RECEIVED
OCT 14 2013
DIVISION OF OIL, GAS AND
GEOTHERMAL RESOURCES

Core Lab
RESERVOIR OPTIMIZATION

Petroleum Services

Sidewall Core Analysis

ERG Operating Company, LLC

Los Alamos 22-RD1 Well

Cat Canyon Field
Santa Barbara County, California

FINAL REPORT

August 13, 2013

CL File: 57111-213330ER

Performed by:
Core Laboratories LP
3437 Landco Drive
Bakersfield, California 93308
(661) 325-5657

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations or profitableness, however, of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever.

58

Petroleum Services Division
3437 Landco Dr.
Bakersfield, California 93308
Tel. 661-325-5657
Fax: 661-325-5808
www.corelab.com

August 13, 2013

Tom Skinner
ERG Operating Company, LLC
6085 Cat Canyon Road
Santa Maria, CA 93454

Subject: Sidewall Core Analysis
File No.: 57111-213330ER

Dear Mr. Skinner:

Enclosed are final data for 27 percussion sidewall samples submitted to our laboratory from well Los Alamos 22-RD1, Cat Canyon Field, Santa Barbara County, CA.

Porosity, permeability and saturation (PKS) determinations, along with white and ultraviolet light photographs, were performed on each sample where there was suitable recovery. Basic procedures used for this project are documented on the following pages for reference.

Thank you for this opportunity to be of service to ERG Operating Company, LLC. Please do not hesitate to contact us at (661-325-5657) if you have any questions regarding these results or if we can be of any additional service.

Sincerely,
Core Laboratories

Gil Casabar
Senior Group Leader

Distribution: 1 original report, 1 CD copy: Addressee

CLB
NYSE

Petroleum Services Division
3437 Landco Dr.
Bakersfield, California 93308
Tel. 661-325-5657
Fax: 661-325-5806
www.corelab.com

Basic Test Procedures [1]

Core Analysis

- Remove visible drilling mud contamination from sidewall sample.
- Expose a fresh sample surface and photograph (if requested) under white and ultraviolet (UV) lighting.
- Retain endtrim for future analysis.
- Record lithological description.
- Package samples, if required, using nickel foil and end screens.
- Seat sleeve at depth - 100psi (750psi maximum).
- Remove water by Dean Stark extraction using toluene. Summation of fluids method used for samples <0.5" long or irregular shaped.
- Record stablized produced water volume.
- Leach remaining oil and salts by Soxhlet extraction using an 80/20 mixture of methlyene chloride/methanol.
- Dry at 235 °F to stable weight (minimum of 24 hours).
- Cool to ambient temperature in dessicator to prevent moisture accumulation.
- Record stable dry weight.
- Determine grain volume and grain density by helium expansion (Boyle's Law).
- Determine helium (Boyle's Law) pore volume at 250psi confining pressure.
- Determine steady-state permeability to air at 250psi confining pressure. Emperical method used for samples <0.5" long or irregular shaped.

Core Analysis (Summation)

- Remove visible drilling mud contamination from sidewall sample.
- Expose a fresh sample surface and photograph (if requested) under white and ultraviolet (UV) lighting.
- Record lithological description.
- Determine Air Permeability (Empirical) for sample.
- Cut end-clip from sample for Summation of Fluids analysis.
- Measure Bulk Volume by mercury displacement.
- Place sample material into test equipment.
- Heat samples at 350 °F for approximately 30 minutes and record initial water values.
- Increase retort temperature to 1200 °F
- Centrifuge tubes to insure water-oil separation.
- Measure final fluid levels and calculate saturation percentages.

(1) See Core Analysis Procedures page for specific methods used.

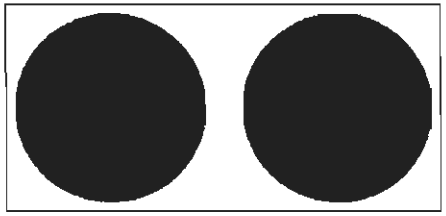
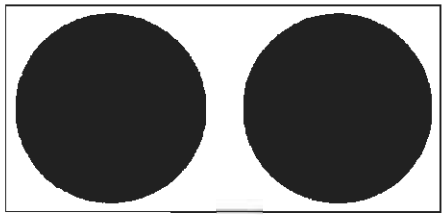
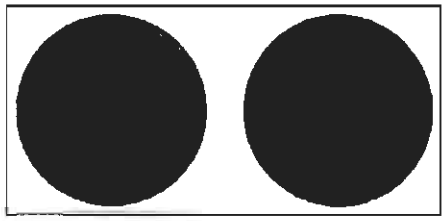
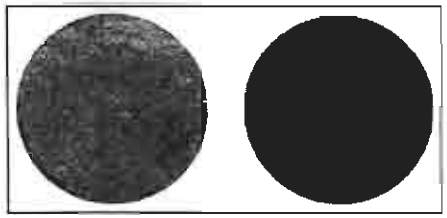
CLB
NYSE

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

Location: Sec. 36-9N-33W
Elevation: 1167' K.B.
Drlg Fluid: LSND

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013

Sidewall Core Analysis Results

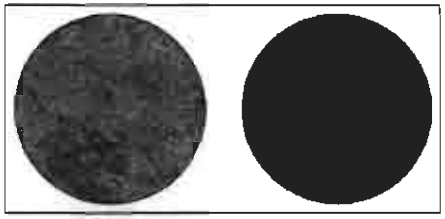
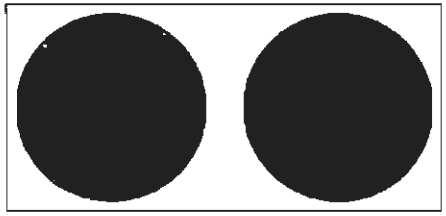
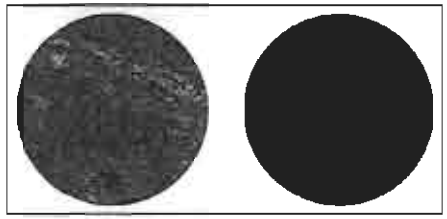
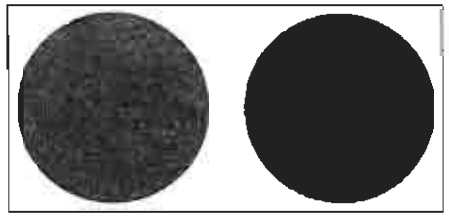
Core Images	Sample Number	Depth	Rec	Perm.	Porosity	Fluid Saturation				Grain	Sample	Method
White Light | UV Light				Kair		Oil	Water	O/W	Total	Den	Wt.	
		ft	in	md	%	%	%	Ratio	%	g/cc	g	
	1	1805.0	1.2	819.7	33.8	52.6	46.6	1.13	99.2	2.60	25.6	1
	Sd dbrn vf-fgr sslty-slty smica d stn vdgld flor											
	2	2854.0	1.0	16.4	23.4	15.6	78.0	0.20	93.6	2.61	26.8	1
	Sd lbrn-gy vf-fgr vslty cly msp stn vdgld flor											
	3	2860.0	0.6	16.2	29.5	10.5	79.2	0.13	89.7	2.62	15.7	1
	Sd lbrn-gy vf-fgr vslty cly msp stn vdgld flor											
	4	2932.0	0.7	16.0	23.8	17.0	59.2	0.29	76.2	2.63	25.4	1
	Sd brn-gy vf-fgr vslty scly calc msp stn dgld-gld flor											

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

Location: Sec. 36-9N-33W
Elevation: 1167' K.B.
Drlg Fluid: LSND

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013

Sidewall Core Analysis Results

Core Images White Light | UV Light	Sample Number	Depth ft	Rec in	Perm. Kair md	Porosity %	Fluid Saturation Oil %	Water %	O/W Ratio	Total %	Grain Den g/cc	Sample Wt. g	Method
	5	2934.0	0.7	7.1	24.7	21.0	59.6	0.35	80.6	2.61	22.1	1
	Sd brn-gy vfgr vslty scly msp stn vdgld flor											
	6	2936.0	0.6	7.7	24.4	23.5	65.0	0.36	88.5	2.61	21.0	1
	Sd brn-gy vfgr vslty scly msp stn dgld-vdgld flor											
	7	2974.0	0.7	43.5	24.3	6.5	72.6	0.09	79.1	2.63	24.8	1
	Sd lbrn-gy vf-fgr vslty cly lams mstrk stn dgld-gld flor											
	8	2975.0	1.0	113.6	28.7	23.7	49.9	0.48	73.7	2.63	26.6	1
	Sd brn vf-fgr slty-vslty m stn vdgld flor											

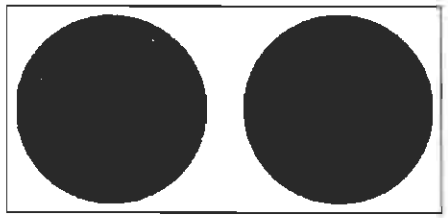
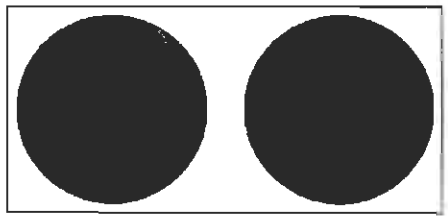
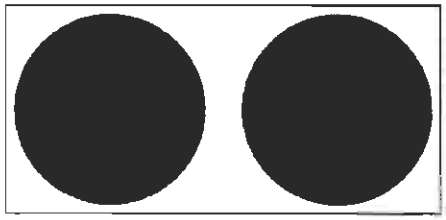
54

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

Location: Sec. 36-9N-33W
Elevation: 1167' K.B.
Drlg Fluid: LSND

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013

Sidewall Core Analysis Results

Core Images White Light | UV Light	Sample Number	Depth ft	Rec in	Perm. Kair md	Porosity %	Fluid Saturation Oil %	Water %	O/W Ratio	Total %	Grain Den g/cc	Sample Wt. g	Method
	9	2976.0	0.5	128.0	29.2	24.4	44.8	0.55	69.3	2.63	17.3	1
	Sd brn vf-fgr slty-vslty m stn vdgld flor											
	10	2977.0	0.6	102.3	29.3	24.0	45.6	0.53	69.6	2.61	20.1	1
	Sd brn vf-fgr slty-vslty m-d stn vdgld flor											
	11	2978.0	0.6	213.1	32.1	22.3	46.9	0.48	69.2	2.62	20.1	1
	Sd brn vf-fgr slty msp stn vdgld flor											
		2979.0										
	No Sample											

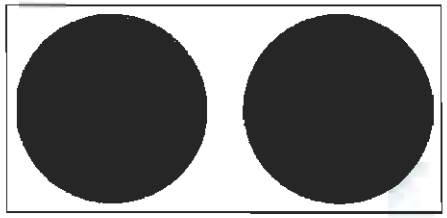
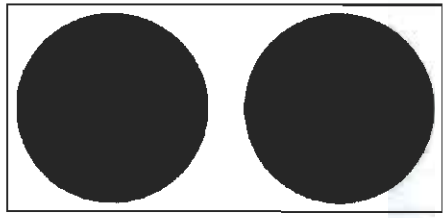
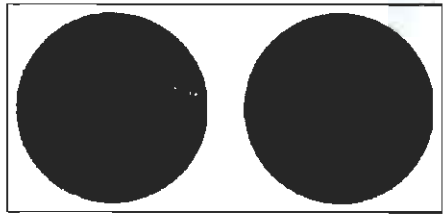
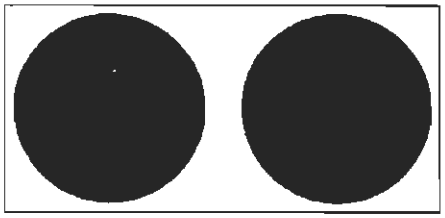
35

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

Location: Sec. 36-9N-33W
Elevation: 1167' K.B.
Drlg Fluid: LSND

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013

Sidewall Core Analysis Results

Core Images	Sample Number	Depth	Rec	Perm.	Porosity	Fluid Saturation				Grain	Sample	Method
White Light | UV Light				Kair		Oil	Water	O/W	Total	Den	Wt.	
		ft	in	md	%	%	%	Ratio	%	g/cc	g	
	12	2980.0	0.6	228.1	31.1	26.0	42.0	0.62	67.9	2.62	16.9	1
	Sd brn vf-fgr slty m-d stn vdgld flor											
	13	2981.0	0.6	35.8	26.5	27.0	53.6	0.50	80.5	2.62	21.2	1
	Sd brn vf-fgr vslty scly m-d stn vdgld flor											
	14	2982.0	0.5	51.0	29.5	19.6	54.1	0.36	73.7	2.62	19.7	1
	Sd brn-gy vf-fgr vslty msp stn vdgld flor											
	15	2984.0	0.4	47.6	28.6	16.0	56.0	0.29	72.0	2.62	18.2	1
	Sd brn vf-fgr vslty m stn vdgld flor											

52

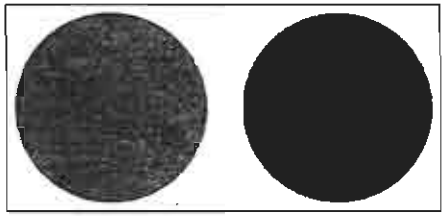
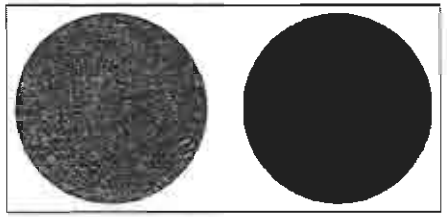
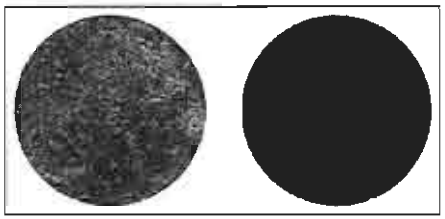
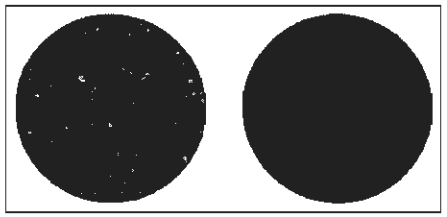
Core Lab
RESERVOIR OPTIMIZATION

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

Location: Sec. 36-9N-33W
Elevation: 1167' K.B.
Drlg Fluid: LSND

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013

Sidewall Core Analysis Results

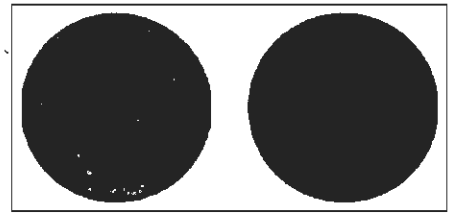
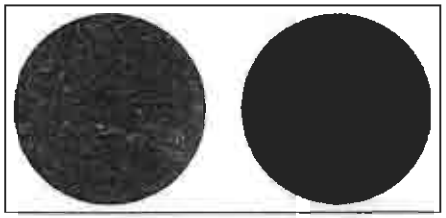
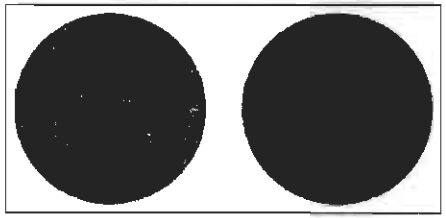
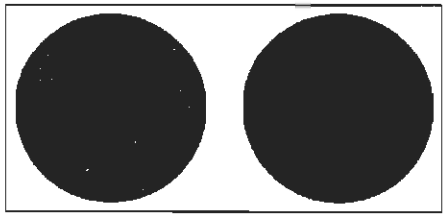
Core Images White Light | UV Light	Sample Number	Depth ft	Rec in	Perm. Kair md	Porosity %	Fluid Saturation Oil %	Water %	O/W Ratio	Total %	Grain Den g/cc	Sample Wt. g	Method
	16	2986.0	0.6	26.7	25.7	5.1	71.7	0.07	76.8	2.63	19.7	1
	Sd lbrn-gy vf-fgr vslty scly msp stn vdgld flor											
	17	3134.0	0.9	32.5	27.7	5.5	69.2	0.08	74.7	2.63	20.9	1
	Sd brn-gy vf-fgr vslty scly msp stn vdgld flor											
	18	3136.0	0.3	<50.0	22.1	23.4	42.4	0.55	65.8		8.0	3
	Sd brn vf-fgr vslty m stn dgld-vdgld flor											
	19	3138.0	0.6	86.1	26.5	27.1	50.9	0.53	78.0	2.64	17.4	1
	Sd brn vf-fgr vslty m-d stn vdgld flor											

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

Location: Sec. 36-9N-33W
Elevation: 1167' K.B.
Drlg Fluid: LSND

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013

Sidewall Core Analysis Results

Core Images White Light | UV Light	Sample Number	Depth ft	Rec in	Perm. Kair md	Porosity %	Fluid Saturation Oil %	Water %	O/W Ratio	Total %	Grain Den g/cc	Sample Wt. g	Method
	20	3140.0	0.3	301.5	32.3	27.0	42.7	0.63	69.7	2.62	17.4	1
	Sd brn vf-fgr slty m-d stn vdgld flor											
	21	3142.0	0.6	188.1	29.9	25.9	44.8	0.58	70.7	2.62	15.9	1
	Sd brn-gy vf-fgr slty scly msp stn vdgld flor											
	22	3144.0	0.7	78.2	27.9	28.4	47.7	0.59	76.1	2.62	21.8	1
	Sd brn-gy vf-fgr vslty scly dsp stn vdgld flor											
	23	3146.0	0.5	163.5	29.7	26.1	46.9	0.56	73.1	2.62	20.7	1
	Sd brn-gy vf-fgr slty scly dsp stn vdgld flor											

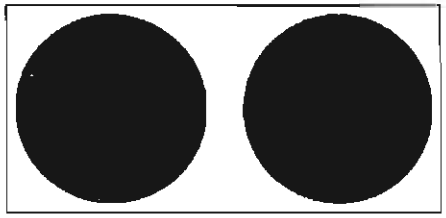
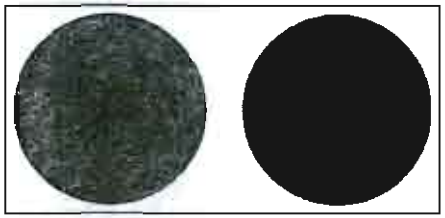
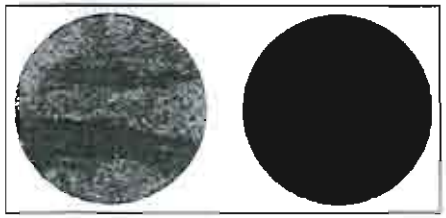
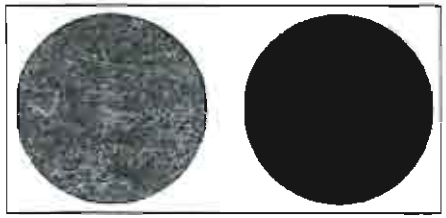
3

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

Location: Sec. 36-9N-33W
Elevation: 1167' K.B.
Drlg Fluid: LSND

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013

Sidewall Core Analysis Results

Core Images White Light | UV Light	Sample Number	Depth ft	Rec in	Perm. Kair md	Porosity %	Fluid Saturation Oil %	Water %	O/W Ratio	Total %	Grain Den g/cc	Sample Wt. g	Method
	24	3148.0	0.3	100.7	31.2	28.5	38.5	0.74	66.9	2.62	16.8	1
	Sd brn vf-fgr slty-vslty scly m-d stn vdgld flor											
	25	3150.0	0.3	<100.0	28.2	15.8	64.6	0.24	80.4		10.8	3
	Sd brn-gy vf-fgr vslty scly msp stn vdgld flor											
	26	3152.0	0.7	10.5	27.9	0.0	61.7	0.00	61.7	2.65	17.1	1
	Sd gy vf-fgr vslty cly lams no stn no flor											
	27	3154.0	0.6	9.2	27.8	0.0	66.3	0.00	66.3	2.64	18.1	1
	Sd gy vf-fgr vslty cly no stn no flor											

49

Company: ERG Operating Company, LLC
Well : Los Alamos 22-RD1
Field: Cat Canyon

File No.: 57111-213330ER
API No.: 04-083-00394-01
Date: 8/13/2013
Core Type: Sidewall Core

Core Analysis Procedures and Conditions

	Procedure (1)	Procedure (2)	Procedure (3)	Procedure (4)
Sampling Method	Percussion	Percussion	Percussion	Rotary
Drill Coolant	N/A	N/A	N/A	N/A
Jacket Material	Nickel	None	N/A	None
Saturation Method	Dean Stark (Toluene)	Dean Stark (Toluene)	Retort	Dean Stark (Toluene)
Porosity Method				
Grain Volume	Boyle's Law (Helium)	Boyle's Law (Helium)	Bulk Vol-Pore Vol	Boyle's Law (Helium)
Pore Volume	Boyle's Law (Helium)	Bulk Vol-Grain Vol	Summation Of Fluids	Bulk Vol-Grain Vol
Bulk Volume	Pore Vol + Grain Vol	Mercury Displacement	Mercury Displacement	Mercury Displacement
Permeability Method	Air	Empirical	Empirical	Air

Common Conditions

Sleeved Sample Seating Pressure: Depth - 100 (Max 750 psi)

Confining Pressure Pore Vol & Permeability: 250 psi

Samples Dried At 235 Degrees Fahrenheit

Additional Extraction by Soxhlet with Methylene Chloride/Methanol

Oil Density used in Calculation: 1g/cc