

BW - _____ 33 _____

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New council meets, Doss chosen as pro tem

Carlsbad Current-Argus (NM) - Tuesday, March 13, 2012

Author: From the Current-Argus

By Matlin Smith

Current-Argus Staff Writer

CARLSBAD - Prior to Tuesday night's regular city council meeting, the members of the Carlsbad City Council chose Councilor Dick Doss to the post of mayor pro tem. As mayor pro tem, he will serve as mayor in the absence of Mayor Dale Janway.

Councilor Janell Whitlock nominated Doss to fill the position after former Mayor Pro tem Wes Carter elected not run this year in order to focus on his family and new business.

Doss was unanimously elected to the two-year term position by the governing body, including new Councilor Jason Shirley.

Under routine and regular business, councilors decided to reject and rebid a request for proposals for the reconstruction of San Jose Boulevard.

According to Special Projects Administrator Anna Beason, the project was split into two phases after the city received a Federal Highway Administration Grant in the amount of about \$986,800 for the project. The first phase is the reconstruction from the CID canal north to Fiesta Drive. The second phase includes the area from Fiesta to Diaz Street.

After additional costs for engineering, testing and observation services were budgeted in, the total cost of the project came to around \$1.1 million.

On Feb. 15, only one bid was received, coming in at \$450,000 over budget, and on Tuesday, the council agreed to reject it and rebid the project.

Councilors also unanimously approved a resolution in support of submitting an application for grant funding in the amount of about \$836,000, with city participation at \$278,000, to the New Mexico Department of Transportation to help with the San Jose project.

Under new businesses, councilors approved an increase of the in-county Landfill Commercial Tipping Fee from \$24; per ton to \$28; per ton. Councilor Paul Aguilar said that there hasn't been a fee increase in about 18 years. Whitlock added that, even with the increase, the fees will still be at least \$2; lower than those in most surrounding counties.

Under the same business item, the governing body approved a recommendation from the Key Energy **Brine** Well Committee, co-chaired by Aguilar and Whitlock, to approve a stipulated agreement between the city and Key Energy Services regarding **Brine** Well Discharge Permit BW-33.

Carlsbad Department of Development Executive Director John Waters came before the council to announce a new sale in the Airport Industrial Park.

Big Duke, LLC, has made a request to purchase the land located behind the United States Border Patrol property, two blocks off of the highway, to build a candle



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manufacturing plant. Waters said it will bring about eight jobs to the area.

"We certainly welcome any new business that wants to come in and bring in new jobs," Waters said. "Even though it's not a big one, it's important because it does help diversify our manufacturing base."

Councilors unanimously approved the purchase in the amount of \$6,000 per acre.

Following the meeting, the council adjourned to a closed session to discuss collective bargaining.

Section: News

Record Number: 20167360

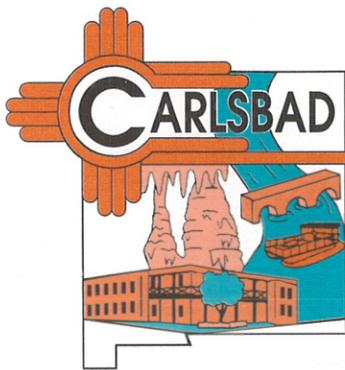
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DALE JANWAY

MAYOR

Post Office Box 1569
Carlsbad, NM 88221-1569
(575) 887-1191
1-800-658-2713
www.cityofcarlsbadnm.com

HARRY BURGESS

CITY ADMINISTRATOR

Jami Bailey, Director
NM Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: BW-33

Dear Ms. Bailey:

In a letter to you dated October 17, 2011, I requested a public hearing in Carlsbad prior to the issuance of Discharge Permit BW-33. The concerns underlying my request for a hearing were set forth in the letter.

At the regular meeting of March 13, 2012, the Governing Body of the City of Carlsbad approved a Stipulated Agreement between the City of Carlsbad and Key Energy regarding BW-33, a copy of which is attached.

Therefore, please accept this letter as notice that the City of Carlsbad officially rescinds its request for a public hearing in the matter of BW-33 and withdraws any objections to the issuance of Discharge Permit BW-33.

Thank you for your assistance in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dale Janway', written over a horizontal line.

Dale Janway, Mayor

Cc Jim Griswold, OCD
Wayne Price
Council
Key Energy Committee

COUNCILORS

Ward 1
NICK G. SALCIDO
PAUL C. AGUILAR

Ward 2
SANDRA K. NUNLEY
J.R. DOPORTO

Ward 3
WESLEY A. CARTER
JUDI WATERS

Ward 4
JANELLE E. WHITLOCK
DICK DOSS

**STIPULATED AGREEMENT BETWEEN THE CITY OF
CARLSBAD AND KEY ENERGY SERVICES, LLC
REGARDING
BRINE WELL DISCHARGE PERMIT BW-33**

1 WHEREAS, the City of Carlsbad (hereinafter “City”) is a municipal corporation under the laws
2 of the State of New Mexico with all powers granted pursuant to Section 3-18-1 et seq., NMSA
3 1978 as amended, including the power to enter into contracts; and
4

5 WHEREAS, Key Energy Services LLC (hereinafter “Key”) is a limited liability company under
6 the laws of the State of Texas; and
7

8 WHEREAS, Key filed an application with the New Mexico Oil Conservation Division
9 (hereinafter “OCD) for Discharge Permit BW-33 for the installation and operation of Key
10 Energy Services LLC Brine Well #2 in Unit E of Section 31, Township 22 South, Range 27 East
11 NMPM, Eddy County, NM (the brine well hereinafter “BW-33”); and
12

13 WHEREAS, Key’s application for Discharge Permit BW-33 is attached as Exhibit “A” and
14 incorporated herein (hereinafter the “Application”);
15

16 WHEREAS, on September 14, 2011 the OCD’s Notice of Publication, attached as Exhibit “B”
17 and incorporated herein, regarding the Application was published stating that interested persons
18 may submit comments and request a public hearing on the Application prior to the issuance of
19 the permit; and
20

21 WHEREAS, also on September 14, 2011, the OCD conditionally approved Key’s discharge
22 permit for BW-33, setting forth in draft form “Discharge Permit Approval Conditions”, attached
23 as Exhibit “C” and incorporated herein (hereinafter “Draft Conditions”); and
24

25 WHEREAS, the City of Carlsbad filed a formal written protest requesting a public hearing on the
26 matter, attached as Exhibit “D”; and
27

28 WHEREAS, the City has concerns as to the future safety of BW-33 due to its proximity to the
29 Carlsbad corporate limits as well as concerns regarding site maintenance, site security, traffic
30 safety, noise, and general aesthetics of the well site; and
31

32 WHEREAS, the City has and is currently experiencing the effects and potential effects of a brine
33 well within City limits that poses a potentially significant threat to public safety; and
34

35 WHEREAS, it is the desire of Key and the City to set forth in this document certain
36 understandings that will allow Key to proceed with the installation, operation and maintenance of
37 BW-33 without undue delay, while assuring the City, so far as is reasonably possible, that BW-
38 33 will be installed, operated and maintained to such standards as are likely to preclude the well
39 from posing a threat to public safety, adversely impacting traffic safety, road way maintenance,
40 or otherwise presenting a nuisance to public health, safety, and welfare; and

1 WHEREAS, it is the desire of the City to withdraw its request for a public hearing in protest of
2 the issuance of Discharge Permit BW-33 in consideration of Key's compliance with the terms
3 and conditions set forth in this Agreement.

4
5 NOW THEREFORE, Key and the City (hereinafter the "Parties") on this 13th day of
6 March, 2012, agree as follows:
7

8
9 1. Key, therefore, agrees that it will:

- 10 a. Install, develop, operate, and maintain BW-33 at all times in accordance with:
11 i. All applicable state, federal, or local laws, rules, and regulations;
12 ii. All terms and provisions of the final Discharge Permit BW-33 as it shall
13 be issued by OCD, with such document incorporated herein by reference
14 (hereinafter the "Final Permit"), and all terms and provisions of the Draft
15 Conditions, attached as Exhibit "C", whichever shall be more stringent;
16 and
17 iii. All terms and provisions of Key's brine well operating plan submitted to
18 OCD in Key's Application, including but not limited to installation of all
19 casing and tubing strings;
- 20 b. Not deviate from a diameter/height (D/H) ratio of .24, nor exceed a 150 foot roof
21 radius, regardless as to whether the Final Permit would allow deviation in excess
22 of those parameters; further Key agrees that any deviation from these parameters
23 will require a modification to the Final Permit;
- 24 c. Construct and operate the BW-33 system as a one-well operation;
- 25 d. Maintain at all times during the operation of BW-33 at a minimum the setbacks
26 and site control set forth in Paragraph 19 of the Draft Conditions; further, Key
27 will in good faith use its best effort to acquire additional surface by ownership or
28 lease to preclude development in and around the well site that could be adversely
29 impacted by emergency situations on or below the surface of BW-33; and in all
30 events Key will attempt to obtain an additional 100 feet of setback on the east and
31 north sides of BW-33;
- 32 e. Ensure by reasonable methods, and in compliance with the terms and conditions
33 of Paragraph 19 of the Draft Conditions, that the BW-33 site is properly secured
34 against intrusion, vandalism, and theft;
- 35 f. Screen the BW-33 site from adjacent residential areas, by use of opaque fencing,
36 landscaping, or a combination of both, of sufficient height to screen the site
37 effectively;
- 38 g. Allow the City's Environmental Services Department and/or a qualified contract
39 inspector, upon twenty-four (24) hours notice to Key, to have reasonable access to
40 the BW-33 site during daylight hours for inspections on behalf of the City to
41 determine Key's compliance with the terms and conditions of this Agreement;
42 and Key agrees that, within thirty (30) days of its receipt of the related invoice(s),
43 it shall reimburse the City for all of the City's actual costs and expenses related to
44 brine well inspection performed by or on behalf of the City, with the amount to be
45 reimbursed by Key not to exceed five thousand dollars per year (\$5,000/yr.);

- 1 h. Provide to the City copies of all reports, forms, inspection reports, or other
2 documents normally and customarily provided or required to be provided to OCD
3 regarding the operation of BW-33. Such documents shall be sent to the Office of
4 the Carlsbad City Administrator, P.O. Box 1569, 101 N. Halagueno Street,
5 Carlsbad, NM 88220;
- 6 i. Notify the City Administrator in writing, at the above-noted address, of:
7 i. Any permit modifications, operational changes, or changed well or well-
8 site conditions concurrently, but not later than, notification to any other
9 governmental agency; and
10 ii. Any application filed with OCD by Key for any other brine well or
11 injection well proposed to be located, installed, developed, operated, or
12 maintained by Key within five (5) miles of the Carlsbad City Limits
13 and/or within the City's Wellhead and Water Facilities Protection Area as
14 set forth in Article IV, Section 52-151, et seq. of the Carlsbad City Code,
15 as it may be amended from time to time;
16 iii. Any other matter significantly affecting the operation of the BW-33;
- 17 j. Immediately notify the appropriate public safety emergency response agency, and
18 thereafter the City Administrator by the most expedient means possible, of an
19 actual or imminent public safety hazard caused directly or indirectly by the
20 operation of the BW-33, including but not limited to:
21 i. Collapse, subsidence, or possible collapse or subsidence of the well or
22 surface in and around the well, whether man-caused or natural; and
23 ii. Surface contamination, whether from brine well operation or otherwise;
- 24 k. Notify the City Administrator not less than 30 days before any of the following
25 events:
26 i. The filing of a permit modification or new well permit application to OCD
27 in connection, respectively, with BW-33 or a new well in the same general
28 area as BW-33;
29 ii. The sale, lease, trade, or other conveyance, in whole or in part, of BW-33
30 to any other party;
31 iii. Bankruptcy, corporate dissolution, reorganization, or any other action,
32 whether voluntary or involuntary, affecting the corporate status of Key
33 Energy Services LLC;
- 34 l. Notify the City Administrator of any notice of violation of the terms and
35 conditions of the Discharge Permit BW-33, whether such notice is from OCD or
36 any other governmental entity having jurisdiction;
- 37 m. Notify the City Administrator of any penalty, administrative order, consent
38 agreement, or any other document evidencing a failure to comply with any
39 provision of the Discharge Permit BW-33 or other law, rule, or regulation
40 applicable to BW-33 within 30 days after the issuance of the penalty,
41 administrative order, consent agreement, or other document;
- 42 n. Notify the City Administrator not less than 30 days after the formal entry of any
43 judicial, quasi-judicial, or administrative decision rendered in connection with any
44 matter relating to BW-33;
- 45 o. Upon request from the City, provide training on brine well operations in general
46 to City officers, employees, agents, and representatives;

- 1 p. Maintain at all times a well bond of not less than one million dollars
2 (\$1,000,000.00) as financial assurance to cover any necessary abatement,
3 mitigation, remediation, or closure/post-closure costs; such bond shall be in the
4 form required by applicable OCD rule or regulation, and a copy shall be provided
5 to the City not later than 30 days after issuance of the Final Permit by OCD;
6 q. Require explicit language in any agreement to purchase, lease, or operate, in
7 whole or in part, or otherwise acquire any interest in BW-33, that the terms and
8 provisions of this Agreement shall be binding on all successors and assigns;
9 r. Refrain at all times from any use of City of Carlsbad treated drinking water for its
10 brine well operations other than normal domestic use;
11 s. At all times during the life of BW-33, employ or contract with a representative
12 based in south Eddy County who shall be responsible for the operation and
13 maintenance of BW-33, function as a local point-of-contact for the City regarding
14 BW-33, and serve as primary point-of-contact for emergency response to any
15 incident at BW-33; Key shall notify the City of the name and telephone numbers
16 of the local representative, updating such information as necessary;
17 t. At all times during the operation of BW-33, ensure that public roadways are not
18 damaged by ingress to and egress from BW-33; and
19 u. Not object to this Agreement being incorporated into the final BW-33 permit as
20 an additional permit condition.
- 21 2. The City agrees to withdraw its formal written protest requesting a public hearing on the
22 matter.
- 23 3. There is hereby established a "Key/City Brine Well Committee (hereinafter
24 "Committee") comprised of the Mayor, City Administrator, and other persons
25 recommended by the Mayor with the approval of the Carlsbad City Council, and such
26 persons as Key may appoint. The Committee shall meet at least once each year, and at
27 such other times as the Parties deem necessary or desirable, to review matters relating to
28 BW-33. The Committee may make recommendations for the modification of this
29 Agreement, provided any amendments thereto shall not become effective until approved
30 by the Carlsbad City Council and Key with the same formality as this Agreement. All
31 amendments shall be in writing.
- 32 4. Although recognizing that Key Energy needs to begin operations with fresh water
33 procured from local sources, both Key Energy and the City of Carlsbad agree that long-
34 term dependence on fresh water resources is not preferable or prudent. Therefore, Key
35 Energy will seek out technology and water treatment capability development to allow
36 transition to brine or saline water resources. Key Energy will periodically report the
37 status of these research efforts to the City and public in accordance with the provisions of
38 Paragraph 3, above.
- 39 5. This Agreement shall at all times be governed by the laws of the State of New Mexico.
40 Venue shall be in the District Court in Eddy County.
- 41 6. This City may seek enforcement of this Agreement through the District Court of Eddy
42 County.
- 43 7. Should any provision in this Agreement be deemed illegal invalid or unenforceable, the
44 remaining provisions shall remain in force.
- 45
46

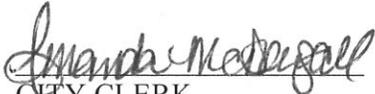
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CITY OF CARLSBAD:


MAYOR

ATTEST:


CITY CLERK

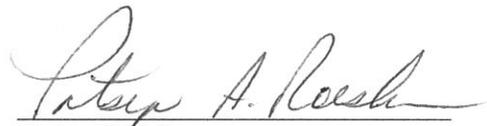
KEY ENERGY SERVICES LLC:

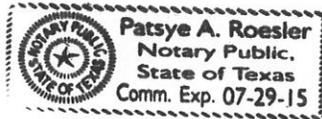


STATE OF TEXAS)
)
COUNTY OF HARRIS)

The foregoing Agreement was signed and acknowledged before me this 7 day of MARCH, 2012 by Dennis Douglas, Sr VP Fluids of Key Energy Services LLC.

My Commission Expires:
07/29/15


Notary Public



**STIPULATED AGREEMENT BETWEEN THE CITY OF
CARLSBAD AND KEY ENERGY SERVICES, LLC
REGARDING
BRINE WELL DISCHARGE PERMIT BW-33**

1 WHEREAS, the City of Carlsbad (hereinafter “City”) is a municipal corporation under the laws
2 of the State of New Mexico with all powers granted pursuant to Section 3-18-1 et seq., NMSA
3 1978 as amended, including the power to enter into contracts; and
4

5 WHEREAS, Key Energy Services LLC (hereinafter “Key”) is a limited liability company under
6 the laws of the State of Texas; and
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8 WHEREAS, Key filed an application with the New Mexico Oil Conservation Division
9 (hereinafter “OCD) for Discharge Permit BW-33 for the installation and operation of Key
10 Energy Services LLC Brine Well #2 in Unit E of Section 31, Township 22 South, Range 27 East
11 NMPM, Eddy County, NM (the brine well hereinafter “BW-33”); and
12

13 WHEREAS, Key’s application for Discharge Permit BW-33 is attached as Exhibit “A” and
14 incorporated herein (hereinafter the “Application”);
15

16 WHEREAS, on September 14, 2011 the OCD’s Notice of Publication, attached as Exhibit “B”
17 and incorporated herein, regarding the Application was published stating that interested persons
18 may submit comments and request a public hearing on the Application prior to the issuance of
19 the permit; and
20

21 WHEREAS, also on September 14, 2011, the OCD conditionally approved Key’s discharge
22 permit for BW-33, setting forth in draft form “Discharge Permit Approval Conditions”, attached
23 as Exhibit “C” and incorporated herein (hereinafter “Draft Conditions”); and
24

25 WHEREAS, the City of Carlsbad filed a formal written protest requesting a public hearing on the
26 matter, attached as Exhibit “D”; and
27

28 WHEREAS, the City has concerns as to the future safety of BW-33 due to its proximity to the
29 Carlsbad corporate limits as well as concerns regarding site maintenance, site security, traffic
30 safety, noise, and general aesthetics of the well site; and
31

32 WHEREAS, the City has and is currently experiencing the effects and potential effects of a brine
33 well within City limits that poses a potentially significant threat to public safety; and
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36 understandings that will allow Key to proceed with the installation, operation and maintenance of
37 BW-33 without undue delay, while assuring the City, so far as is reasonably possible, that BW-
38 33 will be installed, operated and maintained to such standards as are likely to preclude the well
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3 and conditions set forth in this Agreement.

4
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6 March, 2012, agree as follows:

- 7
8
9 1. Key, therefore, agrees that it will:
- 10 a. Install, develop, operate, and maintain BW-33 at all times in accordance with:
 - 11 i. All applicable state, federal, or local laws, rules, and regulations;
 - 12 ii. All terms and provisions of the final Discharge Permit BW-33 as it shall
 - 13 be issued by OCD, with such document incorporated herein by reference
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 - 15 Conditions, attached as Exhibit "C", whichever shall be more stringent;
 - 16 and
 - 17 iii. All terms and provisions of Key's brine well operating plan submitted to
 - 18 OCD in Key's Application, including but not limited to installation of all
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 - 27 will in good faith use its best effort to acquire additional surface by ownership or
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 - 30 events Key will attempt to obtain an additional 100 feet of setback on the east and
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- 43 7. Should any provision in this Agreement be deemed illegal invalid or unenforceable, the
44 remaining provisions shall remain in force.
45
46

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CITY OF CARLSBAD:

MAYOR

ATTEST:

CITY CLERK

KEY ENERGY SERVICES LLC:

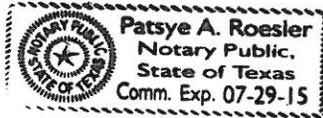
[Signature] *SD*

STATE OF TEXAS)
)
COUNTY OF Harris)

The foregoing Agreement was signed and acknowledged before me this 7 day of MARCH, 2012 by Dennis Douglas, Sr VP Fluids of Key Energy Services LLC.

My Commission Expires:
07/29/15

[Signature]
Notary Public



SPE-Permian Basin Study Group

Tight Oil in New Mexico: Commerciality of the Avalon Shale and Bone Spring



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Upstream Research Analyst

Wood Mackenzie

19 October 2010

Summary

Wood Mackenzie is a leading content, analytics and consulting business operating in the global energy and metals industries.

It is a knowledge-based business headquartered in Edinburgh with global reach and a trusted world-class brand synonymous with quality.

The company is a premier supplier of 'must have' research and knowledge-based consulting to clients in every major company in the energy and metals industries, as well as leading financial services organisations, governments and government agencies across the globe.

Agenda

I

What is the Bone Spring?

II

Activity thus far

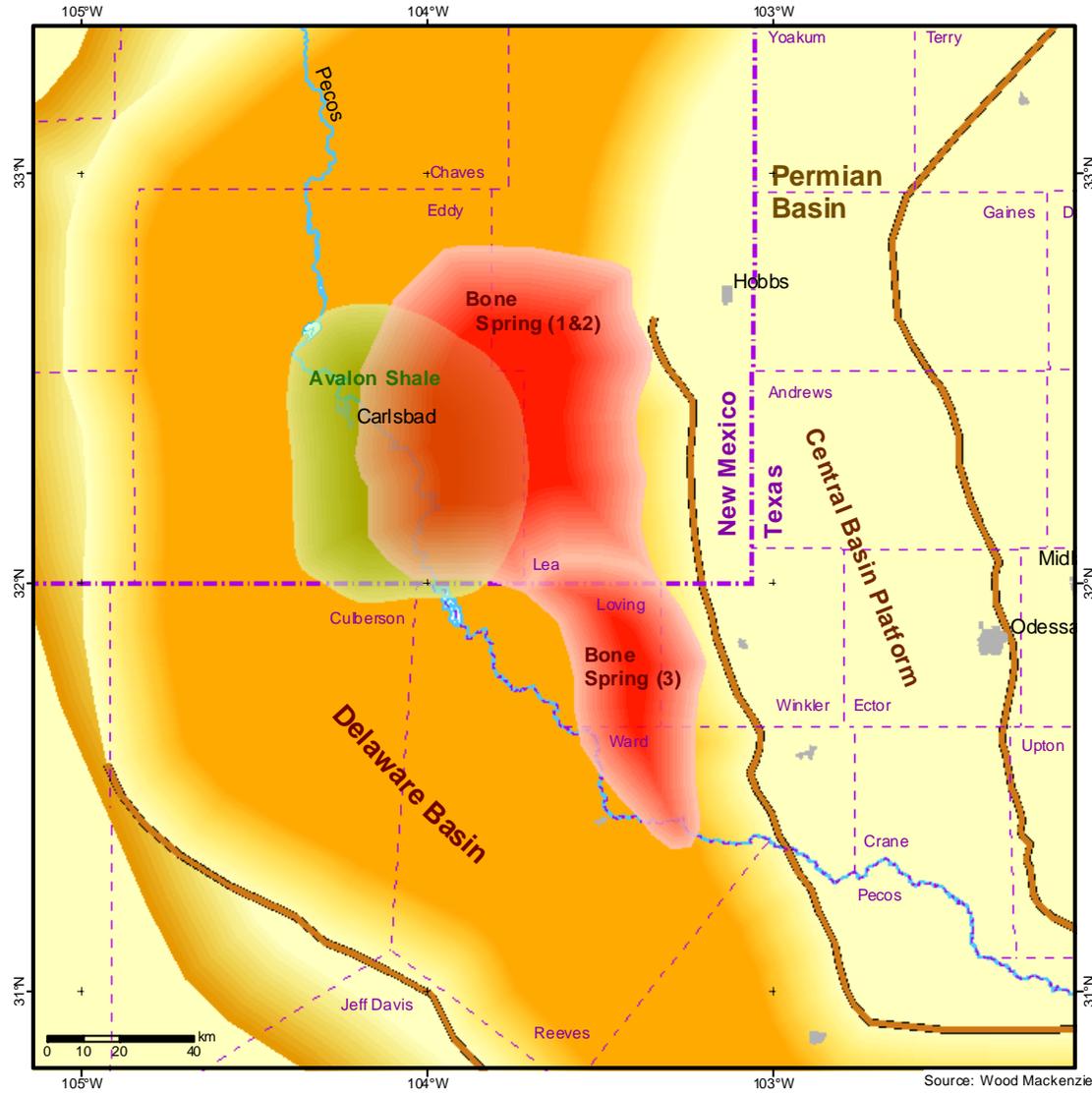
III

Production and development forecast

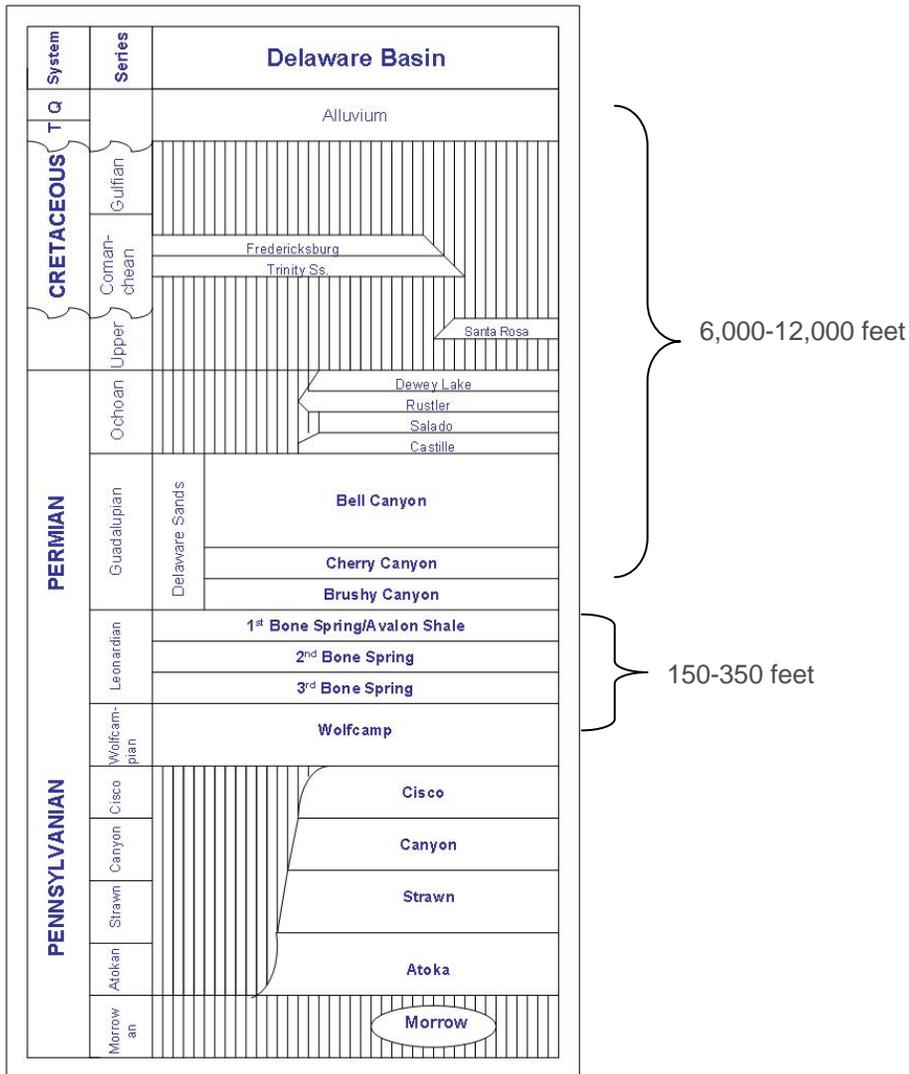
IV

Constraints and upside

Bone Spring, Avalon Shale, Leonard Shale



Three Intervals



1st, 2nd, 3rd Bone Spring

- Avalon shale is member of the 1st Bone Spring

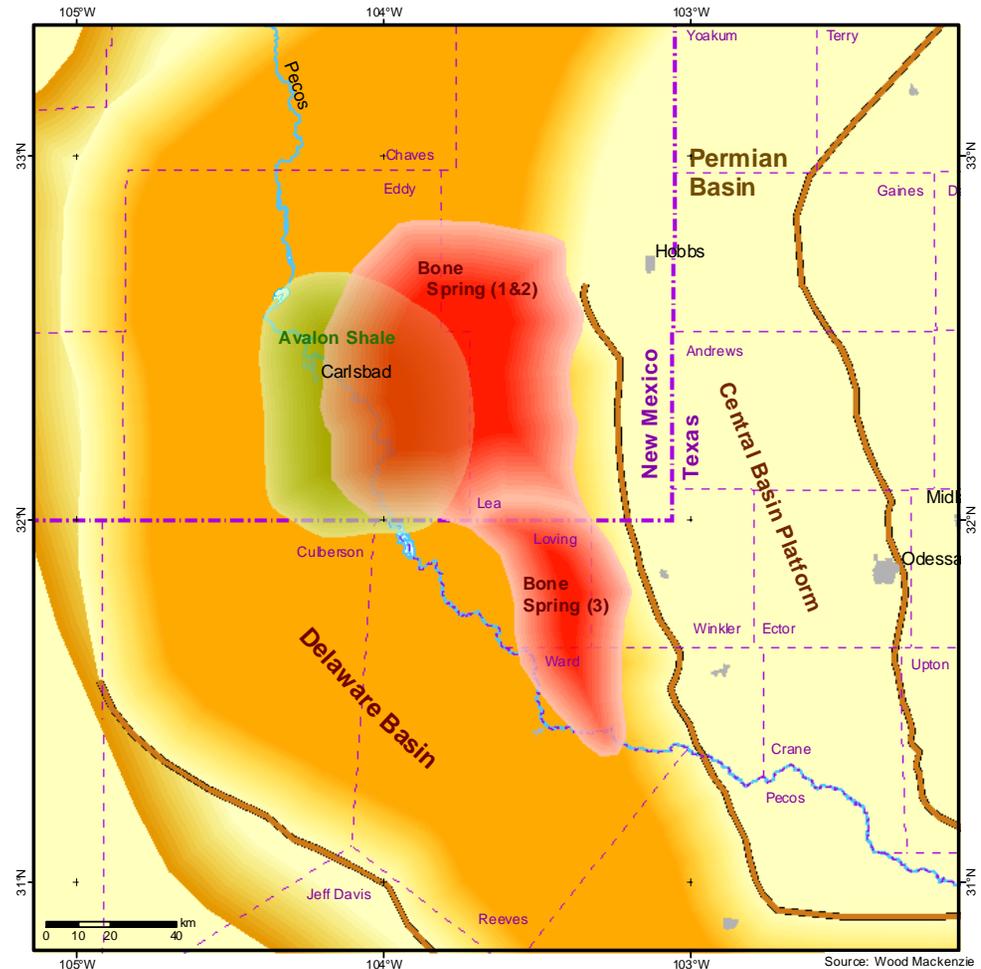
›A thick sequence of sedimentation

›Interbedded sandstones, siltstones, organic rich mudstones, non-organic shales, and detrital limestones and dolostones

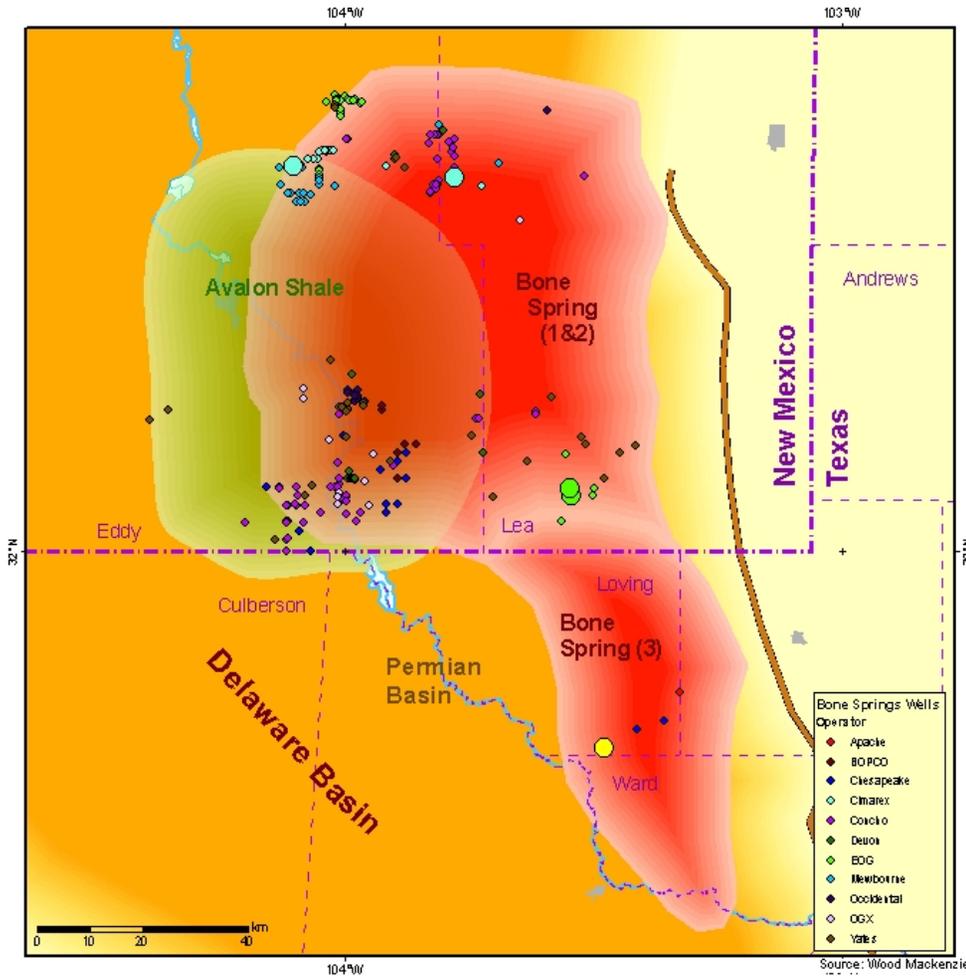
toc %	3-6%
porosity %	8-15%
net thickness	150-350 feet
gross depth	6,000-12,000 feet
primary lithology	Sandstones, Shale
age	Leonardian

Size of the prize

- › Extends approximately 11,400 square kilometres (4,390 square miles)
- › Resource potential of 1.3 mboe/section
- › Total well locations at 320 acre spacing: >8,000
- › Wells drilled to date:
 - ~300 horizontal
 - >1,800 vertical



Development thus far

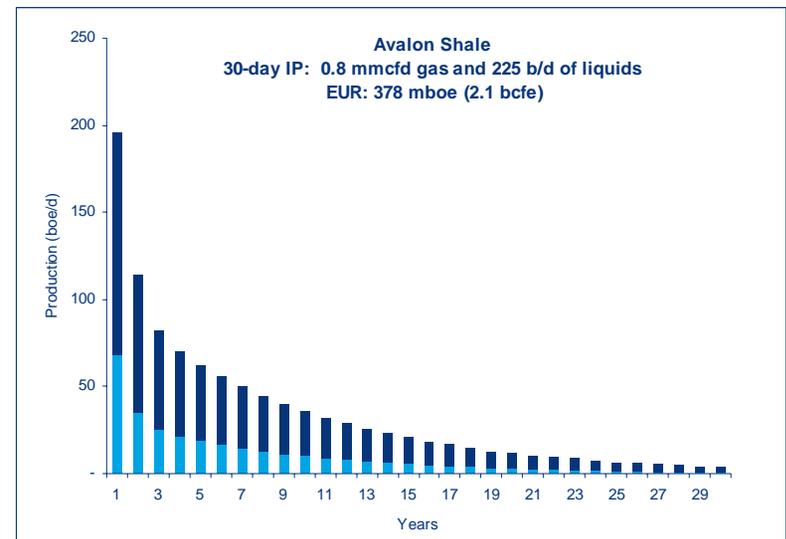
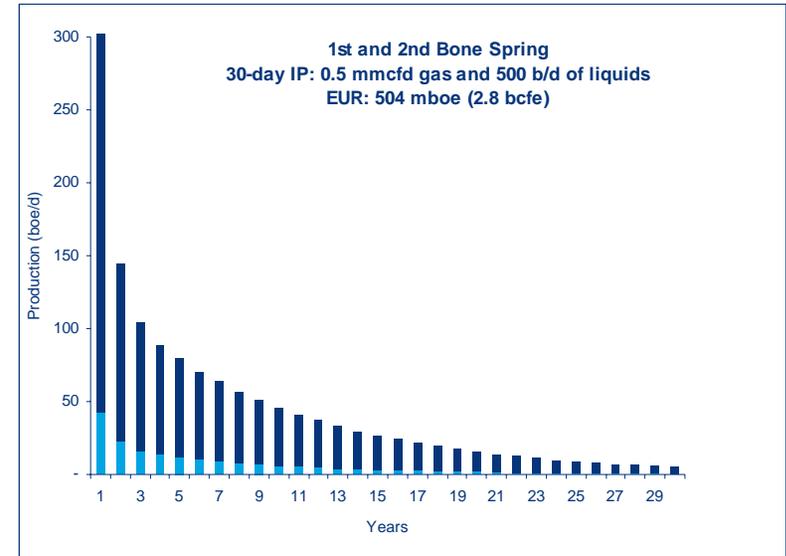
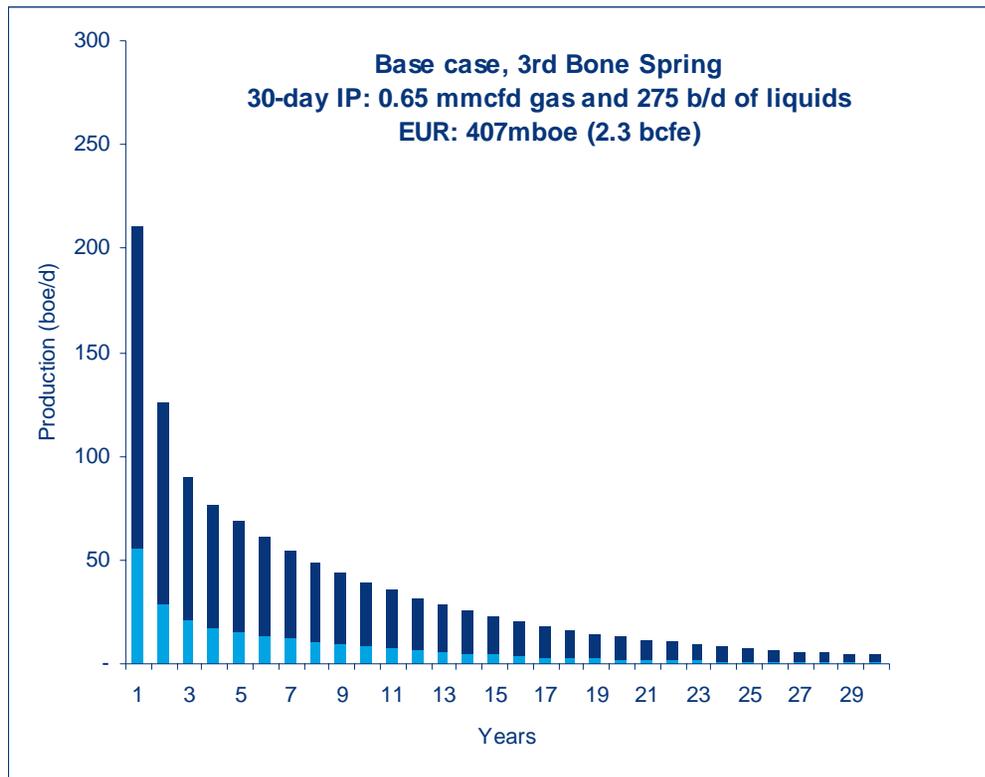


Operator	Net leasehold (000s)
Devon Energy	700
Chesapeake Energy	290
Anadarko	170
EOG	120
Apache	100
Concho Resources	100
Cimarex Energy	31
SandRidge	25
Yates Petroleum	~10
Mewbourne Oil	~5
Bopco	~5

*Devon figure includes leasehold for oil plays in the Permian

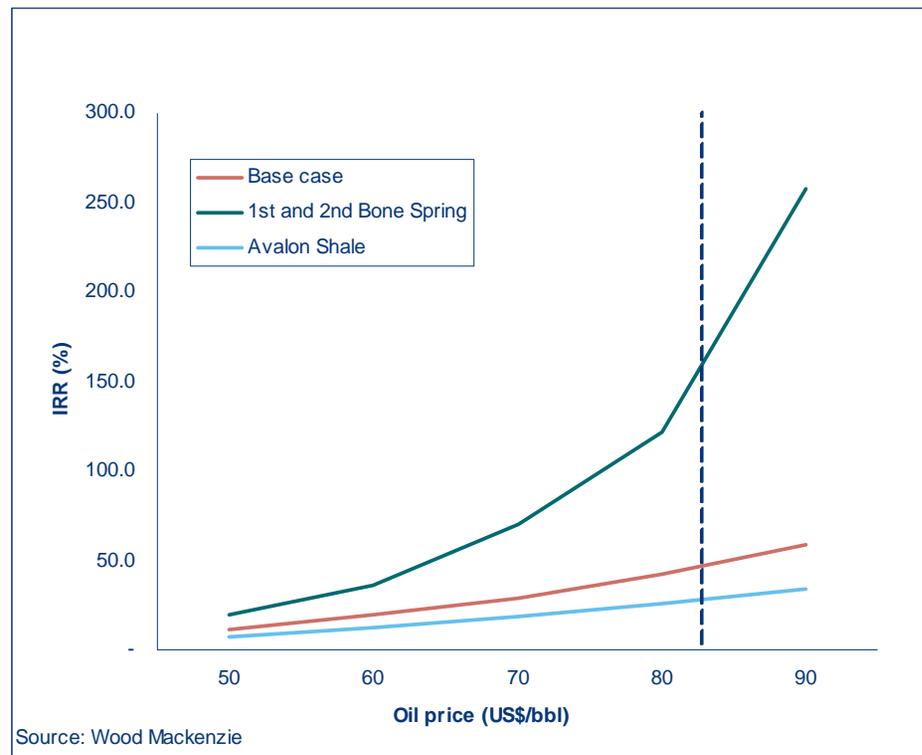
Liquids yields will vary depending on target location

- › Relatively small standard deviation of EURs; 400-600 mboe
- › Significant differences in liquid yields across the formation



Liquids streams enhances returns

- › At US\$80/bbl, base case wells can see IRRs of 42%
- › Base case ranks well among other top liquid rich plays in the lower 48



Assumes US\$4.50/mcf flat gas price and drilling and completion costs of US\$5.5 mm

Competitors

› Cimarex Energy

- Plans to run 6 rigs and drill 30 wells through 2010. Still acquiring leasehold
- Partnered with FieldPoint Petroleum to drill 2 wells in June 2010
- 3rd bone spring player, testing Avalon and 1st and 2nd Bone Spring

› Chesapeake Energy

- Still acquiring leasehold in Avalon shale
- De-risking and understanding play
- Acreage in the Avalon Shale and to the south

› SandRidge

- Looking to sell Avalon Shale and 3rd Bone Spring potential position

› Concho Resources

- Drilling first well following entry into play with Marbob acquisition in August 2010

› EOG

- Encouraging results with exceptionally high liquid yields in Avalon Shale and 3rd Bone Spring

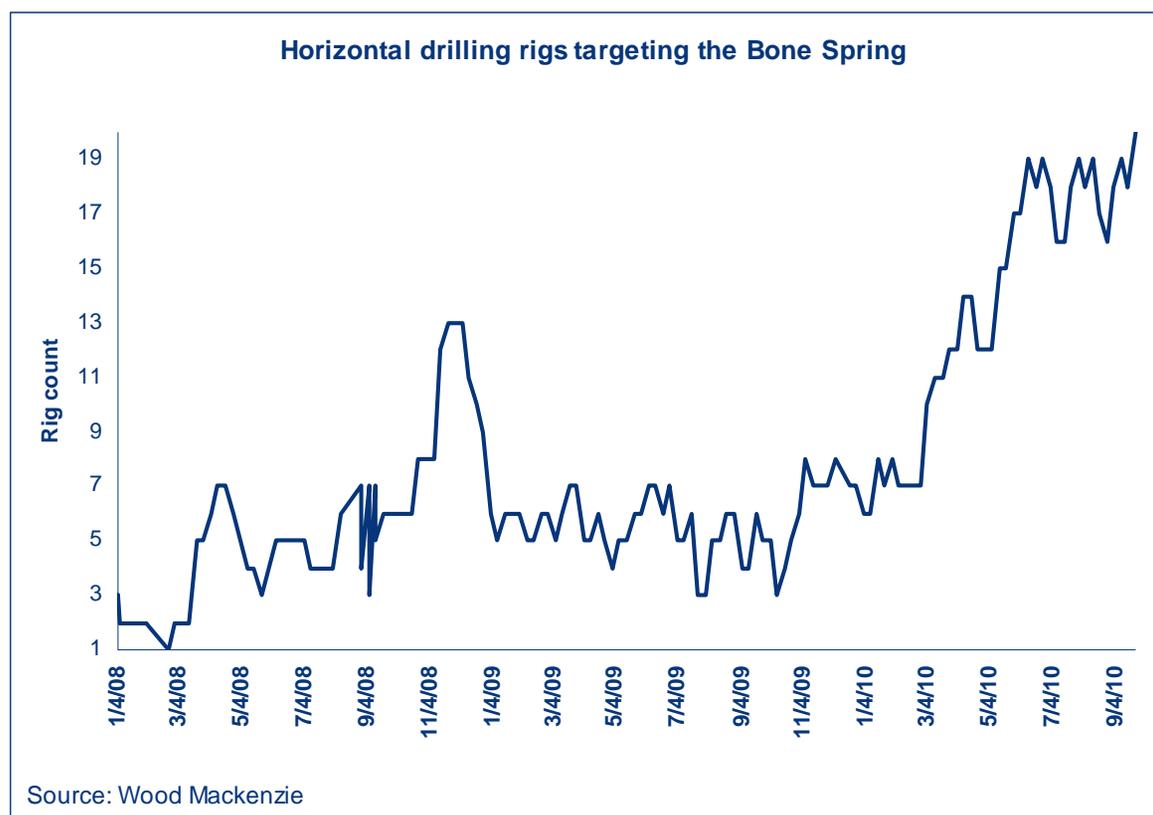
› Devon Energy

- 13 rigs in the area, drilled +15 gross wells in 2010

› Mewbourne, OGX Resources

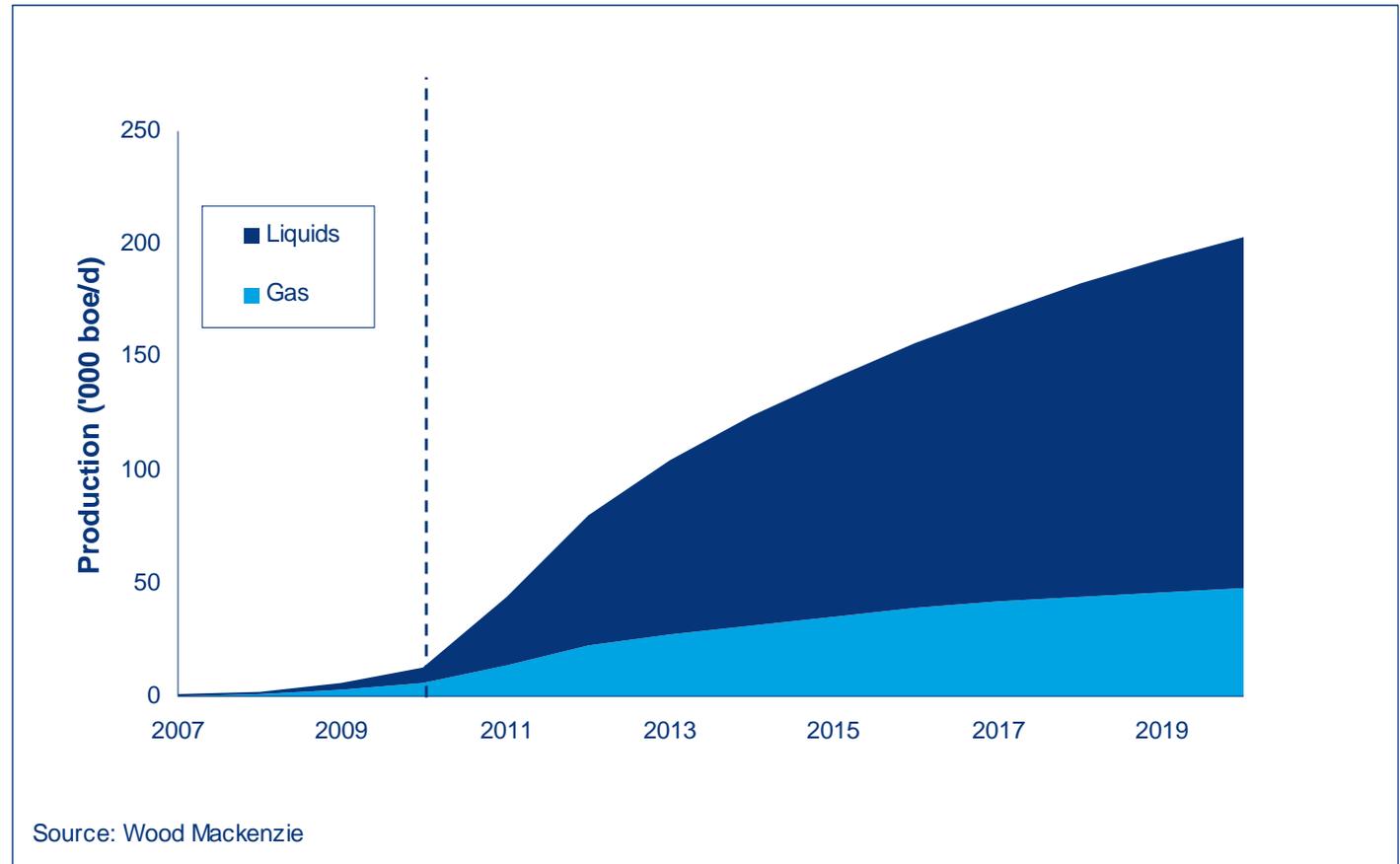
Rig movement picks up in late 2009

- › Promising reported operator results and the “depressing” gas price environment spur rig movement to the Bone Spring
 - 78 horizontal drilling permits filed in Lea County in 2010, 322 in Eddy County in 2010
- › Rig requirements:
 - High horse power, horizontal capability
 - 30-40 days to drill and complete
- › Completion techniques:
 - 4,000-5,000 foot laterals
 - multistage slickwater fracture stimulations
 - AFE of US\$5-6 million



On your mark...get set... go!

- › Rig movement in 2010 indicates significant growth area for 2011 and forward
- › Production poised to pass 100,000 boe/d by 2014
 - 105,000 b/d liquids
 - 52 mmcf/d gas



Assumes 30 rigs drilling with spud to sale time of 35 days

Constraints/ Risks

- › Play extent is still being delineated
- › Additional processing facilities may be required
- › Competition for services may squeeze costs higher
- › Water-sourcing is a constant concern
- › New Mexico regulatory environment

Upside

- › **High oil and liquids content limits downside exposure to commodity prices**
 - 3rd Bone Spring, 1st and 2nd Bone Spring, and Avalon Shale all have IRRs of over 10% at US\$60/bbl
- › **Play extent is still being delineated**
- › **Other productive formations**
 - Wolfbone, vertical commingled targets in Texas
- › **Costs could come down**
 - But when?
- › **Opportunity for future consolidation**
 - Smaller regional operators Bopco and Mewbourne, working alongside large independents, Devon and Chesapeake
- › **Well spacing**
 - Jury is still out

In summary,

- › **+8,000 well locations at 320-acre spacing with significant resource potential**
- › **Large independents with extensive horizontal drilling experience and smaller operators with long histories in the area alike have positioned themselves for a ramp up in development activity in through 2011**
- › **Base case well can expect an IRR of 42% at US\$80/bbl**
- › **Still developing- many uncertainties remain**

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