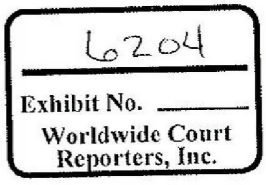
From: Baker, Kate H (Swift)
Sent: Sun Aug 01 22:47:05 2010
To: Tooms, Paul J; Thurmond, Benjamin F
Subject: FW: Who is handling the gas sample testing?
Importance: Normal
Attachments: Job13505.xls; JOB13505.pdf; RE: Contact for Enterprise - oil sample

Paul: Distinctly biogenic signature. Macondo methane signature is much less negative,as you can see with refernce to the attached plots and data in the Note from Dave Grass. Ben will update slide pack to reflect this good and not unexpected news.
News not unexpected because methane:ethane, methane:propane etc thru methane:C4+ ratios all lower in present sample than in previously tested one even though methane content itself is higher. I'm not bothered by higher methane signature as a) it could be natural variability and b) there's a finite supply of nitrogen in the cement, but a very much larger reservoir of biogenic gas percolating upward through Gulf of Mexico sediments. As wellbore cools, microannulus forms and gas percolates out, increasingly a higher percentage of which is methane. Kate

-----Original Message-----
From: Pelphrey, Steven R. [mailto:steve@isotechlabs.com]
Sent: Sunday, August 01, 2010 5:24 PM
To: Baker, Kate H (Swift); Openshaw, Graham (TecPM); Thurmond, Benjamin F
Cc: Rose, Marcus; Sheetz, David (Delta Marine Tech); Grass, David B
Subject: RE: Who is handling the gas sample testing?
Hi again all,
We have the methane isotope data completed on this one, and attached are updated files with the data. I think you will be happy with the values.
If you want the N2 isotopes on this one, please let me know and we'll get it in the queue.
Thank you,
Steve
Steve Pelphrey
Lab Manager
Isotech Laboratories, Inc
1308 Parkland Court
Champaign, IL 61821
[redacted]

-----Original Message-----
From: Baker, Kate H (Swift) [mailto:Kate.Baker@bp.com]
Sent: Sunday, August 01, 2010 11:48 AM
To: Pelphrey, Steven R.; Openshaw, Graham (TecPM); Thurmond, Benjamin F
Cc: Rose, Marcus; Sheetz, David (Delta Marine Tech); Grass, David B
Subject: RE: Who is handling the gas sample testing?

Steve, Many thanks. We are in suspense for the methane C isotopes.
Meanwhile, we content ourselves that this sample appears to be even drier gas than the previous.



Regarding the number of samples. We hot-shotted you two that are both conductor pipe gas which is coming out at the mudline and hence may be refered to as mudline weep by some. This is from the same geenral area as were the previous samples you analyzed. Still en route, evidently by very slow camel, is the sample from the cement return line (aka cement vent line). To my knowledge, you are not getting any sample from the capping stack. There were only a total of 4 en route to you, of which 1 is a duplicate and does not need to be analyzed -- at least not yet. Please hold it for us for the moment, as we may need it analyzed at a later date.
Kate Baker

-----Original Message-----
From: Pelphrey, Steven R. [mailto:steve@isotechlabs.com]
Sent: Sunday, August 01, 2010 11:22 AM
To: Openshaw, Graham (TecPM); Thurmond, Benjamin F
Cc: Rose, Marcus; Sheetz, David (Delta Marine Tech); Baker, Kate H (Swift); Grass, David B
Subject: RE: Who is handling the gas sample testing?
Hi all,

We have received the samples, and completed compositional analysis on one that we believe is the rush one. However, I'm not sure which samples we received: we were expecting 3 but only received 2. They are labelled 10661-7 and 10661-8. We were expecting samples 5, 6, and 7. It's difficult to tell whether the 2 we have are the duplicate samples: I'm working from home, but the troops thought they were both the same, so only logged in the one for analysis.

Anyway, if you want us to run the other one, let me know. We could start on it early this afternoon (analyst has left and gone to church, but will come back). We'll be running isotopes on this one, so I'll give you updated files later today with the methane isotopes.

If you have any questions, please let me know.

Thank you,
Steve

From: Graham Openshaw [mailto:graham.openshaw@tecpm.com]
Sent: Sat 7/31/2010 11:09 AM
To: 'Thurmond, Benjamin F'
Cc: Pelphrey, Steven R.; 'Rose, Marcus'; 'Sheetz, David (Delta Marine Tech)'; 'Baker, Kate H (Swift)'

Subject: RE: Who is handling the gas sample testing?

Ben,
Steve Pelphrey at Isotech is the point of contact for the lab samples - and doing a great job supporting our crazy schedule by the way. We have two that should have arrived there yesterday, one from the seabed and one from the cement line but both from several days ago.

The two being rushed are one from the capping stack weep (probably high oil content by the way Steve) and the new one from the seabed weep.

I only know that the Enterprise can do a 'quick and dirty' analysis but I have not been involved in previous analyses there so I'm not sure who to talk to. Marcus or David might know - I have not found anything they cannot fix yet J. David Grass is our internal specialist. He is in the GAL (I have no connection at present).

Marcus,
With the plethora of samples flying around could you please work with the Skandi to get a more comprehensive list of sample locations / dates / bottle #'s etc' so that we can maintain a tracking register. My current understanding is as follows but I'm sure there is more information we should be recording.

Gas Sampling:
Sample 1 - Mudline seep - 7-18-10 - Analyzed
Sample 2 - Mudline seep - 7-23-10 - Analyzed
Sample 3 - Cement vent line - 7-26-10 - At lab?
Sample 4 - Mudline seep - - 7-26-10 - At lab?
Sample 5 - Capping stack - 7-??-10 - Enroute to lab
Sample 6 - Mudline seep - - 7-29-10 - Enroute to lab
Sample 7 - Mudline seep - - 7-29-10 - Enterprise

Thanks a lot

Graham

M: [redacted]

From: Thurmond, Benjamin F | mailto:Benjamin.Thurmond@bp.com]
Sent: Saturday, July 31, 2010 9:39 AM
To: Openshaw, Graham (TecPM)
Subject: Who is handling the gas sample testing?

Graham.
With one sample headed to the lab, and one on the Enterprise, who can I speak with regarding instructions, status, etc? I'm particularly interested in the instructions and timeline for Enterprise.
Also, can you update me on the hydrate sampling? Marcus et al couldn't fill me in. (Just need to make sure this is progressing.)
The slides this morning went well. Still a few people around and there are things to do. Trust you are relaxing in better temperatures than we have here.
Regards,
Ben
Ben F. Thurmond
BP Norge AS
mobile (USA) [redacted]
mobile (Norway) [redacted]

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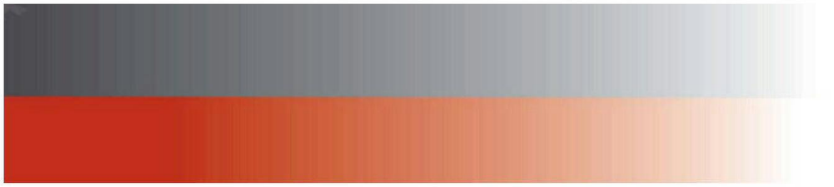
ISOTECH LABORATORIES INC
www.isotechlabs.com

Isotech Gas Data

Job 13505

Isotech Lab No.	Sample Name	Sample Date	Sample Time	Field Name	Formation	Location	Sampling Point	GC Date	H_2S %	He %
192341	10661-7							8/01/2010	0	0.0332

Chemical analysis based on standards accurate to within 2%



H_2 %	Ar %	O_2 %	CO_2 %	N_2 %	CO %	C_1 %	C_2 %	C_2H_4 %	C_3 %	iC_4 %	nC_4 %	iC_5 %
0.0701	0.251	4.83	0.006	59.39	0	35.4	0.0099	0	0.0015	0.0007	0.0015	0.0012

nC_5 %	C_6+ %	MS Date	$\delta^{13}C_1$ ‰	δDC_1 ‰	$\delta^{15}N$ ‰	Specific Gravity	BTU	Comments
0.0013	0.0065	8/1/2010	-73.64	-196.1		0.828	359	

Document Produced Natively

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ANALYSIS REPORT

Lab #: 192341 Job #: 13505
Sample Name: 10661-7 Co. Lab#:
Company: BP
Date Sampled: / /
Container: Cylinder
Field/Site Name:
Location:
Formation/Depth:
Sampling Point:
Date Received: 8/01/2010 Date Reported: 8/01/2010

Component	Chemical mol. %	Delta 13C per mil	Delta D per mil	Delta 15N per mil
Carbon Monoxide	nd			
Hydrogen Sulfide	nd			
Helium	0.0332			
Hydrogen	0.0701			
Argon	0.251			
Oxygen	4.83			
Nitrogen	59.39			
Carbon Dioxide	0.006			
Methane	35.40	-73.64	-196.1	
Ethane	0.0099			
Ethylene	nd			
Propane	0.0015			
Iso-butane	0.0007			
N-butane	0.0015			
Iso-pentane	0.0012			
N-pentane	0.0013			
Hexanes +	0.0065			

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 359
Specific gravity, calculated: 0.828

nd = not detected. na = not analyzed. Isotopic composition of carbon is relative to VPDB. Isotopic composition of hydrogen is relative to VSMOW. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

From: Grass, David B
Sent: Fri May 21 20:43:15 2010
To: Carragher, Peter D
Cc: Mason, Mike C; Merrill, Robert C; Baker, Kate H (Swift); Wilson, Roberta; Robinson, James C; Birrell, Gordon Y; Wang, Yun; Depret, Pierre-Andre ; Ritchie, Bryan; Yeilding, Cindy; Fleece, Trent J; McAughan, Kelly
Subject: RE: Contact for Enterprise - oil sample
Importance: Normal
Attachments: MC252#1_#1BP1_Isotubes.ZIP

Peter,
We are proceeding with separator gas sample acquisition and I wanted to close the loop on your question about differentiating shallow flow contribution.
The technique to identify potential shallow gas contribution is based simply on the carbon isotope value of each gas component - C1, C2 & C3, not the calculated biogenic gas content.
<<...>>
I've compared the average dC13 of 3 shallow intervals with the M56 oil interval (slide 2).
The difference in average dC13 for each of C1-C3 is generally large, beyond the analytical precision (slide 3 -table, and slides 4-6 plots).
The greatest delta corresponds to ethane, but all 3 gas components can be used to hopefully identify which, if any of the shallow zones is also flowing.
This work is based only on the mudgas Isotube data. The MDT SSF gas samples are currently being sent from Pencor to Isotech. Data from other assets suggest the isotopic composition of Isotube samples is very similar to MDTs. We will revise this assessment when the MDT and separator gases have been analyzed.
Thanks,
Dave Grass

From: Wang, Yun
Sent: Thursday, May 20, 2010 8:20 PM
To: Carragher, Peter D; Fleece, Trent J; Grass, David B; Depret, Pierre-Andre ; Ritchie, Bryan; Yeilding, Cindy
Cc: Mason, Mike C; Merrill, Robert C; Baker, Kate H (UNKNOWN BUSINESS PARTNER); Wilson, Roberta; Robinson, James C; Birrell, Gordon Y
Subject: RE: Contact for Enterprise - oil sample

Peter,
Thanks very much for the slide pack, which I haven't seen. Yes it's difficult to differentiate the shallow gas from the main oil based on the isotope data shown in the slides. The modeling work completed by early afternoon today shows substantial depletion of the shallow gas zones by now (after one month's flow), which would make it more difficult to identify shallow gas zone contribution to flow from separator gas isotope data.
Dave, your comments?
Thanks and regards,
Yun

From: Carragher, Peter D
Sent: Thursday, May 20, 2010 6:13 PM

To: Wang, Yun; Fleece, Trent J; Grass, David B; Depret, Pierre-Andre ; Ritchie, Bryan; Yeilding, Cindy

Cc: Mason, Mike C; Merrill, Robert C; Baker, Kate H (UNKNOWN BUSINESS PARTNER); Wilson, Roberta; Robinson, James C; Birrell, Gordon Y

Subject: RE: Contact for Enterprise - oil sample

Please state this case more completely. It is a fact that the main pay sands have a significant content of biogenic gas. How do you intend to differentiate the data shown in Pierre-Andre Depret's analysis of the petroleum system Data with a gas sample?

I agree it would be nice to have a gas sample, and if it is operationally a simple request I would normally support. However, I am at this point unconvinced that this is a "must have" without further explanation of the technique you intend to employ to drive a definitive analysis.

On slide 6 in the attached pack the shallow sands have a biogenic content in the order of 65%; in the top 2 main pay sands ~ 50%, and in the underlying oil pay sand back again to the ~65% level.

<< File: Macondo Post wel_05-10-10-v2.ppt >>

Please advise.

Regards

Pete Carragher

O +1 281 366 2789

C [redacted]

H [redacted]

UK [redacted]

PA Gigi Juran +1 281 366 7695 gigi.juran@bp.com

From: Wang, Yun
Sent: Thursday, May 20, 2010 8:22 AM
To: Fleece, Trent J; Carragher, Peter D; Wilson, Roberta; Birrell, Gordon Y; Robinson, James C
Cc: Mason, Mike C; Merrill, Robert C; Baker, Kate H (UNKNOWN BUSINESS PARTNER)
Subject: RE: Contact for Enterprise - oil sample
Importance: High

Have we made provisions to take Enterprise separator GAS samples? We need gas samples for methane isotope analysis to potentially establish if there is contribution from the shallow gas bearing sands, which is important for well static shut-in pressure consideration. Consider this request urgent.

Regards,

Yun Wang, **Ph.D.**

Complex Fluids CoP Leader

Reservoir Management Specialist Technical Support

Exploration and Production Technology

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Houston, Texas 77079

((281) 366-2058 8 yun.wang@bp.com

Complex Fluids Community of Practice:

http://ssw.bpweb.bp.com/Networks/ReservoirFluids/tabid/885/Default.aspx

From: Fleece, Trent J

Sent: Wednesday, May 19, 2010 4:01 PM

To: Carragher, Peter D; Wilson, Roberta; Birrell, Gordon Y; Robinson, James C

Cc: Wang, Yun

Subject: RE: Contact for Enterprise - oil sample

I believe James Robinson was working this this weekend.

The rig is currently NOT set up to grab oil samples. If we want to start a sample program, we'd need to get Pencor on a helicopter tomorrow moring to come to the rig with sample bottles etc. James, do you have a sampling program/procedure ready for the ENT?

The sample that was sent in was for shipping, to analyze what we'd put on the barge.
Thanks
Trent

From: Carragher, Peter D

Sent: Wednesday, May 19, 2010 3:21 PM

To: Wilson, Roberta; Birrell, Gordon Y

Cc: Fleece, Trent J; Wang, Yun

Subject: RE: Contact for Enterprise - oil sample

Roberta, what exactly does Gordon need? I have a lot of data on the original oil.
We are working to collect an oil sample from the Enterprise – in full coordination with the ongoing operation – and split it in order to supply demands from government and state laboratories and others working on the identification of Tar Balls and so on.
A full sample analysis of the oil from the Enterprise will take about 3 days from receipt at the respective lab.

Dave Rainey has just called from Washington DC and has directed that we need a very regular 3 to 4 hour sampling program from the Enterprise stream.

We are working to get these requirements into an operational plan – and transmission chain to secure locations.

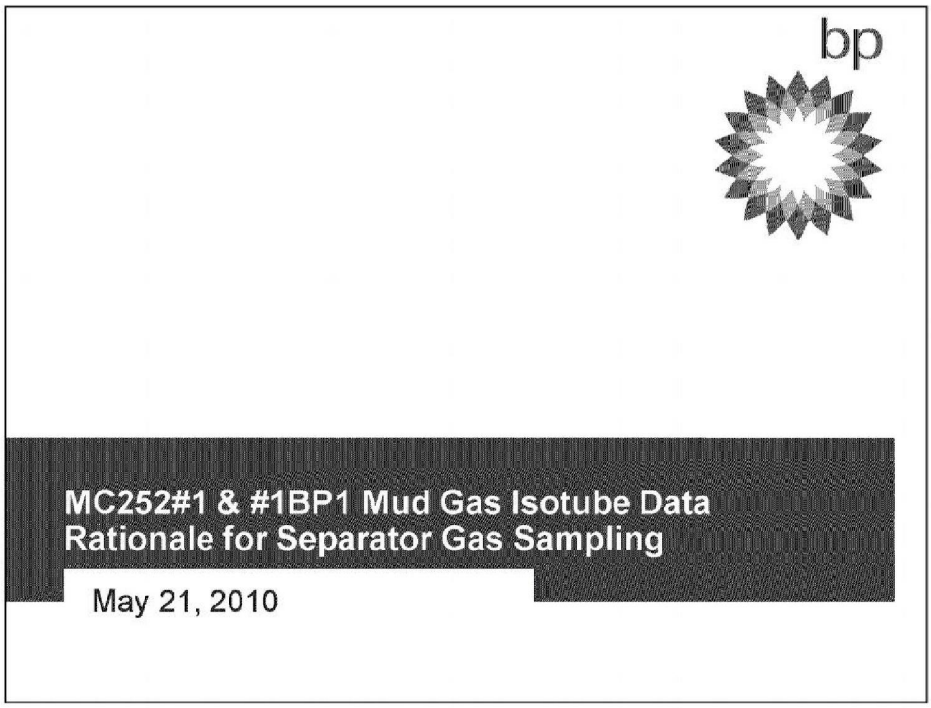
Regards
Pete Carragher
O +1 281 366 2789
C [redacted]
H [redacted]
UK [redacted]
PA Gigi Juran +1 281 366 7695 gigi.juran@bp.com

From: Wang, Yun
Sent: Wednesday, May 19, 2010 12:50 PM
To: Wilson, Roberta
Cc: Carragher, Peter D; Fleece, Trent J
Subject: RE: Contact for Enterprise - oil sample

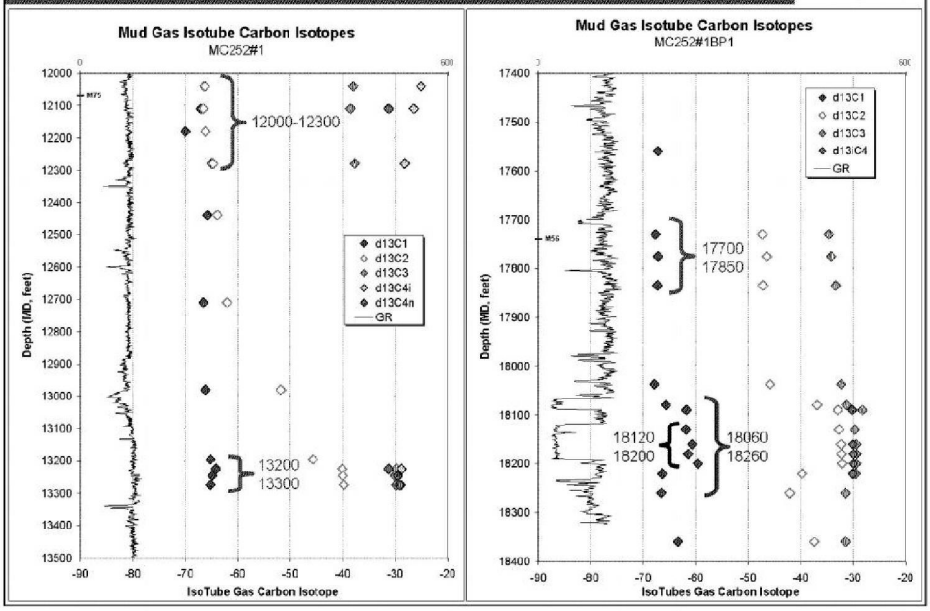
Roberta,
No I haven't seen any. Peter or Trent, do you know who might have knowledge about the sample analysis from Enterprise?
Regards,
Yun

From: Wilson, Roberta
Sent: Wednesday, May 19, 2010 12:32 PM
To: Wang, Yun
Subject: FW: Contact for Enterprise - oil sample
Importance: High

Yun,
Have you received any recent analysis of the product that is being recovered by the Enterprise currently? If not do you know who I might be able to contact to access this please?
Thanks,
Roberta



MC252#1 & #1BP1 Mud Gas Isotube δC13 Intervals of potential flow



Difference in δC13: Shallow Gas vs Main Oil

Meas Depth Interval	Fluid Content	# Isotubes	ave dC13 C1	ave dC13 C2	ave dC13 C3
12000-12300	Gas	4	-67.1	-66.0	-38.1
13200-13300	Gas	4	-64.9	-41.4	-29.9
17400-17500	Gas	0			
17700-17708	Uncertain	0			
17804-17806	Oil or Gas	0			
17700-17850		3	-67.4	-47.0	-34.0
18060-18090	Oil	2	-63.8	-34.9	-29.8
18120-18200	**Oil**	**4**	**-60.9**	**-32.3**	**-29.5**
18217-18260	Oil	2	-66.5	-40.9	-30.5
18060-18260	**Oil - Entire Zone**	**8**	**-63.0**	**-35.1**	**-29.8**

Difference Between Interval Below & M56 Main Sand 18120-18200

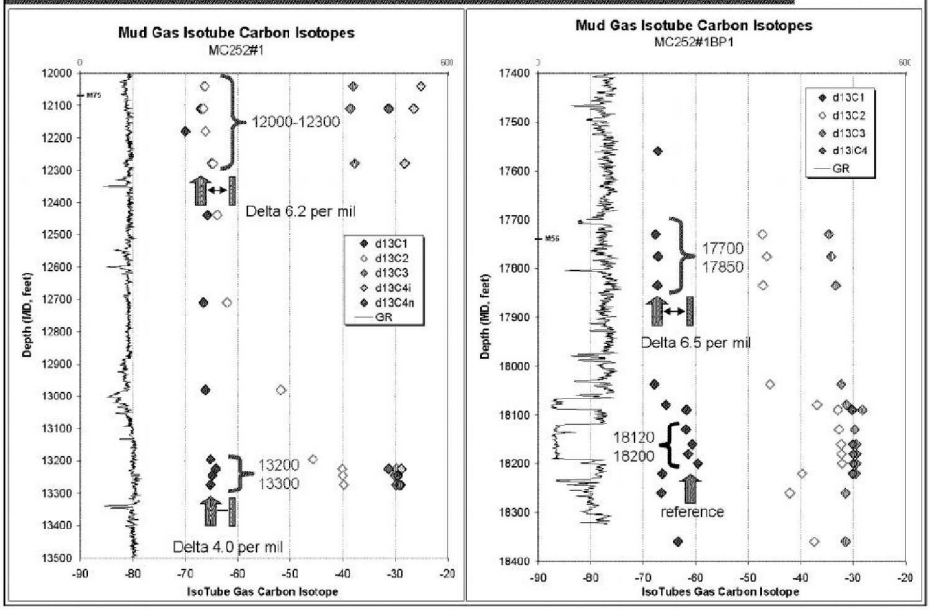
Meas Depth Interval	Fluid Content	# Isotubes	delta dC13 C1	delta dC13 C2	delta dC13 C3
12000-12300	Gas	4	6.2	33.7	8.6
13200-13300	Gas	4	4.0	9.1	0.4
17700-17850		3	6.5	14.7	4.5

Difference Between Interval Below & M56 All Sands 18060-18260

Meas Depth Interval	Fluid Content	# Isotubes	delta dC13 C1	delta dC13 C2	delta dC13 C3
12000-12300	Gas	4	4.1	30.9	8.3
13200-13300	Gas	4	1.9	6.3	0.1
17700-17850		3	4.4	11.9	4.2

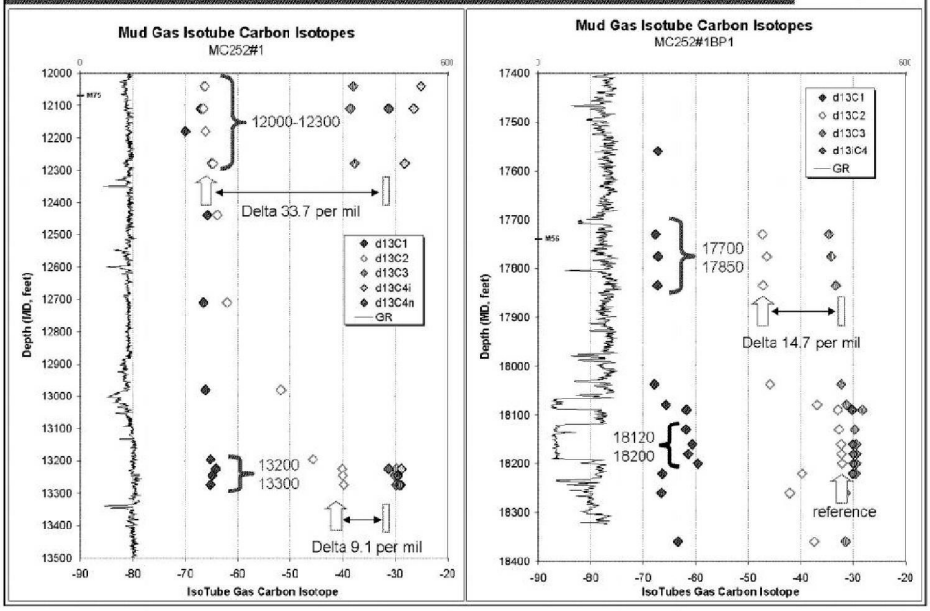
MC252#1 & #1BP1 Isotube Delta δC13 Methane

Reference main oil pay 18120-18200 ft md



MC252#1 & #1BP1 Isotube Delta δC13 Ethane

Reference main oil pay 18120-18200 ft md



MC252#1 & #1BP1 Isotube Delta δC13 Propane

Reference main oil pay 18120-18200 ft md