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RESERVOIR OPTIMIZATION

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Final Report
Special Core Analysis
Selected Samples
From
Wells : DMP Harvey-1, DMP Harvey-3, and DMP Harvey-4

Western Australia

Prepared for
Department of Mines and Petroleum

February 2018

File : HOU-1703703

Rock Properties Group
Core Laboratories
Perth (Australia) and Houston (USA)

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23rd February 2018

DEPARTMENT OF MINES AND PETROLEUM
100 Plain Street
East Perth
Western Australia, 6004

Attention : Dominique Van Gent

Subject : Special Core Analysis
Wells : DMP Harvey-1; DMP Harvey-3; and DMP Harvey-4
File : HOU-1703703

Dear Dominique,

Presented herein is the final report of the Special Core Analysis study conducted on selected core plug samples taken from the wells DMP Harvey-1, DMP Harvey-3 and DMP Harvey-4.

Thank you for the opportunity to have been of service to the Department of Mines and Petroleum. Please do not hesitate to contact us should you have any questions or if we can be of any further assistance.

Yours sincerely,
CORE LABORATORIES AUSTRALIA PTY LTD

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SECTION 1
INTRODUCTION and SUMMARY

INTRODUCTION

This report contains the final results of the Special Core Analysis (SCAL) study performed on selected core plug samples from the wells DMP Harvey-1, DMP Harvey-3, and DMP Harvey-4 by Core Laboratories (CoreLab). This study was conducted on behalf of the Department of Mines and Petroleum (DMP).

The SCAL study comprised the following analyses :

- Basic properties (permeability, porosity, and grain density)
- Steady-state supercritical CO_2-Water / Water-CO_2 relative permeability (full-curve)
- Unsteady-state supercritical CO_2-Water / Water-CO_2 relative permeability (end-points)

The SCAL analysis each sample underwent is presented in the test schedule summary (pages 1-2 and 1-3).

The steady-state and unsteady-state relative permeability analyses were performed at Core Laboratory's Advanced Technology Centre in Houston (Texas, USA).

CT-scan images of all the samples prepared and which underwent RCA measurements are presented in Appendix-1.

Appendix-2 comprises post-test CT-scan images of selected samples which underwent relative permeability testing.

Reservoir parameters of temperature and pressure were given by the DMP and included in Appendix-4.

SUMMARY OF RESULTS

Steady-State Relative Permeability

Six (6) core plug samples were selected for steady-state supercritical carbon dioxide (CO_2) – Water relative permeability tests. The selected samples (listed below, sorted by well and depth) had previously undergone Routine Core Analysis (RCA) measurements.

Well	Stratigraphic Unit	Sample no.	Plug Type	Depth (m)
DMP Harvey-1	Wonnerup Member	7A	Horizontal	1911.84
DMP Harvey-1	Wonnerup Member	15A	Horizontal	2518.42
DMP Harvey-1	Wonnerup Member	12A	Horizontal	2528.07
DMP Harvey-1	Wonnerup Member	13A	Horizontal	2530.;03
DMP Harvey-3	Wonnerup Member	1A	Horizontal	1427.47
DMP Harvey-4	Wonnerup Member	6B	Horizontal	1794.27

The steady-state supercritical CO_2-Water relative permeability tests were performed at various temperatures (48°C to 71°C) and net confining stresses (1700 to 2600 psi) while maintaining the supercritical point for CO_2 throughout testing.

Tagged brine was injected into each sample and specific permeability to brine (Kw at 100% Sw) was determined. Then CO_2 and brine were injected at several ratios allowing the CO_2 saturation to increase. Finally CO_2 only was injected. At initial conditions, the specific permeabilities to brine ranged from 0.206 to 258 md. The effective permeabilities to CO_2 at terminal conditions ranged from 0.0143 to 22.4 md and the relative permeabilities to CO_2 ranged from 6.92 to 27.7 percent (relative to the specific permeability to brine). Water recoveries ranged from 38.9 to 57.8 percent of the water-in-place. The results from the steady-state supercritical CO2 displacing Water relative permeability tests are summarized on page 2-3.

The samples were then tested for water displacing supercritical CO_2 relative permeability. The effective permeability to CO_2 at the beginning of the test ranged from 0.0143 to 22.4 md, as noted previously.

At the end of the test, the effective permeabilities to water ranged from 0.0278 to 14.8 md and the relative permeability to brine ranged from 4.81 to 15.6 percent (relative to the specific permeability to brine). The final CO_2 recoveries ranged from 42.9 to 70.4 percent of the gas-in-place and the residual CO_2 saturations ranged from 13.7 to 29.8 percent of pore space. The results from the water displacing supercritical CO_2 relative permeability tests are summarized on page 2-4.

The steady-state full-curve CO_2 displacing water (CO_2-Water) and water displacing CO_2 (Water-CO_2) tests results are presented in tabular and graphical formats within pages 2-5 and 2-16. The Test Raw data is presented in Appendix 3.

Unsteady-State Relative Permeability

Six (6) samples were submitted for the unsteady-state relative permeability gas-displacing-brine and brine-displacing-gas tests. The selected samples (listed below, sorted by well and depth) had previously undergone Routine Core Analysis (RCA) measurements.

Well	Stratigraphic Unit	Sample no.	Plug Type	Depth (m)
DMP Harvey-1	Wonnerup Member	7B	Horizontal	1911.89
DMP Harvey-1	Wonnerup Member	8B	Horizontal	1919.90
DMP Harvey-1	Wonnerup Member	9B	Horizontal	2491.78
DMP Harvey-1	Wonnerup Member	11A	Horizontal	2522.54
DMP Harvey-3	Yalgorup Member	4A	Horizontal	1369.84
DMP Harvey-3	Yaldorup Member	3B	Horizontal	1392.35

The unsteady-state supercritical CO_2-Water relative permeability tests (endpoints only) were performed at various temperatures (47°C to 70°C) and net confining stresses (2000 to 3600 psi) while maintaining the supercritical point for CO_2 throughout testing.

Synthetic formation brine was injected through the saturated samples and specific permeability to brine (Kw at 100% Sw) was measured at two injection rates. At initial conditions, the specific permeabilities to brine ranged from 0.0758 to 62.7 md. CO_2 was then injected at a constant pressure and effective permeability to gas was determined.

Following the gas injection, the effective permeabilities to CO_2 ranged from 0.0342 to 23.5 md and the water saturations ranged from 31.5 to 69.1% of the pore space. The relative permeability to CO_2 ranged from 21.3 to 84.2% (relative to the specific permeability to water). Water recoveries ranged from 30.9 to 68.5% of the initial water in place.

At the conclusion of the CO_2 gas-displacing-water tests, unsteady-state water-gas relative permeability endpoint tests were performed on the same six samples. Brine was injected into the core sample, again at varied pressure and temperature. The CO_2-gas recoveries ranged from 47.2 to 69.0 percent of the initial gas in place. The residual CO_2-gas saturation values ranged from 12.2 to 31.7% of the initial gas in place.

Results from the unsteady-state supercritical CO_2-Water relative permeability tests (endpoints only) are presented within pages 3-2 and 3-3.

SECTION 2
STEADY-STATE
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State CO_2-Water / Water- CO_2 Relative Permeability

1. Tagged synthetic formation brine was prepared based on the provided analysis with 73.0 g/L sodium iodide as the x-ray blocker, using deionized water and reagent grade chemicals (full brine composition given on page 2-19). The brine was filtered to 0.45 microns and degassed. Fluid parameters including viscosity and density were measured at various given reservoir temperatures (page 2-20).

2. The simulated formation brine was then saturated with carbon dioxide gas at specified net confining stress (see data for individual sample stress).

3. The clean, dry core plugs were weighed and measured and sleeved with Teflon and heat shrink. Samples were then reweighed.

4. Each plug sample was loaded into the specially designed core holder constructed of an alloy that allows penetration by the x-rays used to monitor saturation changes during steady-state testing. Net confining stresses were applied as specified.

5. The sample was x-ray scanned at the 100% gas saturation for the base scan.

6. Non-humidified nitrogen was injected for at least 10 pore volumes at a suitable constant rate until an equilibrium differential pressure was observed. Temperature was elevated to the specified test temperature (Appendix-4). Injection rate was decreased to half rate and continued until an equilibrium differential pressure was observed. The sample was x-ray scanned at the 100% nitrogen gas saturation for the nitrogen base scan.

7. Non-humidified carbon dioxide (CO_2) gas was injected at a suitable constant rate for at least to displace the nitrogen. Injection continued for at least 10 pore volumes and equilibrium differential pressure was observed. The sample was x-ray scanned at the 100% CO_2 gas saturation for the 100% CO_2 base scan.

8. Tagged non-gasified synthetic formation brine was injected at a suitable constant rate until an equilibrium differential pressure was observed. Injection continued for at least 10 pore volumes and equilibrium differential pressure was observed. Injection rate was decreased to half rate and continued until an equilibrium differential pressure was observed. The sample was x-ray scanned at the 100% tagged brine saturation for the 100% tagged brine base scan.

9. Tagged gasified synthetic formation brine was injected at a suitable constant rate until an equilibrium differential pressure was observed. Injection continued for at least 10 pore volumes and equilibrium differential pressure was observed. Injection rate was decreased to half rate and continued until an equilibrium differential pressure was observed. The sample

was x-ray scanned at the 100% tagged gasified brine saturation for the 100% tagged gasified brine base scan.

10. Supercritical carbon dioxide and brine, which had been pre-equilibrated, were then injected simultaneously at several increasing gas-water injection ratios to allow the CO_2 saturation within the sample to increase. Saturation changes were monitored by x-ray scan. The gas-water injection ratios are given within the test raw data (Appendix 3).

11. Injection was continued at each ratio until an equilibrium steady-state condition within the core plug was established, based on the consistency of the saturation profile and differential pressure. Flow rates and differential pressures were monitored throughout the test process. Finally CO_2 alone was injected until pressure equilibrated and effective permeability to CO_2 at residual water saturation was determined at two injection rates.

12. Supercritical carbon dioxide and brine, which had been pre-equilibrated, were then injected simultaneously at several increasing water-gas injection ratios to allow the water saturation within the sample to increase. Saturation changes were monitored by x-ray scan.

13. Injection was continued at each ratio until equilibrium, steady-state condition within the core plug was established, based on the consistency of the saturation profile and differential pressure. Finally approximately 3 pore volumes of brine alone were injected while scanning the sample every pore volume and effective permeability to water at trapped CO_2 saturation was determined at two injection rates.

14. Measured flow rates and differential pressures at equilibrium conditions for each water- CO_2 injection ratio were used to calculate the steady-state relative permeability data for each sample. Saturations were determined by the x-ray attenuation method where x-ray scans measured at each saturation were combined with base scans at 100% saturations by the following equation :

$$Sw = \frac{\log(scan) - \log(scan_{Kg})}{\log(scan_{Kw}) - \log(scan_{Kg})}$$

where:

Sw	= Water saturation, fraction pore space
scan	= X-ray scan, counts
$scan_{Kw}$	= X-ray scan at 100% Sw, counts
$scan_{Kg}$	= X-ray scan at 100% Sg, counts

15. Finally, the samples were submitted for post-test CT-scanning.

SECTION 3
UNSTEADY-STATE
CO_2 - WATER / WATER - CO_2
RELATIVE PERMEABILITY

Unsteady-State CO_2 Gas-Water and Water-CO_2 Gas Relative Permeability

1. The clean, dry core plugs were weighed and measured and sleeved with Teflon and nickel. Samples were then re-weighed.

2. The samples were pressure saturated with synthetic formation brine and specific permeability to brine was determined.

3. The saturated samples were loaded into individual core holders and net confining stress was applied (see data for individual sample stresses). The pore pressure for each sample (2700 and 3600 psi for the DMP Harvey-1 samples; 2000 psi for the DMP Harvey-3 samples; and 2600 psi for the DMP Harvey-4 samples) was established by passing formation brine through the system and around the sample. Coreholder, sample, and system were elevated to reservoir temperature while maintaining net confining stress and pore pressure.

4. Synthetic formation brine was injected through each sample in the injection direction at a suitable constant rate until an equilibrium differential pressure was observed. Specific permeability to brine was measured at three injection rates

5. Supercritical CO_2 was injected at a constant rate. Produced liquid, CO_2 volumes, elapsed time, and differential pressure were monitored. Humidified supercritical CO2 was injected until a gas-water relative permeability ratio of 100:1 or greater was observed. Effective permeability to gas at residual water saturation was determined at three injection pressures.

6. Synthetic brine was again injected through the samples at a low constant rate, while monitoring gas volume, time and differential pressure until no more CO_2 production was detected. Effective permeability to brine at residual CO_2 saturation was determined at three injection rates.

7. Each sample was unloaded and submitted for Dean Stark* residual fluid determinations and cleaning.

8. Unsteady-state gas-water and water- CO_2 endpoints were calculated.

9. Finally, the samples were submitted for post-test CT-scanning.

APPENDICES

APPENDIX 1

Core Plug X-ray Computed Tomography (X-ray CT) Images

Pre-Test Samples

APPENDIX 2

Core Plug X-ray Computed Tomography (X-ray CT) Images

Post Steady-State and Unsteady-State Relative Permeability Test

APPENDIX 3

Raw Data

Steady-State CO_2-Water / Water-CO_2 Relative Permeability

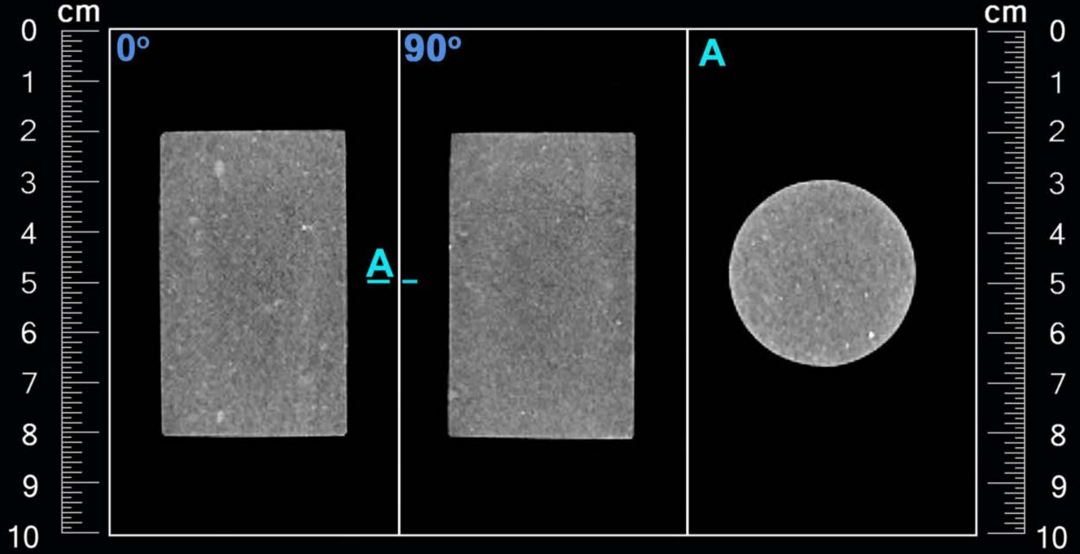
APPENDIX 4

Reservoir Temperature and Pressure
(Provided by Department of Mines and Petroleum)

Department of Mines and Petroleum

DMP HARVEY-4

Plug ID: 7A   Depth: 1911.84 m   Density: 1774 HU



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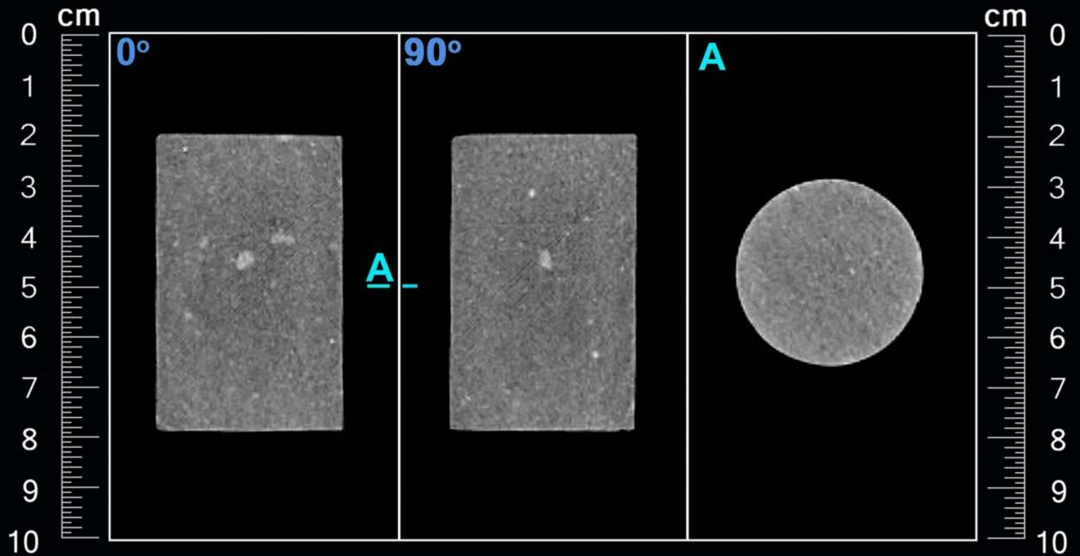
Department of Mines and Petroleum

DMP HARVEY-1

Plug ID: 8A   Depth: 1919.86 m   Density: 1713 HU



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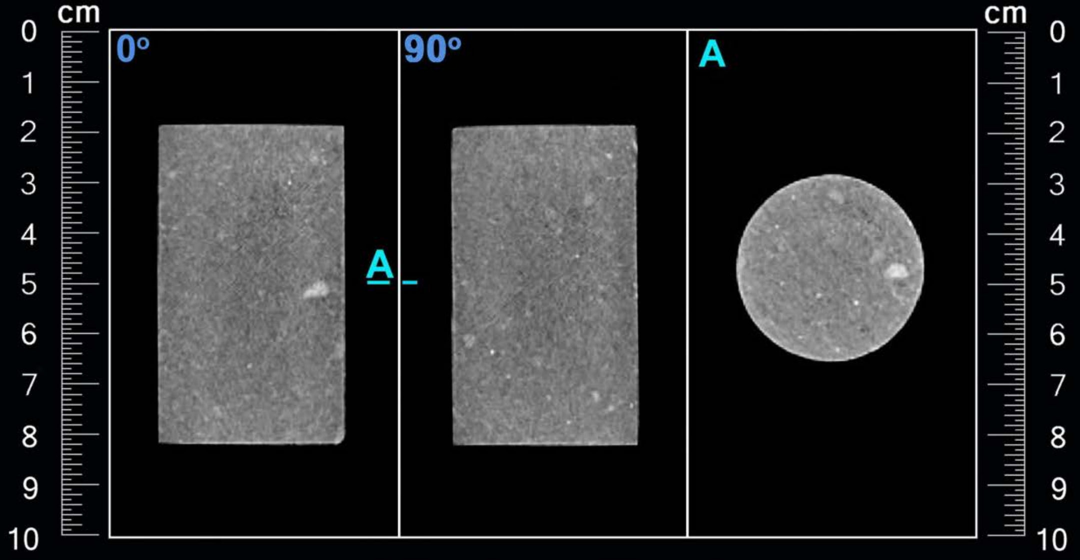
Department of Mines and Petroleum

DMP HARVEY-1

Plug ID: 7B Depth: 1911.89 m Density: 1770 HU



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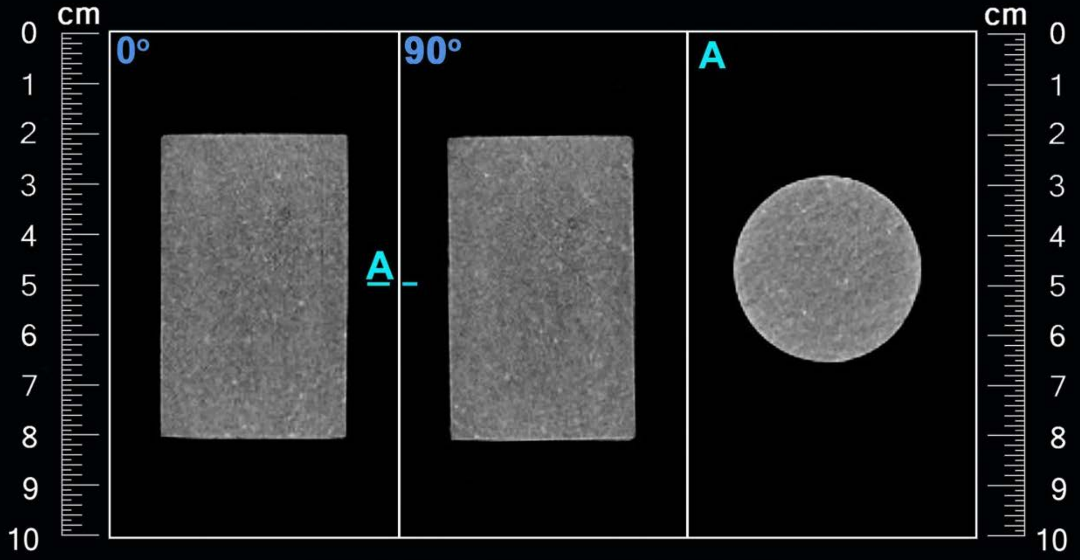
Department of Mines and Petroleum

DMP HARVEY-1

Plug ID: 8B Depth: 1919.90 m Density: 1705 HU



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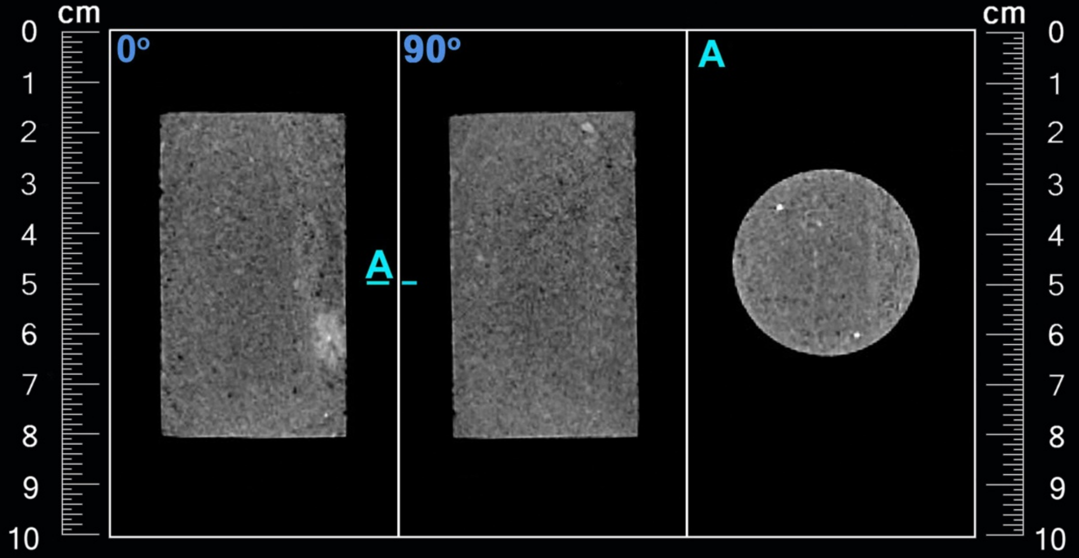
Department of Mines and Petroleum

DMP HARVEY-1

Plug ID: 9A   Depth: 2491.72 m   Density: 1604 HU



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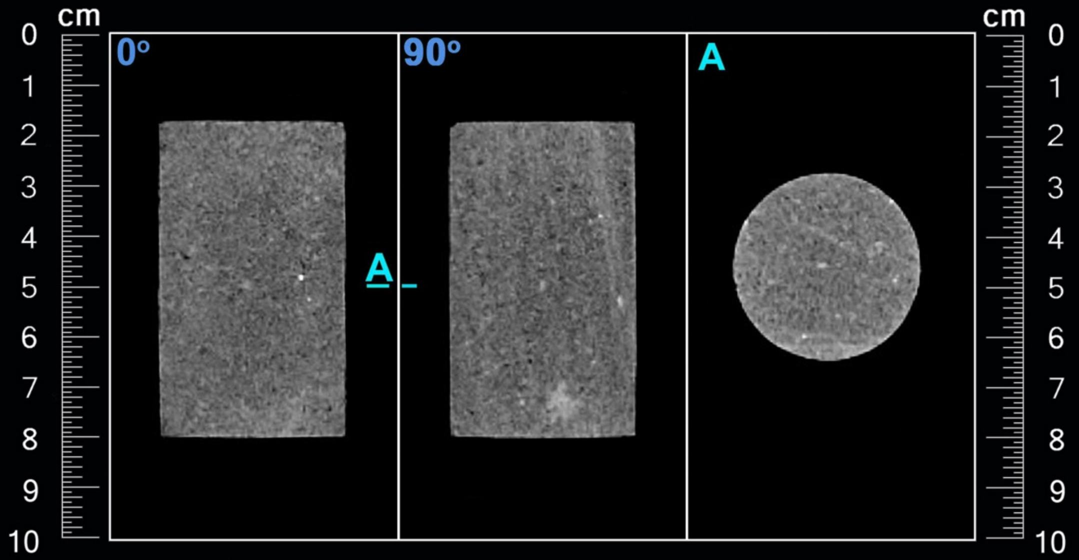
Department of Mines and Petroleum

DMP HARVEY-1

Plug ID: 9B   Depth: 2491.78 m   Density: 1638 HU



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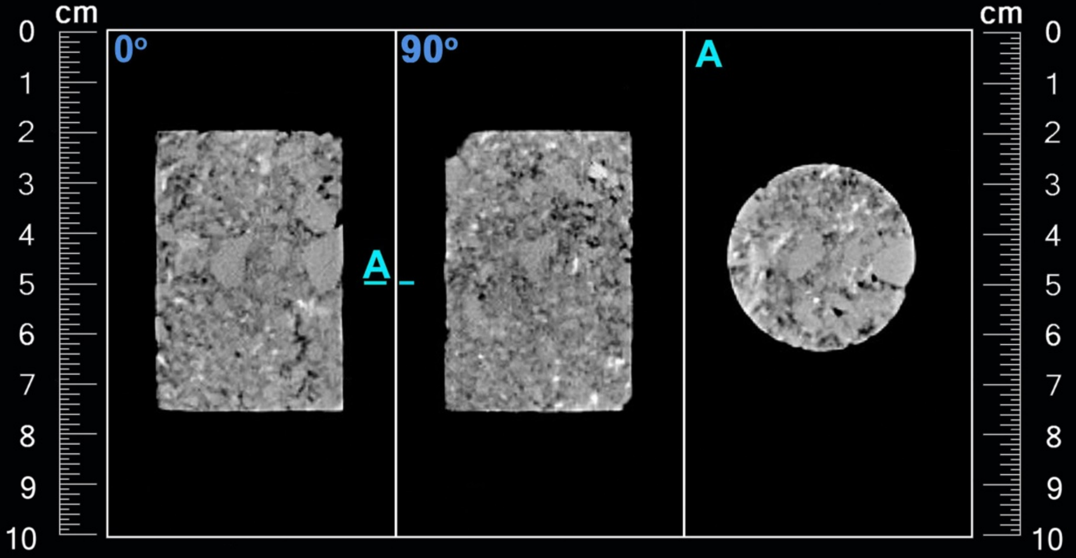
DMP HARVEY-1

Plug ID: 10A Depth: 2508.63 m Density: 1841 HU



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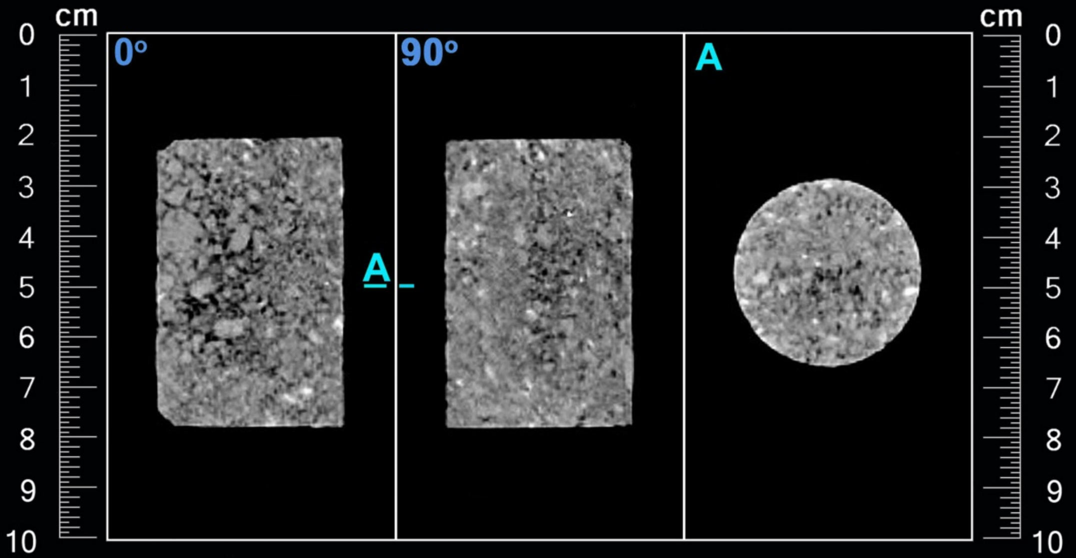
DMP HARVEY-1

Plug ID: 10B Depth: 2508.67 m Density: 1737 HU



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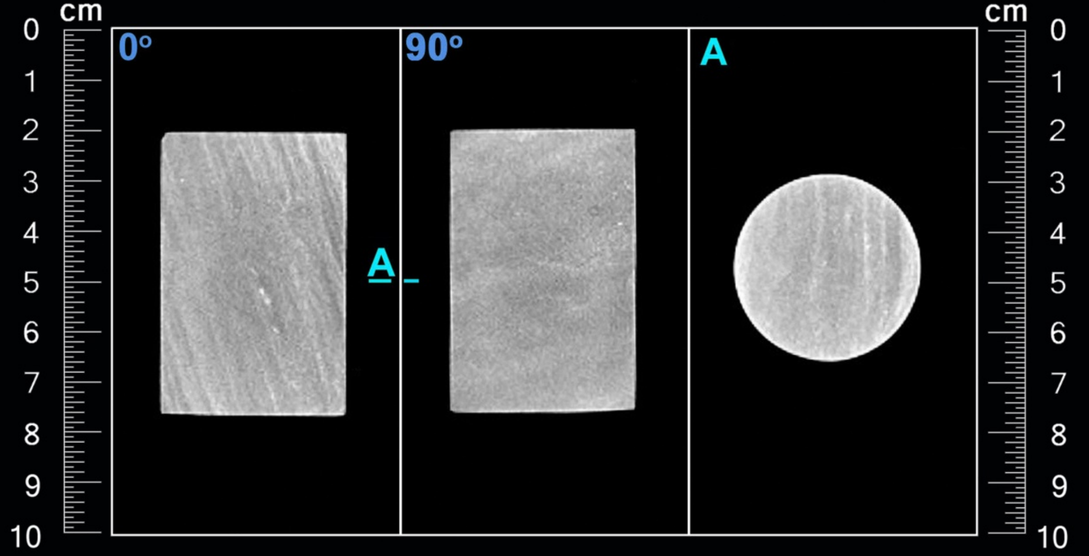
DMP HARVEY-1

Plug ID: 14A Depth: 2517.76 m Density: 2046 HU



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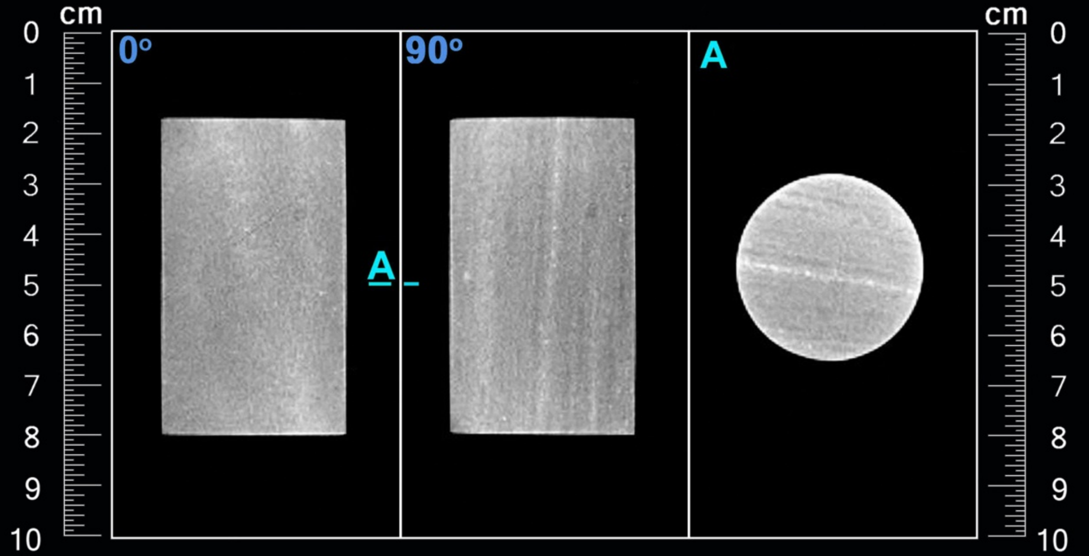
Department of Mines and Petroleum

DMP HARVEY-1

Plug ID: 15A Depth: 2518.42 m Density: 2029 HU



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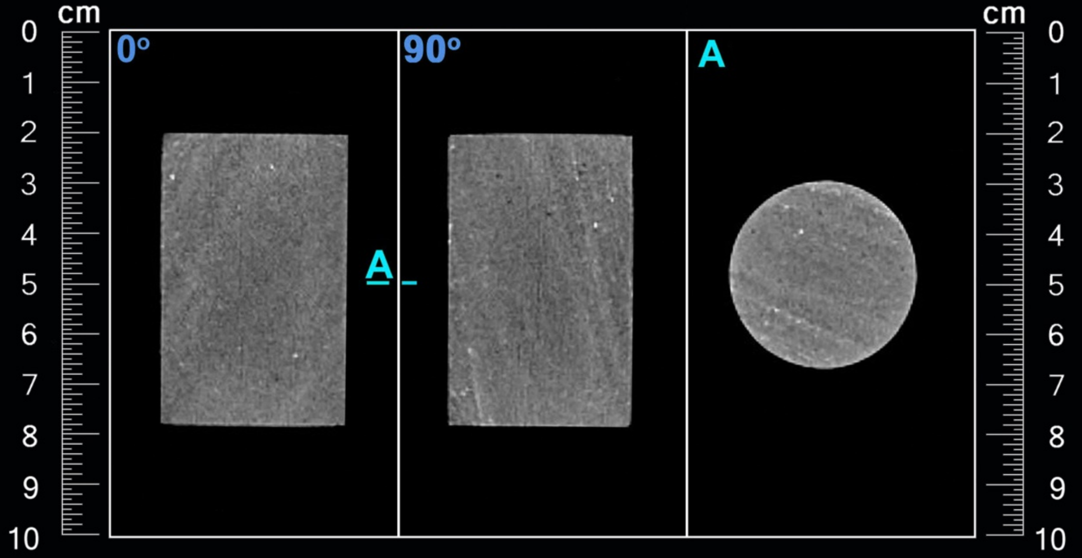
DMP HARVEY-1

Plug ID: 11A   Depth: 2522.54 m   Density: 1663 HU



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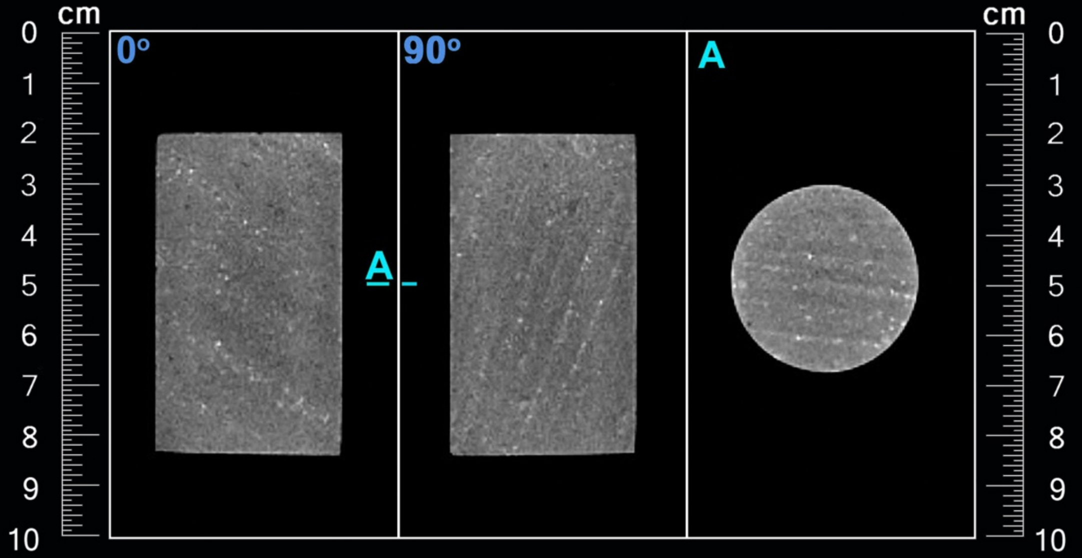
DMP HARVEY-1

Plug ID: 11B   Depth: 2522.59 m   Density: 1678 HU



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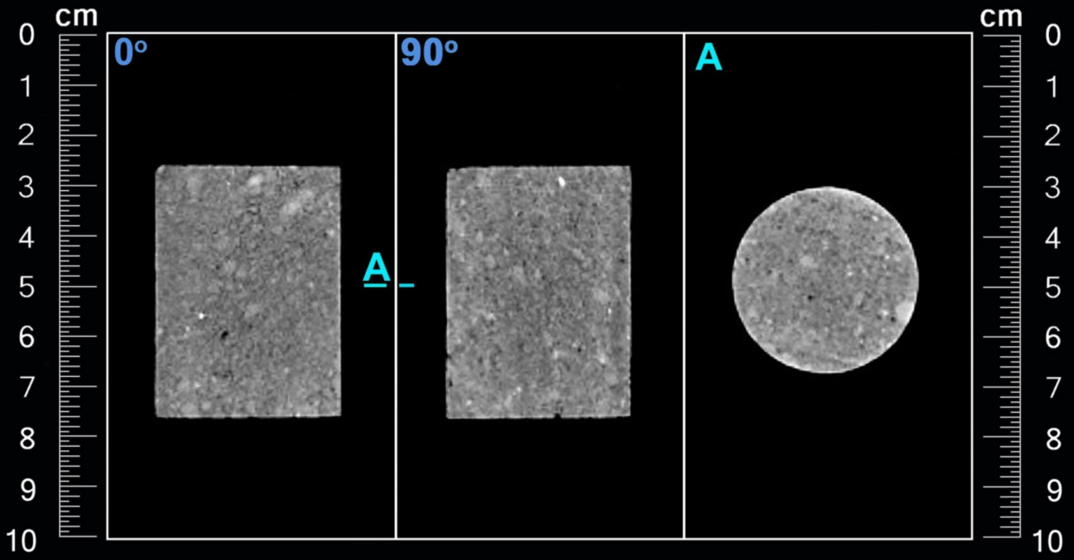
DMP HARVEY-1

Plug ID: 12A Depth: 2528.07 m Density: 1741 HU



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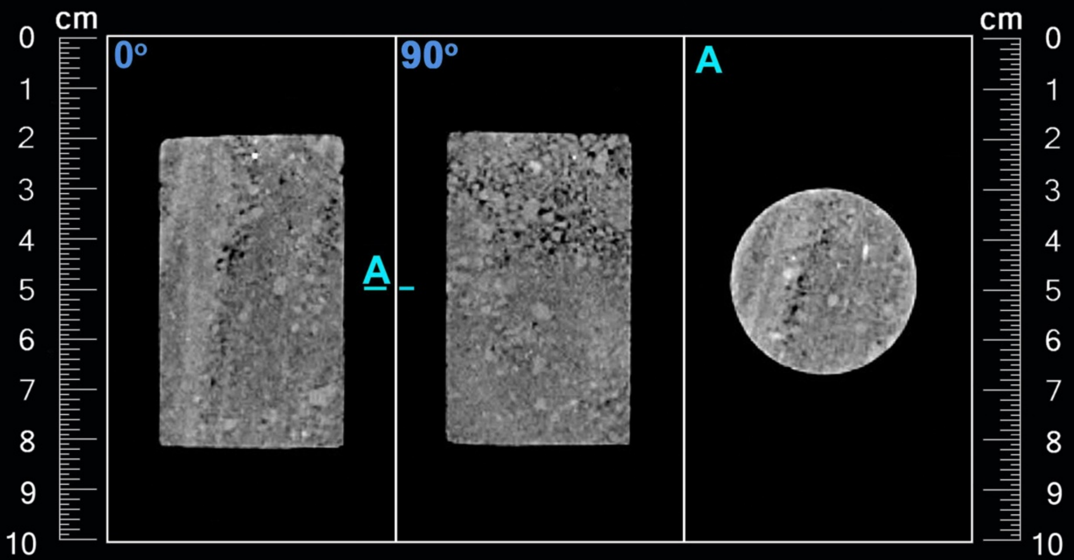
DMP HARVEY-1

Plug ID: 12B Depth: 2528.12 m Density: 1740 HU



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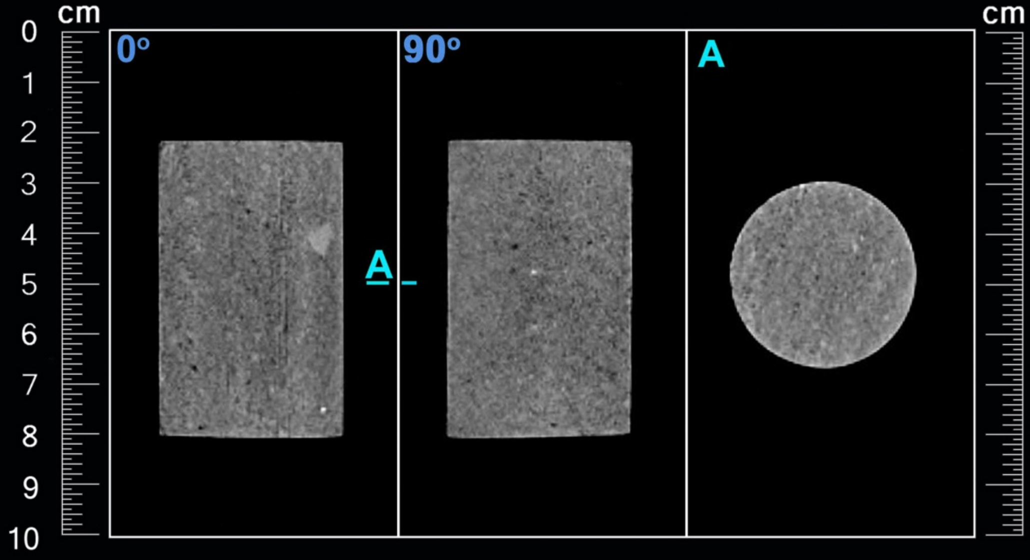
DMP HARVEY-1

Plug ID: 13A Depth: 2530.03 m Density: 1660 HU



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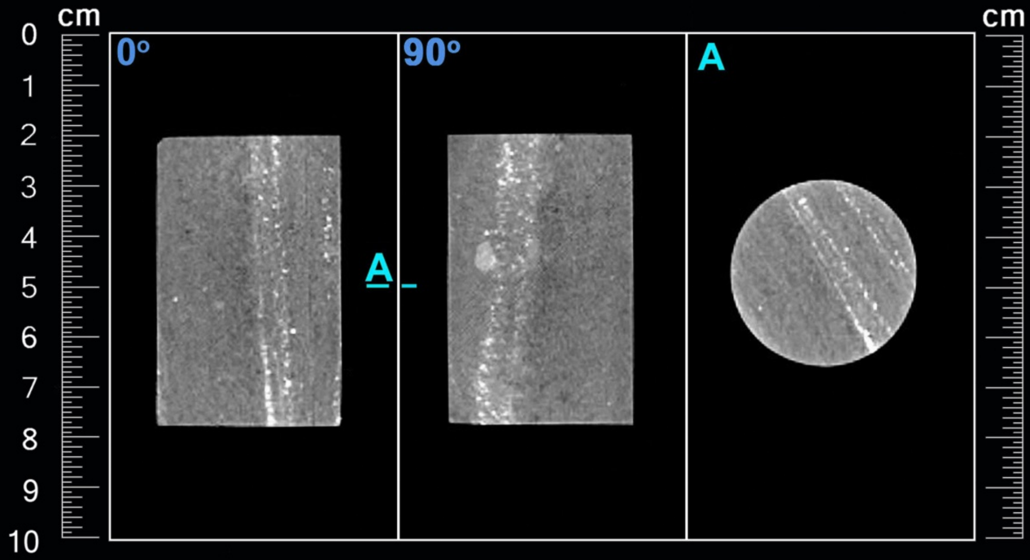
DMP HARVEY-1

Plug ID: 13B Depth: 2530.07 m Density: 1773 HU



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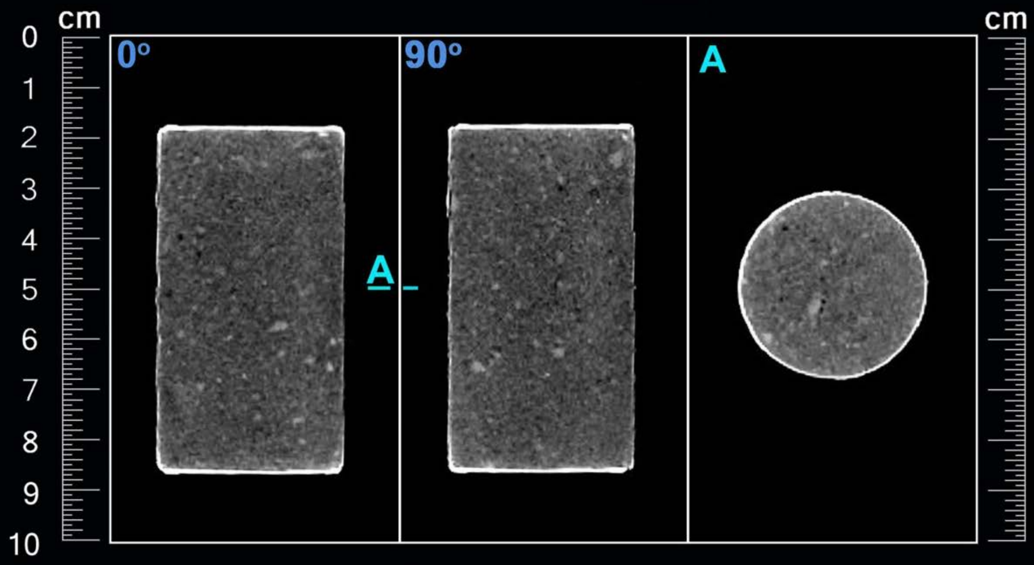
DMP HARVEY-3

Plug ID: 4A Depth: 1369.84 m Density: 1504 HU



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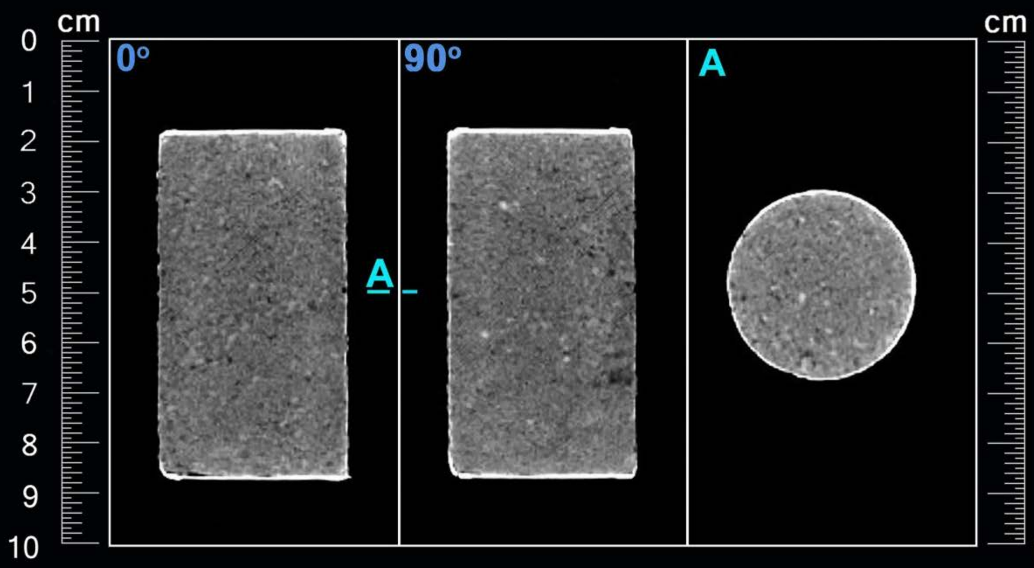
DMP HARVEY-3

Plug ID: 3A Depth: 1392.30 m Density: 1678 HU



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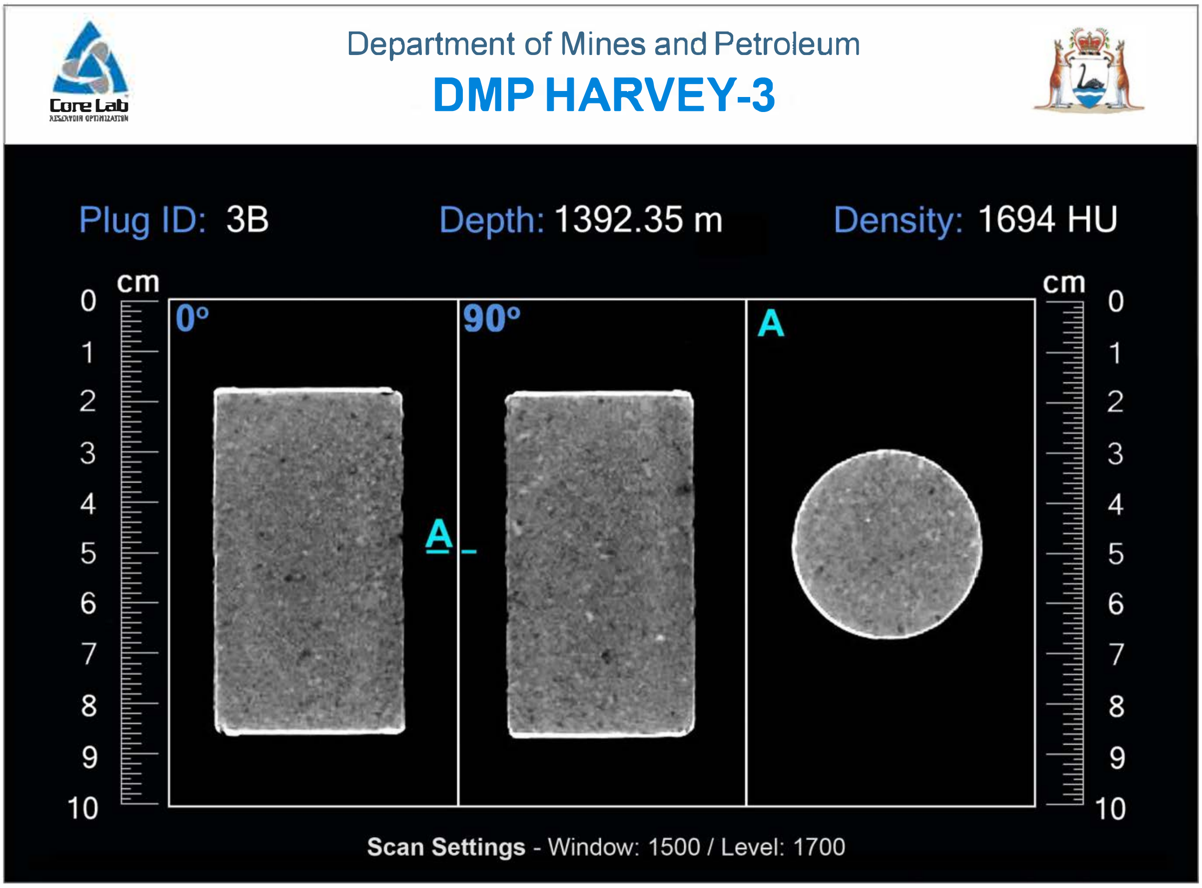
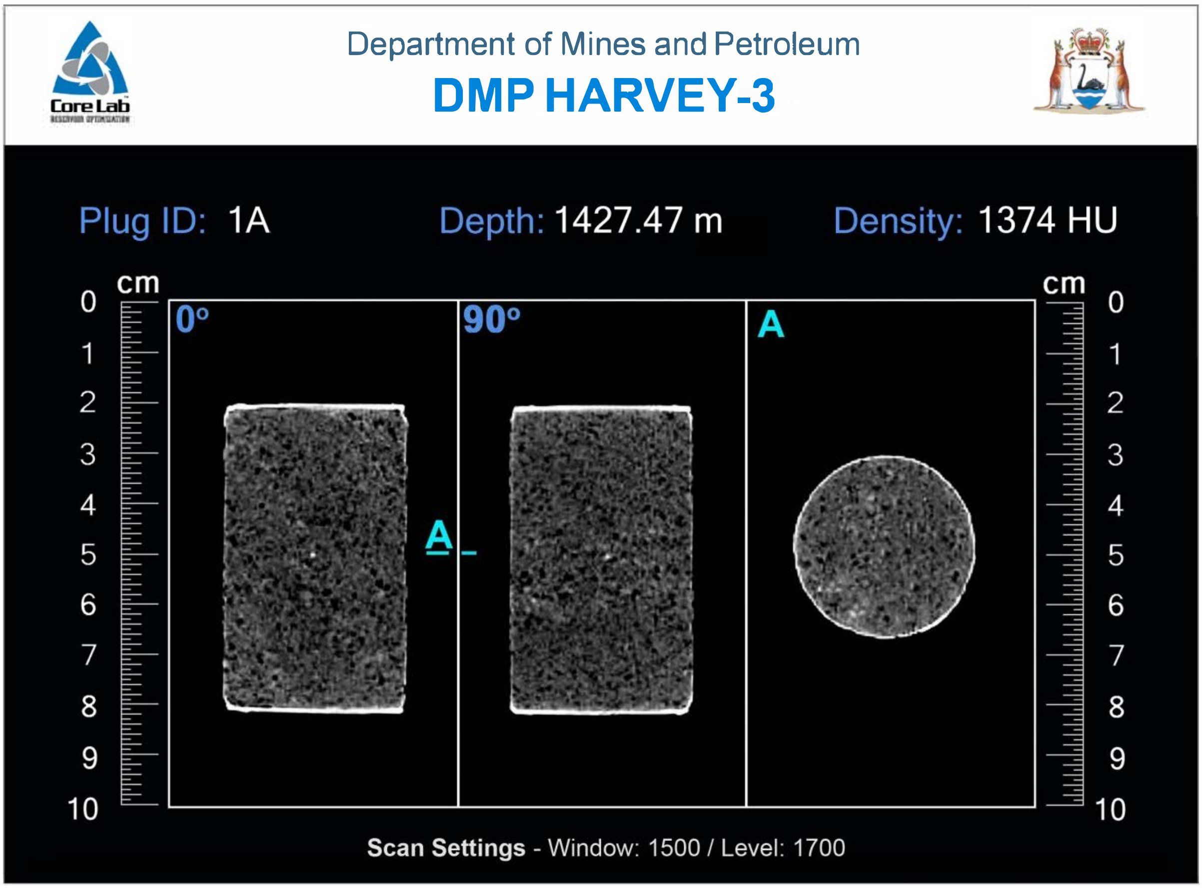
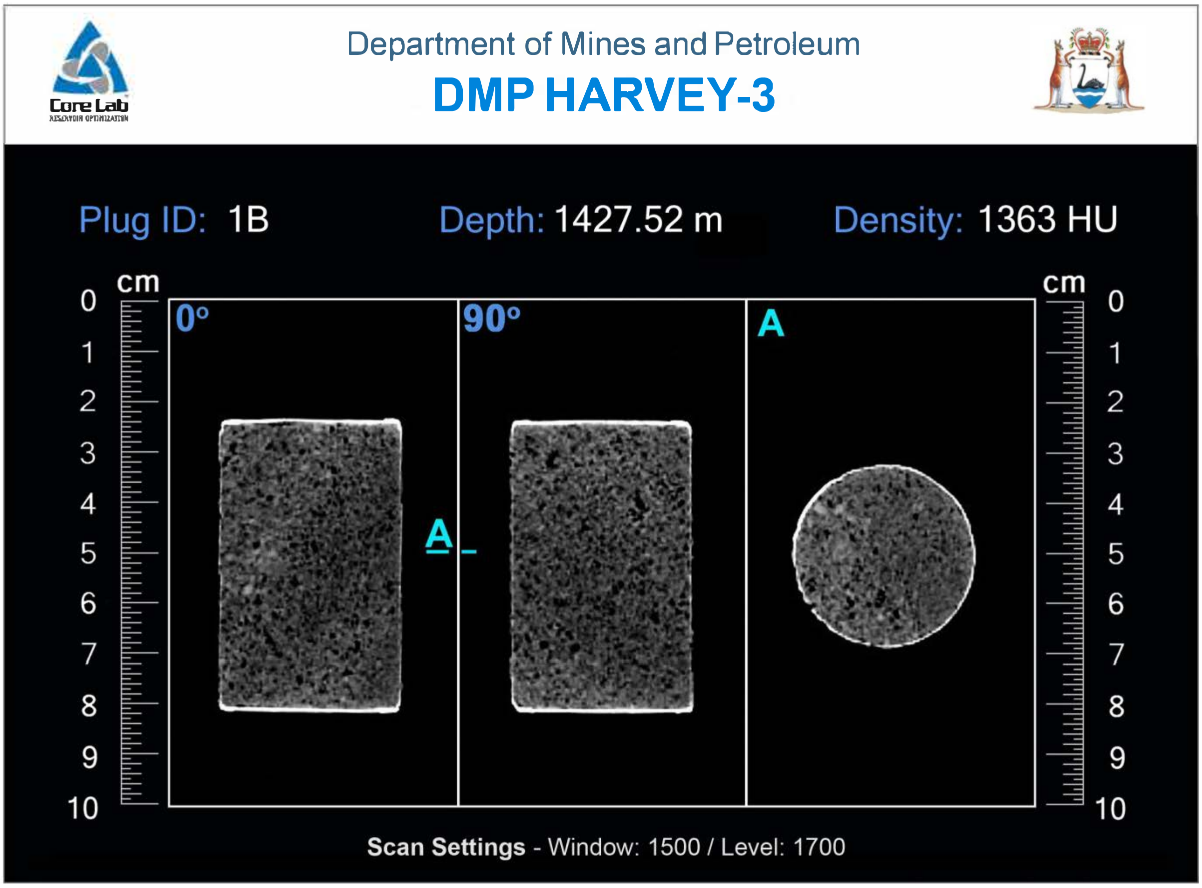
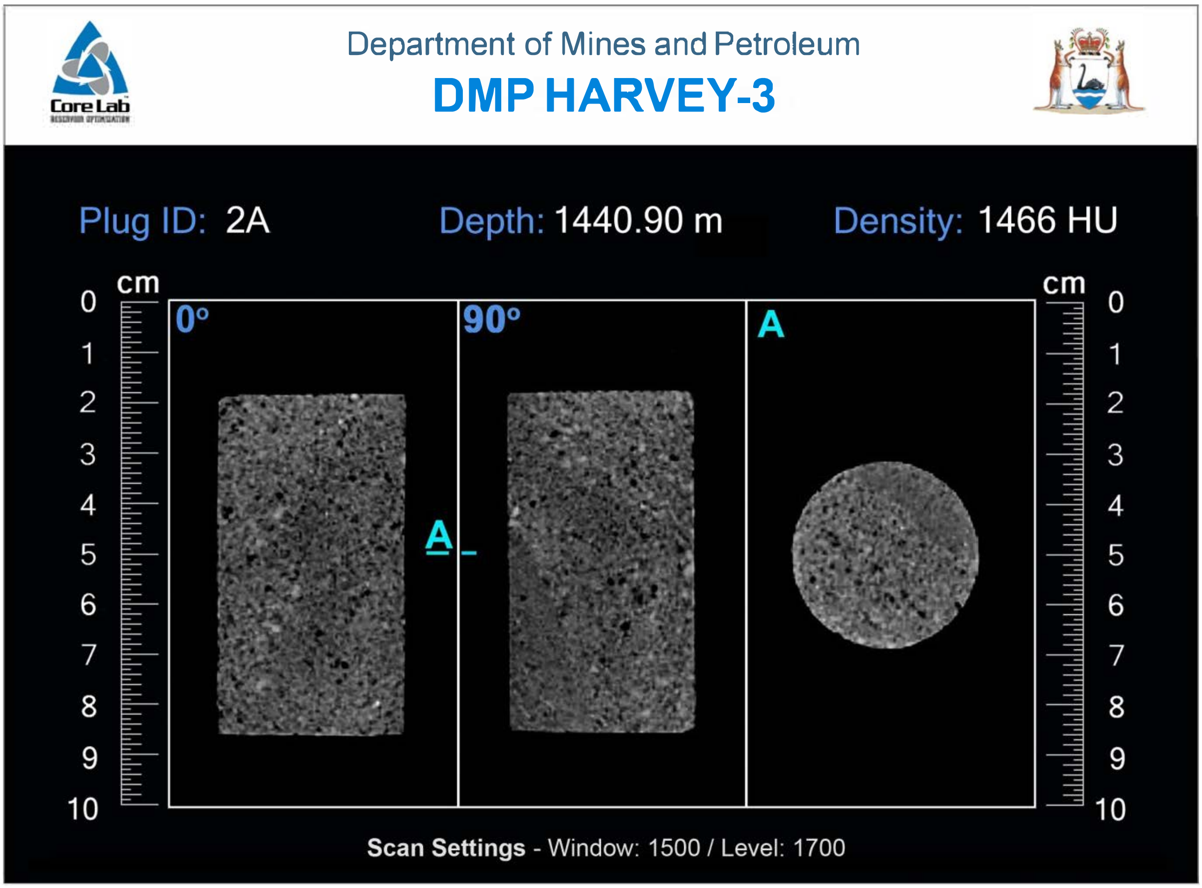
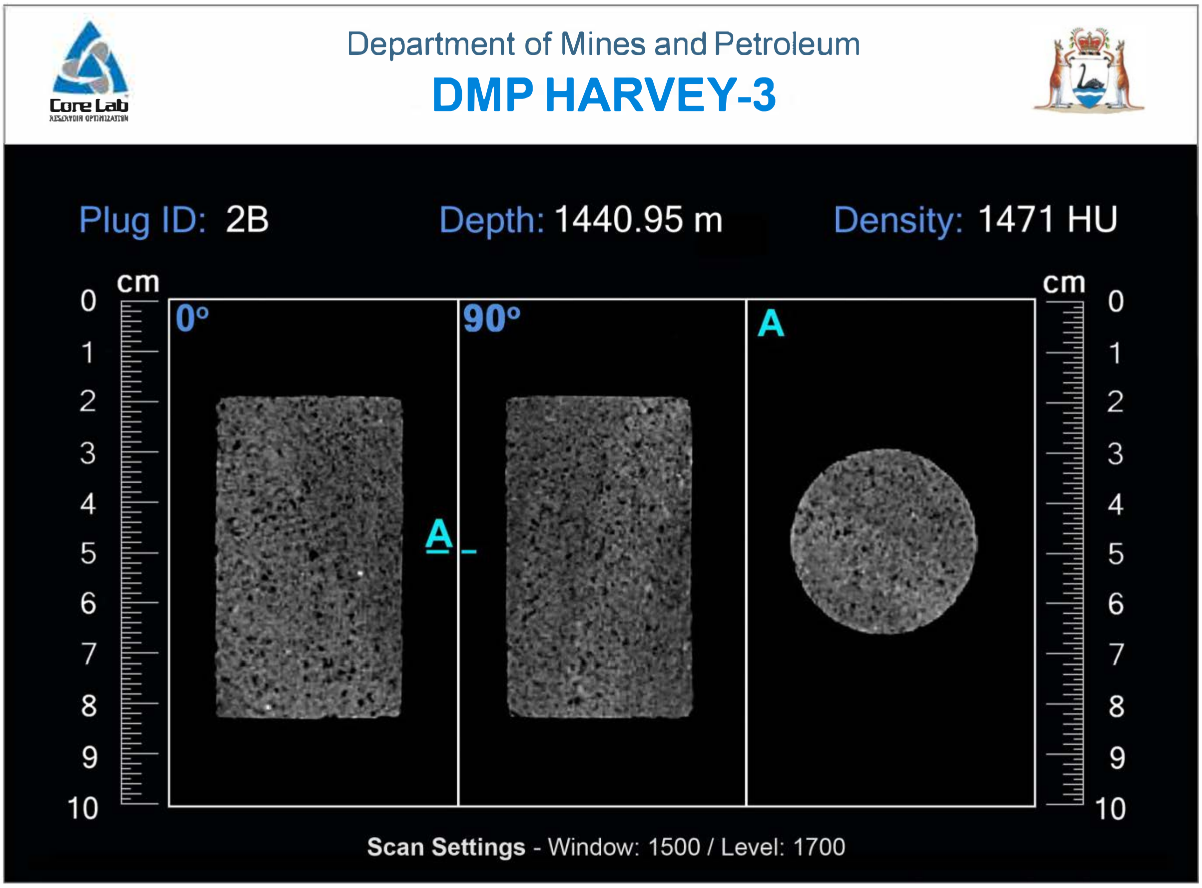
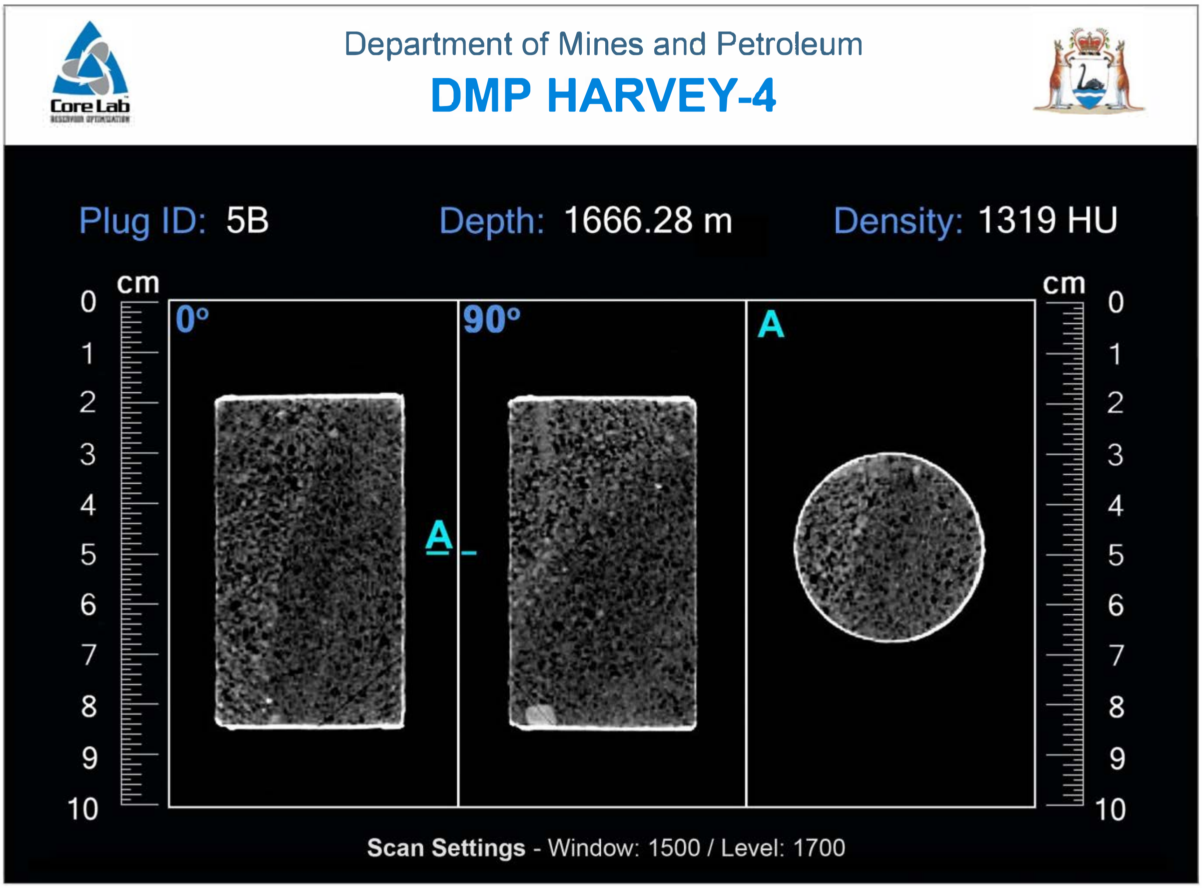

Department of Mines and Petroleum
DMP HARVEY-3
Core Lab
Plug ID: 3B
Depth: 1392.35 m
Density: 1694 HU
cm
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700


Department of Mines and Petroleum
DMP HARVEY-3
Core Lab
Plug ID: 1A
Depth: 1427.47 m
Density: 1374 HU
cm
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700


Department of Mines and Petroleum
DMP HARVEY-3
Plug ID: 1B
Depth: 1427.52 m
Density: 1363 HU
cm
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700


Department of Mines and Petroleum
DMP HARVEY-3
Plug ID: 2A
Depth: 1440.90 m
Density: 1466 HU
cm
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700

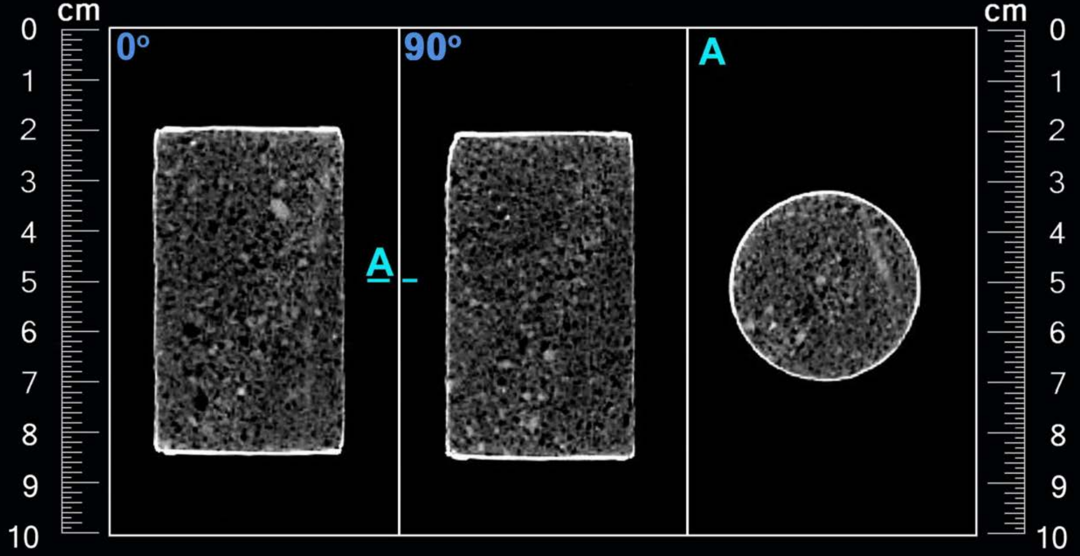

Department of Mines and Petroleum
DMP HARVEY-3
Plug ID: 2B
Depth: 1440.95 m
Density: 1471 HU
cm
0
1
2
3
4
5
6
7
8
9
10
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700


Department of Mines and Petroleum
DMP HARVEY-4
Plug ID: 5B
Depth: 1666.28 m
Density: 1319 HU
cm
0
1
2
3
4
5
6
7
8
9
10
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700

Department of Mines and Petroleum

DMP HARVEY-4

Plug ID: 5A Depth: 1666.33 m Density: 1324 HU

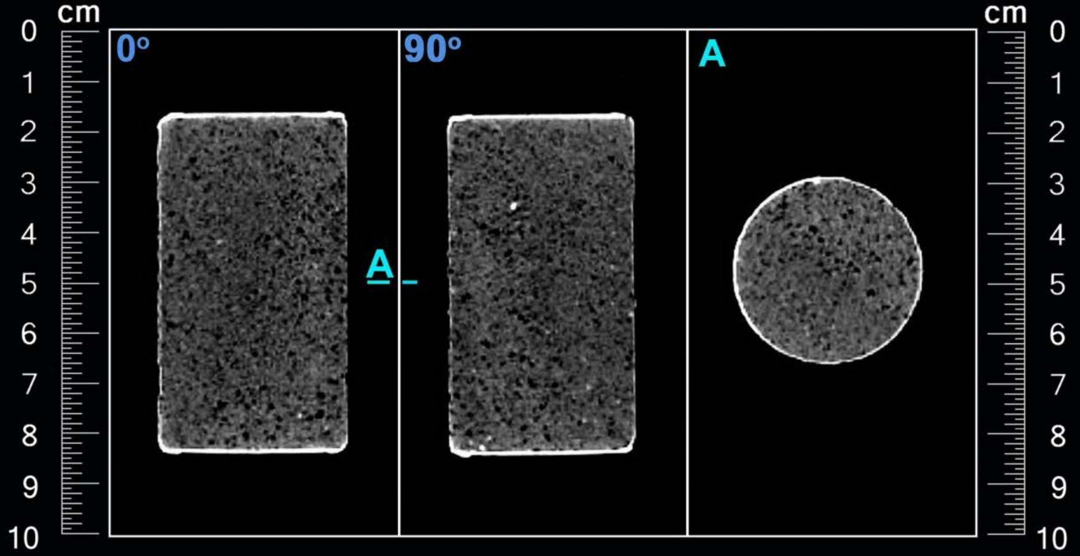


Scan Settings - Window: 1500 / Level: 1700

Department of Mines and Petroleum

DMP HARVEY-4

Plug ID: 6B Depth: 1794.27 m Density: 1387 HU

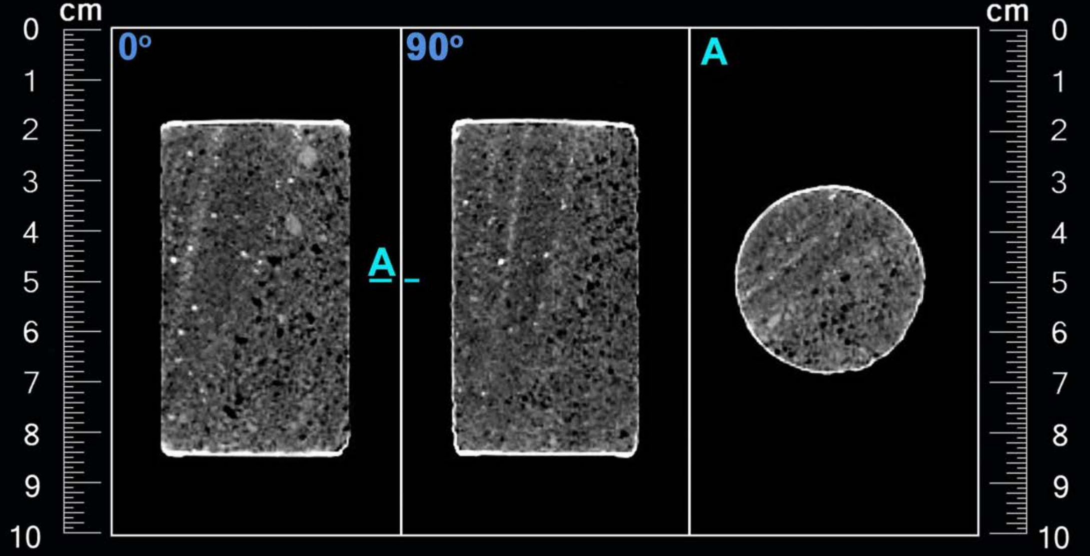


Scan Settings - Window: 1500 / Level: 1700

Department of Mines and Petroleum

DMP HARVEY-4

Plug ID: 6A   Depth: 1794.30 m   Density: 1458 HU



Scan Settings - Window: 1500 / Level: 1700

Petroleum Services
6316 Windfern
Houston, Texas 77040 USA
Tel: 713-328-2565
Fax: 713-328-2567
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UltraScan[SM]

CT Scan Report

for

DMP

Harvey-1
Harvey-3A
Harvey-4

February 1, 2018
AUS-1703703

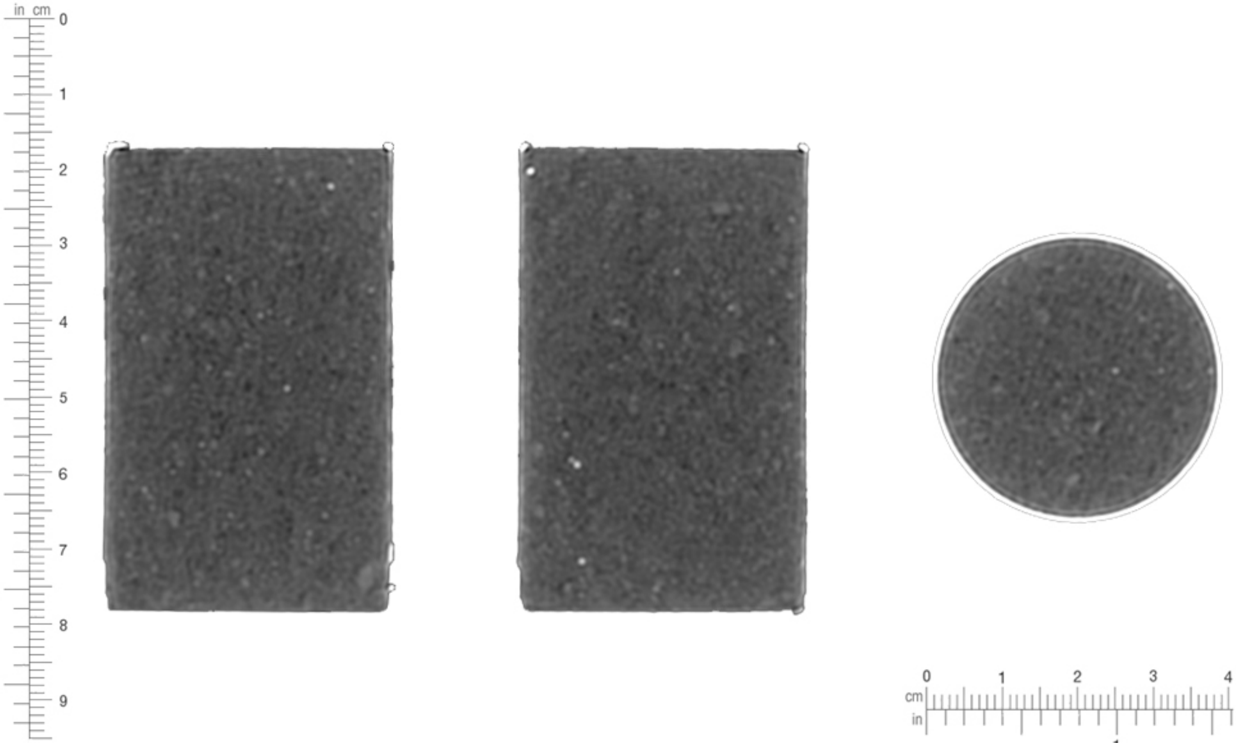
DMP
Harvey-1

File No.: AUS-1703703 Date: February 1, 2018

0°	90°	Axial

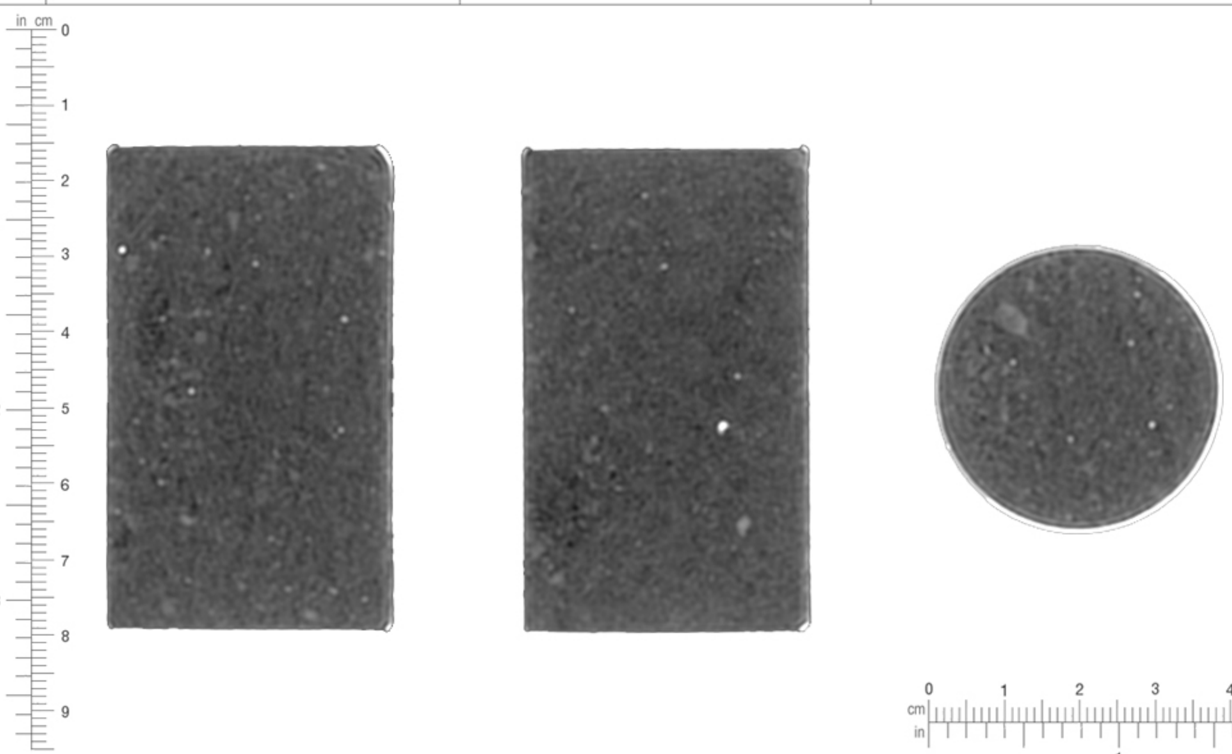
Depth: (m)
1911.84

Plug No.:
7A



Depth: (m)
1911.89

Plug No.:
7B



UltraScan

DMP
Harvey-1

File No.: AUS-1703703

Date: February 1, 2018

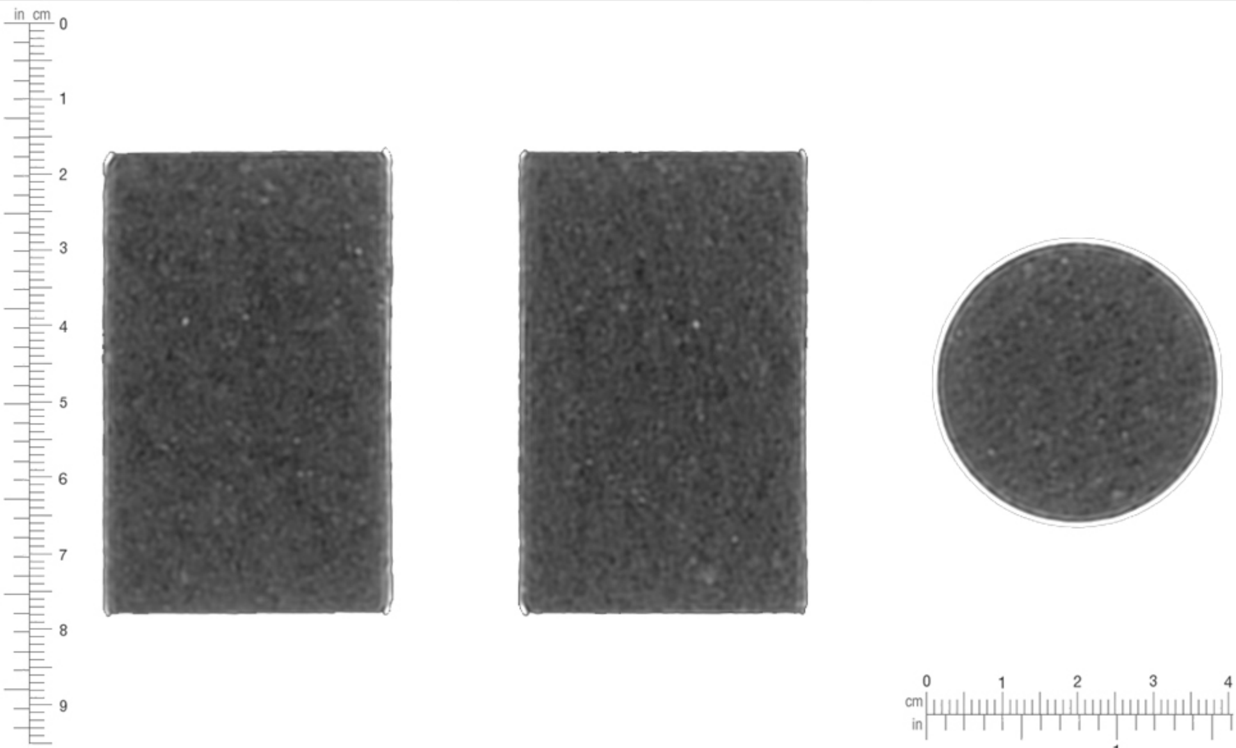
0°	90°	Axial

Depth: (m)

1919.90

Plug No.:

8B

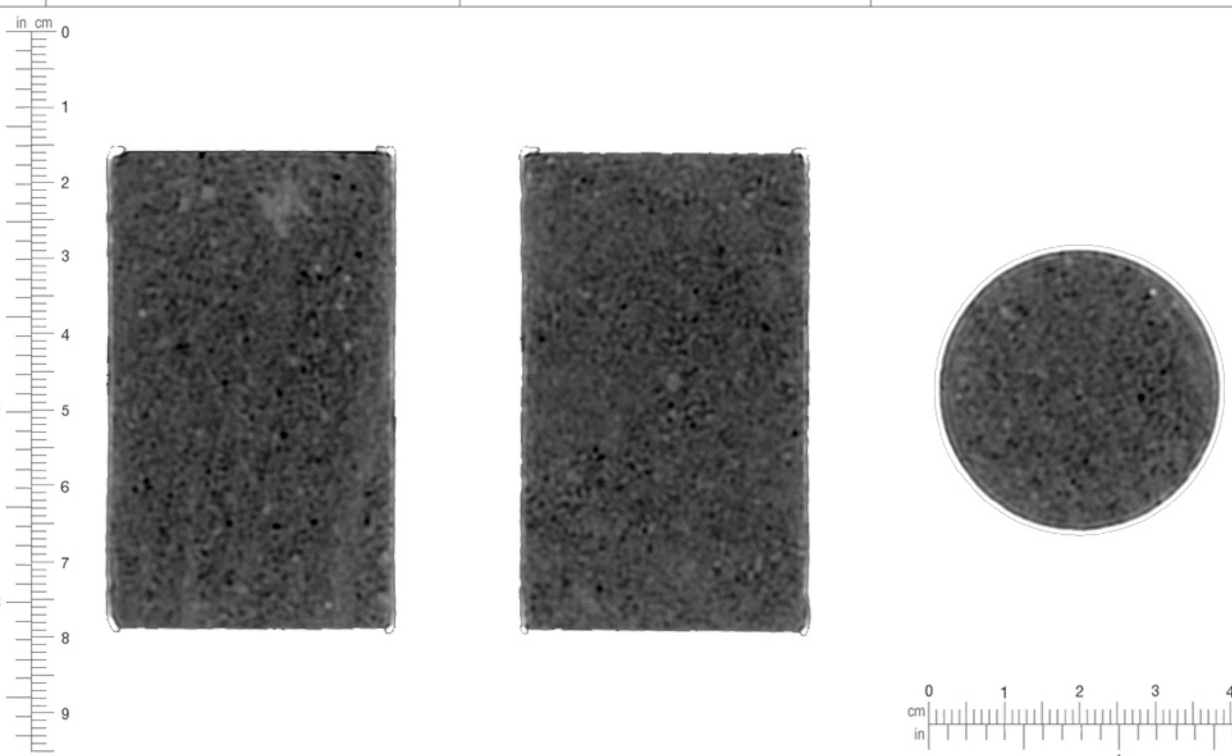


Depth: (m)

2491.78

Plug No.:

9B



UltraScan

Core Lab
RESERVOIR OPTIMIZATION

DMP
Harvey-1

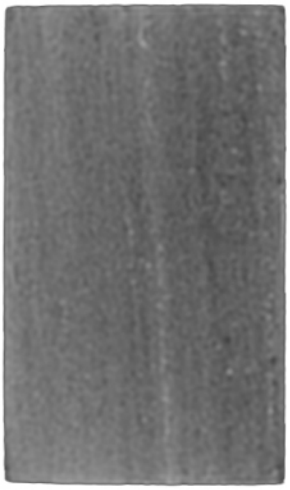
File No.: AUS-1703703

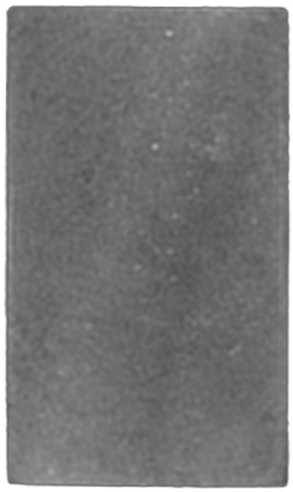
Date: February 1, 2018

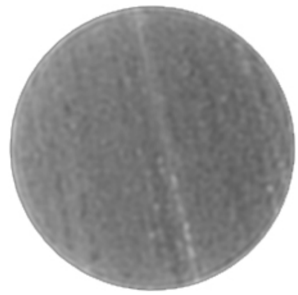
0°	90°	Axial

Depth: (m)
2518.42

Plug No.:
15A

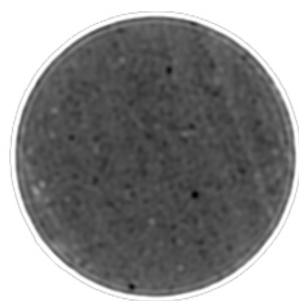






Depth: (m)
2522.54

Plug No.:
11A



UltraScan

DMP

Harvey-1

File No.: AUS-1703703

Date: February 1, 2018

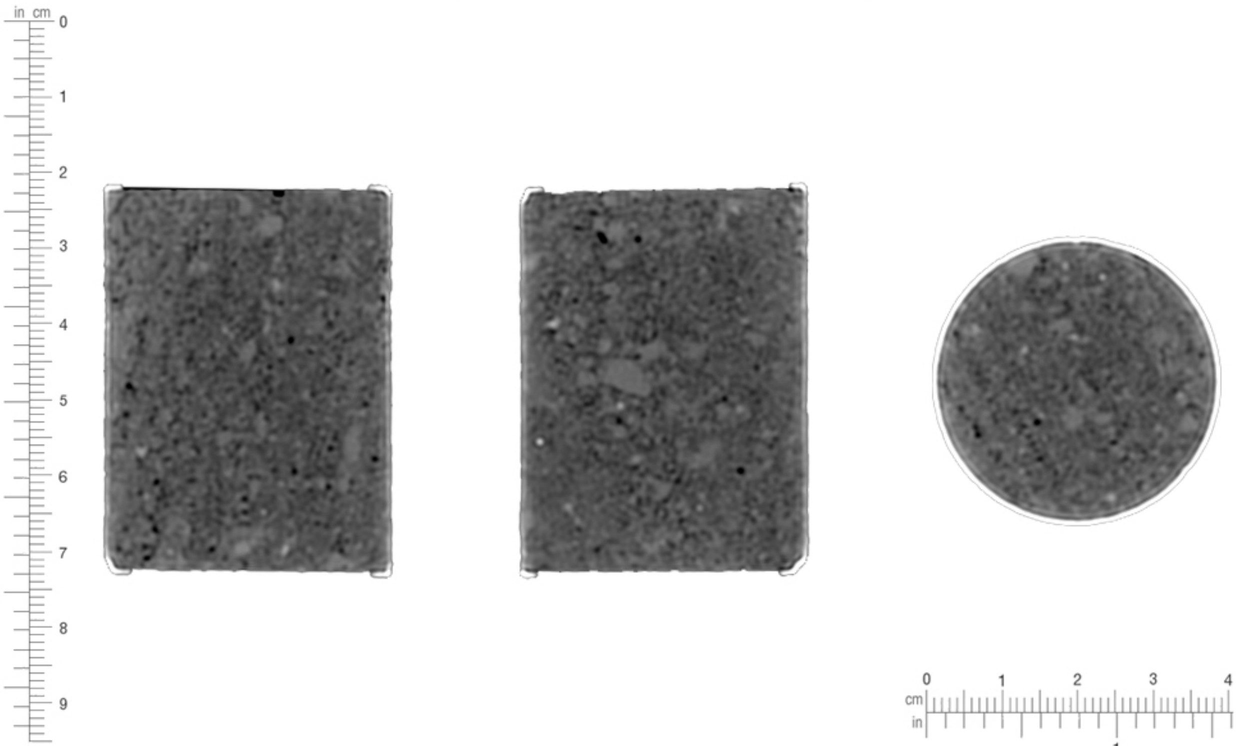
0°	90°	Axial

Depth: (m)

2528.07

Plug No.:

12A

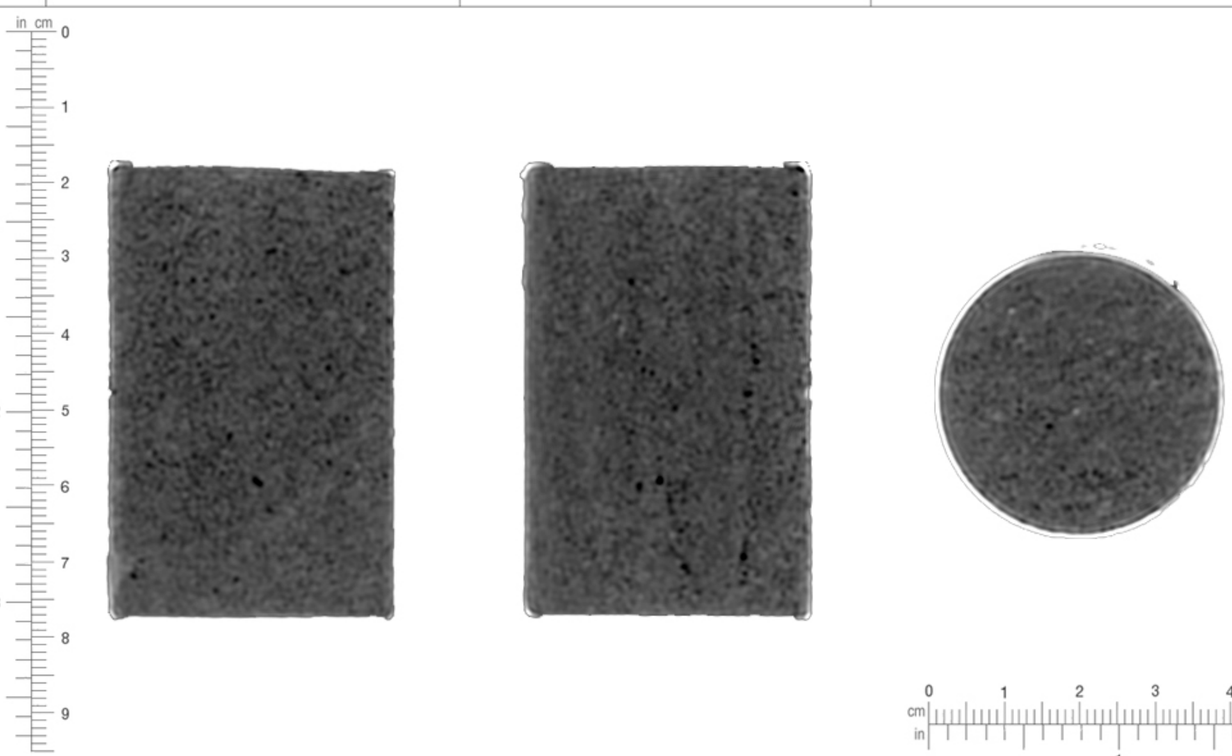


Depth: (m)

2530.03

Plug No.:

13A



UltraScan

Core Lab
RESERVOIR OPTIMIZATION

DMP
Harvey-3A

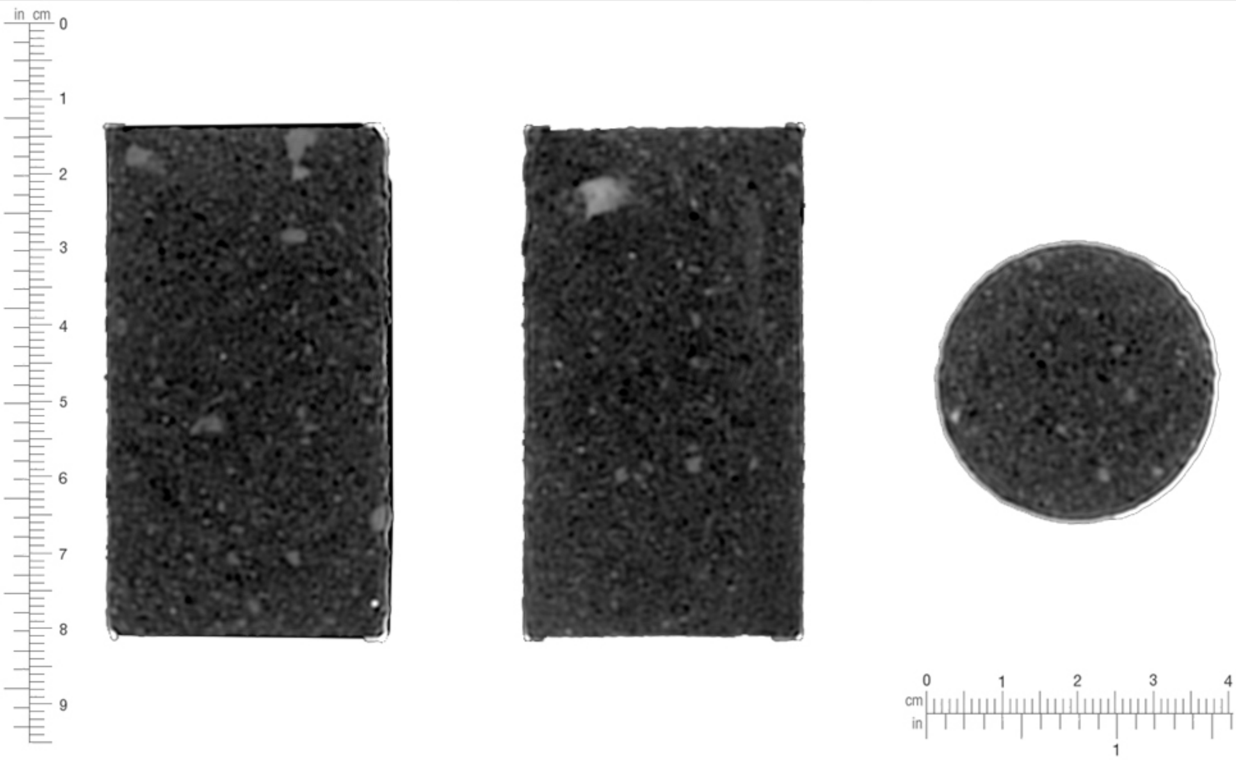
File No.: AUS-1703703

Date: February 1, 2018

0°	90°	Axial

Depth: (m)
1369.84

Plug No.:
4A



Depth: (m)
1392.35

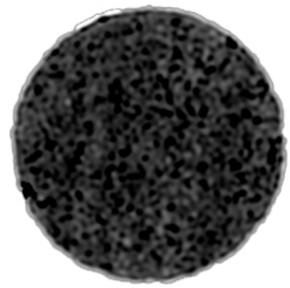
Plug No.:
3B

UltraScan

DMP
Harvey-3A

File No.: AUS-1703703

Date: February 1, 2018

0°	90°	Axial
		

Depth: (m)
1427.47

Plug No.:
1A

Depth: (m)

Plug No.:

UltraScan

DMP

Harvey-4

File No.: AUS-1703703

Date: February 1, 2018

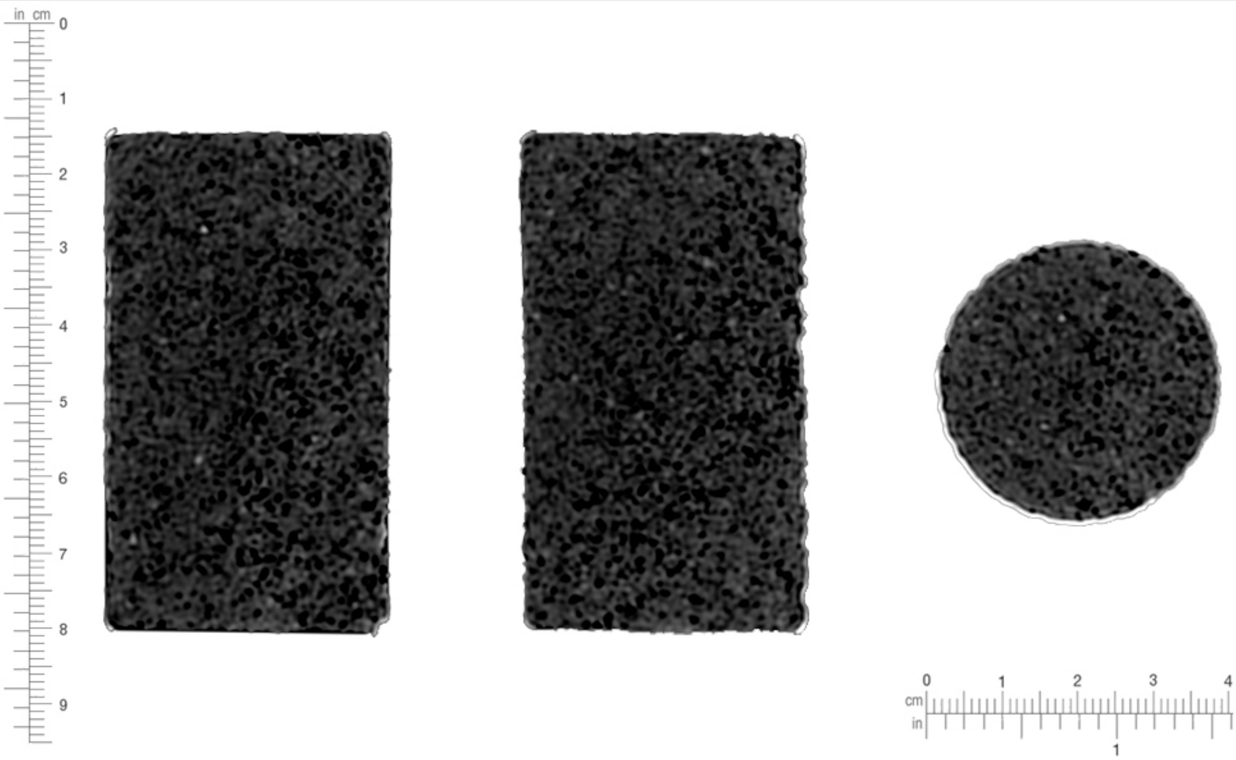
	0°	90°	Axial

Depth: (m)

1794.27

Plug No.:

6B



Depth: (m)

Plug No.:

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2000 psi Temperature : 58.0°C

Well :	DMP Harvey-1
Sample Number :	7A
Sample Depth, meters :	1911.84
Klinkenberg Permeability to Air, md :	0.559
Porosity, fraction :	0.107
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	0.266

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	0.500	-	20.5	-
-	0.018	0.445	0.055	36.2	4.48
-	0.055	0.365	0.135	9.77	3.61
-	0.260	0.035	0.065	4.46	8.29
-	1.25	0.010	0.090	5.74	51.7
-	13.9	0.005	0.495	0.131	13.0
Kg at Swr	-	-	0.500	-	13.3
-	13.5	0.016	1.484	0.746	69.2
-	1.33	0.024	0.226	3.24	30.5
-	0.266	0.088	0.162	5.20	9.57
-	0.052	0.073	0.027	10.0	3.68
-	0.018	0.089	0.011	5.35	0.661
Kw at Sgt	-	0.100	-	14.2	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70.0°C

Well :	DMP Harvey-1
Sample Number :	15A
Sample Depth, meters :	2518.42
Klinkenberg Permeability to Air, md :	0.340
Porosity, fraction :	0.103
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	0.206

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	1.00	-	13.4	-
-	0.016	0.092	0.008	33.6	3.04
-	0.049	0.079	0.021	10.5	2.79
-	0.258	0.106	0.144	6.75	9.17
-	1.22	0.013	0.087	1.73	11.5
-	13.4	0.007	0.493	1.10	75.3
Kg at Swr	-	-	0.500	-	73.8
-	13.5	0.007	0.493	1.50	100
-	1.22	0.013	0.087	1.72	11.5
-	0.262	0.106	0.144	6.00	8.16
-	0.049	0.079	0.021	10.9	2.89
-	0.016	0.092	0.008	5.44	0.473
Kw at Sgt	-	0.100	-	12.9	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method   Extracted State Sample
Net Confining Stress : 2600 psi   Temperature : 71.0°C

Well :	DMP Harvey-1
Sample Number :	12A
Sample Depth, meters :	2528.07
Klinkenberg Permeability to Air, md :	45.1
Porosity, fraction :	0.124
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	15.8

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	3.00	-	19.7	-
-	0.018	2.73	0.267	14.7	1.43
-	0.053	2.32	0.681	14.1	4.13
-	0.264	1.22	1.784	7.72	11.3
-	1.31	0.360	2.640	1.72	12.6
-	13.2	0.040	2.960	0.549	40.6
Kg at Swr	-	-	3.000	-	23.3
-	13.2	0.040	2.960	0.489	36.2
-	1.31	0.360	2.640	2.49	18.3
-	0.264	1.22	1.784	7.89	11.6
-	0.053	2.32	0.681	13.7	4.03
-	0.018	2.73	0.267	12.0	1.17
Kw at Sgt	-	2.70	-	8.75	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 71.0°C

Well : DMP Harvey-1
Sample Number : 13A
Sample Depth, meters : 2530.03
Klinkenberg Permeability to Air, md : 91.2
Porosity, fraction : 0.135
Initial Water Saturation, fraction : 1.00
Specific Permeability to Brine, md : 18.6

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	3.00	-	29.8	-
-	0.028	2.59	0.408	17.1	2.70
-	0.084	1.36	0.641	5.10	2.40
-	0.422	0.595	1.41	3.81	8.99
-	2.11	0.156	1.84	1.24	14.6
-	20.8	0.017	1.98	0.098	11.4
Kg at Swr	-	-	2.00	-	22.1
-	20.8	0.017	1.98	0.288	33.6
-	2.11	0.156	1.84	0.723	8.55
-	0.423	0.595	1.41	2.82	6.67
-	0.085	1.36	0.641	6.30	2.97
-	0.028	2.59	0.408	10.3	1.62
Kw at Sgt	-	2.50	-	7.16	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method   Extracted State Sample
Net Confining Stress : 1700 psi   Temperature : 48.0°C

Well : DMP Harvey-3
Sample Number : 1A
Sample Depth, meters : 1427.47
Klinkenberg Permeability to Air, md : 180
Porosity, fraction : 0.231
Initial Water Saturation, fraction : 1.00
Specific Permeability to Brine, md : 94.9

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	2.00	-	11.5	-
-	0.012	1.81	0.187	7.19	0.742
-	0.036	1.53	0.474	7.74	2.40
-	0.177	0.784	1.22	6.10	9.49
-	0.888	0.457	3.54	2.37	18.4
-	8.87	0.102	7.90	0.365	28.2
Kg at Swr	-	-	8.00	-	30.4
-	8.88	0.102	7.90	0.254	19.7
-	0.890	0.457	3.54	1.76	13.6
-	0.179	1.57	2.43	3.13	4.86
-	0.036	1.53	0.474	12.6	3.93
-	0.012	1.81	0.187	11.6	1.19
Kw at Sgt	-	2.00	-	9.59	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method   Extracted State Sample
Net Confining Stress : 1700 psi   Temperature: 56.0°C

Well :	DMP Harvey-4
Sample Number :	6B
Sample Depth, meters :	1794.27
Klinkenberg Permeability to Air, md :	1120
Porosity, fraction :	0.219
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	258

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	2.00	-	8.91	-
-	0.013	1.83	0.171	7.59	0.710
-	0.039	1.56	0.439	10.7	3.01
-	0.193	0.831	1.169	3.70	5.21
-	0.966	0.996	7.00	3.40	23.9
-	9.64	0.112	7.89	0.429	30.2
Kg at Swr	-	-	8.00	-	25.1
-	9.65	0.112	7.89	0.302	21.3
-	0.967	0.996	7.00	2.26	15.9
-	0.193	1.17	0.831	4.05	5.70
-	0.039	1.56	0.439	6.79	1.91
-	0.013	1.83	0.171	8.05	0.753
Kw at Sgt	-	2.00	-	10.2	-

SPECIAL CORE ANALYSIS (SCAL) TEST SCHEDULE SUMMARY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	CT-Scan Pre-Test	CT-Scan Post-Test	Permeability, and Porosity at ambient	Permeability, and Porosity at NOBP	Grain Density	Supercritical CO2-Water Krel SS Full-Curve	Supercritical CO2-Water Krel USS End-Points
Well : DMP Harvey-1									
Wonnerup Member	7A	1911.84	X	X	X	X	X	X	
Wonnerup Member	8A	1919.86	X		X	X	X		
Wonnerup Member	7B	1911.89	X	X	X	X	X		X
Wonnerup Member	8B	1919.90	X	X	X	X	X		X
Wonnerup Member	9A	2491.72	X		X	X	X		
Wonnerup Member	9B	2491.78	X	X	X	X	X		X
Wonnerup Member	10A	2508.63	X		X	X	X		
Wonnerup Member	10B	2508.67	X		X	X	X		
Wonnerup Member	14A	2517.76	X		X	X	X		
Wonnerup Member	15A	2518.42	X	X	X	X	X	X	
Wonnerup Member	11A	2522.54	X	X	X	X	X		X
Wonnerup Member	11B	2522.59	X		X	X	X		
Wonnerup Member	12A	2528.07	X	X	X	X	X	X	
Wonnerup Member	12B	2528.12	X		X	X	X		
Wonnerup Member	13A	2530.03	X	X	X	X	X	X	
Wonnerup Member	13B	2530.07	X		X	X	X		
Well : DMP Harvey-3									
Yalgorup Member	4A	1369.84	X	X	X	X	X		X
Yalgorup Member	3A	1392.30	X		X	X	X		
Wonnerup Member	3B	1392.35	X	X	X	X	X		X

SPECIAL CORE ANALYSIS (SCAL) TEST SCHEDULE SUMMARY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	CT-Scan		Permeability, and Porosity		Grain Density	Supercritical CO2-Water Krel	
			Pre-Test	Post-Test	at ambient	at NOBP		SS Full-Curve	USS End-Points
Well : DMP Harvey-3									
Wonnerup Member	1A	1427.47	X	X	X	X	X	X	
Wonnerup Member	1B	1427.52	X		X	X	X		
Wonnerup Member	2A	1440.90	X		X	X	X		
Wonnerup Member	2B	1440.95	X		X	X	X		
Well : DMP Harvey-4									
Wonnerup Member	5B	1666.28	X		X	X	X		
Wonnerup Member	5A	1666.33	X		X	X	X		
Wonnerup Member	6B	1794.27	X	X	X	X	X	X	
Wonnerup Member	6A	1794.30	X		X	X	X		

POROSITY, PERMEABILITY, and GRAIN DENSITY

(Sorted by well and depth)

			At Ambient (800 psi)			At Net Overburden Pressure (NOBP)					
Stratigraphic Unit	Sample no.	Depth (m)	Permeability		Porosity (%)	NOBP (psi)	Permeability			Porosity (%)	Grain Density (g/cc)
			Kinf (md)	Kair (md)			Kinf (md)	Kair (md)	SS Kair (md)		

Well : DMP Harvey-1

Wonnerup Member	7A	1911.84	0.698	1.04	11.1	2000	0.559	0.838	-	10.7	2.63
Wonnerup Member	8A	1919.86	1.81	2.50	12.9	2000	1.57	2.16	-	12.6	2.63
Wonnerup Member	7B	1911.89	0.791	1.15	11.1	2000	0.632	0.933	-	10.8	2.63
Wonnerup Member	8B	1919.90	2.31	3.10	12.9	2000	1.98	2.64	-	12.6	2.63
Wonnerup Member	9A	2491.72	399	425	14.7	2600	375	399	-	14.3	2.63
Wonnerup Member	9B	2491.78	243	274	13.9	2600	227	257	-	13.5	2.64
Wonnerup Member	10A	2508.63	8.59	1.21	12.8	2600	6.13	8.03	-	12.2	2.65
Wonnerup Member	10B	2508.67	12.7	15.6	14.6	2600	10.4	13.1	-	14.0	2.64
Wonnerup Member	14A	2517.76	0.069	0.116	8.2	2600	0.046	0.063	-	8.0	2.68
Wonnerup Member	15A	2518.42	0.399	0.534	10.7	2600	0.340	0.390	-	10.3	2.68

POROSITY, PERMEABILITY, and GRAIN DENSITY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	At Ambient (800 psi) Permeability Kinf (md)	At Ambient (800 psi) Permeability Kair (md)	At Ambient (800 psi) Porosity (%)	At NOBP NOBP (psi)	At NOBP Permeability Kinf (md)	At NOBP Permeability Kair (md)	At NOBP Permeability SS Kair (md)	At NOBP Porosity (%)	Grain Density (g/cc)
Well : DMP Harvey-1											
Wonnerup Member	11A	2522.54	21.2	24.2	13.7	2600	19.2	22.0	-	13.3	2.64
Wonnerup Member	11B	2522.59	21.0	23.9	14.5	2600	19.3	21.8	-	14.1	2.65
Wonnerup Member	12A	2528.07	47.3	54.1	12.9	2600	45.1	50.7	-	12.4	2.65
Wonnerup Member	12B	2528.12	98.3	118	13.0	2600	94.2	112	-	12.6	2.65
Wonnerup Member	13A	2530.03	99.9	112	14.0	2600	91.2	104	-	13.5	2.64
Wonnerup Member	13B	2530.07	9.58	11.2	13.0	2600	8.82	10.3	-	12.6	2.66
Well : DMP Harvey-3											
Yalgorup Member	4A	1369.84	116	127	22.2	1250	106	114	-	21.8	2.64
Yalgorup Member	3A	1392.30	31.9	38.1	16.2	1250	17.8	22.0	-	15.7	2.65
Yalgorup Member	3B	1392.35	11.0	13.0	14.6	1250	6.19	7.23	-	14.2	2.64

POROSITY, PERMEABILITY, and GRAIN DENSITY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	At Ambient (800 psi) Permeability Kinf (md)	At Ambient Permeability Kair (md)	At Ambient Porosity (%)	At NOBP NOBP (psi)	At NOBP Permeability Kinf (md)	At NOBP Permeability Kair (md)	At NOBP Permeability SS Kair (md)	At NOBP Porosity (%)	Grain Density (g/cc)
Well : DMP Harvey-3											
Wonnerup Member	1A	1427.47	271	400	23.8	1700	180	269	-	23.1	2.63
Wonnerup Member	1B	1427.52	408	584	23.9	1700	347	497	-	23.3	2.63
Wonnerup Member	2A	1440.90	363	411	19.8	1700	335	381	-	19.5	2.63
Wonnerup Member	2B	1440.95	222	282	20.3	1700	201	256	-	19.9	2.64
Well : DMP Harvey-4											
Wonnerup Member	5B	1666.28	6460	6870	24.2	1700	5890	6490	7380	23.8	2.63
Wonnerup Member	5A	1666.33	7090	7150	24.1	1700	6240	6600	6760	23.6	2.63
Wonnerup Member	6B	1794.27	1160	1500	22.5	1700	1120	1360	1660	21.9	2.63
Wonnerup Member	6A	1794.30	516	686	21.1	1700	412	545	-	20.6	2.64

CO_2 - WATER RELATIVE PERMEABILITY

Steady State Method Extracted State Samples
Net Confining Stress : Various Temperature : Various

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Initial Conditions: Water Saturation, fraction pore space	Initial Conditions: Specific Permeability to Brine, millidarcies	Terminal Conditions: Water Saturation, fraction pore space	Terminal Conditions: Effective Permeability to CO_2, millidarcies	Terminal Conditions: Relative Permeability to CO_2*, fraction	Water Recovery, fraction: pore space	Water Recovery, fraction: water in place
Well : DMP Harvey-1										
7A	1911.84	0.559	0.107	1.00	0.266	0.558	0.0737	0.277	0.442	0.442
15A	2518.42	0.340	0.103	1.00	0.206	0.611	0.0143	0.0692	0.389	0.389
12A	2528.07	45.1	0.124	1.00	15.8	0.533	2.60	0.164	0.467	0.467
13A	2530.03	91.2	0.135	1.00	18.6	0.433	3.07	0.165	0.567	0.567
Well : DMP Harvey-3										
1A	1427.47	180	0.231	1.00	94.9	0.539	7.90	0.0832	0.461	0.461
Well : DMP Harvey-4										
6B	1794.27	1120	0.219	1.00	258	0.422	22.4	0.0868	0.578	0.578

* Relative to the Specific Permeability to Brine

WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Samples
Net Confining Stress : Various Temperature : Various

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Initial Conditions: Water Saturation, fraction pore space	Initial Conditions: Effective Permeability to CO_2, millidarcies	Terminal Conditions: CO_2 Saturation, fraction pore space	Terminal Conditions: Effective Permeability to Water, millidarcies	Terminal Conditions: Relative Permeability to Water*, fraction	CO_2 Recovery, fraction: pore space	CO_2 Recovery, fraction: gas in place
Well : DMP Harvey-1										
7A	1911.84	0.559	0.107	0.558	0.0737	0.238	0.0415	0.156	0.204	0.461
15A	2518.42	0.34	0.103	0.611	0.0143	0.222	0.0278	0.135	0.167	0.429
12A	2528.07	45.1	0.124	0.533	2.60	0.234	2.03	0.128	0.233	0.498
13A	2530.03	91.2	0.135	0.433	3.07	0.298	1.86	0.100	0.270	0.475
Well : DMP Harvey-3										
1A	1427.47	180	0.231	0.539	7.90	0.137	14.8	0.156	0.325	0.704
Well : DMP Harvey-4										
6B	1794.27	1120	0.219	0.422	22.4	0.258	12.4	0.0481	0.320	0.553

* Relative to the Specific Permeability to Brine

CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2000 psi Temperature : 58°C

Well : DMP Harvey-1

Sample Number :	7A
Sample Depth, meters :	1911.84
Klinkenberg Permeability, md :	0.559
Porosity, fraction :	0.107
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	0.266

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.188	0.0184	0.00487	0.265	0.143
0.222	0.0555	0.0108	0.195	0.335
0.276	0.260	0.0287	0.111	0.702
0.332	1.25	0.0682	0.0545	0.919
0.417	13.9	0.212	0.0153	0.992
0.442	-	0.277	-	1.00
Water Displacing CO_2				
0.442	-	0.277	-	1.00
0.410	13.5	0.184	0.0137	0.992
0.338	1.33	0.0596	0.0447	0.924
0.293	0.266	0.0230	0.0866	0.707
0.262	0.0525	0.00634	0.121	0.323
0.247	0.0176	0.00249	0.142	0.137
0.238	-	-	0.156	-

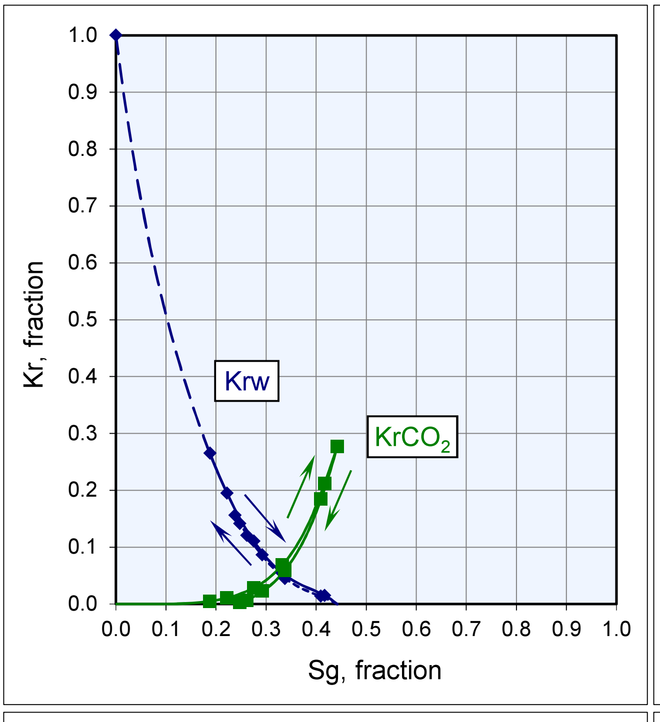
* Relative to the Specific Permeability to Brine

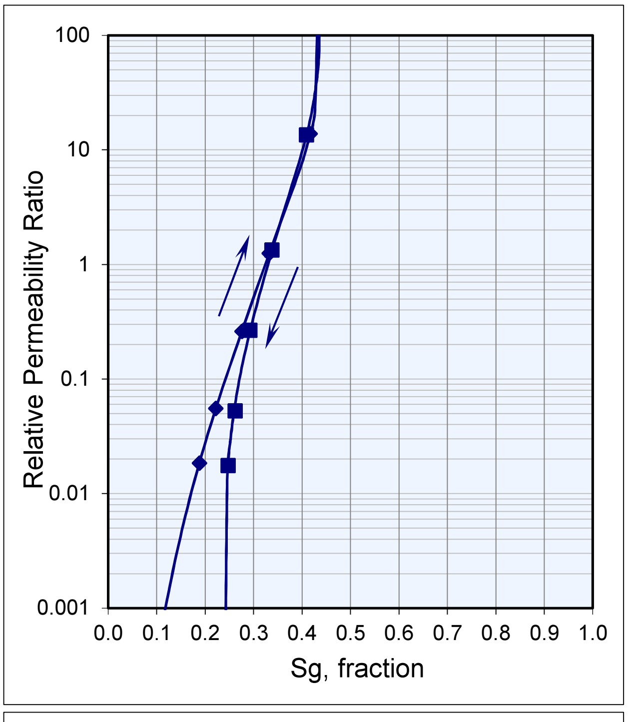
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

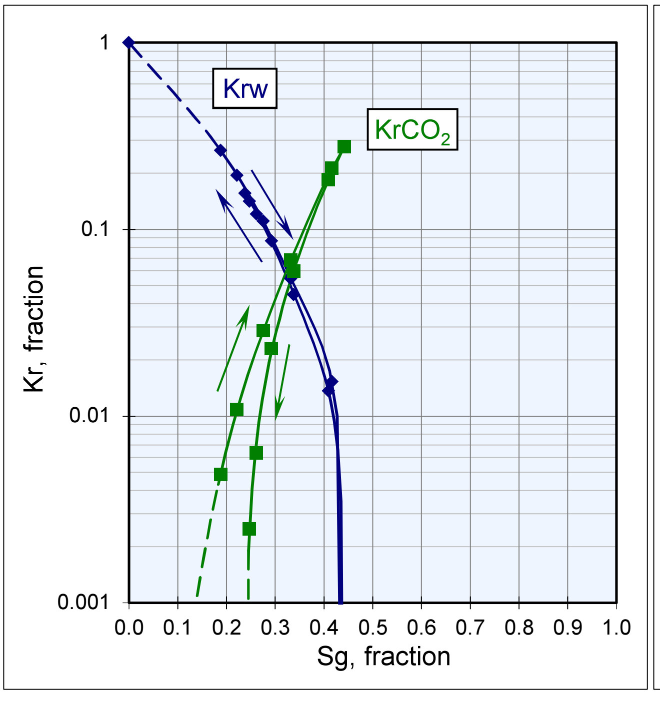
Steady State Method Extracted State Sample
Net Confining Stress : 2000 psi Temperature : 58°C

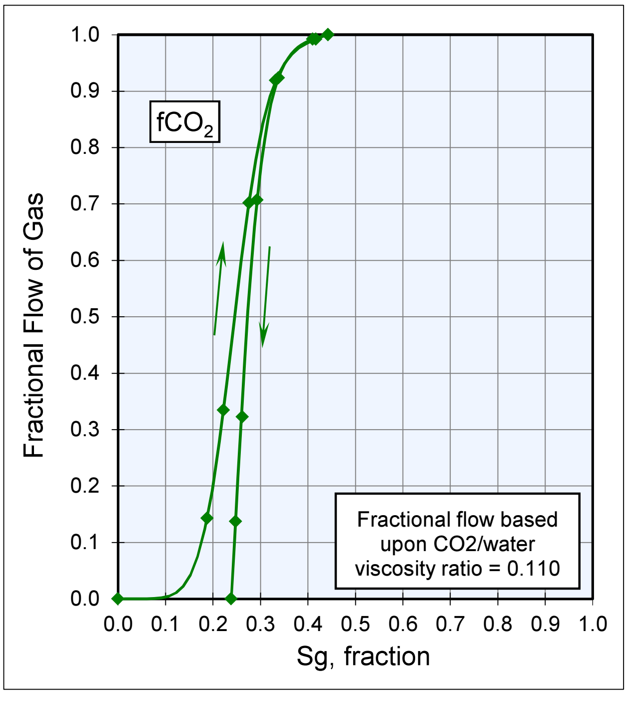
Well : DMP Harvey-1

Sample Number :	7A
Sample Depth, meters :	1911.84
Klinkenberg Permeability, md :	0.559
Porosity, fraction :	0.107
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	0.266









CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70°C

Well : DMP Harvey-1

Sample Number :	15A
Sample Depth, meters :	2518.42
Klinkenberg Permeability, md :	0.340
Porosity, fraction :	0.103
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	0.206

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.203	0.0158	0.00289	0.183	0.103
0.235	0.0485	0.00618	0.127	0.260
0.288	0.258	0.0159	0.0615	0.652
0.328	1.22	0.0301	0.0248	0.898
0.371	13.4	0.0542	0.00405	0.990
0.389	-	0.0692	-	1.00
Water Displacing CO_2				
0.389	-	0.0692	-	1.00
0.368	13.5	0.0483	0.00358	0.990
0.331	1.22	0.0252	0.0206	0.899
0.294	0.262	0.0131	0.0500	0.655
0.254	0.0490	0.00439	0.0895	0.262
0.233	0.0160	0.00191	0.120	0.104
0.222	-	-	0.135	-

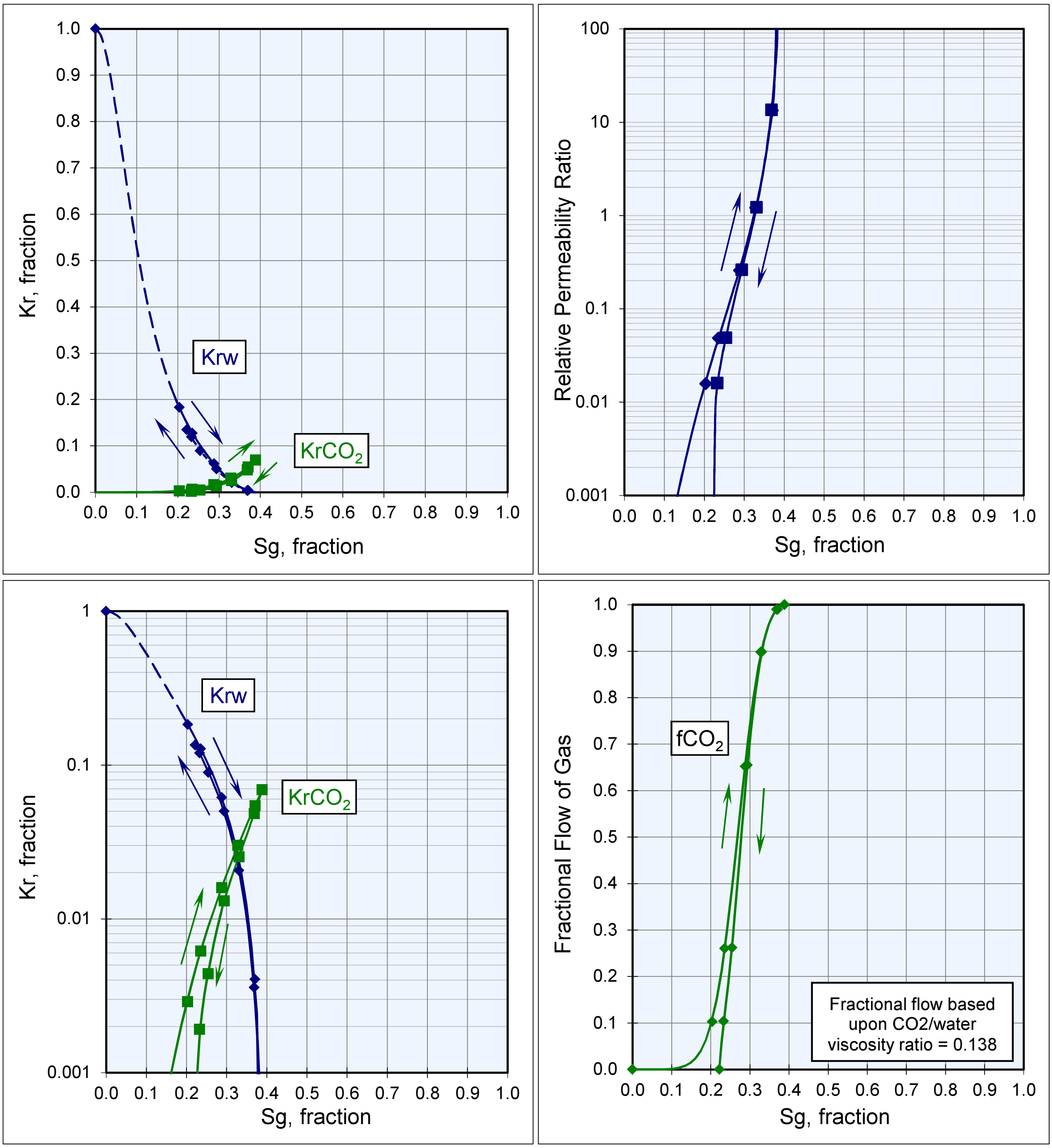
* Relative to the Specific Permeability to Brine

CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70°C

Well : DMP Harvey-1

Sample Number :	15A
Sample Depth, meters :	2518.42
Klinkenberg Permeability, md :	0.340
Porosity, fraction :	0.103
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	0.206



CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70°C

Well : DMP Harvey-1

Sample Number : 12A
Sample Depth, meters : 2528.07
Klinkenberg Permeability, md : 45.1
Porosity, fraction : 0.124
Initial Water Saturation, fraction : 1.00
Specific Permeability to Water, md : 15.8

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.238	0.0175	0.00251	0.143	0.113
0.264	0.0528	0.00544	0.103	0.277
0.301	0.264	0.0145	0.0552	0.657
0.339	1.31	0.0302	0.0230	0.905
0.392	13.2	0.0679	0.00514	0.990
0.467	-	0.164	-	1.00
Water Displacing CO_2				
0.467	-	0.164	-	1.00
0.390	13.2	0.0599	0.00453	0.990
0.340	1.32	0.0247	0.0188	0.905
0.304	0.264	0.0111	0.0422	0.657
0.277	0.0530	0.00365	0.0689	0.278
0.258	0.0176	0.00163	0.0923	0.113
0.234	-	-	0.128	-

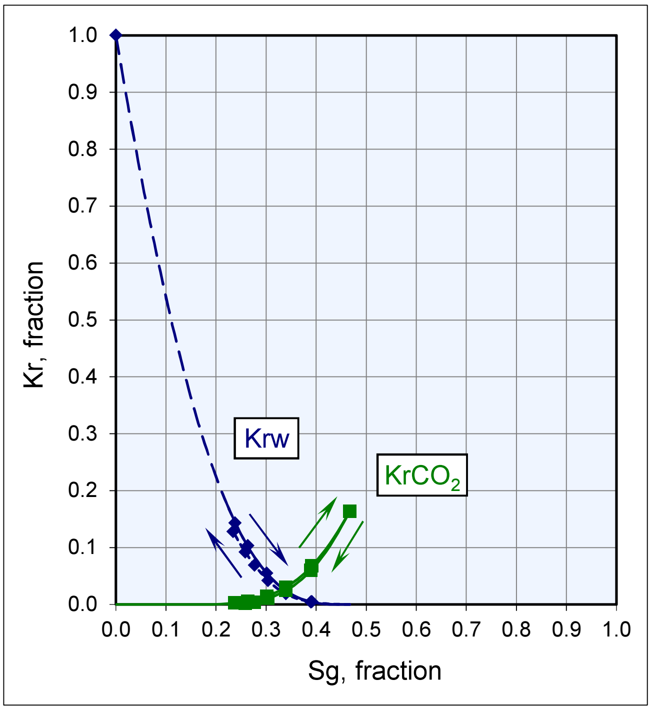
* Relative to the Specific Permeability to Brine

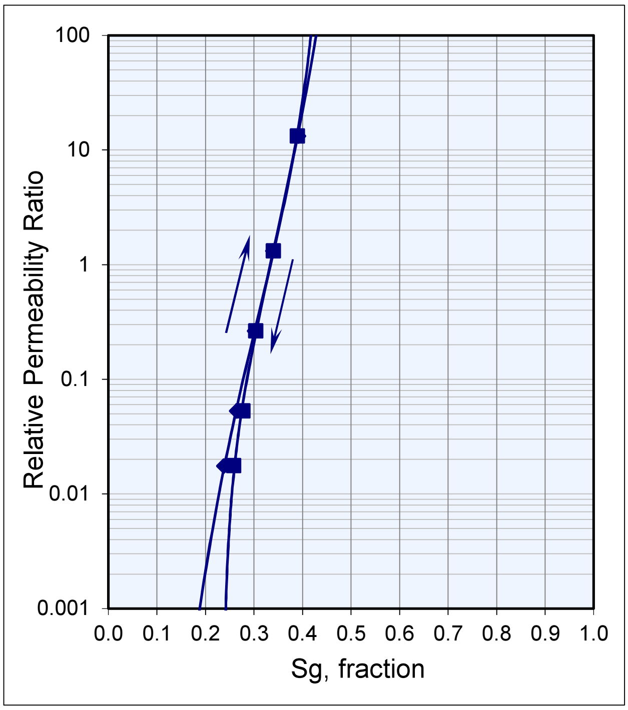
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

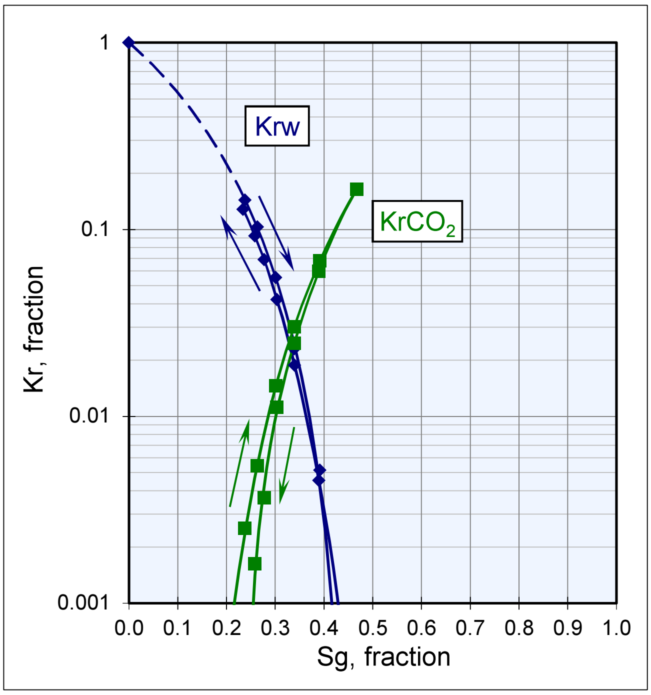
Steady State Method   Extracted State Sample
Net Confining Stress : 2600 psi   Temperature : 70°C

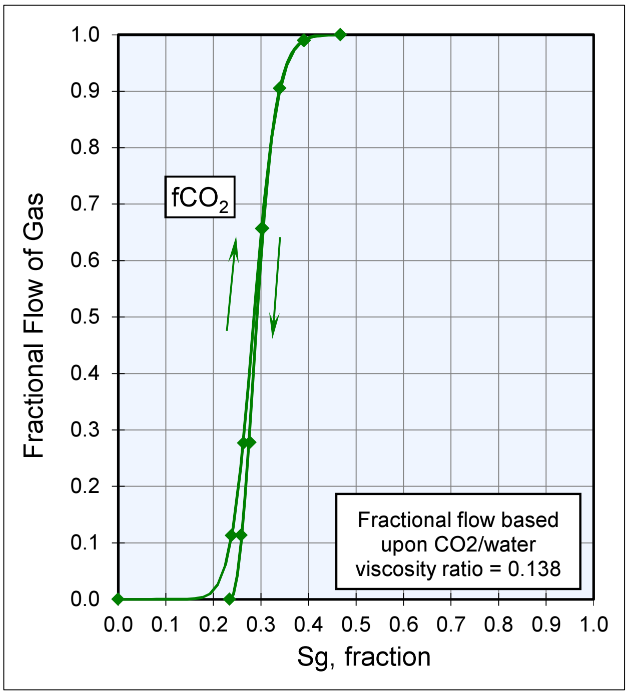
Well : DMP Harvey-1

Sample Number :	12A
Sample Depth, meters :	2528.07
Klinkenberg Permeability, md :	45.1
Porosity, fraction :	0.124
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	15.8









CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 71°C

Well : DMP Harvey-1

Sample Number : 13A
Sample Depth, meters : 2530.03
Klinkenberg Permeability, md : 91.2
Porosity, fraction : 0.135
Initial Water Saturation, fraction : 1.00
Specific Permeability to Water, md : 18.6

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.248	0.0282	0.00475	0.168	0.170
0.296	0.0843	0.00984	0.117	0.380
0.372	0.422	0.0245	0.0582	0.754
0.445	2.11	0.0539	0.0256	0.939
0.527	20.8	0.119	0.00571	0.993
0.567	-	0.165	-	1.00
Water Displacing CO_2				
0.567	-	0.165	-	1.00
0.527	20.8	0.103	0.00497	0.993
0.452	2.11	0.0414	0.0196	0.939
0.390	0.423	0.0179	0.0423	0.754
0.342	0.0846	0.00576	0.0681	0.380
0.310	0.0284	0.00255	0.0900	0.171
0.298	-	-	0.100	-

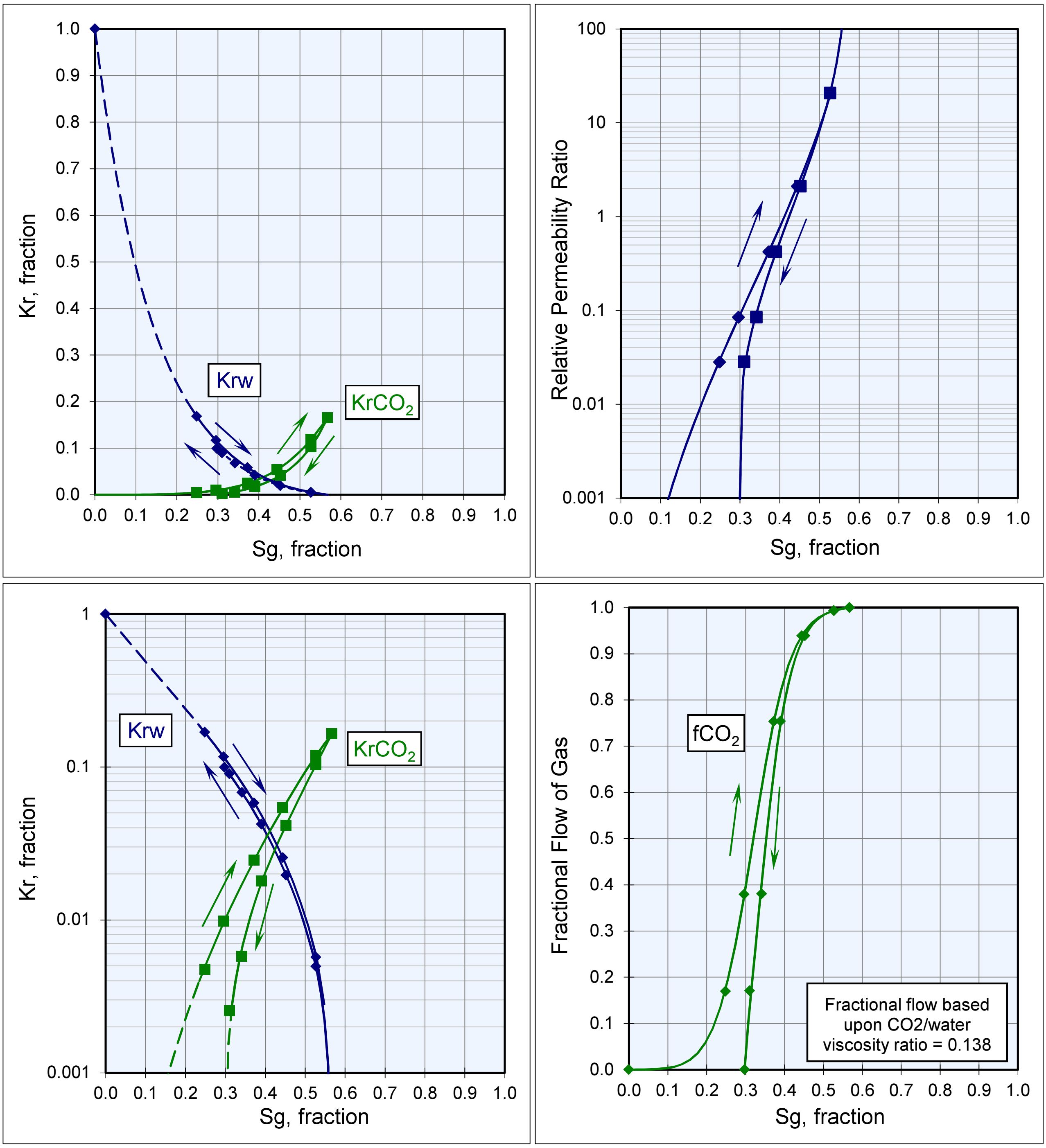
* Relative to the Specific Permeability to Brine

CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 71°C

Well : DMP Harvey-1

Sample Number :	13A
Sample Depth, meters :	2530.03
Klinkenberg Permeability, md :	91.2
Porosity, fraction :	0.135
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	18.6



CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 1700 psi Temperature : 48°C

Well : DMP Harvey-3

Sample Number : 1A
Sample Depth, meters : 1427.47
Klinkenberg Permeability, md : 180.
Porosity, fraction : 0.231
Initial Water Saturation, fraction : 1.00
Specific Permeability to Water, md : 94.9

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.171	0.0118	0.00154	0.131	0.117
0.207	0.0355	0.00307	0.0864	0.286
0.263	0.177	0.00781	0.0440	0.667
0.318	0.888	0.0174	0.0196	0.909
0.389	8.87	0.0393	0.00444	0.990
0.461	-	0.0832	-	1.00
Water Displacing CO_2				
0.461	-	0.0832	-	1.00
0.386	8.88	0.0335	0.00378	0.990
0.318	0.890	0.0132	0.0148	0.909
0.267	0.179	0.00605	0.0339	0.668
0.221	0.0356	0.00218	0.0613	0.286
0.190	0.0118	0.00106	0.0897	0.117
0.137	-	-	0.156	-

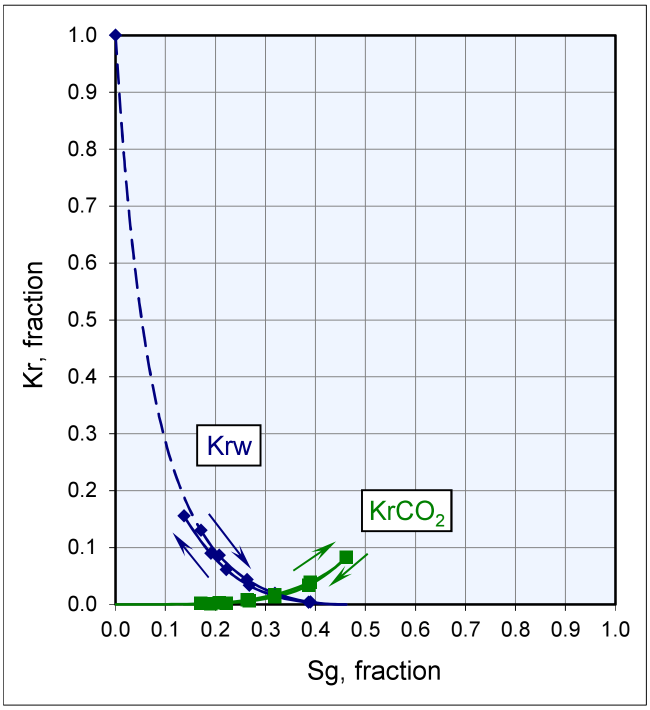
* Relative to the Specific Permeability to Brine

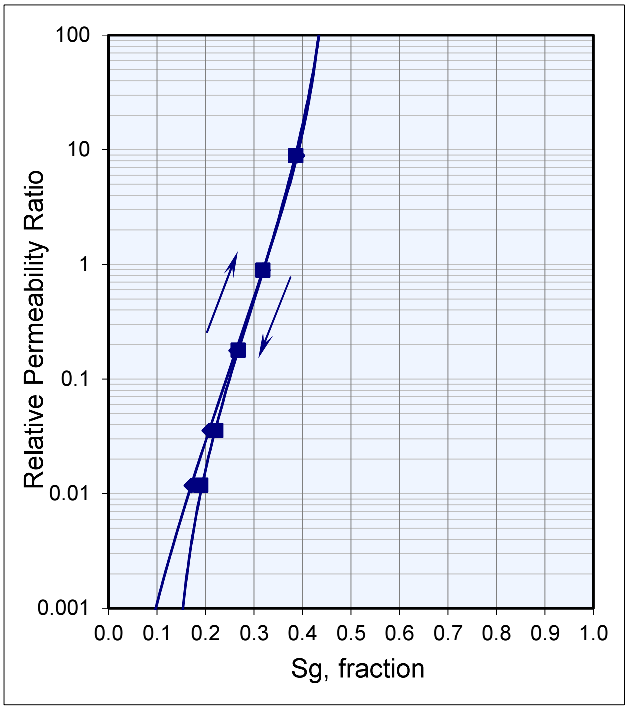
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

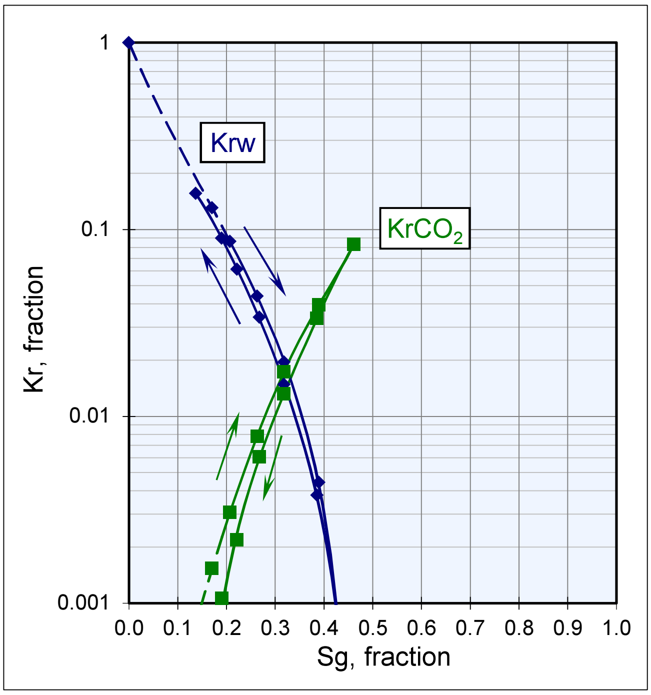
Steady State Method   Extracted State Sample
Net Confining Stress : 1700 psi   Temperature : 48°C

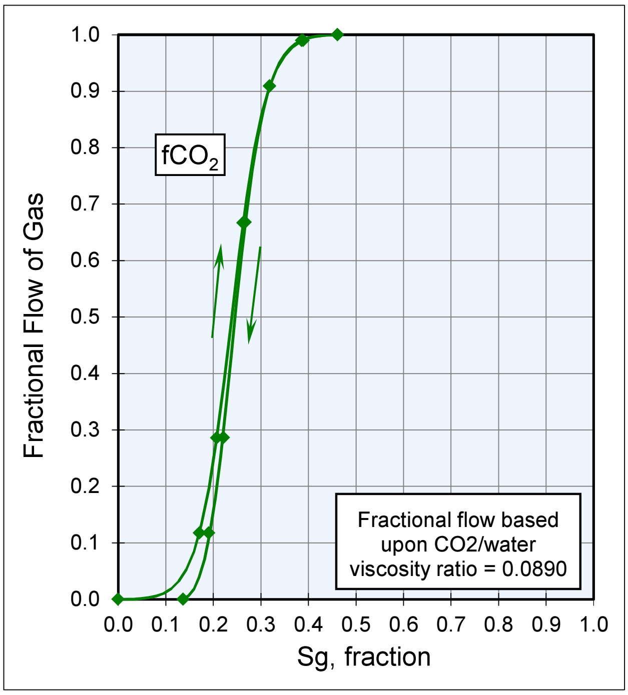
Well : DMP Harvey-3

Sample Number :	1A
Sample Depth, meters :	1427.47
Klinkenberg Permeability, md :	180.
Porosity, fraction :	0.231
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	94.9









CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 1700 psi Temperature : 56°C

Well : DMP Harvey-4

Sample Number : 6B
Sample Depth, meters : 1794.27
Klinkenberg Permeability, md : 1120.
Porosity, fraction : 0.219
Initial Water Saturation, fraction : 1.00
Specific Permeability to Water, md : 258.

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.244	0.0128	0.000944	0.0738	0.107
0.277	0.0385	0.00186	0.0483	0.265
0.334	0.193	0.00466	0.0242	0.643
0.395	0.965	0.0115	0.0119	0.900
0.484	9.64	0.0340	0.00352	0.989
0.578	-	0.0868	-	1.00
Water Displacing CO_2				
0.578	-	0.0868	-	1.00
0.491	9.64	0.0265	0.00275	0.989
0.401	0.967	0.00890	0.00920	0.900
0.342	0.193	0.00354	0.0184	0.643
0.305	0.0385	0.00113	0.0292	0.265
0.284	0.0128	0.000479	0.0374	0.107
0.258	-	-	0.0481	-

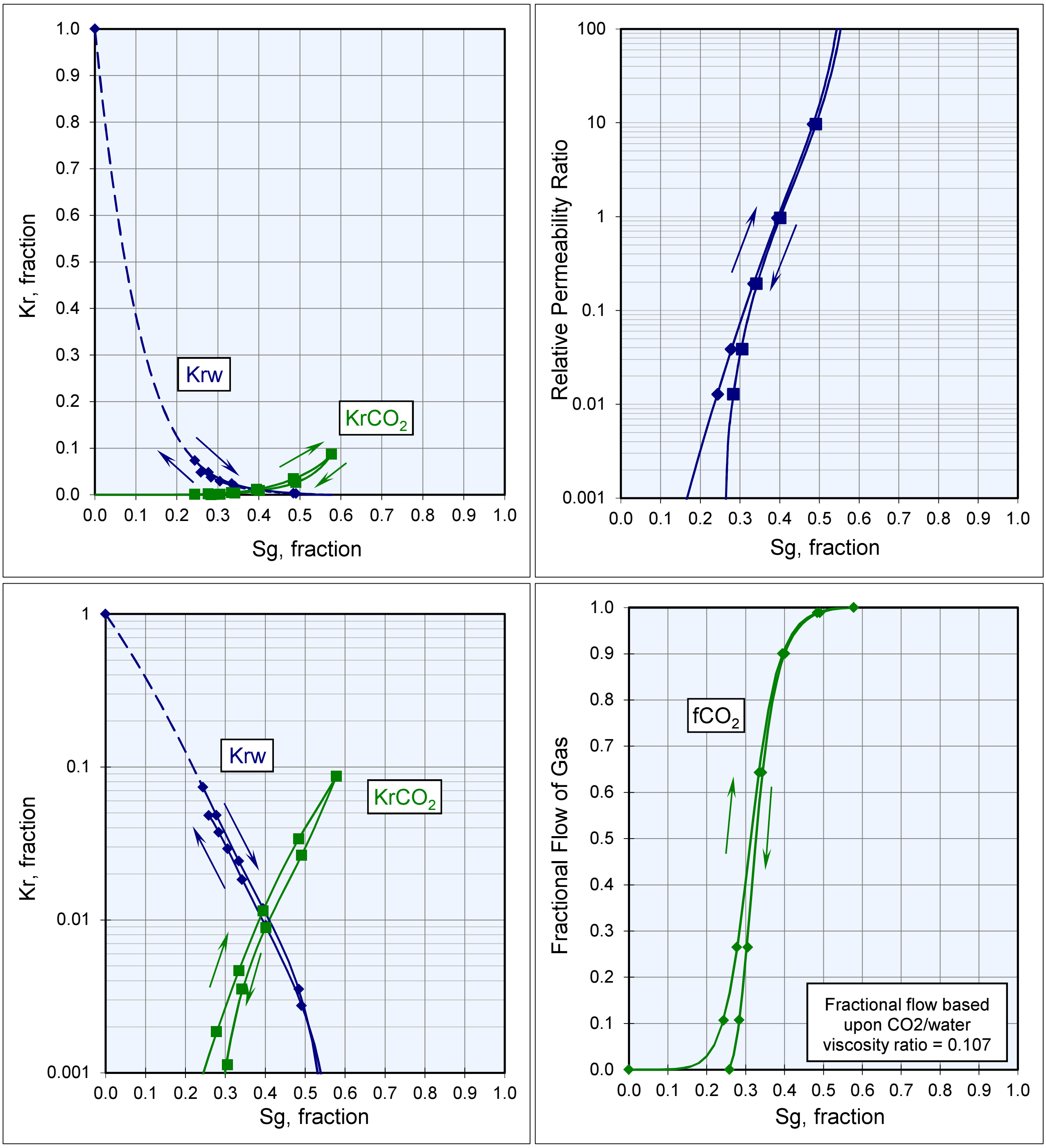
* Relative to the Specific Permeability to Brine

CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method   Extracted State Sample
Net Confining Stress : 1700 psi   Temperature : 56°C

Well : DMP Harvey-4

Sample Number :	6B
Sample Depth, meters :	1794.27
Klinkenberg Permeability, md :	1120.
Porosity, fraction :	0.219
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	258.



BASIC PROPERTIES OF TEST SAMPLES

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Permeability, millidarcies		Porosity, fraction	Grain Density, g/cm^3
			Klinkenberg	Kair		
Well : DMP Harvey-1						
7A	1911.84	2000	0.559	0.838	0.107	2.63
15A	2518.42	2600	0.340	0.390	0.103	2.684
12A	2528.07	2600	45.1	50.7	0.124	2.651
13A	2530.03	2600	91.2	104	0.135	2.641
Well : DMP Harvey-3						
1A	1427.47	1700	180	269	0.231	2.631
Well : DMP Harvey-4						
6B	1794.27	1700	1120	1360	0.219	2.63

SUMMARY OF SAMPLE PARAMETERS

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Length, cm	Area, cm^2	Pore Volume, cm^3
Well : DMP Harvey-1					
7A	1911.84	2000	6.20	11.282	7.478
15A	2518.42	2600	6.40	11.222	7.363
12A	2528.07	2600	5.11	11.222	7.091
13A	2530.03	2600	6.02	11.222	9.070
Well : DMP Harvey-3					
1A	1427.47	1700	6.08	10.752	14.430
Well : DMP Harvey-4					
6B	1794.27	1700	6.72	11.252	16.046

TAGGED SYNTHETIC FORMATION BRINE

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Constituent		Concentration, g/L
Sodium Chloride	(NaCl)	11.538
Calcium Chloride	($CaCl_2$ * $2H_2O$)	5.000
Magnesium Chloride	($MgCl_2$*$6H_2O$)	2.500
Potassium Chloride	(KCl)	2.500
Sodium Iodide*	(NaI)	73.000

* 73.000 g/L NaI replaces 28.462 g/L NaCl when tagging brine for x-ray saturation monitoring

SUMMARY OF FLUID PARAMETERS

Well : Harvey-1; Harvey-3; Harvey-4

Fluid	Temperature, °C	Viscosity, centipoise	Density, g/cm^3
Tagged Simulated Formation Brine	48	0.624	1.05
	56	0.548	1.04
	58	0.536	1.04
	70	0.445	1.02
Carbon Dioxide	48	0.0554	0.691
	56	0.0586	0.714
	58	0.0590	0.717
	70	0.0614	0.729

CO_2 - WATER RELATIVE PERMEABILITY

Unsteady State Method Extracted State Samples

Net Confining Stress : Various psi Temperature : Various ^oC

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Initial Conditions: Water Saturation, fraction pore space	Initial Conditions: Specific Permeability to Brine, millidarcies	Terminal Conditions: Water Saturation, fraction pore space	Terminal Conditions: Effective Permeability to CO_2, millidarcies	Terminal Conditions: Relative Permeability to CO_2*, fraction	Water Recovery, fraction: pore space	Water Recovery, fraction: water in place
Well : DMP Harvey-1										
7B	1911.89	0.632	0.108	1.00	0.297	0.426	0.240	0.809	0.574	0.574
8B	1919.90	1.98	0.126	1.00	0.875	0.584	0.187	0.213	0.416	0.416
9B	2491.78	227.	0.135	1.00	62.7	0.533	23.5	0.374	0.467	0.467
11A	2522.54	19.2	0.133	1.00	9.03	0.315	7.60	0.842	0.685	0.685
Well : DMP Harvey-3A										
4A	1369.84	106.	0.218	1.00	1.21	0.691	0.915	0.757	0.309	0.309
3B	1392.35	6.19	0.142	1.00	0.0758	0.619	0.0342	0.450	0.381	0.381

* Relative to the Specific Permeability to Brine

WATER - CO_2 RELATIVE PERMEABILITY

Unsteady State Method Extracted State Samples

Net Confining Stress : Various psi Temperature : Various ^oC

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Initial Conditions: Water Saturation, fraction pore space	Initial Conditions: Effective Permeability to CO_2, millidarcies	Terminal Conditions: CO_2 Saturation, fraction pore space	Terminal Conditions: Effective Permeability to Water, millidarcies	Terminal Conditions: Relative Permeability to Water*, fraction	CO2 Recovery, fraction: pore space	CO2 Recovery, fraction: gas in place
Well : DMP Harvey-1										
7B	1911.89	0.632	0.108	0.426	0.240	0.213	0.063	0.214	0.361	0.629
8B	1919.90	1.98	0.126	0.584	0.187	0.172	0.246	0.282	0.244	0.586
9B	2491.78	227.	0.135	0.533	23.5	0.145	17.5	0.279	0.322	0.690
11A	2522.54	19.2	0.133	0.315	7.60	0.317	1.92	0.213	0.368	0.537
Well : DMP Harvey-3										
4A	1369.84	106.	0.218	0.691	0.915	0.122	0.716	0.593	0.187	0.606
3B	1392.35	6.19	0.142	0.619	0.0342	0.201	0.0298	0.393	0.180	0.472

* Relative to the Specific Permeability to Brine

BASIC PROPERTIES OF TEST SAMPLES

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Permeability, millidarcies Klinkenberg	Permeability, millidarcies Kair	Porosity, fraction	Grain Density, g/cm^3
Well : DMP Harvey-1						
7B	1911.89	2000	0.632	0.933	0.108	2.63
8B	1919.90	2000	1.98	2.64	0.126	2.63
9B	2491.78	2600	227.	257.	0.135	2.64
11A	2522.54	2600	19.2	22.0	0.133	2.64
Well : DMP Harvey-3						
4A	1369.84	1250	106.	114.	0.218	2.64
3B	1392.35	1250	6.19	7.23	0.142	2.64

SUMMARY OF SAMPLE PARAMETERS

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Length, cm	Area, cm^2	Pore Volume, cm^3
Well : DMP Harvey-1					
7B	1911.89	2000	6.45	11.28	7.79
8B	1919.90	2000	6.16	11.25	8.71
9B	2491.78	2600	6.40	11.34	9.73
11A	2522.54	2600	5.91	11.34	8.85
Well : DMP Harvey-3					
4A	1369.84	1250	6.85	11.04	16.14
3B	1392.35	1250	6.80	11.31	10.67

SYNTHETIC FORMATION BRINE

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Constituent		Concentration, g/L
Sodium Chloride	(NaCl)	40.000
Calcium Chloride	($CaCl_2$ * $2H_2O$)	5.000
Magnesium Chloride	($MgCl_2$*$6H_2O$)	2.500
Potassium Chloride	(KCl)	2.500

SUMMARY OF FLUID PARAMETERS

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Fluid	Temperature, °C	Viscosity, centipoise	Density, g/cm^3
Simulated Formation Brine	48	0.630	1.05
	56	0.624	1.05
	58	0.536	1.04
	70	0.453	1.02
Carbon Dioxide	48	0.0560	0.697
	56	0.0554	0.691
	58	0.0590	0.717
	70	0.0621	0.736

SPECIAL CORE ANALYSIS (SCAL) TEST SCHEDULE SUMMARY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	CT-Scan Pre-Test	CT-Scan Post-Test	Permeability, and Porosity at ambient	Permeability, and Porosity at NOBP	Grain Density	Supercritical CO2-Water Krel SS Full-Curve	Supercritical CO2-Water Krel USS End-Points
Well : DMP Harvey-1									
Wonnerup Member	7A	1911.84	X	X	X	X	X	X	
Wonnerup Member	8A	1919.86	X		X	X	X		
Wonnerup Member	7B	1911.89	X	X	X	X	X		X
Wonnerup Member	8B	1919.90	X	X	X	X	X		X
Wonnerup Member	9A	2491.72	X		X	X	X		
Wonnerup Member	9B	2491.78	X	X	X	X	X		X
Wonnerup Member	10A	2508.63	X		X	X	X		
Wonnerup Member	10B	2508.67	X		X	X	X		
Wonnerup Member	14A	2517.76	X		X	X	X		
Wonnerup Member	15A	2518.42	X	X	X	X	X	X	
Wonnerup Member	11A	2522.54	X	X	X	X	X		X
Wonnerup Member	11B	2522.59	X		X	X	X		
Wonnerup Member	12A	2528.07	X	X	X	X	X	X	
Wonnerup Member	12B	2528.12	X		X	X	X		
Wonnerup Member	13A	2530.03	X	X	X	X	X	X	
Wonnerup Member	13B	2530.07	X		X	X	X		
Well : DMP Harvey-3									
Yalgorup Member	4A	1369.84	X	X	X	X	X		X
Yalgorup Member	3A	1392.30	X		X	X	X		
Wonnerup Member	3B	1392.35	X	X	X	X	X		X

SPECIAL CORE ANALYSIS (SCAL) TEST SCHEDULE SUMMARY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	CT-Scan		Permeability, and Porosity		Grain Density	Supercritical CO2-Water Krel	
			Pre-Test	Post-Test	at ambient	at NOBP		SS Full-Curve	USS End-Points
Well : DMP Harvey-3									
Wonnerup Member	1A	1427.47	X	X	X	X	X	X	
Wonnerup Member	1B	1427.52	X		X	X	X		
Wonnerup Member	2A	1440.90	X		X	X	X		
Wonnerup Member	2B	1440.95	X		X	X	X		
Well : DMP Harvey-4									
Wonnerup Member	5B	1666.28	X		X	X	X		
Wonnerup Member	5A	1666.33	X		X	X	X		
Wonnerup Member	6B	1794.27	X	X	X	X	X	X	
Wonnerup Member	6A	1794.30	X		X	X	X		

POROSITY, PERMEABILITY, and GRAIN DENSITY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	At Ambient (800 psi) Permeability Kinf (md)	At Ambient (800 psi) Permeability Kair (md)	At Ambient (800 psi) Porosity (%)	At NOBP: NOBP (psi)	At NOBP: Permeability Kinf (md)	At NOBP: Permeability Kair (md)	At NOBP: Permeability SS Kair (md)	At NOBP: Porosity (%)	Grain Density (g/cc)
Well : DMP Harvey-1											
Wonnerup Member	7A	1911.84	0.698	1.04	11.1	2000	0.559	0.838	-	10.7	2.63
Wonnerup Member	8A	1919.86	1.81	2.50	12.9	2000	1.57	2.16	-	12.6	2.63
Wonnerup Member	7B	1911.89	0.791	1.15	11.1	2000	0.632	0.933	-	10.8	2.63
Wonnerup Member	8B	1919.90	2.31	3.10	12.9	2000	1.98	2.64	-	12.6	2.63
Wonnerup Member	9A	2491.72	399	425	14.7	2600	375	399	-	14.3	2.63
Wonnerup Member	9B	2491.78	243	274	13.9	2600	227	257	-	13.5	2.64
Wonnerup Member	10A	2508.63	8.59	1.21	12.8	2600	6.13	8.03	-	12.2	2.65
Wonnerup Member	10B	2508.67	12.7	15.6	14.6	2600	10.4	13.1	-	14.0	2.64
Wonnerup Member	14A	2517.76	0.069	0.116	8.2	2600	0.046	0.063	-	8.0	2.68
Wonnerup Member	15A	2518.42	0.399	0.534	10.7	2600	0.340	0.390	-	10.3	2.68

POROSITY, PERMEABILITY, and GRAIN DENSITY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	At Ambient (800 psi) Permeability Kinf (md)	At Ambient (800 psi) Permeability Kair (md)	At Ambient (800 psi) Porosity (%)	At NOBP: NOBP (psi)	At NOBP Permeability Kinf (md)	At NOBP Permeability Kair (md)	At NOBP Permeability SS Kair (md)	At NOBP Porosity (%)	Grain Density (g/cc)
Well : DMP Harvey-1											
Wonnerup Member	11A	2522.54	21.2	24.2	13.7	2600	19.2	22.0	-	13.3	2.64
Wonnerup Member	11B	2522.59	21.0	23.9	14.5	2600	19.3	21.8	-	14.1	2.65
Wonnerup Member	12A	2528.07	47.3	54.1	12.9	2600	45.1	50.7	-	12.4	2.65
Wonnerup Member	12B	2528.12	98.3	118	13.0	2600	94.2	112	-	12.6	2.65
Wonnerup Member	13A	2530.03	99.9	112	14.0	2600	91.2	104	-	13.5	2.64
Wonnerup Member	13B	2530.07	9.58	11.2	13.0	2600	8.82	10.3	-	12.6	2.66
Well : DMP Harvey-3											
Yalgorup Member	4A	1369.84	116	127	22.2	1250	106	114	-	21.8	2.64
Yalgorup Member	3A	1392.30	31.9	38.1	16.2	1250	17.8	22.0	-	15.7	2.65
Yalgorup Member	3B	1392.35	11.0	13.0	14.6	1250	6.19	7.23	-	14.2	2.64

POROSITY, PERMEABILITY, and GRAIN DENSITY

(Sorted by well and depth)

Stratigraphic Unit	Sample no.	Depth (m)	At Ambient (800 psi) Permeability Kinf (md)	At Ambient (800 psi) Permeability Kair (md)	At Ambient (800 psi) Porosity (%)	At NOBP NOBP (psi)	At NOBP Permeability Kinf (md)	At NOBP Permeability Kair (md)	At NOBP Permeability SS Kair (md)	At NOBP Porosity (%)	Grain Density (g/cc)
Well : DMP Harvey-3											
Wonnerup Member	1A	1427.47	271	400	23.8	1700	180	269	-	23.1	2.63
Wonnerup Member	1B	1427.52	408	584	23.9	1700	347	497	-	23.3	2.63
Wonnerup Member	2A	1440.90	363	411	19.8	1700	335	381	-	19.5	2.63
Wonnerup Member	2B	1440.95	222	282	20.3	1700	201	256	-	19.9	2.64
Well : DMP Harvey-4											
Wonnerup Member	5B	1666.28	6460	6870	24.2	1700	5890	6490	7380	23.8	2.63
Wonnerup Member	5A	1666.33	7090	7150	24.1	1700	6240	6600	6760	23.6	2.63
Wonnerup Member	6B	1794.27	1160	1500	22.5	1700	1120	1360	1660	21.9	2.63
Wonnerup Member	6A	1794.30	516	686	21.1	1700	412	545	-	20.6	2.64

CO_2 - WATER RELATIVE PERMEABILITY

Steady State Method Extracted State Samples
Net Confining Stress : Various Temperature : Various

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Initial Conditions		Terminal Conditions			Water Recovery, fraction	
				Water Saturation, fraction pore space	Specific Permeability to Brine, millidarcies	Water Saturation, fraction pore space	Effective Permeability to CO_2, millidarcies	Relative Permeability to CO_2*, fraction	pore space	water in place
Well : DMP Harvey-1										
7A	1911.84	0.559	0.107	1.00	0.266	0.558	0.0737	0.277	0.442	0.442
15A	2518.42	0.340	0.103	1.00	0.206	0.611	0.0143	0.0692	0.389	0.389
12A	2528.07	45.1	0.124	1.00	15.8	0.533	2.60	0.164	0.467	0.467
13A	2530.03	91.2	0.135	1.00	18.6	0.433	3.07	0.165	0.567	0.567
Well : DMP Harvey-3										
1A	1427.47	180	0.231	1.00	94.9	0.539	7.90	0.0832	0.461	0.461
Well : DMP Harvey-4										
6B	1794.27	1120	0.219	1.00	258	0.422	22.4	0.0868	0.578	0.578

* Relative to the Specific Permeability to Brine

WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method   Extracted State Samples
Net Confining Stress : Various   Temperature : Various

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Initial Conditions: Water Saturation, fraction pore space	Initial Conditions: Effective Permeability to CO_2, millidarcies	Terminal Conditions: CO_2 Saturation, fraction pore space	Terminal Conditions: Effective Permeability to Water, millidarcies	Terminal Conditions: Relative Permeability to Water*, fraction	CO_2 Recovery, fraction: pore space	CO_2 Recovery, fraction: gas in place
Well : DMP Harvey-1										
7A	1911.84	0.559	0.107	0.558	0.0737	0.238	0.0415	0.156	0.204	0.461
15A	2518.42	0.34	0.103	0.611	0.0143	0.222	0.0278	0.135	0.167	0.429
12A	2528.07	45.1	0.124	0.533	2.60	0.234	2.03	0.128	0.233	0.498
13A	2530.03	91.2	0.135	0.433	3.07	0.298	1.86	0.100	0.270	0.475
Well : DMP Harvey-3										
1A	1427.47	180	0.231	0.539	7.90	0.137	14.8	0.156	0.325	0.704
Well : DMP Harvey-4										
6B	1794.27	1120	0.219	0.422	22.4	0.258	12.4	0.0481	0.320	0.553

* Relative to the Specific Permeability to Brine

CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2000 psi Temperature : 58°C

Well : DMP Harvey-1

Sample Number : 7A
Sample Depth, meters : 1911.84
Klinkenberg Permeability, md : 0.559
Porosity, fraction : 0.107
Initial Water Saturation, fraction : 1.00
Specific Permeability to Water, md : 0.266

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.188	0.0184	0.00487	0.265	0.143
0.222	0.0555	0.0108	0.195	0.335
0.276	0.260	0.0287	0.111	0.702
0.332	1.25	0.0682	0.0545	0.919
0.417	13.9	0.212	0.0153	0.992
0.442	-	0.277	-	1.00
Water Displacing CO_2				
0.442	-	0.277	-	1.00
0.410	13.5	0.184	0.0137	0.992
0.338	1.33	0.0596	0.0447	0.924
0.293	0.266	0.0230	0.0866	0.707
0.262	0.0525	0.00634	0.121	0.323
0.247	0.0176	0.00249	0.142	0.137
0.238	-	-	0.156	-

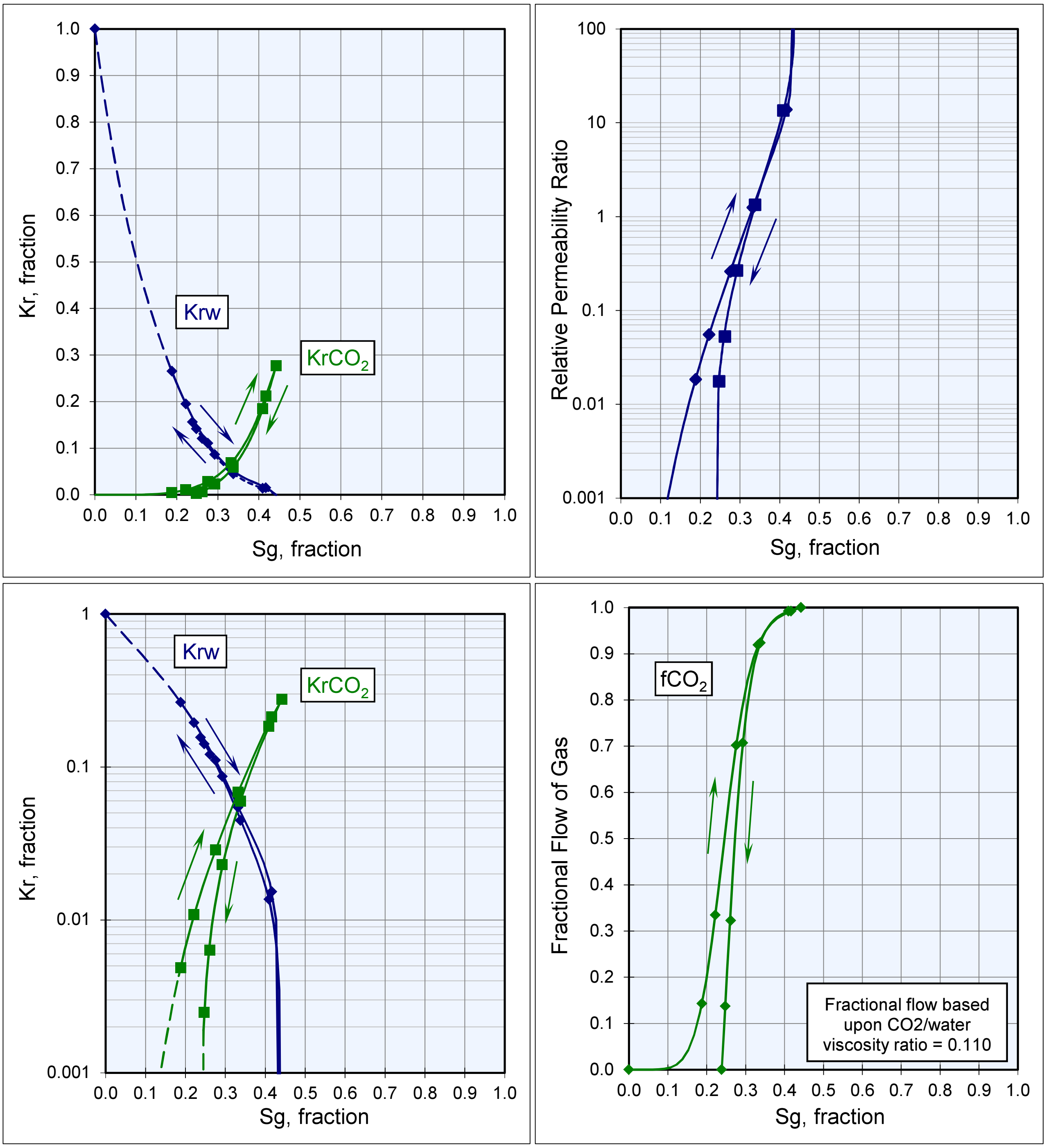
* Relative to the Specific Permeability to Brine

CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2000 psi Temperature : 58°C

Well : DMP Harvey-1

Sample Number :	7A
Sample Depth, meters :	1911.84
Klinkenberg Permeability, md :	0.559
Porosity, fraction :	0.107
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	0.266



CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70°C

Well : DMP Harvey-1

Sample Number :	15A
Sample Depth, meters :	2518.42
Klinkenberg Permeability, md :	0.340
Porosity, fraction :	0.103
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	0.206

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.203	0.0158	0.00289	0.183	0.103
0.235	0.0485	0.00618	0.127	0.260
0.288	0.258	0.0159	0.0615	0.652
0.328	1.22	0.0301	0.0248	0.898
0.371	13.4	0.0542	0.00405	0.990
0.389	-	0.0692	-	1.00
Water Displacing CO_2				
0.389	-	0.0692	-	1.00
0.368	13.5	0.0483	0.00358	0.990
0.331	1.22	0.0252	0.0206	0.899
0.294	0.262	0.0131	0.0500	0.655
0.254	0.0490	0.00439	0.0895	0.262
0.233	0.0160	0.00191	0.120	0.104
0.222	-	-	0.135	-

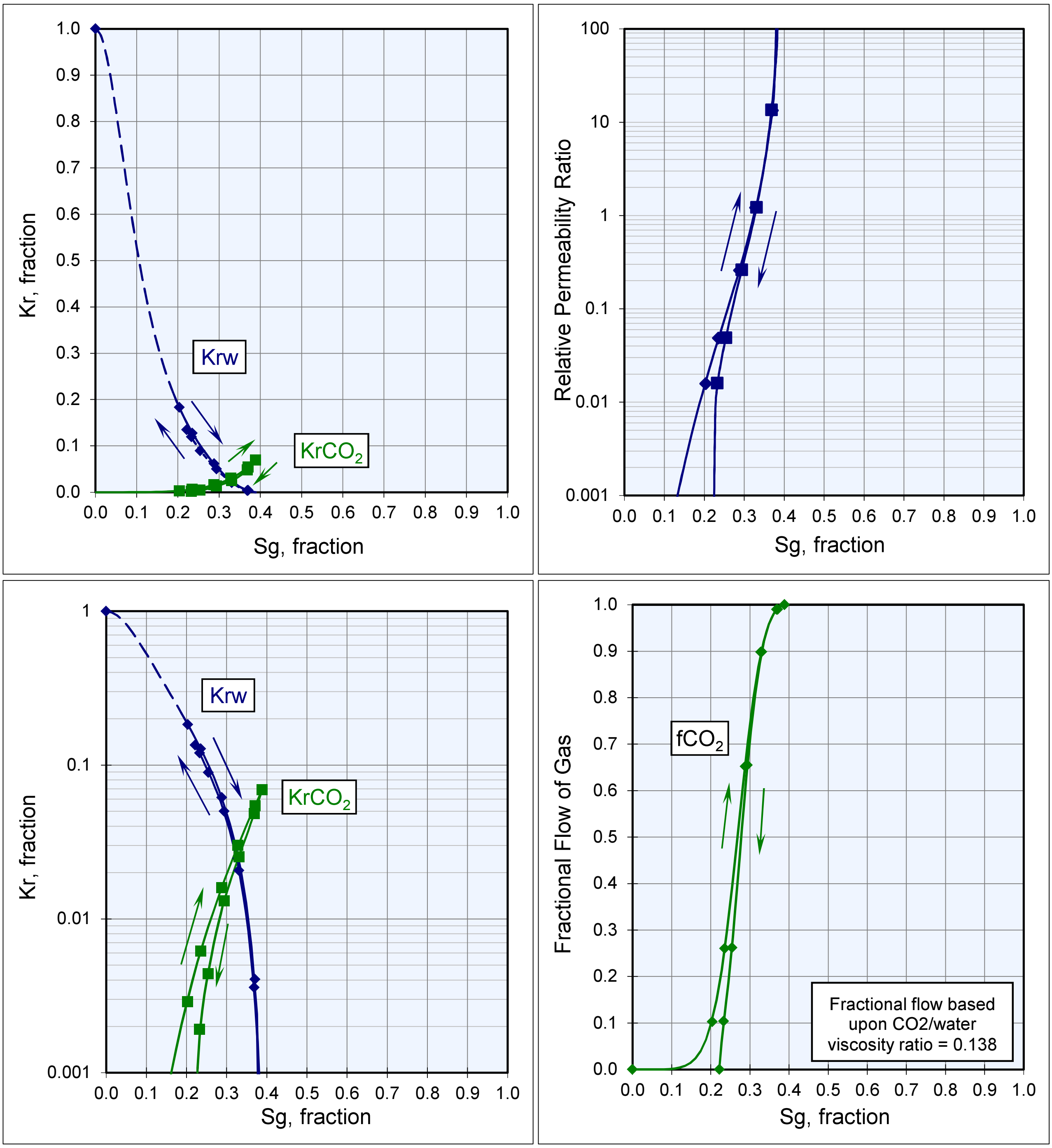
* Relative to the Specific Permeability to Brine

CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method   Extracted State Sample
Net Confining Stress : 2600 psi   Temperature : 70°C

Well : DMP Harvey-1

Sample Number :	15A
Sample Depth, meters :	2518.42
Klinkenberg Permeability, md :	0.340
Porosity, fraction :	0.103
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	0.206



CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70°C

Well : DMP Harvey-1

Sample Number : 12A
Sample Depth, meters : 2528.07
Klinkenberg Permeability, md : 45.1
Porosity, fraction : 0.124
Initial Water Saturation, fraction : 1.00
Specific Permeability to Water, md : 15.8

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.238	0.0175	0.00251	0.143	0.113
0.264	0.0528	0.00544	0.103	0.277
0.301	0.264	0.0145	0.0552	0.657
0.339	1.31	0.0302	0.0230	0.905
0.392	13.2	0.0679	0.00514	0.990
0.467	-	0.164	-	1.00
Water Displacing CO_2				
0.467	-	0.164	-	1.00
0.390	13.2	0.0599	0.00453	0.990
0.340	1.32	0.0247	0.0188	0.905
0.304	0.264	0.0111	0.0422	0.657
0.277	0.0530	0.00365	0.0689	0.278
0.258	0.0176	0.00163	0.0923	0.113
0.234	-	-	0.128	-

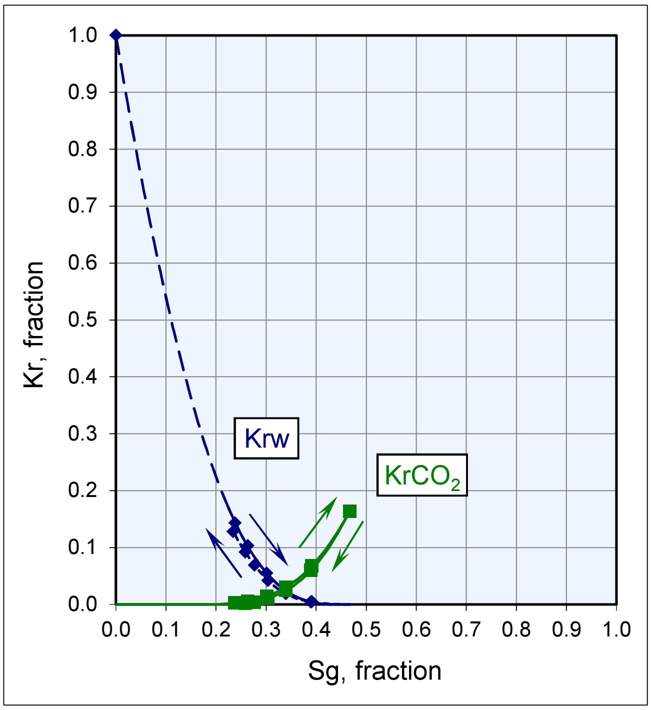
* Relative to the Specific Permeability to Brine

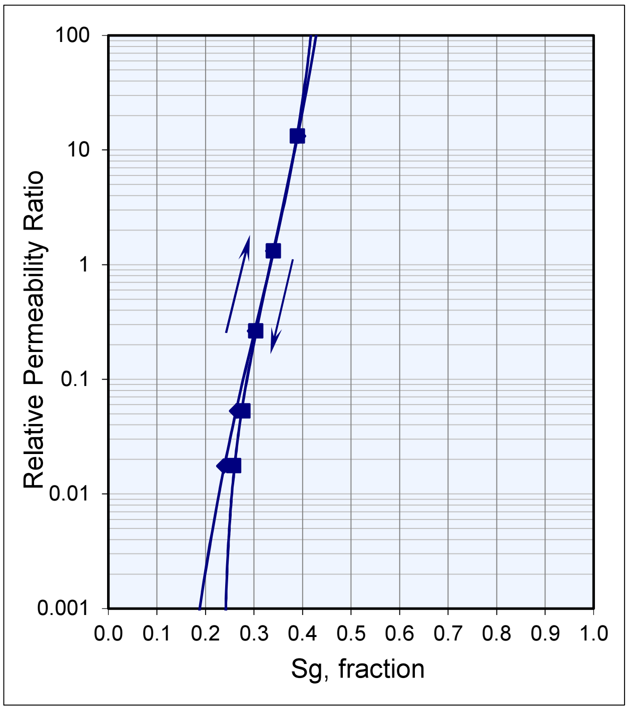
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

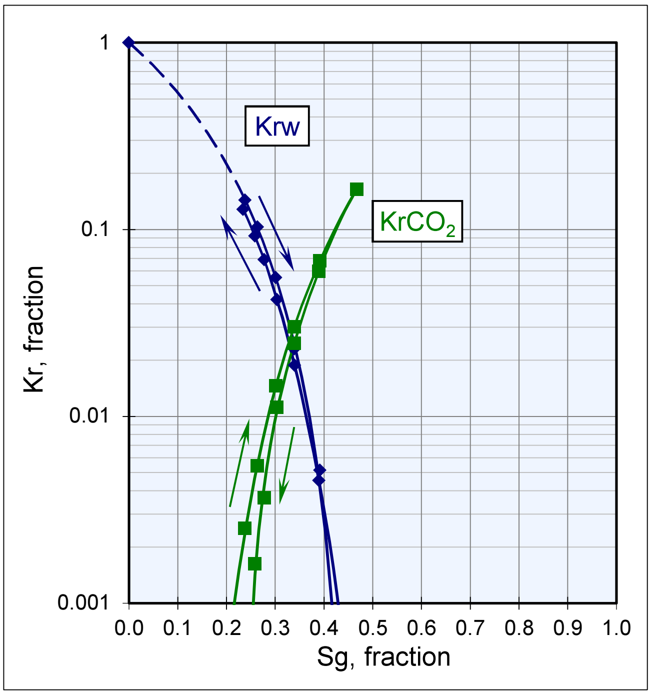
Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70°C

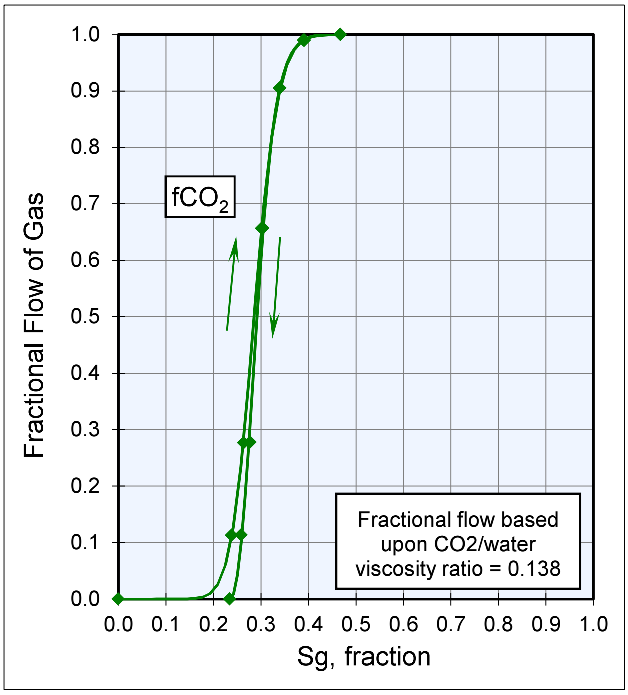
Well : DMP Harvey-1

Sample Number :	12A
Sample Depth, meters :	2528.07
Klinkenberg Permeability, md :	45.1
Porosity, fraction :	0.124
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	15.8









CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 71°C

Well : DMP Harvey-1

Sample Number :	13A
Sample Depth, meters :	2530.03
Klinkenberg Permeability, md :	91.2
Porosity, fraction :	0.135
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	18.6

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.248	0.0282	0.00475	0.168	0.170
0.296	0.0843	0.00984	0.117	0.380
0.372	0.422	0.0245	0.0582	0.754
0.445	2.11	0.0539	0.0256	0.939
0.527	20.8	0.119	0.00571	0.993
0.567	-	0.165	-	1.00
Water Displacing CO_2				
0.567	-	0.165	-	1.00
0.527	20.8	0.103	0.00497	0.993
0.452	2.11	0.0414	0.0196	0.939
0.390	0.423	0.0179	0.0423	0.754
0.342	0.0846	0.00576	0.0681	0.380
0.310	0.0284	0.00255	0.0900	0.171
0.298	-	-	0.100	-

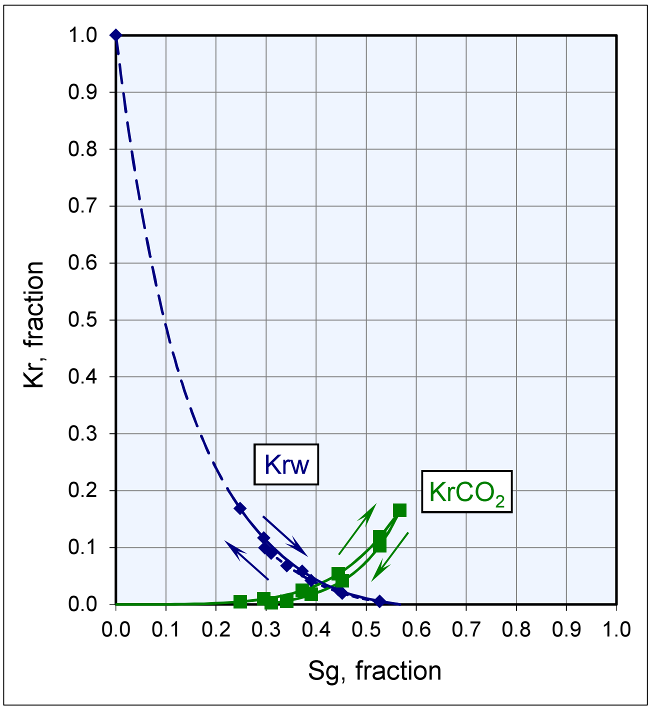
* Relative to the Specific Permeability to Brine

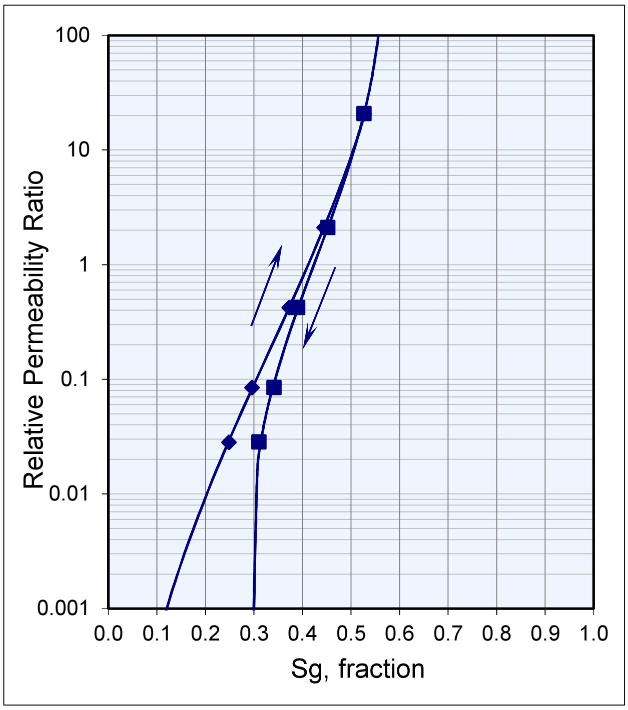
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

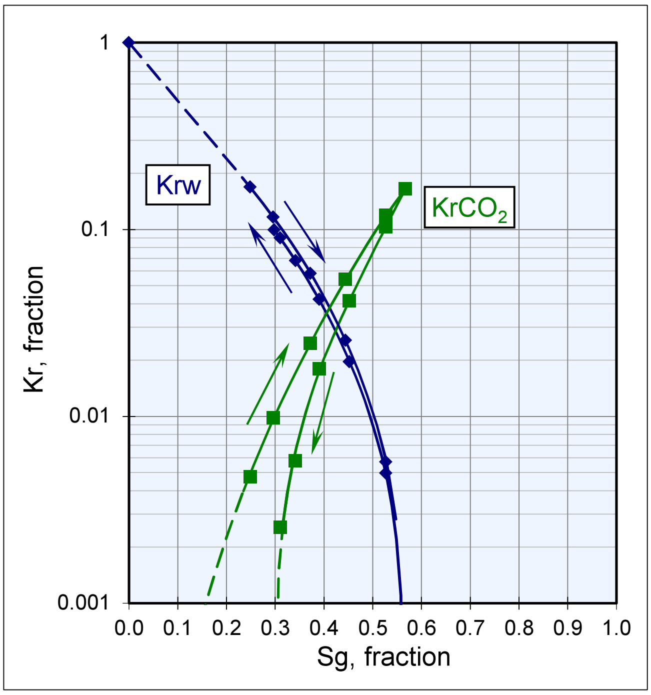
Steady State Method   Extracted State Sample
Net Confining Stress : 2600 psi   Temperature : 71°C

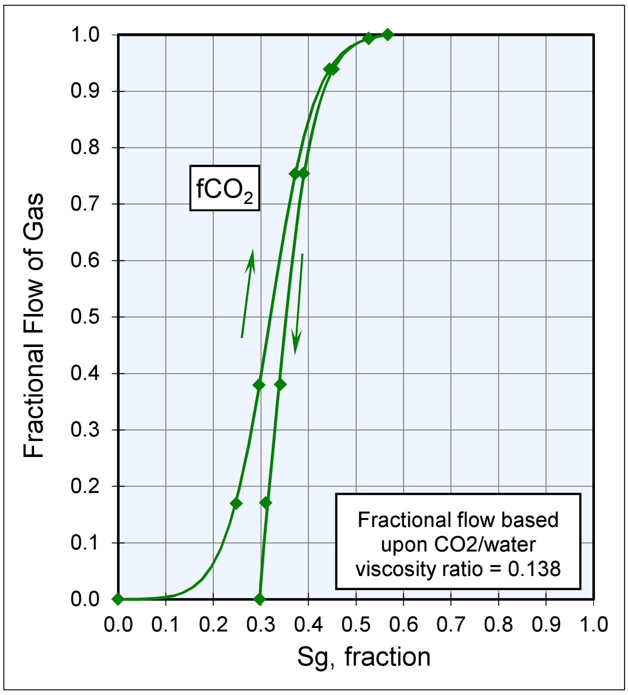
Well : DMP Harvey-1

Sample Number :	13A
Sample Depth, meters :	2530.03
Klinkenberg Permeability, md :	91.2
Porosity, fraction :	0.135
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	18.6









CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 1700 psi Temperature : 48°C

Well : DMP Harvey-3

Sample Number :	1A
Sample Depth, meters :	1427.47
Klinkenberg Permeability, md :	180.
Porosity, fraction :	0.231
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	94.9

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.171	0.0118	0.00154	0.131	0.117
0.207	0.0355	0.00307	0.0864	0.286
0.263	0.177	0.00781	0.0440	0.667
0.318	0.888	0.0174	0.0196	0.909
0.389	8.87	0.0393	0.00444	0.990
0.461	-	0.0832	-	1.00
Water Displacing CO_2				
0.461	-	0.0832	-	1.00
0.386	8.88	0.0335	0.00378	0.990
0.318	0.890	0.0132	0.0148	0.909
0.267	0.179	0.00605	0.0339	0.668
0.221	0.0356	0.00218	0.0613	0.286
0.190	0.0118	0.00106	0.0897	0.117
0.137	-	-	0.156	-

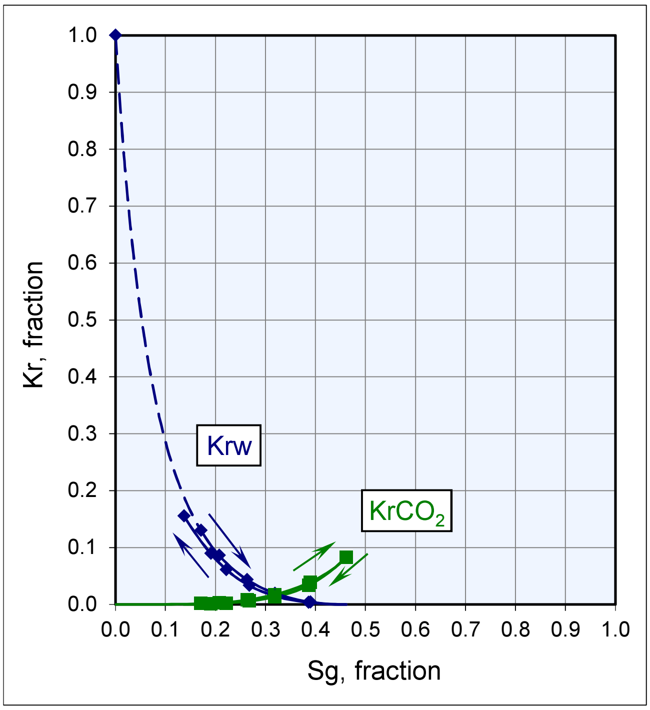
* Relative to the Specific Permeability to Brine

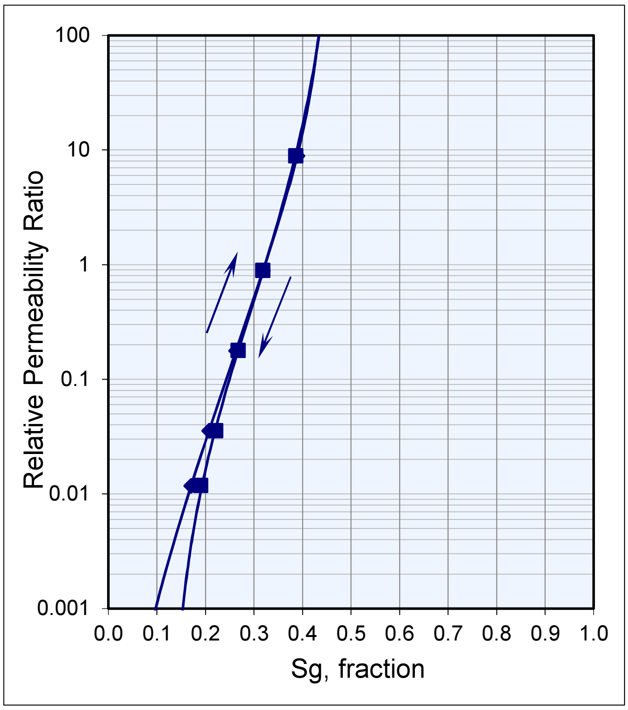
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

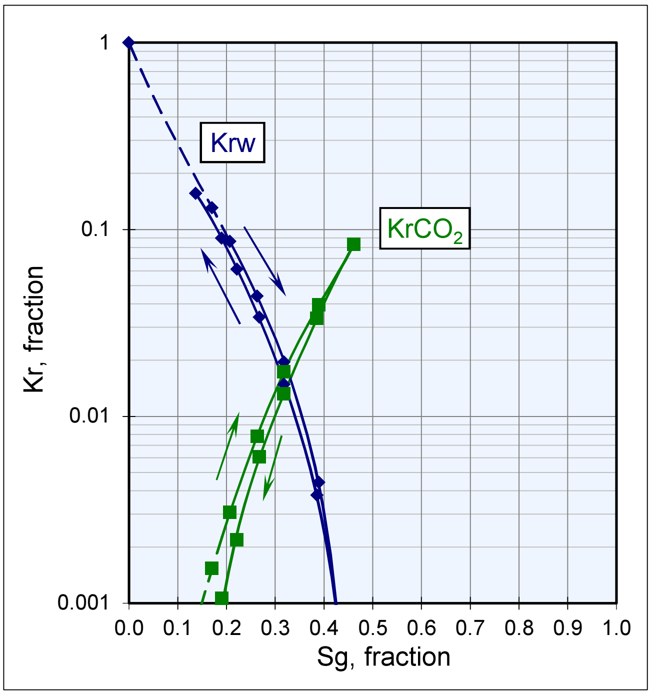
Steady State Method Extracted State Sample
Net Confining Stress : 1700 psi Temperature : 48°C

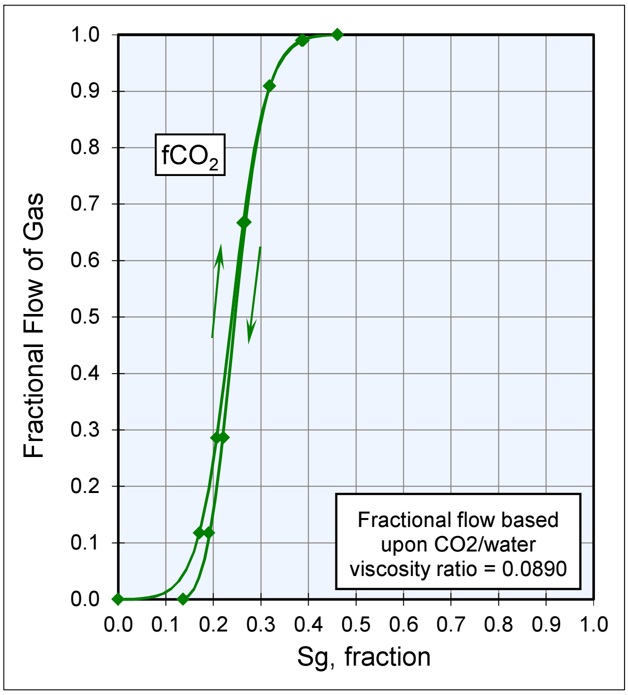
Well : DMP Harvey-3

Sample Number :	1A
Sample Depth, meters :	1427.47
Klinkenberg Permeability, md :	180.
Porosity, fraction :	0.231
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	94.9









CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 1700 psi Temperature : 56°C

Well : DMP Harvey-4

Sample Number : 6B
Sample Depth, meters : 1794.27
Klinkenberg Permeability, md : 1120.
Porosity, fraction : 0.219
Initial Water Saturation, fraction : 1.00
Specific Permeability to Water, md : 258.

CO_2 Saturation, fraction Vp	CO_2-Water Relative Permeability Ratio	Relative Permeability to CO_2*, fraction	Relative Permeability to Water*, fraction	Fractional Flow of CO_2, fCO_2
CO_2 Displacing Water				
0.000	-	-	1.00	-
0.244	0.0128	0.000944	0.0738	0.107
0.277	0.0385	0.00186	0.0483	0.265
0.334	0.193	0.00466	0.0242	0.643
0.395	0.965	0.0115	0.0119	0.900
0.484	9.64	0.0340	0.00352	0.989
0.578	-	0.0868	-	1.00
Water Displacing CO_2				
0.578	-	0.0868	-	1.00
0.491	9.64	0.0265	0.00275	0.989
0.401	0.967	0.00890	0.00920	0.900
0.342	0.193	0.00354	0.0184	0.643
0.305	0.0385	0.00113	0.0292	0.265
0.284	0.0128	0.000479	0.0374	0.107
0.258	-	-	0.0481	-

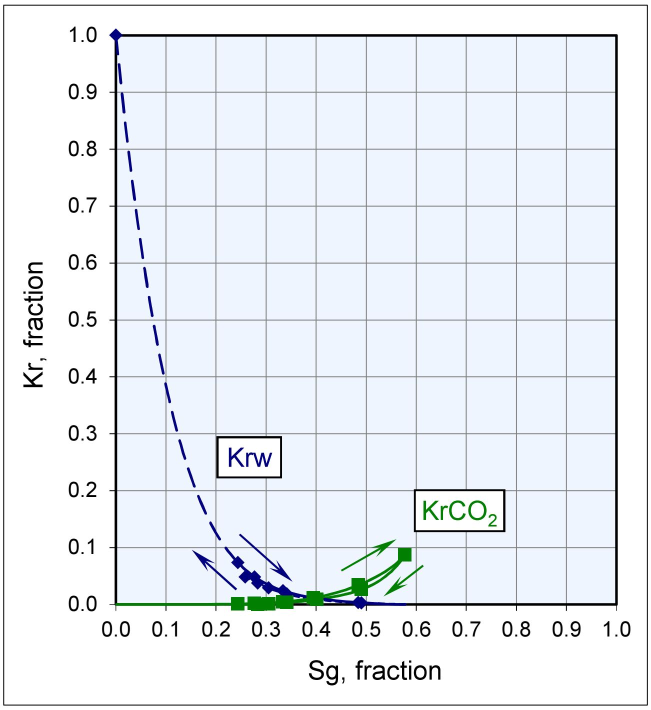
* Relative to the Specific Permeability to Brine

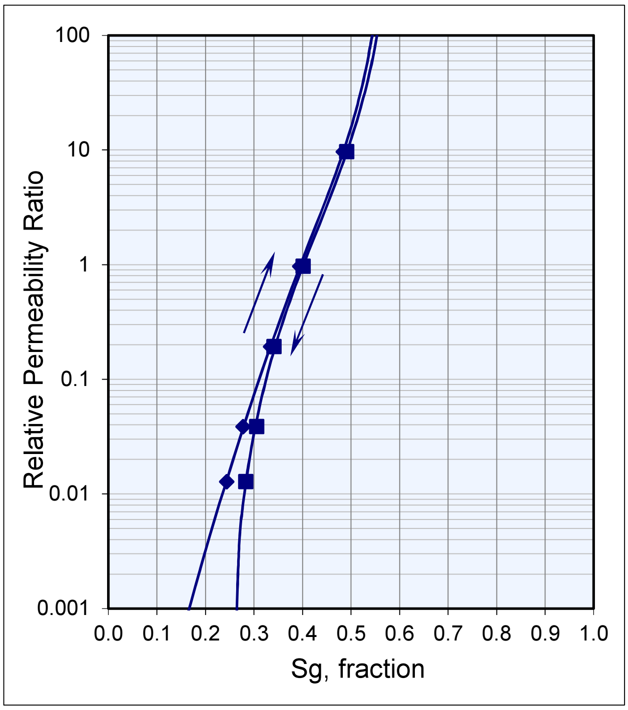
CO_2 - WATER / WATER - CO_2 RELATIVE PERMEABILITY

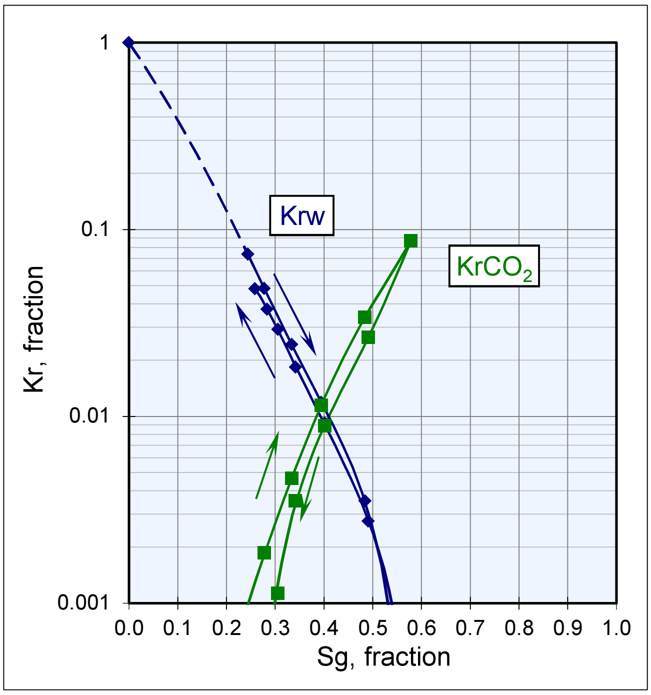
Steady State Method Extracted State Sample
Net Confining Stress : 1700 psi Temperature : 56°C

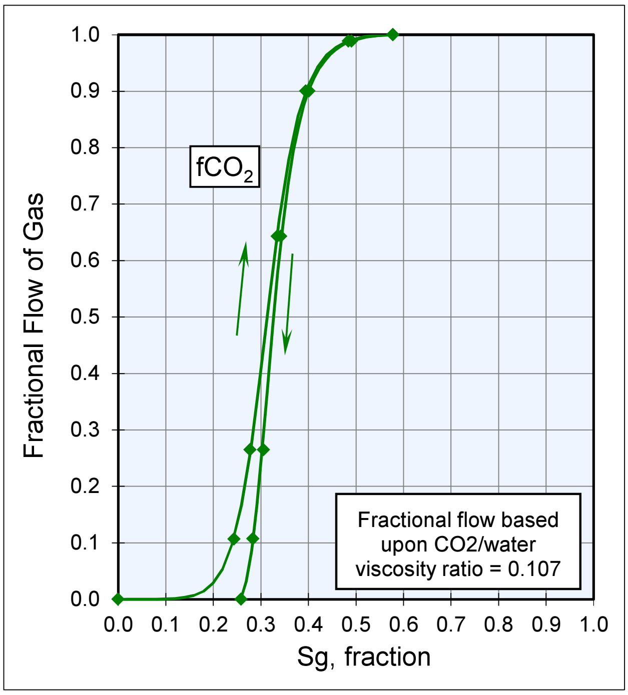
Well : DMP Harvey-4

Sample Number :	6B
Sample Depth, meters :	1794.27
Klinkenberg Permeability, md :	1120.
Porosity, fraction :	0.219
Initial Water Saturation, fraction :	1.00
Specific Permeability to Water, md :	258.









BASIC PROPERTIES OF TEST SAMPLES

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Permeability, millidarcies		Porosity, fraction	Grain Density, g/cm^3
			Klinkenberg	Kair		
Well : DMP Harvey-1						
7A	1911.84	2000	0.559	0.838	0.107	2.63
15A	2518.42	2600	0.340	0.390	0.103	2.684
12A	2528.07	2600	45.1	50.7	0.124	2.651
13A	2530.03	2600	91.2	104	0.135	2.641
Well : DMP Harvey-3						
1A	1427.47	1700	180	269	0.231	2.631
Well : DMP Harvey-4						
6B	1794.27	1700	1120	1360	0.219	2.63

SUMMARY OF SAMPLE PARAMETERS

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Length, cm	Area, cm^2	Pore Volume, cm^3
Well : DMP Harvey-1					
7A	1911.84	2000	6.20	11.282	7.478
15A	2518.42	2600	6.40	11.222	7.363
12A	2528.07	2600	5.11	11.222	7.091
13A	2530.03	2600	6.02	11.222	9.070
Well : DMP Harvey-3					
1A	1427.47	1700	6.08	10.752	14.430
Well : DMP Harvey-4					
6B	1794.27	1700	6.72	11.252	16.046

TAGGED SYNTHETIC FORMATION BRINE

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Constituent		Concentration, g/L
Sodium Chloride	(NaCl)	11.538
Calcium Chloride	($CaCl_2$ * $2H_2O$)	5.000
Magnesium Chloride	($MgCl_2$*$6H_2O$)	2.500
Potassium Chloride	(KCl)	2.500
Sodium Iodide*	(NaI)	73.000

* 73.000 g/L NaI replaces 28.462 g/L NaCl when tagging brine for x-ray saturation monitoring

SUMMARY OF FLUID PARAMETERS

Well : Harvey-1; Harvey-3; Harvey-4

Fluid	Temperature, °C	Viscosity, centipoise	Density, g/cm^3
Tagged Simulated Formation Brine	48	0.624	1.05
	56	0.548	1.04
	58	0.536	1.04
	70	0.445	1.02
Carbon Dioxide	48	0.0554	0.691
	56	0.0586	0.714
	58	0.0590	0.717
	70	0.0614	0.729

CO_2 - WATER RELATIVE PERMEABILITY

Unsteady State Method Extracted State Samples
Net Confining Stress : Various psi Temperature : Various ^oC

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

				Initial Conditions		Terminal Conditions			Water Recovery, fraction	
Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Water Saturation, fraction pore space	Specific Permeability to Brine, millidarcies	Water Saturation, fraction pore space	Effective Permeability to CO_2, millidarcies	Relative Permeability to CO_2*, fraction	pore space	water in place
Well : DMP Harvey-1										
7B	1911.89	0.632	0.108	1.00	0.297	0.426	0.240	0.809	0.574	0.574
8B	1919.90	1.98	0.126	1.00	0.875	0.584	0.187	0.213	0.416	0.416
9B	2491.78	227.	0.135	1.00	62.7	0.533	23.5	0.374	0.467	0.467
11A	2522.54	19.2	0.133	1.00	9.03	0.315	7.60	0.842	0.685	0.685
Well : DMP Harvey-3A										
4A	1369.84	106.	0.218	1.00	1.21	0.691	0.915	0.757	0.309	0.309
3B	1392.35	6.19	0.142	1.00	0.0758	0.619	0.0342	0.450	0.381	0.381

* Relative to the Specific Permeability to Brine

WATER - CO_2 RELATIVE PERMEABILITY

Unsteady State Method Extracted State Samples

Net Confining Stress : Various psi Temperature : Various °C

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Sample Depth, meters	Klinkenberg Permeability, millidarcies	Porosity, fraction	Initial Conditions: Water Saturation, fraction pore space	Initial Conditions: Effective Permeability to CO_2, millidarcies	Terminal Conditions: CO_2 Saturation, fraction pore space	Terminal Conditions: Effective Permeability to Water, millidarcies	Terminal Conditions: Relative Permeability to Water*, fraction	CO2 Recovery, fraction: pore space	CO2 Recovery, fraction: gas in place
Well : DMP Harvey-1										
7B	1911.89	0.632	0.108	0.426	0.240	0.213	0.063	0.214	0.361	0.629
8B	1919.90	1.98	0.126	0.584	0.187	0.172	0.246	0.282	0.244	0.586
9B	2491.78	227.	0.135	0.533	23.5	0.145	17.5	0.279	0.322	0.690
11A	2522.54	19.2	0.133	0.315	7.60	0.317	1.92	0.213	0.368	0.537
Well : DMP Harvey-3										
4A	1369.84	106.	0.218	0.691	0.915	0.122	0.716	0.593	0.187	0.606
3B	1392.35	6.19	0.142	0.619	0.0342	0.201	0.0298	0.393	0.180	0.472

* Relative to the Specific Permeability to Brine

BASIC PROPERTIES OF TEST SAMPLES

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Permeability, millidarcies Klinkenberg	Permeability, millidarcies Kair	Porosity, fraction	Grain Density, g/cm^3
Well : DMP Harvey-1						
7B	1911.89	2000	0.632	0.933	0.108	2.63
8B	1919.90	2000	1.98	2.64	0.126	2.63
9B	2491.78	2600	227.	257.	0.135	2.64
11A	2522.54	2600	19.2	22.0	0.133	2.64
Well : DMP Harvey-3						
4A	1369.84	1250	106.	114.	0.218	2.64
3B	1392.35	1250	6.19	7.23	0.142	2.64

SUMMARY OF SAMPLE PARAMETERS

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Sample Number	Depth, meters	Net Confining Stress, psi	Length, cm	Area, cm^2	Pore Volume, cm^3
Well : DMP Harvey-1					
7B	1911.89	2000	6.45	11.28	7.79
8B	1919.90	2000	6.16	11.25	8.71
9B	2491.78	2600	6.40	11.34	9.73
11A	2522.54	2600	5.91	11.34	8.85
Well : DMP Harvey-3					
4A	1369.84	1250	6.85	11.04	16.14
3B	1392.35	1250	6.80	11.31	10.67

SYNTHETIC FORMATION BRINE

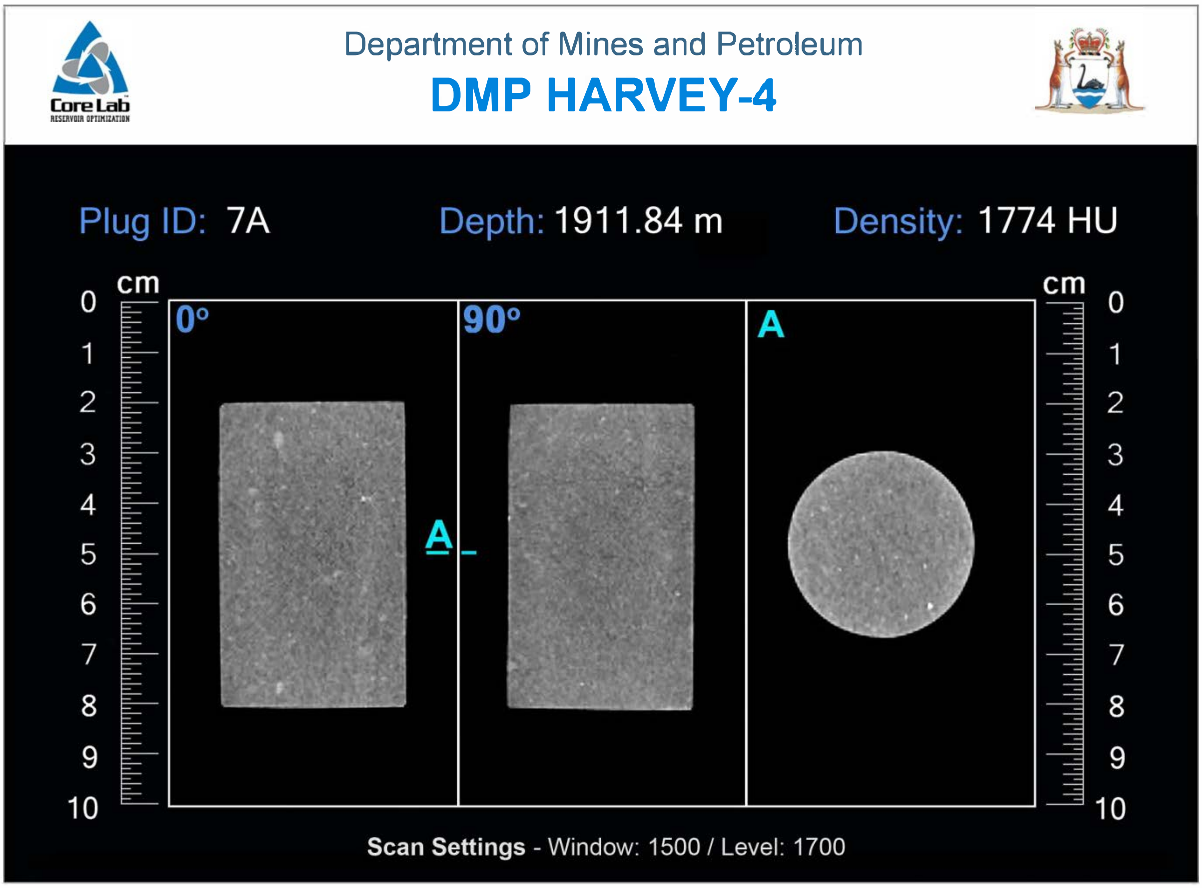
Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Constituent		Concentration, g/L
Sodium Chloride	(NaCl)	40.000
Calcium Chloride	($CaCl_2$ * $2H_2O$)	5.000
Magnesium Chloride	($MgCl_2$*$6H_2O$)	2.500
Potassium Chloride	(KCl)	2.500

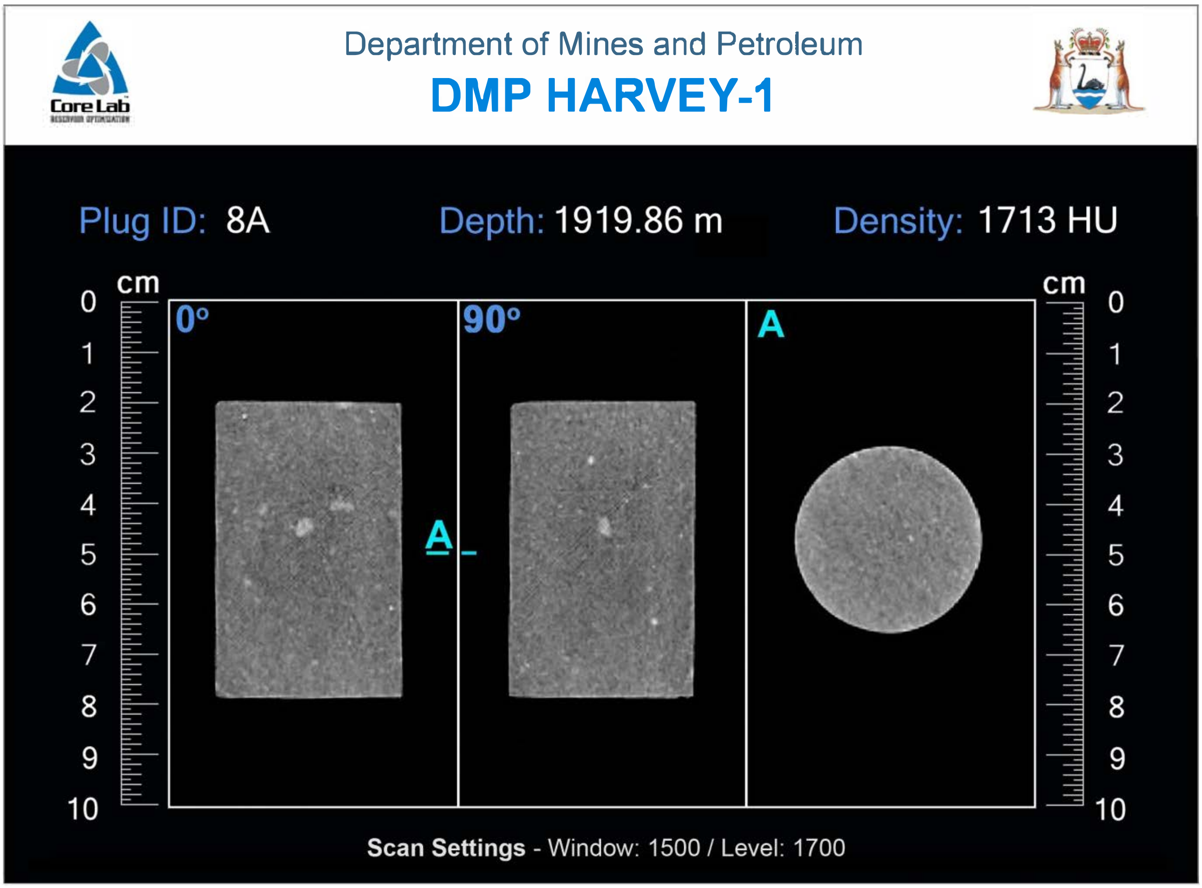
SUMMARY OF FLUID PARAMETERS

Wells : DMP Harvey-1; DMP Harvey-3; DMP Harvey-4

Fluid	Temperature, °C	Viscosity, centipoise	Density, g/cm^3
Simulated Formation Brine	48	0.630	1.05
	56	0.624	1.05
	58	0.536	1.04
	70	0.453	1.02
Carbon Dioxide	48	0.0560	0.697
	56	0.0554	0.691
	58	0.0590	0.717
	70	0.0621	0.736



Department of Mines and Petroleum
DMP HARVEY-4
Plug ID: 7A
Depth: 1911.84 m
Density: 1774 HU
cm
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700

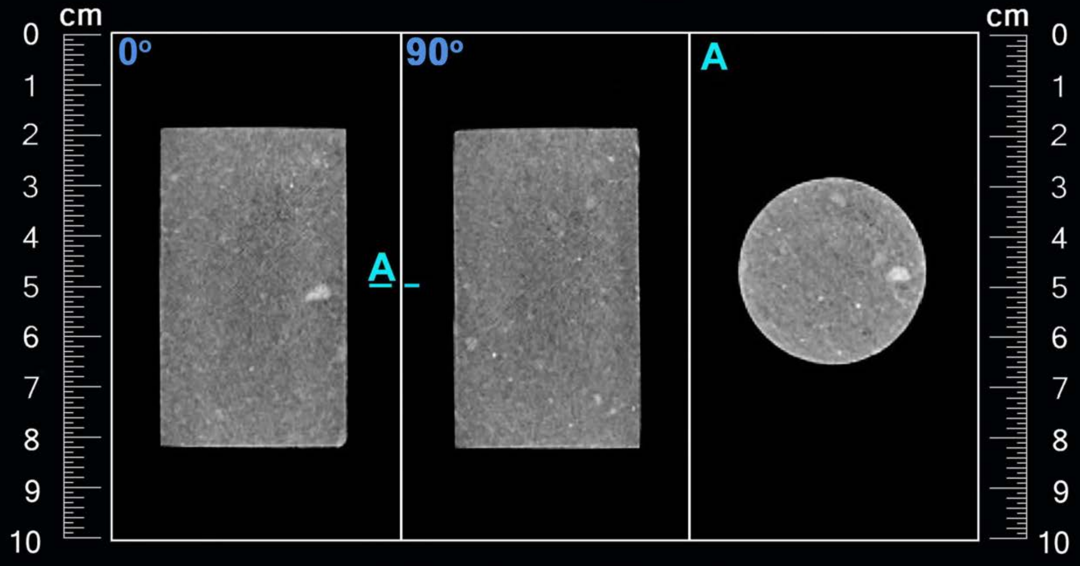


Department of Mines and Petroleum
DMP HARVEY-1
Plug ID: 8A
Depth: 1919.86 m
Density: 1713 HU
cm
0°
90°
A
A
Scan Settings - Window: 1500 / Level: 1700

Department of Mines and Petroleum

DMP HARVEY-1

Plug ID: 7B Depth: 1911.89 m Density: 1770 HU



Scan Settings - Window: 1500 / Level: 1700

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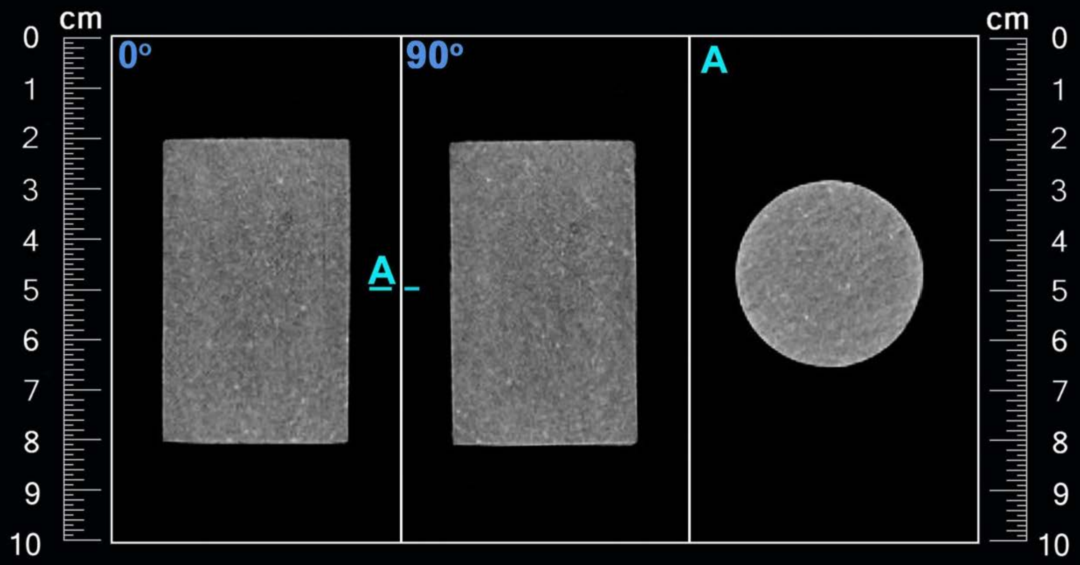
DMP HARVEY-1

Plug ID: 8B Depth: 1919.90 m Density: 1705 HU



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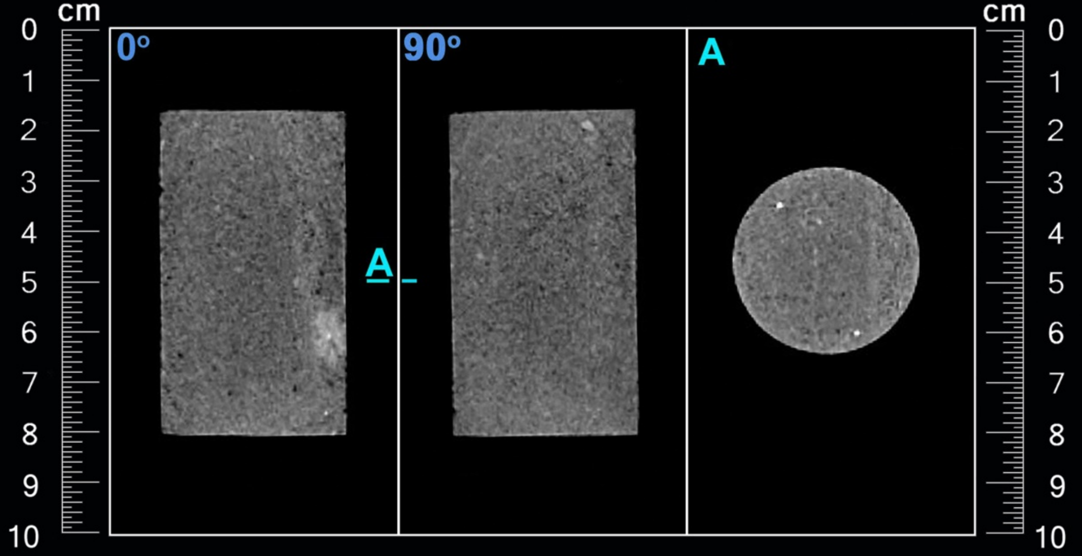
DMP HARVEY-1

Plug ID: 9A Depth: 2491.72 m Density: 1604 HU



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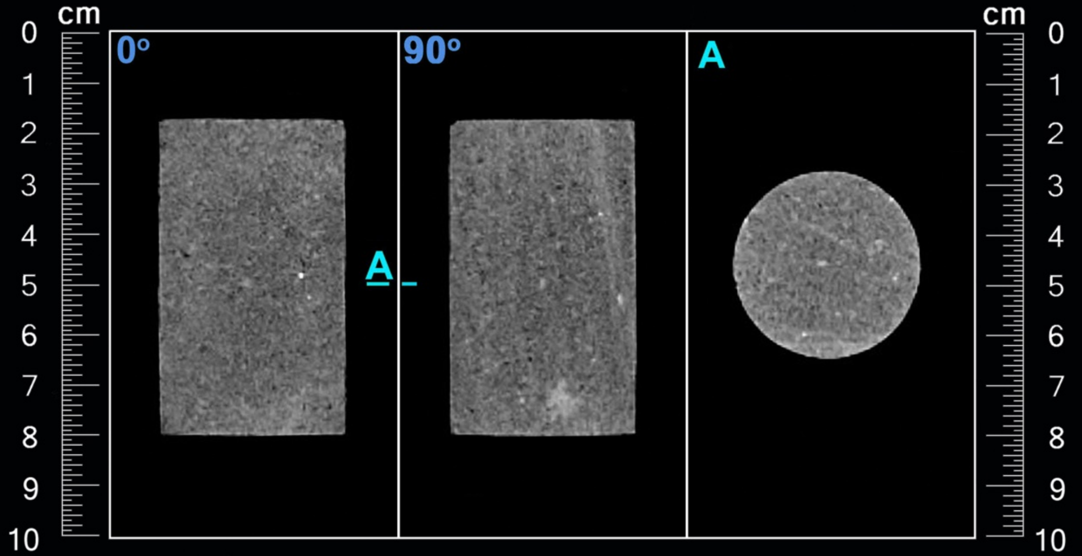
DMP HARVEY-1

Plug ID: 9B Depth: 2491.78 m Density: 1638 HU



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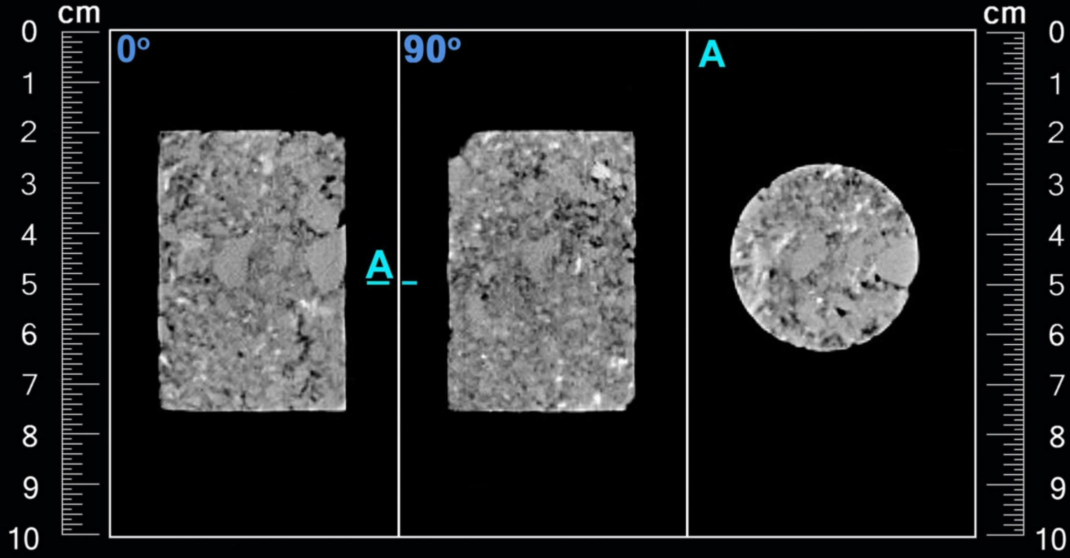
DMP HARVEY-1

Plug ID: 10A Depth: 2508.63 m Density: 1841 HU



Scan Settings - Window: 1500 / Level: 1700

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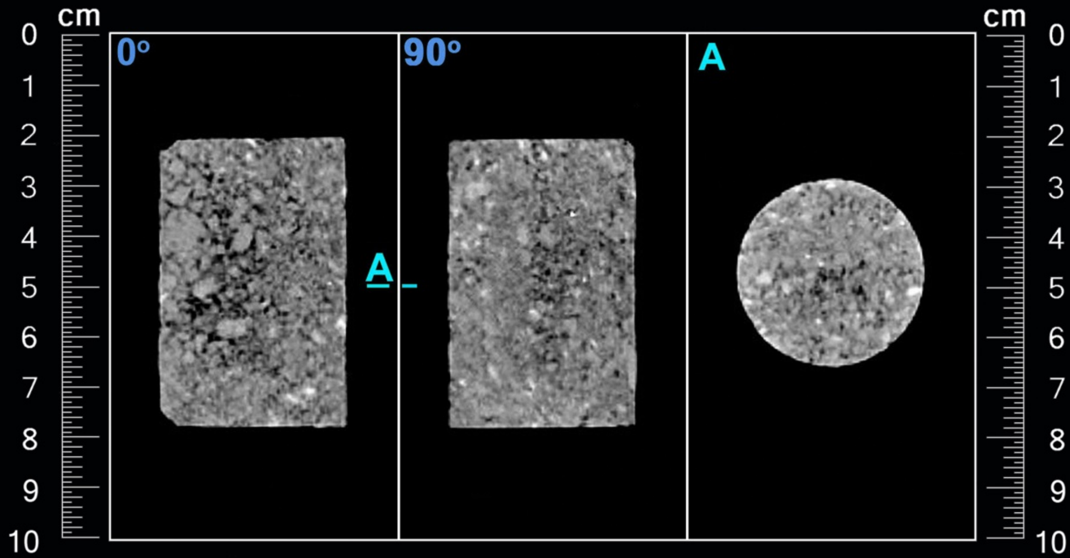
DMP HARVEY-1

Plug ID: 10B Depth: 2508.67 m Density: 1737 HU



Scan Settings - Window: 1500 / Level: 1700

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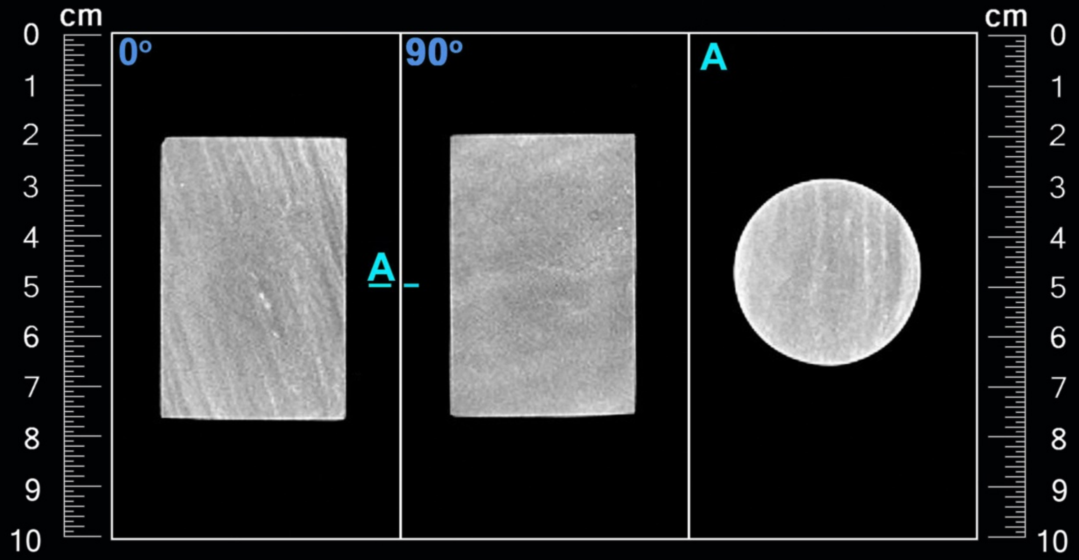
DMP HARVEY-1

Plug ID: 14A Depth: 2517.76 m Density: 2046 HU



Scan Settings - Window: 1500 / Level: 1700

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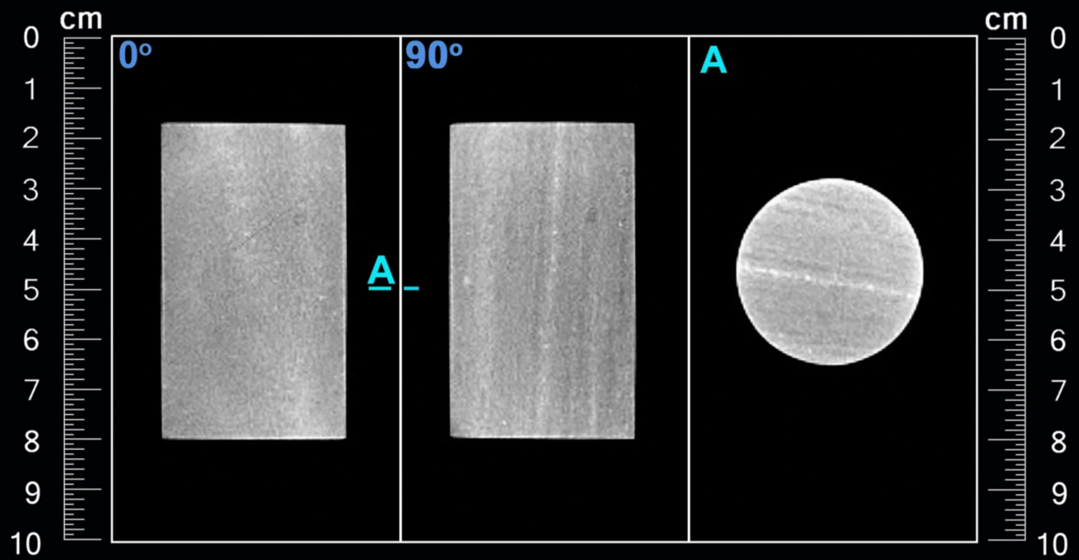
DMP HARVEY-1

Plug ID: 15A Depth: 2518.42 m Density: 2029 HU



Scan Settings - Window: 1500 / Level: 1700

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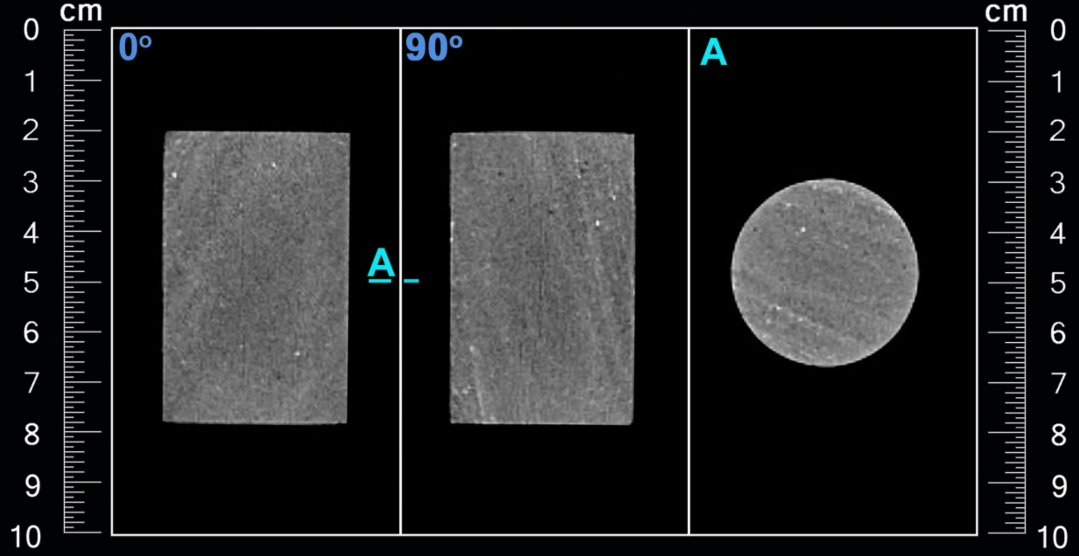
DMP HARVEY-1

Plug ID: 11A Depth: 2522.54 m Density: 1663 HU



Scan Settings - Window: 1500 / Level: 1700

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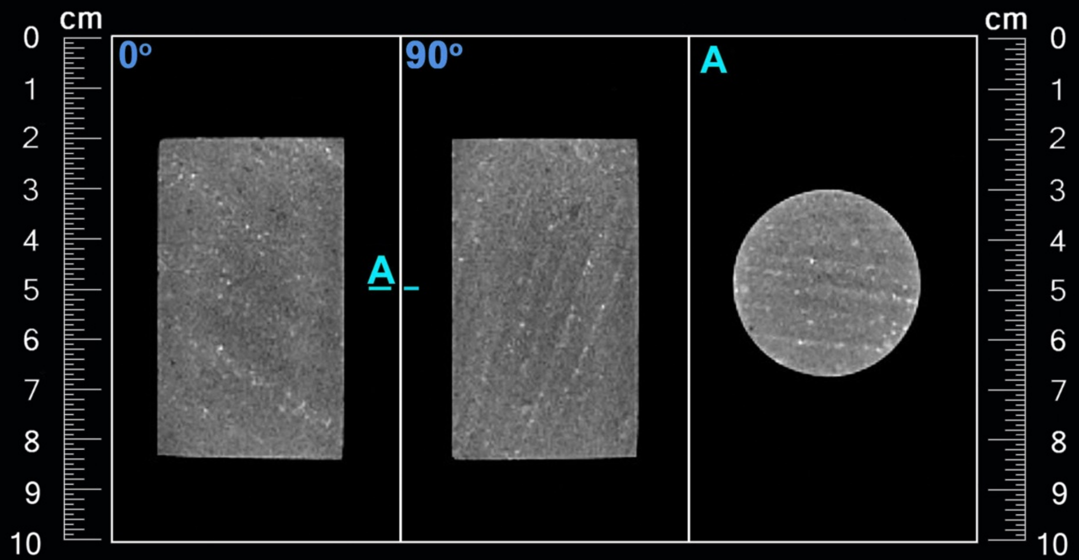
DMP HARVEY-1

Plug ID: 11B Depth: 2522.59 m Density: 1678 HU



Scan Settings - Window: 1500 / Level: 1700

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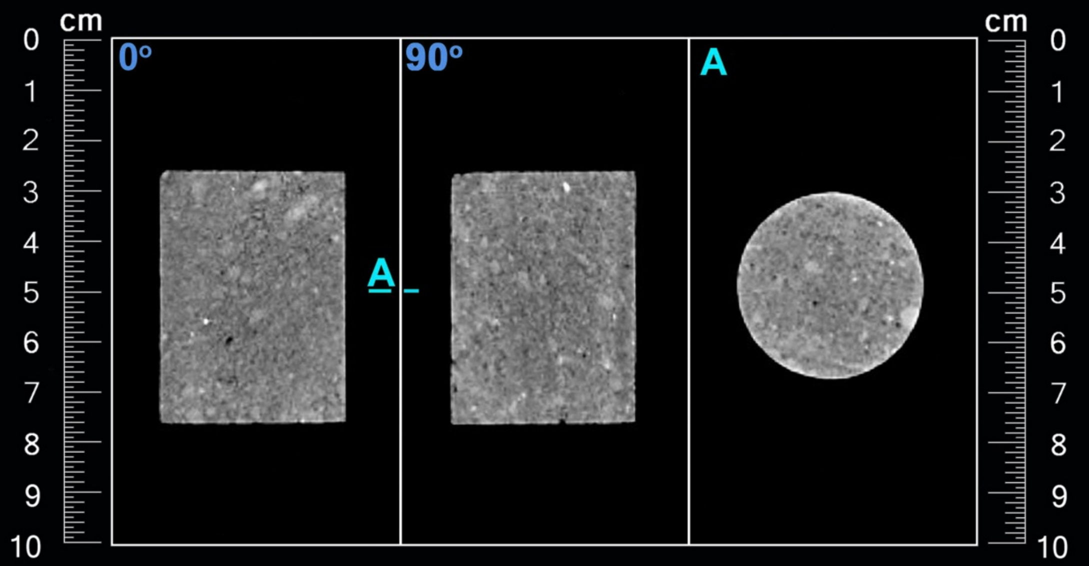
DMP HARVEY-1

Plug ID: 12A   Depth: 2528.07 m   Density: 1741 HU



Scan Settings - Window: 1500 / Level: 1700

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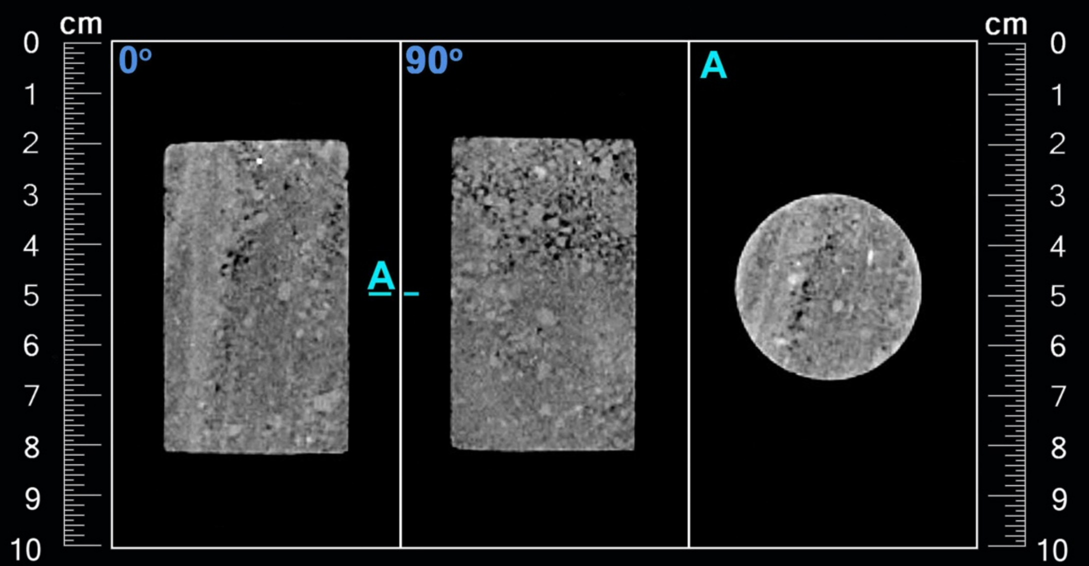
DMP HARVEY-1

Plug ID: 12B   Depth: 2528.12 m   Density: 1740 HU



Scan Settings - Window: 1500 / Level: 1700

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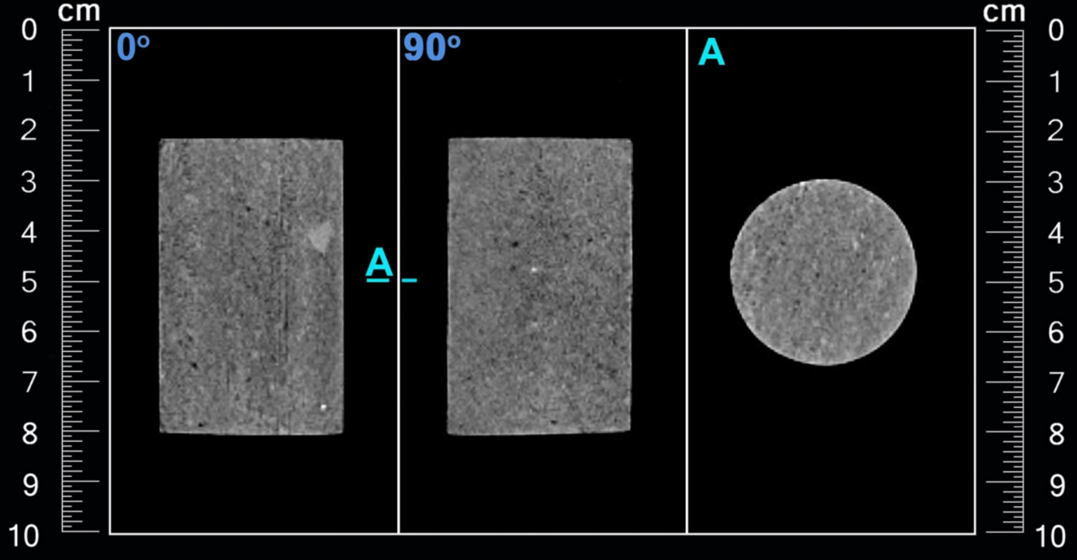
DMP HARVEY-1

Plug ID: 13A Depth: 2530.03 m Density: 1660 HU



Scan Settings - Window: 1500 / Level: 1700

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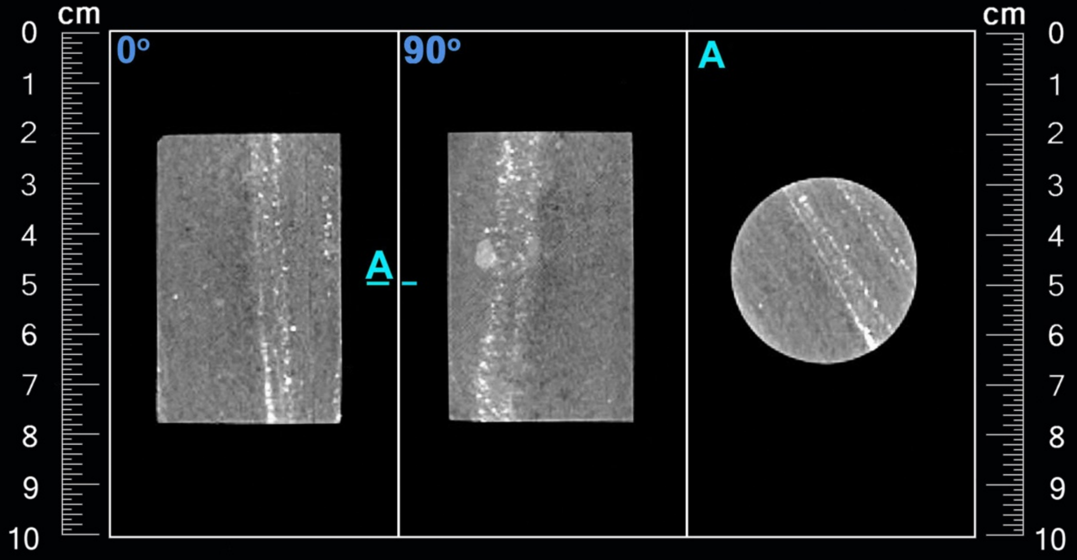
DMP HARVEY-1

Plug ID: 13B Depth: 2530.07 m Density: 1773 HU



Scan Settings - Window: 1500 / Level: 1700

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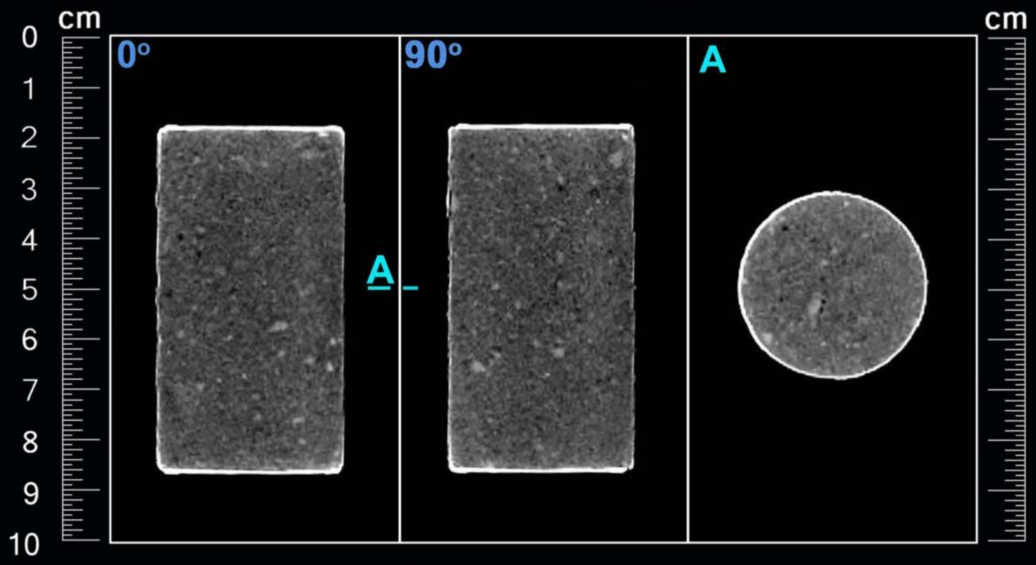
DMP HARVEY-3

Plug ID: 4A   Depth: 1369.84 m   Density: 1504 HU



Scan Settings - Window: 1500 / Level: 1700

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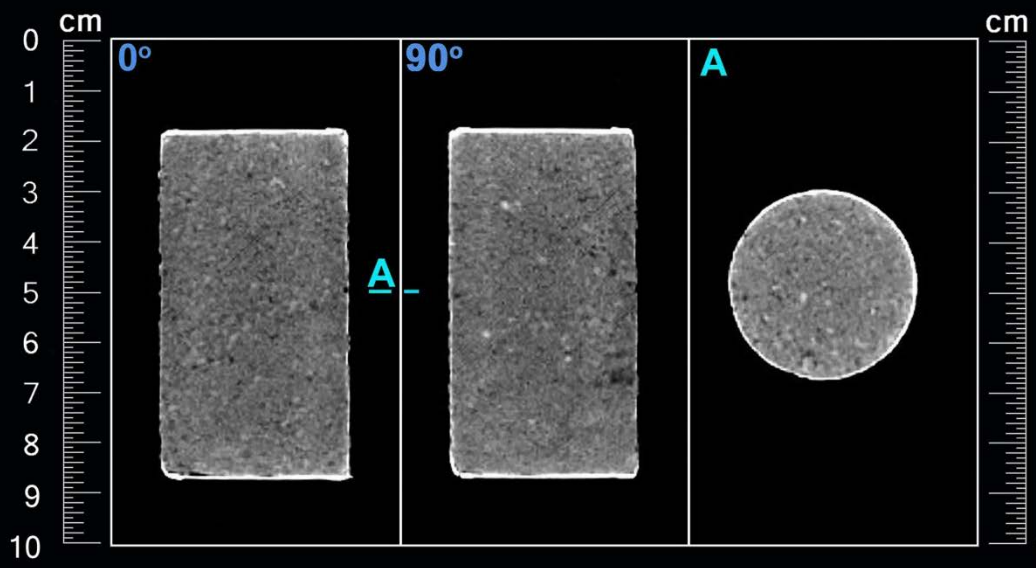
DMP HARVEY-3

Plug ID: 3A   Depth: 1392.30 m   Density: 1678 HU



Scan Settings - Window: 1500 / Level: 1700

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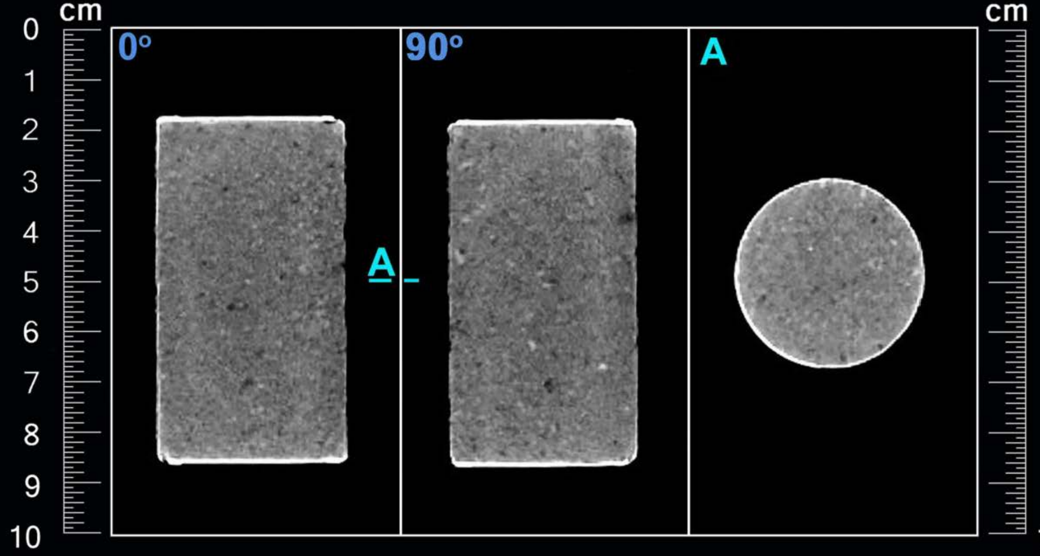
DMP HARVEY-3

Plug ID: 3B Depth: 1392.35 m Density: 1694 HU



Scan Settings - Window: 1500 / Level: 1700

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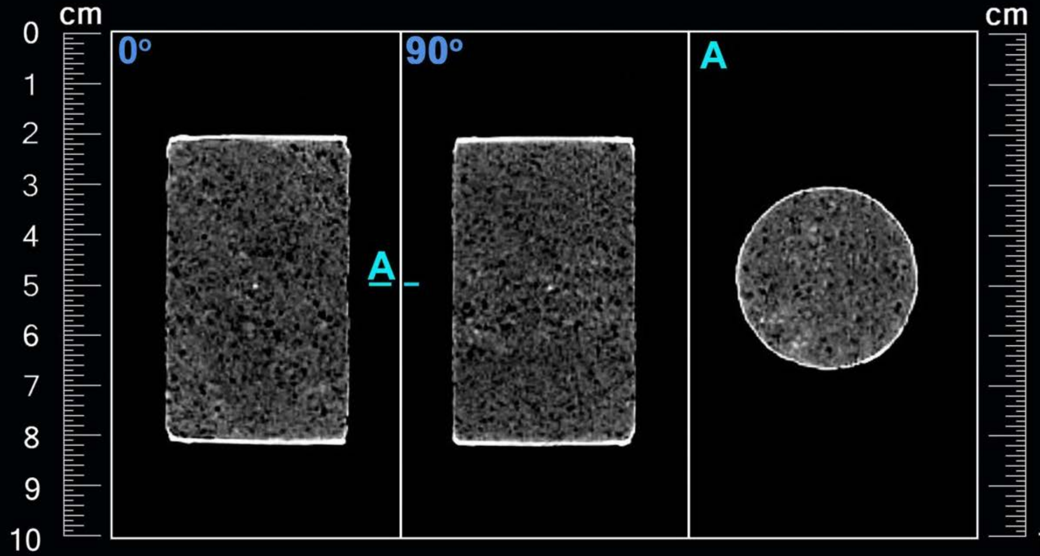
DMP HARVEY-3

Plug ID: 1A Depth: 1427.47 m Density: 1374 HU

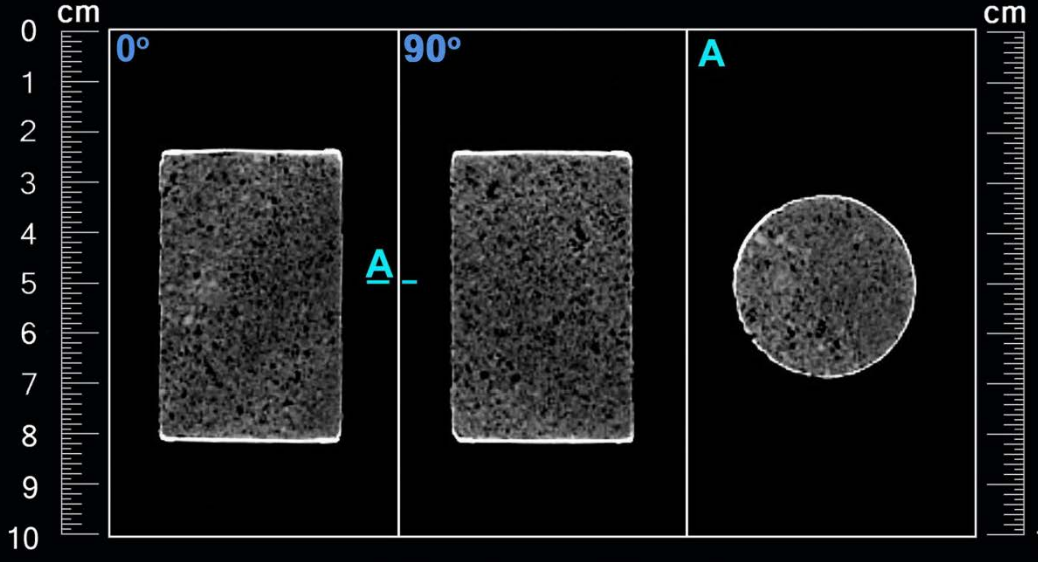


Scan Settings - Window: 1500 / Level: 1700

Department of Mines and Petroleum

DMP HARVEY-3

Plug ID: 1B Depth: 1427.52 m Density: 1363 HU

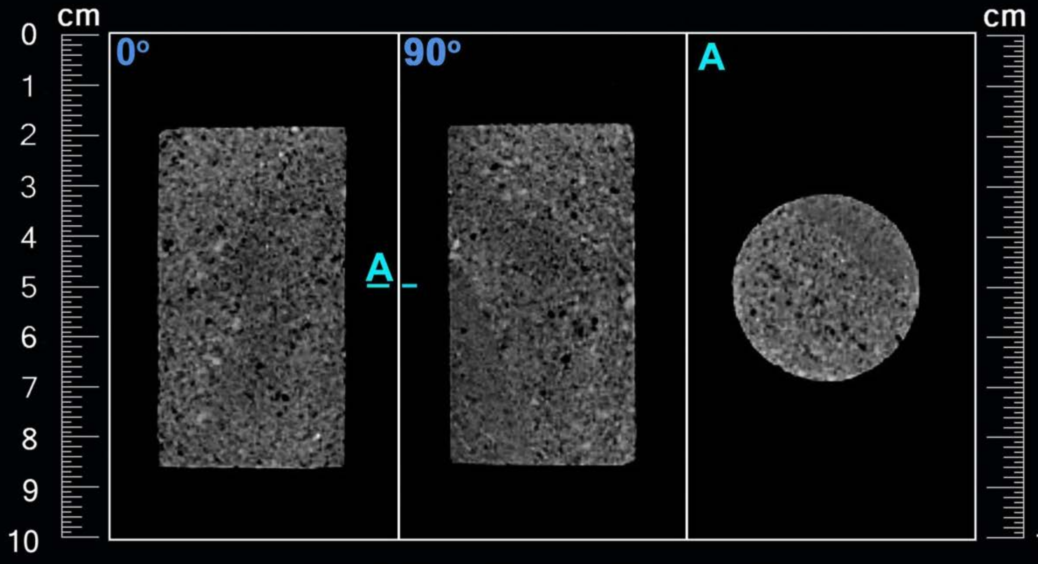


Scan Settings - Window: 1500 / Level: 1700

Department of Mines and Petroleum

DMP HARVEY-3

Plug ID: 2A Depth: 1440.90 m Density: 1466 HU

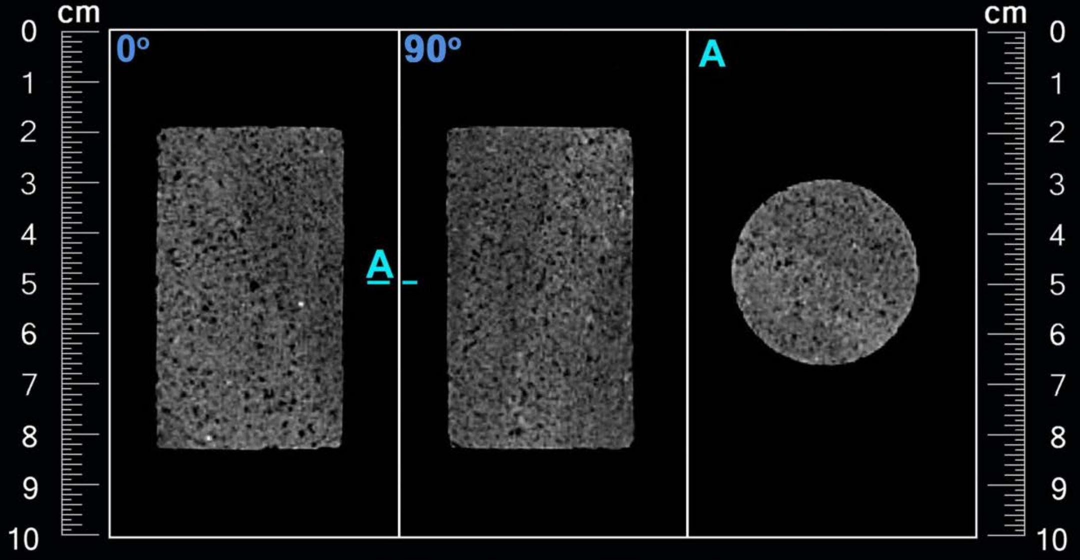


Scan Settings - Window: 1500 / Level: 1700

Department of Mines and Petroleum

DMP HARVEY-3

Plug ID: 2B   Depth: 1440.95 m   Density: 1471 HU



Scan Settings - Window: 1500 / Level: 1700

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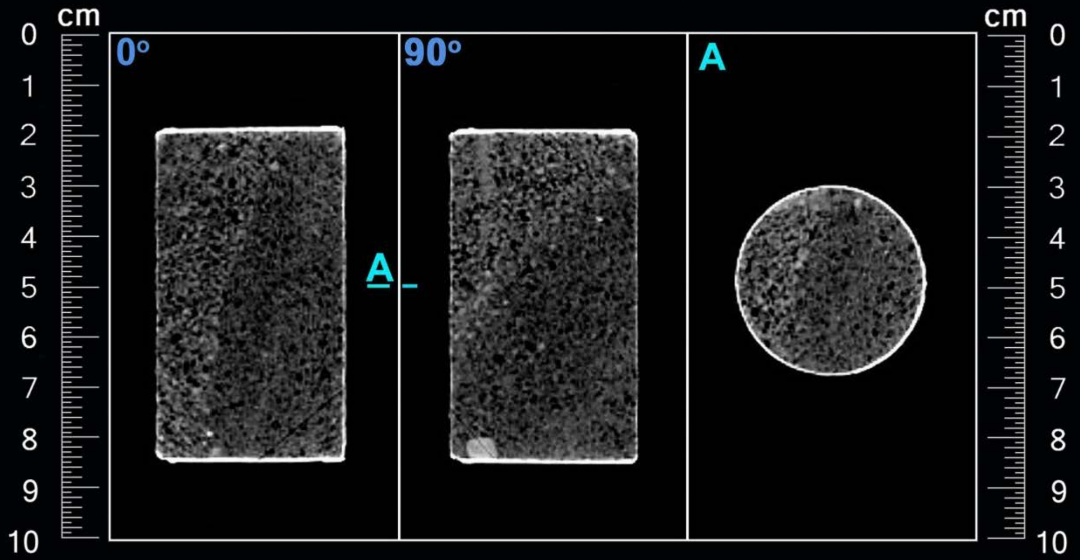
DMP HARVEY-4

Plug ID: 5B   Depth: 1666.28 m   Density: 1319 HU



Scan Settings - Window: 1500 / Level: 1700

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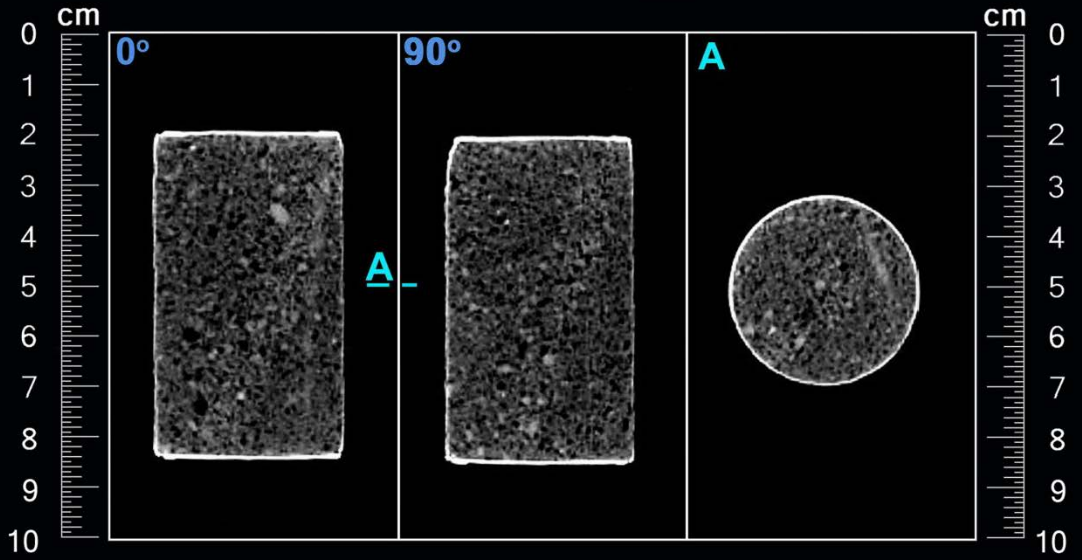
DMP HARVEY-4

Plug ID: 5A Depth: 1666.33 m Density: 1324 HU



Scan Settings - Window: 1500 / Level: 1700

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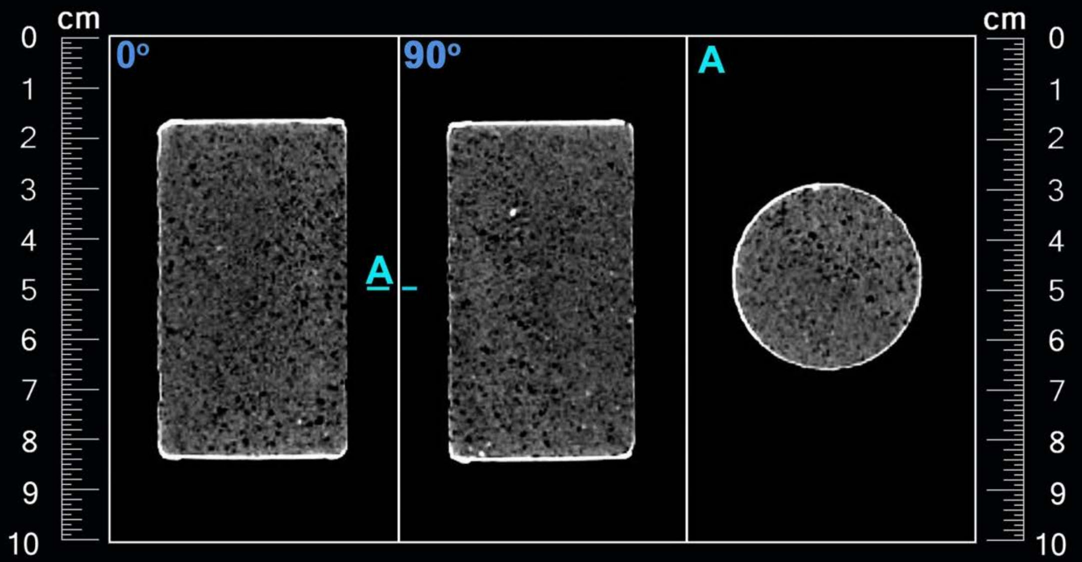
DMP HARVEY-4

Plug ID: 6B Depth: 1794.27 m Density: 1387 HU



Scan Settings - Window: 1500 / Level: 1700

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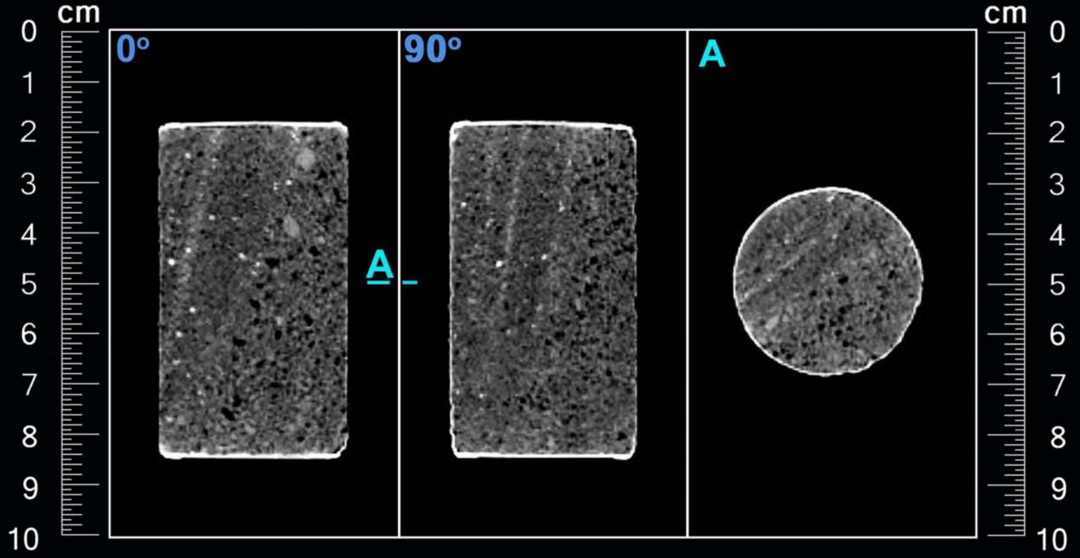
DMP HARVEY-4

Plug ID: 6A Depth: 1794.30 m Density: 1458 HU



Scan Settings - Window: 1500 / Level: 1700

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www.corelab.com

UltraScan[SM]

CT Scan Report

for

DMP

Harvey-1
Harvey-3A
Harvey-4

February 1, 2018
AUS-1703703

Core Lab
RESERVOIR OPTIMIZATION

DMP
Harvey-1

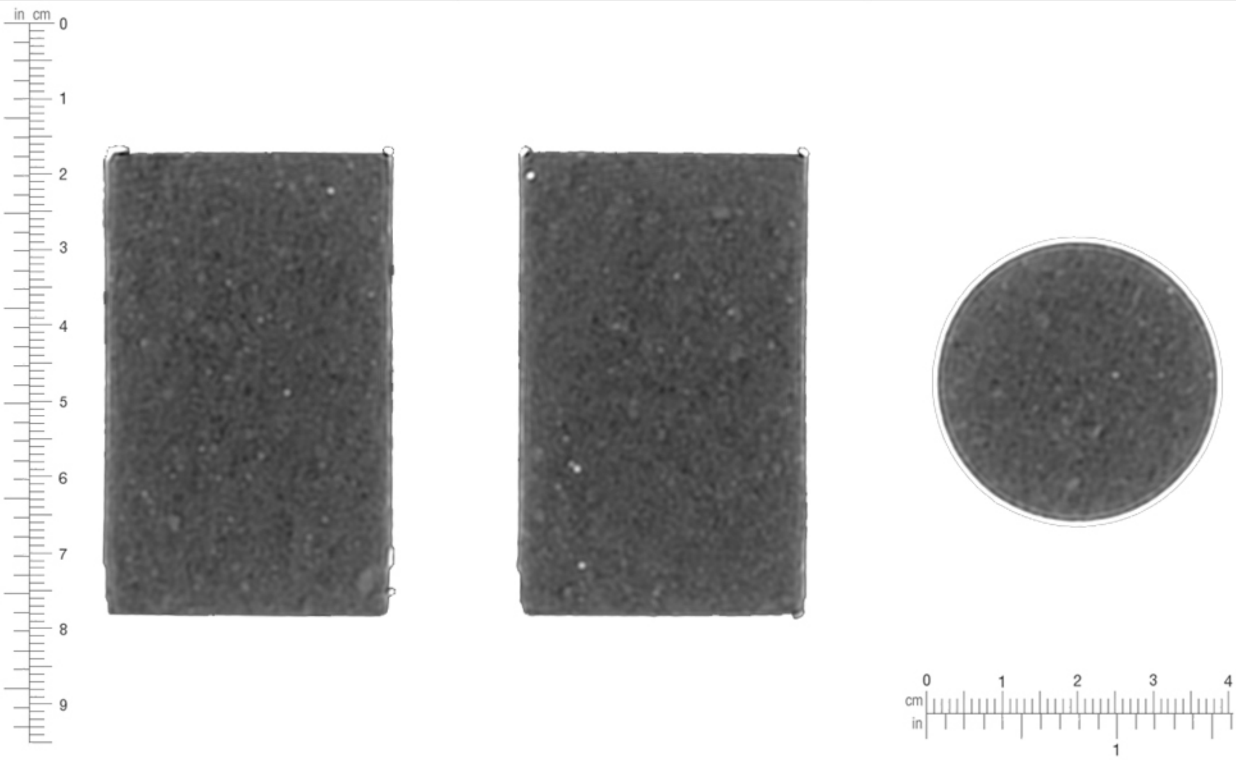
File No.: AUS-1703703

Date: February 1, 2018

0°	90°	Axial

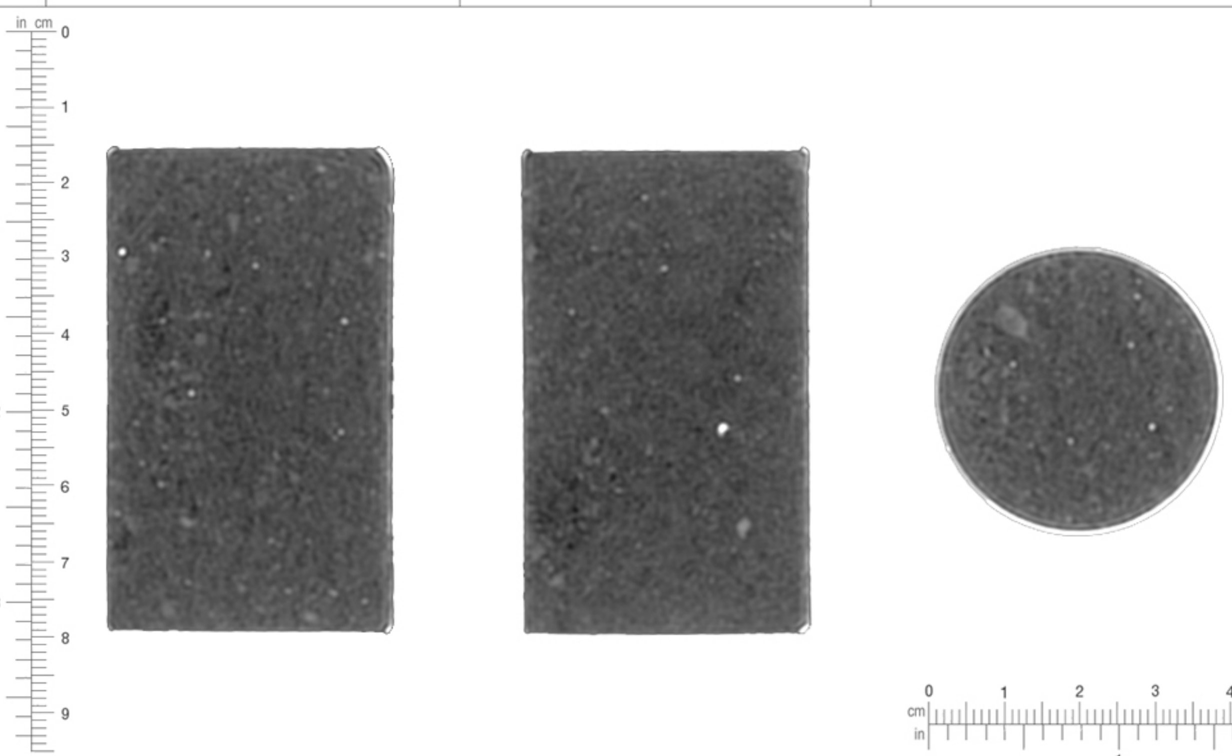
Depth: (m)
1911.84

Plug No.:
7A



Depth: (m)
1911.89

Plug No.:
7B



UltraScan

DMP
Harvey-1

Core Lab RESERVOIR OPTIMIZATION

File No.: AUS-1703703

Date: February 1, 2018

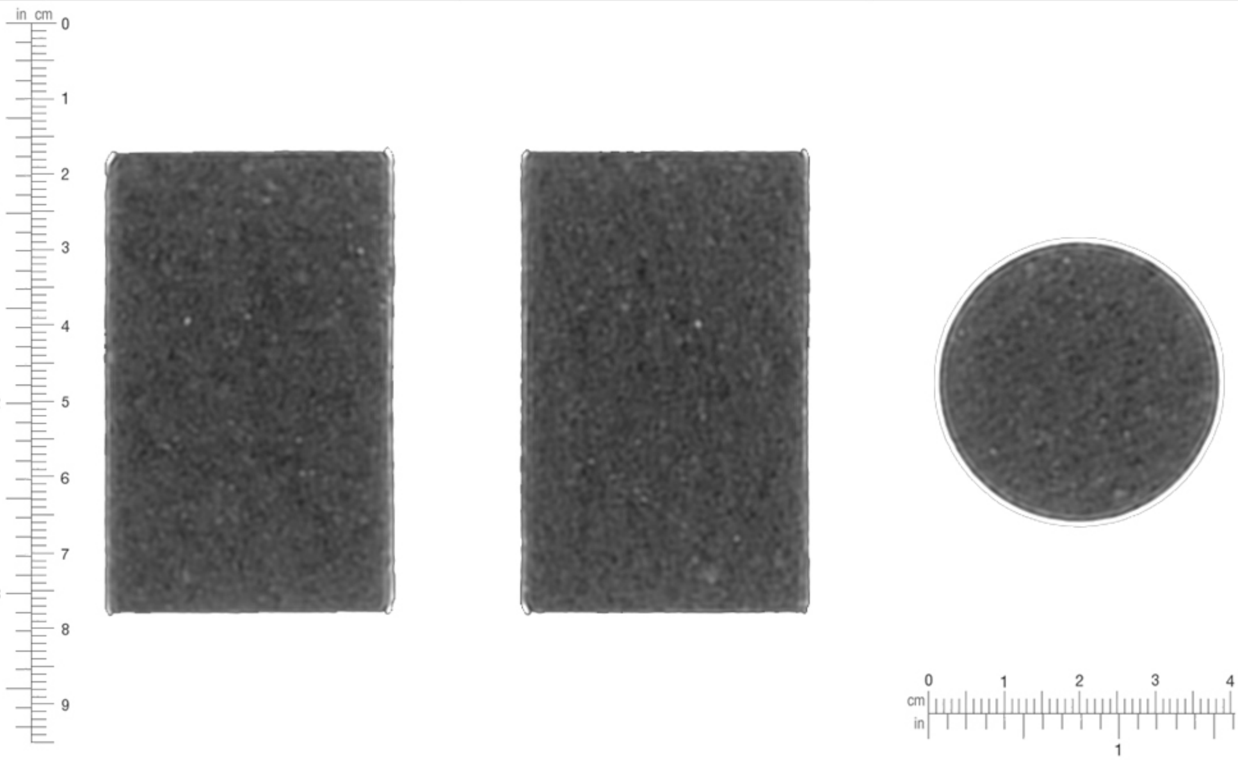
0°	90°	Axial

Depth: (m)

1919.90

Plug No.:

8B

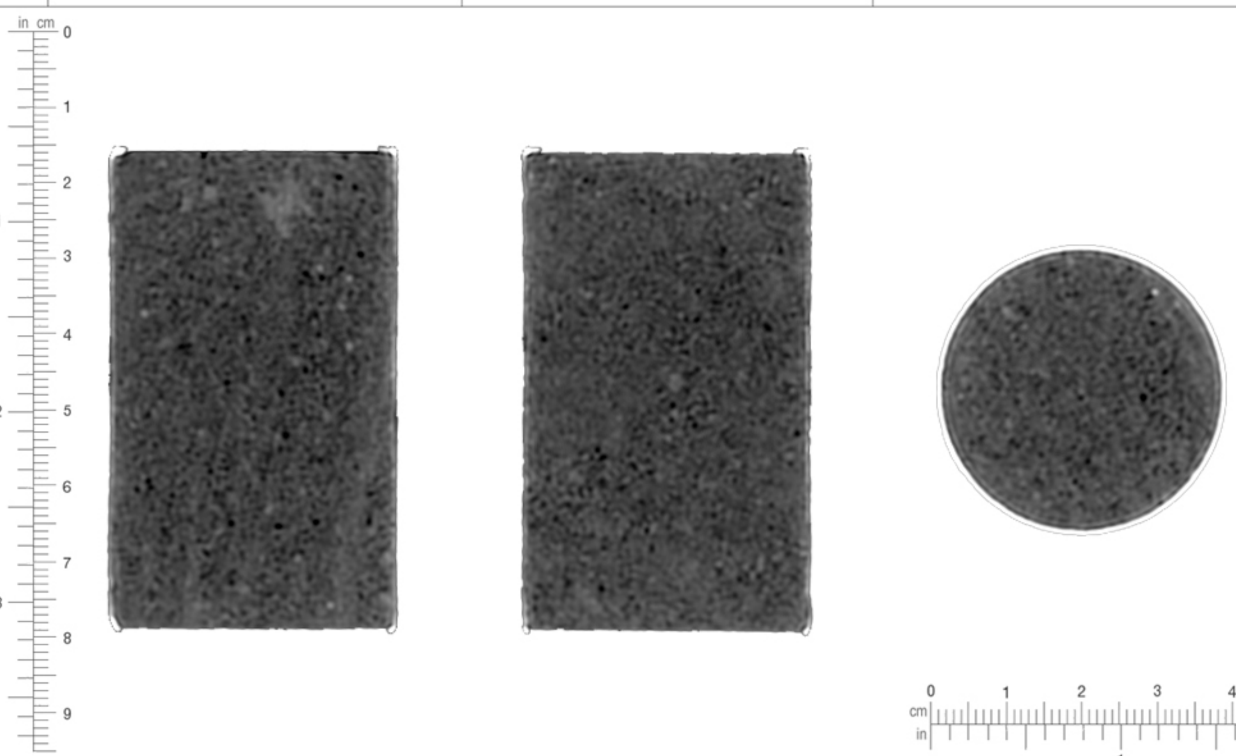


Depth: (m)

2491.78

Plug No.:

9B



UltraScan

DMP
Harvey-1

File No.: AUS-1703703

Date: February 1, 2018

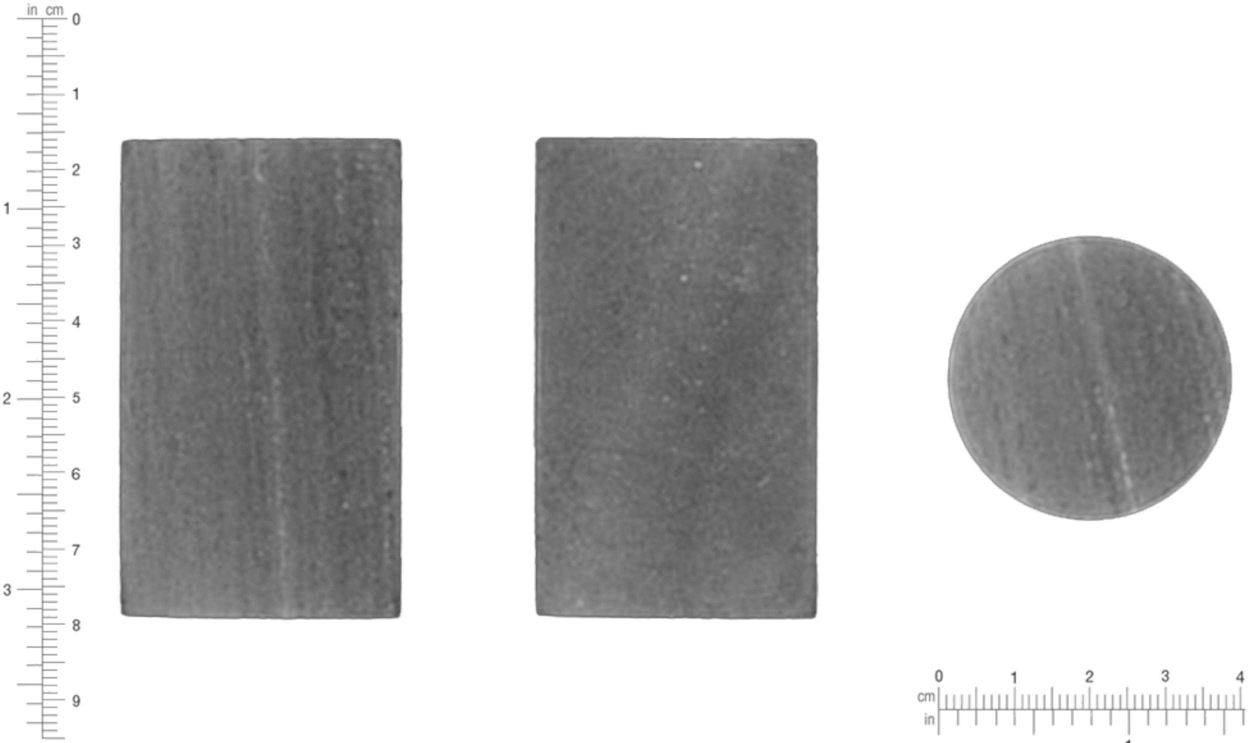
0°	90°	Axial

Depth: (m)

2518.42

Plug No.:

15A

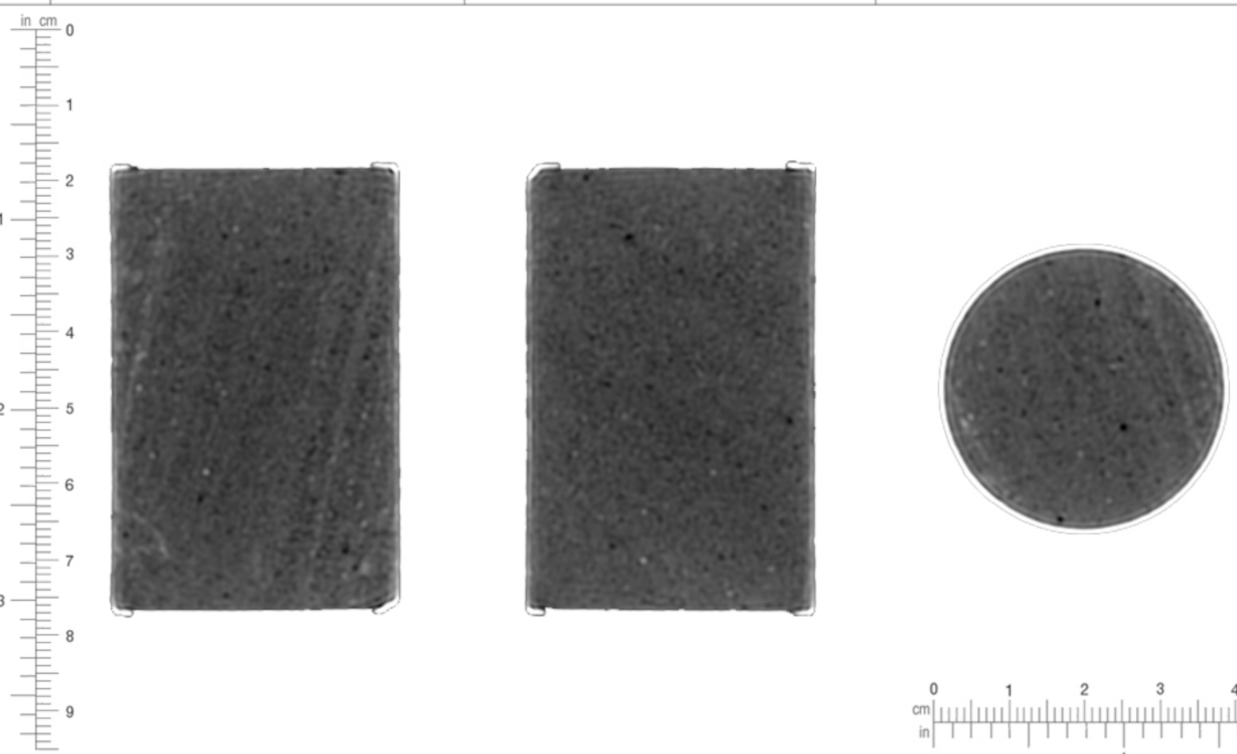


Depth: (m)

2522.54

Plug No.:

11A



UltraScan

DMP
Harvey-1

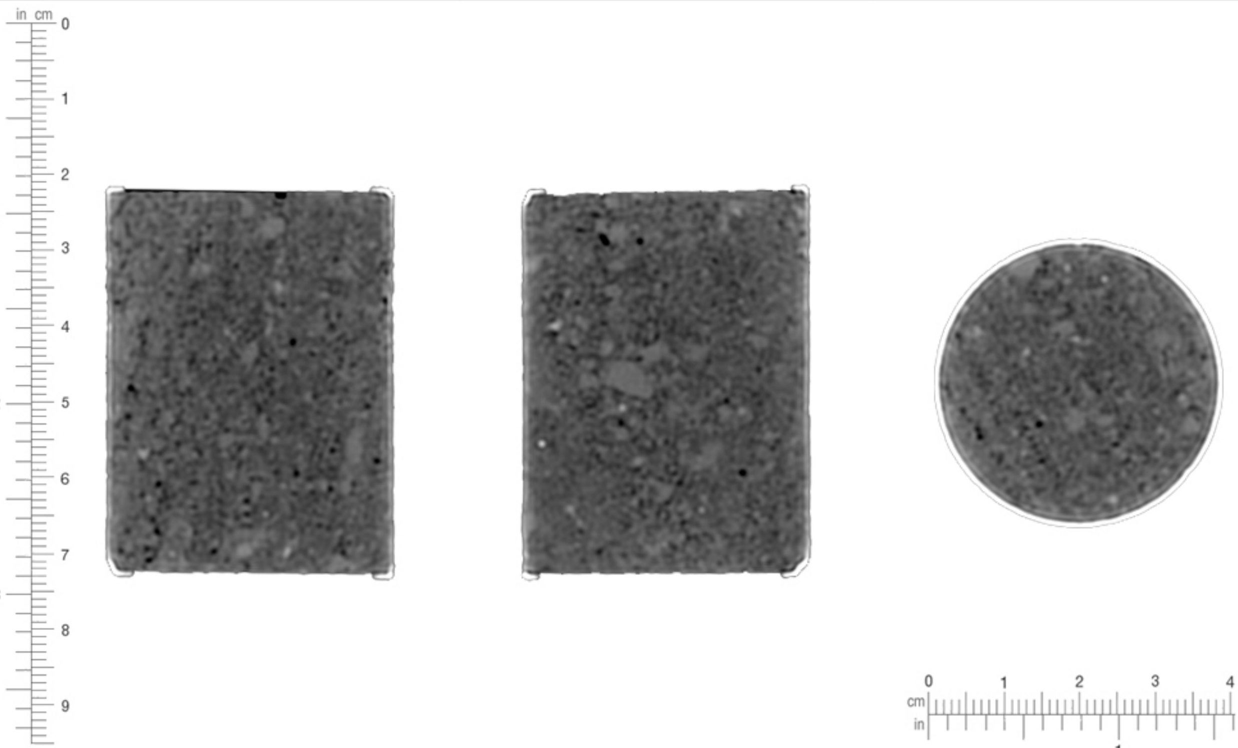
File No.: AUS-1703703

Date: February 1, 2018

0°	90°	Axial

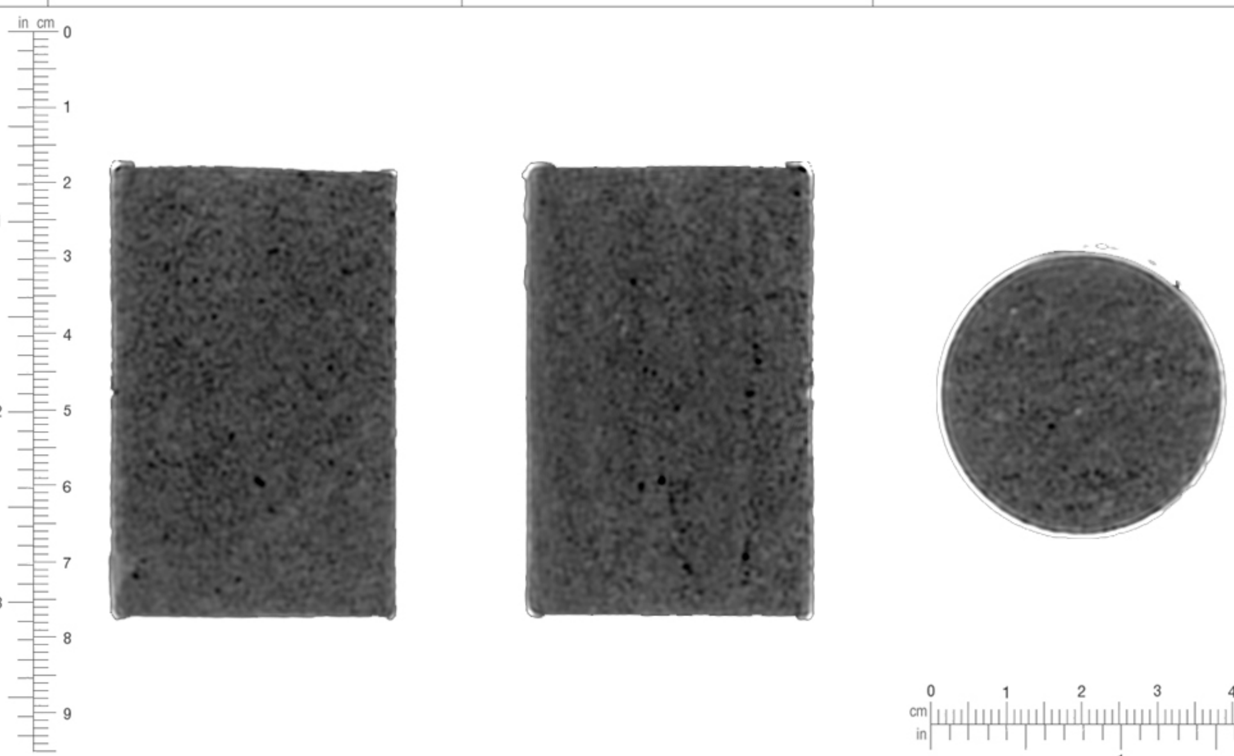
Depth: (m)
2528.07

Plug No.:
12A



Depth: (m)
2530.03

Plug No.:
13A



UltraScan

DMP

Harvey-3A

File No.: AUS-1703703

Date: February 1, 2018

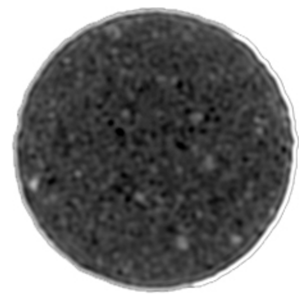
	0°	90°	Axial

Depth: (m)

1369.84

Plug No.:

4A

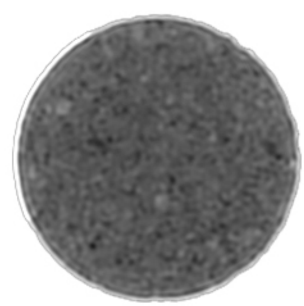


Depth: (m)

1392.35

Plug No.:

3B



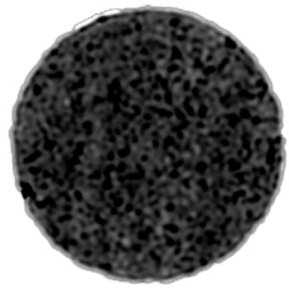
UltraScan

Core Lab
RESERVOIR OPTIMIZATION

DMP
Harvey-3A

File No.: AUS-1703703

Date: February 1, 2018

	0°	90°	Axial
Depth: (m) 1427.47 Plug No.: 1A			

Depth: (m)

Plug No.:

UltraScan

DMP
Harvey-4

File No.: AUS-1703703

Date: February 1, 2018

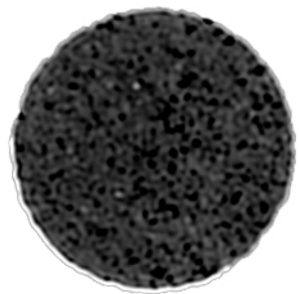
0°	90°	Axial

Depth: (m)

1794.27

Plug No.:

6B



Depth: (m)

Plug No.:

UltraScan

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2000 psi Temperature : 58.0°C

Well :	DMP Harvey-1
Sample Number :	7A
Sample Depth, meters :	1911.84
Klinkenberg Permeability to Air, md :	0.559
Porosity, fraction :	0.107
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	0.266

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	0.500	-	20.5	-
-	0.018	0.445	0.055	36.2	4.48
-	0.055	0.365	0.135	9.77	3.61
-	0.260	0.035	0.065	4.46	8.29
-	1.25	0.010	0.090	5.74	51.7
-	13.9	0.005	0.495	0.131	13.0
Kg at Swr	-	-	0.500	-	13.3
-	13.5	0.016	1.484	0.746	69.2
-	1.33	0.024	0.226	3.24	30.5
-	0.266	0.088	0.162	5.20	9.57
-	0.052	0.073	0.027	10.0	3.68
-	0.018	0.089	0.011	5.35	0.661
Kw at Sgt	-	0.100	-	14.2	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 70.0°C

Well :	DMP Harvey-1
Sample Number :	15A
Sample Depth, meters :	2518.42
Klinkenberg Permeability to Air, md :	0.340
Porosity, fraction :	0.103
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	0.206

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	1.00	-	13.4	-
-	0.016	0.092	0.008	33.6	3.04
-	0.049	0.079	0.021	10.5	2.79
-	0.258	0.106	0.144	6.75	9.17
-	1.22	0.013	0.087	1.73	11.5
-	13.4	0.007	0.493	1.10	75.3
Kg at Swr	-	-	0.500	-	73.8
-	13.5	0.007	0.493	1.50	100
-	1.22	0.013	0.087	1.72	11.5
-	0.262	0.106	0.144	6.00	8.16
-	0.049	0.079	0.021	10.9	2.89
-	0.016	0.092	0.008	5.44	0.473
Kw at Sgt	-	0.100	-	12.9	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 71.0°C

Well : DMP Harvey-1
Sample Number : 12A
Sample Depth, meters : 2528.07
Klinkenberg Permeability to Air, md : 45.1
Porosity, fraction : 0.124
Initial Water Saturation, fraction : 1.00
Specific Permeability to Brine, md : 15.8

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	3.00	-	19.7	-
-	0.018	2.73	0.267	14.7	1.43
-	0.053	2.32	0.681	14.1	4.13
-	0.264	1.22	1.784	7.72	11.3
-	1.31	0.360	2.640	1.72	12.6
-	13.2	0.040	2.960	0.549	40.6
Kg at Swr	-	-	3.000	-	23.3
-	13.2	0.040	2.960	0.489	36.2
-	1.31	0.360	2.640	2.49	18.3
-	0.264	1.22	1.784	7.89	11.6
-	0.053	2.32	0.681	13.7	4.03
-	0.018	2.73	0.267	12.0	1.17
Kw at Sgt	-	2.70	-	8.75	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 2600 psi Temperature : 71.0°C

Well :	DMP Harvey-1
Sample Number :	13A
Sample Depth, meters :	2530.03
Klinkenberg Permeability to Air, md :	91.2
Porosity, fraction :	0.135
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	18.6

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	3.00	-	29.8	-
-	0.028	2.59	0.408	17.1	2.70
-	0.084	1.36	0.641	5.10	2.40
-	0.422	0.595	1.41	3.81	8.99
-	2.11	0.156	1.84	1.24	14.6
-	20.8	0.017	1.98	0.098	11.4
Kg at Swr	-	-	2.00	-	22.1
-	20.8	0.017	1.98	0.288	33.6
-	2.11	0.156	1.84	0.723	8.55
-	0.423	0.595	1.41	2.82	6.67
-	0.085	1.36	0.641	6.30	2.97
-	0.028	2.59	0.408	10.3	1.62
Kw at Sgt	-	2.50	-	7.16	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method   Extracted State Sample
Net Confining Stress : 1700 psi   Temperature : 48.0°C

Well :	DMP Harvey-3
Sample Number :	1A
Sample Depth, meters :	1427.47
Klinkenberg Permeability to Air, md :	180
Porosity, fraction :	0.231
Initial Water Saturation, fraction :	1.00
Specific Permeability to Brine, md :	94.9

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	2.00	-	11.5	-
-	0.012	1.81	0.187	7.19	0.742
-	0.036	1.53	0.474	7.74	2.40
-	0.177	0.784	1.22	6.10	9.49
-	0.888	0.457	3.54	2.37	18.4
-	8.87	0.102	7.90	0.365	28.2
Kg at Swr	-	-	8.00	-	30.4
-	8.88	0.102	7.90	0.254	19.7
-	0.890	0.457	3.54	1.76	13.6
-	0.179	1.57	2.43	3.13	4.86
-	0.036	1.53	0.474	12.6	3.93
-	0.012	1.81	0.187	11.6	1.19
Kw at Sgt	-	2.00	-	9.59	-

RAW DATA

CO_2 - BRINE / BRINE - CO_2 RELATIVE PERMEABILITY

Steady State Method Extracted State Sample
Net Confining Stress : 1700 psi Temperature: 56.0°C

Well : DMP Harvey-4
Sample Number : 6B
Sample Depth, meters : 1794.27
Klinkenberg Permeability to Air, md : 1120
Porosity, fraction : 0.219
Initial Water Saturation, fraction : 1.00
Specific Permeability to Brine, md : 258

Endpoint Permeability Measurement	CO_2-Brine Relative Permeability Ratio	Brine Flow Rate, cm^3/min	Gas Flow Rate, cm^3/min	Brine Throughput, pore volume	Gas Throughput, pore volume
Specific Kw	-	2.00	-	8.91	-
-	0.013	1.83	0.171	7.59	0.710
-	0.039	1.56	0.439	10.7	3.01
-	0.193	0.831	1.169	3.70	5.21
-	0.966	0.996	7.00	3.40	23.9
-	9.64	0.112	7.89	0.429	30.2
Kg at Swr	-	-	8.00	-	25.1
-	9.65	0.112	7.89	0.302	21.3
-	0.967	0.996	7.00	2.26	15.9
-	0.193	1.17	0.831	4.05	5.70
-	0.039	1.56	0.439	6.79	1.91
-	0.013	1.83	0.171	8.05	0.753
Kw at Sgt	-	2.00	-	10.2	-