SUPPLEMENTARY NFORMATION For

New Experimental Equipment Recreating Geo-Reservoir Conditions in Large, Fractured, Porous Samples to Investigate Coupled Thermal, Hydraulic and Polyaxial Stress Processes.

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Supplementary Information

Symmetrical and triaxial stress fields for Test M1 on homogeneous sample, $\sigma 1$ is the vertical axial load, $\sigma 2$ and $\sigma 3$ are in the horizontal plane.

	PEE 1	PEE 2	PEE 3	PEE 4	PEE 8A	PEE 7A	PEE 6A	PEE 5A
Angle PEE 1 to $\sigma 2$ (°)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
$\sigma 2=\sigma 3$	7.71	7.70	8.30	7.80	7.74	7.70	8.30	7.72
-11.25	7.73	5.70	4.39	2.40	2.30	4.00	6.40	7.70
11.25	7.70	7.73	5.70	3.70	2.00	2.30	4.28	5.70
33.75	6.20	7.73	7.70	5.72	3.70	2.10	2.29	3.90
56.25	4.26	6.18	7.70	7.70	5.72	3.70	2.29	2.30
78.75	2.27	4.30	6.30	7.70	7.72	5.71	3.70	2.30
-78.75	2.30	2.29	4.30	6.17	7.72	7.73	5.71	3.70
-56.25	3.70	2.30	2.38	4.20	6.10	7.73	7.72	5.70
-33.75	6.38	4.18	2.46	2.32	4.01	5.28	7.64	7.66
-11.25	7.76	5.70	3.70	2.30	2.30	4.20	6.27	7.71

Symmetrical and triaxial stress fields for Test 2 HM1 on a fractured sample, fluid flow through fracture without in situ fracture fluid pressure. PEE 7A is in the plane of the fracture, $\sigma 1$ is the vertical axial load, $\sigma 2$ and $\sigma 3$ are in the horizontal plane.

	PEE 1	PEE 2	PEE 3	PEE 4	PEE 8A	PEE 7A	PEE 6A	PEE 5A
Angle PEE 1 to $\sigma 2$ (°)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
$\sigma 2=\sigma 3$	8.80	8.80	9.20	9.00	8.90	8.70	9.30	8.70
-56.25	7.10	6.30	6.30	6.90	7.90	8.70	8.80	7.80
33.75	7.70	8.70	8.70	7.70	7.30	6.30	6.30	6.60
56.25	7.20	8.20	8.70	8.70	7.80	6.80	6.30	6.20
78.75	6.20	7.20	8.30	8.70	8.70	7.70	6.90	6.30
-11.25	6.20	6.20	7.30	8.10	8.70	8.70	7.80	6.70
67.5	6.80	6.40	6.90	7.50	8.20	8.70	8.30	7.20

Fluid pressure measurements for different normal stresses across a fracture generated by rotating a triaxial stress field in Test 2 HM1

Normal Stress	Inlet fluid pressure	Outlet fluid pressure	Normal Eff. Stress	dP/dx	Flow Rate	Perm. *k*	Ap. *e*
MPa	MPa	MPa	MPa	MPa/m	ml/min	m^2	μm
8.81	1.0094	0	8.81	1.3123	30	1.10E-10	36.38
6.39	1.0102	0	6.39	1.3132	30	1.31E-10	39.61
8.61	1.0107	0	8.61	1.3140	30	1.15E-10	37.08
7.94	1.0115	0	7.94	1.3149	30	1.16E-10	37.39
7.01	1.0120	0	7.01	1.3157	30	1.23E-10	38.41
6.30	1.0125	0	6.30	1.3162	30	1.28E-10	39.26
6.40	1.0128	0	6.40	1.3166	30	1.28E-10	39.15

Symmetrical and triaxial stress measurements for Test 3 HM2 on a fractured sample, fluid flow through fracture with in situ fracture fluid pressure of 3.43 MPa, PEE7A is in the plane of the fracture, $\sigma 1$ is the vertical axial load, $\sigma 2$ and $\sigma 3$ are in the horizontal plane.

	PEE 1	PEE 2	PEE 3	PEE 4	PEE 8A	PEE 7A	PEE 6A	PEE 5A
Angle PEE 1 to $\sigma 2$ (°)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
$\sigma 2=\sigma 3$	8.72	8.73	9.13	8.73	8.72	8.72	9.24	8.71
-56.25	7.20	6.27	6.29	7.10	7.90	8.72	8.70	7.90
33.75	7.70	8.74	8.71	7.70	7.20	6.28	6.29	6.71
56.25	7.20	8.10	8.80	8.76	7.80	6.70	6.28	6.30
78.75	6.23	7.29	8.21	8.74	8.68	7.68	6.94	6.12
-11.25	6.20	6.30	7.24	8.20	8.78	8.72	7.80	6.80
-56.25	6.80	6.20	6.30	7.20	8.20	8.80	8.70	7.70

Fluid pressure measurements for different normal stresses across a fracture generated by rotating a triaxial stress field in Test 3 HM2, with an in situ fracture pressure of 3.43 MPa

Normal Stress	Inlet fluid pressure	Outlet fluid pressure	Normal Eff. Stress	dP/dx	Flow Rate	Perm. *k*	Ap. *e*
MPa	MPa	MPa	MPa	MPa/m	ml/min	m^2	μm
8.84	3.62	3.43	5.41	3.90	23.50	4.53E-11	23.32
6.38	3.58	3.43	2.95	3.06	24.05	5.42E-11	25.49
8.63	3.61	3.43	5.20	3.62	24.95	4.96E-11	24.39
8.01	3.61	3.43	4.58	3.59	20.06	4.31E-11	22.73
6.96	3.60	3.43	3.53	3.35	24.93	5.21E-11	25.01
6.35	3.58	3.43	2.92	3.01	21.57	5.09E-11	24.71
6.35	3.58	3.43	2.92	3.04	24.98	5.58E-11	25.87