TABLE 1.—*Results of tests of bentonite samples from Hardin district, Montana and Wyoming, and of one sample from Black Hills district, South Dakota*

[An asterisk (*) indicates that pulverized material is white]

District, county, and State	Township and range	Section	No. of point indicated on plate 1 by arrow	Bentonite bed	Thickness of bed		No. of material listed in measured sections, p. 59–100	Estimated percent nonclay material	For use as sand-bonding clay—in sand-clay mixtures containing 4 percent clay by weight: Green compression strength, in pounds per square inch, for various percentages of tempering water						Dry compression strength, in pounds per square inch, for various percentages of tempering water				For use in drilling mud: Swelling capacity, in milliliters, of 2 g of bentonite	Percent grit	Yield (bbl per ton)	Viscosity, in centipoises, for slurry containing 6 percent clay by weight	Viscosity for slurries containing various percentages of clay by weight: Clay (percent)	Viscosity (centipoises)	Clay (percent)	Viscosity (centipoises)	Wall-building properties for suspensions containing 6 percent clay by weight: Filtrate, in milliliters, for indicated periods in minutes			Thickness of cake in thirty-seconds of an inch	Gel strength (Stormer grams) for—: 6 percent clay by weight		Various percentages of clays by weight		
					Ft.	In.			1.0	1.2	1.4	1.6	1.8	2.0	1.6	1.8	2.0	2.2									2	15	30		At 0 minutes (initial)	After 10 minutes	Clay (percent)	At 0 minutes (initial)	After 10 minutes
Hardin district, Big Horn County, Mont.	1 S., 34 E.	[1] 13	1	U	2	9	2	45			5.5	4.6	4.2	3.9		62	75		7	1.4															
							3	60	4.7	4.5	4.2	3.8	3.1	2.5	50	65	76		9	18.5															
				T	1	11	5	45		11.2	10.8	10.0	9.0	8.7	25	32	38	47	8	15.3															
							6	30	11.3	13.0	14.8	14.5	12.0	9.5	22	28	33		11	6.2															
				S	2	10	8	33		9.5	9.0	8.0	6.5	6.0	47	56	67		18	6.8															
				R	2	9	10	25			11.9	11.2	9.1	7.9	30	42	50		10	14.5															
							11	30		2.0	13.7	12.0	10.0	8.9	26	33	42		10	13.9															
					6	4+	13	17			9.0	8.8	7.2	6.8		48	56	75	14	1.7															
							14	20		12.2	12.8	11.0	9.6	9.2	30	44	57		21	1.6	80	9.0	6½	12.0	7	17.0	8.8	22.6	30.6	3	25	33	7	45	73
							13–14	20		9.4	9.4	8.0	7.0	6.0		43	56	66	12	.1															
	1 S., 35 E.	8	2	V	4	3	2–4	50		7.7	5.2	5.0	4.4	4.0		62	70	75	8	10.8															
		9	4	W	6	5+	2	45	4.8	4.7	4.1	3.9	3.6	3.3	50	58.	68.		9	5.7															
		16	5	X	6	10	5–7	25		10.8	10.8	9.0	7.8	6.0	42	59	65	76	17	1.8															
		30	6	V	17	2+	1–2	18		10.0	9.6	8.0	7.0	6.0	49	60	72		20	1.3	62	5.0	8½	12.0	9	17.0	7.3	16.2	24.8	2	7	10	9	35	49
	2 S., 31 E.	18	2	P	1	10	2	30		5.2	5.2	5.0	4.9	4.8	33	40	47	5	18	10.2															
			8	Q	2	2	2–3	35			4.5	4.4	4.2	4.0	57	64	69	75	14	8.5															
	2 S., 35 E.	6	9	V	12	8+	1	60		9.8	9.0	7.7	6.7	6.0	40	52	60	68	13	1.1															
		8	10	W	5	1	3–6	22	7.0	9.2	8.3	7.0	5.6	4.2	16	50	79		27	2.5	73	7.0	7	12.0	7½	19.0	5.0	12.5	17.5	2	6	14	7	22	47
			11	V	21	6	2–4	30		7.3	7.0	5.8	5.2	5.0	49	55	65	74	15	3.8															
		20	12	W	7	4	2–7	22	8.2	9.3	9.1	6.8	6.0	5.5	61	69	83		21	3.0	77	8.0	7	14.0	8	23.0	6.5	17.0	25.2	3	14	22	8	50	68
	3 S., 31 E.	13	14	Soap Creek	12	5	1–3	23		8.3	7.7	5.4	5.0	4.6	46	65	78		22	5.5	67	6.0	7	9.0	8	14.2	7.4	17.0	23.0	3	12	21	8	35	52
			15	L	4	6	*2–3	25		9.5	9.5	9.0	8.4	7.5	49	58	65		17	4.2	53	4.0	8	6.0	10	13.5	11.0	28.0	34.0	4	12	14	10	37	42
		21	16	Clay Spur	1	7	*3	20	6.3	8.2	8.7	8.1	7.1	6.2	50	61	72		26	1.1	86	12.0	5½	9.0	7	30.0	4.8	11.3	15.3	3	3	6	7	5	25
	3 S., 32 E.	19	17	M	7	9	2	35	8.0	9.4	8.4	7.4	6.8	6.0	63	76	90		9	1.7															
							3–6	25		8.8	10.8	10.0	8.5	7.4	30	39	56		10	3.1															
			18	Soap Creek	13	9	2–5	15	8.8	8.9	7.7	6.6	5.8	5.6	52	59	65		18	2.2															
	3 S., 35 E.	4	20	W	9	11	2–7	33		7.4	6.7	5.8	5.0	4.5	64	74	86		23	5.8	86	12.0	6½	16.0			8.2	21.0	28.0	3	25	27	6½	35	52
		33	22	W	3	0	2	50		13.4	13.5	13.2	11.0	8.8	21	26	31		9	1.5															
	4 S., 31 E.	11	24	Clay Spur	2	11	*2–3	12	5.7	6.4	6.2	5.9	5.3	4.7	45	63	83		21	3.4	67	6.0	7	9.0	8	14.0	4.8	12.0	16.8	2	3	4	8	4	12
	5 S., 34 E.	19	[2] 24a	R?	9	0	2–4	18		11.2	13.3	12.0	10.0	8.0	28	34	40	46	15	10.6															
	6 S., 32 E.	26	27	I	5	9	3–6	25		7.7	7.2	6.2	5.8	6.2	55	69	79		32	3.0	91	15.0	5½	10.0	6½	20.5	5.0	11.8	16.0	3	16	28	7	55	88
				Clay Spur	9	10	12	35	7.2	7.6	7.1	5.9	5.1	4.8	43	52	64		13	5.4															
							*13–16	15		9.0	9.9	8.0	6.2	5.5	44	65	82		27	4.0	92	16.0	5½	12.0	6½	25.0	4.6	10.9	14.2	2	12	30	6½	30	58
		35	28	G	2	8	2–5	22		8.5	8.0	6.9	6.0	5.4	39	50	58		17	2.4	40	2.0	12	10.2	15	28.0	20.2		63.0	4	4	10	12	22	46
				F	9	9	8	30	8.3	9.0	8.8	7.2	6.2	5.6	32	40	52		10	4.9															
							*9–11	20	7.0	8.8	10.1	9.0	6.8	5.3	40	47	55		17	1.2															
							*13–15	20		9.0	8.9	7.2	6.0	5.3	50	63	72		16	2.8															
				E	4	8	31–32	25	6.0	7.5	8.0	7.0	6.0	5.5	43	53	63		12½	3.8															
				D	3	8	36	30		7.9	7.8	6.8	6.0	5.5	39	50	61		19	1.7	72	4.5	7½	14.0	8	23.0	7.0		18.0	3	5	7			
				C	1	7	39–40	15		8.5	8.0	7.2	6.0	5.0	40	68			24	.2	68	5.0	7	9.0	8	16.0	4.5	11.9	16.4	2	3	7	8	10	45
				B	4	1	42	23	8.2	10.0	11.3	10.0	8.2	7.0	35	49	65		13	1.0															
							44	20	6.0	8.3	8.2	7.1	6.4	6.0	30	41	54		27	2.8	83	10.5	6½	14.0	7	20.0	4.2	11.8	15.8	3	5	28	7	14	16
				A	3	10	46–47	20	8.0	9.2	9.2	8.0	7.1	6.6	55	67	85		33	3.0	82	10.0	6½	14.0	7	17.5	5.8	14.4	20.5	3	14	47	7	40	68
		35 and 36	29	O	3	2	2–3	40	9.2	9.8	8.3	7.3	6.4	5.7	22	25	32		7	21.8															
				N	3	1	6–9	40		9.6	9.6	9.0	8.2	7.1	18	27	39	49	9	6.8															
				M	7	9	14	30		6.2	6.0	5.1	4.3	4.1	50	59	68		11	.9															
				L	7	0	17–18	20		8.0	10.0	9.0	8.0	7.0	36	55	70		30	.7	85	13.5	5½	7.0	6½	15.0	4.6	11.0	15.6	3	10	34	6½	15	54
				Soap Creek	12	0	*22	20		11.2	11.9	11.0	8.0	7.7	34	47	60	72	20	.5	54	4.0	10	15.2	12	34.0	7.8		29.0	2	5	10			
							*23	30		9.4	9.3	8.0	7.0	6.0	36	49	61	71	28	1.1	67	6.0	8	14.2	9	23.0	5.8		22.0	2	9	14	8	22	60
							20–24	25		12.4	12.6	11.0	9.0	7.5	23	30	35		15	2.8	49	3.0	11½	16.0	13	35.2	10.2		35.0	2	8	8			
				J	5	2	29	30		7.2	7.0	6.7	6.2	6.0	17	25	30		6	8.4															
							31–33	15		7.8	7.6	7.0	6.9	5.3	52	61	70	81	20	4.4	57	4.5	9	12.0	9½	16.0	8.8	22.0	30.0	2	9	13	9½	35	43
	7 S., 32 E.	5	30	Soap Creek	6	2	3	22		9.5	9.3	7.7	6.2	6.0	32	39	44		13	5.0															
		9	31	L	8	3	2	25	5.5	6.8	6.8	6.4	5.9	5.2	34	39	45		8	2.3															
		10	32	I	4	8	3–4	25		10.2	9.8	8.6	7.2	6.7	50	60	70	83	23	2.9	91	14.0	5½	10.0	6½	23.0	4.8	10.0	13.6	3	3	5	6½	4	6
				Clay Spur	6	5	10	20		8.5	9.4	7.4	6.8	5.9	39	47	62		14	1.5															
							*11–12	10	6.5	7.7	8.7	8.6	7.4	6.3	33	55	75		17	3.3															
		15	33	Soap Creek	16	8	2	15	7.8	10.2	10.5	8.6	7.0	6.0	42	52	63		13	4.3															
							*3	13	6.7	10.6	11.3	10.8	9.2	8.0	39	51	63		24½	2.5	58	3.5	7	4.5	10	20.0	6.8	16.6	22.7	2	3	5	10	13	27
		17	34	Soap Creek	18	2	3–5	18	7.5	10.9	11.8	10.9	7.8	6.3	30	42	60		16	4.7															
	7 S., 33 E.	31	37	Soap Creek	45	0	*1	10	9.0	11.2	10.9	9.8	8.5	7.8	41	52	60		21	1.3	55	4.5	8	7.5	9½	12.5	4.8	12.8	17.2	2	2	3	9½	4	6
			38	Soap Creek	16	0	2	20		8.6	8.0	6.7	6.0	5.8	38	47	59		13	5.1															
							*3	25		9.9	9.5	8.7	7.8	6.8	31	40	50	58	21	4.2	45	3.0	9	7.0	9		5.9	16.0	21.0	2	3	3	10	4	4
		32	39	Soap Creek	14	5	*3	17		10.0	11.4	10.5	8.4	6.9	37	53	70		24½	1.1	57	3.0	8	7.5	9½	14.5	6.8	17.0	23.8	2	3	6	9½	16	35
	8 S., 33 E.	6	40	Soap Creek	19	6	2	18		9.6	9.6	8.3	7.0	6.0	36	49	54		15	3.0															
							*3	20			9.3	8.4	7.4	6.6	22	37	49	60	20	3.4	66	5.5	8	13.0	8½	17.0	4.6	12.8	17.2	2	4	5	8½	9	44
			41	L	9	11	*2–3	33		9.4	9.0	8.0	7.0	5.8	28	38	48		11	.5															
			42	M	20+		1	25		7.5	7.2	6.7	5.8	4.9	26	33	40		11	1.7															
							2	27		10.5	9.2	8.8	7.2	6.7	31	38	47		13	.8															
							3	25						6.2			27		11	5.1															
							*4	25	4.2	8.0	11.0	10.7	9.4	8.0	30	40	50		19	1.6															
							5	18		9.0				9.0	20	24	30		20	.9	36	3.0	9½	5.0	15	20.0	10.9	27.0	43.0	3	3	4	15	35	95
		16	43	Soap Creek	30	5	1	22		9.1	9.0	7.8	7.2	7.0	37	38	54	63	20	3.1	58	4.0	9	13.0	9½	17.0	5.8	16.1	22.9	2	6	9	9½	32	57
							*2–3	15	5.0	8.0	10.1	10.6	9.1	8.0	22	28	35		19	2.4															
			44	M	10	6+	2	25		8.1	8.3	7.0	6.0	5.3	38	40	46		9	1.1															
		27	45	Soap Creek	29	10	2	20		8.5	9.3	9.2	8.6	7.0	28	38	48		20	5.3	56	4.5	9	15.5	9½	10.0	5.8	15.6	21.8	2	3	5	9½	7	25
							*3–4	15	4.0	7.9	11.8	12.8	11.0	8.2	30	42	53		21	2.3	80	9.0	6½	12.0	7	19.0	5.5	12.5	17.2	2	3	4	7	4	6
	9 S., 34 E.	13	46	M	33	0	2	30		8.8	8.0	7.2	6.4	6.0	22	35	43		13	6.2															
							*3	22	3.5	9.0	9.0	8.2	7.6	6.4	28	38	47	55	18	3.2															
							*4	50					5.0	4.2		47	58		15	6.5															
			47	Soap Creek	22	0	2	20		8.2	8.1	7.0	6.0	5.0	30	42	54		17	.8															
							*3	20		7.0	10.2	10.4	8.5	6.6	35	45	55		21½	3.4	68	7.0	7	9.0	8	14.3	5.8	13.9	19.4	3	3	7	8	10	25
		14	48	Clay Spur	4	9	1	20						7.0			45	54	20	.2	64	5.0	7½	9.0			12.8		43.0	3	11	14			
							*2	15		8.4	9.0	8.3	7.0	5.8	42	51	62		34	2.9	95	16.0	5½	13.0	6½	23.0	6.2	15.2	21.6	3	35	43			
			49	J	6	6	2	23	6.0	9.0	9.8	8.0	7.2	6.8	30	37	43		11	2.5															
							3	33		11.2	12.0	11.9	9.4	8.0	32	47	63		17	.2															
							4	20						7.5		45	53		12	.9															
			50	I	7	0	1–4	15		9.5	10.0	9.4	8.0	6.8	47	60	74		25	2.3	78	9.0	7	12.0	8	30.0	6.0	12.0	16.5	2	3	4	8	5	11
		34	51	J	3	6	2	28	6.0	10.0	10.0	9.0	8.0	6.4	35	40	40		21	1.5	60	5.0	8	9.0	8½	12.0	5.6	15.0	21.4	2	8	16			
	9 S., 35 E.	10	51a	U?	13	0	2–4	22		11.2	11.1	10.6	9.0	7.8	28	37	47	57	13	3.6															
Hardin district, Sheridan County, Wyo.	58 N., 88 W.	17	52	Soap Creek	20	5	1	18		8.7	8.2	7.6	5.5	5.0	32	38	46		13	1.4															
							*2–4	17		8.9	10.7	9.5	8.0	6.9	49	63	73		25	3.2	73	7.0	7	12.0	7½	16.0	5.8	12.8	18.6	2	11	22	7½	30	45
		20	53	Clay Spur	5	1	2	23		7.8	7.5	6.6	6.0	5.7	38	47	55		10	3.2															
							*3–6	12		10.0	10.0	9.0	8.0	7.0	45	55	64		31	2.9	80	9.3	6½	12.0	7	18.5	5.0	12.8	17.8	3	12	25	7	37	48
Black Hills district, Butte County, S. Dak.	Commercial bentonite mined near Belle Fourche, S. Dak.						(*)	13		5.8	8.5	7.9	7.0	6.0	42	55	67		45	1.2	138	70.0	4½	18.0	4	12.0	3.9	9.9	13.6	3	95	135			

[1] Erroneously designated section 18 on p. 59.

[2] Erroneously designated 26A on p. 78.