

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED  
OMB NO. 1004-0135  
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.  
NMNM0315713

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

**SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator  
COG OPERATING LLCContact: KELLY J HOLLY  
E-Mail: kholly@concho.com

HOBBS OCT

8. Well Name and No.

BRANEX-COG FEDERAL COM 27H

3a. Address  
600 W ILLINOIS AVE  
MIDLAND, TX 797013b. Phone No. (include area code)  
Ph: 432-685-4384

DEC 21 2015

9. API Well No.  
30-025-4100610. Field and Pool, or Exploratory  
MALJAMAR YESO WEST

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 9 T17S R32E SWSW 1025FSL 330FWL

RECEIVED

11. County or Parish, and State

LEA COUNTY, NM

## 12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

## TYPE OF SUBMISSION

## TYPE OF ACTION

☒ Notice of Intent☐ Subsequent Report☐ Final Abandonment Notice☐ Acidize☐ Alter Casing☐ Casing Repair☐ Change Plans☐ Convert to Injection☐ Deepen☐ Fracture Treat☐ New Construction☐ Plug and Abandon☐ Plug Back☐ Production (Start/Resume)☐ Reclamation☐ Recomplete☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☒ Other  
Change to Original APD

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC respectfully requests permission to change the BHL of this well as follows:

FROM:  
SHL 1025 FSL & 330 FWL Sec 9, T17S, R32E, UL M  
BHL 990 FSL & 330 FEL Sec 9, T17S, R32E, UL PTO:  
SHL 1025 FSL & 330 FWL Sec 9, T17S, R32E, UL M  
BHL 990 FSL & 990 FWL Sec 10, T17S, R32E, UL M**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

A revised C-102, Directional Plan &amp; Production casing and cement program are attached.

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #291194 verified by the BLM Well Information System  
For COG OPERATING LLC, sent to the Hobbs  
Committed to AFMSS for processing by LINDA JIMENEZ on 03/17/2015 ()

Name (Printed/Typed) KELLY J HOLLY

Title PERMITTING TECH

Signature (Electronic Submission)

Date 02/10/2015

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

APPROVED  
PETROLEUM ENGINEER

DEC 15 2015

Kenneth Rennie

BUREAU OF LAND MANAGEMENT  
CARLSBAD FIELD OFFICE

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\*

JAN 06 2016





Rennick, Kenneth &lt;krennick@blm.gov&gt;

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**Branex - COG Federal Com - 27H - API 30-02541006: EC291194 Sundry Notification**

8 messages

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**Rennick, Kenneth** <krennick@blm.gov>  
To: kholly@concho.com

Mon, Dec 14, 2015 at 2:57 PM

Hello Ms. Kelly Holly,

I hope you are getting ready for the Holidays!!

I am working on a Sundry Notification for the subject proposed well. The notification is requesting that the BHL be change from 990 FSL & 330 FEL to 990 FSL & 990 FWL. During my evaluation, I noticed that a proposed vertical wellbore has a location that will be within 5-feet of the proposed horizontal wellbore's lateral as described in notification.

The information on this proposed vertical wellbore follows:

Nelson South Federal #001  
API: 30-025-41190  
Operator: COG Operating LLC  
Location: 990 FSL & 330 FWL, Sec 10, T17S, R32E  
TVD: 7100-feet  
Received 2-Year Extension on 9/21/2015

Because the close approximately, I am requesting that COG Operating LLC do a review on this situation.

As well as please advise on how you want me to proceed. A possible situation is to withdraw the Sundry Notification or the proposed vertical wellbore.

Thank You Greatly!!!

Best Regards,

Kenneth Rennick

--  
Kenneth Rennick

Petroleum Engineer  
Bureau of Land Management  
Carlsbad Field Office  
(575) 234-5964  
[krennick@blm.gov](mailto:krennick@blm.gov)

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**Rennick, Kenneth** <krennick@blm.gov>  
To: Robyn Odom <ROdom@concho.com>, kholly@concho.com

Mon, Dec 14, 2015 at 3:21 PM

Hello Ms. Robyn Odom,

I sent this message to Kelly Holly, but I received an Out of Office reply. I was wondering if you can provide any assistance on this matter.

Thank You Greatly!!!

Kenneth Rennick  
[Quoted text hidden]

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**Robyn Odom** <ROdom@concho.com>

Mon, Dec 14, 2015 at 3:30 PM

To: "Rennick, Kenneth" <krennick@blm.gov>, Kelly Holly <KHolly@concho.com>

Hey Kenneth,

We will not be drilling the Nelson South Federal wells. I was not able to cancel the APD extension requests before they were approved. If you need me to cancel the APDs for those wells before you can approve this sundry please let me know and I will get those submitted today or tomorrow.

Thank you,

Robyn Odom

(432) 685-4385

Rodom@concho.com

**From:** Rennick, Kenneth [mailto:krennick@blm.gov]

**Sent:** Monday, December 14, 2015 4:21 PM

**To:** Robyn Odom; Kelly Holly

**Subject:** [External] Fwd: Branex - COG Federal Com - 27H - API 30-02541006: EC291194 Sundry Notification

\*\*\*\* External email. Use caution. \*\*\*\*

[Quoted text hidden]

CONFIDENTIALITY NOTICE: The information in this email may be confidential and/or privileged. If you are not the intended recipient or an authorized representative of the intended recipient, you are hereby notified that any review, dissemination or copying of this email and its attachments, if any, or the information contained herein, is prohibited. If you have received this email in error, please immediately notify the sender by return email and delete this email from your system. Thank you.

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**Rennick, Kenneth** <krennick@blm.gov>

Mon, Dec 14, 2015 at 3:40 PM

To: Robyn Odom <ROdom@concho.com>

Cc: Kelly Holly <KHolly@concho.com>

If you may please send the official email to withdraw the APDs that will be greatly appreciated!



Thank You Again! Happy Holidays!

Best Regards,

Kenneth Rennick

[Quoted text hidden]

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**Robyn Odom** <ROdom@concho.com>  
To: "Rennick, Kenneth" <krennick@blm.gov>

Mon, Dec 14, 2015 at 3:48 PM

I just sent you an email requesting the withdraws. Please let me know if that will work. Thank you!

Thank you,

Robyn Odom

(432) 685-4385

[Rodom@concho.com](mailto:ROdom@concho.com)

**From:** Rennick, Kenneth [mailto:[krennick@blm.gov](mailto:krennick@blm.gov)]

**Sent:** Monday, December 14, 2015 4:40 PM

**To:** Robyn Odom

**Cc:** Kelly Holly

**Subject:** Re: [External] Fwd: Branex - COG Federal Com - 27H - API 30-02541006: EC291194 Sundry Notification

[Quoted text hidden]

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**Rennick, Kenneth** <krennick@blm.gov>  
To: Robyn Odom <ROdom@concho.com>

Mon, Dec 14, 2015 at 3:50 PM

Yes that works!

Kenneth Rennick

[Quoted text hidden]

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**Rennick, Kenneth** <krennick@blm.gov>  
To: Robyn Odom <ROdom@concho.com>

Tue, Dec 15, 2015 at 11:31 AM

Hello Again Ms. Robyn Odom,

Thank you again for the information!

I am reviewing the new cement program for the reference Sundry. I just want confirm that the new DV tool setting depth is 4064-feet, which appears to be in the attachment.

Thank You Greatly!!

Kenneth Rennick

[Quoted text hidden]

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**Robyn Odom** <ROdom@concho.com>  
To: "Rennick, Kenneth" <krennick@blm.gov>

Tue, Dec 15, 2015 at 12:49 PM

Hey Kenneth,

I believe that depth is correct.

Thank you,

Robyn Odom

(432) 685-4385

Rodom@concho.com

**From:** Rennick, Kenneth [mailto:krennick@blm.gov]  
**Sent:** Tuesday, December 15, 2015 12:31 PM  
**To:** Robyn Odom

[Quoted text hidden]

[Quoted text hidden]



Rennick, Kenneth &lt;krennick@blm.gov&gt;

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## Withdraw APD

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**Robyn Odom** <ROdom@concho.com>  
To: Kenneth Rennick <krennick@blm.gov>

Mon, Dec 14, 2015 at 3:48 PM

Kenneth,

COG would like to cancel the following APDs due to horizontals covering the locations:

Nelson South Federal #1 (3002541190)

Nelson South Federal #2 (3002541191)

Nelson South Federal #3 (3002541192)

Thank you,

***Robyn Odom***

Regulatory Analyst

COG Operating LLC

One Concho Center

600 W. Illinois Avenue

Midland, Texas 79701

p.432.685.4385

[rodome@concho.com](mailto:rodome@concho.com)



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**BRANEX – COG FEDERAL COM 27H**  
**API: 30-025-41006**  
**COG Operating LLC**  
**Sec. 09, T. 17 S., R. 32 E.**  
**Lea County**

**Original COA still applies except for the replacement of the requirements for the Communitization Agreement that will be associated with the Well, and the cement filled requirement behind the 7 x 5 1/2 production casing. Please see the following:**

**Communitization Agreement:**

1. The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
2. If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
3. In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

**7 x 5 1/2 Production Casing:**

1. The minimum required fill of cement behind the 7 X 5 1/2 inch tapered production casing is:

**Option 1:**

- ☒ Cement to surface. If cement does not circulate refer to the following:
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - c. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Option 2:**

**Operator has proposed DV tool at depth of 4064 feet, but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50 feet below previous shoe and a minimum of 200 feet above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.**

- a. First stage to DV tool:
  - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.
- b. Second stage above DV tool:
  - ☒ Cement to surface. Refer to Option 1 if cement does not circulate. **For the interval of 4064 feet to surface, excess calculates to negative 20% - Additional cement shall be required.**

**KGR 12152015**



DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III  
1000 Rio Bravos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number <b>30-025-41006</b>	Pool Code <b>44500</b>	Pool Name <b>Maljamar Yeso West</b>
Property Code <b>39744</b>	Property Name <b>BRANEX-COG FEDERAL COM</b>	Well Number <b>27H</b>
OGRID No. <b>229137</b>	Operator Name <b>COG OPERATING, LLC</b>	Elevation <b>4059'</b>

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>M</b>	<b>9</b>	<b>17-S</b>	<b>32-E</b>		<b>1025</b>	<b>SOUTH</b>	<b>330</b>	<b>WEST</b>	<b>LEA</b>

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>M</b>	<b>10</b>	<b>17-S</b>	<b>32-E</b>		<b>990</b>	<b>SOUTH</b>	<b>990</b>	<b>WEST</b>	<b>LEA</b>

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
<b>200</b>			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

		<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature:  Date: <b>2-10-15</b></p> <p>Printed Name: <b>Kelly J. Holly</b></p> <p>E-mail Address: <b>kholly@concho.com</b></p>												
<p><b>GEODETIC COORDINATES</b> NAD 27 NME SURFACE LOCATION Y=671425.8 N X=670409.3 E LAT.=32.844604° N LONG.=103.778474° W</p>	<p><b>CORNER COORDINATES TABLE</b> NAD 27 NME</p> <table border="1"> <tr><td>A</td><td>Y=671719.2 N, X=670077.3 E</td></tr> <tr><td>B</td><td>Y=671735.3 N, X=675358.9 E</td></tr> <tr><td>C</td><td>Y=671739.5 N, X=676678.1 E</td></tr> <tr><td>D</td><td>Y=670422.7 N, X=676686.0 E</td></tr> <tr><td>E</td><td>Y=670415.4 N, X=675366.5 E</td></tr> <tr><td>F</td><td>Y=670400.2 N, X=670086.2 E</td></tr> </table>	A	Y=671719.2 N, X=670077.3 E	B	Y=671735.3 N, X=675358.9 E	C	Y=671739.5 N, X=676678.1 E	D	Y=670422.7 N, X=676686.0 E	E	Y=670415.4 N, X=675366.5 E	F	Y=670400.2 N, X=670086.2 E	<p><b>GEODETIC COORDINATES</b> NAD 27 NME BOTTOM HOLE LOCATION Y=671404.2 N X=675030.9 E LAT.=32.844475° N LONG.=103.759130° W</p>
A	Y=671719.2 N, X=670077.3 E													
B	Y=671735.3 N, X=675358.9 E													
C	Y=671739.5 N, X=676678.1 E													
D	Y=670422.7 N, X=676686.0 E													
E	Y=670415.4 N, X=675366.5 E													
F	Y=670400.2 N, X=670086.2 E													
<p><b>GEODETIC COORDINATES</b> NAD 83 NME SURFACE LOCATION Y=671490.2 N X=711587.5 E LAT.=32.844723° N LONG.=103.778979° W</p>	<p><b>CORNER COORDINATES TABLE</b> NAD 83 NME</p> <table border="1"> <tr><td>A</td><td>Y=671783.6 N, X=711255.6 E</td></tr> <tr><td>B</td><td>Y=671799.7 N, X=716537.1 E</td></tr> <tr><td>C</td><td>Y=671803.9 N, X=717856.4 E</td></tr> <tr><td>D</td><td>Y=670487.1 N, X=717864.3 E</td></tr> <tr><td>E</td><td>Y=670479.9 N, X=716544.7 E</td></tr> <tr><td>F</td><td>Y=670464.5 N, X=711264.5 E</td></tr> </table>	A	Y=671783.6 N, X=711255.6 E	B	Y=671799.7 N, X=716537.1 E	C	Y=671803.9 N, X=717856.4 E	D	Y=670487.1 N, X=717864.3 E	E	Y=670479.9 N, X=716544.7 E	F	Y=670464.5 N, X=711264.5 E	<p><b>GEODETIC COORDINATES</b> NAD 83 NME BOTTOM HOLE LOCATION Y=671475.1 N X=717528.8 E LAT.=32.844594° N LONG.=103.759635° W</p>
A	Y=671783.6 N, X=711255.6 E													
B	Y=671799.7 N, X=716537.1 E													
C	Y=671803.9 N, X=717856.4 E													
D	Y=670487.1 N, X=717864.3 E													
E	Y=670479.9 N, X=716544.7 E													
F	Y=670464.5 N, X=711264.5 E													
<p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>Date of Survey: <b>JUNE 13, 2012</b></p> <p>Signature:  Seal of Professional Surveyor: </p> <p>Certificate Number: <b>01/19/2015</b></p> <p>ACK REL W.O. 14.13.1150 JWSC W.O. 15.13.0044</p>		<p><b>ACK REL W.O. 14.13.1150 JWSC W.O. 15.13.0044</b></p>												



COG respectfully request approval to change production casing and cement programs as follows:

## Original production casing proposal:

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
17 1/2"	0-943'	13 3/8"	48#	H-40/J-55 Hybrid	New	ST&C	1.83/1.85/8.17
12 1/4"	943'-2250'	9 5/8"	40#	J/K-55	New	ST&C	1.76/2.20/14.00
8 3/4"	2250'-6173'	7"	26#	L-80	New	LT&C	1.17/1.83/3.70
8 3/4"	6173'-7215'	5 1/2"	17#	L-80	New	LT&C	2.08/2.82/4.36
7 7/8"	7215'-11077'	5 1/2"	17#	L-80	New	LT&C	2.08/2.82/4.36

## New production casing proposal:

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Coupling	Burst	Collapse	Tension
17 1/2"	0-943'	13 3/8"	48#	H-40/J-55 Hybrid	New	ST&C	1.48	1.71	7.11
12 1/4"	943'-2250'	9 5/8"	40#	J/K-55	New	LT&C	1.32	2.2	5.78
8 3/4"	2250'-5779'	7"	26#	L-80	New	LT&C	1.33	3.24	2.82
8 3/4"	5779'-6606'	5 1/2"	17#	L-80	New	LT&C	1.33	2.61	3.19
7 7/8"	6606'-12025'	5 1/2"	17#	L-80	New	LT&C	1.33	2.61	6.37



## New production cement:

### Single Stage:

500 psi							
Interval	Hole Size	Sacks	Yield (cf/sx)	Cement wt (ppg)	Wtr Required (gal/sx)	Excess (%)	Time (hrs)
0-5779'	8.75	475	2.01	12.5	11.4	42	30
5779'-6606'	8.75	204	1.37	14	6.5	61	12
6606'-12025'	7.875	1146	1.37	14	6.5	61	12

### Multi-stage:

500 psi							
Interval	Hole Size	Sacks	Yield (cf/sx)	Cement wt (ppg)	Wtr Required (gal/sx)	Excess (%)	Time (hrs)
0-3631	8.75	225	2.01	12.5	11.4	30	30
3631-4064	8.75	150	1.02	16.8	4	128	6
4064'-5779'	8.75	175	2.01	12.5	11.4	36	30
5779'-6606'	8.75	204	1.37	14	6.5	61	12
6606'-12025'	7.875	1146	1.37	14	6.5	61	12

This sundry was necessary because another ¼" mile was added to EOL.

The casing changes will help us install larger pumping equipment and L-80 has better corrosion resistance than P110.



## **NEW MEXICO SHELF**

**LEA COUNTY, NM**

**MALJAMAR**

**BRANEX-COG FEDERAL COM #27H**

**OWB**

**Plan: PWP0**

## **Standard Planning Report**

**05 February, 2015**

SHL: 1025' FSL, 330' FWL  
Sec.9, T17S, R32E  
PP: 989' FSL, 584'FWL  
Sec.9, T17S, R32E  
BHL: 990' FSL, 990' FWL  
Sec.10, T17S, R32E





COG Operating LLC  
Planning Report

Database: EDM\_Users  
Company: NEW MEXICO SHELF  
Project: LEA COUNTY, NM  
Site: MALJAMAR  
Well: BRANEX-COG FEDERAL COM #27H  
Wellbore: OWB  
Design: PWP0

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:

Well BRANEX-COG FEDERAL COM #27H  
RKB=4059+12.5 @ 4071.5usft (UNITED #43)  
RKB=4059+12.5 @ 4071.5usft (UNITED #43)  
Grid  
Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00





COG Operating LLC  
Planning Report

Database: EDM\_Users  
Company: NEW MEXICO SHELF  
Project: LEA COUNTY, NM  
Site: MALJAMAR  
Well: BRANEX-COG FEDERAL COM #27H  
Wellbore: OWB  
Design: PWP0

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:

Well BRANEX-COG FEDERAL COM #27H  
RKB=4059+12.5 @ 4071.5usft (UNITED #43)  
RKB=4059+12.5 @ 4071.5usft (UNITED #43)  
Grid  
Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,779.1	0.00	0.00	5,779.1	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP, BEGIN 11°/100' BUILD</b>									
5,800.0	2.30	98.00	5,800.0	-0.1	0.4	0.4	11.00	11.00	0.00
5,900.0	13.30	98.00	5,898.9	-1.9	13.8	13.8	11.00	11.00	0.00
6,000.0	24.29	98.00	5,993.4	-8.4	45.7	45.7	11.00	11.00	0.00
6,100.0	35.29	98.00	6,080.1	-13.3	94.8	94.8	11.00	11.00	0.00
6,200.0	46.29	98.00	6,155.7	-22.4	159.4	159.5	11.00	11.00	0.00
6,300.0	57.29	98.00	6,217.4	-33.3	237.1	237.2	11.00	11.00	0.00
6,317.1	59.17	98.00	6,226.4	-35.3	251.5	251.6	11.00	11.00	0.00
<b>PP Branex-COG Fed Com #27H</b>									
6,400.0	68.28	98.00	6,263.1	-45.7	325.0	325.1	11.00	11.00	0.00
6,500.0	79.28	98.00	6,291.0	-59.0	420.0	420.1	11.00	11.00	0.00
6,600.0	90.28	98.00	6,300.1	-72.9	518.4	518.6	11.00	11.00	0.00
6,606.5	91.00	98.00	6,300.0	-73.8	524.9	525.1	11.00	11.00	0.00
6,606.6	91.00	98.00	6,300.0	-73.8	525.0	525.2	0.00	0.00	0.00
<b>EOC, HOLD 91° INC, 90.27° AZI</b>									
6,700.0	91.00	95.20	6,298.4	-84.5	617.7	617.9	3.00	0.00	-3.00
6,800.0	91.00	92.20	6,296.6	-91.0	717.5	717.7	3.00	0.00	-3.00
6,900.0	91.00	89.20	6,294.9	-92.2	817.5	817.7	3.00	0.00	-3.00
6,901.9	91.00	89.14	6,294.8	-92.1	819.3	819.5	3.00	0.00	-3.00
7,000.0	91.00	89.14	6,293.1	-90.7	917.4	917.7	0.00	0.00	0.00
7,100.0	91.00	89.14	6,291.4	-89.2	1,017.4	1,017.6	0.00	0.00	0.00
7,200.0	91.00	89.14	6,289.6	-87.7	1,117.4	1,117.6	0.00	0.00	0.00
7,300.0	91.00	89.14	6,287.9	-86.2	1,217.4	1,217.6	0.00	0.00	0.00
7,400.0	91.00	89.14	6,286.1	-84.7	1,317.3	1,317.5	0.00	0.00	0.00
7,500.0	91.00	89.14	6,284.4	-83.2	1,417.3	1,417.5	0.00	0.00	0.00
7,600.0	91.00	89.14	6,282.6	-81.7	1,517.3	1,517.5	0.00	0.00	0.00
7,700.0	91.00	89.14	6,280.9	-80.2	1,617.2	1,617.4	0.00	0.00	0.00
7,800.0	91.00	89.14	6,279.2	-78.6	1,717.2	1,717.4	0.00	0.00	0.00
7,900.0	91.00	89.14	6,277.4	-77.1	1,817.2	1,817.4	0.00	0.00	0.00
8,000.0	91.00	89.14	6,275.7	-75.6	1,917.2	1,917.4	0.00	0.00	0.00
8,100.0	91.00	89.14	6,273.9	-74.1	2,017.1	2,017.3	0.00	0.00	0.00
8,200.0	91.00	89.14	6,272.2	-72.6	2,117.1	2,117.3	0.00	0.00	0.00
8,300.0	91.00	89.14	6,270.4	-71.1	2,217.1	2,217.3	0.00	0.00	0.00
8,400.0	91.00	89.14	6,268.7	-69.6	2,317.1	2,317.2	0.00	0.00	0.00
8,500.0	91.00	89.14	6,266.9	-68.1	2,417.0	2,417.2	0.00	0.00	0.00
8,600.0	91.00	89.14	6,265.2	-66.6	2,517.0	2,517.2	0.00	0.00	0.00
8,700.0	91.00	89.14	6,263.4	-65.1	2,617.0	2,617.1	0.00	0.00	0.00
8,800.0	91.00	89.14	6,261.7	-63.6	2,717.0	2,717.1	0.00	0.00	0.00
8,900.0	91.00	89.14	6,260.0	-62.1	2,816.9	2,817.1	0.00	0.00	0.00
9,000.0	91.00	89.14	6,258.2	-60.6	2,916.9	2,917.0	0.00	0.00	0.00
9,100.0	91.00	89.14	6,256.5	-59.1	3,016.9	3,017.0	0.00	0.00	0.00
9,200.0	91.00	89.14	6,254.7	-57.6	3,116.8	3,117.0	0.00	0.00	0.00
9,300.0	91.00	89.14	6,253.0	-56.1	3,216.8	3,217.0	0.00	0.00	0.00
9,400.0	91.00	89.14	6,251.2	-54.6	3,316.8	3,316.9	0.00	0.00	0.00
9,500.0	91.00	89.14	6,249.5	-53.1	3,416.8	3,416.9	0.00	0.00	0.00
9,600.0	91.00	89.14	6,247.7	-51.6	3,516.7	3,516.9	0.00	0.00	0.00
9,700.0	91.00	89.14	6,246.0	-50.1	3,616.7	3,616.8	0.00	0.00	0.00
9,800.0	91.00	89.14	6,244.2	-48.6	3,716.7	3,716.8	0.00	0.00	0.00





COG Operating LLC  
Planning Report

Database:	EDM_Users	Local Co-ordinate Reference:	Well BRANEX-COG FEDERAL COM #27H
Company:	NEW MEXICO SHELF	TVD Reference:	RKB=4059+12.5 @ 4071.5usft (UNITED #43)
Project:	LEA COUNTY, NM	MD Reference:	RKB=4059+12.5 @ 4071.5usft (UNITED #43)
Site:	MALJAMAR	North Reference:	Grid
Well:	BRANEX-COG FEDERAL COM #27H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,900.0	91.00	89.14	6,242.5	-47.1	3,816.7	3,816.8	0.00	0.00	0.00
10,000.0	91.00	89.14	6,240.8	-45.6	3,916.6	3,916.7	0.00	0.00	0.00
10,100.0	91.00	89.14	6,239.0	-44.1	4,016.6	4,016.7	0.00	0.00	0.00
10,200.0	91.00	89.14	6,237.3	-42.6	4,116.6	4,116.7	0.00	0.00	0.00
10,300.0	91.00	89.14	6,235.5	-41.1	4,216.6	4,216.6	0.00	0.00	0.00
10,400.0	91.00	89.14	6,233.8	-39.6	4,316.5	4,316.6	0.00	0.00	0.00
10,500.0	91.00	89.14	6,232.0	-38.1	4,416.5	4,416.6	0.00	0.00	0.00
10,600.0	91.00	89.14	6,230.3	-36.6	4,516.5	4,516.6	0.00	0.00	0.00
10,700.0	91.00	89.14	6,228.5	-35.1	4,616.4	4,616.5	0.00	0.00	0.00
10,800.0	91.00	89.14	6,226.8	-33.6	4,716.4	4,716.5	0.00	0.00	0.00
10,900.0	91.00	89.14	6,225.0	-32.1	4,816.4	4,816.5	0.00	0.00	0.00
11,000.0	91.00	89.14	6,223.3	-30.6	4,916.4	4,916.4	0.00	0.00	0.00
11,100.0	91.00	89.14	6,221.6	-29.1	5,016.3	5,016.4	0.00	0.00	0.00
11,200.0	91.00	89.14	6,219.8	-27.6	5,116.3	5,116.4	0.00	0.00	0.00
11,300.0	91.00	89.14	6,218.1	-26.1	5,216.3	5,216.3	0.00	0.00	0.00
11,400.0	91.00	89.14	6,216.3	-24.6	5,316.3	5,316.3	0.00	0.00	0.00
11,500.0	91.00	89.14	6,214.6	-23.1	5,416.2	5,416.3	0.00	0.00	0.00
11,600.0	91.00	89.14	6,212.8	-21.6	5,516.2	5,516.2	0.00	0.00	0.00
11,700.0	91.00	89.14	6,211.1	-20.1	5,616.2	5,616.2	0.00	0.00	0.00
11,800.0	91.00	89.14	6,209.3	-18.6	5,716.2	5,716.2	0.00	0.00	0.00
11,900.0	91.00	89.14	6,207.6	-17.1	5,816.1	5,816.2	0.00	0.00	0.00
12,000.0	91.00	89.14	6,205.8	-15.6	5,916.1	5,916.1	0.00	0.00	0.00
12,025.2	91.00	89.14	6,205.4	-15.2	5,941.3	5,941.3	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL-Branex-COG Fed	0.00	0.00	6,205.4	-15.2	5,941.3	671,410.60	676,350.60	32° 50' 40.111 N	103° 45' 32.867 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,779.1	5,779.1	0.0	0.0	KOP, BEGIN 11"/100' BUILD
6,317.1	6,226.4	-35.3	251.5	PP Branex-COG Fed Com #27H
6,606.6	6,300.0	-73.8	525.0	EOC, HOLD 91° INC, 90.27° AZI



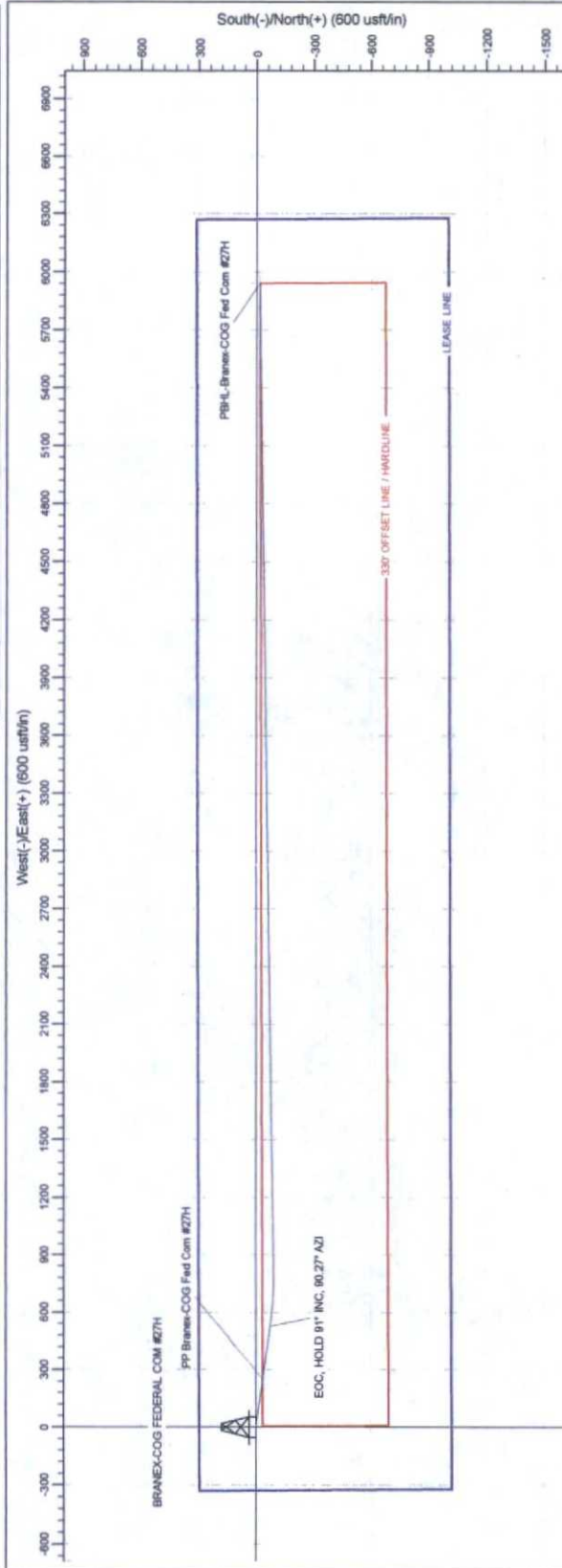
Project: LEA COUNTY, NM  
 Site: MALJAMAR  
 Well: BRANEX-COG FEDERAL COM #27H  
 Wellbore: OWB  
 Design: PWPO

SECTION DETAILS									
Stn	MD	Inc	Adj	TVD	ΔN/S	ΔE/W	Dist	True Vert	Target
1	0.0	0.00	0.00	5779.1	0.0	0.0	0.00	0.00	0.0
2	5779.1	0.00	0.00	5779.1	0.0	0.0	0.00	0.00	0.0
3	6006.5	91.00	98.00	6300.0	-73.8	524.9	11.00	98.00	525.1
4	6901.9	91.00	88.14	6294.8	-82.1	819.3	3.00	-89.92	819.5
5	12025.2	91.00	85.14	6265.4	-15.2	5941.3	0.00	0.00	5941.3

PPH L Branes-COG Fed Com #27H

**REFERENCE INFORMATION**

Co-ordinate (N/E) Reference: Well BRANEX-COG FEDERAL COM #27H, Grid North  
 Vertical (TVD) Reference: RGB-4059+12.5 @ 4071.5ust (UNITED #43)  
 Section (VS) Reference: Sct - (0.0N, 0.0E)  
 Measured Depth Reference: RGB-4059+12.5 @ 4071.5ust (UNITED #43)  
 Calculation Method: Minimum Curvature







COG Operating LLC  
Planning Report

Database:	EDM_Users	Local Co-ordinate Reference:	Well BRANEX-COG FEDERAL COM #27H
Company:	NEW MEXICO SHELF	TVD Reference:	RKB=4059+12.5 @ 4071.5usft (UNITED #43)
Project:	LEA COUNTY, NM	MD Reference:	RKB=4059+12.5 @ 4071.5usft (UNITED #43)
Site:	MALJAMAR	North Reference:	Grid
Well:	BRANEX-COG FEDERAL COM #27H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Project	LEA COUNTY, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	MALJAMAR		
Site Position:		Northing:	675,386.60 usft
From:	Map	Easting:	682,929.80 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 19.093 N
		Longitude:	103° 44' 15.489 W
		Grid Convergence:	0.32 "

Well	BRANEX-COG FEDERAL COM #27H		
Well Position	+N/-S	-3,960.8 usft	Northing:
	+E/-W	-12,520.5 usft	Easting:
Position Uncertainty		3.0 usft	Wellhead Elevation:
			0.0 usft
			Latitude:
			32° 50' 40.576 N
			Longitude:
			103° 46' 42.506 W
			Ground Level:
			4,059.0 usft

Wellbore	OWB		
Magnetics	Model Name	Sample Date	Declination
			(°)
	WMM_2005	12/31/2009	7.90
			Dip Angle
			(°)
			60.77
			Field Strength
			(nT)
			49,134

Design	PWP0		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			90.15

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,779.1	0.00	0.00	5,779.1	0.0	0.0	0.00	0.00	0.00	0.00	
6,606.5	91.00	98.00	6,300.0	-73.8	524.9	11.00	11.00	0.00	98.00	
6,901.9	91.00	89.14	6,294.8	-92.1	819.3	3.00	0.00	-3.00	-89.92	
12,025.2	91.00	89.14	6,205.4	-15.2	5,941.3	0.00	0.00	0.00	0.00	PBHL-Branex-COG F