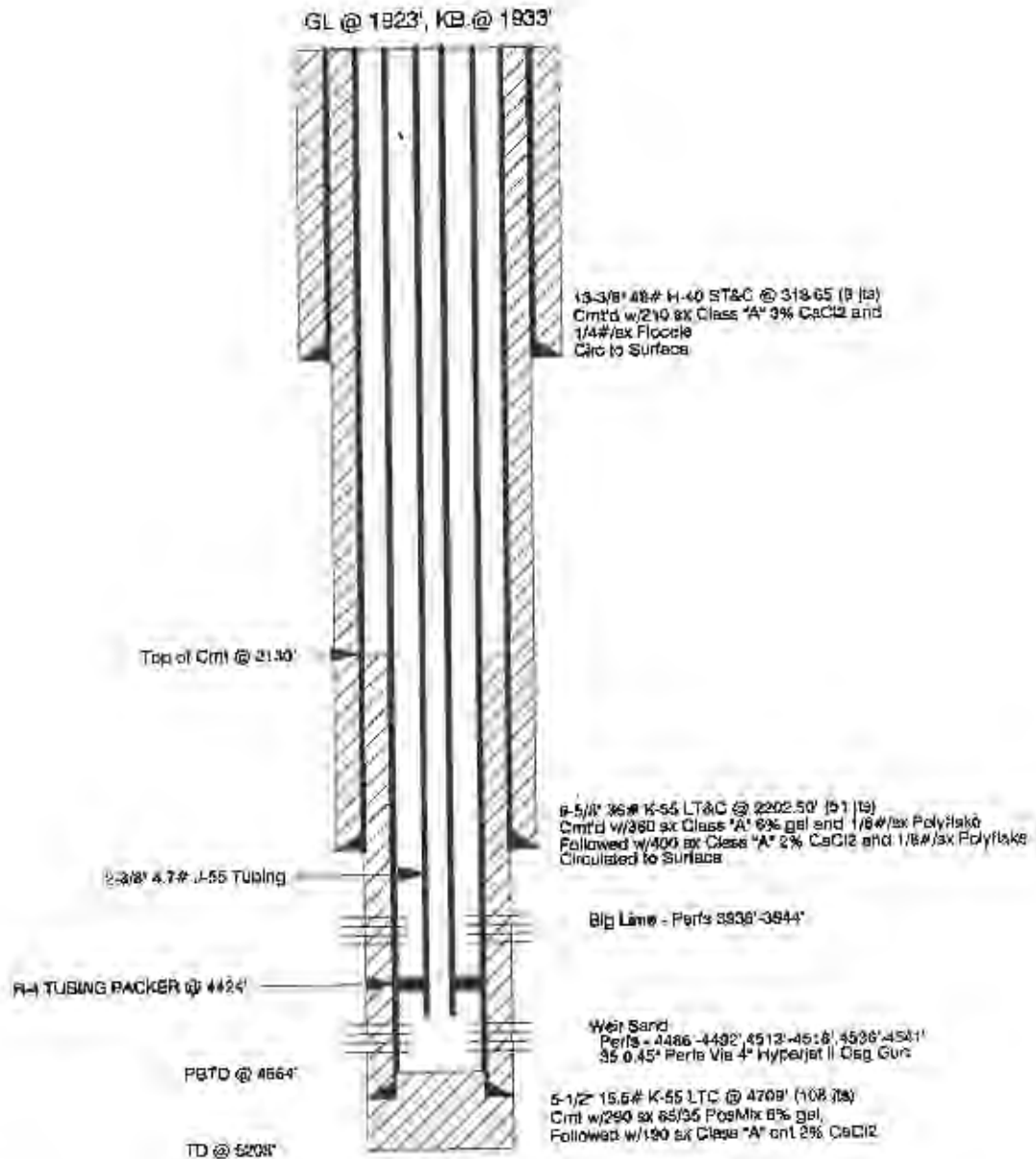
During the injection phase, the surface tubing pressure and the tubing-casing annulus pressure were monitored and recorded by pressure transducers supplied by Dowell-Schlumberger. The flow rate and total volume of fluid injected were monitored and recorded by flowmeters supplied by Dowell-Schlumberger. All data recorded during this injection phase of the testing and supplied to OXY by Dowell is included in Appendix A. This injection test data is plotted in the attached plot.

A total of 3,052 bbl was injected over a 48 hour injection time period. The maximum injection pressure during the test was 452 psi; the average injection pressure was 388 psi. The maximum injection rate during the test was 1,695 bbl/day; the average injection rate was 1,523 bbl/day.

Based upon the results of the injection test, the Weir sandstone will accept fluid from production and gathering operations safely.

Ball "A" #1

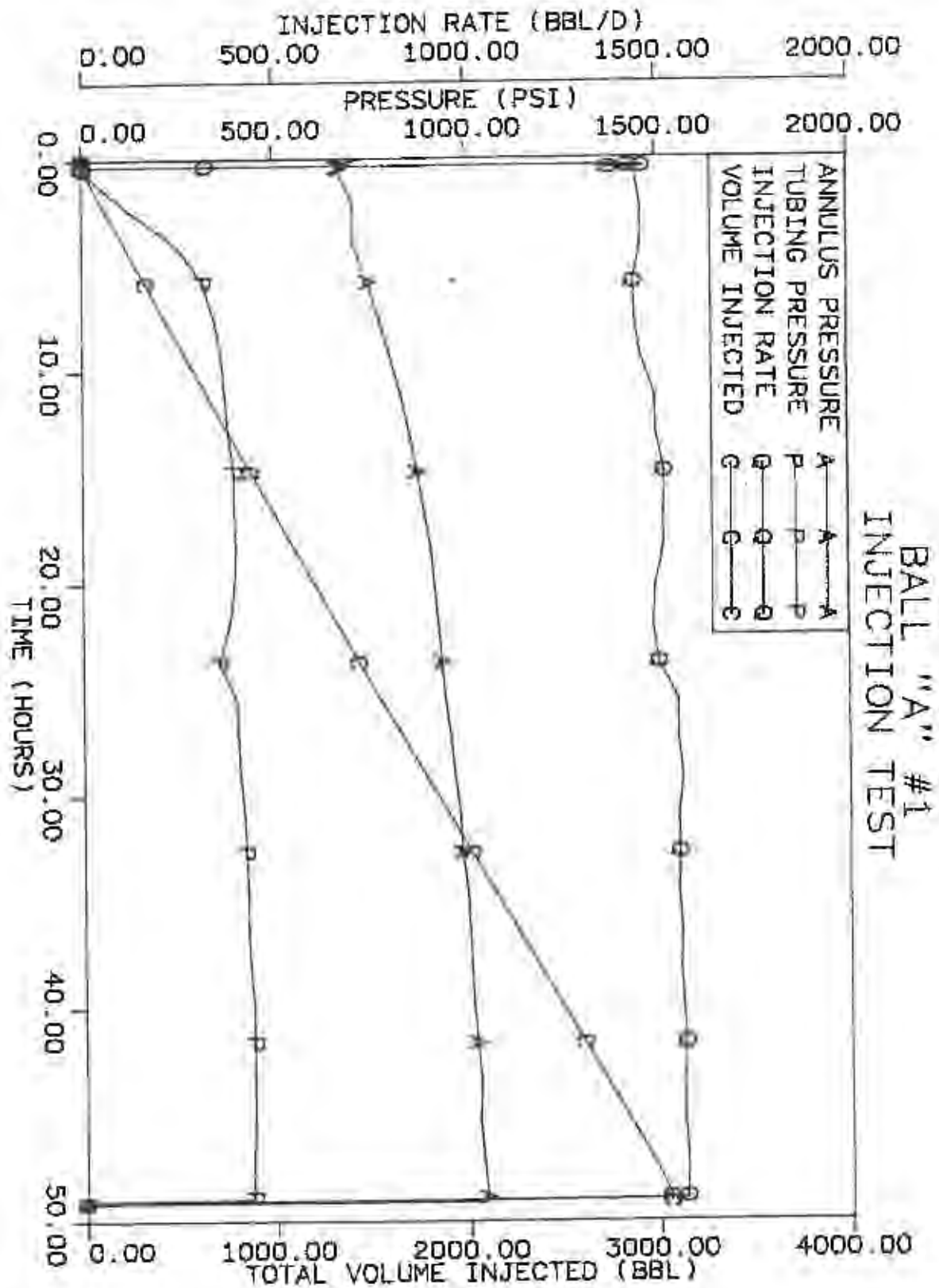
Buchanan County, Virginia



Notes:

1. All Depths RKB.
2. Injection Test Configuration

WJW - 12/31/91



FALL-OFF TEST

Immediately following the injection test phase, the Ball "A" #1 was shut-in to record data for a pressure fall-off analysis. Reuben L. Graham, Inc. was contracted to record the bottomhole pressure data. Two RPG-3 gauges with 180-hr clocks were run on wireline, set at 4480', and commenced recording bottomhole pressure data at 3:19 PM on November 26, 1991. On November 26, 1991, the 180-hr clock recorders were replaced with 360-hr clocks. The test was terminated on December 9, 1991. Pressure fall-off data was recorded during the total test time of 431 hours (18 days). All data recorded during this phase of the testing and supplied by Reuben L. Graham, Inc. to OXY is included in Appendix B.

Analysis of this pressure fall-off data showed that a high conductivity frac was present in the Weir sandstone as a result of a hydraulic fracture treatment of the zone conducted on September 13, 1991. A total of 60,000 lbs of 20/40 mesh sand had been pumped in the 42,000 Mgal, 75% quality, nitrogen foam frac. While the test analysis leads to highly non-unique results with this data, the best fit to the pressure fall-off data indicated a formation permeability of 2 md ($k_h = 32$ md-ft), a fracture half-length of 198 ft, and an original reservoir pressure of 1,714 psia. The pressure data and the fit using these parameters is shown on the following plot. A type curve of the fall-off data and its derivative along with the best fit is also attached.

During the test, a maximum recording thermometer was also run and indicated a formation temperature of 97° F.

STORAGE CAPACITY

The storage capacity of the respective intervals can be estimated from the following equation:

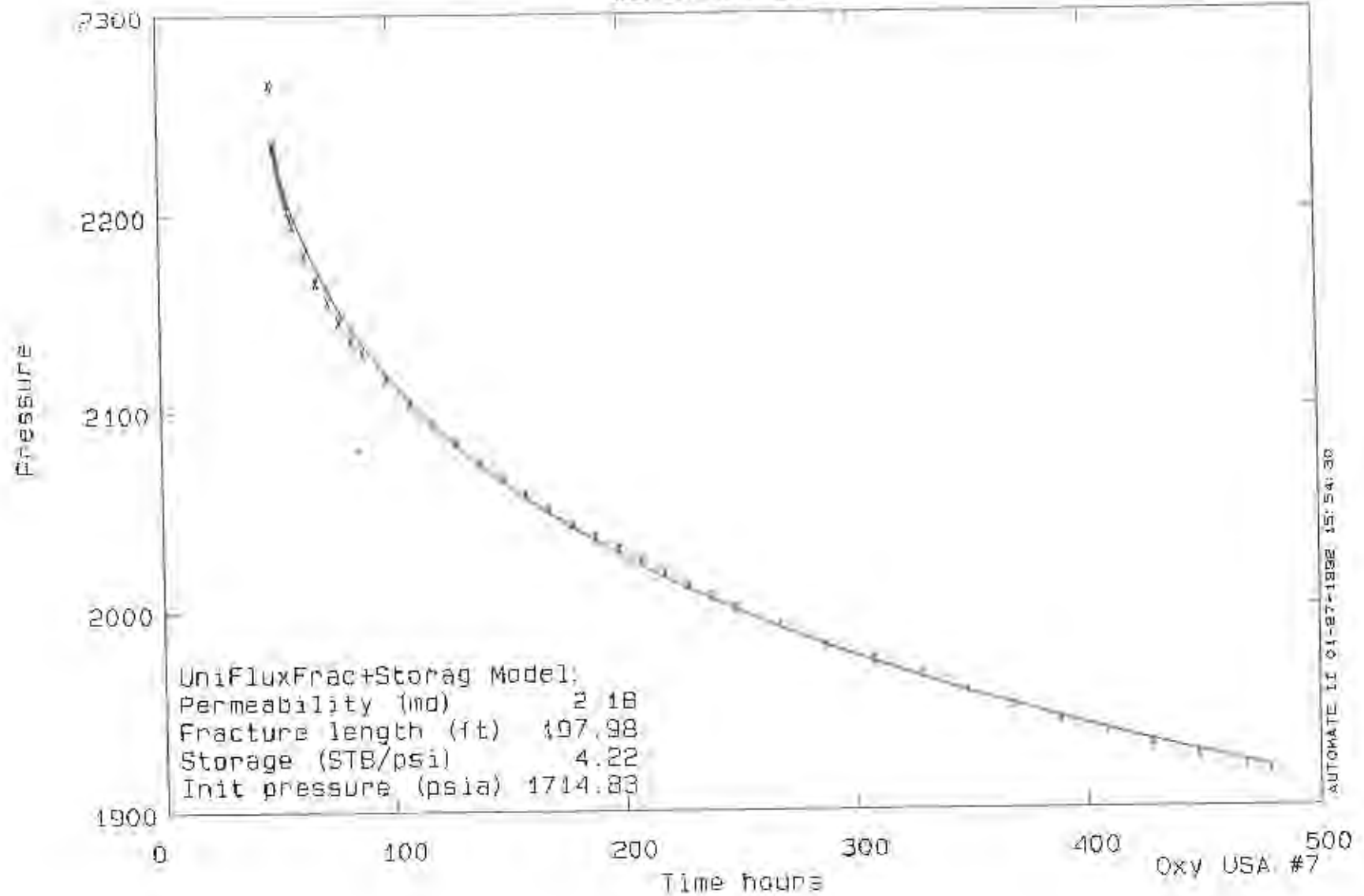
$$V_{sc} = 7758 \times \phi \times (1 - S_w) \times A \times h,$$

where

- V_{sc} = Storage capacity volume (bbl),
- ϕ = Porosity (-),
- S_w = Water saturation (-),
- A = Area (acres),

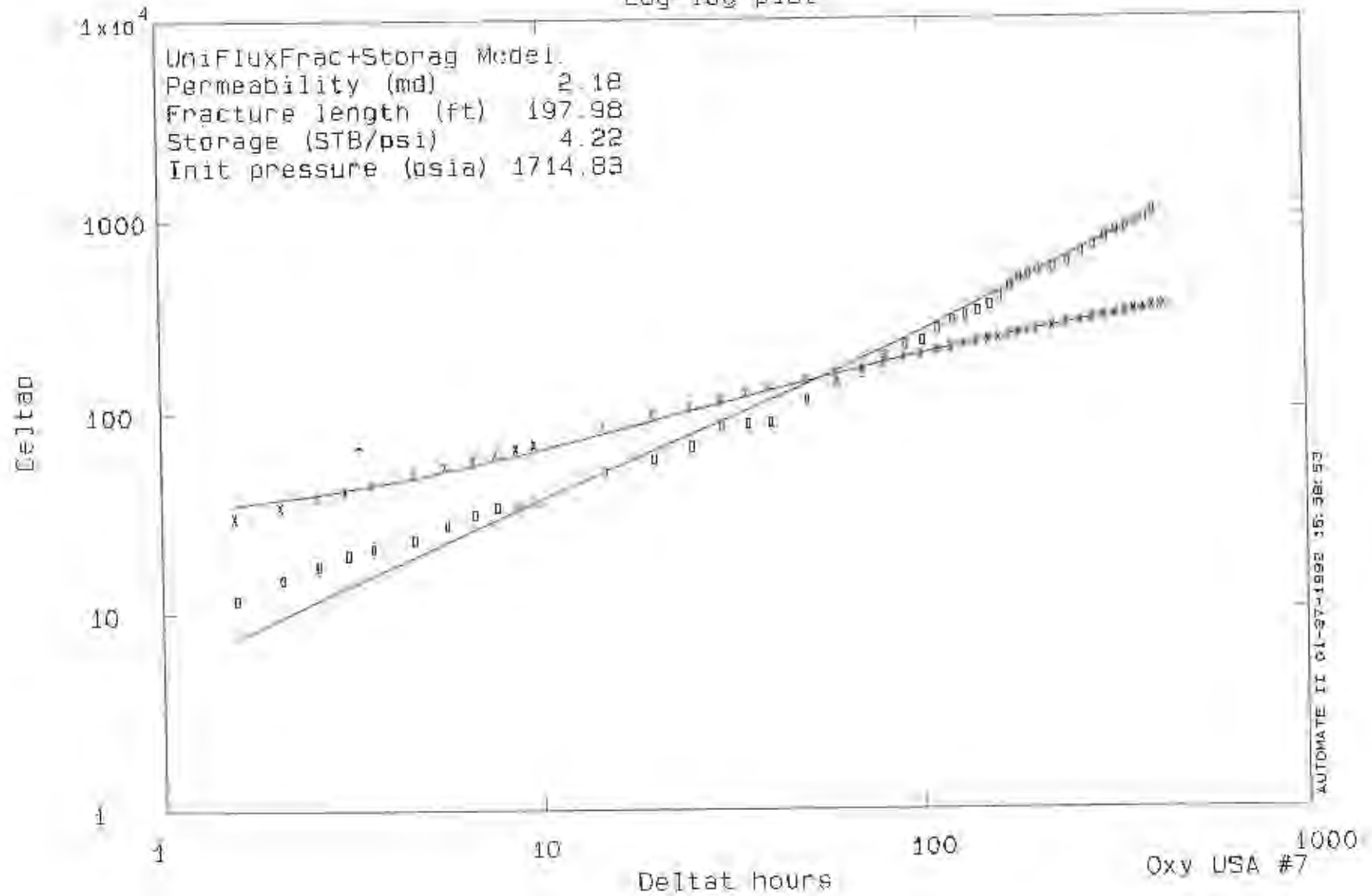
Well "A" #1 Fall-Off Test

Cartesian plot



Ball "A" #1 Fall-Off Test

Log-log plot



and

h = Thickness (ft).

Assuming a reservoir of 80 acres in areal extent and using the attached log determined values for the porosity and water saturation, one obtains the disposal capacity of the respective zones shown in the table below.

Zone	ϕ (-)	S_w (-)	A (Acres)	h (ft)	V_{sc} (Mbbl)
Weir					
4486'-4492'	0.07	0.32	80	6	177
4513'-4518'	0.12	0.26	80	5	276
4536'-4541'	0.10	0.33	80	5	208
					Total = 661

As can be seen from the above table, the storage capacity of the Weir sandstone is approximately 661 Mbbl.

ESTIMATE OF FRACTURE PRESSURE

Since the Ball "A" #1 had been previously hydraulically fractured, obtaining a fracture pressure from a step rate injection test was not possible with the pressure limits set by the EPA for the test. The fracture pressure can be estimated using the reservoir pressure obtained in the fall-off test and the Satiz correlation:

$$FG = 0.57 e^{0.57 + P_r}$$

Using this and the 1,715 psi original reservoir pressure obtained from the fall-off test analysis, one obtains a frac gradient of 0.71 - 0.74 psi/ft. This is, within the accuracy of the correlation, equal to the accepted regional frac gradient of 0.733 psi/ft.

PHYSICAL AND CHEMICAL CHARACTERISTICS

The Weir formation is a (possibly naturally fissured) sandstone that is generally a gas producing zone. A well log analysis is attached showing the calculated gas saturation ranges from 67% to 76% across the zone. Additional information is included in the geological section of this report.

SUMMARY

Based on the results of the formation testing program provided above and in Appendices A and B, the Weir sandstone will accept and store the liquids from production and gathering operations safely.

APPENDIX A
Injection Test Tabulated Data

CN	Customer Company	OKY USA
WM	Well Name	CSMI BALL A-1
RIGN	Rig Name	
FN	Field Name	VANSANT QUADRANGLE
DSLO	DS Location	PURB, KY 0119
TYPE	Type of Service	PUMP RENTAL (INJECTION TEST)
SIR	Not found	01-19-4166
DATE	Job Date	NOVEMBER 19, 1991
ENGI	DS Engineer	L.W. MONTGOMERY, F.R. LEEPER

MESSAGES DATA

37680	10:28:00	START JOB
37712	10:28:32	SAFETY MEETING
37720	10:28:40	START PAUSE
37724	10:28:44	END PAUSE
37760	10:29:20	START PAUSE
38700	10:45:00	END PAUSE
38780	10:46:20	PRESSURE TEST LINE
38872	10:47:52	BLEED-OFF PRESSURE
38896	10:48:16	START PUMPING WATER
42180	11:43:00	RESET VOLUME
117700	32:41:40	START PAUSE
117780	32:43:00	END PAUSE
157352	43:42:32	START PAUSE
157440	43:44:00	END PAUSE
212400	59:00:00	SHUTDOWN
214340	59:32:20	SHUT WELL IN
214588	59:36:28	END JOB

CHANNELS DESCRIPTION :

U1PR : Unit 1 Pressure in PSI
U3PR : Unit 3 Pressure in PSI
U31F : Unit 3 Pump 1 Flowrate in BPM
CUVO : Cumulated Volume in BBL

INDEX DESCRIPTION :

TIME : Time from 37680 to 214592 S Spacing : 30 S

SENSORS DATA

TIME S	U1PR PSI	U3PR PSI	U31F BPM	CUVO BBL
37680	0	0	0	0
37712	0	0	0	0
37744	725.985596	0	0	0
38700	680.985596	0	0	0
38732	689.985596	0	0	0
38764	680.985596	0	0	0
38796	680.985596	1207.20825	0.00867	0.001734
38828	680.985596	1736.30908	0.0102	0.007179
38860	680.985596	1718.22021	0.0102	0.012614
38892	680.985596	0	-1.863E-10	0.0136
38924	680.985596	0	0.22542003	0.06375
38956	676.485718	0	0.59312999	0.29049605
38988	676.485718	0	0.91851008	0.71821606
39020	676.485718	0	0.97461009	1.22733212
39052	671.985596	0	0.98022032	1.74923229
39084	676.485718	0	0.98991024	2.27463484
39116	676.485718	0	1.00010991	2.80595255
39148	676.485718	0	1.00827003	3.34213257
39180	671.985596	0	1.01694036	3.88252878
39212	676.485718	0	1.02153063	4.42642689
39244	671.985596	0	1.01745081	4.97137928
39276	671.985596	0	0.98175061	5.50366404
39308	671.985596	0	0.94860065	6.01742458
39340	671.985596	0	0.9394207	6.51811028
39372	671.985596	0	0.94145085	7.02066422
39404	671.985596	0	0.95676088	7.52814212
39436	671.985596	0	0.97818077	8.04253387
39468	671.985596	0	1.00419068	8.57242393
39500	667.485718	0	1.0082705	9.10959053
39532	671.985596	0	1.00674033	9.64696121
39564	667.485718	0	1.00623035	10.1837864
39596	667.485718	0	1.01082063	10.721438
39628	667.485718	0	1.0113306	11.2611122
39660	671.985596	0	1.01184058	11.8006229
39692	671.985596	0	1.0154109	12.3412228
39724	671.985596	0	1.01439095	12.8823543
39756	671.985596	0	1.01235127	13.4234409

39788 680.985596
 39820 680.985596
 39852 680.985596
 39884 680.985596
 39916 680.985596
 39948 680.985596
 39980 680.985596
 40012 680.985596
 40044 680.985596
 40076 685.485718
 40108 685.485718
 40140 680.985596
 40172 680.985596
 40204 685.485718
 40236 685.485718
 40268 680.985596
 40300 680.985596
 40332 680.985596
 40364 680.985596
 40396 676.485718
 40428 676.485718
 40460 676.485718
 40492 676.485718
 40524 676.485718
 40556 671.985596
 40588 671.985596
 40620 671.985596
 40652 671.985596
 40684 676.485718
 40716 676.485718
 40748 671.985596
 40780 671.985596
 40812 671.985596
 40844 676.485718
 40876 676.485718
 40908 676.485718
 40940 676.485718
 40972 676.485718
 41004 676.485718
 41036 676.485718
 41068 680.985596
 41100 676.485718
 41132 676.485718
 41164 676.485718
 41196 676.485718
 41228 680.985596
 41260 680.985596
 41292 680.985596
 41324 676.485718
 41356 676.485718
 41388 676.485718
 41420 676.485718
 41452 676.485718
 41484 676.485718
 41516 676.485718
 41548 680.985596
 41580 680.985596
 41612 676.485718
 41644 680.985596
 41676 680.985596
 41708 680.985596
 41740 680.985596
 41772 680.985596
 41804 680.985596
 41836 680.985596
 41868 676.485718
 41900 680.985596
 41932 676.485718
 41964 680.985596
 41996 685.485718
 42028 680.985596
 42060 680.985596
 42092 680.985596
 42124 680.985596
 42156 680.985596
 42188 685.485718
 42220 680.985596
 42252 680.985596
 42284 680.985596
 42316 694.48584
 42348 694.48584
 42380 680.985596
 42412 694.48584
 42444 694.48584

0 1.0118413 13.9631274
 0 1.0118413 14.041708
 0 1.00980115 15.5808125
 0 1.00980115 16.1795107
 0 1.01133132 16.6584473
 0 1.01286149 17.1983689
 0 1.01337147 17.7387657
 0 1.01286149 18.2792664
 0 1.01643181 18.82024
 0 1.01643181 19.362339
 0 1.01694202 19.9048462
 0 1.01796198 20.4471169
 0 1.01847219 20.9903679
 0 1.02051234 21.5343361
 0 1.02204251 22.0791512
 0 1.02000237 22.6239662
 0 1.01388216 23.1663017
 0 1.00827217 23.7050667
 0 1.00878215 24.2429466
 0 1.0108223 24.7815437
 0 1.01235247 25.3210258
 0 1.01286244 25.8615227
 0 1.01051256 26.4039018
 1.29617023 1.00929284 26.9393959
 0 1.00878286 27.4774513
 0 1.00674272 28.0148582
 0 1.00572276 28.5514107
 0 1.00572276 29.0873586
 0 1.00521278 29.623909
 0 1.00623274 30.1605606
 0 1.00623274 30.6971474
 0 1.00674295 31.2338371
 0 1.00623298 31.7706261
 0 1.00572276 32.3070374
 0 1.0087831 32.8440704
 0 1.01082301 33.3824997
 0 1.0118432 33.9221725
 0 1.0118432 34.4618835
 0 1.0098033 35.0007935
 0 1.01133347 35.5397949
 0 1.01184344 36.0796814
 0 1.01184344 36.6194811
 0 1.00929332 37.1599208
 0 1.00674319 37.6955032
 0 1.00725341 38.23246
 0 1.00776339 38.769455
 0 1.00776339 39.3070374
 0 1.00878358 39.8450241
 0 1.00776339 40.3824997
 0 1.00776339 40.9197388
 0 1.00827336 41.457489
 0 1.01235366 41.9962921
 0 1.01388383 42.5361786
 0 1.01592398 43.0774689
 0 1.01847434 43.6201324
 0 1.01894441 44.1628723
 0 1.01663467 44.7051697
 0 1.01439476 45.2466354
 0 1.01541495 45.7880936
 0 1.01541495 46.329689
 0 1.01694312 46.871788
 0 1.01796508 47.4143029
 0 1.01388502 47.9559402
 0 1.01184511 48.4958572
 0 1.01235509 49.0352936
 0 1.0128653 49.5755539
 0 1.01388526 50.1158524
 0 1.0138855 50.6563873
 0 1.01541543 51.1979455
 0 1.01541543 51.7393112
 0 1.01490569 52.2807693
 0 1.01439571 52.8218536
 0 1.01388574 53.3628693
 0 1.01337576 53.903511
 0 1.01541591 54.444664
 0 1.01796603 54.9869308
 0 1.01694608 55.5294342
 0 1.01796627 56.0719376
 0 1.01796651 56.6147385
 0 1.02000666 57.1583023
 0 1.01949668 57.7021715
 0 1.01949668 58.2457962
 0 1.0200069 58.7894974

42478 694.48584
 42508 694.48584
 42540 694.48584
 42572 694.48584
 42604 698.985596
 42636 694.48584
 42668 694.48584
 42700 694.48584
 42732 694.48584
 42764 694.48584
 42796 703.48584
 42828 698.985596
 42860 694.48584
 42892 698.985596
 42924 703.48584
 42956 689.985596
 42988 694.48584
 43020 694.48584
 43052 689.985596
 43084 689.985596
 43116 689.985596
 43148 689.985596
 43180 694.48584
 43212 694.48584
 43244 694.48584
 43276 694.48584
 43308 694.48584
 43340 0
 43372 694.48584
 43404 689.985596
 43436 689.985596
 43468 694.48584
 43500 694.48584
 43532 694.48584
 43564 694.48584
 43596 694.48584
 43628 689.985596
 43660 694.48584
 43692 694.48584
 43724 698.985596
 43756 698.985596
 43788 698.985596
 43820 698.985596
 43852 698.985596
 43884 694.48584
 43916 694.48584
 43948 698.985596
 43980 698.985596
 44012 698.985596
 44044 698.985596
 44076 698.985596
 44108 698.985596
 44140 703.48584
 44172 698.985596
 44204 698.985596
 44236 698.985596
 44268 703.48584
 44300 698.985596
 44332 712.48584
 44364 703.48584
 44396 698.985596
 44428 703.48584
 44460 703.48584
 44492 703.48584
 44524 703.48584
 44556 703.48584
 44588 703.48584
 44620 703.48584
 44652 707.985596
 44684 703.48584
 44716 712.48584
 44748 712.48584
 44780 703.48584
 44812 703.48584
 44844 703.48584
 44876 707.985596
 44908 707.985596
 44940 712.48584
 44972 707.985596
 45004 707.985596
 45036 703.48584
 45068 703.48584
 45100 712.48584
 45132 712.48584

0 1.01949716
 0 1.01694727
 0 1.01694751
 0 1.01898742
 0 1.01949753
 0 1.01847792
 0 1.01898789
 0 1.02102828
 0 1.02306843
 0 1.02357841
 0 1.02408862
 0 1.02408886
 0 1.02663898
 0 1.02663922
 0 1.02918935
 0 1.02612948
 0 1.02765965
 0 1.02816987
 0 1.02919006
 0 1.02715039
 0 1.02613068
 0 1.02562094
 0 1.02460098
 0 1.02358103
 0 1.02103114
 0 1.0205214
 0 1.0205214
 1.01746154
 1.01746154
 1.01797152
 1.01848149
 1.01848173
 1.01746178
 1.0169518
 1.01797199
 1.01899195
 1.02001214
 1.0195024
 1.0195024
 1.02001262
 1.01899266
 1.02001286
 1.01797295
 1.01950312
 1.01899358
 1.01950336
 1.01797342
 1.01695371
 1.01593375
 1.01593375
 1.01542377
 1.01440382
 1.01389384
 1.01389408
 1.01491427
 1.01593423
 1.01848435
 1.01542449
 1.01389456
 1.01542449
 1.01593471
 1.01593494
 1.01491499
 1.01287484
 1.01389503
 1.0123651
 1.01338506
 1.01389527
 1.01542544
 1.01338553
 1.0118556
 1.0128758
 1.0123658
 1.01236558
 1.01338577
 1.01389599
 1.01440597
 1.01440597
 1.01338601
 1.01236686
 1.01185608

59.8776719
 60.420517
 60.9627151
 61.5058975
 62.0496292
 62.5932617
 63.1366806
 63.6809311
 64.2258914
 64.7713165
 65.3171234
 65.863327
 66.4103851
 66.9579926
 67.506424
 68.0543518
 68.6019592
 69.149826
 69.698761
 70.2472534
 70.7946167
 71.3416748
 71.8887177
 72.4351196
 72.9802858
 73.5249939
 74.0692291
 74.6125031
 75.1553192
 75.6982289
 76.2415466
 76.7851257
 77.3280792
 77.8708344
 78.4135432
 78.9568787
 79.5004883
 80.0444031
 80.5882568
 81.1322174
 81.6760712
 82.2198181
 82.7633514
 83.3067932
 83.8503418
 84.3939056
 84.9373779
 85.4801178
 86.0221558
 86.5640104
 87.1055908
 87.64711
 88.1885681
 88.7295532
 89.2705078
 89.811615
 90.3533325
 90.8959503
 91.4387054
 91.9805908
 92.5219116
 93.0629883
 93.6045227
 94.1462097
 94.6876526
 95.2284393
 95.7689667
 96.3093872
 96.8496552
 97.3907318
 97.9320528
 98.4730377
 99.0131836
 99.5533295
 100.093445
 100.633606
 101.173996
 101.714661
 102.255341
 102.79599
 103.336334
 103.876541
 104.416565

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

47852	730.48584	162.574097	0.99298835	149.812225
47884	734.985596	167.096313	0.99298835	150.87146
47916	730.48584	162.574097	0.99247849	151.400513
47948	730.48584	158.051849	0.99247849	151.930054
47980	730.48584	162.574097	0.99400854	152.460693
48012	730.48584	167.096313	0.99553812	152.991058
48044	730.48584	162.574097	0.99400854	153.520355
48076	734.985596	162.574097	0.99196851	154.0495
48108	730.48584	162.574097	0.99298835	154.579254
48140	730.48584	162.574097	0.99349844	155.108276
48172	730.48584	162.574097	0.99145854	155.636902
48204	730.48584	171.61853	0.99196851	156.166534
48236	730.48584	158.051849	0.9945184	156.697337
48268	730.48584	167.096313	0.99553812	157.228699
48300	730.48584	167.096313	0.99553812	157.760376
48332	730.48584	158.051849	0.99706805	158.291656
48364	730.48584	162.574097	0.99553812	158.822003
48396	730.48584	158.051849	0.99349844	159.352173
48428	730.48584	162.574097	0.99451828	159.882935
48460	734.985596	158.051849	0.99553812	160.414276
48492	739.48584	158.051849	0.99655807	160.945618
48524	732.985596	162.574097	0.99604821	161.477234
48556	734.985596	162.574097	0.99706805	162.009798
48588	734.985596	171.61853	0.99910796	162.543488
48620	734.985596	162.574097	1.00165772	163.077972
48652	734.985596	167.096313	1.00420785	163.613434
48684	734.985596	162.574097	1.00420785	164.149078
48716	730.48584	167.096313	1.00471759	164.68399
48748	734.985596	162.574097	1.00267768	165.218719
48780	734.985596	162.574097	1.0021677	165.75351
48812	734.985596	167.096313	1.00318766	166.288018
48844	734.985596	167.096313	1.00420785	166.825012
48876	734.985596	167.096313	1.00675774	167.362305
48908	734.985596	167.096313	1.00777793	167.899597
48940	734.985596	176.140778	1.00726771	168.436737
48972	734.985596	171.61853	1.00675774	168.973785
49004	734.985596	176.140778	1.00777793	169.5112
49036	734.985596	176.140778	1.00726771	170.048431
49068	734.985596	176.140778	1.00624776	170.585327
49100	734.985596	189.707672	1.00675797	171.122009
49132	734.985596	185.185211	1.00624776	171.658722
49164	734.985596	185.185211	1.0052278	172.195129
49196	734.985596	185.185211	1.00471783	172.731323
49228	734.985596	185.185211	1.0052278	173.267578
49260	734.985596	189.707672	1.00573778	173.803988
49292	734.985596	185.185211	1.00420785	174.339752
49324	734.985596	194.229675	1.00369763	174.875244
49356	734.985596	185.185211	1.00216794	175.409973
49388	734.985596	194.229675	1.00165796	175.944366
49420	739.48584	189.707672	1.00165772	176.478577
49452	730.48584	194.229675	1.0021677	177.013153
49484	730.48584	194.229675	1.00267768	177.54776
49516	730.48584	198.752106	1.00318766	178.082703
49548	734.985596	198.752106	1.00267768	178.617645
49580	730.48584	203.274109	1.0021677	179.152252
49612	730.48584	198.752106	1.0021677	179.686737
49644	730.48584	203.274109	1.00318766	180.221619
49676	730.48584	198.752106	1.00267768	180.756714
49708	730.48584	203.274109	1.0021677	181.291626
49740	730.48584	207.79657	1.00267768	181.826508
49772	730.48584	203.274109	1.00318766	182.36145
49804	730.48584	207.79657	1.00369763	182.896454
49836	734.985596	198.752106	1.00369763	183.431732
49868	734.985596	203.274109	1.00471783	183.967163
49900	734.985596	198.752106	1.00420785	184.502777
49932	734.985596	203.274109	1.00369763	185.038086
49964	734.985596	198.752106	1.00063753	185.572571
49996	734.985596	207.79657	1.00114775	186.106628
50028	734.985596	203.274109	1.0021677	186.6409
50060	734.985596	207.79657	1.00165772	187.17511
50092	734.985596	212.318573	1.00165772	187.709198
50124	734.985596	212.318573	1.00165772	188.243103
50156	734.985596	216.841034	1.00114775	188.777161
50188	739.48584	221.363037	1.00165772	189.311279
50220	734.985596	212.318573	1.00165772	189.845428
50252	734.985596	212.318573	1.00165796	190.379761
50284	734.985596	216.841034	1.00216794	190.914307
50316	734.985596	212.318573	1.00114775	191.448578
50348	739.48584	221.363037	1.00114775	191.982544
50380	739.48584	212.318573	1.0021677	192.516693
50412	734.985596	221.363037	1.00318766	193.051422
50444	734.985596	221.363037	1.00420785	193.586853
50476	734.985596	221.363037	1.00420785	194.122589

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

50540	752.985596	221.363037	1.0052278	194.658783
50572	860.985718	218.047654	1.0093081	195.731812
50604	1396.48633	225.885468	1.00675797	195.731812
50636	1702.48657	221.363037	1.0093081	196.269196
50668	1400.98608	218.847054	1.00981808	196.807739
50700	1265.98608	225.885468	1.00981808	197.348375
50732	1396.48633	221.363037	1.00879812	197.884844
50764	1270.48633	225.885468	1.00828815	198.422882
50796	1198.48608	221.363037	1.0093081	198.951029
50828	1049.98584	221.363037	1.01032805	199.499695
50860	1085.98584	230.407471	1.01389637	200.039703
50892	1040.98584	225.885468	1.01440835	200.580658
50924	968.98584	225.885468	1.01389861	201.121552
50956	910.489982	225.885468	1.01440859	201.662476
50988	847.489982	225.885468	1.0149188	202.203491
51020	824.985718	225.885468	1.01542878	202.744934
51052	784.48584	225.885468	1.0149188	203.286194
51084	734.985596	225.885468	1.01542878	203.827698
51116	752.985596	230.407471	1.01491904	204.369171
51148	779.985596	230.407471	1.01644921	204.911133
51180	793.48584	234.929932	1.01644921	205.453003
51212	784.48584	234.929932	1.01797938	205.995453
51244	687.985718	230.407471	1.02103949	206.539063
51276	941.985718	230.407471	1.02358961	207.084381
51308	1054.48608	230.407471	1.02409983	207.630554
51340	950.98584	234.929932	1.02359009	208.176788
51372	0	234.929932	1.02206039	208.722382
51404	712.48584	234.929932	1.02104068	209.267242
51436	716.985596	234.929932	1.02002072	209.811401
51468	712.48584	239.451935	1.01951075	210.355316
51500	712.48584	239.451935	1.01951075	210.898956
51532	712.48584	234.929932	1.02053094	211.443237
51564	712.48584	239.451935	1.02053094	211.987427
51596	712.48584	239.451935	1.0200212	212.531525
51628	712.48584	239.451935	1.01951122	213.075378
51660	712.48584	239.451935	1.01951122	213.619049
51692	712.48584	243.974396	1.01798129	214.162323
51724	712.48584	248.496399	1.01900125	214.705536
51756	712.48584	243.974396	1.01849151	215.248779
51788	712.48584	243.974396	1.0195117	215.792358
51820	712.48584	248.496399	1.01900172	216.335632
51852	716.985596	243.974396	1.01849198	216.878967
51884	712.48584	243.974396	1.01747203	217.421936
51916	712.48584	243.974396	1.01696205	217.9646
51948	712.48584	248.496399	1.01645207	218.506775
51980	712.48584	248.496399	1.0159421	219.048737
52012	712.48584	248.496399	1.01645231	219.590698
52044	712.48584	248.496399	1.01645255	220.132935
52076	712.48584	248.496399	1.01645255	220.675171
52108	716.985596	243.974396	1.01696277	221.217499
52140	712.48584	243.974396	1.01594281	221.759521
52172	716.985596	253.018829	1.01543283	222.301117
52204	712.48584	253.018829	1.01441288	222.842255
52236	716.985596	253.018829	1.01594305	223.384033
52268	716.985596	253.018829	1.01645303	223.925964
52300	716.985596	253.018829	1.01492333	224.467834
52332	712.48584	248.496399	1.01441336	225.008759
52364	716.985596	248.496399	1.01288342	225.549438
52396	712.48584	257.540833	1.0133934	226.089783
52428	716.985596	262.063293	1.01390338	226.630402
52460	716.985596	257.540833	1.01543355	227.17157
52492	716.985596	253.018829	1.01590362	227.712738
52524	716.985596	257.540833	1.01644136	228.253693
52556	712.48584	257.540833	1.01339364	228.794434
52588	716.985596	257.540833	1.01492381	229.335449
52620	716.985596	253.018829	1.01441383	229.876282
52652	716.985596	257.540833	1.01492381	230.417419
52684	716.985596	257.540833	1.01390386	230.958282
52716	716.985596	257.540833	1.01441407	231.499023
52748	716.985596	257.540833	1.01186395	232.039246
52780	716.985596	257.540833	1.01339412	232.579437
52812	716.985596	257.540833	1.01237392	233.119446
52844	716.985596	262.063293	1.01339412	233.660004
52876	716.985596	262.063293	1.01288414	234.200195
52908	716.985596	262.063293	1.01390433	234.740652
52940	716.985596	266.585266	1.01339436	235.281189
52972	716.985596	262.063293	1.01492453	235.822144
53004	716.985596	262.063293	1.01594448	236.363525
53036	721.48584	262.063293	1.0154365	236.905457
53068	716.985596	266.585266	1.01339459	237.446381
53100	716.985596	271.107727	1.01084447	237.985809
53132	716.985596	262.063293	1.00982451	238.524536
53164	716.985596	266.585266	1.01084447	239.063293
53196	716.985596	266.585266	1.00982451	239.60199

53228 721.48584 266.585266 1.01084467 240.140835
53260 721.48584 266.585266 1.01084467 240.619871
53292 716.985596 262.063293 1.01288486 241.219666
53324 721.48584 271.107727 1.01237488 241.759521
53356 721.48584 266.585266 1.01135468 242.299286
53388 721.48584 266.585266 1.01084471 242.838531
53420 721.48584 266.585266 1.01135492 243.37796
53452 721.48584 271.107727 1.01084495 243.916992
53484 721.48584 266.585266 1.01033473 244.455994
53516 721.48584 271.107727 1.01084495 244.995096
53548 721.48584 266.585266 1.01135492 245.534546
53580 725.985596 271.107727 1.01033473 246.073669
53612 721.48584 271.107727 1.01033473 246.612518
53644 721.48584 266.585266 1.00982475 247.151093
53676 721.48584 275.629761 1.01033473 247.689575
53708 721.48584 271.107727 1.00982475 248.228058
53740 721.48584 275.629761 1.01033473 248.766693
53772 721.48584 266.585266 1.00982475 249.30545
53804 721.48584 271.107727 1.00727463 249.843475
53836 721.48584 271.107727 1.00523448 250.380127
53868 721.48584 275.629761 1.00727463 250.916901
53900 725.985596 275.629761 1.0088048 251.455017
53932 725.985596 284.674194 1.00982475 251.993774
53964 725.985596 271.107727 1.0088048 252.532013
53996 725.985596 280.152161 1.00982475 253.070496
54028 725.985596 275.629761 1.0088048 253.608765
54060 725.985596 275.629761 1.00778461 254.146881
54092 721.48584 284.674194 1.00676465 254.68396
54124 725.985596 280.152161 1.00727463 255.221344
54156 721.48584 280.152161 1.0088048 255.759033
54188 725.985596 280.152161 1.00829482 256.296875
54220 725.985596 280.152161 1.00982499 256.835266
54252 725.985596 280.152161 1.00931478 257.373657
54284 721.48584 280.152161 1.0088048 257.911926
54316 725.985596 284.674194 1.00778484 258.449585
54348 725.985596 284.674194 1.00727487 258.987
54380 725.985596 284.674194 1.00676465 259.523865
54412 725.985596 284.674194 1.00727487 260.060852
54444 725.985596 284.674194 1.00676465 260.597656
54476 725.985596 289.196655 1.00727487 261.134949
54508 725.985596 284.674194 1.00727487 261.671997
54540 725.985596 280.152161 1.00625467 262.208923
54572 725.985596 284.674194 1.00676465 262.745483
54604 725.985596 284.674194 1.00676465 263.282471
54636 725.985596 284.674194 1.00727487 263.819641
54668 725.985596 284.674194 1.00778484 264.357117
54700 730.48584 284.674194 1.00778484 264.894226
54732 725.985596 284.674194 1.00931478 265.432312
54764 725.985596 289.196655 1.01033497 265.970886
54796 725.985596 289.196655 1.00982499 266.509583
54828 730.48584 284.674194 1.00829482 267.047546
54860 730.48584 289.196655 1.0088048 267.585144
54892 725.985596 293.718628 1.00829482 268.12323
54924 734.985596 284.674194 1.01033497 268.66156
54956 725.985596 293.718628 1.00829482 269.199585
54988 725.985596 293.718628 1.00778484 269.737366
55020 734.985596 289.196655 1.00727487 270.274414
55052 730.48584 289.196655 1.00676465 270.811523
55084 730.48584 293.718628 1.00778484 271.348818
55116 730.48584 298.241089 1.00625467 271.885803
55148 734.985596 293.718628 1.0057447 272.422241
55180 730.48584 293.718628 1.00625467 272.958801
55212 725.985596 298.241089 1.00727487 273.495911
55244 730.48584 293.718628 1.00727487 274.03302
55276 730.48584 289.196655 1.00676465 274.57068
55308 730.48584 298.241089 1.00727487 275.107178
55340 730.48584 293.718628 1.00676465 275.643982
55372 730.48584 289.196655 1.00625467 276.180947
55404 730.48584 293.718628 1.00829482 276.718079
55436 734.985596 293.718628 1.00676465 277.255186
55468 730.48584 298.241089 1.00625467 277.792053
55500 730.48584 293.718628 1.0057447 278.328247
55532 734.985596 289.196655 1.00625467 278.864807
55564 730.48584 298.241089 1.00676465 279.40155
55596 730.48584 298.241089 1.0057447 279.938354
55628 730.48584 298.241089 1.0057447 280.474792
55660 734.985596 293.718628 1.00472474 281.010803
55692 734.985596 293.718628 1.00472474 281.546814
55724 734.985596 298.241089 1.00472474 282.082458
55756 734.985596 293.718628 1.00421453 282.618347
55788 734.985596 298.241089 1.00523472 283.154236
55820 734.985596 302.763123 1.00472474 283.690308
55852 730.48584 293.718628 1.00472474 284.226318
55884 734.985596 298.241089 1.00370455 284.761902

55916	734.985596	293.718628	1.00472474	285.297546
55948	734.985596	298.241089	1.00421476	283.85313
55980	734.985596	302.763123	1.00166488	286.368164
56012	730.48584	302.763123	1.00166464	286.902344
56044	734.985596	298.241089	1.00217485	287.436584
56076	734.985596	302.763123	1.00268483	287.971497
56108	734.985596	302.763123	1.00268459	288.506042
56140	734.985596	302.763123	1.00217462	289.040588
56172	734.985596	302.763123	1.00319457	289.575317
56204	734.985596	302.763123	1.00217462	290.110229
56236	734.985596	302.763123	1.00268459	290.645081
56268	734.985596	307.285522	1.00217462	291.179626
56300	734.985596	302.763123	1.00319457	291.714478
56332	734.985596	302.763123	1.00268459	292.249268
56364	734.985596	298.241089	1.00319457	292.784668
56396	734.985596	302.763123	1.00370455	293.320313
56428	734.985596	298.241089	1.00319457	293.855652
56460	734.985596	302.763123	1.00472474	294.391357
56492	734.985596	298.241089	1.00472474	294.92688
56524	739.48584	302.763123	1.00319457	295.462402
56556	734.985596	302.763123	1.00370455	295.997498
56588	739.48584	307.285522	1.00370455	296.53302
56620	739.48584	302.763123	1.00472474	297.068726
56652	734.985596	307.285522	1.00319457	297.604309
56684	734.985596	302.763123	1.00370455	298.139526
56716	734.985596	311.807556	1.00217462	298.674255
56748	734.985596	307.285522	1.00217462	299.208801
56780	739.48584	307.285522	1.00319457	299.743286
56812	734.985596	311.807556	1.00319457	300.278748
56844	739.48584	302.763123	1.00370479	300.813904
56876	739.48584	302.763123	1.00319457	301.348938
56908	739.48584	302.763123	1.00421453	301.884094
56940	739.48584	302.763123	1.00370455	302.419617
56972	739.48584	302.763123	1.00625467	302.955505
57004	739.48584	311.807556	1.00727487	303.492432
57036	739.48584	307.285522	1.0057447	304.029175
57068	739.48584	311.807556	1.00217462	304.564453
57100	739.48584	302.763123	1.00268459	305.098572
57132	739.48584	307.285522	1.00268459	305.633179
57164	739.48584	302.763123	1.00319457	306.168152
57196	739.48584	307.285522	1.00115466	306.702637
57228	739.48584	307.285522	1.00013471	307.236372
57260	739.48584	311.807556	1.00064468	307.770142
57292	739.48584	302.763123	1.00064468	308.303772
57324	743.985596	311.807556	1.00217462	308.837952
57356	743.985596	302.763123	1.00319457	309.372803
57388	739.48584	307.285522	1.00370455	309.907959
57420	743.985596	307.285522	1.00217462	310.442932
57452	743.985596	311.807556	1.00268459	310.977478
57484	743.985596	307.285522	1.00217462	311.511719
57516	743.985596	311.807556	1.00268459	312.046143
57548	739.48584	307.285522	1.00319457	312.580994
57580	743.985596	311.807556	1.00319457	313.115906
57612	743.985596	307.285522	1.00319457	313.651062
57644	743.985596	311.807556	1.00421476	314.186523
57676	743.985596	307.285522	1.00421476	314.722229
57708	743.985596	316.330017	1.00421453	315.258057
57740	743.985596	311.807556	1.00421453	315.793823
57772	739.48584	316.330017	1.00625467	316.330017
57804	739.48584	316.330017	1.00421453	316.866028
57836	743.985596	316.330017	1.00370455	317.401672
57868	739.48584	311.807556	1.00370479	317.936951
57900	739.48584	316.330017	1.00115469	318.471558
57932	743.985596	316.330017	0.99962425	319.005105
57964	743.985596	316.330017	1.00064468	319.538452
57996	743.985596	316.330017	1.00115466	320.072693
58028	743.985596	320.85199	1.00064468	320.606567
58060	743.985596	311.807556	1.00064468	321.140198
58092	743.985596	320.85199	1.00268459	321.674622
58124	743.985596	311.807556	1.00319457	322.209534
58156	748.48584	320.85199	1.00217462	322.744324
58188	743.985596	320.85199	1.00268459	323.278992
58220	748.48584	320.85199	1.00319457	323.814209
58252	743.985596	325.374451	1.00268459	324.349121
58284	743.985596	316.330017	1.00217462	324.883484
58316	748.48584	320.85199	1.00217462	325.417847
58348	743.985596	325.374451	1.00217462	325.952332
58380	748.48584	320.85199	1.00217462	326.486938
58412	743.985596	325.374451	1.00217462	327.021301
58444	748.48584	320.85199	1.00217462	327.555603
58476	748.48584	325.374451	1.00217462	328.090027
58508	748.48584	316.330017	1.00217462	328.624339
58540	748.48584	325.374451	1.00166464	329.15863
58572	748.48584	320.85199	1.00217462	329.693176

61292 757.48584 334.418884 1.00268459 375.629272
 61324 757.48584 338.940918 1.00319457 376.164429
 61356 757.48584 329.896423 1.00370455 376.599768
 61388 761.985596 338.940918 1.00217462 377.234375
 61420 761.985596 334.418884 1.00166464 377.768616
 61452 761.985596 334.418884 1.00217485 378.302979
 61484 761.985596 329.896423 1.00217485 378.83728
 61516 761.985596 334.418884 1.00217462 379.371643
 61548 761.985596 329.896423 1.00217462 379.906067
 61580 761.985596 334.418884 1.00217462 380.440674
 61612 761.985596 329.896423 1.00166464 380.974976
 61644 761.985596 334.418884 1.00217462 381.509277
 61676 757.48584 329.896423 1.00268459 382.043684
 61708 761.985596 334.418884 1.00370455 382.578224
 61740 761.985596 338.940918 1.00421453 383.114746
 61772 761.985596 338.940918 1.00472474 383.650513
 61804 761.985596 343.463379 1.00421476 384.18634
 61836 761.985596 343.463379 1.00268459 384.721619
 61868 761.985596 343.463379 1.00268459 385.256348
 61900 761.985596 347.985352 1.00421453 385.791382
 61932 761.985596 338.940918 1.00421453 386.327037
 61964 761.985596 334.418884 1.00421453 386.862854
 61996 761.985596 338.940918 1.00421453 387.39856
 62028 766.48584 334.418884 1.00421453 387.934326
 62060 766.48584 338.940918 1.00472474 388.470154
 62092 761.985596 338.940918 1.00421453 389.00592
 62124 766.48584 343.463379 1.00319457 389.541199
 62156 766.48584 338.940918 1.00319457 390.076355
 62188 761.985596 343.463379 1.00421453 391.14801
 62220 761.985596 338.940918 1.00523472 391.684143
 62252 761.985596 334.418884 1.00625467 392.220459
 62284 766.48584 334.418884 1.00523472 392.756592
 62316 766.48584 343.463379 1.00421453 393.292603
 62348 766.48584 343.463379 1.00523472 393.828491
 62380 770.985596 334.418884 1.0057447 394.364607
 62412 766.48584 338.940918 1.00727487 394.901733
 62444 766.48584 338.940918 1.0057447 395.438354
 62476 766.48584 338.940918 1.00523472 395.974407
 62508 766.48584 343.463379 1.00523472 396.51062
 62540 766.48584 334.418884 1.00625467 397.047119
 62572 766.48584 338.940918 1.00676468 397.58374
 62604 766.48584 338.940918 1.00727487 398.120789
 62636 766.48584 343.463379 1.00676468 398.657776
 62668 766.48584 338.940918 1.0057447 399.194438
 62700 766.48584 338.940918 1.00421453 399.730591
 62732 766.48584 338.940918 0.99962485 400.266648
 62764 766.48584 334.418884 0.99605513 400.796692
 62796 766.48584 338.940918 0.9965651 401.327942
 62828 766.48584 347.985352 0.99605513 401.859436
 62860 766.48584 338.940918 0.9965651 402.39093
 62892 766.48584 343.463379 0.99656498 402.922434
 62924 766.48584 347.985352 0.99656498 403.453857
 62956 766.48584 334.418884 0.99707508 403.985352
 62988 766.48584 338.940918 0.99707508 404.516907
 63020 770.985596 347.985352 0.99707508 405.048462
 63052 766.48584 338.940918 0.99809492 405.580139
 63084 766.48584 338.940918 0.99911475 406.112549
 63116 770.985596 338.940918 1.00166464 406.646057
 63148 766.48584 338.940918 1.00217462 407.180298
 63180 770.985596 334.418884 1.00166464 407.7146
 63212 766.48584 343.463379 1.00013447 408.248413
 63244 770.985596 352.507813 0.99962461 408.781738
 63276 770.985596 338.940918 0.99911475 409.315063
 63308 770.985596 343.463379 0.99962485 409.848572
 63340 770.985596 338.940918 0.99962485 410.381775
 63372 770.985596 338.940918 0.99911463 410.914734
 63404 766.48584 347.985352 0.99911463 411.447571
 63436 770.985596 343.463379 0.99962475 411.980408
 63468 766.48584 343.463379 0.99962485 412.513367
 63500 770.985596 343.463379 1.00013471 413.046631
 63532 770.985596 338.940918 1.00115466 413.5802
 63564 770.985596 338.940918 1.00115466 414.114014
 63596 770.985596 338.940918 1.00064468 414.647949
 63628 770.985596 338.940918 1.00268459 415.182312
 63660 770.985596 347.985352 1.00472474 415.718207
 63692 770.985596 338.940918 1.00323472 416.254456
 63724 770.985596 347.985352 1.00319457 416.790161
 63756 770.985596 343.463379 1.00319457 417.325073
 63788 770.985596 347.985352 1.00217462 417.859556
 63820 770.985596 343.463379 1.00166464 418.39386
 63852 770.985596 343.463379 1.00166464 418.92804
 63884 770.985596 343.463379 1.00166464 419.462097

66668 788.985596 357.029785 1.00880575 465.088684
66700 784.48584 361.552246 1.01033568 466.165833
66732 784.48584 361.552246 1.01033568 466.165833
66764 784.48584 357.029785 1.01084559 466.704529
66796 784.48584 357.029785 1.01135568 467.243774
66828 788.985596 357.029785 1.01237583 467.78365
66860 788.985596 352.507813 1.01186585 468.323364
66892 784.48584 361.552246 1.01084559 468.862489
66924 788.985596 357.029785 1.01084559 469.401672
66956 784.48584 361.552246 1.01084559 469.940735
66988 788.985596 357.029785 1.01084559 470.479736
67020 788.985596 361.552246 1.01186633 471.019226
67052 788.985596 357.029785 1.01186633 471.558838
67084 784.48584 357.029785 1.00982618 472.097961
67116 788.985596 357.029785 1.01084559 472.63678
67148 788.985596 357.029785 1.01237631 473.176208
67180 788.985596 357.029785 1.01084559 473.715637
67212 788.985596 361.552246 1.00982618 474.254578
67244 788.985596 357.029785 1.00880623 474.792908
67276 788.985596 361.552246 1.00778604 475.33075
67308 788.985596 361.552246 1.00778604 475.868164
67340 784.48584 357.029785 1.00931621 476.406006
67372 788.985596 357.029785 1.01084559 476.944765
67404 788.985596 357.029785 1.01135635 477.483887
67436 788.985596 361.552246 1.01033664 478.022827
67468 788.985596 352.507813 1.01033664 478.561768
67500 788.985596 357.029785 1.01135635 479.100891
67532 788.985596 366.07428 1.01237655 479.640808
67564 788.985596 357.029785 1.01135635 480.180237
67596 788.985596 357.029785 1.01033664 480.719177
67628 788.985596 357.029785 1.01033664 481.257996
67660 788.985596 370.596741 1.01033664 481.797058
67692 788.985596 361.552246 1.01084559 482.335999
67724 788.985596 361.552246 1.01033664 482.875122
67756 788.985596 357.029785 1.01033664 483.414185
67788 788.985596 361.552246 1.00982642 483.952882
67820 793.48584 357.029785 1.01084559 484.491821
67852 788.985596 357.029785 1.01186681 485.031311
67884 788.985596 357.029785 1.01084559 485.57074
67916 788.985596 361.552246 1.00931668 486.109314
67948 788.985596 366.07428 1.00880647 486.647339
67980 788.985596 357.029785 1.00982666 487.185547
68012 788.985596 361.552246 1.01084559 487.724426
68044 793.48584 361.552246 1.01084559 488.263611
68076 793.48584 357.029785 1.00880647 488.802307
68108 793.48584 357.029785 1.00880647 489.340332
68140 793.48584 361.552246 1.00931668 489.878601
68172 793.48584 361.552246 1.00982666 490.417114
68204 793.48584 357.029785 1.00931668 490.955688
68236 793.48584 361.552246 1.01033664 491.494263
68268 793.48584 357.029785 1.01033664 492.033203
68300 793.48584 361.552246 1.01033664 492.57196
68332 793.48584 357.029785 1.00931668 493.110474
68364 793.48584 366.07428 1.01033664 493.649231
68396 793.48584 361.552246 1.01033664 494.188232
68428 793.48584 361.552246 1.00982666 494.727112
68460 793.48584 357.029785 1.00778651 495.26532
68492 793.48584 361.552246 1.00778651 495.803101
68524 797.985596 366.07428 1.00880671 496.340698
68556 793.48584 361.552246 1.01033664 496.879395
68588 797.985596 357.029785 1.01359698 497.418945
68620 797.985596 366.07428 1.012887 497.95929
68652 797.985596 361.552246 1.01492715 498.500061
68684 797.985596 366.07428 1.01186728 499.039978
68716 793.48584 357.029785 1.01084709 499.579285
68748 797.985596 370.596741 1.00982714 500.118103
68780 793.48584 361.552246 1.01033711 500.65686
68812 797.985596 352.507813 1.00931716 501.195374
68844 797.985596 361.552246 1.00880694 501.733643
68876 797.985596 357.029785 1.00931716 502.272095
68908 797.985596 366.07428 1.01135707 502.810913
68940 797.985596 357.029785 1.01084709 503.350098
68972 797.985596 361.552246 1.01033711 503.88916
69004 797.985596 357.029785 1.01033711 504.42804
69036 797.985596 361.552246 1.01135731 504.967041
69068 797.985596 357.029785 1.01084733 505.505961
69100 797.985596 357.029785 1.01084733 506.045166
69132 797.985596 357.029785 1.01084733 506.58429
69164 797.985596 361.552246 1.00982738 507.123169
69196 797.985596 357.029785 1.00982738 507.66156
69228 797.985596 361.552246 1.0093174 508.200012
69260 797.985596 361.552246 1.0093174 508.738403
69292 797.985596 366.07428 1.00982738 509.276978
69324 797.985596 357.029785 1.01033735 509.815491

69356 797.985596 361.552246 1.01033735 510.354431
69388 797.985596 357.029785 1.01186752 511.432922
69420 797.985596 361.552246 1.01186752 511.432922
69452 797.985596 352.507813 1.01084733 511.972168
69484 797.985596 361.552246 1.01084733 512.511253
69516 797.985596 357.029785 1.01237775 513.050781
69548 797.985596 361.552246 1.01237775 513.590698
69580 797.985596 357.029785 1.01186752 514.130249
69612 797.985596 366.07428 1.01033735 514.669312
69644 797.985596 357.029785 1.01237775 515.20874
69676 797.985596 366.07428 1.01390767 515.749023
69708 797.985596 357.029785 1.01339769 516.289429
69740 797.985596 357.029785 1.01135755 516.829102
69772 797.985596 366.07428 1.01135755 517.368286
69804 802.48584 361.552246 1.01186776 517.907837
69836 797.985596 361.552246 1.01237774 518.447632
69868 797.985596 357.029785 1.01135778 518.987427
69900 802.48584 361.552246 1.01135778 519.526978
69932 797.985596 361.552246 1.01186776 520.066528
69964 797.985596 361.552246 1.01186776 520.606201
69996 797.985596 357.029785 1.01186776 521.145752
70028 797.985596 357.029785 1.01237798 521.685791
70060 797.985596 366.07428 1.01237798 522.225464
70092 802.48584 361.552246 1.011868 522.765137
70124 797.985596 361.552246 1.01288795 523.304932
70156 797.985596 366.07428 1.011868 523.844849
70188 802.48584 357.029785 1.01237798 524.384644
70220 797.985596 366.07428 1.01084781 524.924072
70252 802.48584 366.07428 1.00982785 525.463579
70284 797.985596 361.552246 1.01033783 526.002979
70316 802.48584 361.552246 1.01033783 526.541016
70348 802.48584 361.552246 1.00982785 527.079834
70380 802.48584 366.07428 1.00982785 527.618652
70412 806.985718 361.552246 1.011868 528.157959
70444 802.48584 361.552246 1.01084781 528.697266
70476 806.985718 370.596741 1.01033807 529.236694
70508 802.48584 366.07428 1.01237798 529.776123
70540 806.985718 366.07428 1.01237822 530.316182
70572 802.48584 361.552246 1.01135826 530.856079
70604 806.985718 357.029785 1.01186824 531.39563
70636 806.985718 370.596741 1.01237822 531.935303
70668 806.985718 366.07428 1.01288819 532.475586
70700 802.48584 361.552246 1.01339841 533.015625
70732 806.985718 361.552246 1.01288843 533.555908
70764 802.48584 361.552246 1.01441836 534.096558
70796 806.985718 357.029785 1.01339841 534.637085
70828 806.985718 370.596741 1.01339841 535.177612
70860 806.985718 366.07428 1.01288843 535.718018
70892 806.985718 366.07428 1.01441836 536.258545
70924 802.48584 370.596741 1.01390839 536.799316
70956 806.985718 366.07428 1.01390862 537.34021
70988 806.985718 361.552246 1.01339865 537.880737
71020 806.985718 375.118713 1.01288867 538.420898
71052 806.985718 366.07428 1.01288867 538.960938
71084 806.985718 366.07428 1.01339865 539.501465
71116 806.985718 370.596741 1.01441884 540.041992
71148 806.985718 366.07428 1.01390886 540.582642
71180 806.985718 361.552246 1.01441884 541.123657
71212 806.985718 361.552246 1.01390886 541.664307
71244 806.985718 370.596741 1.01492906 542.205078
71276 806.985718 366.07428 1.0139091 542.745728
71308 806.985718 361.552246 1.01339889 543.286377
71340 806.985718 366.07428 1.0139091 543.826984
71372 806.985718 366.07428 1.01594925 544.368408
71404 806.985718 361.552246 1.01594925 544.90904
71436 806.985718 361.552246 1.01441932 545.452026
71468 806.985718 366.07428 1.01441932 545.993042
71500 806.985718 370.596741 1.01543927 546.534056
71532 806.985718 366.07428 1.01492953 547.075684
71564 806.985718 366.07428 1.01543951 547.617331
71596 806.985718 366.07428 1.01594973 548.158936
71628 806.985718 366.07428 1.01492977 548.700439
71660 806.985718 370.596741 1.01543975 549.241943
71692 806.985718 366.07428 1.01492977 549.783325
71724 806.985718 366.07428 1.01543999 550.324829
71756 806.985718 366.07428 1.0128901 550.865356
71788 806.985718 370.596741 1.0128901 551.405518
71820 806.985718 366.07428 1.0128901 551.945801
71852 806.985718 366.07428 1.01493025 552.486816
71884 806.985718 366.07428 1.01442027 553.027588
71916 806.985718 361.552246 1.01493049 553.569092
71948 806.985718 366.07428 1.01595044 554.110718
71980 806.985718 361.552246 1.0154407 554.652466
72012 806.985718 366.07428 1.01595068 555.194092

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

72044	806.985718	375.118713	1.01595092	555.756206
72076	811.48584	370.596741	1.01544094	556.820068
72108	806.985718	370.596741	1.01544094	557.061694
72140	811.48584	366.07428	1.01493096	557.903198
72172	806.985718	370.596741	1.01544118	558.44458
72204	811.48584	370.596741	1.01646113	558.986328
72236	811.48584	366.07428	1.01646113	559.52832
72268	811.48584	361.552246	1.01391101	560.06958
72300	815.985718	366.07428	1.01340127	560.610227
72332	811.48584	370.596741	1.01442122	561.150635
72364	811.48584	366.07428	1.01697159	562.233276
72396	811.48584	370.596741	1.01697159	562.775635
72428	811.48584	366.07428	1.01544166	563.317993
72460	815.985718	366.07428	1.01493168	563.859375
72492	811.48584	366.07428	1.01493168	564.400513
72524	815.985718	370.596741	1.01493192	564.941778
72556	811.48584	375.118713	1.01544189	565.483276
72588	815.985718	370.596741	1.01493192	566.024902
72620	811.48584	370.596741	1.01595211	566.566528
72652	811.48584	370.596741	1.01544213	567.108154
72684	815.985718	375.118713	1.01544237	567.649658
72716	815.985718	366.07428	1.01344237	568.191284
72748	815.985718	366.07428	1.01493239	568.73291
72780	815.985718	366.07428	1.01442242	569.273804
72812	811.48584	366.07428	1.01493263	569.815308
72844	815.985718	370.596741	1.01748276	570.3573
72876	815.985718	366.07428	1.017483	570.89978
72908	815.985718	370.596741	1.01697302	571.442383
72940	815.985718	370.596741	1.01697302	571.984863
72972	815.985718	370.596741	1.017483	572.5271
73004	815.985718	370.596741	1.01646304	573.069458
73036	815.985718	366.07428	1.01646304	573.61145
73068	815.985718	366.07428	1.01646304	574.153442
73100	815.985718	366.07428	1.01748323	574.695679
73132	815.985718	366.07428	1.0169735	575.237915
73164	815.985718	370.596741	1.0169735	575.780518
73196	815.985718	370.596741	1.01646376	576.32312
73228	815.985718	366.07428	1.01646376	576.865479
73260	815.985718	366.07428	1.01646399	577.407593
73292	815.985718	361.552246	1.01595378	577.949707
73324	815.985718	366.07428	1.01697397	578.491821
73356	815.985718	366.07428	1.01646399	579.033813
73388	815.985718	370.596741	1.01646399	579.57605
73420	815.985718	375.118713	1.01748419	580.11853
73452	815.985718	375.118713	1.01901436	580.661499
73484	815.985718	370.596741	1.0179944	581.204468
73516	815.985718	370.596741	1.01748443	581.747192
73548	815.985718	370.596741	1.01850462	582.290161
73580	815.985718	370.596741	1.01952481	582.833618
73612	815.985718	366.07428	1.01748469	583.376831
73644	815.985718	366.07428	1.01646519	583.919067
73676	815.985718	375.118713	1.01748538	584.461426
73708	815.985718	370.596741	1.01850557	585.00415
73740	815.985718	370.596741	1.01850581	585.547363
73772	815.985718	375.118713	1.0179956	586.090332
73804	815.985718	375.118713	1.01799583	586.633179
73836	815.985718	370.596741	1.01799583	587.175903
73868	815.985718	370.596741	1.01748586	587.71875
73900	815.985718	370.596741	1.01799607	588.261597
73932	815.985718	375.118713	1.01748633	588.804443
73964	815.985718	375.118713	1.01799655	589.347046
73996	815.985718	375.118713	1.01799655	589.890015
74028	815.985718	370.596741	1.01748657	590.43335
74060	815.985718	370.596741	1.01646686	591.519311
74092	815.985718	370.596741	1.01748681	592.060791
74124	815.985718	370.596741	1.018507	592.603882
74156	815.985718	375.118713	1.02054715	593.147827
74188	815.985718	370.596741	1.02054739	593.692383
74220	815.985718	375.118713	1.01952767	594.237961
74252	815.985718	375.118713	1.02054787	595.78125
74284	815.985718	370.596741	1.02054811	596.325195
74316	815.985718	370.596741	1.02054811	596.869629
74348	815.985718	366.07428	1.01952815	597.414063
74380	815.985718	370.596741	1.02003837	597.95813
74412	815.985718	370.596741	1.0200386	598.501831
74444	815.985718	366.07428	1.01952863	598.045654
74476	815.985718	370.596741	1.01850891	598.589478
74508	815.985718	375.118713	1.01850915	599.133179
74540	815.985718	370.596741	1.01850915	599.676147
74572	815.985718	370.596741	1.01850915	600.218994
74604	815.985718	375.118713	1.01901937	600.762085

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

74732	820.48584	375.118713	1.01952958	601.305908
74764	820.48584	375.118713	1.02003999	602.393559
74796	820.48584	370.596741	1.01850906	602.393559
74828	824.985718	370.596741	1.01748991	602.936401
74860	820.48584	375.118713	1.01697993	603.47676
74892	820.48584	375.118713	1.01953006	604.021973
74924	824.985718	370.596741	1.01851034	604.565796
74956	824.985718	375.118713	1.01953053	605.109497
74988	824.985718	370.596741	1.0190208	605.653442
75020	820.48584	379.641174	1.02259088	606.198242
75052	820.48584	370.596741	1.02310109	606.74353
75084	824.985718	370.596741	1.02412152	607.289673
75116	824.985718	375.118713	1.02463174	607.836182
75148	824.985718	375.118713	1.02514195	608.382813
75180	824.985718	375.118713	1.02565241	608.929688
75212	824.985718	370.596741	1.02718282	609.477295
75244	820.48584	375.118713	1.02718306	610.026269
75276	824.985718	375.118713	1.02718353	610.572998
75308	824.985718	379.641174	1.02667403	611.120605
75340	824.985718	375.118713	1.02667427	611.668213
75372	824.985718	379.641174	1.02718449	612.216064
75404	824.985718	379.641174	1.02820468	612.764404
75436	824.985718	384.163147	1.0271852	613.312378
75468	824.985718	375.118713	1.02616572	613.859863
75500	824.985718	375.118713	1.02718592	614.407349
75532	824.985718	379.641174	1.02871653	614.955565
75564	824.985718	370.596741	1.02820659	615.504028
75596	824.985718	375.118713	1.02718711	616.052124
75628	824.985718	379.641174	1.02718759	616.599976
75660	824.985718	379.641174	1.02871776	617.148071
75692	824.985718	375.118713	1.02820802	617.696533
75724	824.985718	379.641174	1.02667856	618.244629
75756	824.985718	375.118713	1.02565885	618.79187
75788	824.985718	379.641174	1.02667904	619.338867
75820	829.48584	375.118713	1.02667952	619.886353
75852	824.985718	375.118713	1.02718973	620.43396
75884	824.985718	375.118713	1.02719021	620.982056
75916	824.985718	375.118713	1.02770042	621.529907
75948	824.985718	370.596741	1.02770114	622.078125
75980	824.985718	375.118713	1.02974129	622.626831
76012	824.985718	375.118713	1.02974153	623.17627
76044	824.985718	370.596741	1.03076196	623.725952
76076	824.985718	379.641174	1.02923226	624.275024
76108	824.985718	375.118713	1.02974272	624.824097
76140	824.985718	375.118713	1.02923298	625.373169
76172	824.985718	375.118713	1.02923346	625.921997
76204	824.985718	375.118713	1.02821398	626.470581
76236	824.985718	375.118713	1.02821422	627.019165
76268	824.985718	375.118713	1.02872467	627.567749
76300	829.48584	375.118713	1.02872515	628.116699
76332	824.985718	375.118713	1.0292356	628.665405
76364	824.985718	370.596741	1.02872586	629.214111
76396	824.985718	375.118713	1.02821612	629.762695
76428	829.48584	375.118713	1.0282166	630.311157
76460	829.48584	375.118713	1.02923703	630.859863
76492	829.48584	375.118713	1.02974749	631.409058
76524	824.985718	375.118713	1.03025794	631.958374
76556	833.985718	370.596741	1.03076839	632.507813
76588	829.48584	375.118713	1.03127885	633.057373
76620	829.48584	375.118713	1.03127956	633.6073
76652	829.48584	370.596741	1.03026009	634.156738
76684	829.48584	375.118713	1.03026056	634.706055
76716	829.48584	375.118713	1.03077102	635.255371
76748	829.48584	375.118713	1.03128147	635.805176
76780	829.48584	375.118713	1.03230166	636.355469
76812	829.48584	375.118713	1.03230214	636.90625
76844	833.985718	375.118713	1.03250262	637.457031
76876	829.48584	379.641174	1.03179312	638.007446
76908	829.48584	375.118713	1.03583327	638.558228
76940	829.48584	379.641174	1.03634396	639.109649
76972	829.48584	375.118713	1.03536415	639.661621
77004	829.48584	375.118713	1.03434467	640.213257
77036	829.48584	375.118713	1.03383517	640.764993
77068	829.48584	375.118713	1.03383565	641.316406
77100	829.48584	370.596741	1.03383613	641.867676
77132	829.48584	379.641174	1.03281665	642.418945
77164	833.985718	379.641174	1.03281713	642.969849
77196	833.985718	379.641174	1.03383756	643.521118
77228	829.48584	379.641174	1.03393682	644.072876
77260	833.985718	384.163147	1.03434873	644.624756
77292	833.985718	379.641174	1.03383899	645.176392
77324	833.985718	375.118713	1.03383946	645.727661
77356	829.48584	384.163147	1.03383994	646.278931
77388	833.985718	375.118713	1.03384042	646.8302

77420 829.48584 375.118713 1.03384099 647.38147
77452 838.485962 375.118713 1.03393199 648.484375
77484 833.985718 375.118713 1.0348618 648.484375
77516 833.985718 375.118713 1.03588223 649.036255
77548 833.985718 375.118713 1.03588271 649.588623
77580 833.985718 370.596741 1.03486323 650.140503
77612 833.985718 384.163147 1.03588343 650.692627
77644 833.985718 384.163147 1.03792381 651.245361
77676 833.985718 379.641174 1.03792405 651.799072
77708 833.985718 384.163147 1.03588462 652.351807
77740 833.985718 375.118713 1.03639507 652.904175
77772 829.48584 379.641174 1.03792524 653.456909
77804 833.985718 375.118713 1.0384357 654.01062
77836 833.985718 384.163147 1.03945589 654.564697
77868 833.985718 384.163147 1.03996634 655.119141
77900 833.985718 384.163147 1.03894639 655.67334
77932 833.985718 379.641174 1.0374167 656.226929
77964 833.985718 375.118713 1.03843689 656.780518
77996 833.985718 384.163147 1.03894711 657.334595
78028 833.985718 384.163147 1.03894734 657.888794
78060 833.985718 375.118713 1.0389673 658.442993
78092 833.985718 375.118713 1.03943756 659.997314
78124 833.985718 384.163147 1.03894782 659.551636
78156 833.985718 375.118713 1.03894806 660.105835
78188 833.985718 384.163147 1.03943827 660.659912
78220 833.985718 379.641174 1.03639865 661.213623
78252 833.985718 375.118713 1.03690886 661.766479
78284 833.985718 375.118713 1.0369091 662.319336
78316 833.985718 375.118713 1.03945947 662.873169
78348 833.985718 379.641174 1.03945947 663.427266
78380 833.985718 379.641174 1.03996968 663.981567
78412 833.985718 375.118713 1.0404799 664.536377
78444 833.985718 384.163147 1.04048014 665.091553
78476 833.985718 375.118713 1.04099011 665.646362
78508 833.985718 375.118713 1.04150033 666.201904
78540 833.985718 384.163147 1.04201031 666.757446
78572 833.985718 379.641174 1.04048038 667.312622
78604 833.985718 375.118713 1.04150057 667.867676
78636 833.985718 384.163147 1.04150081 668.423218
78668 833.985718 379.641174 1.04150081 668.97876
78700 833.985718 375.118713 1.04099083 669.534302
78732 833.985718 384.163147 1.04150081 670.089966
78764 833.985718 379.641174 1.04354139 670.64624
78796 833.985718 379.641174 1.04252124 671.202271
78828 838.485962 379.641174 1.04099131 671.757935
78860 833.985718 384.163147 1.0420115 672.31311
78892 838.485962 379.641174 1.0420115 672.868396
78924 833.985718 375.118713 1.04252172 673.424805
78956 838.485962 379.641174 1.04201174 673.980713
78988 838.485962 379.641174 1.04201174 674.536621
79020 838.485962 375.118713 1.04150176 675.092529
79052 838.485962 384.163147 1.04201174 675.648315
79084 838.485962 379.641174 1.04252172 676.203979
79116 842.985718 379.641174 1.04354191 676.760132
79148 838.485962 375.118713 1.04354191 677.31665
79180 838.485962 384.163147 1.04303193 677.872803
79212 842.985718 379.641174 1.04303193 678.428955
79244 838.485962 379.641174 1.04354191 678.985474
79276 838.485962 375.118713 1.04303193 679.541992
79308 838.485962 388.685608 1.04354191 680.098755
79340 838.485962 384.163147 1.0445621 680.655518
79372 838.485962 379.641174 1.04405212 681.212402
79404 838.485962 379.641174 1.04201221 681.768433
79436 838.485962 384.163147 1.04099226 682.323364
79468 842.985718 379.641174 1.04150243 682.878662
79500 838.485962 375.118713 1.04252267 683.43457
79532 838.485962 379.641174 1.04201245 683.990601
79564 838.485962 379.641174 1.04252267 684.546631
79596 838.485962 379.641174 1.04252267 685.102783
79628 842.985718 379.641174 1.04303265 685.658936
79660 842.985718 379.641174 1.04354262 686.215088
79692 838.485962 384.163147 1.04507279 686.771973
79724 838.485962 379.641174 1.04558277 687.329102
79756 838.485962 379.641174 1.04507279 687.886353
79788 842.985718 384.163147 1.04558277 688.443481
79820 838.485962 379.641174 1.04405284 689.000366
79852 842.985718 379.641174 1.04354262 689.557373
79884 838.485962 379.641174 1.04456282 690.114136
79916 842.985718 384.163147 1.04354262 690.671021
79948 842.985718 379.641174 1.04354262 691.227539
79980 842.985718 379.641174 1.04456282 691.78418
80012 842.985718 379.641174 1.04558277 692.341431
80044 838.485962 375.118713 1.04609275 692.899043
80076 842.985718 384.163147 1.04456282 693.456621

80108 842.985718 379.641174 1.04507279 694.513428
80140 842.985718 379.641174 1.04507279 694.510435
80172 842.985718 379.641174 1.04507279 695.12793
80204 842.985718 379.641174 1.04509275 695.685791
80236 842.985718 379.641174 1.04711294 696.244263
80268 842.985718 379.641174 1.04711294 696.802734
80300 842.985718 379.641174 1.04456282 697.360229
80332 842.985718 379.641174 1.04405284 697.916992
80364 842.985718 379.641174 1.04405284 698.473511
80396 842.985718 379.641174 1.04507279 699.030396
80428 842.985718 379.641174 1.04456282 699.587524
80460 842.985718 379.641174 1.04150295 700.144043
80492 842.985718 379.641174 1.03844309 700.699097
80524 842.985718 379.641174 1.03895307 701.253174
80556 842.985718 379.641174 1.04252338 701.808716
80588 842.985718 379.641174 1.04507351 702.365479
80620 842.985718 379.641174 1.04507351 702.922607
80652 842.985718 379.641174 1.04507351 703.479614
80684 842.985718 379.641174 1.04507351 704.036743
80716 842.985718 379.641174 1.04507351 704.593994
80748 842.985718 379.641174 1.04558349 705.151245
80780 842.985718 379.641174 1.04405332 705.708252
80812 842.985718 379.641174 1.04354334 706.265239
80844 842.985718 379.641174 1.04303336 706.821777
80876 842.985718 379.641174 1.04456353 707.378784
80908 842.985718 379.641174 1.04507351 707.935913
80940 842.985718 379.641174 1.04405355 708.493042
80972 842.985718 379.641174 1.04303336 709.049438
81004 842.985718 379.641174 1.04201341 709.605591
81036 842.985718 379.641174 1.04303336 710.161743
81068 842.985718 379.641174 1.04252362 710.717896
81100 842.985718 379.641174 1.04303336 711.274048
81132 842.985718 379.641174 1.04252362 711.830322
81164 842.985718 379.641174 1.04252362 712.386475
81196 842.985718 379.641174 1.04303336 712.942627
81228 842.985718 379.641174 1.04354358 713.499268
81260 842.985718 379.641174 1.04303336 714.055664
81292 842.985718 379.641174 1.06356358 714.612061
81324 842.985718 379.641174 1.04354358 715.168701
81356 842.985718 379.641174 1.04456377 715.725464
81388 842.985718 379.641174 1.04405339 716.282227
81420 842.985718 379.641174 1.04456377 716.839355
81452 842.985718 379.641174 1.04456377 717.396362
81484 842.985718 379.641174 1.04456377 717.953491
81516 842.985718 379.641174 1.04456377 718.51062
81548 842.985718 379.641174 1.04354358 719.067261
81580 842.985718 379.641174 1.04405339 719.623901
81612 842.985718 379.641174 1.04456377 720.18105
81644 842.985718 379.641174 1.04354382 720.737549
81676 842.985718 379.641174 1.04201388 721.293823
81708 842.985718 379.641174 1.04048419 721.848877
81740 842.985718 379.641174 1.03742456 722.402954
81772 842.985718 379.641174 1.03691459 722.956299
81804 842.985718 379.641174 1.03742504 723.509521
81836 842.985718 379.641174 1.03844523 724.06311
81868 842.985718 379.641174 1.03946543 724.617065
81900 842.985718 379.641174 1.03946567 725.171265
81932 842.985718 379.641174 1.03946567 725.725464
81964 842.985718 379.641174 1.03895393 726.279785
81996 842.985718 379.641174 1.03997612 726.834106
82028 842.985718 379.641174 1.03997612 727.388794
82060 842.985718 379.641174 1.04048434 727.943481
82092 842.985718 379.641174 1.04201651 728.498535
82124 842.985718 379.641174 1.04303046 729.054565
82156 842.985718 379.641174 1.04456663 729.61145
82188 842.985718 379.641174 1.04456663 730.168335
82220 842.985718 379.641174 1.04609856 730.726074
82252 842.985718 379.641174 1.04660678 731.28418
82284 842.985718 379.641174 1.04354692 731.841953
82316 842.985718 379.641174 1.04150677 732.397461
82348 842.985718 379.641174 1.04252672 732.953247
82380 842.985718 379.641174 1.04456667 733.509786
82412 842.985718 379.641174 1.04507685 734.067017
82444 842.985718 379.641174 1.04609704 734.624756
82476 842.985718 379.641174 1.04354692 735.181641
82508 842.985718 379.641174 1.04099703 735.737549
82540 842.985718 379.641174 1.04048705 736.292236
82572 842.985718 379.641174 1.04048705 736.84729
82604 842.985718 379.641174 1.03997731 737.401978
82636 842.985718 379.641174 1.04048753 737.956665
82668 842.985718 379.641174 1.04252768 738.511963
82700 842.985718 379.641174 1.04354763 739.068359
82732 842.985718 379.641174 1.0450778 739.625244
82764 842.985718 379.641174 1.04456782 740.182739

82796 851.985718 379.641174 1.04354787 740.73938
82828 851.985718 379.641174 1.03895831 741.849243
82860 847.485962 379.641174 1.03895831 742.403442
82892 847.485962 379.641174 1.03895831 742.957642
82924 851.985718 379.641174 1.03946877 743.511841
82956 847.485962 379.641174 1.03946877 744.066284
82988 847.485962 384.163147 1.03997898 744.620972
83020 847.485962 379.641174 1.03997898 745.175537
83052 847.485962 384.163147 1.03997898 745.730103
83084 851.985718 384.163147 1.03946946 746.284424
83116 847.485962 384.163147 1.03946946 746.838745
83148 847.485962 375.118713 1.04049039 747.393311
83180 851.985718 384.163147 1.03998065 747.947998
83212 847.485962 384.163147 1.03998065 748.502563
83244 847.485962 375.118713 1.03998065 749.057251
83276 847.485962 379.641174 1.04100108 749.612427
83308 847.485962 379.641174 1.04151106 750.167725
83340 851.985718 375.118713 1.04100132 750.723145
83372 847.485962 388.685608 1.04100132 751.278321
83404 847.485962 379.641174 1.04049134 751.833008
83436 851.985718 375.118713 1.04049158 752.387939
83468 847.485962 379.641174 1.03896189 752.942505
83500 847.485962 379.641174 1.0394721 753.496704
83532 851.985718 379.641174 1.0394721 754.050903
83564 847.485962 379.641174 1.04151225 754.606323
83596 847.485962 384.163147 1.04049255 755.161743
83628 851.985718 379.641174 1.04100275 755.716675
83660 847.485962 384.163147 1.04049277 756.271606
83692 851.985718 379.641174 1.04151297 756.827026
83724 851.985718 384.163147 1.0415132 757.382813
83756 851.985718 379.641174 1.0415132 757.93811
83788 847.485962 379.641174 1.0415132 758.49353
83820 851.985718 379.641174 1.04202342 759.04895
83852 851.985718 379.641174 1.04049373 759.60437
83884 851.985718 379.641174 1.03896405 760.158569
83916 851.985718 379.641174 1.0404942 760.712769
83948 856.485962 384.163147 1.04355431 761.268555
83980 856.485962 379.641174 1.04355454 761.823195
84012 856.485962 379.641174 1.04049468 762.380493
84044 856.485962 379.641174 1.04202485 762.935547
84076 856.485962 384.163147 1.04559493 763.49231
84108 856.485962 379.641174 1.04457498 764.049927
84140 856.485962 384.163147 1.044065 764.606567
84172 856.485962 384.163147 1.04610513 765.16394
84204 856.485962 379.641174 1.04763532 765.722412
84236 860.985718 379.641174 1.04763532 766.28125
84268 856.485962 388.685608 1.04712534 766.839956
84300 851.985718 384.163147 1.04457521 767.397451
84332 856.485962 379.641174 1.04300537 767.953491
84364 856.485962 388.685608 1.04100537 768.508545
84396 856.485962 388.685608 1.04202557 769.064087
84428 856.485962 379.641174 1.04151559 769.619751
84460 856.485962 384.163147 1.04202557 770.175337
84492 856.485962 379.641174 1.04304576 770.731567
84524 856.485962 388.685608 1.04293602 771.28772
84556 856.485962 379.641174 1.0420258 771.843506
84588 856.485962 393.207642 1.04151607 772.399292
84620 856.485962 384.163147 1.043046 772.955444
84652 856.485962 388.685608 1.04355597 773.511841
84684 856.485962 384.163147 1.04355597 774.068115
84716 856.485962 388.685608 1.04406619 774.624878
84748 856.485962 393.207642 1.04457617 775.181485
84780 856.485962 388.685608 1.04508615 775.739136
84812 856.485962 388.685608 1.04508615 776.296631
84844 860.985718 379.641174 1.04508615 776.854248
84876 856.485962 388.685608 1.04406619 777.411377
84908 856.485962 384.163147 1.04406619 777.968018
84940 860.985718 379.641174 1.04457617 778.525269
84972 856.485962 379.641174 1.04406619 779.082275
85004 860.985718 388.685608 1.04355621 779.639036
85036 856.485962 384.163147 1.04202628 780.194946
85068 856.485962 379.641174 1.04202628 780.75061
85100 856.485962 388.685608 1.04202652 781.306396
85132 860.985718 379.641174 1.04355645 781.862549
85164 856.485962 384.163147 1.04304647 782.418823
85196 856.485962 379.641174 1.04202676 782.974854
85228 856.485962 384.163147 1.04202676 783.530518
85260 856.485962 379.641174 1.04355693 784.086426
85292 860.985718 379.641174 1.04355693 784.642822
85324 856.485962 388.685608 1.0450871 785.199585
85356 856.485962 388.685608 1.04610709 785.756592
85388 856.485962 388.685608 1.0450871 786.314331
85420 856.485962 388.685608 1.0450871 786.871948

85484 860.985718 379.641174 1.04559708 787.42951
85516 856.485962 384.163147 1.04559708 788.545044
85548 856.485962 388.685608 1.04559708 788.545044
85580 860.985718 384.163147 1.0450871 789.102539
85612 860.985718 388.685608 1.0450871 789.660278
85644 856.485962 393.207642 1.04661727 790.21814
85676 860.985718 379.641174 1.04610705 790.776123
85708 860.985718 384.163147 1.04661727 791.334473
85740 856.485962 388.685608 1.0450871 791.892334
85772 856.485962 388.685608 1.04657712 792.449463
85804 860.985718 379.641174 1.04406714 793.006104
85836 860.985718 379.641174 1.04557712 793.562988
85868 856.485962 384.163147 1.0450871 794.120483
85900 860.985718 388.685608 1.04559708 794.678101
85932 860.985718 388.685608 1.0450871 795.23584
85964 860.985718 384.163147 1.0450871 795.793657
85996 860.985718 379.641174 1.0450871 796.351196
86028 856.485962 388.685608 1.04457712 796.907959
86060 856.485962 388.685608 1.04406714 797.464722
86092 860.985718 384.163147 1.04610705 798.022461
86124 856.485962 388.685608 1.04661727 798.580566
86156 856.485962 393.207642 1.04865718 799.139526
86188 856.485962 384.163147 1.0481472 799.698608
86220 860.985718 388.685608 1.04763722 800.257568
86252 860.985718 388.685608 1.0481472 800.816528
86284 860.985718 388.685608 1.04865718 801.37551
86316 856.485962 388.685608 1.0481472 801.934814
86348 860.985718 388.685608 1.0481472 802.493896
86380 856.485962 388.685608 1.04865718 803.052979
86412 860.985718 388.685608 1.04610705 803.611572
86444 860.985718 384.163147 1.04610705 804.169678
86476 860.985718 388.685608 1.04661727 804.727703
86508 856.485962 388.685608 1.0481472 805.286499
86540 860.985718 388.685608 1.0481472 805.845337
86572 860.985718 388.685608 1.04916739 806.404785
86604 860.985718 388.685608 1.04916739 806.964233
86636 860.985718 388.685608 1.04967737 807.52417
86668 860.985718 388.685608 1.05273724 808.084839
86700 860.985718 388.685608 1.05222726 808.64624
86732 860.985718 388.685608 1.05375719 809.207642
86764 865.485962 388.685608 1.05069733 809.768066
86796 865.485962 388.685608 1.05018735 810.328735
86828 860.985718 388.685608 1.05018735 810.889916
86860 865.485962 388.685608 1.04967737 811.448975
86892 865.485962 388.685608 1.05018735 812.009155
86924 865.485962 388.685608 1.0512073 812.569824
86956 860.985718 388.685608 1.05273747 813.130859
86988 865.485962 393.207642 1.0522275 813.692017
87020 869.985718 388.685608 1.0522275 814.253296
87052 865.485962 388.685608 1.0522275 814.814575
87084 865.485962 388.685608 1.05171752 815.375366
87116 865.485962 388.685608 1.05018735 815.935913
87148 865.485962 388.685608 1.05069733 816.496338
87180 865.485962 388.685608 1.05069733 817.056763
87212 865.485962 388.685608 1.05018735 817.617085
87244 869.985718 384.163147 1.05018735 818.177246
87276 869.985718 379.641174 1.04967737 818.737427
87308 869.985718 388.685608 1.05171752 819.297852
87340 865.485962 384.163147 1.05171752 819.858643
87372 865.485962 384.163147 1.05171752 820.419678
87404 865.485962 384.163147 1.0522275 820.980839
87436 865.485962 388.685608 1.05273747 821.541992
87468 865.485962 388.685608 1.05273747 822.103516
87500 865.485962 388.685608 1.05324745 822.665039
87532 865.485962 388.685608 1.05477738 823.226929
87564 869.985718 388.685608 1.05630755 823.790039
87596 865.485962 388.685608 1.05732751 824.35376
87628 865.485962 388.685608 1.05681753 824.91748
87660 865.485962 384.163147 1.05528735 825.480469
87692 865.485962 384.163147 1.05426741 826.043091
87724 865.485962 384.163147 1.05426741 826.605591
87756 865.485962 388.685608 1.05426741 827.167847
87788 865.485962 388.685608 1.05426741 827.730103
87820 869.985718 384.163147 1.05324745 828.292236
87852 865.485962 388.685608 1.05273747 828.853882
87884 865.485962 388.685608 1.0512073 829.414873
87916 865.485962 388.685608 1.05222728 829.975586
87948 869.985718 393.207642 1.05324721 830.536987
87980 865.485962 384.163147 1.05426741 831.098877
88012 865.485962 388.685608 1.05426741 831.661133
88044 869.985718 388.685608 1.05477738 832.223511
88076 865.485962 388.685608 1.05477738 832.786255
88108 865.485962 388.685608 1.05477738 833.348877
88140 865.485962 388.685608 1.05528735 833.911865

88172 869.985718 388.685608 1.0552876 834.474854
88204 865.485962 388.685608 1.0552876 835.600952
88236 865.485962 384.163147 1.05579734 835.600952
88268 869.985718 388.685608 1.05732751 836.164795
88300 865.485962 388.685608 1.05732751 836.728882
88332 869.985718 388.685608 1.05630755 837.29248
88364 869.985718 388.685608 1.05579758 837.855591
88396 865.485962 388.685608 1.05630755 838.418945
88428 869.985718 388.685608 1.05681777 839.982422
88460 869.985718 384.163147 1.0552876 839.545532
88492 865.485962 384.163147 1.05426741 840.108276
88524 865.485962 379.641174 1.05579734 840.671143
88556 865.485962 384.163147 1.05630708 841.234253
88588 869.985718 384.163147 1.05426717 841.797241
88620 869.985718 384.163147 1.05324721 842.358887
88652 869.985718 388.685608 1.05477738 842.921367
88684 869.985718 384.163147 1.05477738 843.484009
88716 865.485962 388.685608 1.0552876 844.046997
88748 869.985718 388.685608 1.05630755 844.610229
88780 869.985718 388.685608 1.05681753 845.173828
88812 869.985718 384.163147 1.05681753 845.737305
88844 869.985718 393.207642 1.05630755 846.300781
88876 869.985718 388.685608 1.05681777 846.86438
88908 869.985718 388.685608 1.05681777 847.427856
88940 869.985718 393.207642 1.05630755 847.991211
88972 869.985718 388.685608 1.05630755 848.554688
89004 869.985718 388.685608 1.05579758 849.11792
89036 869.985718 388.685608 1.05579758 849.680908
89068 869.985718 388.685608 1.05630755 850.244263
89100 869.985718 388.685608 1.05630755 850.807739
89132 869.985718 393.207642 1.05681753 851.371146
89164 869.985718 388.685608 1.05681753 851.935059
89196 869.985718 388.685608 1.05732751 852.498901
89228 869.985718 393.207642 1.05681753 853.062988
89260 869.985718 388.685608 1.05681753 853.626709
89292 869.985718 393.207642 1.05528756 854.189941
89324 874.485962 388.685608 1.05426741 854.752808
89356 874.485962 388.685608 1.05324745 855.314697
89388 869.985718 388.685608 1.05426741 855.876831
89420 869.985718 388.685608 1.05528736 856.439331
89452 869.985718 388.685608 1.0552876 857.002075
89484 874.485962 388.685608 1.05477738 857.564819
89516 874.485962 388.685608 1.05579758 858.127563
89548 874.485962 388.685608 1.05579758 858.690552
89580 874.485962 388.685608 1.05579758 859.25354
89612 874.485962 388.685608 1.05630755 859.816895
89644 874.485962 388.685608 1.05630755 860.380127
89676 874.485962 388.685608 1.05630755 860.943359
89708 874.485962 393.207642 1.05732751 861.50708
89740 874.485962 388.685608 1.05732751 862.070801
89772 869.985718 393.207642 1.05477738 862.633911
89804 869.985718 388.685608 1.05324721 863.195923
89836 874.485962 393.207642 1.05375743 863.75769
89868 874.485962 388.685608 1.05375743 864.319702
89900 874.485962 388.685608 1.05426741 864.881958
89932 869.985718 388.685608 1.05426741 865.444458
89964 874.485962 393.207642 1.05375743 866.006836
89996 878.985718 388.685608 1.05628736 866.569458
90028 878.985718 393.207642 1.05528736 867.132202
90060 874.485962 388.685608 1.05579734 867.69519
90092 874.485962 388.685608 1.05528736 868.258301
90124 874.485962 388.685608 1.05426741 868.820679
90156 878.985718 388.685608 1.05426741 869.383057
90188 874.485962 388.685608 1.05477738 869.945679
90220 874.485962 388.685608 1.0552876 870.508301
90252 874.485962 393.207642 1.0552876 871.071045
90284 874.485962 388.685608 1.05426764 871.633345
90316 878.985718 388.685608 1.05375743 872.195923
90348 874.485962 388.685608 1.05426764 872.758301
90380 874.485962 388.685608 1.05681729 873.321655
90412 874.485962 388.685608 1.05681729 873.885132
90444 878.985718 388.685608 1.0552876 874.448486
90476 878.985718 388.685608 1.05579734 875.011597
90508 874.485962 388.685608 1.05732751 875.575195
90540 874.485962 388.685608 1.05681753 876.138794
90572 878.985718 388.685608 1.05579734 876.702148
90604 874.485962 388.685608 1.05630732 877.265381
90636 878.985718 388.685608 1.05783749 877.829102
90668 878.985718 388.685608 1.05681777 878.393066
90700 874.485962 393.207642 1.05477762 878.956299
90732 878.985718 397.730042 1.05324745 879.518677
90764 878.985718 393.207642 1.05477738 880.080811
90796 874.485962 388.685608 1.0552876 880.643433
90828 878.985718 388.685608 1.05681753 881.206665

90060 878.985718 393.207642 1.05834746 881.770752
90092 874.485962 397.730042 1.05630755 882.898926
90924 874.485962 397.730042 1.05630755 882.898926
90956 874.485962 398.685608 1.05579758 883.462036
90988 874.485962 393.207642 1.05579758 884.025269
91020 874.485962 397.730042 1.05579734 884.588379
91052 874.485962 388.685608 1.05528736 885.151367
91084 878.985718 388.685608 1.05477738 885.713867
91116 874.485962 393.207642 1.05477738 886.276245
91148 874.485962 393.207642 1.05626741 886.838745
91180 878.985718 397.730042 1.05528736 887.401123
91212 878.985718 393.207642 1.05579734 887.963989
91244 874.485962 393.207642 1.05732751 888.527771
91276 878.985718 393.207642 1.05732751 889.091553
91308 874.485962 393.207642 1.05783749 889.655518
91340 874.485962 393.207642 1.05834746 890.219604
91372 878.985718 393.207642 1.05834746 890.783936
91404 874.485962 393.207642 1.05834746 891.348755
91436 878.985718 397.730042 1.05936742 891.91333
91468 874.485962 393.207642 1.05885744 892.478271
91500 878.985718 388.685608 1.05885744 893.043213
91532 874.485962 393.207642 1.05834746 893.60791
91564 874.485962 397.730042 1.06038737 894.172974
91596 878.985718 388.685608 1.06038737 894.738403
91628 874.485962 393.207642 1.05783749 895.303589
91660 874.485962 397.730042 1.05783749 895.867798
91692 874.485962 393.207642 1.05885744 896.432251
91724 874.485962 397.730042 1.0583477 896.996826
91756 878.985718 393.207642 1.05885768 897.561646
91788 878.985718 397.730042 1.05936766 898.126587
91820 878.985718 397.730042 1.05987763 898.691895
91852 878.985718 397.730042 1.05936742 899.25708
91884 878.985718 393.207642 1.05885744 899.822021
91916 878.985718 393.207642 1.05936742 900.386641
91948 878.985718 397.730042 1.05834746 900.951782
91980 883.485962 402.252075 1.05783749 901.515991
92012 874.485962 393.207642 1.05481729 902.079834
92044 878.985718 388.685608 1.05834746 902.645799
92076 878.985718 393.207642 1.05834746 903.208374
92108 878.985718 393.207642 1.05885744 903.772827
92140 878.985718 388.685608 1.05783749 904.337158
92172 878.985718 397.730042 1.05834746 904.901611
92204 878.985718 388.685608 1.05834746 905.465942
92236 878.985718 393.207642 1.05936766 906.030884
92268 878.985718 393.207642 1.05987763 906.596069
92300 883.485962 397.730042 1.05885744 907.161133
92332 883.485962 406.774536 1.05783749 907.72583
92364 883.485962 388.685608 1.05630755 908.289551
92396 883.485962 393.207642 1.05579758 908.852661
92428 883.485962 388.685608 1.05579758 909.415771
92460 883.485962 393.207642 1.05732751 909.97937
92492 878.985718 388.685608 1.05579758 910.542847
92524 883.485962 397.730042 1.05681753 911.106201
92556 883.485962 388.685608 1.05783749 911.6698
92588 887.985718 393.207642 1.05885768 912.234253
92620 883.485962 397.730042 1.05783772 912.798584
92652 883.485962 397.730042 1.0583477 913.363037
92684 883.485962 388.685608 1.05987763 913.927856
92716 883.485962 393.207642 1.05936742 914.493042
92748 883.485962 397.730042 1.05630755 915.057251
92780 883.485962 393.207642 1.05630755 915.620728
92812 883.485962 397.730042 1.05732751 916.184204
92844 883.485962 393.207642 1.05783749 916.748189
92876 883.485962 388.685608 1.05783749 917.312378
92908 887.985718 393.207642 1.05834746 917.876465
92940 883.485962 397.730042 1.05783749 918.440552
92972 883.485962 397.730042 1.05885744 919.005005
93004 883.485962 393.207642 1.05732751 919.569214
93036 883.485962 388.685608 1.05732751 920.133179
93068 887.985718 397.730042 1.05681753 920.696899
93100 883.485962 397.730042 1.05834746 921.261353
93132 883.485962 397.730042 1.05783772 921.825317
93164 887.985718 393.207642 1.05732751 922.389282
93196 883.485962 393.207642 1.05630755 922.952759
93228 883.485962 388.685608 1.05477738 923.515747
93260 883.485962 397.730042 1.05579758 924.078613
93292 883.485962 402.252075 1.05630755 924.641724
93324 883.485962 393.207642 1.05783772 925.205688
93356 887.985718 402.252075 1.05936766 925.77002
93388 883.485962 388.685608 1.05885768 926.335083
93420 883.485962 397.730042 1.05783749 926.899046
93452 883.485962 397.730042 1.05630755 927.462769
93484 887.985718 393.207642 1.05732751 928.026367
93516 883.485962 397.730042 1.05732751 928.589966

93548 883.485962 397.730042 1.05630755 929.153198
93580 887.985718 388.685608 1.05783749 930.279907
93612 883.485962 397.730042 1.05783749 930.279907
93644 887.985718 397.730042 1.05681729 930.84375
93676 883.485962 397.730042 1.05528736 931.406738
93708 883.485962 402.252075 1.05528736 931.969482
93740 883.485962 388.685608 1.05834746 932.533081
93772 887.985718 388.685608 1.05936766 933.0979
93804 887.985718 397.730042 1.05936766 933.662964
93836 887.985718 393.207642 1.05834746 934.227783
93868 887.985718 397.730042 1.05885744 934.792358
93900 883.485962 388.685608 1.05834746 935.356812
93932 883.485962 388.685608 1.05732751 935.921265
93964 887.985718 397.730042 1.05681753 936.484863
93996 883.485962 393.207642 1.05579734 937.048096
94028 883.485962 397.730042 1.05681753 937.611938
94060 883.485962 397.730042 1.05579734 938.175293
94092 883.485962 388.685608 1.0552876 938.738281
94124 883.485962 388.685608 1.05579734 939.30127
94156 887.985718 393.207642 1.05732751 939.864868
94188 883.485962 393.207642 1.05630755 940.428467
94220 883.485962 397.730042 1.05681753 940.991943
94252 883.485962 393.207642 1.05732751 941.555864
94284 883.485962 393.207642 1.05732751 942.119629
94316 883.485962 388.685608 1.05732751 942.683594
94348 883.485962 393.207642 1.05783749 943.247314
94380 883.485962 393.207642 1.05732751 943.811401
94412 883.485962 397.730042 1.05732751 944.375732
94444 883.485962 397.730042 1.05630732 944.939331
94476 883.485962 393.207642 1.05528736 945.502319
94508 887.985718 388.685608 1.05528736 946.065308
94540 883.485962 388.685608 1.05630732 946.628418
94572 883.485962 397.730042 1.05681753 947.192017
94604 887.985718 393.207642 1.05783749 947.755981
94636 887.985718 402.252075 1.05783749 948.320088
94668 883.485962 397.730042 1.05681753 948.883911
94700 887.985718 393.207642 1.05732751 949.447754
94732 883.485962 388.685608 1.0552876 950.010864
94764 887.985718 397.730042 1.05528736 950.573853
94796 883.485962 393.207642 1.05681753 951.136849
94828 887.985718 397.730042 1.05732751 951.700439
94860 887.985718 397.730042 1.05681753 952.264038
94892 887.985718 397.730042 1.05732751 952.827637
94924 883.485962 393.207642 1.05783749 953.391602
94956 887.985718 397.730042 1.05885744 953.956177
94988 887.985718 397.730042 1.05681753 954.520386
95020 892.485962 397.730042 1.05579734 955.083496
95052 892.485962 397.730042 1.05528736 955.646362
95084 887.985718 393.207642 1.05732751 956.210205
95116 887.985718 393.207642 1.05630732 956.773804
95148 887.985718 393.207642 1.05528736 957.336914
95180 887.985718 397.730042 1.05528736 957.899536
95212 887.985718 397.730042 1.05681753 958.462769
95244 887.985718 397.730042 1.05834746 959.026367
95276 887.985718 402.252075 1.05885744 959.591064
95308 887.985718 393.207642 1.05834746 960.155762
95340 896.985718 393.207642 1.05732751 960.719727
95372 887.985718 397.730042 1.05681729 961.283203
95404 892.485962 397.730042 1.05783749 961.846924
95436 887.985718 397.730042 1.05732751 962.411011
95468 892.485962 397.730042 1.05783749 962.97522
95500 887.985718 393.207642 1.05783749 963.539185
95532 887.985718 397.730042 1.05630755 964.102783
95564 892.485962 397.730042 1.05579734 964.666018
95596 892.485962 397.730042 1.05681729 965.229248
95628 896.985718 397.730042 1.05630755 965.792725
95660 892.485962 397.730042 1.05885744 966.3573
95692 892.485962 393.207642 1.05885744 966.921997
95724 892.485962 393.207642 1.05732751 967.486572
95756 892.485962 397.730042 1.05783749 968.050415
95788 892.485962 397.730042 1.05630755 968.614136
95820 887.985718 397.730042 1.0552876 969.177368
95852 887.985718 397.730042 1.05579734 969.740356
95884 892.485962 397.730042 1.05630755 970.303589
95916 892.485962 393.207642 1.05630755 970.867065
95948 887.985718 393.207642 1.05630755 971.430542
95980 892.485962 393.207642 1.05579734 971.993896
96012 892.485962 393.207642 1.05630755 972.557373
96044 892.485962 397.730042 1.05783749 973.121216
96076 892.485962 397.730042 1.05783749 973.685181
96108 892.485962 397.730042 1.05681753 974.249023
96140 887.985718 402.252075 1.05528736 974.81189
96172 892.485962 393.207642 1.05528736 975.374756
96204 892.485962 388.685608 1.05579734 975.937866

96236 892.485962 397.730042 1.05477738 976.500732
96268 892.485962 397.730042 1.05477738 976.500732
96300 892.485962 395.207642 1.05324721 977.625122
96332 892.485962 397.730042 1.05477738 978.187256
96364 892.485962 397.730042 1.05528736 978.749634
96396 897.985718 397.730042 1.05579734 979.312622
96428 892.485962 397.730042 1.05528736 979.87561
96460 892.485962 397.730042 1.05579734 980.438477
96492 892.485962 397.730042 1.05579734 981.001465
96524 892.485962 397.730042 1.05528736 981.564819
96556 897.985718 393.207642 1.05528736 982.12793
96588 892.485962 397.730042 1.05477738 982.690552
96620 892.485962 393.207642 1.05375743 983.252688
96652 897.985718 397.730042 1.05324745 983.814331
96684 892.485962 393.207642 1.05375743 984.375854
96716 892.485962 397.730042 1.05324721 984.937622
96748 892.485962 397.730042 1.05375719 985.499512
96780 892.485962 402.252075 1.05324721 986.061401
96812 892.485962 397.730042 1.05375743 986.623291
96844 892.485962 397.730042 1.05426741 987.185425
96876 892.485962 397.730042 1.05477738 987.747925
96908 892.485962 402.252075 1.05528736 988.310547
96940 892.485962 402.252075 1.05579734 988.873413
96972 892.485962 402.252075 1.05477738 989.436279
97004 892.485962 393.207642 1.05528736 989.999268
97036 892.485962 393.207642 1.05579758 990.562256
97068 892.485962 402.252075 1.05579758 991.125244
97100 892.485962 397.730042 1.0552876 991.687988
97132 892.485962 402.252075 1.05426764 992.25061
97164 892.485962 402.252075 1.05375743 992.812866
97196 892.485962 397.730042 1.05375743 993.374878
97228 892.485962 393.207642 1.0512073 993.936279
97260 892.485962 397.730042 1.0512073 994.496826
97292 892.485962 397.730042 1.0512073 995.057373
97324 892.485962 397.730042 1.05426717 995.619263
97356 892.485962 397.730042 1.05426741 996.181763
97388 892.485962 397.730042 1.05426741 996.744141
97420 892.485962 393.207642 1.05426741 997.306519
97452 892.485962 393.207642 1.05375743 997.868774
97484 892.485962 397.730042 1.0552876 998.43103
97516 892.485962 397.730042 1.05630755 998.994263
97548 892.485962 397.730042 1.05579734 999.557373
97580 892.485962 397.730042 1.05324745 1000.11987
97612 892.485962 402.252075 1.05324745 1000.68152
97644 892.485962 397.730042 1.05273747 1001.24329
97676 892.485962 397.730042 1.05222726 1001.80469
97708 896.985718 397.730042 1.05324745 1002.36621
97740 896.985718 393.207642 1.05426741 1002.92822
97772 892.485962 397.730042 1.05375743 1003.49048
97804 896.985718 397.730042 1.05273747 1004.05225
97836 892.485962 402.252075 1.05375743 1004.61401
97868 896.985718 397.730042 1.05426717 1005.17639
97900 892.485962 397.730042 1.05426717 1005.73877
97932 896.985718 397.730042 1.05375743 1006.3009
97964 896.985718 393.207642 1.05426741 1006.86304
97996 896.985718 393.207642 1.05426741 1007.42529
98028 896.985718 397.730042 1.05324745 1007.98755
98060 896.985718 397.730042 1.05477738 1008.5498
98092 896.985718 397.730042 1.05477738 1009.11218
98124 896.985718 397.730042 1.05528736 1009.67505
98156 896.985718 397.730042 1.05324745 1010.23694
98188 896.985718 397.730042 1.05273747 1010.79822
98220 896.985718 393.207642 1.0522275 1011.35938
98252 896.985718 397.730042 1.05324745 1011.92102
98284 901.485962 397.730042 1.05324745 1012.48279
98316 896.985718 402.252075 1.05375743 1013.04443
98348 896.985718 402.252075 1.05426741 1013.60657
98380 896.985718 397.730042 1.05477738 1014.16907
98412 896.985718 402.252075 1.05579734 1014.73169
98444 896.985718 397.730042 1.05579758 1015.2948
98476 896.985718 397.730042 1.05681753 1015.85815
98508 896.985718 402.252075 1.0552876 1016.42126
98540 896.985718 397.730042 1.0552876 1016.98413
98572 896.985718 397.730042 1.05477738 1017.547
98604 896.985718 397.730042 1.05426741 1018.1095
98636 896.985718 397.730042 1.05426741 1018.67188
98668 896.985718 402.252075 1.05477738 1019.2345
98700 896.985718 393.207642 1.05579758 1019.79761
98732 896.985718 393.207642 1.0552876 1020.3606
98764 901.485962 393.207642 1.05375743 1020.92297
98796 896.985718 393.207642 1.05324745 1021.48462
98828 896.985718 393.207642 1.0522275 1022.0459
98860 896.985718 397.730042 1.05273747 1022.6073
98892 901.485962 402.252075 1.05375743 1023.16895

98924 901.485962 402.252075 1.05426741 1023.73132
98956 901.485962 402.252075 1.05426741 1024.85596
98988 896.985718 397.730042 1.05426741 1024.85596
99020 901.485962 402.252075 1.05528736 1025.41848
99052 896.985718 397.730042 1.05426741 1025.98096
99084 901.485962 402.252075 1.05273747 1026.54297
99116 896.985718 402.252075 1.05273724 1027.10449
99148 901.485962 397.730042 1.05222726 1027.66602
99180 896.985718 397.730042 1.05375743 1028.22754
99212 901.485962 402.252075 1.05426764 1028.78931
99244 901.485962 402.252075 1.05375743 1029.35107
99276 901.485962 397.730042 1.05324745 1029.9126
99308 896.985718 402.252075 1.05375743 1030.47412
99340 901.485962 393.207642 1.05273747 1031.03613
99372 901.485962 393.207642 1.05324721 1031.59766
99404 901.485962 393.207642 1.05273747 1032.15918
99436 901.485962 397.730042 1.05375743 1032.72093
99468 901.485962 397.730042 1.05375743 1033.28271
99500 901.485962 402.252075 1.05426741 1033.84497
99532 901.485962 402.252075 1.05426741 1034.40674
99564 901.485962 397.730042 1.05426717 1034.96899
99596 901.485962 397.730042 1.05528736 1035.53149
99628 901.485962 402.252075 1.0552876 1036.09424
99660 901.485962 397.730042 1.05477738 1036.65723
99692 901.485962 402.252075 1.05324721 1037.21924
99724 901.485962 402.252075 1.0512073 1037.78027
99756 901.485962 397.730042 1.05222726 1038.34155
99788 901.485962 397.730042 1.05324745 1038.90283
99820 901.485962 402.252075 1.05222726 1039.46436
99852 896.985718 397.730042 1.05324745 1040.02588
99884 901.485962 402.252075 1.05426764 1040.58789
99916 901.485962 397.730042 1.05477762 1041.15039
99948 901.485962 397.730042 1.05426764 1041.71289
99980 901.485962 397.730042 1.05324745 1042.27466
100012 901.485962 393.207642 1.05324745 1042.83618
100044 905.985718 397.730042 1.05426764 1043.39771
100076 901.485962 397.730042 1.05426741 1043.95996
100108 901.485962 402.252075 1.05426717 1044.52246
100140 901.485962 397.730042 1.05426717 1045.08472
100172 901.485962 402.252075 1.05528736 1045.64722
100204 901.485962 397.730042 1.05477738 1046.20972
100236 901.485962 397.730042 1.05426717 1046.77197
100268 901.485962 397.730042 1.05375743 1047.33374
100300 901.485962 402.252075 1.05324745 1047.89526
100332 901.485962 402.252075 1.05426764 1048.45703
100364 901.485962 402.252075 1.05477738 1049.01953
100396 901.485962 397.730042 1.05477738 1049.58199
100428 901.485962 402.252075 1.05375743 1050.14331
100460 901.485962 397.730042 1.05426764 1050.70508
100492 901.485962 397.730042 1.05477738 1051.26758
100524 901.485962 397.730042 1.05273747 1051.82983
100556 901.485962 397.730042 1.05171752 1052.39087
100588 905.985718 397.730042 1.05171752 1052.95142
100620 905.985718 402.252075 1.05375743 1053.5127
100652 905.985718 397.730042 1.05375743 1054.07422
100684 901.485962 402.252075 1.05273747 1054.63574
100716 905.985718 397.730042 1.05324745 1055.19727
100748 905.985718 397.730042 1.05273747 1055.75879
100780 901.485962 402.252075 1.0522275 1056.32031
100812 905.985718 397.730042 1.05273747 1056.88184
100844 905.985718 402.252075 1.0522275 1057.44336
100876 905.985718 397.730042 1.05171728 1058.00464
100908 905.985718 402.252075 1.05069733 1058.56519
100940 905.985718 397.730042 1.05222726 1059.12598
100972 901.485962 397.730042 1.05273747 1059.68726
101004 901.485962 397.730042 1.0522275 1060.24878
101036 901.485962 402.252075 1.05171752 1060.81006
101068 905.985718 402.252075 1.05171752 1061.37085
101100 905.985718 402.252075 1.0512073 1061.9314
101132 905.985718 402.252075 1.0512073 1062.49194
101164 905.985718 402.252075 1.05069733 1063.05249
101196 905.985718 402.252075 1.0522275 1063.61328
101228 901.485962 402.252075 1.05273747 1064.17456
101260 901.485962 397.730042 1.05375743 1064.73657
101292 905.985718 397.730042 1.05324745 1065.2981
101324 905.985718 397.730042 1.0512073 1065.85913
101356 901.485962 397.730042 1.04916739 1066.41919
101388 905.985718 397.730042 1.04967713 1066.97676
101420 905.985718 402.252075 1.05069733 1067.53906
101452 905.985718 397.730042 1.05018735 1068.09961
101484 905.985718 397.730042 1.05069733 1068.66016
101516 905.985718 397.730042 1.04967737 1069.21997
101548 905.985718 393.207642 1.05018735 1069.78052
101580 905.985718 397.730042 1.0512073 1070.34082

106988 914.985718 397.730042 1.036443 1164.71316
107020 914.985718 397.730042 1.0349135 1165.20416
107052 919.485962 397.730042 1.03389382 1165.81592
107084 914.985718 397.730042 1.03595421 1166.36792
107116 919.485962 397.730042 1.03644443 1166.92065
107148 919.485962 397.730042 1.03746466 1167.47339
107180 914.985718 397.730042 1.03644538 1168.02612
107212 919.485962 402.252075 1.03593564 1168.57886
107244 919.485962 397.730042 1.03593612 1169.13159
107276 919.485962 397.730042 1.03746629 1169.68481
107308 919.485962 397.730042 1.03644681 1170.23755
107340 919.485962 397.730042 1.03389716 1170.78979
107372 919.485962 397.730042 1.03491783 1171.34155
107404 919.485962 393.207642 1.03695798 1171.89404
107436 919.485962 393.207642 1.03746843 1172.44751
107468 919.485962 393.207642 1.03644872 1173.00098
107500 919.485962 397.730042 1.03542924 1173.55347
107532 914.985718 393.207642 1.0349195 1174.10522
107564 914.985718 393.207642 1.03644991 1174.65747
107596 914.985718 393.207642 1.03645039 1175.21045
107628 919.485962 397.730042 1.03594089 1175.76318
107660 919.485962 393.207642 1.03492141 1176.31494
107692 914.985718 393.207642 1.03492188 1176.8667
107724 919.485962 393.207642 1.03543234 1177.4187
107756 914.985718 397.730042 1.03645277 1177.97119
107788 919.485962 393.207642 1.03492332 1178.52383
107820 914.985718 397.730042 1.03492355 1179.07568
107852 919.485962 393.207642 1.03441405 1179.62744
107884 919.485962 402.252075 1.03645444 1180.17993
107916 919.485962 397.730042 1.03645468 1180.73267
107948 919.485962 393.207642 1.0354352 1181.28516
107980 919.485962 393.207642 1.0349257 1181.83716
108012 919.485962 397.730042 1.03594613 1182.3894
108044 919.485962 393.207642 1.03492665 1182.94116
108076 919.485962 397.730042 1.03492713 1183.49292
108108 914.985718 393.207642 1.03398741 1184.04468
108140 919.485962 393.207642 1.03492785 1184.59644
108172 919.485962 393.207642 1.03288817 1185.14795
108204 919.485962 397.730042 1.03288865 1185.69873
108236 919.485962 402.252075 1.03441906 1186.24976
108268 914.985718 397.730042 1.03492951 1186.80151
108300 919.485962 397.730042 1.03442001 1187.35327
108332 919.485962 397.730042 1.03391051 1187.90503
108364 919.485962 402.252075 1.03442097 1188.45679
108396 919.485962 393.207642 1.03442144 1189.00854
108428 914.985718 397.730042 1.03442192 1189.5603
108460 919.485962 393.207642 1.03340268 1190.11157
108492 919.485962 397.730042 1.03493285 1190.66309
108524 919.485962 393.207642 1.03595328 1191.21509
108556 919.485962 397.730042 1.03595376 1191.76782
108588 919.485962 397.730042 1.03544402 1192.32056
108620 919.485962 397.730042 1.03646445 1192.87305
108652 919.485962 397.730042 1.03595495 1193.42578
108684 919.485962 397.730042 1.03595543 1193.97852
108716 919.485962 397.730042 1.0374856 1194.53149
108748 919.485962 393.207642 1.03748584 1195.08472
108780 919.485962 393.207642 1.03799605 1195.63818
108812 919.485962 393.207642 1.03850627 1196.19189
108844 919.485962 397.730042 1.03850675 1196.74561
108876 919.485962 397.730042 1.03646708 1197.29858
108908 919.485962 406.774536 1.03693738 1197.85083
108940 919.485962 397.730042 1.03646755 1198.40356
108972 919.485962 397.730042 1.03646803 1198.95679
109004 919.485962 402.252075 1.03646827 1199.50952
109036 919.485962 393.207642 1.03646874 1200.06226
109068 919.485962 393.207642 1.03799891 1200.61572
109100 919.485962 397.730042 1.03697944 1201.16919
109132 919.485962 393.207642 1.03595996 1201.72192
109164 914.985718 393.207642 1.03545022 1202.27417
109196 919.485962 397.730042 1.0354507 1202.82617
109228 919.485962 393.207642 1.03494096 1203.37793
109260 919.485962 397.730042 1.03445146 1203.92969
109292 919.485962 397.730042 1.03596187 1204.48189
109324 919.485962 397.730042 1.03596234 1205.03394
109356 919.485962 397.730042 1.0364728 1205.58667
109388 919.485962 397.730042 1.03494334 1206.13867
109420 919.485962 397.730042 1.03596377 1206.69092
109452 919.485962 397.730042 1.0349443 1207.24268
109484 919.485962 393.207642 1.03341484 1207.79419
109516 919.485962 402.252075 1.0359652 1208.34595
109548 919.485962 397.730042 1.03647566 1208.89868
109580 919.485962 397.730042 1.03545594 1209.45166
109612 919.485962 397.730042 1.0359664 1210.00415
109644 919.485962 397.730042 1.03647685 1210.55664

109676 919.485962 397.730042 1.03647757 1211.66211
 109708 919.485962 402.252075 1.03647757 1212.21509
 109740 919.485962 402.252075 1.03749824 1212.76831
 109772 919.485962 402.252075 1.03749824 1213.32104
 109804 919.485962 397.730042 1.03647852 1213.87378
 109836 919.485962 397.730042 1.036479 1213.87378
 109868 919.485962 402.252075 1.03698921 1214.42651
 109900 919.485962 397.730042 1.03647971 1214.97925
 109932 919.485962 397.730042 1.03596997 1215.53198
 109964 919.485962 397.730042 1.03750038 1216.08406
 109996 919.485962 397.730042 1.03699064 1216.63794
 110028 919.485962 397.730042 1.03801084 1217.19141
 110060 919.485962 411.296509 1.03852129 1217.74512
 110092 919.485962 397.730042 1.0369916 1218.29834
 110124 919.485962 397.730042 1.03444195 1218.85059
 110156 919.485962 402.252075 1.0349524 1219.40259
 110188 919.485962 402.252075 1.03699255 1219.95508
 110220 919.485962 402.252075 1.03699279 1220.50806
 110252 919.485962 397.730042 1.03801328 1221.06152
 110284 919.485962 397.730042 1.03852344 1221.61523
 110316 919.485962 397.730042 1.03852367 1222.16893
 110348 919.485962 406.774536 1.03852391 1222.72266
 110380 919.485962 406.774536 1.03903415 1223.27637
 110412 919.485962 397.730042 1.03852415 1223.83008
 110444 919.485962 397.730042 1.03903437 1224.38403
 110476 919.485962 402.252075 1.03954458 1224.93799
 110508 919.485962 406.774536 1.03903464 1225.49219
 110540 919.485962 397.730042 1.0385251 1226.04616
 110572 919.485962 402.252075 1.04107547 1226.60063
 110604 919.485962 402.252075 1.04005551 1227.15552
 110636 923.985718 393.207662 1.03801584 1227.70996
 110668 919.485962 406.774536 1.03801608 1228.26367
 110700 919.485962 397.730042 1.03903627 1228.81738
 110732 919.485962 406.774536 1.03852654 1229.37109
 110764 923.985718 397.730042 1.03852677 1229.9249
 110796 919.485962 397.730042 1.03903699 1230.47852
 110828 919.485962 397.730042 1.03801703 1231.03223
 110860 923.985718 406.774536 1.03852725 1231.58594
 110892 923.985718 406.774536 1.04005742 1232.13989
 110924 923.985718 397.730042 1.04005766 1232.69458
 110956 923.985718 397.730042 1.03903794 1233.24902
 110988 919.485962 402.252075 1.03903818 1233.80298
 111020 919.485962 402.252075 1.0385282 1234.35669
 111052 919.485962 397.730042 1.0395484 1234.91089
 111084 923.985718 402.252075 1.03852868 1235.46533
 111116 923.985718 406.774536 1.03852892 1236.01904
 111148 923.985718 402.252075 1.03852916 1236.57275
 111180 923.985718 402.252075 1.04005931 1237.1272
 111212 923.985718 397.730042 1.04005933 1237.68188
 111244 919.485962 406.774536 1.04005954 1238.23682
 111276 923.985718 411.296509 1.04158074 1238.79199
 111308 923.985718 397.730042 1.03955007 1239.34692
 111340 923.985718 402.252075 1.03802013 1239.90063
 111372 923.985718 406.774536 1.03853035 1240.45435
 111404 923.985718 397.730042 1.03904057 1241.0083
 111436 928.485962 406.774536 1.03649092 1241.56201
 111468 928.485962 406.774536 1.03394127 1242.11426
 111500 923.985718 402.252075 1.03594151 1242.66553
 111532 928.485962 402.252075 1.03547192 1243.21729
 111564 923.985718 402.252075 1.03700235 1243.77051
 111596 923.985718 397.730042 1.03955245 1244.32446
 111628 923.985718 402.252075 1.03955269 1244.87891
 111660 923.985718 397.730042 1.03904295 1245.43311
 111692 928.485962 411.296509 1.03751326 1245.98706
 111724 928.485962 402.252075 1.03496361 1246.53955
 111756 928.485962 397.730042 1.03343415 1247.09106
 111788 928.485962 402.252075 1.03445458 1247.64258
 111820 928.485962 402.252075 1.03700471 1248.19507
 111852 923.985718 402.252075 1.03700519 1248.74805
 111884 923.985718 406.774536 1.03802538 1249.30151
 111916 923.985718 397.730042 1.03955555 1249.85547
 111948 928.485962 397.730042 1.03853583 1250.40991
 111980 928.485962 397.730042 1.03649616 1250.96313
 112012 928.485962 397.730042 1.0364964 1251.51587
 112044 928.485962 402.252075 1.03751659 1252.06909
 112076 923.985718 402.252075 1.03955698 1252.62305
 112108 928.485962 402.252075 1.04006696 1253.17749
 112140 928.485962 402.252075 1.04159713 1253.73242
 112172 928.485962 397.730042 1.04057761 1254.28609
 112204 928.485962 406.774536 1.04006787 1254.84326
 112236 923.985718 406.774536 1.03853774 1255.39722
 112268 923.985718 397.730042 1.038028 1255.95093
 112300 928.485962 397.730042 1.03853822 1256.50488
 112332 928.485962 397.730042 1.04006839 1257.05884

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

115052	928.485962	375.207642	1.03754234	1304.72207
115084	928.485962	388.685608	1.03754306	1305.229
115116	932.985718	388.685608	1.03854325	1305.78271
115148	928.485962	388.685608	1.03907371	1306.33618
115180	928.485962	388.685608	1.03907394	1306.89014
115212	928.485962	393.207642	1.03958416	1307.44409
115244	932.985718	388.685608	1.03754449	1307.9978
115276	932.985718	388.685608	1.03754473	1308.55151
115308	932.985718	388.685608	1.03805496	1309.10522
115340	928.485962	388.685608	1.0375452	1309.65894
115372	932.985718	388.685608	1.03958535	1310.21265
115404	928.485962	388.685608	1.03958559	1310.76635
115436	932.985718	384.163147	1.03958583	1311.32153
115468	928.485962	384.163147	1.04060602	1311.87646
115500	932.985718	388.685608	1.03958631	1312.43115
115532	932.985718	388.685608	1.03958631	1312.98584
115564	928.485962	384.163147	1.03907657	1313.54004
115596	928.485962	379.641174	1.0370369	1314.09351
115628	932.985718	388.685608	1.03754735	1314.64673
115660	932.985718	384.163147	1.03907752	1315.20044
115692	928.485962	379.641174	1.03958776	1315.75488
115724	928.485962	384.163147	1.04060793	1316.30981
115756	932.985718	379.641174	1.03856802	1316.86428
115788	928.485962	388.685608	1.03856826	1317.41797
115820	928.485962	384.163147	1.04009843	1317.97217
115852	932.985718	379.641174	1.03907871	1318.52612
115884	928.485962	384.163147	1.03856921	1319.08008
115916	928.485962	375.118713	1.03907963	1319.63379
115948	932.985718	379.641174	1.03703976	1320.18726
116012	932.985718	384.163147	1.03805995	1320.74072
116044	932.985718	379.641174	1.03959012	1321.29468
116076	928.485962	384.163147	1.04010034	1321.84937
116108	932.985718	379.641174	1.04010057	1322.40405
116140	928.485962	375.118713	1.03857064	1322.95801
116172	932.985718	384.163147	1.03959107	1323.51221
116204	928.485962	379.641174	1.04061103	1324.06689
116236	928.485962	379.641174	1.03959131	1324.62158
116268	928.485962	379.641174	1.03959155	1325.17578
116300	928.485962	375.118713	1.03857183	1325.72974
116332	932.985718	384.163147	1.03959203	1326.28369
116364	928.485962	379.641174	1.04163218	1326.83838
116396	928.485962	379.641174	1.04010248	1327.39331
116428	928.485962	379.641174	1.04010272	1327.94775
116460	928.485962	379.641174	1.03806281	1328.50171
116492	928.485962	384.163147	1.03755331	1329.05518
116524	932.985718	379.641174	1.03806353	1329.60864
116556	932.985718	384.163147	1.03704381	1330.16162
116588	932.985718	384.163147	1.03653431	1330.71436
116620	932.985718	384.163147	1.03500485	1331.26685
116652	932.985718	379.641174	1.03347516	1331.81836
116684	928.485962	384.163147	1.03398561	1332.36963
116716	928.485962	379.641174	1.03398633	1332.9209
116748	928.485962	388.685608	1.03398681	1333.47241
116780	928.485962	379.641174	1.03704715	1334.02515
116812	928.485962	384.163147	1.03551745	1334.57788
116844	932.985718	384.163147	1.03194809	1335.12964
116876	928.485962	379.641174	1.03245854	1335.67993
116908	932.985718	379.641174	1.03041911	1336.22998
116940	932.985718	379.641174	1.0324595	1336.78003
116972	928.485962	379.641174	1.03398991	1337.33061
117004	928.485962	384.163147	1.03348041	1337.88208
117036	932.985718	384.163147	1.03552079	1338.43408
117068	932.985718	379.641174	1.03501153	1338.98608
117100	928.485962	384.163147	1.03603172	1339.53882
117132	928.485962	375.118713	1.03705215	1340.09155
117164	932.985718	375.118713	1.03858256	1340.64502
117196	932.985718	375.118713	1.03960299	1341.19922
117228	928.485962	375.118713	1.03756332	1341.75293
117260	928.485962	379.641174	1.03552365	1342.30542
117292	932.985718	379.641174	1.03450418	1342.85742
117324	932.985718	379.641174	1.03450465	1343.40894
117356	932.985718	375.118713	1.03552508	1343.96094
117388	932.985718	370.596741	1.03501358	1344.51367
117420	932.985718	375.118713	1.03399611	1345.06567
117452	937.485962	370.596741	1.03501654	1345.61743
117484	932.985718	379.641174	1.03552675	1346.16968
117516	932.985718	375.118713	1.03858709	1346.7229
117548	932.985718	375.118713	1.03858733	1347.27661
117580	932.985718	379.641174	1.03858757	1347.83032
117612	932.985718	379.641174	1.03756785	1348.38403
117644	932.985718	379.641174	1.03654838	1348.93701
117676	928.485962	370.596741	1.03756881	1349.48999
117708	932.985718	370.596741	1.04040083	1349.97412

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

123188	937.485962	357.029785	1.04449201	1443.97168
123220	937.485962	366.07428	1.04449201	1444.52852
123252	937.485962	361.552246	1.04449201	1445.08496
123284	937.485962	366.07428	1.04296207	1445.6416
123316	937.485962	361.552246	1.04449224	1446.19824
123348	937.485962	361.552246	1.04398227	1446.75513
123380	937.485962	366.07428	1.04449226	1447.31226
123412	937.485962	361.552246	1.04602218	1447.86987
123444	937.485962	366.07428	1.04398227	1448.42725
123476	937.485962	357.029785	1.04449224	1448.98413
123508	937.485962	357.029785	1.04449224	1449.54077
123540	937.485962	361.552246	1.04500222	1450.09779
123572	937.485962	357.029785	1.04398227	1450.65479
123604	937.485962	366.07428	1.04500222	1451.21191
123636	937.485962	366.07428	1.04806232	1451.77002
123668	937.485962	357.029785	1.0485723	1452.32935
123700	937.485962	357.029785	1.0485723	1452.88867
123732	937.485962	357.029785	1.04806232	1453.44775
123764	937.485962	361.552246	1.05010247	1454.00732
123796	937.485962	357.029785	1.05214262	1454.56738
123828	937.485962	357.029785	1.05214262	1455.12888
123860	937.485962	361.552246	1.05418277	1455.69043
123892	937.485962	361.552246	1.05367255	1456.25244
123924	937.485962	361.552246	1.05520272	1456.81494
123956	937.485962	357.029785	1.05418277	1457.37744
123988	937.485962	361.552246	1.05520272	1457.93994
124020	937.485962	361.552246	1.05469251	1458.5022
124052	937.485962	361.552246	1.05520248	1459.06494
124084	937.485962	366.07428	1.05622268	1459.62817
124116	937.485962	361.552246	1.05520248	1460.19141
124148	937.485962	357.029785	1.05571246	1460.75439
124180	937.485962	357.029785	1.05316257	1461.31689
124212	937.485962	357.029785	1.05316257	1461.87866
124244	941.985718	357.029785	1.05163264	1462.44019
124276	937.485962	361.552246	1.05163264	1463.00073
124308	937.485962	357.029785	1.05163264	1463.56152
124340	937.485962	370.596741	1.05061245	1464.12207
124372	937.485962	370.596741	1.05112243	1464.68262
124404	937.485962	375.118713	1.05061245	1465.24292
124436	937.485962	375.118713	1.05163264	1465.80347
124468	937.485962	379.641174	1.05061245	1466.36401
124500	941.985718	384.163147	1.05112243	1466.92456
124532	937.485962	384.163147	1.05061245	1467.48486
124564	937.485962	393.207642	1.05061245	1468.04468
124596	941.985718	384.163147	1.05061245	1468.60498
124628	937.485962	388.685608	1.05010247	1469.16479
124660	937.485962	393.207642	1.05112243	1469.7251
124692	941.985718	388.685608	1.05061245	1470.28564
124724	941.985718	388.685608	1.05010247	1470.8457
124756	941.985718	393.207642	1.0485723	1471.40527
124788	937.485962	388.685608	1.04959249	1471.96484
124820	941.985718	393.207642	1.05061245	1472.52466
124852	937.485962	393.207642	1.05061245	1473.08498
124884	941.985718	388.685608	1.0526526	1473.64575
124916	941.985718	388.685608	1.0526526	1474.20728
124948	937.485962	384.163147	1.05367255	1474.7688
124980	937.485962	379.641174	1.05061245	1475.32959
125012	937.485962	375.118713	1.05163264	1475.88989
125044	941.985718	375.118713	1.05163264	1476.45093
125076	941.985718	375.118713	1.05418277	1477.01245
125108	937.485962	375.118713	1.05418277	1477.57471
125140	937.485962	370.596741	1.05469251	1478.13721
125172	941.985718	366.07428	1.05622268	1478.70044
125204	941.985718	370.596741	1.05571246	1479.26367
125236	941.985718	370.596741	1.05418253	1479.82642
125268	937.485962	370.596741	1.05418253	1480.38867
125300	941.985718	370.596741	1.05571246	1480.95117
125332	941.985718	370.596741	1.05520272	1481.51416
125364	941.985718	370.596741	1.05622244	1482.07764
125396	941.985718	375.118713	1.05571246	1482.64087
125428	941.985718	375.118713	1.05775261	1483.20459
125460	937.485962	379.641174	1.05724263	1483.76855
125492	937.485962	384.163147	1.05826259	1484.33301
125524	941.985718	379.641174	1.05877256	1484.89771
125556	937.485962	384.163147	1.06030273	1485.46289
125588	941.985718	384.163147	1.06132269	1486.02881
125620	941.985718	388.685608	1.06132269	1486.59497
125652	941.985718	388.685608	1.06030273	1487.16089
125684	937.485962	388.685608	1.06132269	1487.72632
125716	937.485962	393.207642	1.06285262	1488.29272
125748	941.985718	393.207642	1.0633626	1488.85962
125780	941.985718	393.207642	1.0633626	1489.42651
125812	941.985718	393.207642	1.06285262	1489.99292
125844	937.485962	393.207642	1.06489253	1490.56055

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

128564	941.985718	402.252075	1.07968211	1539.33057
128596	941.985718	402.252075	1.07968211	1539.33057
128628	941.985718	406.774536	1.08019209	1540.48287
128660	941.985718	402.252075	1.08121204	1541.05884
128692	941.985718	406.774536	1.08070207	1541.63525
128724	941.985718	402.252075	1.07917119	1542.21094
128756	941.985718	406.774536	1.07968211	1542.78638
128788	941.985718	402.252075	1.08070207	1543.3623
128820	941.985718	402.252075	1.08172202	1543.93921
128852	941.985718	402.252075	1.08121204	1544.51587
128884	941.985718	397.730042	1.08121204	1545.09204
128916	941.985718	402.252075	1.08070207	1545.66821
128948	941.985718	402.252075	1.08172202	1546.24512
128980	941.985718	402.252075	1.08223224	1546.82227
129012	941.985718	402.252075	1.08274221	1547.39917
129044	941.985718	402.252075	1.08172202	1547.97632
129076	941.985718	402.252075	1.08070207	1548.55273
129108	941.985718	402.252075	1.07917119	1549.12891
129140	941.985718	402.252075	1.07968211	1549.7041
129172	946.485962	402.252075	1.07968211	1550.27979
129204	941.985718	402.252075	1.08070207	1550.85596
129236	950.98584	402.252075	1.08121204	1551.43213
129268	941.985718	402.252075	1.08172202	1552.00903
129300	941.985718	402.252075	1.08070207	1552.58545
129332	946.485962	402.252075	1.08019209	1553.16162
129364	946.485962	402.252075	1.07968211	1553.73755
129396	946.485962	397.730042	1.08019209	1554.31348
129428	941.985718	402.252075	1.08070207	1554.88965
129460	941.985718	406.774536	1.08070207	1555.46582
129492	941.985718	402.252075	1.08070207	1556.04199
129524	941.985718	402.252075	1.08019209	1556.61816
129556	946.485962	402.252075	1.08019209	1557.19434
129588	946.485962	406.774536	1.08019209	1557.77051
129620	946.485962	402.252075	1.08019209	1558.34668
129652	946.485962	402.252075	1.08070207	1558.92281
129684	946.485962	406.774536	1.08019209	1559.49878
129716	941.985718	402.252075	1.07866192	1560.07471
129748	946.485962	402.252075	1.07866192	1560.6499
129780	946.485962	406.774536	1.07917119	1561.2251
129812	941.985718	402.252075	1.07968211	1561.80054
129844	946.485962	402.252075	1.07968211	1562.37598
129876	946.485962	402.252075	1.08019209	1562.9519
129908	946.485962	406.774536	1.07917119	1563.52734
129940	950.98584	402.252075	1.07866192	1564.10254
129972	950.98584	402.252075	1.07764196	1564.67773
130004	946.485962	402.252075	1.07866192	1565.25293
130036	946.485962	402.252075	1.07815194	1565.82813
130068	946.485962	402.252075	1.07917119	1566.40332
130100	946.485962	406.774536	1.07764196	1566.97852
130132	946.485962	406.774536	1.07968211	1567.55396
130164	946.485962	402.252075	1.07866192	1568.12988
130196	946.485962	397.730042	1.07866192	1568.70532
130228	946.485962	406.774536	1.07713199	1569.28027
130260	946.485962	402.252075	1.07815194	1569.85522
130292	946.485962	406.774536	1.07866192	1570.43042
130324	946.485962	406.774536	1.07968211	1571.00566
130356	946.485962	402.252075	1.07968211	1571.58179
130388	946.485962	402.252075	1.08121204	1572.15796
130420	946.485962	406.774536	1.08019209	1572.73413
130452	946.485962	406.774536	1.08172202	1573.31079
130484	946.485962	406.774536	1.08121204	1573.88696
130516	946.485962	406.774536	1.08070207	1574.46313
130548	946.485962	406.774536	1.08070207	1575.03931
130580	946.485962	402.252075	1.08325219	1575.61694
130612	946.485962	406.774536	1.08325219	1576.19482
130644	946.485962	406.774536	1.08121204	1576.77197
130676	946.485962	406.774536	1.08223224	1577.34888
130708	946.485962	406.774536	1.08325219	1577.92651
130740	946.485962	406.774536	1.08376217	1578.50439
130772	946.485962	402.252075	1.08478236	1579.08276
130804	946.485962	402.252075	1.08478236	1579.66089
130836	946.485962	402.252075	1.08274221	1580.23877
130868	946.485962	402.252075	1.08172202	1580.81592
130900	946.485962	406.774536	1.08172202	1581.39282
130932	946.485962	402.252075	1.08427215	1581.97046
130964	946.485962	402.252075	1.08529234	1582.54907
130996	946.485962	406.774536	1.08529234	1583.12793
131028	946.485962	406.774536	1.08427215	1583.70654
131060	946.485962	406.774536	1.08376217	1584.28467
131092	946.485962	406.774536	1.08376217	1584.86279
131124	946.485962	411.296509	1.08478236	1585.44092
131156	946.485962	406.774536	1.08478236	1586.01904
131188	946.485962	406.774536	1.08427215	1586.59717
131220	946.485962	406.774536	1.08529234	1587.17529

For assistance in accessing this document, please contact the National Archives at reference@nara.gov.

document, contact: R3_UIC_Mailbox@epa.gov

139316 964.485962 411.296509 1.08682227 1733.85244
 139348 964.485962 411.296509 1.08784246 1733.85252
 139380 964.485962 411.296509 1.08682227 1734.8126
 139412 964.485962 411.296509 1.08784246 1734.99268
 139444 964.485962 411.296509 1.08733249 1735.57275
 139476 959.98584 411.296509 1.08784246 1736.15283
 139508 964.485962 415.81897 1.08733249 1736.75291
 139540 964.485962 415.81897 1.08682227 1737.31299
 139572 968.98584 415.81897 1.08682227 1737.89282
 139604 964.485962 415.81897 1.08682227 1738.4729
 139636 964.485962 415.81897 1.08784246 1739.05298
 139668 964.485962 415.81897 1.0893724 1739.63306
 139700 964.485962 415.81897 1.08835244 1740.21387
 139732 964.485962 411.296509 1.08835244 1740.79395
 139764 964.485962 415.81897 1.08631229 1741.37373
 139796 964.485962 411.296509 1.08733249 1741.95337
 139828 964.485962 411.296509 1.08682227 1742.53345
 139860 964.485962 411.296509 1.08784246 1743.11353
 139892 964.485962 415.81897 1.08733249 1743.6936
 139924 964.485962 415.81897 1.08784246 1744.27344
 139956 964.485962 415.81897 1.08733249 1744.85352
 139988 964.485962 411.296509 1.08784246 1745.43359
 140020 964.485962 411.296509 1.08682227 1746.01367
 140052 964.485962 415.81897 1.08784246 1746.59375
 140084 964.485962 415.81897 1.08682227 1747.17358
 140116 964.485962 406.774536 1.08784246 1747.75366
 140148 964.485962 411.296509 1.08835244 1748.33374
 140180 964.485962 411.296509 1.08835244 1748.91381
 140212 964.485962 415.81897 1.08631229 1749.4939
 140244 964.485962 411.296509 1.08682227 1750.07349
 140276 964.485962 415.81897 1.08733249 1750.65356
 140308 964.485962 411.296509 1.08631229 1751.23315
 140340 964.485962 415.81897 1.08580232 1751.81325
 140372 964.485962 415.81897 1.08733249 1752.39333
 140404 964.485962 415.81897 1.08733249 1752.97241
 140436 964.485962 411.296509 1.08784246 1753.55225
 140468 964.485962 411.296509 1.08886242 1754.13281
 140500 968.98584 406.774536 1.08988261 1754.71387
 140532 964.485962 411.296509 1.08886242 1755.29492
 140564 968.98584 406.774536 1.08682227 1755.875
 140596 964.485962 411.296509 1.08784246 1756.45483
 140628 968.98584 411.296509 1.08935244 1757.03491
 140660 968.98584 411.296509 1.08784246 1757.61523
 140692 968.98584 415.81897 1.08733249 1758.19507
 140724 968.98584 411.296509 1.08631229 1758.7749
 140756 964.485962 411.296509 1.08580232 1759.35425
 140788 968.98584 411.296509 1.08478236 1759.93311
 140820 964.485962 411.296509 1.08580232 1760.51172
 140852 968.98584 411.296509 1.08580232 1761.09082
 140884 968.98584 411.296509 1.08682227 1761.67017
 140916 968.98584 411.296509 1.08631229 1762.24951
 140948 968.98584 415.81897 1.08631229 1762.82861
 140980 964.485962 411.296509 1.08529234 1763.40771
 141012 968.98584 415.81897 1.08478236 1763.98608
 141044 964.485962 411.296509 1.08529234 1764.5647
 141076 964.485962 415.81897 1.08529234 1765.14355
 141108 964.485962 411.296509 1.08580232 1765.72266
 141140 968.98584 411.296509 1.08529234 1766.30127
 141172 964.485962 411.296509 1.08580232 1766.88037
 141204 968.98584 411.296509 1.08631229 1767.45923
 141236 968.98584 411.296509 1.08733249 1768.03931
 141268 968.98584 411.296509 1.08580232 1768.61914
 141300 968.98584 411.296509 1.08529234 1769.198
 141332 968.98584 411.296509 1.08376217 1769.77637
 141364 968.98584 411.296509 1.08427215 1770.35449
 141396 964.485962 411.296509 1.08427215 1770.93262
 141428 968.98584 406.774536 1.08376217 1771.51074
 141460 968.98584 411.296509 1.08325219 1772.08887
 141492 968.98584 406.774536 1.08427215 1772.66699
 141524 964.485962 411.296509 1.08427215 1773.24512
 141556 968.98584 406.774536 1.08580232 1773.82428
 141588 968.98584 406.774536 1.08529234 1774.40308
 141620 968.98584 406.774536 1.08478236 1774.98143
 141652 968.98584 411.296509 1.08325219 1775.55957
 141684 968.98584 411.296509 1.08478236 1776.1377
 141716 968.98584 406.774536 1.08376217 1776.71606
 141748 968.98584 411.296509 1.08478236 1777.29419
 141780 968.98584 411.296509 1.08580232 1777.87256
 141812 968.98584 411.296509 1.08682227 1778.45245
 141844 964.485962 411.296509 1.08580232 1779.03174
 141876 968.98584 411.296509 1.08376217 1779.61011
 141908 968.98584 411.296509 1.08376217 1780.18823
 141940 968.98584 411.296509 1.08427215 1780.76611
 141972 968.98584 411.296509 1.08529234 1781.34473

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

144592	973.486084	411.296509	1.08223224	1830.552
144724	968.98584	415.81897	1.08172202	1831.12915
144756	973.486084	411.296509	1.08274221	1831.7063
144788	973.486084	411.296509	1.08325219	1832.28394
144820	973.486084	411.296509	1.08325219	1832.86206
144852	973.486084	411.296509	1.08223224	1833.4397
144884	973.486084	411.296509	1.08274221	1834.01709
144916	973.486084	411.296509	1.08325219	1834.59473
144948	968.98584	411.296509	1.08478236	1835.17285
144980	973.486084	415.81897	1.08325219	1835.75096
145012	973.486084	411.296509	1.08427215	1836.3291
145044	973.486084	411.296509	1.08274221	1836.90674
145076	973.486084	411.296509	1.08376217	1837.48438
145108	973.486084	415.81897	1.08376217	1838.0625
145140	973.486084	415.81897	1.08478236	1838.64063
145172	973.486084	415.81897	1.08427215	1839.21875
145204	973.486084	420.341003	1.08376217	1839.79688
145236	973.486084	415.81897	1.08478236	1840.375
145268	973.486084	415.81897	1.08427215	1840.95313
145300	973.486084	415.81897	1.08478236	1841.53149
145332	973.486084	415.81897	1.08427215	1842.11011
145364	973.486084	415.81897	1.08733249	1842.6897
145396	973.486084	415.81897	1.08631229	1843.26978
145428	973.486084	415.81897	1.08529234	1843.84937
145460	973.486084	415.81897	1.08478236	1844.42798
145492	973.486084	415.81897	1.08784246	1845.00757
145524	973.486084	415.81897	1.08733249	1845.58765
145556	973.486084	415.81597	1.08631229	1846.16772
145588	973.486084	411.296509	1.08580232	1846.74731
145620	973.486084	415.81897	1.08529234	1847.32617
145652	977.98584	411.296509	1.08529234	1847.90503
145684	973.486084	415.81897	1.08478236	1848.48364
145716	973.486084	411.296509	1.08427215	1849.06177
145748	973.486084	415.81897	1.08529234	1849.64014
145780	973.486084	415.81897	1.08631229	1850.21924
145812	973.486084	415.81897	1.08529234	1850.79858
145844	973.486084	415.81897	1.08478236	1851.37695
145876	973.486084	415.81897	1.08274221	1851.95508
145908	973.486084	415.81897	1.08376217	1852.53296
145940	973.486084	420.341003	1.08325219	1853.11084
145972	977.98584	415.81897	1.08478236	1853.68896
146004	973.486084	415.81897	1.08427215	1854.26733
146036	973.486084	415.81897	1.08478236	1854.84546
146068	977.98584	415.81897	1.08427215	1855.42358
146100	973.486084	415.81897	1.08529234	1856.0022
146132	973.486084	411.296509	1.08478236	1856.58057
146164	977.98584	420.341003	1.08376217	1857.15894
146196	973.486084	420.341003	1.08478236	1857.73706
146228	973.486084	415.81897	1.08325219	1858.31519
146260	973.486084	415.81897	1.08478236	1858.89331
146292	977.98584	415.81897	1.08427215	1859.47144
146324	977.98584	415.81897	1.08529234	1860.05029
146356	973.486084	415.81897	1.08325219	1860.62842
146388	973.486084	411.296509	1.08325219	1861.2063
146420	973.486084	415.81897	1.08121204	1861.7832
146452	977.98584	415.81897	1.08274221	1862.36011
146484	977.98584	415.81897	1.08376217	1862.93799
146516	977.98584	415.81897	1.08376217	1863.51611
146548	977.98584	415.81897	1.08427215	1864.09424
146580	977.98584	415.81897	1.08325219	1864.67212
146612	977.98584	420.341003	1.08325219	1865.25024
146644	973.486084	420.341003	1.08325219	1865.82788
146676	973.486084	420.341003	1.08478236	1866.40601
146708	977.98584	415.81897	1.08427215	1866.98438
146740	973.486084	420.341003	1.08529234	1867.56274
146772	977.98584	415.81897	1.08325219	1868.14087
146804	973.486084	415.81897	1.08631229	1868.71948
146836	973.486084	415.81897	1.08580232	1869.29858
146868	973.486084	420.341003	1.08580232	1869.87769
146900	977.98584	415.81897	1.08376217	1870.45605
146932	977.98584	420.341003	1.08376217	1871.03394
146964	977.98584	415.81897	1.08427215	1871.61206
146996	977.98584	420.341003	1.08580232	1872.19067
147028	977.98584	420.341003	1.08631229	1872.76978
147060	977.98584	420.341003	1.08478236	1873.34883
147092	977.98584	420.341003	1.08580232	1873.92749
147124	977.98584	420.341003	1.08478236	1874.5061
147156	977.98584	415.81897	1.08631229	1875.08521
147188	977.98584	420.341003	1.08529234	1875.66455
147220	977.98584	420.341003	1.08529234	1876.24316
147252	977.98584	420.341003	1.08427215	1876.82202
147284	977.98584	420.341003	1.08682227	1877.40112
147316	973.486084	415.81897	1.08631229	1877.98047
147348	973.486084	415.81897	1.08580232	1878.55957

150068 982.486084 420.341003 1.07866192 1927.55566
150100 982.486084 420.341003 1.07866192 1928.70679
150132 982.486084 415.81897 1.07968211 1928.70679
150164 982.486084 415.81897 1.07764196 1929.28198
150196 982.486084 420.341003 1.07815194 1929.85742
150228 982.486084 415.81897 1.07917119 1930.43237
150260 982.486084 420.341003 1.07815194 1931.00757
150292 982.486084 420.341003 1.07917119 1931.58276
150324 986.98584 420.341003 1.07662177 1932.15798
150356 982.486084 420.341003 1.07560182 1932.73169
150388 977.98584 415.81897 1.07560182 1933.30493
150420 982.486084 420.341003 1.07611179 1933.87866
150452 982.486084 424.863403 1.07866192 1934.45361
150484 982.486084 420.341003 1.07917119 1935.02905
150516 982.486084 420.341003 1.07764196 1935.60425
150548 982.486084 420.341003 1.07866192 1936.17944
150580 982.486084 420.341003 1.07815194 1936.75464
150612 982.486084 424.863403 1.07815194 1937.32983
150644 982.486084 420.341003 1.08121204 1937.90576
150676 982.486084 415.81897 1.08019209 1938.48193
150708 982.486084 424.863403 1.07968211 1939.05811
150740 986.98584 420.341003 1.07917119 1939.63354
150772 982.486084 420.341003 1.07713199 1940.2085
150804 982.486084 424.863403 1.07815194 1940.78345
150836 982.486084 420.341003 1.07968211 1941.35809
150868 982.486084 424.863403 1.07968211 1941.93481
150900 982.486084 424.863403 1.08172202 1942.51123
150932 982.486084 420.341003 1.08019209 1943.0874
150964 982.486084 420.341003 1.07917119 1943.66333
150996 982.486084 420.341003 1.07764196 1944.23828
151028 982.486084 420.341003 1.07866192 1944.81348
151060 982.486084 420.341003 1.08070207 1945.3894
151092 982.486084 420.341003 1.08019209 1945.96558
151124 982.486084 424.863403 1.07917119 1946.54126
151156 982.486084 415.81897 1.07917119 1947.1167
151188 982.486084 420.341003 1.07815194 1947.69189
151220 986.98584 424.863403 1.07968211 1948.26733
151252 982.486084 420.341003 1.07968211 1948.84302
151284 982.486084 420.341003 1.07968211 1949.4187
151316 982.486084 420.341003 1.08070207 1949.99463
151348 986.98584 420.341003 1.07968211 1950.5708
151380 982.486084 424.863403 1.08019209 1951.14673
151412 982.486084 424.863403 1.08019209 1951.72264
151444 982.486084 424.863403 1.07917119 1952.29858
151476 982.486084 420.341003 1.08019209 1952.87427
151508 982.486084 420.341003 1.08019209 1953.45044
151540 982.486084 424.863403 1.08019209 1954.02661
151572 982.486084 420.341003 1.08121204 1954.60278
151604 982.486084 415.81897 1.08070207 1955.1792
151636 986.98584 424.863403 1.08172202 1955.75562
151668 986.98584 424.863403 1.08121204 1956.33179
151700 982.486084 424.863403 1.07917119 1956.90796
151732 986.98584 424.863403 1.08070207 1957.48413
151764 986.98584 429.385437 1.08070207 1958.0603
151796 982.486084 429.385437 1.08121204 1958.63696
151828 982.486084 420.341003 1.08172202 1959.21362
151860 986.98584 420.341003 1.07866192 1959.78955
151892 986.98584 429.385437 1.07815194 1960.36499
151924 986.98584 429.385437 1.07917119 1960.94043
151956 982.486084 424.863403 1.08325219 1961.51709
151988 986.98584 429.385437 1.08325219 1962.09497
152020 982.486084 429.385437 1.08019209 1962.67188
152052 986.98584 429.385437 1.07968211 1963.24756
152084 986.98584 420.341003 1.07917119 1963.82324
152116 986.98584 429.385437 1.07917119 1964.39893
152148 986.98584 429.385437 1.08070207 1964.9751
152180 986.98584 429.385437 1.08019209 1965.55127
152212 986.98584 429.385437 1.08121204 1966.12769
152244 986.98584 429.385437 1.08172202 1966.70459
152276 986.98584 429.385437 1.08070207 1967.28101
152308 986.98584 429.385437 1.08121204 1967.85718
152340 986.98584 420.341003 1.08070207 1968.43359
152372 986.98584 424.863403 1.08019209 1969.00977
152404 986.98584 429.385437 1.08172202 1969.58594
152436 986.98584 429.385437 1.08070207 1970.16235
152468 986.98584 429.385437 1.08121204 1970.73877
152500 986.98584 429.385437 1.08121204 1971.31494
152532 986.98584 429.385437 1.07917119 1971.89087
152564 986.98584 429.385437 1.08019209 1972.4668
152596 986.98584 424.863403 1.07866192 1973.04248
152628 986.98584 429.385437 1.07917119 1973.61816
152660 986.98584 424.863403 1.08121204 1974.19434
152692 986.98584 424.863403 1.08121204 1974.77075
152724 986.98584 429.385437 1.08121204 1975.34717

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

155444	991.486084	424.863403	1.08121204	2024.33618
155478	991.486084	429.385437	1.07813199	2024.91187
155508	991.486084	429.385437	1.08121204	2025.48755
155540	991.486084	429.385437	1.08121204	2026.06421
155572	991.486084	429.385437	1.08225219	2026.6416
155604	991.486084	429.385437	1.08172202	2027.21899
155636	991.486084	429.385437	1.08274221	2027.7959
155668	991.486084	429.385437	1.08325219	2028.37378
155700	991.486084	429.385437	1.08274221	2028.95142
155732	991.486084	429.385437	1.08274221	2029.52881
155764	986.98584	424.863403	1.08172202	2030.10596
155796	991.486084	424.863403	1.08274221	2030.68311
155828	986.98584	424.863403	1.08070207	2031.25977
155860	991.486084	424.863403	1.08223224	2031.83691
155892	991.486084	429.385437	1.08172202	2032.41382
155924	991.486084	429.385437	1.08070207	2032.98975
155956	991.486084	424.863403	1.08121204	2033.56592
155988	991.486084	429.385437	1.08172202	2034.14233
156020	991.486084	429.385437	1.08121204	2034.71899
156052	991.486084	424.863403	1.07713199	2035.29395
156084	991.486084	424.863403	1.07764196	2035.86865
156116	991.486084	424.863403	1.07866192	2036.44336
156148	991.486084	424.863403	1.08019209	2037.01904
156180	991.486084	429.385437	1.08070207	2037.59546
156212	986.98584	424.863403	1.08121204	2038.17188
156244	991.486084	429.385437	1.08121204	2038.74829
156276	991.486084	424.863403	1.08019209	2039.32446
156308	991.486084	424.863403	1.08172202	2039.90112
156340	991.486084	429.385437	1.08121204	2040.47754
156372	991.486084	429.385437	1.08223224	2041.0542
156404	991.486084	429.385437	1.08274221	2041.63184
156436	991.486084	433.907898	1.08376217	2042.20994
156468	991.486084	429.385437	1.08427215	2042.78809
156500	991.486084	424.863403	1.08274221	2043.36597
156532	991.486084	424.863403	1.08427215	2043.94409
156564	991.486084	424.863403	1.08376217	2044.52222
156596	991.486084	424.863403	1.08478236	2045.10034
156628	991.486084	424.863403	1.08274221	2045.67847
156660	991.486084	429.385437	1.08121204	2046.25513
156692	991.486084	429.385437	1.08070207	2046.83154
156724	991.486084	429.385437	1.08019209	2047.40771
156756	991.486084	429.385437	1.08223224	2047.98413
156788	991.486084	424.863403	1.08121204	2048.56104
156820	991.486084	429.385437	1.08274221	2049.13916
156852	991.486084	429.385437	1.08223224	2049.71729
156884	991.486084	429.385437	1.08274221	2050.29492
156916	986.98584	420.341003	1.08223224	2050.87207
156948	991.486084	424.863403	1.08121204	2051.44873
156980	991.486084	424.863403	1.08274221	2052.02637
157012	991.486084	429.385437	1.08172202	2052.60352
157044	991.486084	429.385437	1.08172202	2053.18066
157076	991.486084	429.385437	1.08121204	2053.75781
157108	991.486084	429.385437	1.08070207	2054.33398
157140	991.486084	429.385437	1.08019209	2054.91016
157172	991.486084	424.863403	1.0791719	2055.48633
157204	995.98584	420.341003	1.08121204	2056.0625
157236	995.98584	420.341003	1.07968211	2056.63967
157268	991.486084	424.863403	1.08121204	2057.21484
157300	991.486084	424.863403	1.08121204	2057.79102
157332	991.486084	429.385437	1.08172202	2058.36768
157400	995.98584	429.385437	1.08120012	2058.94029
157472	995.98584	429.385437	1.08120012	2059.51695
157504	991.486084	429.385437	1.08179998	2059.09313
157536	991.486084	429.385437	1.08273005	2060.66979
157568	991.486084	429.385437	1.0817101	2061.24693
157600	991.486084	429.385437	1.08273005	2061.82306
157632	991.486084	424.863403	1.08222008	2062.40018
157664	995.98584	429.385437	1.08324003	2062.97682
157696	991.486084	429.385437	1.08273005	2063.55345
157728	995.98584	424.863403	1.08375001	2064.13007
157760	995.98584	424.863403	1.08324003	2064.70673
157792	995.98584	424.863403	1.08273005	2065.28332
157824	991.486084	424.863403	1.08324003	2065.85995
157856	995.98584	424.863403	1.08017993	2066.43658
157888	995.98584	429.385437	1.07966995	2066.01321
157920	995.98584	429.385437	1.08017993	2066.58984
157952	995.98584	429.385437	1.08222008	2067.16647
157984	991.486084	429.385437	1.0817101	2067.74310
158016	991.486084	429.385437	1.08222008	2068.31973
158048	995.98584	429.385437	1.08222008	2068.89636
158080	995.98584	424.863403	1.08119988	2069.47299
158112	991.486084	424.863403	1.08017993	2070.04962
158144	995.98584	429.385437	1.07915998	2070.62625
158176	995.98584	429.385437	1.08068991	2071.20288

158208 995.98584 429.385437 1.07966995 2072.65088
158240 991.486084 424.863403 1.0817101 2073.8042
158272 995.98584 424.863403 1.0817101 2073.8042
158304 995.98584 424.863403 1.08068991 2074.38135
158336 995.98584 420.341003 1.08068991 2074.95752
158368 995.98584 424.863403 1.08017993 2075.53369
158400 991.486084 424.863403 1.08017993 2076.10986
158432 995.98584 429.385437 1.08017993 2076.68604
158464 995.98584 429.385437 1.07915998 2077.26221
158496 995.98584 429.385437 1.07966995 2077.83838
158528 995.98584 429.385437 1.07915998 2078.41455
158560 995.98584 429.385437 1.08017993 2078.99072
158592 995.98584 424.863403 1.0817101 2079.56689
158624 995.98584 424.863403 1.08068991 2080.14307
158656 995.98584 420.341003 1.0817101 2080.71924
158688 995.98584 429.385437 1.08119988 2081.29539
158720 995.98584 429.385437 1.08068991 2081.87207
158752 995.98584 429.385437 1.08222008 2082.44873
158784 995.98584 429.385437 1.08119988 2083.02588
158816 995.98584 424.863403 1.08222008 2083.60303
158848 995.98584 429.385437 1.08119988 2084.1792
158880 995.98584 429.385437 1.08119988 2084.75586
158912 995.98584 424.863403 1.08222008 2085.33252
158944 995.98584 420.341003 1.08017993 2085.90918
158976 995.98584 424.863403 1.08017993 2086.48535
159008 995.98584 429.385437 1.07915998 2087.06152
159040 991.486084 424.863403 1.07864976 2087.6377
159072 995.98584 429.385437 1.08068991 2088.21387
159104 991.486084 424.863403 1.08068991 2088.79004
159136 995.98584 429.385437 1.08222008 2089.3667
159168 995.98584 424.863403 1.08068991 2089.94287
159200 995.98584 429.385437 1.08068991 2090.51904
159232 995.98584 424.863403 1.08324003 2091.09519
159264 995.98584 429.385437 1.08222008 2091.67383
159296 995.98584 424.863403 1.08273005 2092.25195
159328 995.98584 424.863403 1.08273005 2092.83008
159360 995.98584 429.385437 1.08222008 2093.40771
159392 991.486084 429.385437 1.08426023 2093.98584
159424 995.98584 429.385437 1.08119988 2094.56348
159456 995.98584 429.385437 1.08119988 2095.14063
159488 995.98584 424.863403 1.08017993 2095.7168
159520 995.98584 429.385437 1.08017993 2096.29297
159552 995.98584 429.385437 1.0817101 2096.86914
159584 995.98584 429.385437 1.0817101 2097.4458
159616 995.98584 429.385437 1.08222008 2098.02295
159648 995.98584 424.863403 1.08222008 2098.60059
159680 995.98584 424.863403 1.08119988 2099.17725
159712 995.98584 429.385437 1.08222008 2099.75391
159744 995.98584 429.385437 1.08068991 2100.33057
159776 995.98584 429.385437 1.0817101 2100.90723
159808 995.98584 429.385437 1.08222008 2101.48389
159840 995.98584 424.863403 1.0817101 2102.06104
159872 995.98584 429.385437 1.08273005 2102.63867
159904 995.98584 429.385437 1.0817101 2103.21582
159936 995.98584 429.385437 1.08222008 2103.79297
159968 995.98584 424.863403 1.08324003 2104.37109
160000 995.98584 424.863403 1.08119988 2104.94673
160032 995.98584 424.863403 1.08119988 2105.52339
160064 995.98584 424.863403 1.07966995 2106.10156
160096 995.98584 429.385437 1.07864976 2106.67773
160128 995.98584 429.385437 1.08068991 2107.25391
160160 995.98584 429.385437 1.08273005 2107.83057
160192 995.98584 429.385437 1.08324003 2108.40869
160224 995.98584 429.385437 1.08273005 2108.98682
160256 995.98584 433.907898 1.08273005 2109.56494
160288 995.98584 429.385437 1.08273005 2110.14307
160320 995.98584 424.863403 1.08119988 2110.71973
160352 995.98584 424.863403 1.08324003 2111.29736
160384 995.98584 424.863403 1.08324003 2111.87549
160416 995.98584 424.863403 1.08375001 2112.45361
160448 995.98584 424.863403 1.0847702 2113.03174
160480 995.98584 424.863403 1.08528018 2113.61035
160512 995.98584 424.863403 1.08528018 2114.18896
160544 995.98584 424.863403 1.08273005 2114.76709
160576 995.98584 424.863403 1.08017993 2115.34326
160608 995.98584 429.385437 1.0817101 2115.91943
160640 995.98584 429.385437 1.0817101 2116.49609
160672 995.98584 429.385437 1.08273005 2117.07373
160704 995.98584 429.385437 1.08222008 2117.65186
160736 995.98584 429.385437 1.08222008 2118.22998
160768 995.98584 424.863403 1.08375001 2118.80811
160800 1000.486084 429.385437 1.08324003 2119.38623
160832 995.98584 429.385437 1.08273005 2119.96436
160864 995.98584 424.863403 1.08273005 2120.54248

163584 1000.48608 429.385437 1.08068991 2169.5701
163616 1000.48608 429.385437 1.08068991 2170.1527
163648 1004.98584 424.863403 1.08068991 2170.73145
163680 1000.48608 424.863403 1.08222008 2171.30811
163712 1004.98584 429.385437 1.08273005 2171.88623
163744 1004.98584 429.385437 1.08324003 2172.46436
163776 1000.48608 429.385437 1.08426023 2173.04248
163808 1004.98584 424.863403 1.08375001 2173.62061
163840 1004.98584 424.863403 1.08426023 2174.19873
163872 1000.48608 429.385437 1.0817101 2174.77686
163904 1004.98584 429.385437 1.08222008 2175.354
163936 1000.48608 429.385437 1.08068991 2175.93066
163968 1004.98584 429.385437 1.08119988 2176.50684
164000 1000.48608 424.863403 1.08222008 2177.0835
164032 1004.98584 429.385437 1.0817101 2177.66064
164064 1000.48608 429.385437 1.08119988 2178.2373
164096 1000.48608 429.385437 1.0784976 2178.81348
164128 1004.98584 424.863403 1.08017993 2179.38918
164160 1004.98584 429.385437 1.08068991 2179.96533
164192 1000.48608 429.385437 1.08119988 2180.54199
164224 1000.48608 429.385437 1.0817101 2181.11816
164256 1000.48608 429.385437 1.08068991 2181.69434
164288 1000.48608 424.863403 1.08222008 2182.27051
164320 1000.48608 429.385437 1.08119988 2182.84616
164352 1000.48608 429.385437 1.08222008 2183.42229
164384 1004.98584 429.385437 1.08119988 2184.00195
164416 1004.98584 429.385437 1.08222008 2184.57861
164448 1000.48608 429.385437 1.08068991 2185.15479
164480 1004.98584 429.385437 1.08068991 2185.73096
164512 1004.98584 429.385437 1.08273005 2186.30762
164544 1000.48608 429.385437 1.08273005 2186.88574
164576 1004.98584 429.385437 1.08222008 2187.46338
164608 1004.98584 429.385437 1.07966995 2188.04004
164640 1004.98584 429.385437 1.08068991 2188.61621
164672 1000.48608 429.385437 1.08068991 2189.19238
164704 1004.98584 429.385437 1.08222008 2189.76904
164736 1000.48608 429.385437 1.08273005 2190.34668
164768 1000.48608 433.907898 1.0817101 2190.92383
164800 1004.98584 424.863403 1.08222008 2191.50098
164832 1000.98584 424.863403 1.0817101 2192.07861
164864 1004.98584 424.863403 1.08324003 2192.65625
164896 1000.48608 429.385437 1.08222008 2193.23438
164928 1004.98584 429.385437 1.08273005 2193.8125
164960 1004.98584 429.385437 1.08222008 2194.39063
164992 1004.98584 429.385437 1.08273005 2194.96826
165024 1004.98584 429.385437 1.08273005 2195.54639
165056 1004.98584 433.907898 1.08222008 2196.12402
165088 1000.48608 429.385437 1.08273005 2196.70215
165120 1004.98584 429.385437 1.08222008 2197.28027
165152 1004.98584 429.385437 1.08375001 2197.8584
165184 1000.48608 429.385437 1.08119988 2198.43652
165216 1004.98584 424.863403 1.0817101 2199.01367
165248 1004.98584 424.863403 1.08068991 2199.58984
165280 1000.48608 424.863403 1.0817101 2200.16602
165312 1004.98584 424.863403 1.08222008 2200.74316
165344 1000.48608 429.385437 1.08375001 2201.32129
165376 1004.98584 429.385437 1.08579016 2201.89941
165408 1004.98584 433.907898 1.08579016 2202.47803
165440 1004.98584 429.385437 1.08528018 2203.05654
165472 1004.98584 429.385437 1.08375001 2203.63477
165504 1000.48608 429.385437 1.08375001 2204.21289
165536 1004.98584 433.907898 1.08222008 2204.79102
165568 1000.48608 433.907898 1.08273005 2205.36914
165600 1000.48608 424.863403 1.0817101 2205.94727
165632 1004.98584 433.907898 1.08375001 2206.52539
165664 1000.48608 433.907898 1.08324003 2207.10352
165696 1004.98584 429.385437 1.08426023 2207.68164
165728 1000.48608 429.385437 1.0817101 2208.25928
165760 1004.98584 433.907898 1.08119988 2208.83545
165792 1004.98584 429.385437 1.0817101 2209.41162
165824 1000.48608 429.385437 1.08273005 2209.98926
165856 1000.48608 429.385437 1.08375001 2210.56738
165888 1004.98584 424.863403 1.08375001 2211.14551
165920 1004.98584 424.863403 1.08375001 2211.72363
165952 1004.98584 429.385437 1.08222008 2212.30176
165984 1004.98584 433.907898 1.08222008 2212.87939
166016 1004.98584 429.385437 1.0817101 2213.45654
166048 1000.48608 433.907898 1.08324003 2214.03418
166080 1000.48608 429.385437 1.08324003 2214.6123
166112 1000.48608 433.907898 1.08273005 2215.19043
166144 1000.48608 429.385437 1.08273005 2215.76855
166176 1004.98584 433.907898 1.08119988 2216.3457
166208 1000.48608 429.385437 1.0817101 2216.92236
166240 1000.48608 433.907898 1.0817101 2217.49951

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

166272	1004.98584	429.385437	1.0817101	2218.07666
166304	1004.98584	424.863403	1.0791598	2219.0518
166336	1000.48608	424.863403	1.08017993	2219.229
166368	1004.98584	424.863403	1.08119988	2219.80518
166400	1004.98584	429.385437	1.08222008	2220.38189
166432	1000.48608	429.385437	1.08222008	2220.95898
166464	1004.98584	429.385437	1.0817101	2221.53613
166496	1004.98584	429.385437	1.08273005	2222.11377
166528	1000.48608	429.385437	1.0817101	2222.69092
166560	1004.98584	429.385437	1.0847702	2223.26904
166592	1004.98584	429.385437	1.08375001	2223.84717
166624	1004.98584	429.385437	1.08324003	2224.42529
166656	1004.98584	429.385437	1.08119988	2225.00244
166688	1004.98584	429.385437	1.08324003	2225.58008
166720	1000.48608	424.863403	1.08426023	2226.1582
166752	1000.48608	429.385437	1.08426023	2226.73633
166784	1000.48608	424.863403	1.08324003	2227.31445
166816	1000.48608	429.385437	1.08273005	2227.89209
166848	1000.48608	429.385437	1.08324003	2228.47021
166880	1004.98584	429.385437	1.0817101	2229.04785
166912	1004.98584	429.385437	1.0817101	2229.62402
166944	1000.48608	429.385437	1.0817101	2230.20068
166976	1000.48608	429.385437	1.08273005	2230.77783
167008	1004.98584	429.385437	1.08273005	2231.35547
167040	1000.48608	433.907898	1.08017993	2231.93164
167072	1004.98584	429.385437	1.08222008	2232.5083
167104	1000.48608	429.385437	1.0817101	2233.08496
167136	1004.98584	429.385437	1.08375001	2233.66309
167168	1004.98584	429.385437	1.08119988	2234.24121
167200	1000.48608	429.385437	1.08273005	2234.81885
167232	1004.98584	429.385437	1.08324003	2235.39697
167264	1000.48608	433.907898	1.08375001	2235.9751
167296	1000.48608	429.385437	1.08324003	2236.55322
167328	1004.98584	429.385437	1.08324003	2237.13135
167360	1000.48608	429.385437	1.08324003	2237.70947
167392	1004.98584	424.863403	1.08068991	2238.28662
167424	1004.98584	424.863403	1.08068991	2238.86279
167456	1004.98584	429.385437	1.08068991	2239.43896
167488	1004.98584	429.385437	1.0817101	2240.01514
167520	1000.48608	424.863403	1.08068991	2240.59131
167552	1004.98584	429.385437	1.08119988	2241.16748
167584	1000.48608	429.385437	1.08119988	2241.74365
167616	1004.98584	429.385437	1.07813978	2242.31934
167648	1004.98584	429.385437	1.07915998	2242.89453
167680	1004.98584	429.385437	1.08068991	2243.4707
167712	1004.98584	424.863403	1.08119988	2244.04688
167744	1000.48608	424.863403	1.07915998	2244.62305
167776	1000.48608	424.863403	1.08068991	2245.19922
167808	1004.98584	424.863403	1.0817101	2245.77539
167840	1000.48608	433.907898	1.08273005	2246.35352
167872	1000.48608	429.385437	1.0817101	2246.93115
167904	1000.48608	429.385437	1.08068991	2247.50732
167936	1004.98584	433.907898	1.08119988	2248.0835
167968	1004.98584	433.907898	1.08119988	2248.66064
168000	1000.48608	429.385437	1.08273005	2249.23688
168032	1004.98584	433.907898	1.08273005	2249.81641
168064	1004.98584	429.385437	1.08375001	2250.39453
168096	1004.98584	429.385437	1.08375001	2250.97266
168128	1000.48608	429.385437	1.0847702	2251.55078
168160	1000.48608	429.385437	1.0847702	2252.12891
168192	1004.98584	429.385437	1.08579016	2252.70703
168224	1004.98584	429.385437	1.08375001	2253.28518
168256	1000.48608	424.863403	1.0847702	2253.86328
168288	1004.98584	429.385437	1.08375001	2254.44141
168320	1004.98584	429.385437	1.08375001	2255.01953
168352	1004.98584	424.863403	1.0817101	2255.59766
168384	1000.48608	424.863403	1.08222008	2256.1748
168416	1004.98584	424.863403	1.08222008	2256.75293
168448	1004.98584	424.863403	1.08273005	2257.33105
168480	1004.98584	429.385437	1.08119988	2257.90869
168512	1004.98584	429.385437	1.0817101	2258.48486
168544	1004.98584	433.907898	1.08119988	2259.06152
168576	1004.98584	438.429871	1.08273005	2259.63867
168608	1004.98584	438.429871	1.08222008	2260.2168
168640	1000.48608	433.907898	1.08375001	2260.79492
168672	1000.48608	438.429871	1.08119988	2261.37158
168704	1004.98584	429.385437	1.0817101	2261.94824
168736	1000.48608	429.385437	1.08324003	2262.5249
168768	1004.98584	429.385437	1.08375001	2263.10303
168800	1000.48608	433.907898	1.08324003	2263.68115
168832	1004.98584	433.907898	1.08375001	2264.25928
168864	1000.48608	433.907898	1.08426023	2264.8374
168896	1004.98584	433.907898	1.0847702	2265.41553
168928	1004.98584	433.907898	1.08324003	2265.99365

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

168960	1004.98584	429.385437	1.08273005	2266.57178
168992	1004.98584	429.385437	1.0817101	2267.72705
169024	1004.98584	429.385437	1.08324003	2267.72705
169056	1000.48608	429.385437	1.08324003	2268.30518
169088	1000.48608	424.863403	1.08375001	2268.8833
169120	1004.98584	429.385437	1.08273005	2269.46143
169152	1004.98584	429.385437	1.08324003	2270.03955
169184	1004.98584	424.863403	1.08273005	2270.81768
169216	1004.98584	429.385437	1.08375001	2271.1958
169248	1000.48608	429.385437	1.08222008	2271.77393
169280	1000.48608	424.863403	1.08324003	2272.35156
169312	1004.98584	429.385437	1.0817101	2272.92969
169344	1004.98584	429.385437	1.08119988	2273.50586
169376	1000.48608	429.385437	1.08017993	2274.08203
169408	1000.48608	429.385437	1.08324003	2274.65918
169440	1000.48608	433.907898	1.08273005	2275.2373
169472	1000.48608	433.907898	1.08324003	2275.81543
169504	1000.48608	433.907898	1.08324003	2276.39355
169536	1000.48608	429.385437	1.08426023	2276.97168
169568	1000.48608	433.907898	1.08273005	2277.5498
169600	1000.48608	433.907898	1.08324003	2278.12793
169632	1004.98584	438.429871	1.08273005	2278.70605
169664	1004.98584	433.907898	1.08273005	2279.28418
169696	1004.98584	429.385437	1.08222008	2279.8623
169728	1000.48608	429.385437	1.0817101	2280.43896
169760	1004.98584	433.907898	1.0817101	2281.01611
169792	1000.48608	429.385437	1.08324003	2281.59375
169824	1004.98584	429.385437	1.08222008	2282.17188
169856	1004.98584	429.385437	1.07915998	2282.74805
169888	1004.98584	433.907898	1.07660985	2283.32227
169920	1000.48608	433.907898	1.07864976	2283.89697
169952	1004.98584	438.429871	1.08119988	2284.47314
169984	1004.98584	433.907898	1.08119988	2285.0498
170016	1000.48608	429.385437	1.08119988	2285.62598
170048	1009.48608	429.385437	1.08017993	2286.20215
170080	1000.48608	433.907898	1.08068991	2286.77832
170112	1004.98584	433.907898	1.0817101	2287.35449
170144	1000.48608	433.907898	1.08324003	2287.93164
170176	1004.98584	433.907898	1.08426023	2288.50977
170208	1004.98584	433.907898	1.08426023	2289.08789
170240	1004.98584	433.907898	1.08528018	2289.66602
170272	1004.98584	433.907898	1.08528018	2290.24414
170304	1004.98584	433.907898	1.08426023	2290.82227
170336	1004.98584	433.907898	1.08273005	2291.40039
170368	1000.48608	433.907898	1.0817101	2291.97754
170400	1004.98584	433.907898	1.08222008	2292.55518
170432	1004.98584	433.907898	1.0817101	2293.13232
170464	1000.48608	433.907898	1.08324003	2293.70996
170496	1009.48608	424.863403	1.08222008	2294.28809
170528	1004.98584	424.863403	1.08068991	2294.86426
170560	1009.48608	429.385437	1.07864976	2295.44043
170592	1009.48608	433.907898	1.08017993	2296.0166
170624	1004.98584	429.385437	1.07813978	2296.59229
170656	1004.98584	433.907898	1.08119988	2297.16846
170688	1004.98584	433.907898	1.0817101	2297.74561
170720	1004.98584	433.907898	1.08273005	2298.32373
170752	1004.98584	429.385437	1.08222008	2298.90186
170784	1004.98584	429.385437	1.08324003	2299.47998
170816	1004.98584	429.385437	1.08273005	2300.05811
170848	1009.48608	429.385437	1.08273005	2300.63574
170880	1004.98584	429.385437	1.08119988	2301.21289
170912	1004.98584	429.385437	1.08222008	2301.79004
170944	1004.98584	433.907898	1.08273005	2302.36816
170976	1004.98584	429.385437	1.08375001	2302.94629
171008	1004.98584	433.907898	1.08273005	2303.52441
171040	1004.98584	433.907898	1.08119988	2304.10156
171072	1004.98584	433.907898	1.07966995	2304.67773
171104	1004.98584	433.907898	1.07915998	2305.25391
171136	1000.48608	433.907898	1.08017993	2305.83008
171168	1004.98584	433.907898	1.0817101	2306.40625
171200	1009.48608	433.907898	1.0817101	2306.9834
171232	1004.98584	433.907898	1.08222008	2307.56104
171264	1009.48608	433.907898	1.08324003	2308.13916
171296	1004.98584	433.907898	1.08528018	2308.71729
171328	1004.98584	433.907898	1.0847702	2309.29541
171360	1004.98584	433.907898	1.0847702	2309.87354
171392	1004.98584	438.429871	1.08375001	2310.45166
171424	1004.98584	433.907898	1.08426023	2311.02979
171456	1004.98584	433.907898	1.08324003	2311.60791
171488	1009.48608	433.907898	1.08273005	2312.18604
171520	1009.48608	433.907898	1.08222008	2312.76416
171552	1004.98584	433.907898	1.08273005	2313.34229
171584	1004.98584	433.907898	1.08119988	2313.91846
171616	1009.48608	433.907898	1.08119988	2314.49463

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

171648	1004.98584	433.907898	1.0817101	2315.0708
171680	1004.98584	433.907898	1.0817101	2315.0708
171712	1009.48608	438.429871	1.07966995	2316.2263
171744	1009.48608	424.863403	1.07915998	2316.7998
171776	1013.98584	429.385437	1.08017993	2317.37598
171808	1009.48608	429.385437	1.08119988	2317.95213
171840	1009.48608	433.907898	1.08119988	2318.52832
171872	1009.48608	433.907898	1.08119988	2319.10449
171904	1004.98584	438.429871	1.0817101	2319.68066
171936	1009.48608	433.907898	1.08222008	2320.25732
171968	1004.98584	433.907898	1.08375001	2320.83496
172000	1009.48608	433.907898	1.08375001	2321.41309
172032	1004.98584	433.907898	1.08222008	2321.99121
172064	1009.48608	433.907898	1.08222008	2322.56787
172096	1009.48608	433.907898	1.0817101	2323.14404
172128	1009.48608	433.907898	1.0817101	2323.7207
172160	1009.48608	429.385437	1.0817101	2324.29688
172192	1009.48608	429.385437	1.08119988	2324.87305
172224	1009.48608	433.907898	1.0817101	2325.44922
172256	1009.48608	424.863403	1.0817101	2326.02588
172288	1009.48608	429.385437	1.07966995	2326.60205
172320	1009.48608	429.385437	1.07915998	2327.17773
172352	1004.98584	424.863403	1.07966995	2327.75391
172384	1009.48608	424.863403	1.08068991	2328.33008
172416	1013.98584	429.385437	1.08017993	2328.90625
172448	1009.48608	433.907898	1.08068991	2329.48242
172480	1004.98584	438.429871	1.0817101	2330.05859
172512	1009.48608	429.385437	1.08273005	2330.63672
172544	1013.98584	424.863403	1.08273005	2331.21484
172576	1009.48608	433.907898	1.08119988	2331.79199
172608	1009.48608	433.907898	1.0817101	2332.36865
172640	1009.48608	429.385437	1.0817101	2332.94629
172672	1013.98584	429.385437	1.0817101	2333.52344
172704	1009.48608	424.863403	1.08119988	2334.10961
172736	1009.48608	424.863403	1.08222008	2334.68676
172768	1009.48608	433.907898	1.08119988	2335.26439
172800	1009.48608	433.907898	1.08068991	2335.84057
172832	1009.48608	433.907898	1.07966995	2336.41674
172864	1009.48608	438.429871	1.08068991	2336.99291
172896	1009.48608	433.907898	1.07813978	2337.56859
172928	1009.48608	433.907898	1.07915998	2338.14428
172960	1009.48608	429.385437	1.08068991	2338.71045
172992	1009.48608	429.385437	1.08119988	2339.28662
173024	1009.48608	433.907898	1.08222008	2339.86377
173056	1009.48608	433.907898	1.08324003	2340.44189
173088	1013.98584	433.907898	1.08273005	2341.02002
173120	1009.48608	429.385437	1.08273005	2341.59766
173152	1009.48608	429.385437	1.0817101	2342.17529
173184	1013.98584	429.385437	1.0817101	2342.75346
173216	1013.98584	433.907898	1.08119988	2343.32764
173248	1009.48608	433.907898	1.08119988	2343.90381
173280	1013.98584	433.907898	1.08119988	2344.48047
173312	1009.48608	429.385437	1.08222008	2345.05762
173344	1013.98584	433.907898	1.0817101	2345.63428
173376	1013.98584	424.863403	1.08324003	2346.2124
173408	1013.98584	429.385437	1.08068991	2346.79004
173440	1009.48608	424.863403	1.08119988	2347.36621
173472	1009.48608	429.385437	1.08017993	2347.94238
173504	1009.48608	433.907898	1.0817101	2348.51855
173536	1009.48608	429.385437	1.08222008	2349.09521
173568	1009.48608	433.907898	1.08375001	2349.67334
173600	1009.48608	433.907898	1.08375001	2350.25146
173632	1013.98584	433.907898	1.08273005	2350.82959
173664	1009.48608	433.907898	1.08273005	2351.40771
173696	1009.48608	429.385437	1.08273005	2351.98584
173728	1009.48608	433.907898	1.08375001	2352.56396
173760	1009.48608	433.907898	1.08273005	2353.14209
173792	1009.48608	433.907898	1.08324003	2353.72021
173824	1013.98584	438.429871	1.08068991	2354.29638
173856	1009.48608	429.385437	1.08068991	2354.87305
173888	1009.48608	433.907898	1.0817101	2355.44922
173920	1009.48608	424.863403	1.0817101	2356.02588
173952	1009.48608	433.907898	1.07915998	2356.60254
173984	1013.98584	433.907898	1.07915998	2357.17871
174016	1009.48608	433.907898	1.07966995	2357.75439
174048	1009.48608	429.385437	1.07966995	2358.33057
174080	1013.98584	433.907898	1.08068991	2358.90674
174112	1009.48608	433.907898	1.08119988	2359.48291
174144	1009.48608	433.907898	1.08222008	2360.05957
174176	1009.48608	433.907898	1.08222008	2360.63672
174208	1013.98584	429.385437	1.08119988	2361.21338
174240	1009.48608	424.863403	1.08119988	2361.78955
174272	1013.98584	424.863403	1.0817101	2362.36572
174304	1013.98584	433.907898	1.08273005	2362.94336

179712 1013.98584 438.429871 1.08528018 2461.58008
179744 1013.98584 438.429871 1.08528018 2461.1582
179776 1013.98584 433.907898 1.08528018 2461.73633
179808 1013.98584 433.907898 1.08528018 2462.31445
179840 1013.98584 433.907898 1.08528018 2462.89258
179872 1013.98584 433.907898 1.0847702 2463.4707
179904 1018.48608 438.429871 1.0847702 2464.04883
179936 1018.48608 442.952332 1.08375001 2464.62695
179968 1013.98584 438.429871 1.0847702 2465.20508
180000 1013.98584 438.429871 1.08528018 2465.7832
180032 1013.98584 438.429871 1.08528018 2466.36133
180064 1018.48608 438.429871 1.0847702 2466.93945
180096 1018.48608 433.907898 1.08630013 2467.51807
180128 1013.98584 438.429871 1.08579016 2468.09668
180160 1018.48608 433.907898 1.08579016 2468.6748
180192 1018.48608 438.429871 1.08528018 2469.25293
180224 1013.98584 433.907898 1.0847702 2469.83105
180256 1018.48608 433.907898 1.08426023 2470.40918
180288 1018.48608 429.385437 1.0847702 2470.9873
180320 1018.48608 433.907898 1.08630013 2471.56543
180352 1018.48608 433.907898 1.08783031 2472.14351
180384 1018.48608 438.429871 1.08834026 2472.72159
180416 1018.48608 438.429871 1.08579016 2473.30566
180448 1018.48608 438.429871 1.08579016 2473.88379
180480 1013.98584 438.429871 1.0847702 2474.46191
180512 1013.98584 442.952332 1.08579016 2475.04004
180544 1013.98584 438.429871 1.08579016 2475.61865
180576 1018.48608 433.907898 1.08681035 2476.19873
180608 1018.48608 442.952332 1.08681035 2476.77881
180640 1018.48608 438.429871 1.08579016 2477.35693
180672 1018.48608 442.952332 1.08630013 2477.93652
180704 1018.48608 438.429871 1.08732033 2478.51611
180736 1018.48608 438.429871 1.08681035 2479.09619
180768 1018.48608 433.907898 1.08630013 2479.67627
180800 1022.98584 433.907898 1.08375001 2480.25439
180832 1018.48608 433.907898 1.08273005 2480.83252
180864 1018.48608 438.429871 1.08375001 2481.41064
180896 1022.98584 438.429871 1.0847702 2481.98877
180928 1018.48608 433.907898 1.08732033 2482.56836
180960 1018.48608 433.907898 1.08834028 2483.14844
180992 1022.98584 433.907898 1.08936048 2483.72852
181024 1018.48608 438.429871 1.08579016 2484.30811
181056 1018.48608 433.907898 1.08681035 2484.88818
181088 1022.98584 442.952332 1.08630013 2485.46826
181120 1013.98584 433.907898 1.08630013 2486.04785
181152 1013.98584 442.952332 1.08579016 2486.62744
181184 1018.48608 442.952332 1.08681035 2487.20703
181216 1018.48608 442.952332 1.08630013 2487.78664
181248 1018.48608 438.429871 1.08630013 2488.36523
181280 1018.48608 433.907898 1.08681035 2488.94482
181312 1013.98584 438.429871 1.08681035 2489.5249
181344 1022.98584 438.429871 1.08681035 2490.10498
181376 1018.48608 438.429871 1.08528018 2490.68359
181408 1018.48608 438.429871 1.08324003 2491.26172
181440 1018.48608 438.429871 1.08273005 2491.83984
181472 1022.98584 433.907898 1.08426023 2492.41797
181504 1018.48608 438.429871 1.0847702 2492.99609
181536 1022.98584 438.429871 1.08579016 2493.57422
181568 1018.48608 438.429871 1.08630013 2494.1543
181600 1022.98584 433.907898 1.08579016 2494.7334
181632 1018.48608 438.429871 1.0847702 2495.31152
181664 1018.48608 433.907898 1.08426023 2495.88965
181696 1018.48608 433.907898 1.08579016 2496.46777
181728 1022.98584 433.907898 1.08681035 2497.04688
181760 1018.48608 433.907898 1.08732033 2497.62695
181792 1018.48608 433.907898 1.08732033 2498.20703
181824 1018.48608 438.429871 1.08732033 2498.78711
181856 1018.48608 442.952332 1.08681035 2499.36719
181888 1018.48608 438.429871 1.08732033 2499.94727
181920 1018.48608 438.429871 1.08579016 2500.52686
181952 1018.48608 433.907898 1.08579016 2501.10596
181984 1022.98584 438.429871 1.08375001 2501.68408
182016 1022.98584 433.907898 1.0847702 2502.26221
182048 1018.48608 442.952332 1.08579016 2502.84033
182080 1018.48608 433.907898 1.08783031 2503.42041
182112 1018.48608 442.952332 1.08732033 2504.00049
182144 1018.48608 438.429871 1.08834028 2504.58057
182176 1022.98584 438.429871 1.08885026 2505.16064
182208 1018.48608 433.907898 1.08783031 2505.74072
182240 1022.98584 442.952332 1.08783031 2506.3208
182272 1018.48608 438.429871 1.08630013 2506.90088
182304 1022.98584 438.429871 1.08783031 2507.48096
182336 1022.98584 442.952332 1.08783031 2508.06104
182368 1018.48608 438.429871 1.08783031 2508.64111

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

182400	1018.48608	442.952332	1.08732033	2509.22119
182432	1022.98584	438.429871	1.08783031	2510.38135
182464	1018.48608	438.429871	1.08783031	2510.38135
182496	1022.98584	433.907898	1.08783031	2510.96143
182528	1022.98584	433.907898	1.08783031	2511.5415
182560	1018.48608	433.907898	1.08528018	2512.12109
182592	1022.98584	438.429871	1.08528018	2512.69922
182624	1022.98584	433.907898	1.08528018	2513.27734
182656	1018.48608	438.429871	1.08783031	2513.85693
182688	1022.98584	438.429871	1.08732033	2514.43701
182720	1022.98584	438.429871	1.08783031	2515.01709
182752	1018.48608	442.952332	1.08579016	2515.59668
182784	1018.48608	442.952332	1.08528018	2516.17578
182816	1022.98584	442.952332	1.0847702	2516.75391
182848	1018.48608	438.429871	1.0847702	2517.33203
182880	1022.98584	442.952332	1.08430013	2517.91064
182912	1018.48608	438.429871	1.08732033	2518.49023
182944	1018.48608	442.952332	1.08834028	2519.07031
182976	1022.98584	442.952332	1.08834028	2519.65039
183008	1018.48608	438.429871	1.08783031	2520.23047
183040	1018.48608	438.429871	1.08630013	2520.81055
183072	1018.48608	438.429871	1.08426023	2521.38867
183104	1022.98584	442.952332	1.0817101	2521.96631
183136	1022.98584	442.952332	1.08324003	2522.54443
183168	1018.48608	442.952332	1.08426023	2523.12256
183200	1018.48608	438.429871	1.08579016	2523.70068
183232	1022.98584	438.429871	1.08579016	2524.27979
183264	1018.48608	438.429871	1.08579016	2524.8584
183296	1022.98584	442.952332	1.08426023	2525.43652
183328	1018.48608	438.429871	1.08579016	2526.01465
183360	1018.48608	438.429871	1.08528018	2526.59277
183392	1022.98584	433.907898	1.08426023	2527.1709
183424	1022.98584	438.429871	1.08375001	2527.74902
183456	1018.48608	438.429871	1.08375001	2528.32715
183488	1018.48608	433.907898	1.08426023	2528.90527
183520	1018.48608	438.429871	1.0847702	2529.4834
183552	1022.98584	433.907898	1.08528018	2530.06152
183584	1018.48608	433.907898	1.08273005	2530.63965
183616	1018.48608	433.907898	1.08222008	2531.21777
183648	1018.48608	438.429871	1.08222008	2531.79541
183680	1022.98584	438.429871	1.08375001	2532.37354
183712	1022.98584	438.429871	1.08426023	2532.95166
183744	1022.98584	433.907898	1.08528018	2533.52979
183776	1022.98584	433.907898	1.08324003	2534.10791
183808	1018.48608	433.907898	1.08324003	2534.68604
183840	1018.48608	438.429871	1.08273005	2535.26416
183872	1018.48608	433.907898	1.08375001	2535.84229
183904	1022.98584	438.429871	1.08222008	2536.42041
183936	1022.98584	433.907898	1.08273005	2536.99854
183968	1022.98584	438.429871	1.08222008	2537.57666
184000	1022.98584	433.907898	1.08222008	2538.1543
184032	1018.48608	433.907898	1.0817101	2538.73047
184064	1022.98584	433.907898	1.08222008	2539.30762
184096	1018.48608	433.907898	1.08068991	2539.88477
184128	1022.98584	433.907898	1.08068991	2540.46094
184160	1018.48608	433.907898	1.07964995	2541.03711
184192	1022.98584	433.907898	1.08119988	2541.61328
184224	1022.98584	433.907898	1.08119988	2542.18945
184256	1018.48608	433.907898	1.0847702	2542.76758
184288	1022.98584	433.907898	1.08528018	2543.3457
184320	1018.48608	433.907898	1.08222008	2543.92383
184352	1022.98584	433.907898	1.08222008	2544.50196
184384	1022.98584	433.907898	1.08222008	2545.07959
184416	1018.48608	433.907898	1.08273005	2545.65723
184448	1022.98584	438.429871	1.08119988	2546.23438
184480	1022.98584	433.907898	1.08222008	2546.81104
184512	1022.98584	438.429871	1.08119988	2547.3877
184544	1022.98584	433.907898	1.0817101	2547.96436
184576	1022.98584	433.907898	1.08273005	2548.5415
184608	1018.48608	433.907898	1.08273005	2549.11963
184640	1022.98584	433.907898	1.08068991	2549.69629
184672	1022.98584	433.907898	1.08017993	2550.27246
184704	1018.48608	429.385437	1.07864976	2550.84863
184736	1022.98584	429.385437	1.07964995	2551.42432
184768	1018.48608	433.907898	1.0817101	2552.00098
184800	1022.98584	433.907898	1.08324003	2552.5791
184832	1018.48608	433.907898	1.08222008	2553.15723
184864	1018.48608	438.429871	1.08222008	2553.73389
184896	1018.48608	433.907898	1.08273005	2554.31201
184928	1022.98584	433.907898	1.08375001	2554.89014
184960	1022.98584	433.907898	1.0817101	2555.46777
184992	1022.98584	433.907898	1.0817101	2556.04492
185024	1022.98584	438.429871	1.08068991	2556.62158
185056	1018.48608	433.907898	1.08222008	2557.19775

187808 1018.48608 442.952332 1.08783031 2607.57373
 187840 1022.98584 442.952332 1.08987045 2608.15381
 187872 1018.48608 438.429871 1.08834028 2608.73438
 187904 1022.98584 442.952332 1.08732033 2609.31443
 187936 1022.98584 442.952332 1.08834028 2609.89453
 187968 1018.48608 442.952332 1.08783031 2610.47461
 188000 1022.98584 442.952332 1.08936048 2611.05469
 188032 1022.98584 442.952332 1.09089041 2611.63574
 188064 1022.98584 442.952332 1.0919106 2612.21777
 188096 1022.98584 442.952332 1.0919106 2612.7998
 188128 1022.98584 438.429871 1.08987045 2613.38184
 188160 1018.48608 442.952332 1.0919106 2613.96388
 188192 1022.98584 442.952332 1.09038043 2614.54541
 188224 1022.98584 442.952332 1.0919106 2615.12744
 188256 1022.98584 442.952332 1.09038043 2615.70947
 188288 1022.98584 442.952332 1.08936048 2616.2915
 188320 1022.98584 442.952332 1.08885026 2616.87158
 188352 1022.98584 442.952332 1.08783031 2617.45166
 188384 1018.48608 442.952332 1.09089041 2618.03223
 188416 1022.98584 442.952332 1.08936048 2618.61377
 188448 1022.98584 438.429871 1.08885026 2619.19385
 188480 1022.98584 433.907898 1.08783031 2619.77393
 188512 1022.98584 433.907898 1.08732033 2620.354
 188544 1018.48608 438.429871 1.08681035 2620.93408
 188576 1022.98584 438.429871 1.08630013 2621.51367
 188608 1018.48608 442.952332 1.08732033 2622.09326
 188640 1022.98584 442.952332 1.08885026 2622.67334
 188672 1022.98584 442.952332 1.08732033 2623.25342
 188704 1022.98584 442.952332 1.08987045 2623.83447
 188736 1022.98584 442.952332 1.08936048 2624.41553
 188768 1022.98584 442.952332 1.08732033 2624.99609
 188800 1018.48608 438.429871 1.08783031 2625.57617
 188832 1022.98584 433.907898 1.08579016 2626.15625
 188864 1022.98584 438.429871 1.08783031 2626.73633
 188896 1022.98584 442.952332 1.08834028 2627.31641
 188928 1022.98584 442.952332 1.08885026 2627.89697
 188960 1018.48608 442.952332 1.08936048 2628.47754
 188992 1018.48608 442.952332 1.08783031 2629.05762
 189024 1022.98584 442.952332 1.08834028 2629.6377
 189056 1022.98584 433.907898 1.08885026 2630.21777
 189088 1018.48608 433.907898 1.08834028 2630.79785
 189120 1022.98584 438.429871 1.08834028 2631.37793
 189152 1018.48608 442.952332 1.08681035 2631.95801
 189184 1018.48608 442.952332 1.08630013 2632.53809
 189216 1018.48608 442.952332 1.08987045 2633.11865
 189248 1018.48608 442.952332 1.08936048 2633.69922
 189280 1022.98584 442.952332 1.08630013 2634.28027
 189312 1022.98584 442.952332 1.08579016 2634.86035
 189344 1022.98584 442.952332 1.08579016 2635.44094
 189376 1022.98584 442.952332 1.0847702 2636.02107
 189408 1018.48608 442.952332 1.08732033 2637.60168
 189440 1022.98584 442.952332 1.08732033 2637.18229
 189472 1022.98584 438.429871 1.08834028 2638.76286
 189504 1022.98584 438.429871 1.08681035 2641.34344
 189536 1022.98584 438.429871 1.08630013 2641.92352
 189568 1022.98584 438.429871 1.08681035 2642.5036
 189600 1022.98584 442.952332 1.08732033 2643.08368
 189632 1022.98584 442.952332 1.08732033 2643.66376
 189664 1022.98584 442.952332 1.08681035 2644.24384
 189696 1018.48608 438.429871 1.08681035 2644.82392
 189728 1022.98584 442.952332 1.08732033 2645.40396
 189760 1022.98584 442.952332 1.08681035 2645.98404
 189792 1022.98584 442.952332 1.08681035 2646.56412
 189824 1022.98584 442.952332 1.08681035 2647.1442
 189856 1022.98584 442.952332 1.08681035 2647.72428
 189888 1022.98584 442.952332 1.08681035 2648.30436
 189920 1022.98584 433.907898 1.08783031 2648.88444
 189952 1022.98584 438.429871 1.08681035 2649.46452
 189984 1022.98584 442.952332 1.08834028 2650.0446
 190016 1022.98584 442.952332 1.08834028 2650.62468
 190048 1022.98584 442.952332 1.08987045 2651.20476
 190080 1022.98584 442.952332 1.08987045 2651.78484
 190112 1022.98584 442.952332 1.08681035 2652.36492
 190144 1022.98584 442.952332 1.0847702 2652.945
 190176 1022.98584 438.429871 1.08528018 2653.52508
 190208 1022.98584 433.907898 1.08528018 2654.10516
 190240 1018.48608 442.952332 1.08528018 2654.68524
 190272 1022.98584 442.952332 1.08681035 2655.26532
 190304 1022.98584 438.429871 1.08528018 2655.8454
 190336 1022.98584 442.952332 1.08579016 2656.42548
 190368 1022.98584 438.429871 1.08579016 2657.00556
 190400 1022.98584 438.429871 1.08579016 2657.58564
 190432 1022.98584 433.907898 1.08630013 2658.16572

190464 1022.98584 433.907898 1.08324003 2655.14404

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

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

193152	1027.48608	438.429871	1.08375001	2703.6792
193184	1027.48608	438.429871	1.08273005	2704.2172
193216	1027.48608	442.952332	1.08426023	2704.83545
193248	1027.48608	433.907898	1.08375001	2705.41357
193280	1027.48608	442.952332	1.0847702	2705.9917
193312	1031.98584	438.429871	1.08579016	2706.56982
193344	1031.98584	442.952332	1.08579016	2707.14844
193376	1027.48608	438.429871	1.08528018	2707.72754
193408	1031.98584	438.429871	1.08222008	2708.30566
193440	1027.48608	438.429871	1.08222008	2708.8833
193472	1027.48608	442.952332	1.08273005	2709.46094
193504	1031.98584	438.429871	1.0847702	2710.03906
193536	1027.48608	442.952332	1.0847702	2710.61719
193568	1031.98584	442.952332	1.08426023	2711.19531
193600	1027.48608	438.429871	1.08681035	2711.77393
193632	1031.98584	438.429871	1.08579016	2712.35303
193664	1027.48608	438.429871	1.08732033	2712.93311
193696	1031.98584	438.429871	1.08426023	2713.51172
193728	1027.48608	442.952332	1.08528018	2714.08984
193760	1031.98584	442.952332	1.08783031	2714.66992
193792	1027.48608	442.952332	1.08783031	2715.25
193824	1027.48608	447.474365	1.08733033	2715.83009
193856	1027.48608	442.952332	1.08528018	2716.40918
193888	1027.48608	438.429871	1.08579016	2716.98779
193920	1031.98584	442.952332	1.08324003	2717.56592
193952	1031.98584	442.952332	1.08324003	2718.14404
193984	1031.98584	442.952332	1.08375001	2718.72217
194016	1031.98584	442.952332	1.08528018	2719.30029
194048	1027.48608	442.952332	1.08630013	2719.87988
194080	1031.98584	442.952332	1.08528018	2720.4585
194112	1027.48608	442.952332	1.08579016	2721.03662
194144	1031.98584	442.952332	1.08375001	2721.61475
194176	1031.98584	442.952332	1.08426023	2722.19287
194208	1027.48608	442.952332	1.0847702	2722.771
194240	1027.48608	442.952332	1.08630013	2723.3501
194272	1027.48608	442.952332	1.08630013	2723.93018
194304	1027.48608	438.429871	1.08375001	2724.5083
194336	1031.98584	438.429871	1.08375001	2725.08643
194368	1027.48608	442.952332	1.08324003	2725.66455
194400	1031.98584	442.952332	1.08528018	2726.24268
194432	1027.48608	438.429871	1.0847702	2726.8208
194464	1031.98584	438.429871	1.08528018	2727.39893
194496	1031.98584	438.429871	1.08579016	2727.97705
194528	1027.48608	442.952332	1.0847702	2728.55518
194560	1027.48608	438.429871	1.08579016	2729.1333
194592	1027.48608	438.429871	1.08426023	2729.71143
194624	1027.48608	438.429871	1.0847702	2730.28955
194656	1031.98584	438.429871	1.08426023	2730.86768
194688	1031.98584	438.429871	1.0847702	2731.4458
194720	1031.98584	438.429871	1.0847702	2732.02393
194752	1031.98584	442.952332	1.08273005	2732.60205
194784	1027.48608	442.952332	1.08375001	2733.18018
194816	1031.98584	438.429871	1.08273005	2733.7583
194848	1031.98584	442.952332	1.08426023	2734.33643
194880	1027.48608	442.952332	1.08324003	2734.91455
194912	1027.48608	442.952332	1.08375001	2735.49268
194944	1027.48608	442.952332	1.08579016	2736.0708
194976	1031.98584	442.952332	1.0847702	2736.64941
195008	1031.98584	442.952332	1.0847702	2737.22754
195040	1027.48608	442.952332	1.08324003	2737.80566
195072	1027.48608	442.952332	1.0847702	2738.38379
195104	1031.98584	438.429871	1.0847702	2738.96191
195136	1027.48608	447.474365	1.08426023	2739.54004
195168	1027.48608	438.429871	1.0847702	2740.11816
195200	1027.48608	442.952332	1.07966995	2740.69531
195232	1031.98584	442.952332	1.07966995	2741.27143
195264	1027.48608	438.429871	1.08068991	2741.84766
195296	1031.98584	438.429871	1.08222008	2742.4248
195328	1027.48608	442.952332	1.08222008	2743.00195
195360	1031.98584	433.907898	1.08119988	2743.57861
195392	1031.98584	438.429871	1.0817101	2744.15527
195424	1027.48608	442.952332	1.08119988	2744.73193
195456	1027.48608	442.952332	1.08017993	2745.30811
195488	1027.48608	438.429871	1.08119988	2745.88428
195520	1027.48608	438.429871	1.07915998	2746.46045
195552	1031.98584	442.952332	1.0817101	2747.03662
195584	1027.48608	442.952332	1.08068991	2747.61279
195616	1027.48608	442.952332	1.0817101	2748.18896
195648	1027.48608	442.952332	1.08222008	2748.76611
195680	1027.48608	442.952332	1.08222008	2749.34375
195712	1027.48608	442.952332	1.08426023	2749.92188
195744	1031.98584	438.429871	1.08273005	2750.5
195776	1031.98584	442.952332	1.08273005	2751.07813
195808	1031.98584	442.952332	1.07966995	2751.6543

195840 1027.48608 442.952332 1.0817101 2752.23047
195872 1027.48608 442.952332 1.0817101 2752.23047
195904 1027.48608 442.952332 1.08426023 2753.38672
195936 1027.48608 442.952332 1.08375001 2753.96484
195968 1027.48608 442.952332 1.08273005 2754.54297
196000 1027.48608 438.429871 1.0817101 2755.12012
196032 1027.48608 442.952332 1.08017993 2755.69629
196064 1031.98584 442.952332 1.08068991 2756.27246
196096 1027.48608 442.952332 1.0817101 2756.84863
196128 1027.48608 442.952332 1.07966995 2757.4248
196160 1031.98584 442.952332 1.08119988 2758.00098
196192 1027.48608 442.952332 1.08222008 2758.57764
196224 1027.48608 442.952332 1.08222008 2759.15479
196256 1027.48608 442.952332 1.08375001 2759.73291
196288 1027.48608 438.429871 1.08222008 2760.31104
196320 1027.48608 442.952332 1.0817101 2760.88818
196352 1027.48608 442.952332 1.07915998 2761.46436
196384 1027.48608 442.952332 1.08068991 2762.04053
196416 1027.48608 438.429871 1.0817101 2762.6167
196448 1027.48608 442.952332 1.08119988 2763.19336
196480 1027.48608 442.952332 1.08273005 2763.77051
196512 1027.48608 442.952332 1.08375001 2764.34814
196544 1031.98584 447.474365 1.0847702 2764.92627
196576 1027.48608 442.952332 1.08375001 2765.50439
196608 1027.48608 442.952332 1.08222008 2766.08252
196640 1027.48608 442.952332 1.08375001 2766.66016
196672 1027.48608 447.474365 1.0817101 2767.23779
196704 1027.48608 442.952332 1.08426023 2767.81592
196736 1027.48608 442.952332 1.08273005 2768.39404
196768 1027.48608 447.474365 1.08119988 2768.97168
196800 1027.48608 442.952332 1.08068991 2769.54785
196832 1027.48608 438.429871 1.07966995 2770.12402
196864 1027.48608 442.952332 1.08375001 2770.70166
196896 1027.48608 442.952332 1.08375001 2771.27979
196928 1027.48608 438.429871 1.08426023 2771.85791
196960 1027.48608 438.429871 1.08324003 2772.43604
196992 1031.98584 442.952332 1.08426023 2773.01416
197024 1027.48608 438.429871 1.0847702 2773.59229
197056 1027.48608 442.952332 1.0847702 2774.17041
197088 1027.48608 433.907898 1.0847702 2774.74854
197120 1027.48608 438.429871 1.08324003 2775.32666
197152 1027.48608 442.952332 1.08273005 2775.90479
197184 1027.48608 442.952332 1.0817101 2776.48193
197216 1027.48608 442.952332 1.0847702 2777.06006
197248 1027.48608 447.474365 1.0847702 2777.63818
197280 1027.48608 438.429871 1.0847702 2778.21631
197312 1027.48608 442.952332 1.08426023 2778.79443
197344 1027.48608 442.952332 1.08273005 2779.37256
197376 1027.48608 438.429871 1.08426023 2779.95068
197408 1027.48608 442.952332 1.08324003 2780.52881
197440 1027.48608 442.952332 1.08426023 2781.10693
197472 1027.48608 442.952332 1.08324003 2781.68506
197504 1027.48608 438.429871 1.08528018 2782.26318
197536 1027.48608 438.429871 1.0847702 2782.84131
197568 1027.48608 442.952332 1.08375001 2783.41943
197600 1027.48608 442.952332 1.08375001 2783.99756
197632 1027.48608 438.429871 1.08222008 2784.57568
197664 1027.48608 442.952332 1.08222008 2785.15332
197696 1027.48608 438.429871 1.08222008 2785.72998
197728 1027.48608 442.952332 1.08426023 2786.30811
197760 1027.48608 442.952332 1.08528018 2786.88623
197792 1027.48608 442.952332 1.0847702 2787.46436
197824 1027.48608 442.952332 1.08793031 2788.04297
197856 1027.48608 447.474365 1.08630015 2788.62305
197888 1027.48608 442.952332 1.08732033 2789.20313
197920 1027.48608 442.952332 1.08375001 2789.78125
197952 1027.48608 438.429871 1.08579016 2790.35938
197984 1027.48608 442.952332 1.08579016 2790.93848
198016 1027.48608 442.952332 1.08793031 2791.51807
198048 1027.48608 442.952332 1.08528018 2792.09766
198080 1027.48608 442.952332 1.08528018 2792.67578
198112 1027.48608 438.429871 1.08579016 2793.25439
198144 1031.98584 442.952332 1.0847702 2793.83252
198176 1027.48608 438.429871 1.08426023 2794.41064
198208 1027.48608 438.429871 1.0847702 2794.98877
198240 1027.48608 442.952332 1.08834028 2795.56885
198272 1027.48608 447.474365 1.08681035 2796.14893
198304 1027.48608 447.474365 1.08528018 2796.72803
198336 1027.48608 438.429871 1.08375001 2797.30615
198368 1027.48608 442.952332 1.08426023 2797.88428
198400 1027.48608 442.952332 1.08426023 2798.4624
198432 1027.48608 442.952332 1.08375001 2799.04053
198464 1027.48608 442.952332 1.08528018 2799.61865
198496 1027.48608 442.952332 1.0847702 2800.19678

198528 1027.48608 442.952332 1.08579016 2800.7749
198560 1027.48608 442.952332 1.0847702 2801.3332
198592 1027.48608 442.952332 1.08375001 2801.93164
198624 1027.48608 442.952332 1.08068991 2802.50928
198656 1027.48608 442.952332 1.08119988 2803.08545
198688 1027.48608 438.429871 1.08275005 2803.66211
198720 1027.48608 442.952332 1.08375001 2804.24023
198752 1027.48608 438.429871 1.08428023 2804.81836
198784 1027.48608 438.429871 1.08324003 2805.39648
198816 1027.48608 438.429871 1.08426023 2805.97461
198848 1027.48608 438.429871 1.08426023 2806.55273
198880 1027.48608 438.429871 1.08426023 2807.13086
198912 1027.48608 433.907898 1.08324003 2807.70898
198944 1027.48608 442.952332 1.08426023 2808.28711
198976 1027.48608 438.429871 1.08579016 2808.86523
199008 1027.48608 442.952332 1.0847702 2809.44336
199040 1027.48608 442.952332 1.0847702 2810.02148
199072 1027.48608 433.907898 1.08324003 2810.59961
199104 1027.48608 438.429871 1.08375001 2811.17773
199136 1031.98584 433.907898 1.08119988 2811.75586
199168 1027.48608 438.429871 1.08222008 2812.33393
199200 1027.48608 438.429871 1.08324003 2812.90967
199232 1027.48608 442.952332 1.0847702 2813.48779
199264 1027.48608 438.429871 1.0847702 2814.06592
199296 1027.48608 438.429871 1.08324003 2814.64404
199328 1027.48608 438.429871 1.0847702 2815.22217
199360 1027.48608 442.952332 1.08375001 2815.80029
199392 1027.48608 442.952332 1.0847702 2816.37842
199424 1027.48608 442.952332 1.08222008 2816.95654
199456 1027.48608 438.429871 1.08324003 2817.53418
199488 1027.48608 442.952332 1.08528018 2818.1123
199520 1027.48608 442.952332 1.08375001 2818.69043
199552 1027.48608 442.952332 1.08375001 2819.26855
199584 1027.48608 442.952332 1.08119988 2819.84619
199616 1027.48608 442.952332 1.08426023 2820.42334
199648 1027.48608 447.474365 1.0847702 2821.00146
199680 1027.48608 442.952332 1.08528018 2821.57959
199712 1031.98584 442.952332 1.08528018 2822.15771
199744 1027.48608 442.952332 1.08579016 2822.73533
199776 1027.48608 442.952332 1.08630013 2823.31543
199808 1027.48608 442.952332 1.08426023 2823.89355
199840 1031.98584 438.429871 1.0847702 2824.47168
199872 1027.48608 442.952332 1.08324003 2825.0498
199904 1027.48608 442.952332 1.0847702 2825.62793
199936 1027.48608 442.952332 1.08579016 2826.20651
199968 1027.48608 438.429871 1.08681035 2826.78564
200000 1031.98584 442.952332 1.08681035 2827.36572
200032 1027.48608 438.429871 1.08579016 2827.94482
200064 1027.48608 442.952332 1.08630013 2828.52441
200096 1027.48608 438.429871 1.08575001 2829.10254
200128 1031.98584 438.429871 1.0847702 2829.68066
200160 1027.48608 442.952332 1.08528018 2830.25879
200192 1027.48608 442.952332 1.08681035 2830.83789
200224 1031.98584 438.429871 1.08732033 2831.41797
200256 1027.48608 442.952332 1.08681035 2831.99805
200288 1027.48608 442.952332 1.08681035 2832.57813
200320 1031.98584 442.952332 1.08579016 2833.15674
200352 1031.98584 442.952332 1.08732033 2833.73633
200384 1031.98584 442.952332 1.08630013 2834.31592
200416 1031.98584 438.429871 1.08681035 2834.89551
200448 1027.48608 442.952332 1.08579016 2835.4751
200480 1027.48608 442.952332 1.08528018 2836.05371
200512 1027.48608 442.952332 1.08579016 2836.63184
200544 1027.48608 442.952332 1.0847702 2837.20996
200576 1031.98584 447.474365 1.08630013 2837.78857
200608 1027.48608 438.429871 1.08222008 2838.36719
200640 1031.98584 442.952332 1.08222008 2838.94436
200672 1027.48608 442.952332 1.08324003 2839.52148
200704 1027.48608 442.952332 1.08630013 2840.1001
200736 1031.98584 438.429871 1.08528018 2840.67871
200768 1027.48608 442.952332 1.08324003 2841.25684
200800 1027.48608 442.952332 1.08426023 2841.83496
200832 1031.98584 442.952332 1.08426023 2842.41309
200864 1027.48608 438.429871 1.08426023 2842.99121
200896 1027.48608 438.429871 1.08375001 2843.56934
200928 1031.98584 442.952332 1.08528018 2844.14746
200960 1031.98584 442.952332 1.08630013 2844.72607
200992 1031.98584 442.952332 1.0847702 2845.30469
201024 1031.98584 442.952332 1.08579016 2845.88281
201056 1031.98584 438.429871 1.0847702 2846.46094
201088 1031.98584 442.952332 1.08681035 2847.04053
201120 1027.48608 438.429871 1.08426023 2847.61914
201152 1031.98584 442.952332 1.08375001 2848.19727
201184 1027.48608 438.429871 1.08426023 2848.77539

201216 1027.48608 442.952332 1.0847702 2849.35352
201248 1031.98584 438.429871 1.08426023 2850.50977
201280 1031.98584 438.429871 1.08579016 2851.08709
201312 1031.98584 438.429871 1.0847702 2851.66602
201344 1031.98584 438.429871 1.0847702 2852.24414
201376 1031.98584 442.952332 1.08630013 2852.82324
201408 1036.48608 442.952332 1.08630013 2853.40234
201440 1036.48608 442.952332 1.08630013 2853.98193
201472 1031.98584 438.429871 1.08579016 2854.56006
201504 1031.98584 442.952332 1.0847702 2855.13965
201536 1027.48608 438.429871 1.08783031 2855.71973
201568 1031.98584 438.429871 1.08630013 2856.2998
201600 1031.98584 438.429871 1.08579016 2856.87891
201632 1031.98584 438.429871 1.08732033 2857.45898
201664 1031.98584 438.429871 1.08732033 2858.03908
201696 1031.98584 442.952332 1.08528018 2858.61865
201728 1036.48608 442.952332 1.08528018 2859.19678
201760 1027.48608 438.429871 1.0847702 2859.7749
201792 1031.98584 438.429871 1.08375001 2860.35303
201824 1027.48608 438.429871 1.08528018 2860.93164
201856 1031.98584 442.952332 1.08528018 2861.50977
201888 1031.98584 442.952332 1.08528018 2862.08789
201920 1031.98584 438.429871 1.08426023 2862.66602
201952 1036.48608 438.429871 1.0847702 2863.24414
201984 1031.98584 442.952332 1.08528018 2863.82275
202016 1036.48608 442.952332 1.08426023 2864.40088
202048 1031.98584 442.952332 1.08324003 2865.55713
202080 1031.98584 442.952332 1.0847702 2866.13525
202112 1036.48608 438.429871 1.08324003 2866.71338
202144 1036.48608 438.429871 1.08375001 2867.2915
202176 1036.48608 438.429871 1.08324003 2867.86963
202208 1031.98584 447.474365 1.08273005 2868.44727
202240 1031.98584 438.429871 1.08222003 2869.0249
202272 1036.48608 438.429871 1.08068991 2869.60107
202304 1031.98584 438.429871 1.08375001 2870.17871
202336 1036.48608 438.429871 1.08324003 2870.75684
202368 1036.48608 442.952332 1.08426023 2871.33496
202400 1036.48608 442.952332 1.08579016 2871.91357
202432 1031.98584 438.429871 1.08579016 2872.49219
202464 1031.98584 438.429871 1.08579016 2873.07129
202496 1036.48608 442.952332 1.08375001 2873.64941
202528 1031.98584 442.952332 1.08783031 2874.229
202560 1036.48608 438.429871 1.08732033 2874.80908
202592 1036.48608 442.952332 1.08579016 2875.38867
202624 1036.48608 442.952332 1.0847702 2875.9668
202656 1036.48608 442.952332 1.0817101 2876.54492
202688 1036.48608 442.952332 1.08375001 2877.12256
202720 1036.48608 438.429871 1.08375001 2877.70068
202752 1031.98584 442.952332 1.0847702 2878.27881
202784 1031.98584 438.429871 1.08273005 2878.85693
202816 1031.98584 438.429871 1.08068991 2879.43509
202848 1036.48608 438.429871 1.08222003 2880.01025
202880 1036.48608 442.952332 1.08375001 2880.58838
202912 1031.98584 442.952332 1.08324003 2881.1665
202944 1031.98584 438.429871 1.08273005 2881.74463
202976 1031.98584 438.429871 1.0817101 2882.32178
203008 1036.48608 438.429871 1.08528018 2882.90099
203040 1036.48608 442.952332 1.0847702 2883.47803
203072 1036.48608 438.429871 1.08528018 2884.05615
203104 1036.48608 438.429871 1.08375001 2884.63428
203136 1031.98584 442.952332 1.0847702 2885.2124
203168 1031.98584 442.952332 1.08528018 2885.79053
203200 1031.98584 442.952332 1.08579016 2886.36914
203232 1036.48608 442.952332 1.08630013 2886.94824
203264 1031.98584 442.952332 1.08426023 2887.52637
203296 1036.48608 442.952332 1.08630013 2888.10498
203328 1036.48608 447.474365 1.0847702 2888.68408
203360 1036.48608 442.952332 1.0847702 2889.26221
203392 1031.98584 438.429871 1.08375001 2889.84033
203424 1031.98584 442.952332 1.08426023 2890.41846
203456 1036.48608 438.429871 1.08783031 2890.99805
203488 1036.48608 447.474365 1.08579016 2891.57813
203520 1036.48608 438.429871 1.0847702 2892.15674
203552 1036.48608 438.429871 1.08324003 2892.73486
203584 1036.48608 438.429871 1.08324003 2893.31299
203616 1036.48608 438.429871 1.08375001 2893.89111
203648 1036.48608 438.429871 1.08324003 2894.46875
203680 1040.98584 438.429871 1.08426023 2895.04688
203712 1036.48608 438.429871 1.0817101 2895.625
203744 1036.48608 438.429871 1.08119988 2896.20117
203776 1036.48608 451.996785 1.0817101 2896.77736
203808 1036.48608 442.952332 1.08273005 2897.35498

203904 1036.48608 442.952332 1.08375001 2897.93311
203936 1036.48608 438.429871 1.0847702 2899.08936
203968 1036.48608 438.429871 1.0847702 2899.66748
204000 1036.48608 442.952332 1.0847702 2900.24561
204032 1036.48608 442.952332 1.0847702 2900.82373
204064 1036.48608 442.952332 1.08324003 2901.40186
204096 1036.48608 442.952332 1.0847702 2901.97998
204128 1036.48608 442.952332 1.08426023 2902.55811
204160 1040.98584 442.952332 1.08426023 2903.13623
204192 1036.48608 442.952332 1.08528018 2903.71436
204224 1036.48608 442.952332 1.08375001 2904.29248
204256 1036.48608 438.429871 1.08630013 2904.87109
204288 1036.48608 442.952332 1.08630013 2905.45117
204320 1036.48608 442.952332 1.08681035 2906.03076
204352 1036.48608 442.952332 1.08426023 2906.60938
204384 1036.48608 442.952332 1.08426023 2907.1875
204416 1036.48608 438.429871 1.08579016 2907.76563
204448 1036.48608 438.429871 1.08426023 2908.34375
204480 1036.48608 438.429871 1.08426023 2908.92188
204512 1036.48608 438.429871 1.08375001 2909.5
204544 1036.48608 442.952332 1.08119988 2910.07715
204576 1036.48608 442.952332 1.08017993 2910.65332
204608 1031.98584 438.429871 1.0817101 2911.22949
204640 1036.48608 442.952332 1.08324003 2911.80713
204672 1036.48608 442.952332 1.08222008 2912.38525
204704 1036.48608 442.952332 1.08375001 2912.96338
204736 1040.98584 442.952332 1.08324003 2913.5415
204768 1036.48608 442.952332 1.08426023 2914.11963
204800 1031.98584 438.429871 1.08426023 2914.69775
204832 1036.48608 442.952332 1.0847702 2915.27588
204864 1036.48608 442.952332 1.08528018 2915.854
204896 1036.48608 442.952332 1.0847702 2916.43213
204928 1036.48608 442.952332 1.08528018 2917.01025
204960 1036.48608 442.952332 1.08426023 2917.58838
204992 1036.48608 442.952332 1.08528018 2918.1665
205024 1036.48608 442.952332 1.0847702 2918.74512
205056 1036.48608 438.429871 1.0847702 2919.32324
205088 1036.48608 438.429871 1.08375001 2919.90137
205120 1036.48608 442.952332 1.0847702 2920.47949
205152 1036.48608 442.952332 1.08528018 2921.05811
205184 1036.48608 442.952332 1.08528018 2921.63672
205216 1036.48608 442.952332 1.08579016 2922.21484
205248 1036.48608 438.429871 1.08528018 2922.79297
205280 1036.48608 442.952332 1.08579016 2923.37207
205312 1036.48608 438.429871 1.08528018 2923.9502
205344 1036.48608 442.952332 1.08579016 2924.52832
205376 1036.48608 438.429871 1.08630013 2925.10742
205408 1036.48608 442.952332 1.08579016 2925.68604
205440 1036.48608 438.429871 1.08579016 2926.26465
205472 1036.48608 438.429871 1.08324003 2926.84473
205504 1036.48608 442.952332 1.08324003 2927.4248
205536 1040.98584 442.952332 1.08732033 2928.00488
205568 1036.48608 438.429871 1.08528018 2928.58398
205600 1031.98584 438.429871 1.08732033 2929.16406
205632 1036.48608 438.429871 1.08579016 2929.74365
205664 1036.48608 438.429871 1.08528018 2930.32275
205696 1036.48608 442.952332 1.08426023 2930.90088
205728 1040.98584 442.952332 1.08732033 2931.47998
205760 1036.48608 442.952332 1.08681035 2932.06006
205792 1036.48608 442.952332 1.0847702 2933.21875
205824 1036.48608 442.952332 1.08579016 2933.79688
205856 1036.48608 442.952332 1.08630013 2934.37646
205888 1036.48608 442.952332 1.0847702 2934.95459
205920 1036.48608 442.952332 1.08375001 2935.53271
205952 1036.48608 442.952332 1.08273005 2936.11084
205984 1036.48608 442.952332 1.08375001 2936.68896
206016 1036.48608 442.952332 1.08273005 2937.26709
206048 1036.48608 438.429871 1.08222008 2937.84473
206080 1036.48608 442.952332 1.08068991 2938.4209
206112 1036.48608 442.952332 1.08273005 2938.99854
206144 1036.48608 442.952332 1.08273005 2939.57666
206176 1036.48608 438.429871 1.08375001 2940.15479
206208 1036.48608 442.952332 1.08273005 2940.73291
206240 1036.48608 442.952332 1.0847702 2941.31104
206272 1036.48608 442.952332 1.08324003 2941.88916
206304 1036.48608 442.952332 1.08324003 2942.46729
206336 1036.48608 442.952332 1.08273005 2943.04492
206368 1040.98584 442.952332 1.08273005 2943.62305
206400 1036.48608 438.429871 1.08273005 2944.20117
206432 1036.48608 438.429871 1.08017993 2944.77734
206464 1031.98584 438.429871 1.08119988 2945.35352
206496 1036.48608 438.429871 1.08119988 2945.93018

206592 1031.98584 438.429871 1.08324003 2946.50781
206624 1036.48608 438.429871 1.08324003 2946.50781
206656 1036.48608 433.907898 1.08375001 2947.56357
206688 1031.98584 438.429871 1.08426023 2948.2417
206720 1036.48608 438.429871 1.08528018 2948.81982
206752 1036.48608 438.429871 1.08783031 2949.3999
206784 1036.48608 442.952332 1.08936048 2949.97998
206816 1036.48608 442.952332 1.09038043 2950.56201
206848 1036.48608 442.952332 1.09089041 2951.14404
206880 1036.48608 438.429871 1.09140038 2951.72607
206912 1036.48608 433.907898 1.08936048 2952.30762
206944 1036.48608 442.952332 1.09038043 2952.88916
206976 1036.48608 442.952332 1.09038043 2953.4707
207008 1036.48608 442.952332 1.08936048 2954.05176
207040 1036.48608 438.429871 1.08885026 2954.63232
207072 1036.48608 442.952332 1.08885026 2955.2124
207104 1036.48608 442.952332 1.09038043 2955.79346
207136 1036.48608 442.952332 1.08834028 2956.37451
207168 1036.48608 438.429871 1.08783031 2956.95459
207200 1036.48608 433.907898 1.08834028 2957.53467
207232 1036.48608 438.429871 1.08834028 2958.11475
207264 1036.48608 438.429871 1.08987045 2958.6955
207296 1036.48608 442.952332 1.08681035 2959.27588
207328 1036.48608 438.429871 1.08732033 2959.85596
207360 1036.48608 442.952332 1.08528018 2960.43506
207392 1036.48608 442.952332 1.08732033 2961.01465
207424 1036.48608 442.952332 1.08681035 2961.59473
207456 1031.98584 442.952332 1.08681035 2962.1748
207488 1031.98584 442.952332 1.08681035 2962.75488
207520 1036.48608 442.952332 1.08630013 2963.33447
207552 1036.48608 442.952332 1.08732033 2963.91406
207584 1036.48608 442.952332 1.08579016 2964.49366
207616 1036.48608 442.952332 1.08579016 2965.07178
207648 1036.48608 438.429871 1.0847702 2965.6499
207680 1036.48608 442.952332 1.08481035 2966.22852
207712 1036.48608 438.429871 1.08528018 2966.80811
207744 1036.48608 438.429871 1.08528018 2967.38623
207776 1036.48608 438.429871 1.08528018 2967.96436
207808 1036.48608 438.429871 1.08630013 2968.54395
207840 1036.48608 442.952332 1.08732033 2969.12402
207872 1036.48608 438.429871 1.08324003 2969.70215
207904 1036.48608 438.429871 1.08375001 2970.28027
207936 1031.98584 438.429871 1.0847702 2970.8584
207968 1036.48608 442.952332 1.08681035 2971.4375
208000 1036.48608 442.952332 1.08528018 2972.01611
208032 1036.48608 438.429871 1.0817101 2972.59375
208064 1036.48608 438.429871 1.07966995 2973.16992
208096 1036.48608 438.429871 1.07813978 2973.74809
208128 1036.48608 438.429871 1.07966995 2974.32227
208160 1036.48608 438.429871 1.07844976 2974.89795
208192 1036.48608 442.952332 1.07966995 2975.47612
208224 1036.48608 433.907898 1.07915998 2976.05029
208256 1036.48608 433.907898 1.08068991 2976.62646
208288 1036.48608 438.429871 1.08068991 2977.20264
208320 1036.48608 438.429871 1.07814002 2977.77832
208352 1036.48608 442.952332 1.07814002 2978.35254
208384 1036.48608 438.429871 1.07711983 2978.92676
208416 1036.48608 433.907898 1.07915998 2979.50244
208448 1036.48608 438.429871 1.0776298 2980.07764
208480 1036.48608 438.429871 1.07864976 2980.65283
208512 1036.48608 438.429871 1.07813978 2981.22803
208544 1036.48608 442.952332 1.0776298 2981.80273
208576 1036.48608 433.907898 1.07813978 2982.37793
208608 1036.48608 438.429871 1.0776298 2982.95264
208640 1036.48608 442.952332 1.07915998 2983.52783
208672 1036.48608 442.952332 1.07915998 2984.104
208704 1036.48608 442.952332 1.07915998 2984.68018
208736 1036.48608 433.907898 1.07966995 2985.25586
208768 1036.48608 438.429871 1.07966995 2985.83203
208800 1036.48608 433.907898 1.08273005 2986.40869
208832 1036.48608 438.429871 1.08068991 2986.98584
208864 1036.48608 442.952332 1.08017993 2987.56201
208896 1036.48608 438.429871 1.07864976 2988.13818
208928 1036.48608 442.952332 1.08119988 2988.71436
208960 1036.48608 438.429871 1.08068991 2989.29053
208992 1036.48608 438.429871 1.07813978 2989.8667
209024 1036.48608 438.429871 1.07864976 2990.44189
209056 1036.48608 438.429871 1.0776298 2991.01709
209088 1036.48608 438.429871 1.07915998 2991.59229
209120 1036.48608 438.429871 1.07915998 2992.16846
209152 1036.48608 442.952332 1.08017993 2992.74463
209184 1036.48608 442.952332 1.07915998 2993.3208
209216 1036.48608 438.429871 1.07915998 2993.89648
209248 1036.48608 438.429871 1.08017993 2994.47268

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

211968	1040.98584	316.330017	1.10211062	3043.28127
212000	1045.48608	316.330017	1.10211062	3044.38912
212032	1045.48608	316.330017	1.10211062	3044.97705
212064	1045.48608	316.330017	1.10211062	3045.56494
212096	1045.48608	316.330017	1.10211062	3046.15283
212128	1045.48608	316.330017	1.0995605	3046.73975
212160	1045.48608	316.330017	1.09599042	3047.3252
212192	1045.48608	320.85199	1.09497046	3047.90918
212224	1045.48608	320.85199	1.09446049	3048.49316
212256	1045.48608	316.330017	1.09395051	3049.07715
212288	1045.48608	320.85199	1.09293056	3049.66064
212320	1045.48608	311.807556	1.09395051	3050.24365
212352	1045.48608	311.807556	1.09344053	3050.82715
212384	1040.98584	307.285522	1.09191036	3051.41016
212416	1045.48608	311.807556	0.64099054	3051.94482
212448	1045.48608	307.285522	0.40392053	3052.26221
212480	1045.48608	307.285522	5.40912E-7	3052.34961
212512	1045.48608	311.807556	5.40912E-7	3052.34961
212544	1045.48608	307.285522	5.40912E-7	3052.34961
212576	1045.48608	307.285522	5.40912E-7	3052.34961
212608	1045.48608	307.285522	5.40912E-7	3052.34961
212640	1045.48608	307.285522	5.40912E-7	3052.34961
212672	1045.48608	307.285522	5.40912E-7	3052.34961
212704	1045.48608	307.285522	5.40912E-7	3052.34961
212736	1045.48608	307.285522	5.40912E-7	3052.34961
212768	1045.48608	307.285522	5.40912E-7	3052.34961
212800	1045.48608	307.285522	5.40912E-7	3052.34961
212832	1045.48608	307.285522	5.40912E-7	3052.34961
212864	1045.48608	307.285522	5.40912E-7	3052.34961
212896	1045.48608	307.285522	5.40912E-7	3052.34961
212928	1045.48608	307.285522	5.40912E-7	3052.34961
212960	1045.48608	307.285522	5.40912E-7	3052.34961
212992	1045.48608	307.285522	5.40912E-7	3052.34961
213024	1040.98584	307.285522	5.40912E-7	3052.34961
213056	1045.48608	307.285522	5.40912E-7	3052.34961
213088	1045.48608	302.763123	5.40912E-7	3052.34961
213120	1045.48608	307.285522	5.40912E-7	3052.34961
213152	1045.48608	307.285522	5.40912E-7	3052.34961
213184	1045.48608	307.285522	5.40912E-7	3052.34961
213216	1045.48608	307.285522	5.40912E-7	3052.34961
213248	1045.48608	307.285522	5.40912E-7	3052.34961
213280	1045.48608	302.763123	5.40912E-7	3052.34961
213312	1045.48608	307.285522	5.40912E-7	3052.34961
213344	1045.48608	307.285522	5.40912E-7	3052.34961
213376	1045.48608	302.763123	5.40912E-7	3052.34961
213408	1045.48608	302.763123	5.40912E-7	3052.34961
213440	1045.48608	302.763123	5.40912E-7	3052.34961
213472	1045.48608	302.763123	5.40912E-7	3052.34961
213504	1045.48608	307.285522	5.40912E-7	3052.34961
213536	1045.48608	307.285522	5.40912E-7	3052.34961
213568	1045.48608	307.285522	5.40912E-7	3052.34961
213600	1045.48608	302.763123	5.40912E-7	3052.34961
213632	1045.48608	302.763123	5.40912E-7	3052.34961
213664	1045.48608	302.763123	5.40912E-7	3052.34961
213696	1045.48608	302.763123	5.40912E-7	3052.34961
213728	1045.48608	307.285522	5.40912E-7	3052.34961
213760	1045.48608	302.763123	5.40912E-7	3052.34961
213792	1045.48608	302.763123	5.40912E-7	3052.34961
213824	1045.48608	302.763123	5.40912E-7	3052.34961
213856	1045.48608	302.763123	5.40912E-7	3052.34961
213888	1045.48608	302.763123	5.40912E-7	3052.34961
213920	1045.48608	302.763123	5.40912E-7	3052.34961
213952	1045.48608	298.241089	5.40912E-7	3052.34961
213984	1045.48608	298.241089	5.40912E-7	3052.34961
214016	1045.48608	298.241089	5.40912E-7	3052.34961
214048	1045.48608	298.241089	5.40912E-7	3052.34961
214080	1045.48608	298.241089	5.40912E-7	3052.34961
214112	1045.48608	298.241089	5.40912E-7	3052.34961
214144	1045.48608	298.241089	5.40912E-7	3052.34961
214176	1045.48608	302.763123	5.40912E-7	3052.34961
214208	1045.48608	298.241089	5.40912E-7	3052.34961
214240	1045.48608	302.763123	5.40912E-7	3052.34961
214272	1045.48608	298.241089	5.40912E-7	3052.34961
214304	1040.98584	298.241089	5.40912E-7	3052.34961
214336	1045.48608		0 5.40912E-7	3052.34961
214368	1040.98584		0 5.40912E-7	3052.34961
214400	1036.48608		0 5.40912E-7	3052.34961
214432	1036.48608		0 5.40912E-7	3052.34961
214464	1031.98584		0 5.40912E-7	3052.34961
214496	991.486084		0 5.40912E-7	3052.34961
214528			0 5.40912E-7	3052.34961
214560			0 5.40912E-7	3052.34961
214592			0 5.40912E-7	3052.34961

APPENDIX B

Pressure Fall-Off Test Tabulated Data

Bob Barnes



Reuben L. Graham, Inc.

Weldon Wilson

Oil & Gas Engineering Consultants
Suite 500, 1018 Kanawha Boulevard, East
Charleston, West Virginia 25301
Telephone (304) 344-5930

December 10, 1991

Mr. Pat Ranson
OXY USA, Inc.
P. O. Drawer Q
Richlands, Virginia 24641

Dear Pat:

Enclosed are the bottomhole pressure data from the pressure falloff test conducted on the Ball A. #1 well from November 21, 1991 through December 9, 1991. The test began with 180-hour clocks which were replaced with 360-hour clocks on November 26, 1991 so that no data would be lost over the Thanksgiving Holiday.

Although we did not have pressure gauges on bottom until almost two hours into the falloff, I estimated a final bottomhole injection pressure of 2295.9 psia. This pressure assumes a wellbore fluid gradient of 0.434 psi/ft which I calculated at times when we collected both surface and bottomhole data. The estimated final bottomhole injection pressure also assumes a final surface injection pressure of 340 psig which I may have remembered incorrectly.

We enjoyed working with you on this falloff test and would appreciate the opportunity to perform future tests that OXY USA may require. RLG, Inc. also performs pressure transient analyses if you have a need for these services.

Please call me or Harold Hamby if you have any questions about the test or test data.

Sincerely,

Stan Shaw

Stan Shaw

JSS/kpb

Enclosures

**OXY USA, INC.
BALL A. #1
PRESSURE FALLOFF TEST
11/21/91 - 12/9/91**

TEST OUTLINE

Test following 48-hour injection by Dowell/Schlumberger. Injection was terminated at 11:00 a.m. on 11/21/91. D/S monitored first 0.25 hour falloff at surface and then rigged down injection lines.

11/21/91

Pressured up lubricator at 12:26 p.m.

Surface Pressure:

279 PSIG on tubing
1122 PSIG on casing

Two RPG-3 gauges on bottom at 12:48 p.m. Data reported from bottom gauge (Element SN 64678) set at 4480 ft KB.

11/26/91

Gauges off bottom at 1:47 p.m. to replace 180-hour clocks with 360-hour clocks.

Pressured up lubricator at 3:05 p.m.

Surface Pressure:

86 PSIG on tubing
1210 PSIG on casing

Two RPG-3 gauges back on bottom at 3:19 p.m. on 11/26/91.

12/9/91

Gauges off bottom at 8:36 a.m. to terminate test.

Surface Pressure:

9 PSIG on tubing
1280 PSIG on casing

OXY USA, INC.
BALL A. #1
PRESSURE FALLOFF TEST
11/21/91 - 12/9/91

FALLOFF TIME (HOURS)	BOTTOMHOLE PRESSURE (PSIA)
0.00	BNOB*
0.05	BNOB
0.10	BNOB
0.15	BNOB
0.20	BNOB
0.25	BNOB
0.30	BNOB
0.35	BNOB
0.40	BNOB
0.50	BNOB
0.60	BNOB
0.70	BNOB
0.80	BNOB
0.90	BNOB
1.00	BNOB
1.50	BNOB
2.00	2234.9
2.50	2231.1
3.00	2227.5
3.50	2224.2
4.00	2221.0
5.00	2216.0
6.00	2211.0
7.00	2206.5
8.00	2202.0
9.00	2198.2
10.00	2194.8
15.00	2179.6
20.00	2166.2
25.00	2156.5
30.00	2146.5

FALLOFF TIME (HOURS)	BOTTOMHOLE PRESSURE (PSIA)
35.00	2137.1
40.00	2130.4
50.00	2117.2
60.00	2105.2
70.00	2094.7
80.00	2085.3
90.00	2075.1
100.00	2067.0
110.00	2058.8
120.00	2051.3
130.00	2043.7
140.00	2037.1
150.00	2031.3
160.00	2025.6
170.00	2019.3
180.00	2013.0
190.00	2007.2
200.00	2001.5
220.00	1992.0
240.00	1982.6
260.00	1974.6
280.00	1967.4
300.00	1959.1
320.00	1951.5
340.00	1944.3
360.00	1938.9
380.00	1932.2
400.00	1925.9
420.00	1920.0
430.70	1917.3

*BNOB = Bombs not yet on bottom.

Depth = 4480 ft KB
 BHT = 97°F



OXY USA Inc.
MID-CONTINENT REGION
BOX 26100, Oklahoma City, OK 73126-0100
Telephone 405 749-2000

November 7, 1991

EXPRESS MAIL

Ms. Karen Johnson
UIC Section (3WM43)
Region III
United States Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

RE: Injectivity Test Authorization Request
Ball "A" #1
Buchanan County, Virginia

Dear Ms. Johnson:

OXY USA Inc. is interested in conducting an injectivity test on our Ball "A" #1 well, which was permitted and drilled as an exploratory gas well but was non-productive.

We have reviewed the EPA Region III Injectivity Testing Procedure, and we are providing the attached information in response to the list of criteria to be considered for a request of authorization to conduct an injectivity test.

We propose to initiate this test as soon as authorization is received.

Should any additional information be required, I can be contacted at (405) 749-2425.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Randy L. Pitre".

Randy L. Pitre
Region Environmental Advisor

RLP/qjs

Attachments

cc: Mr. G. M. Vangolen - OXY w/att.
Mr. Jay Henderson - Virginia DMME w/att.

File: Coalbed Methane-Ball "A" #1

bcc: B. D. Humphries
W. J. Wilson
R. M. Scott
J. R. Beckett

INJECTIVITY TEST AUTHORIZATION REQUEST

BALL "A" #1
BUCHANAN COUNTY, VIRGINIA

EPA Region III Required Information

- A. A topographic map showing the location of the well to be used in the test and any other well(s), located within one-quarter mile of this well, which penetrate the same zone of injection.

A topographic map showing the location of the proposed injection test well, the Ball "A" #1, is attached in Appendix A. There are no other wells located within one-quarter mile of this well which penetrate the same zone of injection.

- B. The well's identification number.

The proposed injection test well, the Ball "A" #1, has API # 45-027-21690.

- C. The well's depth.

The proposed test well has a TD of 5208' and a PBTD of 4664'.

- D. The geologic formation to be tested and its respective depth.

The formation selected for the injectivity test is the Mississippian-age Weir Formation. In OXY USA's Ball "A" No. 1 well, the top and bottom of the Weir Formation are located at 4,465 and 4,922 feet below the ground's surface, respectively. The Weir Formation can be divided into a lower dark organic shale interval and an upper dirty siltstone interval; in the Ball "A" #1 the shale is 170 feet thick and the siltstone is 87 feet thick. An evaluation of wireline logs revealed a net 16 feet of porosity greater than 7% in three zones within the upper siltstone interval. The proposed injection zone in the Weir Sand formation is the interval 4486'-4541'.

Injectivity Test Authorization Request
Ball "A" No. 1
Page 2

E. A schematic diagram of the well's construction.

A schematic diagram of the well's construction is attached in Appendix B.

F. The specific gravity of the fluid to be injected.

It is proposed to inject fresh water with 2% KCl (potassium chloride) in solution which has a specific gravity of 1.01 (8.43 lb/gal) at 60° F.

G. Instantaneous shut-in pressure (ISIP) data, if available.

On September 11, 1991 following perforation of the Weir Sand interval 4486'-4511', an acid breakdown and falloff using 2000 gal of 15% HCl acid was pumped down 2-3/8" tubing. The maximum injection pressure during this treatment was 1775 psi and an instantaneous shut-in pressure (ISIP) of 450 psi was obtained.

H. Estimated duration of the test.

Continuous injection for approximately 10 days followed by a falloff test of approximately 20 days gives a total estimated testing duration of 30 days.

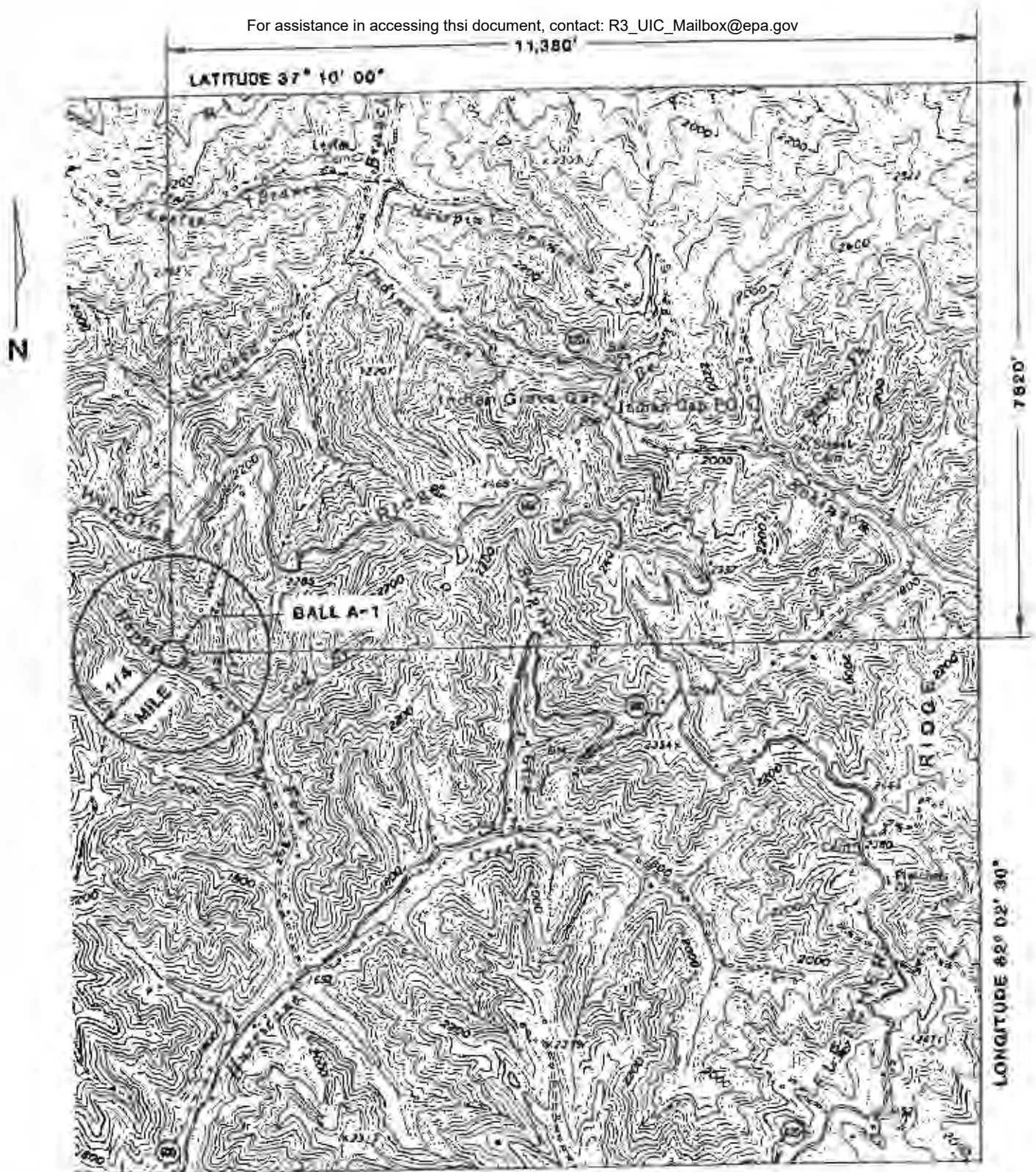
I. Estimated maximum rate of injection and maximum volume to be injected daily and over the course of the test.

The primary objectives of the injectivity test will be to determine the maximum fluid acceptance rates of the Weir Sand and to determine if the Weir Sand is a limited reservoir in the Ball "A" #1. Accordingly, it is proposed to inject a total volume up to 5000 bbls at rates up to 2000 BPD subject to maximum pressure limitations.

J. Estimated maximum injection pressure (MIP).

It is proposed to keep the surface injection pressure during all testing under a maximum injection pressure (MIP) of 2000 psi.

APPENDIX A
Topographic Map



SCALE : 1" :: 2000'

REF: VANSANT, VA. 7.5' USGS
TOPOGRAPHIC QUADRANGLE
1963

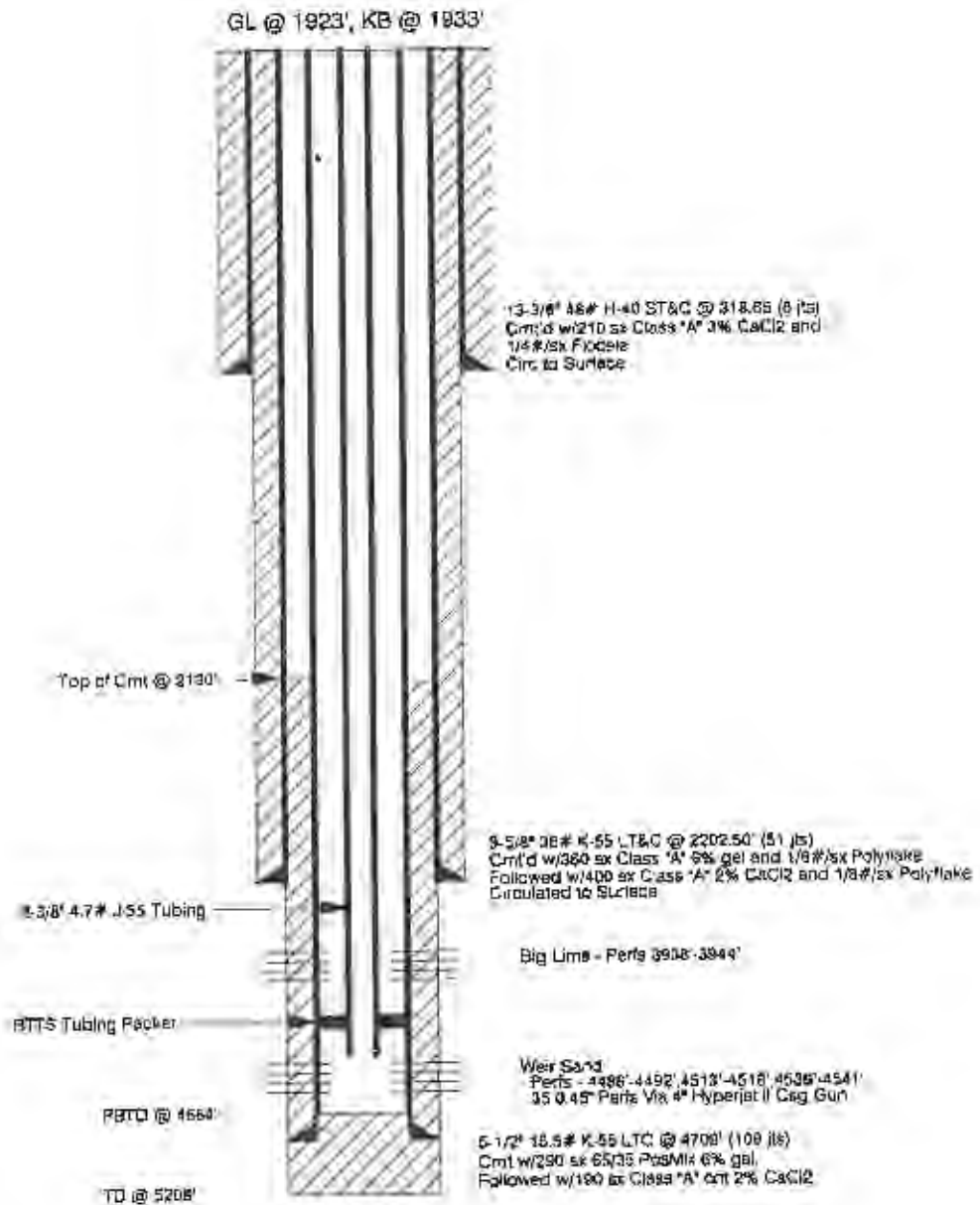
LOCATION OF WELL BALL A-1
OXY USA, Inc.
PERMIT NO. 1690
NOVEMBER, 1991

APPENDIX B

**Ball "A" #1
Wellbore Construction Diagram**

Ball "A" #1

Buchanan County, Virginia



Notes:

1. All Depths RKB.
2. Proposed Injection Test Configuration

WJW - 11/4/91

OXY USA, Inc.
MID-CONTINENT REGION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

RECEIVED

NOV 19 1991

MID-CONTINENT
ENGINEERING

Mr. Randy L. Pitre
Regional Environmental Advisor
Oxy USA Inc.
Mid-Continent Region
Box 26100
Oklahoma City, OK 73126-0100

NOV 14 1991

Dear Mr. Pitre:

Your letter and its attached information, submitted to support your request to conduct an injectivity test in the Weir Formation has been reviewed by EPA Region III staff. You are hereby granted permission to conduct this test, utilizing the Bell "A" # 1 well (API # 45-027-21690), located in Buchanan County, Virginia, under the following conditions.

1. Injection shall occur into the upper interval of the Weir Formation between 4486 feet and 4541 feet.
2. Testing shall be limited to a period not to exceed 30 consecutive days.
3. During the testing period, the total volume of fluid injected shall not exceed 5000 BBLs and no more than 2000 BBLs of fluid may be injected during any given 24 hour period.
4. The maximum injection pressure for this test shall not exceed 1327 PSI. This maximum injection pressure was determined using the regulatorily prescribed fracture gradient of .733 psi/ft. and the following equation:

$$P_{max} = [.733 - (.433 \times \text{S.G. of fluid})] \times \text{Depth}$$

Although you submitted information which indicated that the Weir Formation had an ISIP of 450 psi, we found this pressure to vary considerably from previous data we have reviewed for the Weir. Therefore, until such time as the data you submit shows otherwise, the regulatorily prescribed gradient of .733 psi/ft. will be used.

5. Injection volumes and pressures shall be recorded on a continuous basis.
6. Injection must occur through tubing and packer located immediately above the injection zone.

-2-

The final results of the injectivity test should be submitted to this office within 15 days of the completion of the test, unless the results are to be a part of a permit application submission, in which case they may be submitted at that time. In no case, however, shall the results of this test be submitted later than 45 days after the completion of this test. In addition, please notify this office at least 48 hours in advance of the commencement of this test.

If you should have any questions regarding the conditions imposed on this injectivity test, please give me a call at 215-597-2537.

Sincerely,

S. Stephen Platt
UIC Section (3WM43)
DW/GW Protection Branch

cc: Tom Fulmer, VA DMME

STIMULATION PROGRAM

1. On September 9, 1991, the Ball A-1 5-1/2" casing was perforated in the Weir sandstone as follows: 4486-4492' 13 perforations; 4513-4518' 11 perforations; 4536-4541' 11 perforations.
2. On September 10, 1991, the above Weir sandstone intervals were acidized with 2,000 gallons of 15% hydrochloric acid.
3. On September 12, 1991, the above Weir sandstone intervals were fracture stimulated with 60,000 pounds of 20/40 mesh sand.
4. The following chemicals may be continually added to the injected fluid:
 - A. Scale inhibitor - inhibits the formation of scale on the wellbore tubulars, at the perforations and in the Weir sandstone. Scale inhibitor will help maintain operating pressures in the 500 to 1200 psig range.
 - B. Oxygen scavenger - removes dissolved oxygen from the injection fluid and consequently reduces corrosion of tubulars and aerobic bacteria growth.
 - C. Bactericide - reduces the aerobic and anaerobic bacteria population in the injection fluid and therefore, will reduce Weir sandstone formation damage and corrosion of tubulars caused by bacteria. Uncontrolled bacteria could cause operating pressures to increase and significant corrosion of tubulars.
 - D. Surfactant - reduces the surface tension between the injection fluid and the Weir sandstone and wellbore tubulars. Surfactant will increase the effective permeability of the Weir sandstone to the injection fluid and will help maintain operating pressures in the 500 to 1200 psig range.
5. Material Safety Data Sheets for tentatively selected chemicals are submitted for review. OXY USA Inc. will select chemicals ideally suited for the produced water based upon future analyses once production operations have commenced.
6. Additional stimulation may be required to maintain operating pressures in the 500 to 1200 psig range.



TRETOLITE
Chemicals and Services

PRODUCT

Kontrol[®] CGW-0046E Gas System Corrosion Inhibitor

GENERAL DESCRIPTION

Kontrol CGW-0046E gas system corrosion inhibitor is a unique hydrocarbon-dispersible, water-dispersible product which is designed to be effective in both wet and dry (dehydrated) gas systems. It is most effective in systems containing high partial pressures of carbon dioxide (CO_2), but also controls corrosion caused by hydrogen sulfide (H_2S). The unique corrosion inhibitor properties of this product also make it effective in systems which contain up to two parts per million (ppm) of oxygen (O_2) in the water phase.

This product is effective in dry (dehydrated) systems, since it will remain flowable after the solvent has been stripped off. It will not gunk up at the injection point, but will travel through the dry gas until it reaches the first pocket of liquid. In short, Kontrol CGW-0046E gas system corrosion inhibitor:

- Is highly effective against CO_2 corrosion
- Controls corrosion caused by up to 2 ppm oxygen in the water
- Is highly water dispersible
- Is effective in dry gas systems
- Soluble in glycol and methanol

APPLICATION

Kontrol CGW-0046E gas system corrosion inhibitor is best applied by continuous injection into the gas system. It is useful in both wet and dry (dehydrated) systems. Typical injection rates are one-half to two pints per million cubic feet of gas. These rates should be optimized based on results of corrosion monitoring. This will result in the most cost-effective treatment program. In some cases, it is often necessary to batch treat the system to ensure adequate corrosion control. KONTROL CGW-0046E can be dissolved in methanol used for hydrate control prior to injection.

SAFETY & HANDLING

Observe warning label on product container. Normal precautions for industrial chemicals apply. For more information, please refer to the Material Safety Data Sheet.

TYPICAL PHYSICAL PROPERTIES

Specific gravity, 60°F (15°C)	0.84
Weight, 60°F (15°C)	7.0
Flash point SFCC	54°F (12°C)
Pour Point	less than -40°F (-40°C)
Viscosity @ 60°F (15°C), SUS	43
Viscosity @ 30°F (-1°C), SUS	58
Viscosity @ 0°F (-18°C), SUS	58
Solubility (brine)	dispersible
Solubility (hydrocarbon)	soluble
Solubility (methanol)	soluble
Solubility (diesel)	insoluble

MATERIAL SAFETY DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A

REVISION DATE: 12/30/91
EMERGENCY PHONE: 1-314-961-3500
CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: SCW0260H

TRADE NAME: TRETOLITE

LABEL: 008
093

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)

SHIPPING NAME: Corrosive Liquid, N.O.S.

HAZARD CLASS: Corrosive Material

ID#: UN1760

CHEMICAL DESCRIPTION

ORGANIC PHOSPHONATES AND HYDROCHLORIC ACID IN WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
07647-01-0	Hydrochloric acid	5-10	ACGIH TLV: 5.0 ppm C OSHA PEL: 5.0 ppm C
00050-00-0	Formaldehyde - See Section 9	0.12	ACGIH TLV: 1.0ppm TWA OSHA PEL: 1.0ppm TWA OSHA STEL: 2.0 ppm

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY(20 = 1.0@60 F): 1.146
VAPOR PRESSURE: Not Established

VOLATILITY: N/A
SOL. IN WATER: Soluble

MISC. DATA: pH = 1.8 tap water

APPEARANCE AND ODOR: Amber liquid. Slight odor.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >200 F

FLAMMABLE LIMITS: Not Established

FLASH METHOD:

SFCC ASTM D-3828

EXTINGUISHING MEDIA:

Material is non-flammable. Use water spray, foam, CO2 or
any other media suitable for extinguishing materials
supporting combustion.

CONTINUED ON PAGE: 2



MATERIAL SAFETY DATA SHEET

PAGE 2

CONTINUATION OF SCW0260H

FIRE FIGHTING PROCEDURES:

Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode. Non-flammable. Keep fire-exposed containers cool using water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

None known.

SECTION 5 HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:

Inhalation of mists, aerosols or very high vapor concentrations will produce intense eye, nose and respiratory irritation and may result in lung damage. Prolonged exposure may result in chemical pneumonitis and, in extreme cases, pulmonary edema.

SKIN AND EYE CONTACT:

Contact with skin will cause moderate to severe irritation or burns. Contact with eyes will result in severe eye irritation or burns, and if not immediately removed, may lead to permanent eye injury.

INGESTION:

Causes severe irritation or burns to the mouth and gastrointestinal tract. In extreme cases may cause kidney and liver damage.

EMERGENCY AND FIRST AID PROCEDURES:

If contacted, wash skin immediately with soap and water. Remove contaminated clothing and wash before reuse. If irritation or burns develop, consult a physician. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician. If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe. If ingested, DO NOT induce vomiting. If conscious, drink promptly large quantities of water. Call a physician immediately. NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock and convulsion may be necessary.

SECTION 6 REACTIVITY DATA

STABILITY:

Stable under normal conditions of storage and use.

CONTINUED ON PAGE: 3

MATERIAL SAFETY DATA SHEET

PAGE 3

CONTINUATION OF SCW0260H

INCOMPATIBILITY:

Keep away from strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:

Oxides of nitrogen and phosphorus, HCl.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 7 SPILL AND LEAK PROCEDURES

IF MATERIAL IS SPILLED OR RELEASED:

Small spill - Absorb on paper, cloth or other material.

Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to a holding container. Cover residue with dirt, or suitable chemical adsorbent. Use personal protective equipment as necessary.

DISPOSAL METHOD:

Place chemical residues and contaminated adsorbent materials into a suitable waste container and take to an approved hazardous waste disposal site. Dispose of all residues in accordance with applicable waste management regulations.

DECONTAMINATION PROCEDURES:

Not appropriate.

SECTION 8 SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

When concentrations exceed the exposure limits specified, use of a NIOSH-approved organic vapor/acid gas cartridge respirator with full facepiece is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

VENTILATION:

General ventilation should be provided to maintain ambient concentrations below nuisance levels. Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

PROTECTIVE CLOTHING:

Chemical-resistant gloves and chemical goggles, face shield and synthetic apron or coveralls should be used to prevent contact with eyes, skin or clothing.

CONTINUED ON PAGE: 4



MATERIAL SAFETY DATA SHEET

PAGE 4

CONTINUATION OF SCWD260H

SECTION 9 SPECIAL PRECAUTIONS

Avoid breathing of vapors and contact with eyes, skin or clothing. Hazardous product residue may remain in emptied container. Do not reuse container without commercial cleaning or reconditioning.

NOTE: Formaldehyde has been identified as a suspect cancer agent by the National Toxicology Program and/or by the International Agency for Research on Cancer (IARC). Review all requirements of the OSHA Formaldehyde Standard (29 CFR 1910.1048) prior to working with this or other formaldehyde containing products.

Although the information and recommendations set forth herein are believed to be correct as of the date hereof, Petrolite makes no representations to the accuracy of such information and recommendations. It is the user's responsibility to determine the suitability and completeness of such information and recommendation for its own particular use. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damages of whatsoever nature resulting from the publication, use of or reliance upon such information and recommendations.

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN, OR ANY USE OR RELIANCE THEREON.



ENVIRONMENTAL DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: SCW0250X

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

NFPA DESIGNATION 704

PRODUCT LABEL CODES

HEALTH (BLUE) = 3
FLAMMABILITY (RED) = 1
REACTIVITY (YELLOW) = 0
SPECIAL HAZARDS = COR

DEGREE OF HAZARD

0 = LEAST
1 = SLIGHT
2 = MODERATE
3 = HIGH
4 = EXTREME

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) inventory.



ENVIRONMENTAL DATA SHEET

PAGE 2

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: SCW0260H

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Ammonium chloride	12125-02-9	5,000	5,340
Formaldehyde	50-00-0	100	7,260
Methanol	67-56-1	5,000	267,000
Hydrochloric acid	7647-01-0	5,000	299,000

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ or TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

SARA TITLE III, SECTION 304: RELEASE REPORTING

EXTREMELY HAZARDOUS SUBSTANCE	CAS NUMBER	RQ, #	RQ, GAL
Formaldehyde	50-00-0	100	7,260



ENVIRONMENTAL DATA SHEET

PAGE 3

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: SCW0260H

SARA TITLE III, SECTION 312: COMMUNITY RIGHT-TO-KNOW

EXTREMELY HAZARDOUS SUBSTANCE	CAS NUMBER	WEIGHT PERCENT
-------------------------------	------------	----------------

Formaldehyde	50-00-0	0.1
--------------	---------	-----

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

Acute (immediate) health hazard
Delayed (chronic) health hazard

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE
LIQUID
EHS: Formaldehyde

SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL	CAS NUMBER	WEIGHT PERCENT
----------	------------	----------------

Formaldehyde	50-00-0	0.1 %
--------------	---------	-------

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A



ENVIRONMENTAL DATA SHEET

PAGE 4

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: SCW0260H

PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT AND THE INFORMATION
CONTAINED HEREIN OR ANY USE OR RELIANCE THEREON. Petrolite shall
not be responsible for any direct, indirect, incidental or
consequential damage of whatsoever nature resulting from the
publication, use of or reliance upon this information.



For assistance in accessing this document, contact: R3-UIC-Mailbox@epa.gov

MATERIAL SAFETY DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A

REVISION DATE: 12/30/91
EMERGENCY PHONE: 1-314-961-3500
CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: OSWD494C

TRADE NAME: TRETOLITE

LABEL: 009
089
000

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)

SHIPPING NAME: Ammonium Bisulfite Solution

HAZARD CLASS: Corrosive Material

ID#: NA2693

CHEMICAL DESCRIPTION

AMMONIUM BISULFITE AND ORGANIC ACID PHOSPHATE ESTERS IN
WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
10192-30-0	Ammonium bisulfite	30-60	Not Established

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY(H₂O = 1.0260 F): 1.304
VAPOR PRESSURE: Not Established

VOLATILITY: N/A
SOL. IN WATER: Soluble

APPEARANCE AND ODOR: Amber liquid. Pungent odor.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >200 F

FLAMMABLE LIMITS: Not Established

FLASH METHOD:

SFCC ASTM D-3828

EXTINGUISHING MEDIA:

Material is non-flammable. Use water spray, foam, CO₂ or any other media suitable for extinguishing materials supporting combustion.

FIRE FIGHTING PROCEDURES:

Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

CONTINUED ON PAGE: 2



For assistance in accessing this document, contact: R3 UIC Mailbox@epa.gov

MATERIAL SAFETY DATA SHEET

PAGE 2

CONTINUATION OF OSW0494C

Non-flammable. Keep fire-exposed containers cool using water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Thermal decomposition or contact with water may liberate sulfur dioxide gas.

SECTION 5 HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:

Sulfur dioxide gas, if liberated, may cause respiratory irritation. Prolonged exposure may cause irritation or burning sensations, coughing, wheezing and shortness of breath. In extreme cases, bronchitis, chemical pneumonitis or pulmonary edema may occur.

SKIN AND EYE CONTACT:

Corrosive! Contact with skin will produce severe irritation or burns with possible in-depth injury. Contact with eyes will result in severe eye irritation or burns and, if not immediately removed, may lead to permanent eye damage.

INGESTION:

Corrosive! Causes severe irritation or burns to the mouth and gastrointestinal tract. In extreme cases may cause kidney and liver damage.

EMERGENCY AND FIRST AID PROCEDURES:

If contacted, wash skin immediately with soap and water. Remove contaminated clothing and wash before reuse. If irritation or burns develop, consult a physician. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician. If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe. If ingested, induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician immediately.

SECTION 6 REACTIVITY DATA

STABILITY:

Avoid temperatures above 122 F to prevent mild decomposition or above 170 F to prevent more serious reactivity.

CONTINUED ON PAGE: 3

CONTINUATION OF DSW0494C

INCOMPATIBILITY:

Do not allow contact with acids, acid salts, ammonia, metals and many organic chemicals. This material reacts violently with reducing agents and may catalytically decompose in the presence of heavy metals such as nickel, cobalt, copper and iron.

HAZARDOUS DECOMPOSITION PRODUCTS:

Oxides of sulfur and nitrogen.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 7 SPILL AND LEAK PROCEDURES**IF MATERIAL IS SPILLED OR RELEASED:**

Small spill - Neutralize with dilute aqueous alkali such as soda ash, lime or limestone, and flush to sewer.

Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to holding container, and neutralize residue with dilute aqueous alkali as above. Release of SO₂ gas may require respirator use.

DISPOSAL METHOD:

If not diluted or neutralized, this material may be classified as hazardous waste by the EPA under authority of RCRA. Federal, state and local regulations should be followed in disposing of this material.

DECONTAMINATION PROCEDURES:

Do not attempt to neutralize large quantities of material unless measures to control reactivity and heat generation have been taken.

SECTION 8 SPECIAL PROTECTION INFORMATION**RESPIRATORY PROTECTION:**

When concentrations exceed the exposure limits specified, use of a NIOSH-approved supplied air respirator with full facepiece is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

VENTILATION:

General ventilation should be provided to maintain ambient concentrations below nuisance levels. Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

CONTINUED ON PAGE: 4

CONTINUATION OF 08W0494C

PROTECTIVE CLOTHING:

Chemical-resistant gloves and chemical goggles, face shield and synthetic apron or coveralls should be used to prevent contact with eyes, skin or clothing.

SECTION 9 SPECIAL PRECAUTIONS

Avoid breathing of vapors and contact with eyes, skin or clothing. Hazardous product residue may remain in emptied container. Do not reuse container without commercial cleaning or reconditioning.

 Although the information and recommendations set forth herein are believed to be correct as of the date hereof, Petrolite makes no representations to the accuracy

of such information and recommendations. It is the user's responsibility to determine the suitability and completeness of such information and recommendation for its own particular use. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damages of whatsoever nature resulting from the publication, use of or reliance upon such information and recommendations.

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN, OR ANY USE OR RELIANCE THEREON.

ENVIRONMENTAL DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: OSW0494C

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

NFPA DESIGNATION 704

PRODUCT LABEL CODES

HEALTH (BLUE) = 3
FLAMMABILITY (RED) = 1
REACTIVITY (YELLOW) = 0
SPECIAL HAZARDS = COR

DEGREE OF HAZARD

0 = LEAST
1 = SLIGHT
2 = MODERATE
3 = HIGH
4 = EXTREME

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) Inventory.



ENVIRONMENTAL DATA SHEET

PAGE 2

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: OSW0494C

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Ammonium bisulfite	10192-30-0	5,000	1,020

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or Substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ or TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

*** NONE ***

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

Acute (Immediate) health hazard

ENVIRONMENTAL DATA SHEET

PAGE 3

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: OSW0494C

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE

LIQUID

SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

***** NONE *****

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT AND THE INFORMATION CONTAINED HEREIN OR ANY USE OR RELIANCE THEREON. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damage of whatsoever nature resulting from the publication, use of or reliance upon this information.

MATERIAL SAFETY DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A

REVISION DATE: 07/08/91
EMERGENCY PHONE: 1-314-961-3500
CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: KC 0370

TRADE NAME: X-CIDE

LABEL: 004
097

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)

SHIPPING NAME: Flammable Liquid, N.O.S.

HAZARD CLASS: Flammable Liquid

ID#: UN1993

CHEMICAL DESCRIPTION

OXYDIETHYLENE BIS (ALKYL DIMETHYL AMMONIUM CHLORIDE) IN
METHANOL AND WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
00067-56-1	Methanol	30-60	ACGIH TLV: 200ppm TWA OSHA PEL: 200ppm TWA ACGIH STEL: 250 ppm
68607-28-3	Oxydiethylene bis(alkyl dimethylammonium chloride)	36	Not Established

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY (H₂O = 1.0060 F): 0.923

VAPOR PRESSURE: Not Established

VOLATILITY: Significant
SOL. IN WATER: Soluble

APPEARANCE AND ODOR: Yellow colored liquid. Alcohol odor.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 80 F

FLAMMABLE LIMITS: Not Established

FLASH METHOD:

SFCC ASTM D-3828

EXTINGUISHING MEDIA:

Use water spray or fog, alcohol-type foam, dry chemical
or CO₂.

CONTINUED ON PAGE: 2



MATERIAL SAFETY DATA SHEET

PAGE 2

***CONTINUATION OF XC D370 ***

FIRE FIGHTING PROCEDURES:

Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode. Flammable. Cool fire-exposed containers using water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Flammable liquid, vapors of which can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back.

SECTION 5 HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:

Prolonged exposure may cause mild irritation of mucous membranes, headache and tiredness. At elevated concentrations, symptoms may include nausea, shortness of breath and a sense of drunkenness. In extreme cases, visual disturbances and ocular damage may occur. Inhalation of mists or exposure to very high vapor concentrations may cause extreme eye, nose and respiratory irritation, and may result in lung damage. Prolonged over-exposure may result in chemical pneumonitis and systemic effects.

INHALATION LC50: 1.05 mg/l (Rat)

SKIN AND EYE CONTACT:

Contact with eyes is corrosive and results in burns and leads to permanent eye damage. Contact with the skin causes mild to moderate irritation. Systemic effects resulting from repeated or prolonged skin absorption may include kidney and liver injury as well as other organ damage.

EYE IRR. SCORE: 4 0=None, 4=Corrosive

SKIN IRR SCORE: 2 0=None, 4=Corrosive

DERMAL LD50: 9.7 g/kg (Rab.)

INGESTION:

Harmful if swallowed. May cause headache, gastrointestinal disturbances, dizziness, and nausea. May result in irritation or burns of mouth and digestive tract. Ingestion of methanol may result in a feeling of intoxication and can cause visual disturbances and, in extreme cases, ocular damage.

CONTINUED ON PAGE: 3



TRETOLITE®
Chemicals and Services

**PRODUCT
INFORMATION**

Tretolite® SCW0260H Scale Preventive

GENERAL DESCRIPTION

Tretolite SCW0260H scale preventive is an aminomethylene phosphonic acid scale inhibitor which was developed especially for use in controlling barium sulfate scaling. It is an excellent inhibitor for control of calcium carbonate deposition and is also useful in inhibiting calcium sulfate deposition.

Tretolite SCW0260H prevents scale formation by both chelation and crystal distortion mechanisms.

APPLICATION

Tretolite SCW0260H scale preventive is recommended for the prevention of barium sulfate, calcium sulfate, and calcium carbonate at concentrations of 10-50 ppm. This treatment range depends on the severity of the problem and the water characteristics. It is suitable for use in either squeeze applications or in continuous type treatments. Product characteristics include:

- Cost effective at low dosage rates.
- Thermally stable at elevated temperatures.
- Completely soluble at use concentrations.
- Easily monitored residual methods.
- Effective for all types of mineral scale control.

SAFETY & HANDLING

Observe warning label on product container. Normal precautions for industrial chemicals apply. Avoid contact with skin, eyes, and clothing. For detailed toxicity and disposal data, consult a material safety data sheet.

TYPICAL PHYSICAL PROPERTIES

Specific gravity, 60°F(16°C)	1.148
Weight, 60°F(16°C) lbs/gal	9.56
Flash point, SFCC	>200°F(93°C)
Pour point	25°F(-4°C)
Viscosity @ 60°F(16°C), SUS	44
Viscosity @ 30°F(-1°C), SUS	70
Solubility	water soluble
Ionic character	anionic
pH (neat)	1.5-2.5

DISTRIBUTION

Tretolite SCW0260H scale preventive is available in drums and bulk quantities from any Petrolite distribution center.



TRETOLITE®
Chemicals and Services

**PRODUCT
INFORMATION**

**Tretolite OSW0494C
Oxygen Scavenger**

GENERAL DESCRIPTION

Tretolite OSW0494C corrosion inhibitor is a liquid oxygen scavenger which effectively removes dissolved oxygen from brine waters. It may be applied to brines containing high levels of calcium where the use of other oxygen scavengers results in the precipitation of calcium sulfite.

APPLICATION

This compound reacts with dissolved oxygen at a rate of 10 ppm for each 1.0 ppm dissolved oxygen. It is recommended for removing dissolved oxygen from oil field brines of salt water disposal systems and waterflood systems.

SAFETY & HANDLING

Observe warning label on product container. Normal precautions for industrial chemicals apply. Chemical pumps used to pump OSW0494C should be constructed of corrosion resistant materials such as 316 stainless steel heads and plungers. Tubing or fittings of brass and copper should be avoided.

TYPICAL PHYSICAL PROPERTIES

Specific gravity, 60°F(16°C)	1.30
Weight, 60°F(16°C)	10.6
Flash point SFCC	200°F(93°C)
Pour Point	less than -40°F(-40°C)
Solubility (brine)	soluble
pH (neat)	5.0

DISTRIBUTION

Tretolite OSW0494C corrosion inhibitor is available in drums and bulk quantities from any Petrolite distribution center.

PETROLITE

TRETOLITE®
Chemicals and Services

**PRODUCT
INFORMATION**

**X-Cide® 370
Industrial Bactericide**

GENERAL DESCRIPTION

X-Cide 370 Industrial Bactericide is a water-soluble, organic nitrogen bactericide designed for bacterial control in non-potable, oil field water systems. It also effectively controls bacterial growth in a wide variety of industrial applications.

APPLICATION

X-Cide 370 is recommended for use in disposal water systems, in water injection systems associated with petrochemical and oil field operations, and in cooling water recirculating systems. This bactericide will control the growth of both aerobic and anaerobic bacteria. It is particularly effective in controlling anaerobic, sulfate reducing bacteria which are responsible for producing hydrogen sulfide.

X-Cide 370 is most effectively applied in slug treatment concentrations up to 500 ppm. Bacterial control can also be maintained by application of 30 to 50 ppm of the product on a continuous basis (1/4 pint per 1000 gallons equals approximately 30 ppm).

SAFETY & HANDLING

X-Cide 370 is a registered biocide. Refer to the container label for precautionary, environmental, first aid, handling, storage and disposal information. This biocide should only be applied as specified. Goggles and impermeable gloves should be worn when handling this product.

TYPICAL PHYSICAL PROPERTIES

Form	liquid
Color	light yellow
Solubility	water soluble
Ionic character	cationic
Specific gravity, 60°F(16°C)	0.923
Weight, 60°F(16°C) lbs/gal	7.702
Flash point, SFCC	80°F(27°C)
Pour point	-40°F(-40°C)
Viscosity @ 100°F	58.6 SUS
Viscosity @ 130°F	45.0 SUS

X-Cide 370 Industrial Bactericide is available in 55 gallon drums or in bulk quantities from any Petrolite distribution center.

DISTRIBUTION

EPA Registration Number 5009-B.

MATERIAL SAFETY DATA SHEET

PAGE 3

***CONTINUATION OF XC 0370 ***

ORAL LD50: 1.7 g/kg (Rat)

EMERGENCY AND FIRST AID PROCEDURES:

If contacted, wash skin immediately with soap and water. Remove contaminated clothing and wash before reuse. If irritation or burns develop, consult a physician. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician. If ingested, DO NOT induce vomiting. If conscious, drink promptly large quantities of water. Call a physician immediately. NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock and convulsion may be necessary. If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.

SECTION 6 REACTIVITY DATA

STABILITY:

Stable under normal conditions of storage and use.

INCOMPATIBILITY:

Keep away from strong oxidizing agents, heat and open flames.

HAZARDOUS DECOMPOSITION PRODUCTS:

Oxides of nitrogen. Hydrochloric acid.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 7 SPILL AND LEAK PROCEDURES

IF MATERIAL IS SPILLED OR RELEASED:

Small spill - Absorb on paper, cloth or other material.
Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to a holding container. Cover residue with dirt, or suitable chemical adsorbent. Use personal protective equipment as necessary.

DISPOSAL METHOD:

This product is a registered industrial antimicrobial product. Please refer to product label for disposal instructions.

CONTINUED ON PAGE: 4

MATERIAL SAFETY DATA SHEET

PAGE 0

CONTINUATION OF XC 0370

DECONTAMINATION PROCEDURES:

Not appropriate.

SECTION 8 SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

When concentrations exceed the exposure limits specified, use of a NIOSH-approved supplied air respirator is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

VENTILATION:

General ventilation should be provided to maintain ambient concentrations below nuisance levels. Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

PROTECTIVE CLOTHING:

Chemical-resistant gloves and chemical goggles, face shield and synthetic apron or coveralls should be used to prevent contact with eyes, skin or clothing.

SECTION 9 SPECIAL PRECAUTIONS

Flammable liquid. Avoid heat, sparks and open flames. Avoid breathing of vapors and contact with eyes, skin or clothing. Keep container closed when not in use. Hazardous product residue may remain in emptied container. Do not reuse empty containers without commercial cleaning or reconditioning. This product is a registered industrial antimicrobial product. Please refer to the product label for drum cleaning instructions.

Although the information and recommendations set forth herein are believed to be correct as of the date hereof, Petrolite makes no representations to the accuracy of such information and recommendations. It is the user's responsibility to determine the suitability and completeness of such information and recommendation for its own particular use. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damages of whatsoever nature resulting from the publication, use of or reliance upon such information and recommendations.

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN, OR ANY USE OR RELIANCE THEREON.



ENVIRONMENTAL DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: XC 0370

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

NFPA DESIGNATION 704

PRODUCT LABEL CODES

HEALTH (BLUE) = 3
FLAMMABILITY (RED) = 3
REACTIVITY (YELLOW) = 0
SPECIAL HAZARDS = COR

DEGREE OF HAZARD

0 = LEAST
1 = SLIGHT
2 = MODERATE
3 = HIGH
4 = EXTREME

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) inventory.



ENVIRONMENTAL DATA SHEET

PAGE 2

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: XC 0370

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Methanol	67-56-1	5,000	1,950

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or Substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ or TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

*** NONE ***

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

Acute (immediate) health hazard



ENVIRONMENTAL DATA SHEET

PAGE 2

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: KC 0370

SARA TITLE III, SECTION 311: HAZARD CATEGORIES (CONT)

Fire hazard

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE
LIQUID

SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL	CAS NUMBER	WEIGHT PERCENT
Methanol	67-56-1	33.3 %

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT AND THE INFORMATION CONTAINED HEREIN OR ANY USE OR RELIANCE THEREON. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damage of whatsoever nature resulting from the publication, use of or reliance upon this information.



TRETOLITE®
Chemicals and Services

**PRODUCT
INFORMATION**

**Tretolite® CLW0016K
Cleaner**

GENERAL DESCRIPTION

Tretolite CLW0016K cleaner is a strong, water soluble, alkaline cleaning detergent that is biodegradable.

It is an all-purpose, general deep-cleaning agent that is especially efficient in removing dried oil deposits. The deep-cleaning action works equally well in hot or cold water applications.

APPLICATION

Tretolite CLW0016K cleaner can be used in the concentrated form for heavy oil deposits, or can be diluted as much as 10 times for light fresh oil deposits. A general recommendation is a one to two dilution ratio. In very hard deposits more than one cleaning may be needed.

SAFETY & HANDLING

Observe warning label on product container. Normal precautions for industrial chemicals apply. Avoid contact with skin, eyes, and clothing. For detailed toxicity and disposal data, consult a material safety data sheet.

TYPICAL PHYSICAL PROPERTIES

Specific gravity, 60°F(16°C)	1.026
Weight, 60°F(16°C) lbs/gal	8.562
Flash point, SFCC	128°F(53°C)
Pour point	32°F(0°C)
pH (5% in water)	12.0

Tretolite CLW0016K cleaner is available in drums and bulk quantities from any Petrolite distribution center.

DISTRIBUTION

PETROLITE CORPORATION
 369 MARSHALL AVE.
 ST. LOUIS MO 63119 U.S.A

REVISION DATE: 11/04/91
 EMERGENCY PHONE: 1-314-961-3500
 CHEMTREC EMER NO: 1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT: CLW0016K

TRADE NAME: TRETOLITE

LABEL: 014
 000
 000

(IF HAZARDOUS PER D.O.T. CFR TITLE 49)
 SHIPPING NAME: Combustible Liquid, N.O.S. (In Bulk D.O.T.)

HAZARD CLASS: Combustible Liquid

ID#: NA1993

CHEMICAL DESCRIPTION

OXYALKYLATED ALKYLPHENOLS, INORGANIC PHOSPHATES AND
 ETHYLENEDIAMINE TETRAACETIC ACID TETRASODIUM SALT IN
 METHANOL, A RED DYE AND WATER.

SECTION 2 HAZARDOUS INGREDIENTS

CAS NUMBER	MATERIAL	%	EXPOSURE LIMITS
09016-45-9	Oxyalkylated alkylphenol	10-30	Not Established
00067-55-1	Methanol	10-30	ACGIH TLV: 200ppm TWA OSHA PEL: 200ppm TWA ACGIH STEL: 250 ppm

SECTION 3 PHYSICAL DATA

SPECIFIC GRAVITY (H20 = 1.0@60 F): 1.026
 VAPOR PRESSURE: Not Established

VOLATILITY: Appreciable
 SOL. IN WATER: Soluble

APPEARANCE AND ODOR: Red liquid. Alcohol odor.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 128 F

FLAMMABLE LIMITS: Not Established

FLASH METHOD:

SFCC ASTM D-3828

EXTINGUISHING MEDIA:

Use water spray or fog, alcohol-type foam, dry chemical
 or CO2.

CONTINUED ON PAGE: 2

CONTINUATION OF CLW0016K

FIRE FIGHTING PROCEDURES:

Use a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode, Combustible. Keep fire exposed containers cool using water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

At elevated temperatures, vapors can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back.

SECTION 5 - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

INHALATION:

Prolonged exposure may cause mild irritation of mucous membranes, headache and tiredness. At elevated concentrations, symptoms may include nausea, shortness of breath and a sense of drunkenness. In extreme cases, visual disturbances and ocular damage may occur.

SKIN AND EYE CONTACT:

Brief, intermittent skin contact may cause moderate to severe irritation resulting in skin rashes. Prolonged contact may cause severe irritation or burns where clothing is confined. Contact with eyes may produce severe irritation or burns with transient eye injury.

INGESTION:

May be harmful if swallowed. May cause gastrointestinal distress with nausea, vomiting and diarrhea. Ingestion of methanol may result in a feeling of intoxication and can cause visual disturbances and, in extreme cases, ocular damage.

EMERGENCY AND FIRST AID PROCEDURES:

Wash skin thoroughly with soap and water. If rash or irritation develops, consult a physician. Launder clothing before reuse. If in eyes, irrigate with flowing water immediately and continuously for fifteen minutes. Consult a physician promptly.
 If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.
 If ingested, induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician immediately.

CONTINUED ON PAGE: 3

CONTINUATION OF CLW0016K

SECTION 6 REACTIVITY DATA**STABILITY:**

Stable under normal conditions of storage and use.

INCOMPATIBILITY:

Keep away from strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:

Oxides of nitrogen and phosphorus.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 7 SPILL AND LEAK PROCEDURES**IF MATERIAL IS SPILLED OR RELEASED:**

Small spill - Absorb on paper, cloth or other material.

Large spill - Dike to prevent entering any sewer or waterway. Transfer liquid to a holding container. Cover residue with dirt, or suitable chemical adsorbent. Use personal protective equipment as necessary.

DISPOSAL METHOD:

Place chemical residues and contaminated adsorbent materials into a suitable waste container and take to an approved hazardous waste disposal site. Dispose of all residues in accordance with applicable waste management regulations.

DECONTAMINATION PROCEDURES:

Not appropriate.

SECTION 8 SPECIAL PROTECTION INFORMATION**RESPIRATORY PROTECTION:**

When concentrations exceed the exposure limits specified, use of a NIOSH-approved supplied air respirator is recommended. Where the protection factor of the respirator may be exceeded, use of a self-contained breathing unit may be necessary.

VENTILATION:

General ventilation should be provided to maintain ambient concentrations below nuisance levels. Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

CONTINUED ON PAGE: 4



CONTINUATION OF CLW0016R

PROTECTIVE CLOTHING:

Chemical-resistant gloves and chemical goggles should be used to prevent skin and eye contact.

SECTION 9 SPECIAL PRECAUTIONS

Avoid heat, sparks and open flames. Avoid breathing of vapors and contact with eyes, skin or clothing. Keep container closed when not in use. Hazardous product residue may remain in emptied container. Do not reuse empty container without commercial cleaning or reconditioning.

Although the information and recommendations set forth herein are believed to be correct as of the date hereof, Petrolite makes no representations to the accuracy of such information and recommendations. It is the user's responsibility to determine the suitability and completeness of such information and recommendation for its own particular use. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damages of whatsoever nature resulting from the publication, use of or reliance upon such information and recommendations.

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN, OR ANY USE OR RELIANCE THEREON.

ENVIRONMENTAL DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: CLMOD16X

The following information is provided for the convenience of Petrolite customers. This Environmental Data Sheet is incorporated into the Material Safety Data Sheet (MSDS) for the Petrolite product named above. When physically attached to the MSDS, this Environmental Data Sheet must not be detached from the MSDS. Any copying or redistribution of the MSDS to which this Environmental Data Sheet is attached must include copying and redistribution of this Environmental Data Sheet as well.

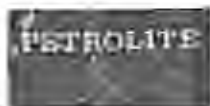
Petrolite makes reasonable efforts to assure the accuracy of this information, but makes no representation or warranty about it. This information is not intended as legal advice nor as a definitive guide to the requirements of applicable laws and regulations.

NFPA DESIGNATION 704

PRODUCT LABEL CODES	DEGREE OF HAZARD
HEALTH (BLUE) = 1	0 = LEAST
FLAMMABILITY (RED) = 2	1 = SLIGHT
REACTIVITY (YELLOW) = 0	2 = MODERATE
SPECIAL HAZARDS =	3 = HIGH
	4 = EXTREME

TSCA INVENTORY

This product, or its components, if a mixture, are on the Toxic Substance Control Act (TSCA) inventory.



ENVIRONMENTAL DATA SHEET

PAGE 2

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: CLW0016K

CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

This Petrolite product contains the following materials which have been listed as a hazardous substance or substances subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and 40 CFR Part 302 and 40 CFR 355.40. The reportable quantities (RQs) are calculated in gallons of product. Each entry corresponds to the RQ, in pounds, of the listed CERCLA hazardous substance.

CHEMICAL	CAS NUMBER	RQ, #	RQ, GAL
Methanol	67-56-1	5,000	5,810
Sodium hydroxide	1310-73-2	1,000	388,000
Potassium hydroxide	1310-58-3	1,000	1,160,000

SARA TITLE III, EXTREMELY HAZARDOUS SUBSTANCES

This Petrolite product contains the following materials which have been listed as an Extremely Hazardous Substance or Substances subject to the emergency planning provisions of SARA Title III, Section 302 and 40 CFR 355.30, the release reporting requirements of SARA Title III, Section 304 and 40 CFR 355.40, and the hazardous chemical reporting/community right-to-know requirements of SARA Title III, Section 312 and 40 CFR Part 370. The reportable quantities (RQs) and threshold planning quantities (TPQs) are calculated in gallons of product. Each entry corresponds to the RQ or TPQ in pounds, as appropriate, for the listed Extremely Hazardous Substances. No data is given for listed Extremely Hazardous Substances present in concentrations below applicable de minimis levels.

*** NONE ***

SARA TITLE III, SECTION 311: HAZARD CATEGORIES

This Petrolite product has been assigned to the following hazard category(ies), as provided by SARA Title III, Section 311 and 40 CFR 370, Subpart A, 370.2:

ENVIRONMENTAL DATA SHEET

PAGE 1

PETROLITE CORPORATION
369 MARSHALL AVE.
ST. LOUIS MO 63119 U.S.A.

REVISION DATE: 01/15/92
CHEMTREC EMER NO: 1-800-424-9300
INFORMATION PHONE: 1-314-961-3500

PRODUCT: CLW0018K

SARA TITLE III, SECTION 311, HAZARD CATEGORIES (CONT)

Acute (immediate) health hazard
Fire hazard

SARA TITLE III, SECTION 312 INVENTORY REPORTING INFORMATION

This Petrolite product has the following physical characteristics for any required reporting on the federal Tier Two form or its equivalent:

MIXTURE
LIQUID

SARA TITLE III, SECTION 313

This Petrolite product contains the following materials which have been listed as a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL	CAS NUMBER	WEIGHT PERCENT
Methanol	67-56-1	10.0 %

PETROLITE EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT AND THE INFORMATION CONTAINED HEREIN OR ANY USE OR RELIANCE THEREON. Petrolite shall not be responsible for any direct, indirect, incidental or consequential damage of whatever nature resulting from the publication, use of or reliance upon this information.

INJECTION PROCEDURES

1. A Fluid Flow and Control Diagram, which describes the proposed injection procedures at the Ball A-1, is submitted for review.
2. The path of the injection fluid, as described in the Fluid Flow and Control Diagram, is as follows:
 - A. A water truck feeds the injection fluid to a centrifugal pump for displacement.
 - B. The injection fluid is chemically treated and displaced through one of two filter housings.
 - C. The chemically treated injection fluid travels through three 400 barrel fiberglass tanks.
 - D. The fluid is treated with additional chemical(s) at the triplex pump inlet line.
 - E. The triplex pump displaces the chemically treated injection fluid.
 - F. Pressure, rate and volume of the chemically treated injection fluid are measured immediately downstream of the injection pumping equipment.
 - G. The chemically treated injection fluid travels through a surface flow line, down injection tubing and casing, through perforations in the casing and into the Weir sandstone.
3. The controls and monitoring equipment of the Fluid Flow and Control Diagram are described in the "Plans for Well Failures" and "Monitoring Program" attachments.
4. Information for tentatively selected treating chemicals is provided in the "Simulation Program" attachment.

CONSTRUCTION PROCEDURES

1. General well data for the Ball A-1 follow:

Virginia Permit #:	1690	Location:	7,820' S 37° 10' 00"
Virginia File #:	BU-0380		11,380' W 82° 02' 30"
API #:	45-027-21690		Vansant 7.5' Quadrangle
Elevation:	GL @ 1923'	Depth:	TD @ 5208'
	KB @ 1933'		PBTD @ 4664'

2. Casing and cementing data for the Ball A-1 follow:

Surface Casing: 13-3/8" 48# H-40 ST&C @ 318' (8 jts)
Cemented w/210 sx Class "A" 3% CaCl₂ 1/4#/sk Floccle
Cement circulated to surface
Casing cemented in place on August 11, 1991

Intermediate Casing: 9-5/8" 36# K-55 LT&C @ 2202' (51 jts)
Cemented w/360 sx Class "A" 6% gel 1/8#/sk Polyflake
Followed w/400 sx Class "A" 2% CaCl₂ 1/8#/sk Polyflake
Cement circulated to surface
Casing cemented in place on August 16, 1991

Injection Casing: 5-1/2" 15.5# K-55 LT&C @ 4709' (108 jts)
Cemented w/290 sx 65/35 Pozmix 6% gel 5% salt
Followed w/190 sx Class "A" 2% CaCl₂
Full returns throughout cement job
Successfully pressure tested casing to 1000 psi for 30 min
Casing cemented in place on August 25, 1991

These casing and cementing programs meet/exceed Virginia DMME Division of Gas and Oil requirements (VR 480-05-22.1 § 2.05) for conventional gas or oil wells.

3. The Ball A-1 was open hole logged with a GR/IND/DEN/NEU/TEMP/SONIC/MICRO/SFL suite on August 23-24, 1991. Log analysis identified the Weir sandstone and the Big Lime limestone for completion testing.
4. The Ball A-1 was cased hole logged with a GR/CCL/CBL/VDL/CET suite on September 5-6, 1991. Log analysis indicated sufficient cement bonding to proceed with completion operations. The top of cement was identified at 2130' RKB.

5. The Ball A-1 5-1/2" casing was perforated in the Weir sandstone as follows: 4486-4492' 13 perforations; 4513-4518' 11 perforations; 4536-4541' 11 perforations. All perforations were 0.45" diameter. The Weir sandstone was fracture stimulated, but was determined to be not commercially productive. Following injectivity testing, this interval was determined to have injection fluid storage potential.
6. The Ball A-1 5-1/2" casing was perforated in the Big Lime limestone 3938-3944' with seven perforations. All perforations were 0.50" diameter. The Big Lime limestone was stimulated with acid, but was determined to be not commercially productive. Following evaluation, this interval was squeezed with cement.

7. Wellbore deviation survey data for the Ball A-1 follow;

Depth of Survey	Degrees From True Vertical	Depth of Survey	Degrees From True Vertical
200'	1/4°	2627'	3/4°
323'	1/4°	2845'	3/4°
500'	1/4°	3094'	3/4°
739'	1/4°	3317'	3/4°
949'	1/2°	3521'	3/4°
1150'	1/2°	3714'	3/4°
1387'	1/2°	3910'	1°
1505'	1/2°	4128'	1°
1642'	1/2°	4306'	1°
1769'	1/4°	4551'	1°
1969'	1/2°	4760'	1-1/4°
2247'	3/4°	5200'	1-1/4°
2440'	1°		

8. The injection tubing for the Ball A-1 will be 2-3/8", 4.7#, J-55, ST&C and internally epoxy coated. The packer, which will isolate the casing-tubing annulus from the injection fluid, will be set at an approximate depth of 4430'.
9. The Ball A-1 casing-tubing annulus fluid will be a corrosion inhibitor type packer fluid from a reputable manufacturer.

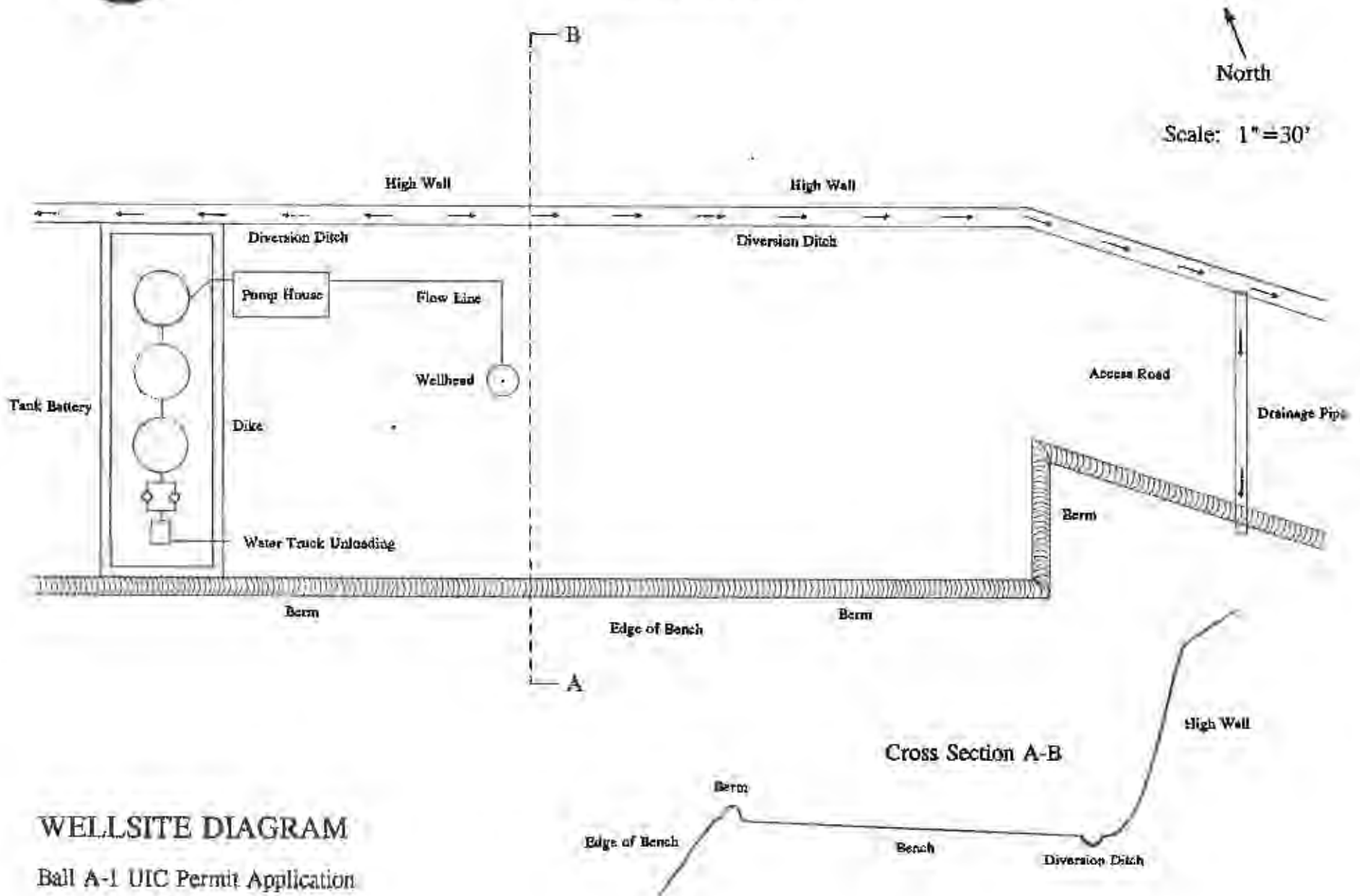
CONSTRUCTION DETAILS

I. The following diagrams are submitted for review:

- A. Ball A-1 Wellsite Diagram - describes proposed wellsite surface construction for injection facilities.
- B. Ball A-1 Wellbore Schematic Current Conditions - describes present subsurface wellbore construction.
- C. Ball A-1 Wellbore Schematic Injection Conditions - describes proposed subsurface wellbore construction.



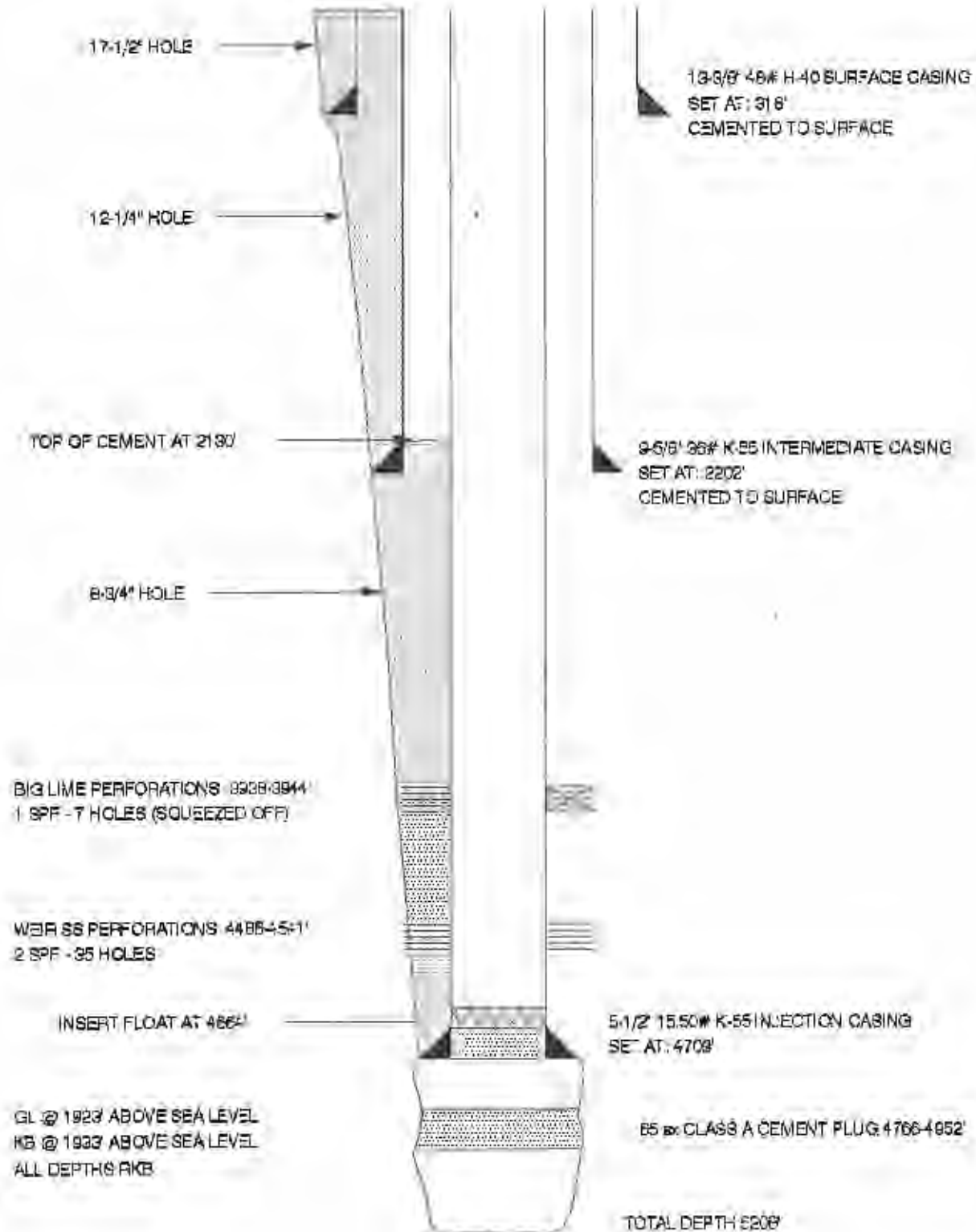
BALL A-1 SWD



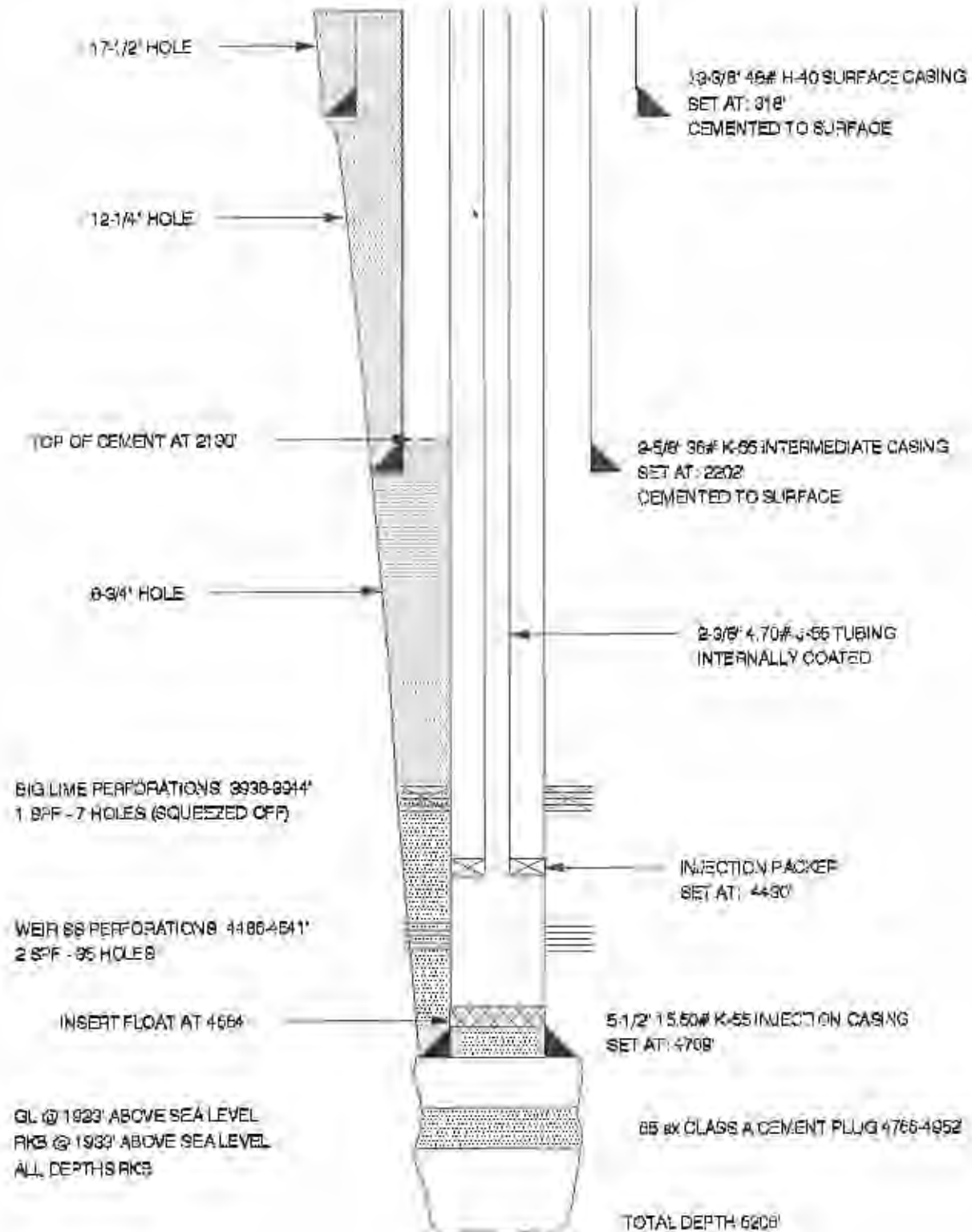
WELLSITE DIAGRAM

Ball A-1 UIC Permit Application

OXY USA INC.
BALL A-1
WELLBORE SCHEMATIC
CURRENT CONDITIONS



OXY USA INC. BALL A-1 WELLBORE SCHEMATIC INJECTION CONDITIONS



PLANS FOR WELL FAILURES

1. Pressure gauges will be positioned at the wellhead to measure the annulus pressure between the 2-3/8" tubing and the 5-1/2" injection casing and the annulus pressure between the 5-1/2" injection casing and the 9-5/8" intermediate casing. Cement was circulated to surface behind the 9-5/8" intermediate casing and behind the 13-3/8" surface casing.
2. A turbine type flow meter will be positioned downstream of the pumping equipment. The flow meter will display the injection flow rate and the cumulative volume of fluid injected.
3. The 2-3/8" tubing pressure will be recorded on a chart, 24 hours a day, seven days a week.
4. Injection pumping equipment will automatically shut-down if high/low injection pressure is encountered. The high pressure shut-down shall be set at approximately 1200 psig. The low pressure shut-down setting shall be determined based upon daily injection operating pressures.
5. If a significant pressure change occurs, injection operations will shut-down and an investigation to determine the source of the pressure change will begin.
6. If a leak is discovered in the wellbore equipment, the leak will be repaired as soon as possible. Injection operations will not resume until the wellbore equipment has been pressure tested successfully.

MONITORING PROGRAM

1. The proposed monitoring program is schematically described in the "Injection Procedures" attachment.
2. OXY USA Inc. coalbed methane wells within a one mile radius of the Ball A-1 will be monitored for any significant increase in water production. No other wells are proposed to be monitored.
3. Pressure gauges will be positioned at the wellhead to measure the annulus pressure between the 2-3/8" tubing and the 5-1/2" injection casing and the annulus pressure between the 5-1/2" injection casing and the 9-5/8" intermediate casing. Cement was circulated to surface behind the 9-5/8" intermediate casing and behind the 13-3/8" surface casing.
4. A turbine type flow meter will be positioned downstream of the pumping equipment. The flow meter will display the injection flow rate and the cumulative volume of fluid injected.
5. The 2-3/8" tubing pressure will be recorded on a chart, 24 hours a day, seven days a week.
6. Injection pumping equipment will automatically shut-down if high/low injection pressure is encountered. The high pressure shut-down shall be set at approximately 1200 psig. The low pressure shut-down setting shall be determined based upon daily injection operating pressures.
7. Injection pumping equipment will automatically shut-down if the injection fluid level in the 400 barrel (16,800 gallon) tank upstream of the injection pumping equipment reaches a preset low level. Thus, the triplex pump will be prevented from losing prime.
8. The centrifugal pump at the tank truck unloading area will automatically shut-down if the injection fluid level in the 400 barrel (16,800 gallon) tank upstream of the injection pumping equipment reaches a preset high level. This will prevent spillage into the tank battery dike containment area caused from overloading the three 400 barrel tanks. A tank truck will not be able to unload injection fluid through the shut-down centrifugal pump.
9. OXY USA Inc. shall demonstrate mechanical integrity of the Ball A-1 according to EPA regulations.



PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY

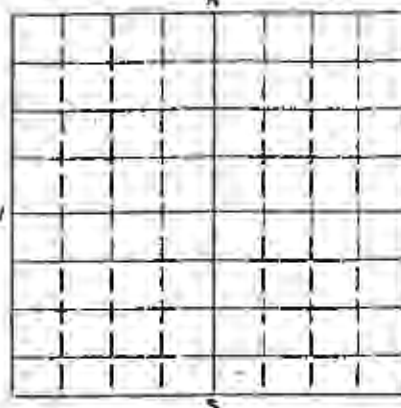
Ball A-1 SWD Well
 Buchanan County, Virginia

NAME AND ADDRESS OF OWNER/OPERATOR

OXY USA Inc.
 P.O. Drawer Q
 Richlands, Virginia 24641

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT - 640 ACRES

Not Applicable



STATE

VA

COUNTY

Buchanan

PERMIT NUMBER

1690

SURFACE LOCATION DESCRIPTION

1/4 OF

not applicable

1/4 OF

1/4 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

7820' S of Lat 37° 10' 00"

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

11,380' W of Long 82° 02' 30"

TYPE OF AUTHORIZATION

- ☒ Individual Permit
☐ Area Permit
☐ Rule

Number of Wells 1

WELL ACTIVITY

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

Lease Name Ball

Well Number A-1

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
13-3/8"	48.00	318	318	17-1/2"
9-5/8"	36.00	2202	2202	13-1/4"
5-1/2"	15.50	4709	2634	8-3/4"
2-3/8"	4.70	4430	0	4.950"

METHOD OF EMPLACEMENT OF CEMENT PLUGS

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

*5-1/2" CASING ID

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)	4.95	4.95	8.921	8.921			
Depth to Bottom of Tubing or Drill Pipe (ft.)	4400	2540	1768	408			
Sacks of Cement To Be Used (each plug)	80	50	50	150			
Slurry Volume To Be Pumped (cu. ft.)	94.4	59.0	59.0	177.0			
Calculated Top of Plug (ft.)	3695	2100	1632	Surface			
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)							

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

From	To	Description	To
5208	4709	Open Hole (Insert Float Valve # 4654)	
4541	4486	Weir Sandstone	
3944	3938	Big Lime (Previously Squeezed)	

Estimated Cost to Plug Wells

\$15,000

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)

Joe H. Crosby
 Vice President and General Manager

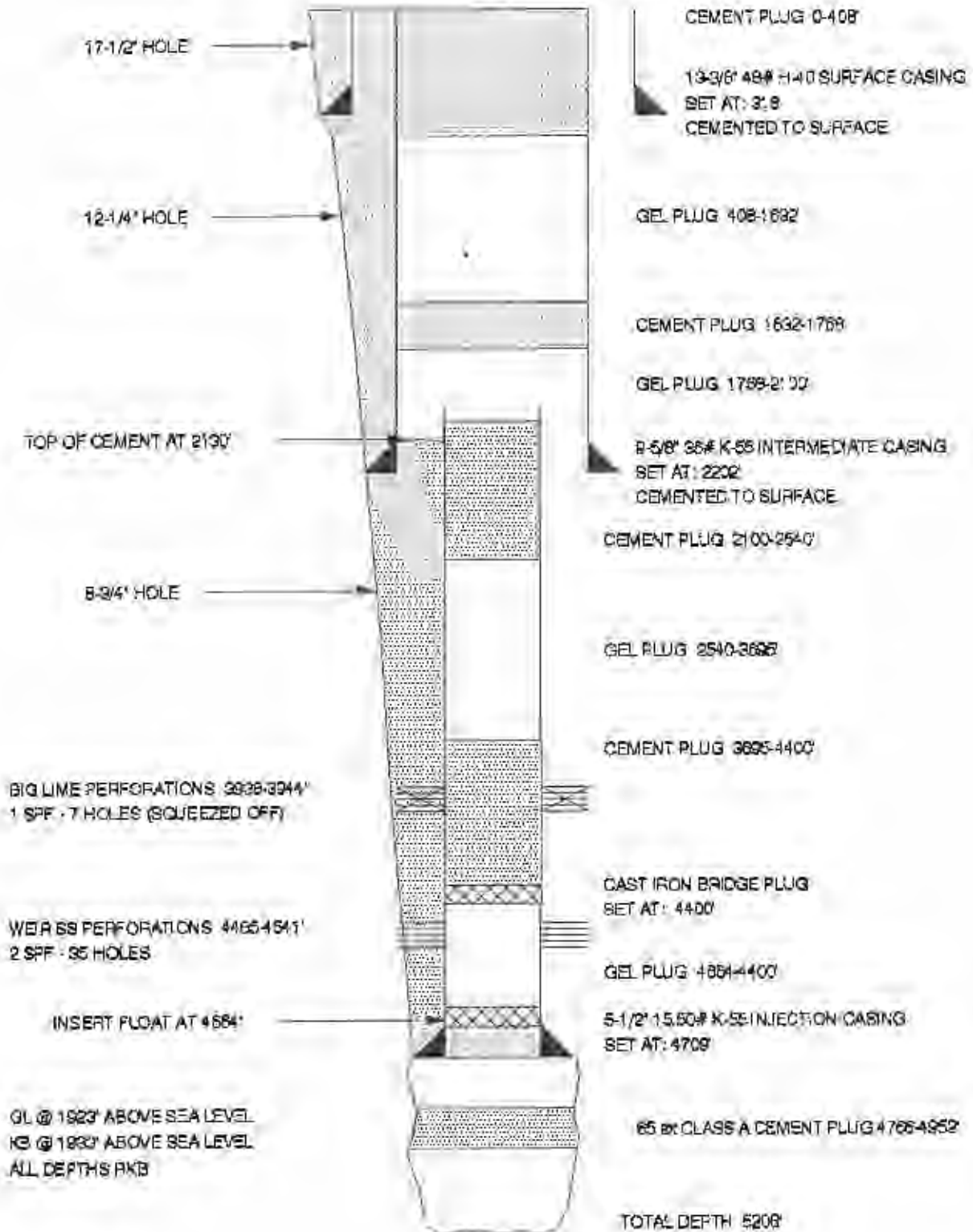
SIGNATURE

Joe H. Crosby

DATE SIGNED

(405) 749-2122

OXY USA INC. BALL A-1 WELLBORE SCHEMATIC PLUG AND ABANDONMENT





BAIL A-1 PLUGGING AND ABANDONMENT PLAN

1. Move in and rig up service rig and cementing equipment.
2. Release injection packer.
3. Run in hole with additional tubing to plug back total depth at 4664'.
4. Mix and pump 400 gallons of 6% bentonite gel. Displace gel down tubing into injection casing at 4264-4664'.
5. Pull tubing and packer out of hole.
6. Run in hole with cast iron bridge plug, setting tool and tubing. Set cast iron bridge plug in injection casing at 4400'.
7. Pull tubing and setting tool out of hole.
8. Fill injection casing with freshwater if necessary. Pressure test cast iron bridge plug and injection casing to 500 psig surface pressure.
9. Run in hole with tubing to immediately above cast iron bridge plug at 4400'.
10. Mix and pump 80 sacks of class A cement with 2% calcium chloride. Displace cement down tubing into injection casing at 4400-3695'.
11. Pull tubing to 3695'.
12. Mix and pump 1155 gallons of 6% bentonite gel. Displace gel down tubing into injection casing at 2540-3695'.
13. Pull tubing to 2540'.
14. Mix and pump 50 sacks of Class A cement with 2% calcium chloride. Displace cement down tubing into injection casing at 2100-2540'.
15. Pull tubing out of hole.

16. Move in and rig up electric wireline unit. Run in hole with jet pipe cutter to 20' above cement at 2080'. Cut off 5-1/2" injection casing. Pull injection casing to determine if pipe has been cut free. Rig down and move out electric wireline unit.
17. Set injection casing at 2079' (one foot above cut).
18. Mix and pump 1010 gallons of 6% bentonite gel. Displace gel down injection casing into intermediate casing at 1768-2079'.
19. Pull injection casing to 1768'.
20. Mix and pump 50 sacks of Class A cement with 2% calcium chloride. Displace cement down injection casing into intermediate casing at 1632-1768'.
21. Pull injection casing to 1632'.
22. Mix and pump 3974 gallons of 6% bentonite gel. Displace gel down injection casing into intermediate casing at 408-1632'.
23. Pull injection casing to 408'.
24. Mix and pump 150 sacks of Class A cement with 2% calcium chloride. Displace cement down injection casing into intermediate casing at 0-408'. Circulate cement to surface.
25. Pull injection casing out of hole. Fill intermediate casing with cement as necessary.
26. Shut in well overnight.
27. Check cement level on following morning. Fill intermediate casing with cement if necessary.
28. Rig down and move out service rig and cementing equipment. Move out recovered tubulars.
29. Reclaim wellsite.

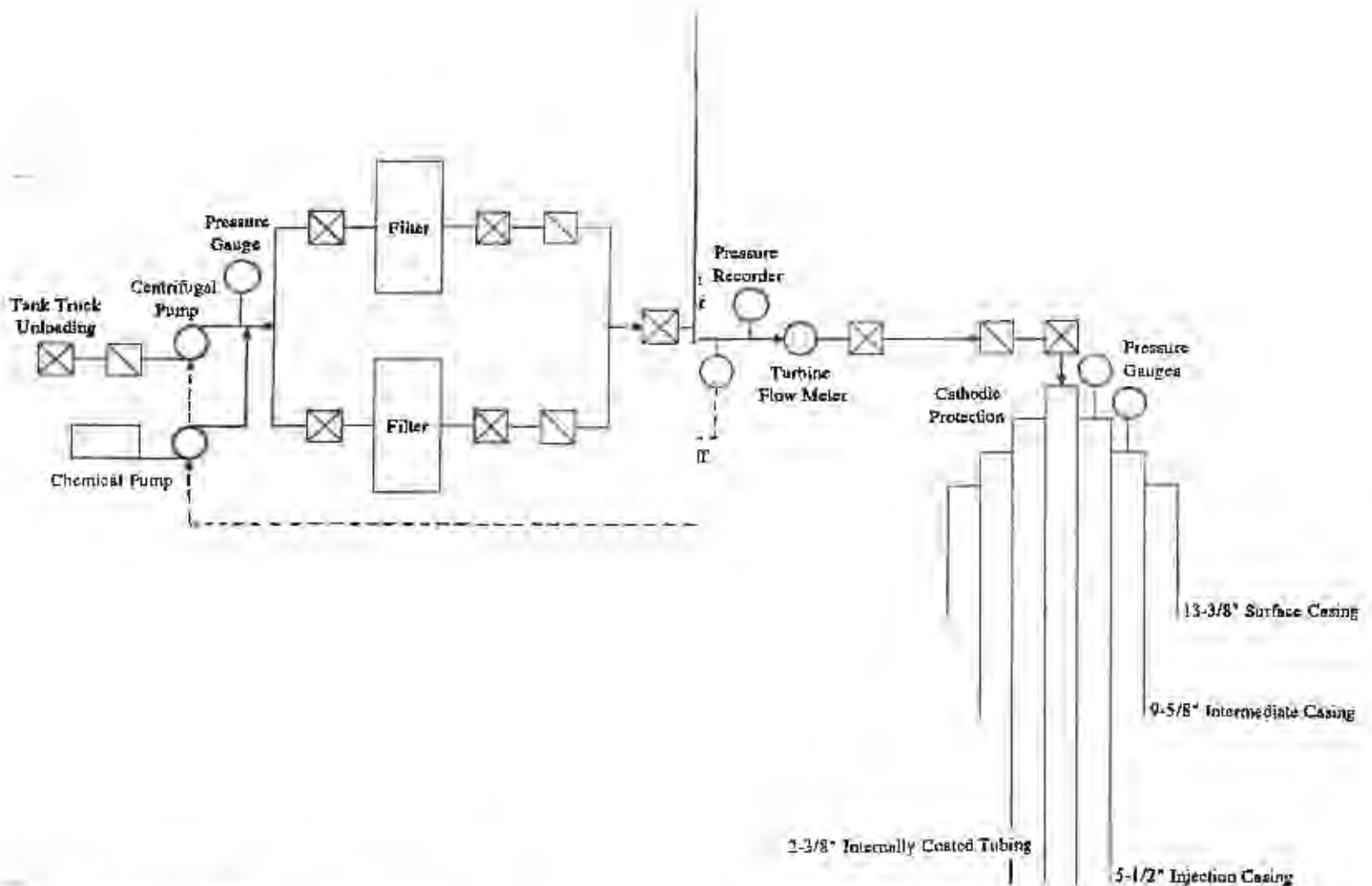
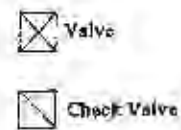
Note: Volumes and depths are approximate. Field conditions may require changes to this plan.

EXISTING EPA PERMITS

1. OXY USA Inc. does not possess any existing EPA permits for its operations in the Commonwealth of Virginia.

DESCRIPTION OF BUSINESS

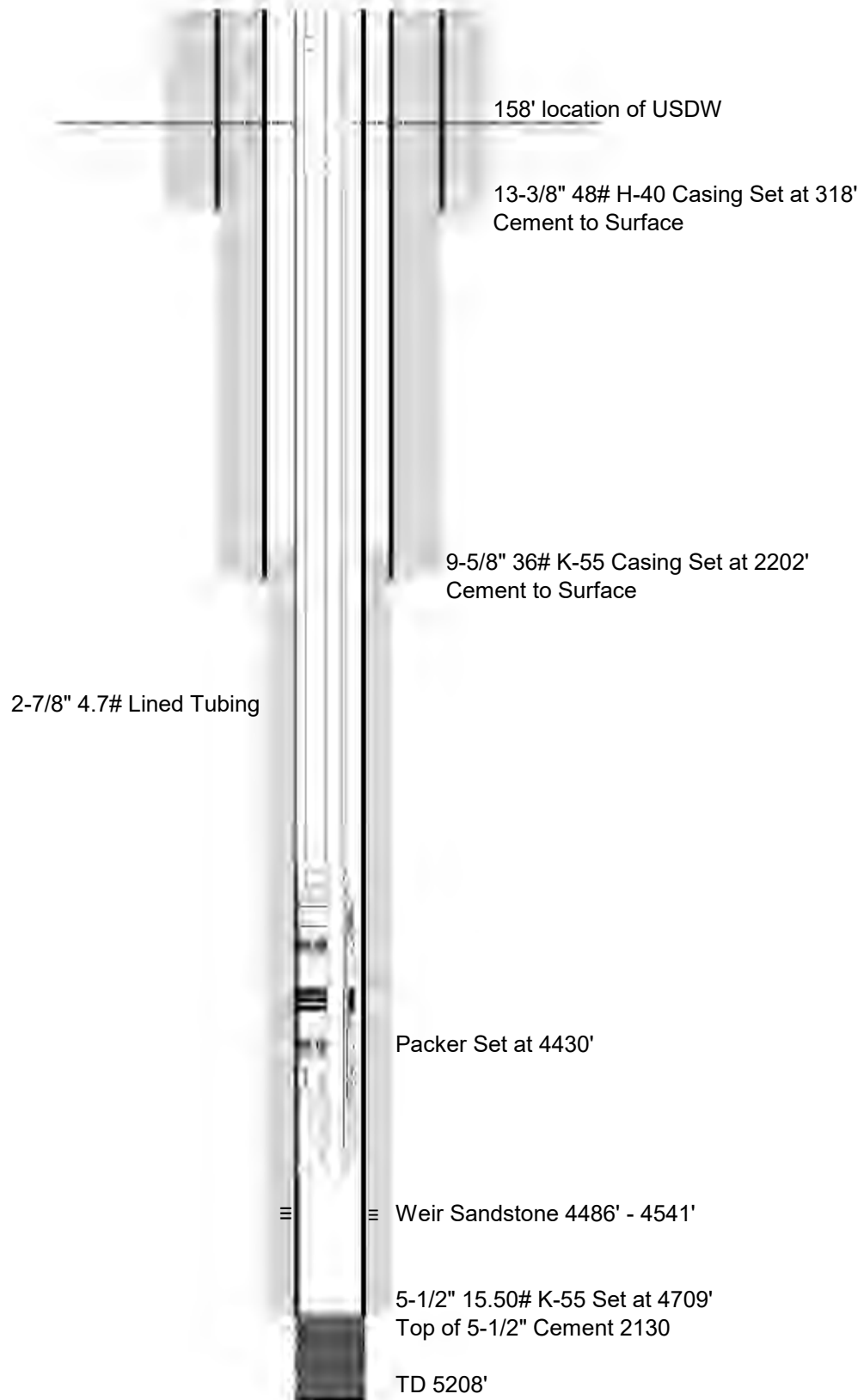
1. OXY USA Inc. is an oil and gas subsidiary of Occidental Petroleum Corporation, a multi-billion dollar energy and chemical company. Occidental Petroleum Corporation is headquartered in Los Angeles, California.
2. OXY USA Inc. is engaged in the exploration and production of oil and gas in the continental United States, Alaska and the Gulf of Mexico. OXY USA Inc. is headquartered in Tulsa, Oklahoma.
3. In 1991, OXY USA Inc. operated 1401 injection wells and 180 disposal wells and handled 695,741 barrels (29,221,122 gallons) of saltwater per day. Approximately ten barrels of saltwater were handled for every barrel of oil.
4. The Mid-Continent Region of OXY USA Inc. has undertaken a large scale project to develop the coalbed methane gas resource in Buchanan County, Virginia. The Mid-Continent Region office is located in Oklahoma City, Oklahoma and the Virginia Operations office is located in Richlands, Virginia.
5. An EPA UIC Class II permit will allow OXY USA Inc. to dispose of fluid from production and gathering operations in an environmentally responsible manner and provide for the economical development of the resource.



USDW

Due to the lack of information in the file for the Ball A-1 the top hole log for CC8A CBM Well, located approximately 732 feet to the East and the same surface elevation, was used to determine the USDW. Interpreting the log, one can see there is sandstone located from surface to 78 ft, a layer low permeability shale located at 78' to 122', and layer of sandstone from 122' to 158'. Below 158', there are layers of low permeability shales and coal. Below 158' there would be no presence of water suitable for drinking.

**Pocahantas Gas LLC
Ball A-1 As Built Schematic
VAS2D21BBUC**





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: 930
 Company: CNX Gas Company LLC
 File Number: BU-3599
 Operations Name: CBM CC8A W/PL
 Operation Type: Coalbed/Pipeline
 Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 9/21/2007 Drilling Contractor: Noah Horn
 Date drilling completed: 9/26/2007 Rig Type: ☒ Rotary ☐ Cable Tool
 Driller's Total Depth (feet): 2,010
 Log Total Depth (feet): 2,011 Coal Seam At Total Depth Pocahontas

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

Permitted State Plane X: 957,079 Final Plat State Plane X: 957,071
 Permitted State Plane Y: 315,384 Final Plat State Plane Y: 315,382

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
Plat	CC8A Plat.pdf

3. Geological Data

Fresh Water At:

Depth (in feet)	Rate	Unit of Measure
1,515	Damp	GPM

Salt Water At:

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

Coal Seams

List of Attached Items:

Description	FileName
Exhibit A	CC8A Exhibit A.pdf

Gas and Oil Shows

List of Attached Items:

Description	FileName
Show Gas	CC8A Gas Show.xls

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

List all logs run: Caliper, Gamma, Density, Temp, Deviation

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
Deviation	CC8A Deviation.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing	CC8A 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: Noah Horn

List of Attached Items:

Description	FileName
Drill Data	CC8A Drill Data.pdf

9. Comments

10. Signature

Permittee: CNX Gas Company LLC Date: 12/13/2007 (Company)

Signed By: Leslie K. Arrington Title: Manager (Signature)

INTERNAL USE ONLY

Submit Date: 12/13/2007

Status: Inspr Approved

Date: 12/21/2007

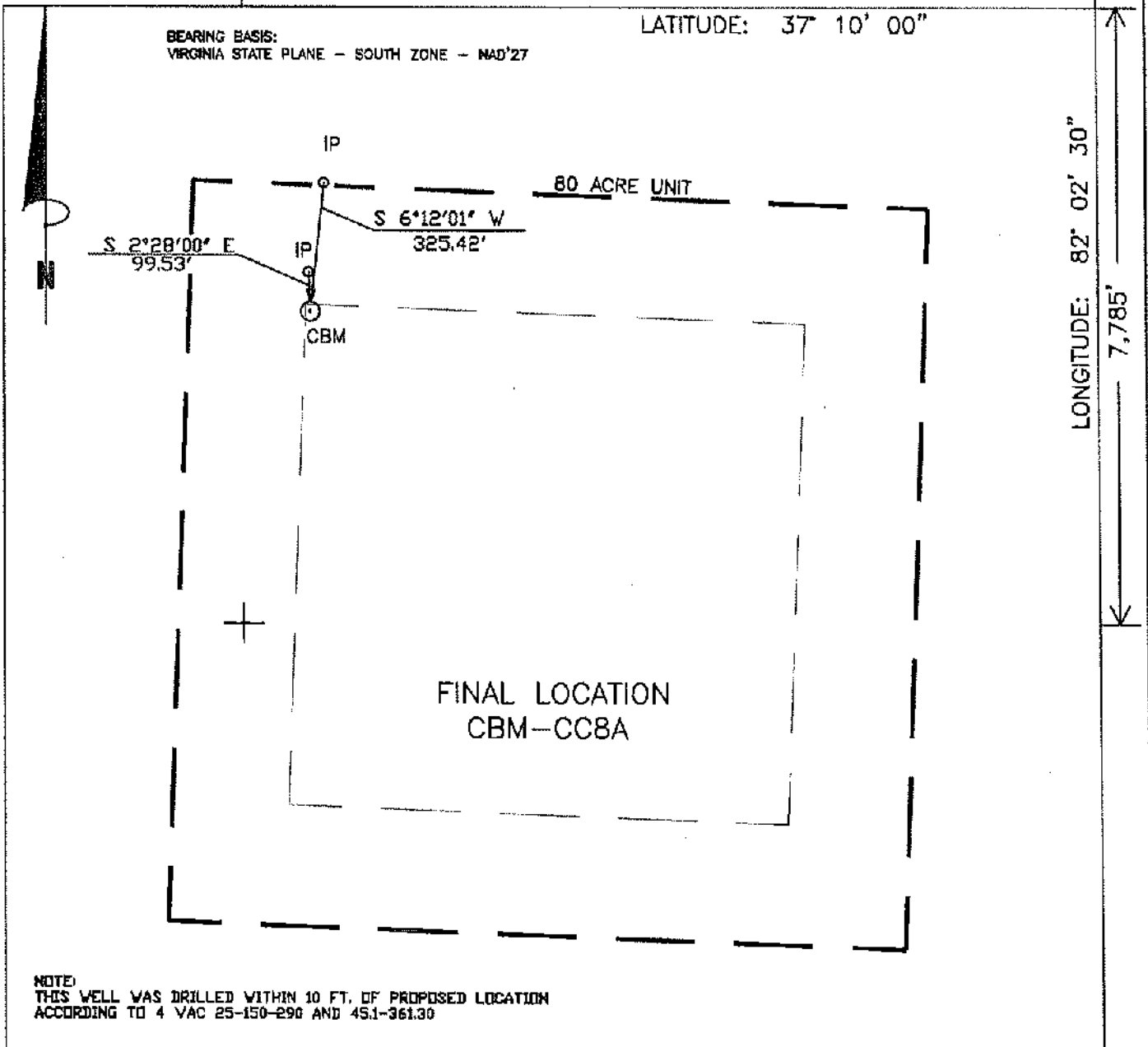
Final PDF Date: 12/28/2007

10,875

BEARING BASIS:
VIRGINIA STATE PLANE - SOUTH ZONE - NAD'27

LATITUDE: 37° 10' 00"

LONGITUDE: 82° 02' 30"
7,785'



WELL LOCATION PLAT

CCBAFNL
7-13/108-588/37

COMPANY CNX GAS COMPANY, LLC. WELL NAME OR NUMBER CBM-CC8A
TRACT NUMBER HARRISON-WYATT QUADRANGLE VANSANT
DISTRICT: HURRICANE

WELL COORDINATES (VIRGINIA STATE PLANE): STATE PLANE: N 315,382.30 E 957,070.63

ELEVATION: 1933.18' METHOD USED TO DETERMINE ELEVATION: BY TRIG. LEVELS FROM CONSOLIDATED INC BM'S
COUNTY BUCHANAN Scale: 1" = 400' Date 10-01-07

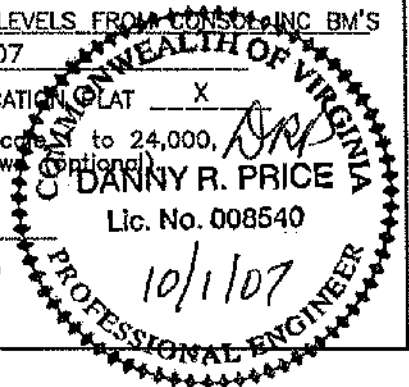
THIS PLAT IS A NEW PLAT ; AN UPDATED PLAT ; OR A FINAL LOCATION PLAT X



Denotes the location of a well on United States Topographic Maps, scale to 24,000, latitude and longitude lines being represented by border lines as shown (optional)

Danny R. Price

Licensed Professional Engineer or Licensed Land Surveyor (Affix Seal)



Well: CC8A

Oil & Gas Show

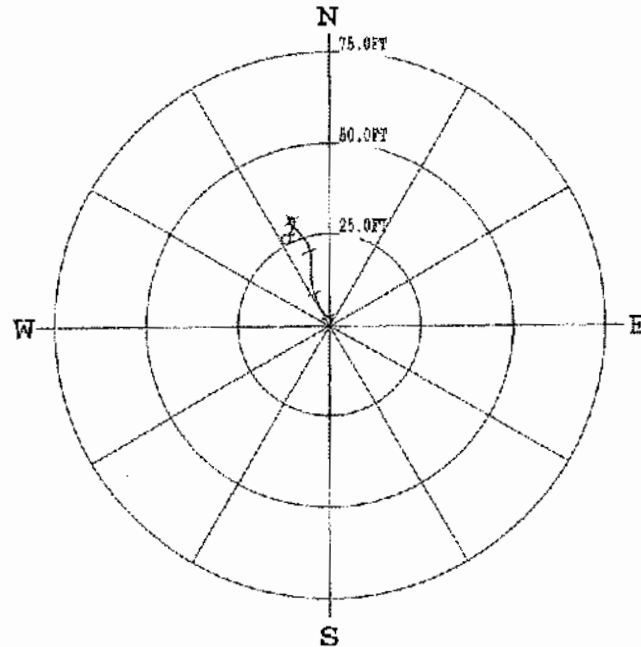
Formation	Top	Bottom	Thickness	IPF (MCFD/BOPD)	Pressure	Hours Tested
Lee/Norton	1199	1303	104			
Pocahontas	1574	1707	133			
Total IPF				61.1		

COMPU-LOG DEVIATION

CLIENT: Consol Energy
LOCATION:
HOLE ID: 07-CNX-CC-8A
DATE OF LOG: 09/26/07
PROBE: 9136CA 962

MAG DECL: -6.9

SCALE: 25 FT/IN
TRUE DEPTH: 2001.82 FT
AZIMUTH: 333.4
DISTANCE: 26.3 FT
+ = 300 FT INCR
O = BOTTOM OF HOLE



***** COMPU-LOG - VERTICAL DEVIATION *****

CLIENT : Consol Energy HOLE ID. : 07-CNX-CC-8A
FIELD OFFICE : DATE OF LOG : 09/26/07
DATA FROM : PROBE : 9136CA , 962
MAG. DECL. : -6.900 DEPTH UNITS : FEET
LOG: 07-CNX-CC-8A_09-26-07_11-08_9136CA_02_-0.02_2002.74_DEVI.log

CABLE DEPTH	TRUE DEPTH	NORTH DEV.	EAST DEV.	DISTANCE	AZIMUTH	SANG	SANGE
50.0	49.98	0.14	0.94	0.9	81.3	1.9	289.1
60.0	59.97	0.36	0.69	0.8	62.6	1.9	318.5
70.0	69.96	0.57	0.43	0.7	37.4	1.9	299.2
80.0	79.96	0.42	0.24	0.5	30.2	1.9	102.8
90.0	89.95	0.64	0.46	0.8	35.8	1.9	47.4
100.0	99.95	0.95	0.59	1.1	32.0	1.9	23.6
110.0	109.94	1.26	0.71	1.4	29.5	1.9	357.4
120.0	119.94	1.39	0.50	1.5	20.0	1.9	202.0
130.0	129.93	1.07	0.41	1.2	21.1	1.9	170.4
140.0	139.93	0.77	0.33	0.8	23.4	1.9	204.7
150.0	149.92	0.50	0.15	0.5	16.7	1.9	202.9
160.0	159.91	0.22	0.25	0.3	48.7	1.9	115.1
170.0	169.91	0.49	0.38	0.6	37.8	1.9	7.4
180.0	179.90	0.81	0.48	0.9	30.5	1.9	18.6
190.0	189.90	1.14	0.54	1.3	25.4	1.9	29.9
200.0	199.89	1.45	0.64	1.6	23.8	1.9	19.4
210.0	209.89	1.76	0.76	1.9	23.3	1.2	65.0
220.0	219.88	1.83	0.68	2.0	20.2	1.2	288.9
230.0	229.88	1.82	0.63	1.9	19.0	0.7	280.0
240.0	239.88	1.79	0.50	1.9	15.5	1.0	224.0
250.0	249.88	1.74	0.36	1.8	11.8	1.1	355.0
260.0	259.88	1.91	0.28	1.9	8.2	1.2	286.0
270.0	269.87	2.06	0.07	2.1	2.0	1.5	305.0
280.0	279.87	2.21	-0.11	2.2	357.3	1.4	299.0
290.0	289.87	2.35	-0.31	2.4	352.4	1.5	303.0
300.0	299.86	2.49	-0.52	2.5	348.3	1.6	298.0
310.0	309.86	2.60	-0.67	2.7	345.6	1.4	237.8
320.0	319.86	2.43	-0.80	2.6	341.8	1.3	252.9
330.0	329.86	2.48	-0.93	2.6	339.3	1.2	14.0
340.0	339.85	2.69	-1.01	2.9	339.5	1.7	304.0
350.0	349.85	2.89	-1.18	3.1	337.8	1.7	354.0
360.0	359.85	2.80	-1.13	3.0	337.9	0.7	160.0
370.0	369.84	2.88	-1.28	3.2	336.0	1.1	349.0

350.0	349.85	2.89	-1.18	3.1	337.9	0.7	160.4
360.0	359.85	2.80	-1.13	3.0	337.9	0.7	160.4
370.0	369.84	2.88	-1.28	3.2	336.0	1.1	349.8
380.0	379.84	3.13	-1.34	3.4	336.8	1.9	329.9
390.0	389.83	3.38	-1.57	3.7	335.1	1.7	327.1
400.0	399.83	3.63	-1.73	4.0	334.5	1.9	328.6
410.0	409.82	3.89	-1.94	4.3	333.5	2.0	319.9
420.0	419.82	4.19	-2.10	4.7	333.3	1.9	329.2
430.0	429.81	4.45	-2.29	5.0	332.8	1.8	325.9
440.0	439.81	4.73	-2.46	5.3	332.5	1.8	329.6
450.0	449.80	4.92	-2.60	5.6	332.2	1.9	312.2
460.0	459.80	5.15	-2.70	5.8	332.3	1.9	345.0
470.0	469.79	5.43	-2.83	6.1	332.4	1.9	332.1
480.0	479.79	5.72	-2.96	6.4	332.6	1.8	345.5
490.0	489.78	6.02	-3.07	6.8	332.8	1.9	342.8
500.0	499.78	6.32	-3.22	7.1	333.0	2.0	336.5
510.0	509.77	6.59	-3.30	7.4	333.4	2.0	178.1
520.0	519.77	6.48	-3.48	7.4	331.7	1.8	293.0
530.0	529.76	6.68	-3.44	7.5	332.8	1.6	43.8
540.0	539.76	7.00	-3.49	7.8	333.5	2.0	336.5
550.0	549.75	7.31	-3.64	8.2	333.5	2.1	337.5
560.0	559.74	7.63	-3.75	8.5	333.9	1.9	343.1
570.0	569.74	7.94	-3.87	8.8	334.0	2.0	345.6
580.0	579.73	8.26	-3.97	9.2	334.3	1.9	329.3
590.0	589.73	8.58	-4.11	9.5	334.4	2.1	335.7
600.0	599.72	8.92	-4.22	9.9	334.7	1.9	344.4
610.0	609.71	9.24	-4.33	10.2	334.9	2.1	351.0
620.0	619.71	9.43	-4.37	10.4	335.1	1.8	350.1
630.0	629.71	9.66	-4.42	10.6	335.4	1.8	330.4
640.0	639.70	9.99	-4.51	11.0	335.7	1.7	347.3
650.0	649.69	10.29	-4.50	11.2	336.4	1.9	33.1
660.0	659.69	10.54	-4.50	11.5	336.8	1.6	303.2
670.0	669.68	10.81	-4.60	11.8	336.9	1.9	2.0
680.0	679.68	11.14	-4.68	12.1	337.2	2.1	350.3
690.0	689.67	11.52	-4.71	12.4	337.8	2.1	356.9
700.0	699.66	11.91	-4.78	12.8	338.1	2.3	345.7
710.0	709.65	12.31	-4.82	13.2	338.6	2.4	352.3
720.0	719.65	12.73	-4.86	13.6	339.1	2.2	355.1
730.0	729.64	13.18	-4.88	14.1	339.7	2.6	359.4
740.0	739.62	13.63	-4.84	14.5	340.5	2.6	360.0
750.0	749.61	14.10	-4.87	14.9	341.0	2.9	0.9
760.0	759.60	14.49	-4.95	15.3	341.1	1.8	331.6
770.0	769.59	14.91	-4.85	15.7	342.0	2.8	356.3
780.0	779.58	15.41	-4.86	16.2	342.5	2.9	6.3
790.0	789.56	15.90	-4.84	16.6	343.1	2.8	0.6
800.0	799.55	16.40	-4.83	17.1	343.6	2.9	352.1
810.0	809.54	16.91	-4.87	17.6	343.9	3.0	2.8
820.0	819.52	17.43	-4.09	18.1	344.3	2.9	358.8
830.0	829.51	17.96	-4.95	18.6	344.6	3.0	350.4
840.0	839.50	18.48	-4.97	19.1	344.9	2.9	8.3
850.0	849.49	18.66	-5.12	19.4	344.7	1.1	27.8
860.0	859.47	19.05	-5.01	19.7	345.3	3.3	6.0
870.0	869.45	19.61	-5.15	20.3	345.3	3.5	332.0
880.0	879.43	19.85	-5.27	20.5	345.1	3.4	233.0
890.0	889.42	19.97	-5.50	20.7	344.6	2.9	335.0
900.0	899.41	20.33	-5.51	21.1	344.8	2.6	74.9
910.0	909.40	20.67	-5.38	21.4	345.4	3.1	340.0
920.0	919.39	21.17	-5.50	21.9	345.4	2.7	343.0
930.0	929.37	21.60	-5.68	22.3	345.3	2.6	335.7
940.0	939.36	22.01	-5.87	22.8	345.1	2.4	330.0
950.0	949.36	22.35	-6.09	23.2	344.7	2.3	326.9
960.0	959.35	22.56	-6.23	23.4	344.6	2.0	328.0
970.0	969.34	22.81	-6.38	23.7	344.7	2.3	331.0
980.0	979.34	23.11	-6.60	24.0	344.1	2.0	313.0
990.0	989.33	23.37	-6.81	24.3	343.8	1.8	332.0
1000.0	999.33	23.61	-7.02	24.6	343.4	2.1	324.0
1010.0	1009.32	23.88	-7.23	25.0	343.2	2.0	308.0
1020.0	1019.31	24.16	-7.46	25.3	342.8	2.2	316.0
1030.0	1029.31	24.44	-7.68	25.6	342.5	2.0	321.0
1040.0	1039.30	24.68	-7.87	25.9	342.3	1.7	2.0
1050.0	1049.30	24.77	-7.98	26.0	342.1	1.2	286.0
1060.0	1059.29	24.96	-8.13	26.3	342.0	1.5	306.0
1070.0	1069.29	25.18	-8.35	26.5	341.6	1.8	313.0
1080.0	1079.28	25.40	-8.57	26.8	341.4	1.8	319.0

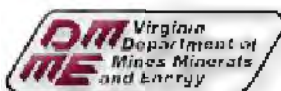
1080.0	1079.28	25.40	-8.57	27.1	341.2	1.7	46.
1090.0	1089.28	25.64	-8.72	27.1	341.2	1.7	46.
1100.0	1099.28	25.77	-8.89	27.3	341.0	1.8	319.
1110.0	1109.27	26.01	-9.39	27.5	340.7	1.6	330.
1120.0	1119.27	26.22	-9.27	27.8	340.5	1.6	319.
1130.0	1129.26	26.44	-9.45	28.1	340.3	1.7	324.
1140.0	1139.26	26.66	-9.64	28.3	340.1	1.7	320.
1150.0	1149.25	26.88	-9.83	28.6	339.9	1.6	320.
1160.0	1159.25	27.10	-9.96	28.9	339.8	1.4	304.
1170.0	1169.25	27.32	-10.13	29.1	339.6	1.6	325.
1180.0	1179.24	27.50	-10.25	29.3	339.6	1.6	328.
1190.0	1189.24	27.72	-10.40	29.6	339.4	2.0	17.
1200.0	1199.23	27.88	-10.53	29.8	339.3	2.3	346.
1210.0	1209.23	28.12	-10.70	30.1	339.2	1.8	327.
1220.0	1219.23	28.38	-10.84	30.4	339.1	1.7	331.
1230.0	1229.22	28.63	-11.00	30.7	339.0	1.9	336.
1240.0	1239.22	28.89	-11.17	31.0	338.9	1.7	326.
1250.0	1249.21	29.15	-11.28	31.3	338.8	1.5	344.
1260.0	1259.21	29.38	-11.42	31.5	338.8	1.7	336.
1270.0	1269.20	29.63	-11.55	31.8	338.7	1.7	2.
1280.0	1279.20	29.62	-11.35	31.7	339.0	0.3	235.
1290.0	1289.20	29.57	-11.32	31.7	339.1	0.8	157.
1300.0	1299.20	29.54	-11.31	31.6	339.1	0.8	153.
1310.0	1309.20	29.43	-11.29	31.5	339.0	0.7	206.
1320.0	1319.20	29.36	-11.38	31.5	338.9	0.7	266.
1330.0	1329.20	29.44	-11.45	31.6	338.7	0.8	5.
1340.0	1339.20	29.53	-11.42	31.7	338.9	0.6	39.
1350.0	1349.20	29.56	-11.32	31.7	339.0	0.7	93.
1360.0	1359.20	29.54	-11.20	31.6	339.2	0.6	105.
1370.0	1369.20	29.48	-11.12	31.5	339.3	0.7	208.
1380.0	1379.19	29.37	-11.22	31.4	339.1	1.0	199.
1390.0	1389.19	29.16	-11.24	31.3	338.9	1.5	180.
1400.0	1399.19	28.94	-11.24	31.0	338.9	1.2	173.
1410.0	1409.19	28.97	-11.24	31.1	338.8	1.2	35.
1420.0	1419.19	29.05	-11.12	31.1	339.0	0.8	72.
1430.0	1429.18	29.11	-10.97	31.1	339.3	0.9	71.
1440.0	1439.18	29.18	-10.82	31.1	339.7	1.0	64.
1450.0	1449.18	29.26	-10.66	31.1	340.0	1.0	66.
1460.0	1459.18	29.34	-10.49	31.2	340.3	1.1	69.
1470.0	1469.18	29.42	-10.30	31.2	340.7	1.2	57.
1480.0	1479.18	29.45	-10.17	31.2	340.9	1.1	208.
1490.0	1489.17	29.28	-10.15	31.0	340.9	1.5	120.
1500.0	1499.17	29.11	-9.94	30.8	341.1	1.5	143.
1510.0	1509.17	28.92	-9.79	30.5	341.3	1.5	139.
1520.0	1519.16	28.75	-9.60	30.3	341.5	1.5	160.
1530.0	1529.16	28.73	-9.69	30.3	341.4	1.0	138.
1540.0	1539.16	28.59	-9.61	30.2	341.4	1.5	141.
1550.0	1549.16	28.39	-9.47	29.9	341.5	1.4	141.
1560.0	1559.15	28.18	-9.36	29.7	341.6	1.2	150.
1570.0	1569.15	27.97	-9.28	29.5	341.6	1.3	161.
1580.0	1579.15	27.79	-9.38	29.3	341.3	1.1	207.
1590.0	1589.15	27.62	-9.44	29.2	341.1	1.1	201.
1600.0	1599.14	27.44	-9.52	29.0	340.9	1.2	207.
1610.0	1609.14	27.27	-9.62	28.9	340.6	1.2	210.
1620.0	1619.14	27.19	-9.65	28.8	340.5	1.1	157.
1630.0	1629.14	27.00	-9.69	28.7	340.3	1.2	187.
1640.0	1639.14	26.79	-9.74	28.5	340.0	1.4	237.
1650.0	1649.13	26.64	-9.84	28.4	339.7	1.0	227.
1660.0	1659.13	26.69	-9.86	28.4	339.7	0.5	217.
1670.0	1669.13	26.53	-9.97	28.3	339.4	1.4	217.
1680.0	1679.13	26.30	-10.02	28.1	339.1	1.7	197.
1690.0	1689.12	26.02	-10.12	27.9	338.7	1.6	197.
1700.0	1699.12	25.74	-10.21	27.7	338.4	1.8	217.
1710.0	1709.11	25.48	-10.34	27.5	337.9	1.7	217.
1720.0	1719.11	25.43	-10.42	27.5	337.7	1.5	117.
1730.0	1729.11	25.29	-10.48	27.4	337.5	1.4	207.
1740.0	1739.10	25.08	-10.58	27.2	337.1	1.2	217.
1750.0	1749.10	24.92	-10.67	27.1	336.8	1.1	217.
1760.0	1759.10	24.81	-10.78	27.1	336.5	1.1	337.
1770.0	1769.10	24.80	-10.78	27.0	336.5	1.0	217.
1780.0	1779.10	24.66	-10.86	26.9	336.2	0.8	217.
1790.0	1789.10	24.54	-10.95	26.9	336.0	0.9	207.
1800.0	1799.10	24.42	-11.02	26.8	335.7	0.8	217.
1810.0	1809.09	24.31	-11.11	26.7	335.4	0.7	227.
			-11.17	26.7	335.3	0.8	237.

1800.0	1799.10	24.42	-11.02	26.8	335.7	0.8	215.0
1810.0	1809.09	24.31	-11.11	26.7	335.4	0.7	223.1
1820.0	1819.09	24.25	-11.17	26.7	335.3	0.6	236.3
1830.0	1829.09	24.25	-11.12	26.7	335.4	0.5	142.3
1840.0	1839.09	24.11	-11.12	26.6	335.2	1.0	209.7
1850.0	1849.09	23.99	-11.20	26.5	335.0	0.9	212.3
1860.0	1859.09	23.87	-11.28	26.4	334.7	0.7	223.5
1870.0	1869.09	23.76	-11.36	26.3	334.4	0.8	220.3
1880.0	1879.09	23.68	-11.46	26.3	334.2	0.9	292.2
1890.0	1889.09	23.62	-11.49	26.3	334.1	0.8	224.5
1900.0	1899.09	23.49	-11.57	26.2	333.8	0.9	205.1
1910.0	1909.08	23.36	-11.65	26.1	333.5	0.9	220.0
1920.0	1919.08	23.31	-11.71	26.1	333.3	0.7	220.5
1930.0	1929.08	23.37	-11.78	26.2	333.3	1.0	330.1
1940.0	1939.08	23.45	-11.77	26.2	333.4	0.5	71.3
1950.0	1949.08	23.47	-11.65	26.2	333.6	0.8	83.0
1960.0	1959.08	23.43	-11.53	26.1	333.8	0.8	181.1
1970.0	1969.08	23.30	-11.60	26.0	333.5	1.0	115.7
1980.0	1979.08	23.42	-11.67	26.2	333.5	0.5	328.0
1990.0	1989.08	23.47	-11.73	26.2	333.5	0.5	300.5
2000.0	1999.08	23.51	-11.79	26.3	333.4	0.5	275.9
2002.7	2001.82	23.51	-11.79	26.3	333.4	0.5	24.3

Well: CC8A

Casing & Tubing Program

	Casing	Casing Interval	Hole Size	Cement used in cu/ft	Cemented to Surface Yes No		Date Cemented	Packers or Bridge Plugs
Conductor	13 3/8"	10'	15"			X	9/24/2007	
Surface	7"	221'	8 7/8"	63.72	X		9/24/2007	bskt @ 88'
Water Protection	4 1/2"	1823.40'	6 1/2"	228.15	X		9/26/2007	
Coal Protection	4 1/2"	1823.40'	6 1/2"	228.15	X		9/26/2007	
Other Casing & Tubing								
Other Casing & Tubing								
Liners								



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: 1093
Company: CNX Gas Company LLC
File Number: BU-3599
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	<u>Coalbed/Pipeline</u>	Date Well Completed:	<u>1/14/2008</u>
Driller's Total Depth:	<u>2010.00</u>	Log's Total Depth:	<u>2011.00</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
Frac	State Report CC-8A.xls

3. Final Production

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

4. Comments

Notes:

5. Signature

Permittee: CNX Gas Company LLC Date: 2/14/2008 (Company)

By: Leslie K. Arrionton Title: Manager (Signature)

INTERNAL USE ONLY

Submit Date: 2/14/2008

Status: _____

Date: 2/26/2008

Final PDF Date: 2/28/2008

Well Number	CC-8A			
Completion Date	01/14/08			
Total Depth	2010			
Permit Number	8438			
	Zone 1	Zone 2	Zone 3	Zone 4
Coals	P32,P31,P42	P52,P51	P92,P91,P10,P113,P11	COAL,UH2,UH1,LS2,SE2
CC-8A	CC-8A	CC-8A	CC-8A	CC-8A
Nitrogen (MSCF)	316	307	32	197
Water (BBLS)	257	198	257	153
Sand (SXS 20/40)	256	101	251	175
Sand (SXS 12/20)	0	58	45	51
Top Perf	1679.5	1573.5	1163	846.5
Bottom Perf.	1707.5	1619.5	1315	1048.5
# Perfs	14	25	12	17
Perf Size	0.45	0.45	0.45	0.45
Break. Press.	3312	3095	2519	3087
Avg. Rate	8.1	6.4	5.3	10.5
ISIP	1245	1484	1109	1184
Min	2	2	2	2
Min Press.	Na	Na	Na	Na
Avg. Press.	2682	2832	3107	2719
Stimulated	Y	Y	Y	Y
Stim. Date	01/14/08	01/14/08	01/14/08	01/14/08
Permittee	CNX GAS			



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: 465
Company: CNX Gas Company LLC
File Number: BU-3335
Operations Name: CBM CC7A W/PL
Operation Type: Coalbed/Pipeline
Drilling Report Type: Original

DRILLING REPORT (DGO-GO-14)

1. Drilling Data

Date drilling commenced: 2/6/2007 Drilling Contractor: Noah Horn
Date drilling completed: 2/9/2007 Rig Type: ☒ Rotary ☐ Cable Tool
Driller's Total Depth (feet): 2,305
Log Total Depth (feet): 2,305 Coal Seam At Total Depth Pocahontas

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

Permitted State Plane X 956,361 Final Plat State Plane X: 956,353
Permitted State Plane Y: 314,322 Final Plat State Plane Y: 314,323

☐ Plat Previously Submitted Or...

List of Attached Items:

Description	FileName
Plat	CC7A 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
Exhibit A	CC7A Exhibit A.doc

Gas and Oil Shows

List of Attached Items:

Description	FileName
Gas Show	CC7A Gas Show.doc

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

List all logs run: Caliper Gamma Density Temp Deviation

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
Deviation	CC7A Deviation.pdf

6. Casing and Tubing Program

List of Attached Items:

Description	FileName
Casing	CC7A Casing.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: Naoh Horn

List of Attached Items:

Description	FileName
Drill Data	CC7A Drill Data.doc

9. Comments

10. Signature

Permitee: CNX Gas Company LLC Date: 6/22/2007 (Company)

Signed By: Leslie K Arrington Title: Manager (Signature)

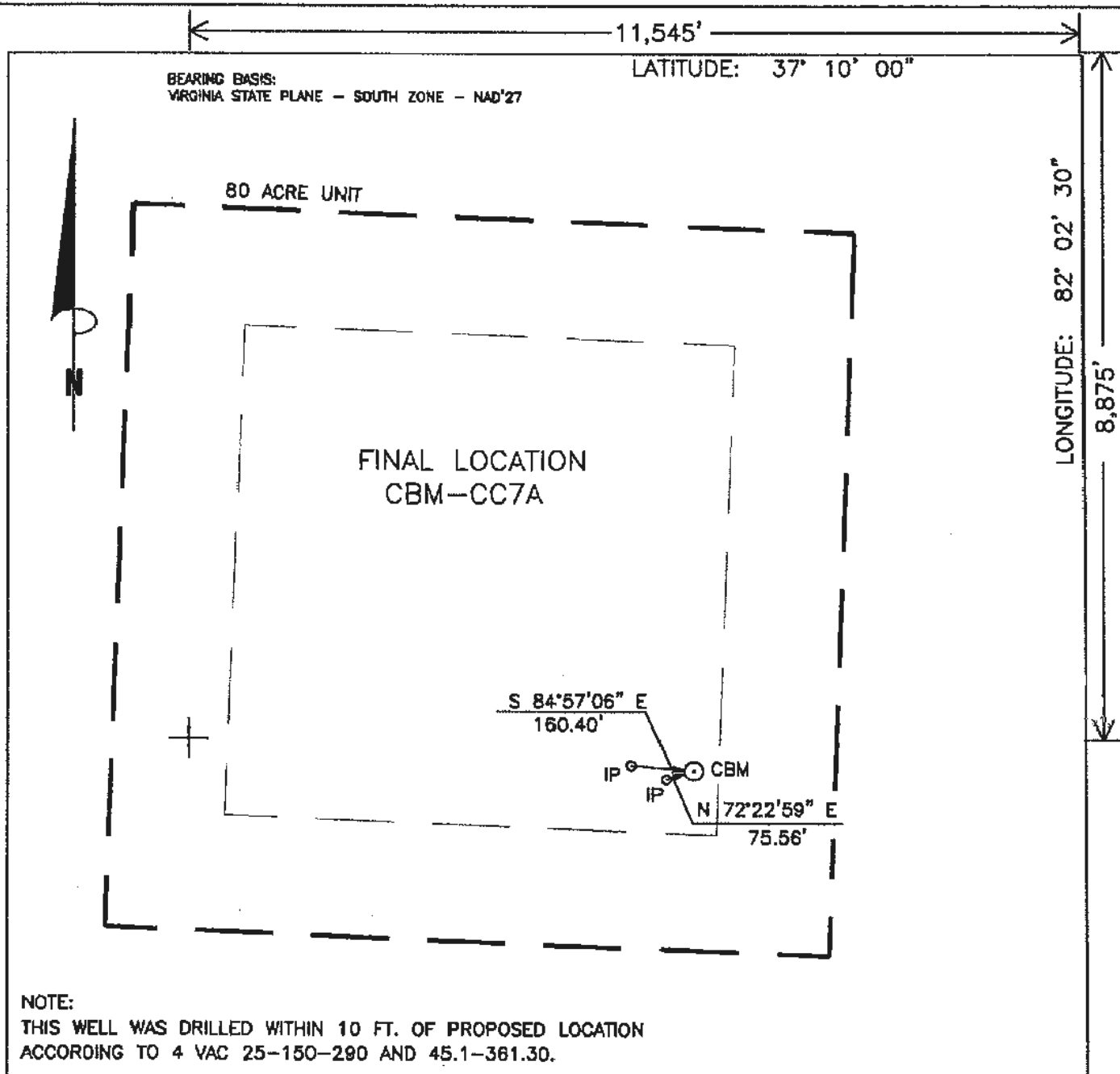
INTERNAL USE ONLY

Submit Date: 6/22/2007

Status: Inspr Approved

Date: 7/3/2007

Final PDF Date: 7/9/2007



WELL LOCATION PLAT

CC7AFNL
7-12/88-494/12

COMPANY CNX GAS COMPANY, LLC. WELL NAME OR NUMBER CBM-CC7A
TRACT NUMBER HARRISON - WYATT QUADRANGLE VANSANT
DISTRICT: HURRICANE

WELL COORDINATES (VIRGINIA STATE PLANE): STATE PLANE: N 314,323.27 E 956,353.34
ELEVATION: 2230.66' METHOD USED TO DETERMINE ELEVATION: BY TRIG. LEVELS FROM CONSOL. INC. BM'S
COUNTY BUCHANAN Scale: 1" = 400' Date 02-16-07

THIS PLAT IS A NEW PLAT ☐; AN UPDATED PLAT ☐; OR A FINAL LOCATION PLAT ☒

+ Denotes the location of a well on United States Topographic Maps, scale 1" = 24,000' latitude and longitude lines being represented by border lines as shown (optional).

DR Price

Licensed Professional Engineer or Licensed Land Surveyor (Affix Seal)

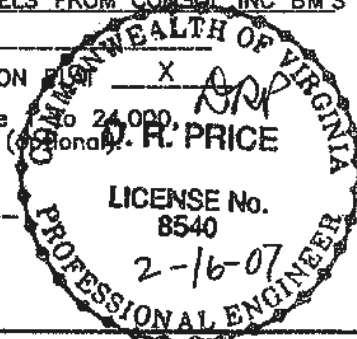


Exhibit A

Well Name: 07 CBM CC7A

SURFACE ELEV: 2230.60 EASTING: 956353.34 NORTHING: 314323.27

SEAM	DEPTH FROM (FT)	DEPTH TO (FT)	ELEVATION (TOSE)	THK. (FT)	REMARKS
COAL	24.80	26.20	2205.80	1.40	
	26.20	46.00	2204.40	19.80	
COAL	46.00	46.90	2184.60	0.90	
	46.90	139.80	2183.70	92.90	
LB1	139.80	141.00	2090.80	1.20	
	141.00	278.20	2089.60	137.20	
KN1	278.20	278.90	1952.40	0.70	
	278.90	293.00	1951.70	14.10	
KN2	293.00	294.50	1937.60	1.50	
	294.50	402.90	1936.10	108.40	
AL1	402.90	403.00	1827.70	0.10	
	403.00	444.50	1827.60	41.50	
AL2	444.50	446.00	1786.10	1.50	
	446.00	519.00	1784.60	73.00	
RA2	519.00	520.80	1711.60	1.80	
	520.80	659.00	1709.80	138.20	
JB1	659.00	660.30	1571.60	1.30	
	660.30	663.10	1570.30	2.80	
JB2	663.10	663.20	1567.50	0.10	
	663.20	687.00	1567.40	23.80	
JB3	687.00	687.90	1543.60	0.90	
	687.90	775.50	1542.70	87.60	
T1	775.50	776.00	1455.10	0.50	
	776.00	796.50	1454.60	20.50	
TI	796.50	796.60	1434.10	0.10	
	796.60	1139.30	1434.00	342.70	
*SE2	1139.30	1139.80	1091.30	0.50	
	1139.80	1181.00	1090.80	41.20	
*LS1	1181.00	1181.10	1049.60	0.10	
	1181.10	1252.90	1049.50	71.80	
*UH1	1252.90	1254.60	977.70	1.70	
	1254.60	1485.60	976.00	231.00	
*113	1485.60	1485.70	745.00	0.10	
	1485.70	1492.00	744.90	6.30	
*P10	1492.00	1492.40	738.60	0.40	
	1492.40	1603.30	738.20	110.90	
*P91	1603.30	1604.80	627.30	1.50	
	1604.80	1611.70	625.80	6.90	
*P92	1611.70	1612.00	618.90	0.30	
	1612.00	1703.90	618.60	91.90	
*P71	1703.90	1704.00	526.70	0.10	
	1704.00	1909.60	526.60	205.60	
*P52	1909.60	1909.70	321.00	0.10	
	1909.70	1980.80	320.90	71.10	
*P42	1980.80	1981.80	249.80	1.00	
	1981.80	2020.30	248.80	38.50	
*P31	2020.30	2022.00	210.30	1.70	

	2022.00	2023.20	208.60	1.20
*P32	2023.20	2023.30	207.40	0.10
	2023.30	2032.40	207.30	9.10
*P34	2032.40	2032.50	198.20	0.10
	2032.50	2045.30	198.10	12.80
*P35	2045.30	2045.40	185.30	0.10
	2045.40	2305.18	185.20	259.78

COAL SEAMS TO BE STIMULATED WERE ADJUSTED DUE TO THE GAS
WELL'S PROXIMITY TO HURRICANE CREEK.

GAMMA-CALIPER LOG FROM 0 TO 220.00

GAMMA-DENSITY LOG FROM 220.00 TO TD.

NOTE: FOOTAGE NOT ADJUSTED FOR DEVIATION

FILE: D:\PROJECTS\VP_JJK\GAS\CC7A.CMP

DATE: 02/23/07

Oil & Gas Show

FORMATION	TOP	BOTTOM	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
Lee/Norton	1253	1605	352			
Pocahontas	1981	2022	41			
Total				11.1		

Casing & Tubing Program

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface		Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
					Yes	No		
Conductor	13 3/8"	20'	15"			X	2/6/07	
Surface	7"	220'	8 7/8"	61	X		2/7/07	Basket @ 131'
Water Protection	4 1/2"	2082.9'	6 1/2"	321	X		2/9/07	
Coal Protection	4 1/2"	2082.9'	6 1/2"	321	X		2/9/07	
Other Casing And Tubing Left In Well								
Liners								

DRILL DATA HOLE-NOAH HORN WELL DRILLING, INC

COMPANY: CNX

HOLE #: CC-7A

LOCATION: LITTLE HURRICANE

DRILL RIG #: 90

DATE STARTED: 02-06-07

DATED COMPLETED: 02-09-07

ELECTRIC LOGGED: YES

GROUTED: YES

DEPTH		THICKNESS	STRATA	REMARKS
FROM	TO	FT	DESCRIPTION, VOIDS ETC	
0	20	20		
20	30	10	SAND	
30	60	30	SAND/SHALE	
60	150	90	SAND/SHALE/COAL	
150	240	90	SAND/SHALE	
240	265	25	SAND/SHALE	
265	295	30	SAND/SHALE/COAL	
295	385	90	SAND/SHALE	
385	415	30	SAND/SHALE/COAL	
415	505	90	SAND/SHALE	
505	535	30	SAND/SHALE/COAL	
535	595	60	SAND/SHALE	
595	625	30	SAND/SHALE/COAL	
625	655	30	SAND/SHALE	
655	685	30	SAND/SHALE/COAL	
685	775	90	SAND/SHALE	
775	805	30	SAND/SHALE/COAL	
805	865	60	SAND/SHALE	
865	895	30	SAND/SHALE/COAL	
895	955	60	SAND/SHALE	
955	985	30	SAND/SHALE/COAL	
985	1015	30	SAND/SHALE	
1015	1045	30	SHALE	
1045	1075	30	SHALE/SAND	
1075	1135	60	SAND/SHALE	
1135	1195	60	SHALE/COAL/SHALE	
1195	1225	30	SHALE/SAND	
1225	1255	30	SAND	
1255	1285	30	SAND/SHALE	
1285	1315	30	SHALE/COAL/SHALE	
1315	1345	30	SAND	
1345	1375	30	SAND/SHALE	
1375	1435	60	SAND	
1435	1465	30	SAND/SHALE	
1465	1495	30	SHALE/COAL/SHALE	
1495	1525	30	SAND/SHALE	
1525	1555	30	SAND/SHALE	
1555	1585	30	SHALE/COAL/SHALE	
1585	1615	30	SHALE/COAL/SHALE	
1615	1645	30	SHALE/SAND	
1645	1705	60	SAND/SHALE	
1705	1735	30	SHALE/COAL/SHALE	

1735	1765	30	SHALE/SAND
1765	1775	10	
1775	1795	20	SAND/SHALE/COAL
1795	1825	30	SAND/SHALE
1825	1855	30	SAND
1855	1885	30	SAND/SHALE
1885	1915	30	SAND/SHALE/COAL
1915	1945	30	SAND/SHALE
1945	1975	30	SAND/SHALE/COAL
1975	2025	50	SAND/SHALE
2025	2028	3	COAL P-3
2028	2035	7	SAND/SHALE
2035	2095	60	SAND/SHALE/COAL
2095	2125	30	SAND/SHALE
2125	2185	60	SAND
2185	2215	30	SAND
2215	2245	30	SAND/SHALE
2245	2275	30	SAND
2275	2305	30	SAND/SHALE

2305.00 FT. TOTAL DEPTH
20.00 FT. OF 13 3/8" CASING
219.95 FT. OF 7" CASING
2082.90 FT. OF 4 1/2" CASING



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: 519
Company: CNX Gas Company LLC
File Number: BU-3335
Operations Name: CBM CC7A W/PL
Operation Type: Coalbed/Pipeline
Completion Report Type: Original

COMPLETION REPORT (DGO-GO-15)

Well Type:	Coalbed/Pipeline	Date Well Completed:	4/18/2007
Driller's Total Depth:	2,305	Log's Total Depth:	2,305

1. Changes In Casing/Tubing from Approved Drilling Report

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

2. Stimulation Record

☒ Stimulated ☐ Not Stimulated ☐ Gob

Description	FileName
Frac	State Report CC7A.xls

3. Final Production

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

4. Comments

Notes:

5. Signature

Permittee: CNX Gas Company LLC Date: 7/17/2007 2:19:11 PM (Company)

By: Leslie K Arrington Title: Manager (Signature)

INTERNAL USE ONLY

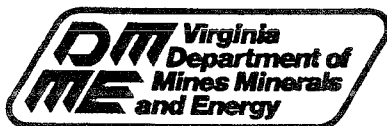
Submit Date: 7/17/2007

Status: Inspr Approved

Date: 10/9/2007

Final PDF Date: 11/5/2007

Well Number	CC7A				
Completion Date	04/18/07				
Total Depth	2491.72				
Permit Number	6569-01				
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Coals	P31,P42	P91,UH1,SE2			
CC7A	CC7A	CC7A			
Nitrogen (MSCF)	253	286			
Water (BBLS)	190	181			
Sand (SXS 20/40)	100	150			
Sand (SXS 12/20)	51	51			
Top Perf	1980.5	1139			
Bottom Perf.	2022	1605			
# Perfs	12	16			
Perf Size	0.45	0.45			
Break. Press.	2303	2086			
Avg. Rate	7.5	7.3			
ISIP	1326	1296			
Min	2	2			
Min Press.	Na	Na			
Avg. Press.	2893	2750			
Stimulated	Y	Y			
Stim. Date	04/18/07	04/18/07			
Permittee	CNX GAS				



Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (540) 676-5423

Operations Name: CBM-CC7

Permit Number: 4622

DRILLING REPORT

ATTACH A FINAL LOCATION PLAT AS REQUIRED BY 4 VAC 25-150-360.C.

DRILLING DATA

Date drilling commenced: September 12, 2000 Drilling Contractor: GASCO
Date drilling completed: September 14, 2000 Rig Type: X Rotary Cable Tool
Total Depth of Well: 2348.10 ft

GEOLOGICAL DATA - no data available

Fresh Water at Feet GPM/Inch Stream Feet GPM/Inch Stream
Feet GPM/Inch Stream Feet GPM/Inch Stream
Salt Water at Feet GPM/Inch Stream Feet GPM/Inch Stream
Feet GPM/Inch Stream Feet GPM/Inch Stream

Coal Seams

NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA		MINED OUT
				YES	NO	
See DGO-GO-14, Exhibit A						

Gas and Oil Shows

FORMATION	TOP	BOTTOM	THICKNESS	IPF (MCFD/BOPD)	PRESSURE	HOURS TESTED
Pocahontas	893.00'	2348.10'	1455.10'			

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

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

ELECTRIC LOGS AND SURVEYS

List logs ran on wellbore: Gamma, Caliper, Resistivity, Deviation

Did logs disclose vertical location of a coal seam? X Yes _____ No

SURVEY RESULTS

Depth Of Survey	Direction/Distance/ Degrees From True Vertical	Depth Of Survey	Direction/Distance Degrees From True Vertical
See Deviation Survey			

Use additional sheets as necessary

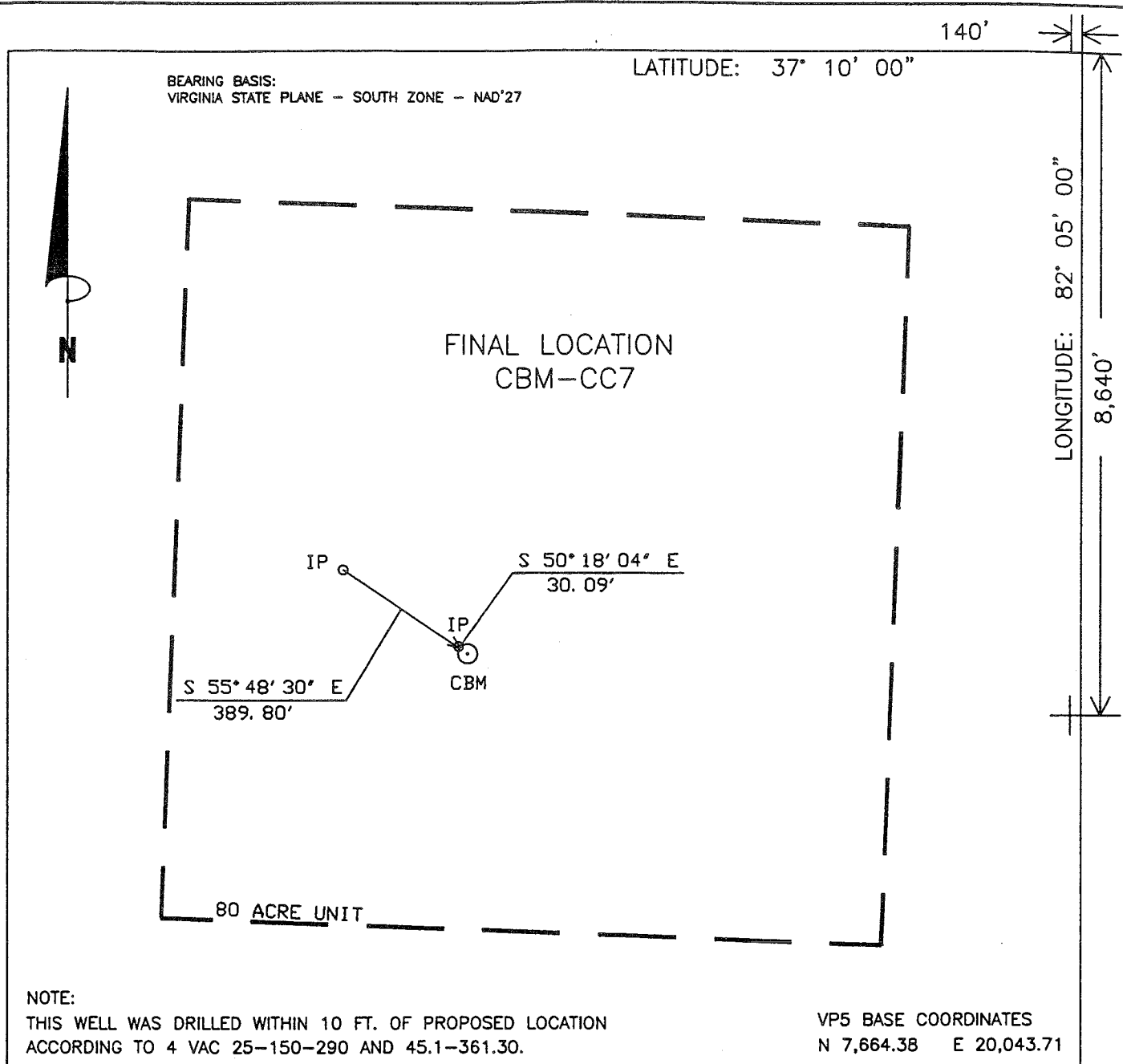
CASING AND TUBING PROGRAM

	Casing	Casing Interval	Hole Size	Cement Used In Cu/Ft	Cemented To Surface Yes No		Date Cemented	Packers Or Bridge Plugs Kind/Size/Set
Conductor	12 ½"	0-21'	15"	2	X		09-12-00	
Surface	12 ½"	0-21'	15"	2	X		09-12-00	
Water Protection	4 ½"	0-2197.80'	6 ½"	205	X		09-14-00	
Coal Protection	4 ½"	0-2197.80'	6 ½"	205	X		09-14-00	
Other Casing And Tubing Left In Well	7"	0-222.35'	8 7/8"	50	X		09-12-00	Basket at 88'
Liners								

REMARKS: Shut down fishing jobs, depths and dates, caving, lost circulation, etc.: _____
 Baskets set at 88'. _____

Permittee: CONSOL Inc. (Company)

By: Lester L. Armstrong (Signature)



WELL LOCATION PLAT

VP8 CC7FNL
7/195 - 9901/41

COMPANY CONSOL INC WELL NAME OR NUMBER CBM-CC7
TRACT NUMBER BIG AXE QUADRANGLE VANSANT
DISTRICT: HURRICANE

WELL COORDINATES (VIRGINIA STATE PLANE): STATE PLANE N 314,601.06 E 955,627.40
ELEVATION: 2337.81' METHOD USED TO DETERMINE ELEVATION: BY TRIG. LEVELS FROM CONSOL INC BM'S
COUNTY BUCHANAN Scale: 1" = 400' Date 09-13-00
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 (optional).

D. Price

Licensed Professional Engineer or Licensed Land Surveyor (Affix Seal)

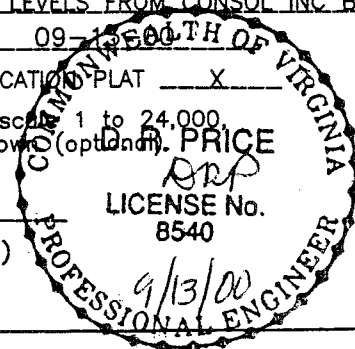


Exhibit A

Well Name: 00-BPC-CC-7

SURFACE ELEV: 2337.81 EASTING: 955627.40 NORTHING: 314601.06

SEAM	DEPTH FROM (FT)	DEPTH TO (FT)	ELEVATION (TOSE)	THK. (FT)	REMARKS

COAL	38.70	39.50	2299.11	0.80	
	39.50	87.70	2298.31	48.20	
HG1	87.70	88.80	2250.11	1.10	
	88.80	166.00	2249.01	77.20	
SD1	166.00	166.40	2171.81	0.40	
	166.40	180.40	2171.41	14.00	
SD2	180.40	181.00	2157.41	0.60	
	181.00	246.00	2156.81	65.00	
UB1	246.00	247.00	2091.81	1.00	
	247.00	385.00	2090.81	138.00	
KN1	385.00	386.20	1952.81	1.20	
	386.20	396.10	1951.61	9.90	
KN2	396.10	398.10	1941.71	2.00	
	398.10	506.00	1939.71	107.90	
AL1	506.00	506.50	1831.81	0.50	
	506.50	548.80	1831.31	42.30	
AL2	548.80	550.30	1789.01	1.50	
	550.30	625.20	1787.51	74.90	
RA2	625.20	627.00	1712.61	1.80	
	627.00	761.00	1710.81	134.00	
JB1 C8	761.00	762.50	1576.81	1.50	
	762.50	764.00	1575.31	1.50	
JB1	764.00	765.00	1573.81	1.00	
	765.00	784.00	1572.81	19.00	
JB2	784.00	785.00	1553.81	1.00	
	785.00	872.00	1552.81	87.00	
T1	872.00	872.80	1465.81	0.80	
	872.80	892.10	1465.01	19.30	
TI	892.10	893.00	1445.71	0.90	
	893.00	983.20	1444.81	90.20	
US1	983.20	983.90	1354.61	0.70	
	983.90	1237.90	1353.91	254.00	
SE2	1237.90	1239.00	1099.91	1.10	
	1239.00	1275.90	1098.81	36.90	
*LS1	1275.90	1277.00	1061.91	1.10	
	1277.00	1348.10	1060.81	71.10	
*UH1	1348.10	1350.60	989.71	2.50	
	1350.60	1398.20	987.21	47.60	
*UH2	1398.20	1398.90	939.61	0.70	
	1398.90	1551.60	938.91	152.70	
*P11	1551.60	1552.20	786.21	0.60	
	1552.20	1579.80	785.61	27.60	
*P10	1579.80	1580.60	758.01	0.80	
	1580.60	1587.10	757.21	6.50	
*COAL L41	1587.10	1588.00	750.71	0.90	
	1588.00	1631.30	749.81	43.30	
*LH3 2	1631.30	1632.00	706.51	0.70	
	1632.00	1694.80	705.81	62.80	
*P91	1694.80	1696.10	643.01	1.30	
	1696.10	1724.60	641.71	28.50	

*P93	1724.60	1726.00	613.21	1.40
	1726.00	1803.10	611.81	77.10
*P71	1803.10	1804.30	534.71	1.20
	1804.30	2005.90	533.51	201.60
*P52	2005.90	2006.50	331.91	0.60
	2006.50	2064.00	331.31	57.50
*P41	2064.00	2064.90	273.81	0.90
	2064.90	2065.00	272.91	0.10
*P42	2065.00	2066.50	272.81	1.50
*P42	2066.50	2067.90	271.31	1.40
	2067.90	2119.70	269.91	51.80
*P31	2119.70	2120.50	218.11	0.80
	2120.50	2122.70	217.31	2.20
*P32	2122.70	2123.20	215.11	0.50
	2123.20	2138.60	214.61	15.40
*P34	2138.60	2139.40	199.21	0.80
	2139.40	2153.30	198.41	13.90
*P35	2153.30	2154.00	184.51	0.70
	2154.00	2187.30	183.81	33.30
*P21	2187.30	2188.10	150.51	0.80
	2188.10	2348.10	149.71	160.00

NOTE: FOOTAGE NOT ADJUSTED FOR DEVIATION
 COAL SEAMS TO BE STIMULATED WERE ADJUSTED DUE TO THE GAS
 WELL'S PROXIMITY TO LEFT FORK OF HURRICANE CREEK.
 GAMMA-CALIPER LOG FROM 0 TO 201.10
 GAMMA-DENSITY LOG FROM 201.10 TO 2193.74
 GAMMA-CALIPER LOG FROM 2193.74 TO TD.

FILE: C:\GAS\CC7.CMP

DATE: 09/20/00



Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Gas and Oil
P.O. Box 1416; Abingdon, VA 24212
Telephone: (540) 676-5423

Permit Number: CBM CC-7

COMPLETION REPORT

Well type: ☐ Oil ☐ Gas ☒ Coalbed Methane ☐ Injection Well
Date Well Completed: 09-22-00 Total Depth: 2347.6'

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 (Use additional sheets with this format, if more than three zones are stimulated.)

ZONE 1: See Attachment Formation Stimulated With:
Perforated To No. of Perforations Perforation Size
Formation Broke down at: PSIG Average Injection Rate: (PSIG)
ISIP (PSIG) MIN (PSIG) Average Downhole Injection Pressure (PSIG)
SIP.
Stimulated: ☐ Yes ☐ No Date Stimulated:

ZONE 2: Formation Stimulated With:
Perforated To No. of Perforations Perforation Size
Formation Broke down at: PSIG Average Injection Rate: (PSIG)
ISIP (PSIG) MIN (PSIG) Average Downhole Injection Pressure (PSIG)
SIP.
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: (PSIG)
ISIP (PSIG) MIN (PSIG) Average Downhole Injection Pressure (PSIG)
SIP.
Stimulated: ☐ Yes ☐ No 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 MCFD Hours Tested

 PS16 Hours Tested

Permittee: CONSOL Inc. (Company)
By: *Justin K. Army* (Signature) Date: 11-1-00

Well Number CC-7
 Completion Date 9/22/00
 Total Depth 2347.6
 Permit Number 4622

	Zone 1	Zone 2	Zone 3
Coals	P3-5,P3-4,P3-2,P3-1,P4-2	P5-2,P7-1,P9-3,P9-1	LH3,Coal,P10,P11,UH2,UH1,LS1
Treatment			
Nitrogen (MSCF)	403	334	332
Water (BBLs)	226	242	229
Sand (SXS 16/30)	505	490	300
Top Perf	2064	1695	1276
Bottom Perf.	2155	2007	1633
# Perfs	40	32	60
Perf Size	0.45	0.45	0.45
Break. Press.	2306	1290	1536
Avg. Rate	20	22	21
ISIP	1354	1117	3460
Min	5	5	5
Min Press.	1093	881	2483
Avg. Press.	1759	2386	2511
Stimulated	Y	Y	Y
Stim. Date	9/22/00	9/22/00	9/22/00

Permittee BPC

Part IV Table 2: Summary of well Information

Well Name	Operator	API	Total Depth	Date Drilled	Status of Well	Well Type
CC7	Pocahontas Gas LLC	450270187500	2348.00	9/14/2000	Producing	Coalbed/Pipeline
CC7A	Pocahontas Gas LLC	450270333500	2305.00	2/9/2007	Producing	Coalbed/Pipeline
CC8A	Pocahontas Gas LLC	450270359900	2010.93	9/26/2007	Producing	Coalbed/Pipeline

**Well Data
Services**

DIGITAL COMPUTER LOG

07-CNXC-8A

COMPANY	Consol Energy	OTHER SERVICES
WELL	07-CNXC-8A	0019c1
LOCATION/FIELD		
COUNTY	Buchanan	STATE : Virginia

LICENSE #		
UNIQUE WELL ID		
LONGITUDE		
LATITUDE		
SECTION	TOWNSHIP	RANGE

DATE	09/24/07	LOG BOTTOM	: 241.09
PERMANENT DATUM		LOG TOP	: -5.29
ELEVATION KB		BOREHOLE FLUID	: Water
ELEVATION DF		MUD RES	: 0
ELEVATION GL	: 1934.0	RM TEMPERATURE	: 0
LOG MEASURED FROM	: GL	MAX TEMP	: 0
DRL MEASURED FROM	: GL	MAGNETIC DECL	: -6.9
DEPTH DRILLER	: 240.0	MATRIX DENSITY	: 2.71
BIT SIZE	: 8.875	NEUTRON MATRIX	: Sandstone
CASING DRILLER	: 10.0	MATRIX DELTA T	: 54
CASING DIAMETER	: 13	ELECT CUTOFF	: 10000
CASING THICKNESS	: .25	LOGGING UNIT	: 110
CASING TYPE	: Steel	WITNESSED BY	: J. Stultz
TYPE	: 0019C1	RECORDED BY	: J. Stultz

REMARKS 1

REMARKS 2

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

