GSA Data Repository Item 2017266
Forand, D., Evans, J.P., Janecke, S.U., and Jacobs, J., 2017, Insights into fault processes and the geometry of the San Andreas fault system: Analysis of core from the deep drill hole at Cajon Pass, California: GSA Bulletin, doi:10.1130/B31681.1.

DATA REPOSITORY TABLES

Supplemental File 1. Inventory of CPPDH core samples at U.S. Geological Survey Core repository, Denver, Colorado.

Supplemental File 2. Previous Sampling on the Cajon Pass Deep Drillhole core.

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SUPPLEMENTAL FILE 1. INVENTORY FOR CPPDH CORE SAMPLES AT USGS CORE REPOSITORY, DENVER, CO.

Core number	Core segment	Depth to top (m)	Depth to bottom (m)	Total length (m)
1	ALL	265.20	273.40	8.20
2 & 3	ALL	321.00	328.90	7.90
	4	480.06	480.73	0.67
4	3	480.73	481.28	0.55
	2	481.37	481.86	0.49
	1	481.89	482.62	0.73
	11	521.21	521.85	0.64
	10	522.00	522.70	0.70
	9	522.70	523.31	0.61
	8	523.34	523.74	0.40
	7	523.74	524.62	0.88
5	6	524.68	525.51	0.82
	5	525.54	526.33	0.79
	4	526.39	527.03	0.64
	3	527.12	527.85	0.73
	2	527.91	528.68	0.76
	1	528.71	529.44	0.73
	4	594.36	594.66	0.30
6	3	594.66	595.52	0.85
	2	595.52	596.31	0.79
	1	596.40	596.80	0.40
7	2	700.37	700.80	0.43
	1	700.86	701.65	0.79
NO CORE 8				
	4	704.09	704.70	0.61
9	3	704.70	705.55	0.85
	2	705.64	706.31	0.67
	1	706.31	706.77	0.46
	5	743.41	743.96	0.55
	4	743.99	744.32	0.34
10	3	744.47	744.93	0.46
	2	745.08	745.72	0.64
	1	745.72	746.12	0.40
11	1	860.15	860.39	0.24
12	2	860.45	861.06	0.61
	1	861.06	861.67	0.61
	5	1021.08	1021.84	0.76

	4	1021.87	1022.57	0.70
13	3	1022.60	1023.46	0.85
	2			
	1			
14	1	1024.28	1024.98	0.70
	4	1138.12	1138.92	0.79
15	3	1138.73	1139.53	0.79
	2	1139.57	1140.35	0.78
	1	1140.38	1140.87	0.49
	4	1283.21	1283.97	0.76
16	3	1284.00	1284.73	0.73
	2	1284.73	1285.46	0.73
	1	1285.46	1285.95	0.49
	9	1351.18	1351.67	0.49
	8	1351.67	1352.25	0.58
	7	1352.25	1352.61	0.37
	6	1352.83	1353.34	0.52
17	5	1353.35	1354.20	0.85
	4			
	3	1354.88	1355.35	0.47
	2	1355.45	1355.98	0.53
	1			
	3	1499.62	1500.07	0.46
18	2	1500.17	1500.65	0.48
	1	1500.68	1501.35	0.67
	8	1651.84	1652.72	0.88
	7	1652.72	1653.54	0.82
	6	1653.56	1654.09	0.52
	5	1654.09	1654.55	0.46
19	4	1654.72	1655.61	0.89
	3	1655.61	1656.41	0.79
	2	1656.47	1657.29	0.82
	1	1657.41	1657.78	0.37
	3	1741.02	1741.90	0.88
20	2	1742.08	1742.97	0.88
	1	1742.97	1743.84	0.87
21	2	1844.25	1844.65	0.40
	1	1844.65	1845.26	0.61
22	1	1846.78	1847.00	0.21
23	2	1854.19	1854.74	0.55
	1	1854.77	1855.32	0.55
24	1	1874.52	1875.19	0.67

25	1	1883.66	1884.27	0.61
	6	1902.20	1902.77	0.58
	5	1902.81	1903.51	0.70
	4	1903.54	1904.27	0.73
26	3	1904.29	1904.97	0.68
	2	1905.00	1905.58	0.58
	1	1905.64	1906.22	0.58
27	1	1981.20	1981.81	0.61
	3	1982.35	1983.21	0.86
28	2	1983.24	1983.85	0.61
	1	1983.88	1984.19	0.30
	3	1984.25	1984.95	0.70
29	2	1984.96	1985.77	0.81
	1	1985.77	1986.41	0.64
	4	2042.16	2043.10	0.94
30	3	2043.10	2043.99	0.88
	2	2043.99	2044.29	0.30
	1	2044.45	2044.84	0.40
	6	2054.35	2055.27	0.91
	5	2055.27	2056.08	0.81
	4	2056.08	2056.76	0.68
31	3	2056.76	2057.46	0.70
	2	2057.55	2058.04	0.49
	1	2058.16	2058.95	0.79
NO CORE 32				
	5	2076.60	2076.94	0.34
	4	2077.06	2077.61	0.55
33	3	2077.64	2078.34	0.70
	2	2078.37	2078.89	0.52
	1	2078.95	2079.44	0.49
	3	2112.97	2113.12	0.15
34	2	2113.27	2113.94	0.67
	1	2114.37	2114.70	0.34
	9	2182.37	2182.78	0.41
	8	2182.90	2183.59	0.69
	7	2183.59	2184.17	0.58
	6	2184.32	2185.11	0.79
35	5	2185.16	2185.77	0.61
	4	2185.87	2186.60	0.73
	3	2186.60	2187.33	0.72
	2	2187.41	2188.16	0.75
	1	2188.16	2188.77	0.61

	6	2246.38	2246.83	0.46
	5	2246.92	2247.49	0.57
	4	2247.49	2248.18	0.69
36	3	2248.18	2248.72	0.55
	2	2248.72	2249.42	0.70
	1	2249.42	2250.03	0.61
	4	2286.61	2287.22	0.61
37	3	2287.25	2288.10	0.85
	2	2288.13	2288.74	0.61
	1	2288.74	2289.47	0.73
38	2	2350.62	2351.16	0.54
	1	2351.16	2352.29	1.14
	7	2425.60	2426.36	0.76
	6	2426.36	2427.09	0.73
	5	2427.12	2427.98	0.85
39	4	2427.98	2428.74	0.76
	3	2428.77	2429.56	0.79
	2	2429.56	2430.41	0.85
	1	2430.41	2431.24	0.82
NO CORE 40				0.00
41	1	2514.60	2514.72	0.12
42	1	2603.91	2604.58	0.67
43	1	2608.17	2608.51	0.34
	3	2633.47	2633.87	0.40
44	2	2634.02	2634.54	0.52
	1	2634.54	2635.24	0.70
	5	2679.19	2679.50	0.30
	4	2679.50	2680.20	0.70
45	3	2680.23	2681.05	0.82
	2	2681.05	2681.72	0.67
	1	2681.72	2682.48	0.76
	7	2741.68	2742.47	0.79
	6	2742.47	2743.11	0.64
	5	2743.20	2743.81	0.61
46	4			
	3	2744.66	2745.50	0.84
	2	2745.51	2746.31	0.80
	1			
47	1	2805.90	2806.17	0.27
	6	2849.88	2850.60	0.72
	5	2850.60	2851.28	0.68
	4	2851.28	2852.01	0.73
48	3	2852.01	2852.75	0.73

	2	2852.75	2853.37	0.62
	1	2853.37	2853.84	0.47
	3	2886.46	2886.76	0.30
49	2	2886.76	2887.52	0.76
	1	2887.52	2888.25	0.73
	7	3014.47	3015.08	0.61
	6	3015.08	3015.56	0.48
	5	3015.79	3016.61	0.81
50	4	3016.61	3017.48	0.87
	3	3017.48	3018.25	0.77
	2	3018.25	3019.04	0.79
	1	3019.04	3019.35	0.30
	3	3183.64	3184.22	0.58
51	2	3184.22	3184.76	0.55
	1	3184.76	3185.31	0.55
52	1	3343.66	3344.36	0.70
	5	3401.57	3402.15	0.58
	4	3402.18	3402.42	0.24
53	3	3402.98	3403.67	0.69
	2	3403.70	3404.44	0.73
	1	3404.56	3405.23	0.67
NO CORE 54				
	3	3505.50	3506.21	0.70
55	2	3506.30	3506.78	0.49
	1	3506.78	3507.09	0.30

SUPPLEMENTAL FILE 2. PREVIOUS SAMPLING ON THE CAJON PASS DEEP DRILLHOLE CORE

Core	Segment	Depth (m)	Worker(s)	Use
35	9	2182.67	MCW	
		2182.40	TGB	
		2182.55	BP/SP	
	8	2182.98	MCW; Sass	
		2183.21	TB; RS	
		2183.40	TB; RS	Vein and shear
		2183.53	Sass	avoid vert vein
		2183.59	TB; RS	
	7	2183.62	Mcw	
		2183.89	TB; RS	
	6	2184.53	Sass	Axial Plug
		2184.75	TB; RS	Shear zone in chlorite
		2184.87	Lev	Axial and 2 horiziontal
		2184.93	MCW	
		2184.96	TB; RS	Fold and cross cutting
		2184.96	TB	Small fold
		2185.02	MCW	
	5	2185.32	Sass	Axial Plug
		Unknown	LTS; EJ	Remainder
		Unknown	Silver, James	
	2	2187.40	LTS; EJ	
		2187.85	TB; RS	
		2188.04	Lev	Axial plug
		2188.04	MCW	Plug through remainder
	1	2188.46	MCW	
		2188.16	TB; RS	
		2188.25	Sass	Axial
36	6	2246.71	TB;RS	
	5	2246.99	Sass	Axial
		2247.14	Sass	Orthogonal Set
		2247.17	MCW	
		2247.17	LTS, EWJ, SC	Entire Slab
	3	2248.36	Sass	
		2248.45	MCW	
		2248.48	MCW	
		2248.54	TB; RS	
		2248.75	TB; RS	
	4	2286.73	Sass	Axial
		Unknown	Lev	
			LTS, EWJ, SC	1/2 Slab
		Unknown	MCW	
	3	2287.43	TB; RS	Vert Veins
		2287.80	MCW	
		2287.83	MCW	
		2287.92	Sass	Orthogonal Set
		2288.13	TB; RS	Both sides of fracture
		2287.43-2267.92	LTS	Possible slab?
	2	2288.13	Sass	Axial
		2288.44	TB	Slicken surface?
		2288.74	TB; RS	Wraped
	1	2288.90	MCW	
		2288.96	MCW	
		2289.05	Sass	Axial
		2289.17	MCW	
37		2289.20	TB; RS	Folds
38	2	2350.62	Sass	Axial
		2350.71	TB; RS	
		2350.77	MCW	
		2350.95	Sass	Orthogonal Set
	1	2351.26	Sass	Axial
		2351.38	MCW	
		2351.44	TB; RS	Fracture
		2351.53	Lev	
		2351.16-2351.53	Lev	Slab
		Bottom Chunk	TB; RS	Slab

39	7	2425.63	Sass	Axial
		2425.69	TB; RS	Low angle
		2425.96	Lev	
		2426.06	MCW	
		2426.21	Sass	Orthogonal set
		2426.33	TB; RS	
	6	2426.51	MCW	
		2426.85	Sass	Axial
		2426.97	MCW	
	5	2418.28	TB; RS	
		2418.37	MCW	
		2418.44	MCW	
		2418.65	Sass	Axial
	4	2426.21	Sass	
	Entire Core		JLK	
	3	2429.01	Sass	Axial
		2429.26	MCW	
		2429.32	MCW	
	2	2430.05	MCW	
	1	2430.57	Sass	Orthogonal set
		2430.78	MCW	
		2431.08	Lev	
		2431.30	TB; RS	Bag
41	1	Unknown	LTS	K-Feld
		Unknown	TB; RS	Fractures
42	1	2543.01	Lev	
		2543.01	Sass	Orthogonal set
		2604.06	MCW	
		2604.21	TB; RS	
		2604.27	TB; RS	Bags
		2604.39	TB; RS	
		2604.52	Sass	Axial
		Unknown	Silver gets all	
43	1	2608.30	TB; RS	Both sides of fracture
		2608.39	TB; RS	Both sides of fracture
		2608.45	Sass	Orthogonal set
44	3	Unknown	TB; RS	Bag
		Unknown	TB; RS	Entire piece
	2	Top		
		2634.20	TB; RS	Bag
		2634.23	MCW	
		Unknown	Sass	Orthogonal set
	1	2634.66	Sass	Axial
		2634.45	MCW	
		2634.54	Lev	
		2635.24	TB;RS	

45	4	2679.80	MCW	
		2680.11	TB; RS	
		2680.66	Sass	Axial
	2	2681.11	Sass	Axial
		2681.26	MCW	
		2681.63	MCW	
	1	2681.66	MCW	
		2682.24	MCW	
46	7	2711.59	MCW	
		2711.65	AMAP	
	6	2742.83	MCW	
		2742.90	MCW	
		2743.11	Sass	Axial
	2	2745.55	Sass	Axial
		2745.76	MCW	
		2746.13	MCW	
47	1	2806.08	Sass	
48	5	2852.17	Sass	Orthogonal Set
		2850.86	Sass	Orthogonal Set
		2851.22	Sass	Axial
	4	2851.40	Sass	Orthogonal Set
	3	2852.26	Sass	Orthogonal Set
		2852.38	Sass	Axial
		2852.75	Sass	Orthogonal Set
	2	2853.17	Sass	Redial
		2853.35	Sass	Axial
	1	2853.54	Sass	Axial
		2853.78	Sass	Orthogonal Set
49	3	2886.46	Sass	Orthogonal Set
	2	2886.76	Sass	Orthogonal Set
		2887.07	Sass	Axial
		2887.25	Sass	Orthogonal Set
	1	2887.55	Sass	Orthogonal Set
		2887.61	Wang	3" Slab
		2887.74	Byerlee	3 perpendicular plugs
		2887.92	Sass	Orthogonal Set
		2888.19	Sass	Axial
50	6	3015.39	Sass	Orthogonal Set
	5	3016.06	Sass	Orthogonal Set
		3016.36	Sass	Axial
	4	3017.03	Sass	Orthogonal Set
		3017.06	Sass	Axial
	3	3017.76	Sass	Orthogonal Set
		3018.07	Sass	Orthogonal Set
	2	3018.43	Sass	Orthogonal Set
		3018.83	Byerlee	3 perpendicular plugs
		3018.95	Wang	
	1	3019.10	Sass	
53	2	3403.95	Sass	Axial
		3404.43	Sass	Orthogonal Set
		3404.46	Wang	3" Slab
		3404.51	Byerlee	3 perpendicular plugs
	1	3404.83	Sass	Orthogonal Set
		3405.23	Sass	Axial

Note: Inferred workers, where known or reasonably inferred.

TB	Thomas Blenkinsop
Byerlee	James D. Byerlee
Ej, EWJ	Eric James
RS	Rick Sibson
Lev	Lev Vernik
Sass	John Sass
Wang	Chi Yuen Wang
MCW	?
AMAP	?
LTS,LS,Silver	Lee T. Silver

SUPPLEMENTAL FILE 3. WHOLE-ROCK GEOCHEMICAL ANALYSES FOR THE CAJON PASS DRILLHOLE:
DATA FROM (SILVER AND JAMES, 1988b; PRATSON ET AL., 1992). All data in % of total analysis.

Core	Depth (m)	SiO_2	TiO_2	Al_2O_3	FeO	MgO+Na_2O	CaO	K_2O
5	525.00	66.39	0.63	16.01	3.38	5.13	3.13	3.19
10	744.00	73.30	0.32	13.98	1.80	3.93	1.79	4.45
15	1139.00	71.10	0.46	14.01	3.20	3.64	1.88	4.81
17	1353.00	62.92	0.88	17.30	4.46	6.01	4.73	2.38
18	1501.00	61.10	1.07	15.15	6.92	6.83	3.47	3.44
19	1656.00	67.21	0.56	15.75	3.25	4.90	3.24	4.29
20	1741.00	44.69	1.30	18.98	11.61	8.89	11.54	0.89
C-5	525.02	65.37	0.63	15.66	3.26	5.20	3.13	3.19
C-6	594.37	71.57	0.34	14.45	1.85	3.95	2.03	5.05
C-10	743.57	73.06	0.32	13.68	1.73	3.98	1.79	4.45
C-15	1137.98	71.02	0.46	13.79	3.05	3.69	1.88	4.81
C-17	1352.72	61.52	0.88	17.05	4.33	5.31	4.73	2.38
C-18	1499.79	61.01	1.07	14.94	6.74	5.19	3.47	3.44
C-19	1655.69	67.11	0.56	15.58	3.12	7.38	3.24	4.29
C-20	1740.12	43.85	1.30	18.48	11.25	4.10	11.54	0.89
C-21	1845.59	55.61	1.12	17.74	6.60	8.37	6.39	2.02
C-28	1980.92	66.72	0.49	16.60	2.39	6.10	2.75	3.22
C-30	2040.36	54.86	1.43	16.98	7.47	7.62	6.73	2.10
C-33	2076.32	57.27	0.95	16.15	7.14	5.34	6.59	2.04
C-35	2186.51	61.27	0.47	18.20	3.31	5.34	3.94	5.19
C-36	2247.32	53.83	1.00	14.81	9.45	8.11	7.68	1.71
C-37	2286.49	67.98	0.54	15.09	2.96	4.63	2.75	4.43
C-39	2429.13	61.63	0.77	16.79	5.03	5.94	4.96	3.03
C-42	2604.24	67.90	0.48	15.61	3.32	4.78	3.36	3.92
C-46	2744.60	60.02	0.78	17.39	5.67	6.46	5.67	2.45
C-49	2890.30	71.10	0.18	14.04	1.37	3.96	2.04	4.30
C-50	3021.37	63.01	0.66	15.82	4.62	5.70	4.70	3.18
C-52	3345.83	73.84	0.29	12.62	2.52	3.10	1.84	4.89

SUPPLEMENTAL FILE 4. THIN SECTION SUMMARIES

Sample ID	Core	Segment Number	Depth (m)	Mineralogy	Fabric
1701	5	11	518.46	Qtz, plagioclase, k-spar, biotite	High damage; cataclasite rock with fracture grains and remnant clasts, some areas have greater grain size reduction than others
1710.9	5	11	521.48	Qtz, plagioclase, k-spar, biotite	High damage; cataclasite rock with fracture grains and remnant clasts, some areas have greater grain size reduction than others
2299.2	7	1	700.80	Plagioclase, qtz, biotite, hornblende	High damage; cataclasite rock with fractured grains and remnant clasts
3736.7	15	3	1138.95	Qtz, plagioclase, biotite,	High damage; laumontite shear zone with hematite slip surfaces bordering it, show multiple episodes of movement, fractured and shattered grains are throughout the thin section
4217.2	16	2	1285.40	Qtz, k-spar, biotite, muscovite	Slightly deformed; microcracks, some areas of feldspar alteration into laumontite(?)
4218.9	16	1	1285.92	Qtz, plagioclase, muscovite, biotite	Slightly damage; anastomosing mode I fractures with laumontite fill, some microcracks and fractured grains along laumontite filled fracture
4443.3	17	4	1354.32	Qtz, k-spar, biotite, plagioclase, hornblende	High damage; shear zone with calcite and laumontite, shear fractures with hematite slip surfaces, fractured and shattered grains and feldspar alteration, few open fractures
4923.1	18	2	1500.56	Qtz, plagioclase, green hornblende, biotite	High damage; laumontite shear zones with multiple episodes of movement with well developed hematite slip surfaces within the shear zone; open fractures are present as well as some shattered grains and reduction in grain size throughout.
5425	19	7	1653.54	Qtz, plagioclase, hornblende, biotite	Little to no damage
6181.4	25	1	1884.09	Qtz, plagioclase, biotite, muscovite, k-spar	Medium damage; mode I fracture with cataclasite flow contains protolith (qtz, plag, minor biotite,), Main fracture braches into thinner fractures with same fill.
6242	26	6	1902.56	Qtz, plagioclase, biotite,	Medium damage; Mode II fractures with laumotite fill, some microcracks and fractured grains
6707.3	30	1	2044.39	Qtz, k-spar, biotite, green hornblende, plagioclase	High damage; partitioned shear zone, with laumontite crystal growth bordering poorly developed hematite slip surfaces. Fine laumontite cataclasite in the shear zone. Hematite not always present in shear zone. Etched, fractured, and altered grains border shear zones
31.4	31	4	-	Qtz, plagioclase, k-spar, hornblende,	Slightly deformed; few mode I fractures with fill
33.1	33	1	-	Qtz, plagioclase, k-spar, biotite, twinned calcite	High damage; defined zone of ultracataclasite surrounded by laumontite and calcite, some fractured grains surround zone
7164.4	35	7	2183.71	Qtz, biotite, plagioclase, hornblende, twinned calcite	Slightly deformed; calcite vein with biotite in the vein, some mode I fractures with calcite are also present
7167.4	35	6	2184.62	Qtz, plagioclase, biotite, hornblende	Slightly deformed; one large calcite vein
7378.5	36	4	2248.97	Qtz, hornblende, twinned calcite, biotite, plagioclase, k-spar	Slightly deformed, some micro cracks, poorly developed gneissic fabric.
7379	36	4	2249.12	Qtz, plagioclase, biotite, hornblende, calcite	High damage; laumontite shear fractures and altered calcite filled fractures, fractured grains, areas of grain size reduction
7380.7 (2x3)	37	2	2249.64	Hornblende, biotite, twinned calcite, plagioclase	High damage; shear zones with laumontite fill that surround ultracataclasite with hematite slip surfaces and foliated gouge (?), and pronounced reduction of grain size shows multiple epsiodes of slip and/or transtension, some fractured and shattered grains, and feldspar alteration
7713.5	38	1	2351.07	Qtz, plagioclase, biotite, calcite,	Slightly deformed; some micro cracks and anastomosing micro mode I with a quartz and plagioclase fill.
38.2	38	2	-	Qtz, calcite, plagioclase, biotite	Slightly deformed; few mode I fractures with fill and fractured grains
7972.3	39	2	2429.96	Qtz, plagioclase, green hornblende,	Slightly deformed, some micro cracks, and thin mode I fractures
8557 (2x3)	43	1	2608.17	Twinned calcite, qtz, plagioclase, k-spar, biotite	High damage; shear zones with laumontite fill that surround ultracataclasite with hematite slip surfaces and pronounced reduction of grain size, many fractured and shattered grains, mode I fractures filled with laumontite, some open fractures, and feldspar alteration
8557.5 (2x3)	43	1	2608.33	Twinned calcite, k-spar,biotite	High damage; shear zones with laumontite fill that surround ultracataclasite with hematite slip surfaces and pronounced reduction of grain size, many fractured and shattered grains, mode I fractures filled with laumontite, some open fractures, and feldspar alteration

44.1	44	1	-	Qtz, k-spar, calcite, plagioclase, biotite, hornblende	High damage; zones of cataclasite to ultra cataclasite with hematite slip surfaces, fractured grains and fine grain laumontite zones near cataclasite
8640.2	44	3	2633.53	Qtz, k-spar, hornblende, biotite, plagioclase	Slightly deformed; few mode I fractures with laumontite fill, some calcite in fractures as well
8640.9	44	3	2633.75	Hornblende, biotite, qtz, plagioclase	Slightly deformed; anastomosing mode I fracture with laumontite and chlorite (?) fill
8643	44	2	2634.39	Qtz, k-spar, biotite, plagioclase, hornblende	Medium damage; laumontite shear fracture with multi stages of movement, hematite slip surfaces is in some areas of shear fracture. Fractured grains border the shear
8645.1 (2x3)	44	1	2635.03	Qtz, plagioclase, biotite, calcite	High damage; shear zones with laumontite fill that surround ultracataclasite with hematite slip surfaces and pronounced reduction of grain size, many fractured and shattered grains, mode I fractures filled with laumontite, some open fractures, and feldspar alteration
8792.6	45	4	2679.98	Qtz, plagioclase, k-spar, green hornblende	Slightly deformed; some fractured grains, epidote (?) through thin section
8995.2	46	7	2741.74	Twinned calcite, k-spar, plagioclase, chlorite, biotite	Medium damage; laumontite filled mode I fractures, fractured grains, altered feldspar grains
8997	46	7	2742.29	Qtz, biotite, hornblende, plagioclase	High damage; laumontite shear zone, show multiple episodes of movement and tension, fractured and shattered grains are throughout the thin section, filled mode I fractures are present
47.1 (2x3)	47	1	-	Qtz, plagioclase, k-spar, twinned calcite, biotite	High damage; shear zones with laumontite fill that surround ultracataclasite with hematite slip surfaces and pronounced reduction of grain size, many fractured and shattered grains, mode I fractures filled with laumontite, some open fractures, and feldspar alteration
9361.4	48	2	2853.35	Qtz, plagioclase, biotite, hornblende	Slightly deformed; laumontite filled shear fracture with hematite in areas, some areas of grain size reduction, fractured grains
48.2	48	2	-	Qtz, Plagioclase, biotite	Slightly deformed; open fractures and microcracks.
48.3	48	3	-	Qtz, plagioclase, biotite	Little to no damage
9475.5	49	2	2888.13	Qtz, plagioclase, k-spar, biotite	Medium damage; mode I fractures with laumontite fill, some fractured grains and microcracks
10971	52	1	3343.96	Qtz, plagioclase, biotite, k-spar	Slightly deformed; few open fractures, and fractured grains, few microcracks
11161.7 (2x3)	53	5	3402.09	Qtz, plagioclase, k-spar, biotite, twinned calcite	High damage; shear zones with laumontite fill that surround ultracataclasite with hematite slip surfaces and pronounced reduction of grain size, many fractured and shattered grains, mode I fractures filled with laumontite, some open fractures, and feldspar alteration
11161.7	53	5	3402.09	Qtz, k-spar, plagioclase, biotite	Slightly deformed; some laumontite filled fractures, few open fractures and microcracks
11165.8A	53	3	3403.34	Qtz, plagioclase, biotite	Medium damage; high density of fractured grains and shattered grains in areas appear protocataclasite, laumontite filled mode I fractures
11165.8B	53	3	3403.34	Qtz, plagioclase, biotite	Medium damage; high density of fractured grains and shattered grains in areas appear protocataclasite, laumontite filled mode I fractures
11166	53	3	3403.40	Qtz, plagioclase, biotite, k-spar, hornblende	Medium damage; laumontite shear fracture with multi stages of movement/transtension, few fractured grains and open fractures
11167.3 (2x3)	53	2	3403.79	Qtz, twinned calcite, plagioclase, biotite	Medium damage; laumontite filled shear fractures, many fractured grains and few shattered grains, some microcracks and mode I fractures, some altered feldspar
53.3	53	3	-	Qtz, plagioclase, biotite	High damage; shear zone with laumontite and some hematite slip surfaces, fractured and shattered grains and feldspar alteration, few open fractures
11501.6	55	3	3505.69	Qtz, plagioclase, biotite	Slightly deformed; mode I fractures filled with fine laumontite, some microcracks are present
CP2FW			NA	Qtz, k-spar, twinned calcite, biotite, hornblende	Slightly deformed; some open fractures
CP2HWA			NA	Qtz, plagioclase, twinned calcite, biotite	Slightly deformed; some open fractures, fractured grains, and minor amounts of laumontite is some fractures
CP2HWB			NA	Twinned calcite, plagioclase, biotite, hornblende	Medium damage; laumontite filled shear fractures with some hematite slip surfaces, open fractures, fractured grains
CP4			NA	Qtz, twinned calcite, k-spar, hornblende, biotite	Slightly deformed; fractured grains and few microcracks
CP5			NA	Qtz, twinned calcite, plagioclase, hornblende, biotite	Slightly deformed; fractured grains and few microcracks, some alteration of feldspars

SUPPLEMENTAL FILE 5. SUMMARY OF XRD RESULTS FOR ALL SAMPLES IN THIS STUDY

Sample Number	Core	Segment Number	Depth (m)	Main Minerals
1710	5	11	521.21	Quartz, anorthite, albite, enstatite, kaolinite, clinochlore, biotite
2299.2	7	2	700.80	Nontronite, albite, anorthoclase
3362	14	1	1024.74	Laumontite, chalcocite, quartz
3736.7	15	3	1138.95	Laumontite, quartz, albite
4215.6	16	2	1284.91	Quartz, laumontite
4443.5	17	3	1354.38	Laumontite, quartz, calcite, stilbite
18.1	18	1	-	Anorthite, kaolinite, quartz, phlogopite, tremolite
4923.1	18	1	1500.56	Quartz, laumontite, phlogopite, albite, bobierrite
6181	25	1	1883.97	Laumonitie - leonhardite, SiO_2, cristobalite, fluorannite
6243	26	5	1900.12	Laumontite, phlogopite, quartz, biotite, cristobalite
6243 White	26	5	1900.10	Graphite, quartz, laumontite, illite, ankerite, anorthoclase, orthoclase, augite, lawsonite
6246.6	26	4	1903.96	Magnesiohornblende, cristobalite, albite, phlogopite, crossite
6254	26	1	1906.22	Laumontite, tin tetramethylamnonium sulfide, metavariscite, halite
33.1	33	1	-	Quartz, albite, calcite, stilbite
34.1	34	1	-	Laumontite, quartz, cristobalite, albite, kyanite, magnesiohor
34.1	34	1	-	Quartz, albite, orthoclase, nontronite, magnesiohornblende
6934	34	2	2113.48	Laumontite, quartz, zeolite, magnesiohornblende
7380.1	36	1	2249.45	Magnesiohornblende, albite, phlogopite
7378.8	36	4	2249.06	Laumontite, ferropargasite, cristobalite, chalcocite
7508	37	2	2288.44	Quartz, laumontite, laumontite, weissbergite, zeolite
7715.5	38	1	2351.68	Quartz, orthoclase, albite
7963.8	39	5	2427.37	Laumontite, illite, low quartz, anorthite, graphite, actinolite
42.1	42	1	-	quartz, cristobalite, nontronite, albite
8557	43	1	2608.17	Laumontite, quartz, biotite, anorthite
8645.1	44	1	2635.03	Quartz, albite, microcline
8996.4	46	7	2742.10	Quartz, albite, phlogopite, zircon
9002.1	46	5	2743.84	Laumontite, laumontite, laumontite, simplotite
47.1 W	47	1	-	Low quartz, zilica, laumontite, cristobalite
47.1 WO	47	1	-	Laumontite, cristobalite, quartz, albite
9361.5	48	1	2853.39	Low quartz, albite, fluorannite, albite, nontronite
53.3	53	1	-	Chalcopyrite, muscovite, laumontite, almandine
11161.7	53	6	3402.09	Quartz, albite, laumontite
11168	53	2	3404.01	Laumontite, quartz, albite