TABLE 32.—*Analyses of mudstone from formations of Precambrian, Paleozoic, Cretaceous, and Tertiary ages*

[*Semiquantitative spectrographic determinations made by the rapid visual-comparison method.* Comparisons of similar data with those obtained by quantitative methods show that the assigned semiquantitative class interval includes the quantitative value in about 90 percent of the determinations. Analysts: Spectrographic, R. G. Havens, F. J. Dunton, and F. R. Barnett; radiometric, S. F. Furman]

System	Formation and member	Location	Sample No.	Laboratory No.	Semiquantitative spectrographic analyses																											Radiometric analyses
					Si	Al	Fe	Mg	Ca	Na	K	Ti	Zr	Mn	Ba	Sr	Be	B	Sc	V	Cr	Co	Ni	Cu	Ga	Y	Mo	La	Yb	Pb	Percent eU
Tertiary	Green River formation	Rifle, Colo.	WLN-7-52 [1]	D-84098	xx.	x.+	x.–	x.+	xx.	x.–	0.x+	0.x–	0.00x	0.0x	0.0x+	0.x–	0	0	0.000x+	0.0x	0.00x	0.00x–	0.00x	0.00x+	Tr.	0.00x–	0.00x	0	0.000x–	0.00x–	0.001
	do	do	8-52 [2]	D-84099	xx.	x.	x.–	x.+	x.+	x.–	x.–	.x–	.00x	.0x	.0x+	.0x+	0	.00x	.000x+	.00x+	.00x	.000x+	.00x–	.00x+	Tr.	.00x–	.00x–	0	.000x–	.00x–	.001
Cretaceous	Mancos shale	State line, Utah	WLN-55-53	204847	xx.	x.+	x.–	0.x+	0.x+	0.x	x.	0.x	0.0x–	0.00x+	0.0x	0.0x+	0	0.00x+	0.00x–	0.0x–	0.00x+	0.000x+	0.00x–	0.00x+	0.00x–	0.00x–	Tr.	0.00x	0	0.00x–	0.002
	do	do	53-53	204845	xx.	x.+	.x+	.x+	x.	.x–	.x+	.0x	.00x+	.00x–	.0x–	.0x–	0	.00x+	0	.00x–	.00x+	0	.000x+	.00x–	.00x–	0	0.00x–	0	0	Tr.	.004
	do	do	54-53	204846	xx.	x.+	x.–	.x+	.x	.x	x.	.x	.0x–	.00x+	.0x	.0x–	0	.00x+	.00x–	.0x–	.00x–	.000x+	.00x–	.00x+	.00x–	.00x–	.00x–	.00x+	0	.00x–	.002
Permian	Hermit shale	Grand Canyon, Ariz.	EMS-176-52	D-80979	xx.	x.	x.–	x.	x.	0.x–	x.–	0.x	0.0x–	0.0x–	0.0x–	0.00x+	Tr.	0.00x+	0.000x+	0.00x	.00x+	0.000x+	0.00x	0.00x–	0.000x–	0.00x–	0	0	0.000x	0	0.001
	do	do	175-52	D-80978	xx.	x.	x.–	x.	x.	.x–	x.–	.x	.0x	.0x–	.0x	.00x+	0	.00x	.000x+	.00x	.00x	.000x+	.00x–	.00x–	.000x–	.00x–	0	0	.000x	0	.002
Permian and Pennsylvanian.	Supai formation	Grand Canyon, Ariz.	EMS-172-52	D-80975	xx.	x.	x.–	0.x+	x.	0.x–	x.	0.x–	0.00x+	0.00x+	0.0x–	0.0x–	Tr.	0.00x	0.000x+	0.00x–	0.00x	0.000x	0.00x–	0.000x+	0.000x–	0.00x–	0	0	0.000x	0	0.002
Pennsylvanian	Hermosa formation: Paradox member	Fisher Valley, Utah	EMS-33A-52 [3]	D-82294	x.+	x.	x.–	x.+	xx.	0.x–	x.–	0.0x+	0.00x	0.0x	0.0x–	0.0x+	0	0.0x–	Tr.	0.00x	0.00x	0.000x	0.00x–	0.00x–	Tr.	0.00x–	0.00x–	0	0.000x–	0	0.002
	do	Castle Valley, Utah	WLN-59-53 [4]	D-204849	.x	.x–	.x	x.+	xx.	.0x+	0	.00x+	Tr.	.0x	.00x–	.0x–	0	0	0	.00x–	.00x+	0	0	.00x–	0	0	0	0	0	0	.001
Cambrian	Bright Angel shale	Grand Canyon, Ariz.	EMS-159-52	D-80752	xx.	x.	x.–	x.	x.	0.x	x.+	0.x	0.0x–	0.0x–	0.0x	0.0x–	0.000x–	0.00x+	0.000x+	0.00x	0.00x	0.000x–	0.000x+	0.000x	0.000x	0.00x	0	0	0.000x	0.000x	0.004
	do	do	158-52	D-80751	xx.	x.	x.	x.+	x.	.x	x.+	.x	0.0x–	.x	.0x	.00x+	Tr.	.00x	.000x+	.00x	.00x	.000x+	.00x–	.000x+	.000x	.00x	0	0	.000x	.000x	.002
Precambrian	Hakatai shale	Grand Canyon, Ariz.	EMS-154-52	D-80747	xx.	x.	x.	x.+	x.	0.x–	x.+	0.x	0.00x+	0.0x+	0.0x	0.00x+	0.000x–	0.00x–	0.000x+	.00x	0.00x	0.00x–	0.00x–	0.00x–	0.000x	0.00x	0	0	0.000x	0.000x	0.003
	do	do	153-52	D-80746	xx.	x.+	x.	x.	x.–	.x–	x.+	.x	.0x–	.0x+	.0x	.00x	.000x–	.00x–	.000x+	00x+	.00x+	.00x–	.00x	.00x–	.000x	.00x	0	0	.000x	.000x	.005

[1] Petroliferous shale containing 50–60 gal crude shale oil per ton.
[2] Petroliferous shale containing 10 gal crude shale oil per ton.
[3] Highly gypsiferous claystone.
[4] Nearly pure dolomite.

622162 O - 62 (In pocket)