

FIGURE 1.--GEOLOGIC MAP

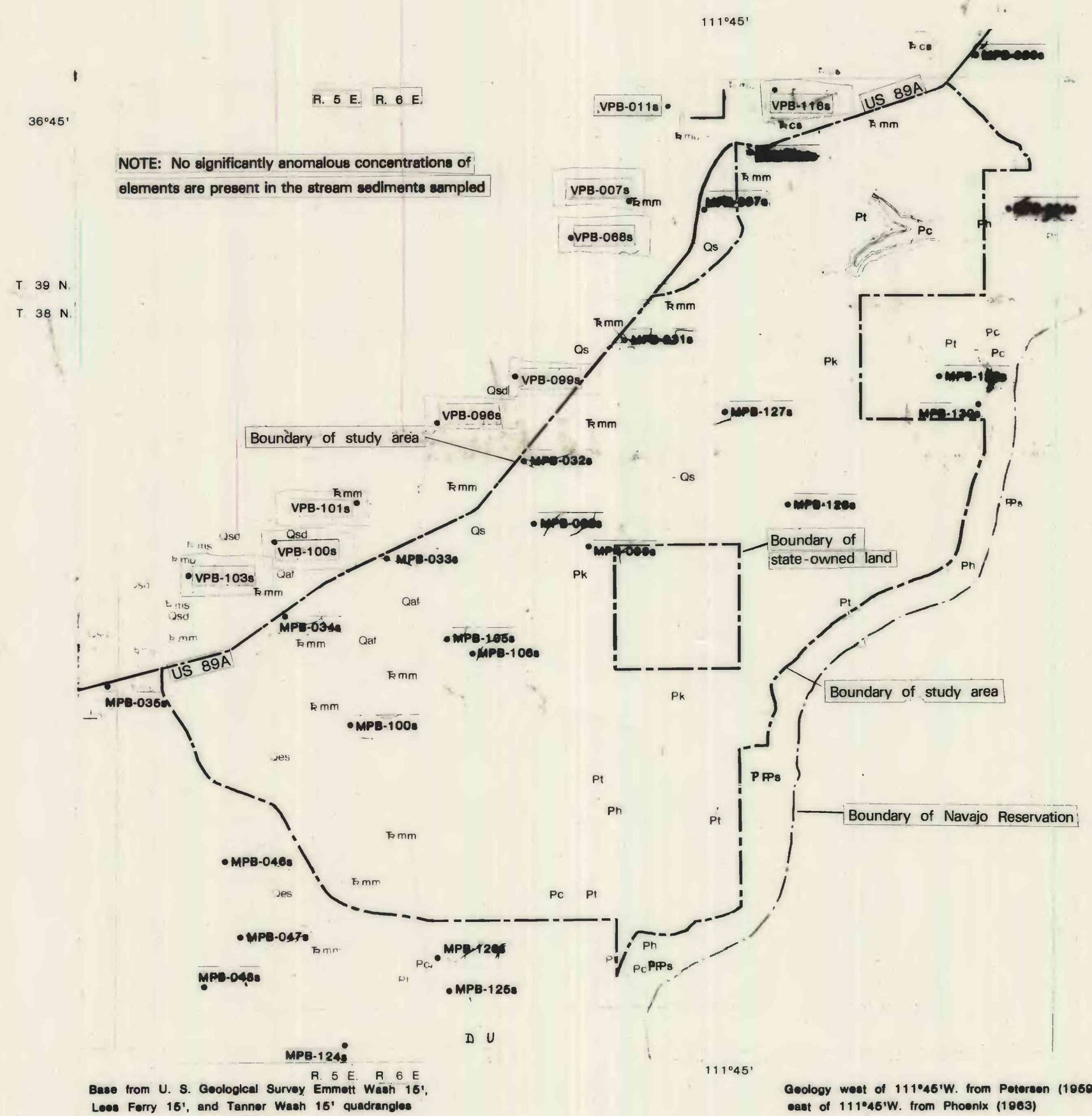


FIGURE 2.--SAMPLE LOCATIONS AND GEOCHEMICAL DATA

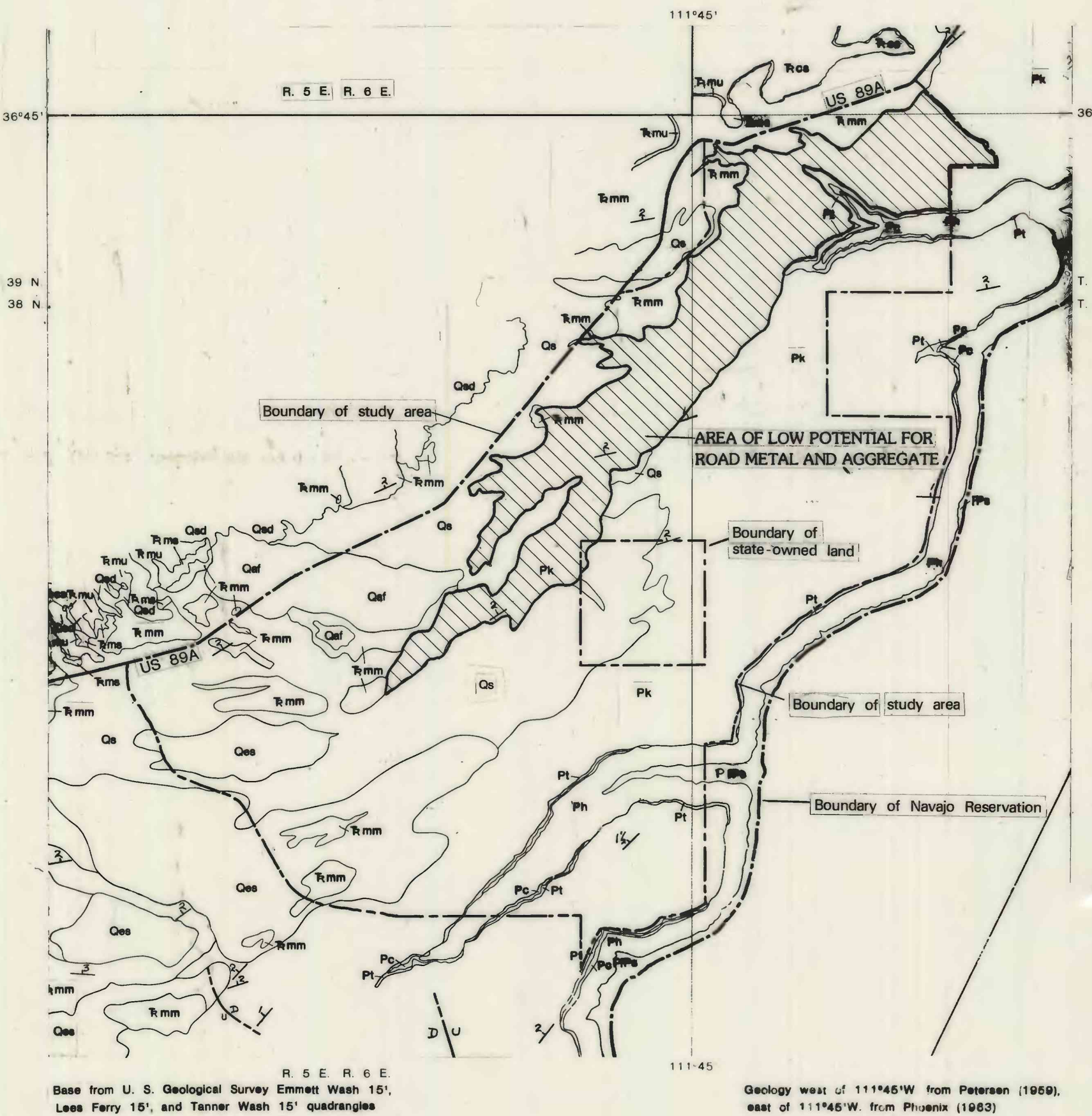
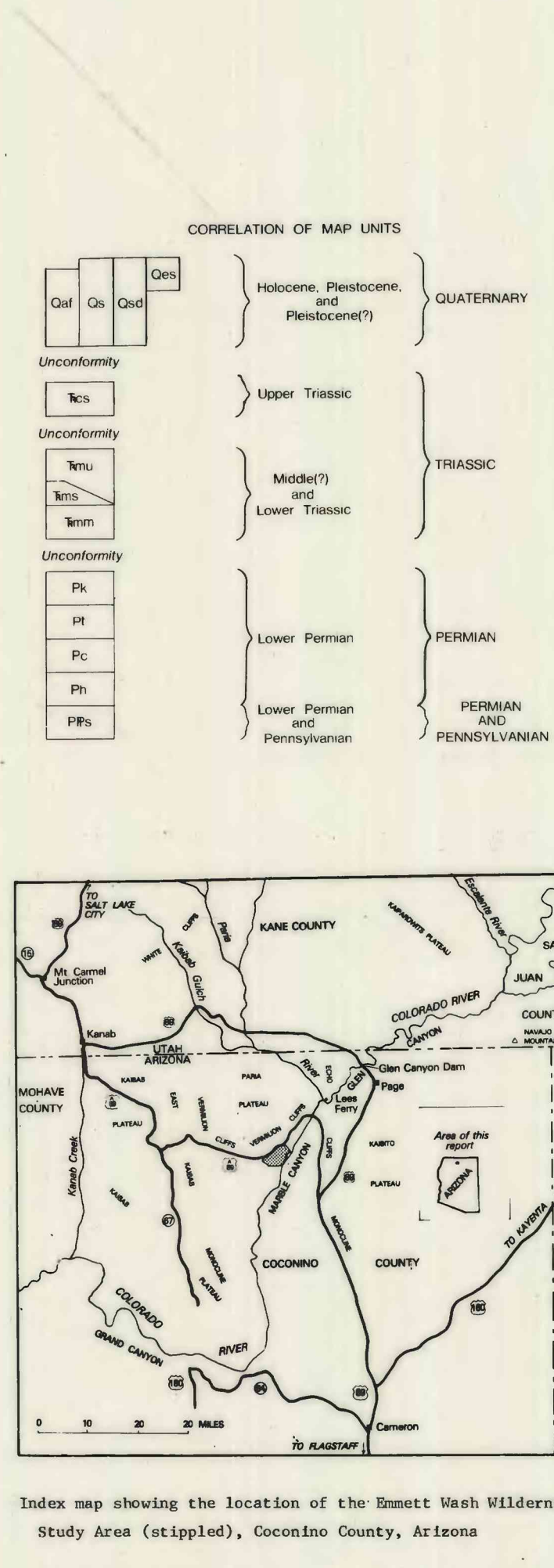


FIGURE 3.--MINERAL RESOURCE POTENTIAL

Table 2.--Selected analyses of stream-sediment samples, Emmett Wash Wilderness Study Area, Arizona. [Iron, magnesium, calcium, titanium, boron, beryllium, lanthanum, and scandium occur in nonanomalous amounts in almost all samples. Except as noted below, silver (0.5), arsenic (200), gold (10), bismuth (10), cadmium (20), molybdenum (5), niobium (20), antimony (100), tin (10), tungsten (50), zinc (200), and thorium (100) were not detected by semiquantitative spectrographic methods at the ppm levels indicated in parentheses; exception: MPB-VPB0969 = 5 ppm. Analytical methods: S, Semiquantitative spectrographic analysis; detection limits in parentheses; NA, Neutron activation analysis; all values in ppm. L, Present but not quantifiable at detection limit; N, Not present. Analysts: Semiquantitative spectrographic analysis, E. L. Moster; Neutron activation analysis, R. D. Bies, M. Coughlin, B. A. Keaten, S. W. Lasater, H. T., Millard, Jr.]

SAMPLE	LATITUDE	LONGITUDE	S-MN (10)	S-BA (20)	S-CO (5)	S-CR (10)	S-CU (5)	S-NI (5)	S-PB (10)	S-SR (100)	S-V (10)	S-Y (10)	S-Zr (10)	NA-TH	NA-U
MPB031e9	36 43 27N	111 45 52W	300	500	7	15	20	10	10	150	70	15	100	8.10	2.54
MPB032e9	36 42 37N	111 46 45W	300	500	5	15	20	7	10	200	30	10	100	9.91	3.52
MPB033e9	36 41 56N	111 47 56W	200	500	L	10	10	L	L	100	20	L	100	5.33	1.23
MPB034e9	36 41 32N	111 48 49W	300	500	5	15	20	L	10	500	50	10	100	6.55	1.82
MPB035e9	36 41 03N	111 50 22W	200	500	N	10	7	5	L	L	20	L	70	3.30	1.28
MPB037e9	36 44 21N	111 45 11W	500	700	7	10	20	5	15	200	50	20	300	9.52	3.17
MPB038e9	36 44 46N	111 44 46W	300	300	L	10	15	N	L	150	20	10	200	3.60	1.33
MPB039e9	36 45 26N	111 42 49W	300	200	7	20	20	15	L	200	30	15	200	6.94	2.35
MPB046e9	36 39 50N	111 49 21W	200	300	N	10	10	N	10	L	30	L	200	13.70	1.50
MPB047e9	36 39 19N	111 49 14W	200	300	N	L	7	N	N	L	20	L	100	10.80	1.49
MPB048e9	36 38 58N	111 49 33W	200	300	L	10	10	7	N	200	20	L	100	14.90	1.16
MPB049e9	36 44 21N	111 42 32W	100	200	N	10	5	5	L	L	10	N	150	3.10	0.95
MPB098e9	36 42 11N	111 46 40W	300	700	5	10	5	5	L	200	30	15	100	7.92	2.23
MPB099e9	36 42 01N	111 46 11W	150	300	N	L	5	N	N	100	15	L	300	3.80	0.96
MPB105e9	36 41 22N	111 47 25W	300	500	L	10	10	N	L	100	30	L	200	6.10	1.94
MPB106e9	36 41 17N	111 47 12W	200	300	N	L	7	5	L	100	15	L	100	3.20	1.12
MPB109e9	36 33 00N	111 52 20W	300	200	5	20	15	10	10	200	30	10	70	6.65	1.49
MPB124e9	36 38 33N	111 48 19W	200	200	L	20	10	10	L	200	20	10	100	4.70	1.83
MPB125e9	36 38 55N	111 47 24W	150	150	N	20	10	10	L	150	15	10	100	3.40	1.80
MPB126e9	36 39 09N	111 47 30W	200	300	N	15	5	N	L	200	20	10	200	2.30	1.66
MPB127e9	36 42 57N	111 45 00W	200	300	L	30	10	7	N	200	20	10	70	3.70	1.59
MPB128e9	36 42 19N	111 44 28W	100	200	N	10	7	N	N	100	20	L	150	2.80	1.38
MPB129e9	36 43 11N	111 43 09W	200	200	L	15	10	N	10	L	50	10	200	5.54	1.77
MPB130e9	36 43 00N	111 42 48W	100	200	N	20	5	5	L	100	15	10	70	3.10	1.13
VPB007e9	36 44 26N	111 45 44W	500	500	10	50	30	20	10	200	70	15	150	7.34	2.23
VPB011e9	36 45 04N	111 45 28W	300	700	5	15	15	5	15	150	50	15	300	5.80	1.66
VPB088e9	36 44 10N	111 46 16W	500	1,000	15	50	50	10	30	300	100	30	1,000	10.40	4.35
VPB096e9	36 42 54N	111 47 30N	300	1,000	7	50	15	5	20	500	100	30	300	12.90	2.66
VPB099e9	36 43 13N	111 46 45W	200	700	7	30	15	10	20	200	50	15	300	3.40	1.24
VPB100e9	36 42 04N	111 48 50W	500	1,000	5	20	20	5	20	200	70	30	1,000	8.28	2.08
VPB101e9	36 42 20N	111 48 10W	200	500	L	20	5	7	L	300	30	N	300	3.30	0.84
VPB103e9	36 41 51N	111 49 38W	500	1,500	10	15	20	5	30	300	100	30	1,000	13.70	4.13
VPB116e9	36 45 12N	111 44 30W	30	700	7	30	30	10	15	500	100	20	500	8.77	1.76

This report is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey Standards.



DESCRIPTION OF MAP UNITS

HOLOCENE, PLEISTOCENE, AND PLEISTOCENE(?)

Qea Light-reddish-brown and light-tan windblown sand and silt, derived locally from the Moenkopi Formation and from the San Rafael and Glen Canyon Groups

Qed Coherent and incoherent masses and mudflows of the Chinle Formation and some boulders and large blocks of angular slide debris from the Glen Canyon Group; present only north of U.S. Highway 89A, the study area boundary

Qaf Alluvial fans consisting of poorly sorted sand and partly rounded fragments of both Triassic and Jurassic rocks

Qe Eolian and fluvial sands and silts, mostly reddish brown, covering large parts of the study area

UPPER TRIASSIC

Tr.ca Chinle Formation
Shinarump Member—White to pale-brown crossbedded conglomeratic sandstone and conglomerate; carbonaceous, uranium- and copper-bearing in places. Crops out as cap rock of prominent bench just west and northeast of study area

MIDDLE(?) AND LOWER TRIASSIC

Tr.mu Moenkopi Formation
Upper red member—Dark reddish-brown silty siltstone, mudstone, and silty claystone, calcaceous, with thin ripple-marked limestone; prominent massive pale-brown sandstone up to 15 m (50 ft) thick (see marker bed at base). Crops out just west and northeast of study area

Tr.ms Shinarump Member—Uniform light-gray-green, gypsiferous, micaceous, noncalcareous, thin-bedded clayey siltstone. Crops out just west and northeast of study area

Tr.mi Middle red member—Uniform, pale-red-brown, micaceous, gypsiferous, noncalcareous, thin-bedded, ripple-marked siltstone and mudstone. Crops out in west and northeast part of study area

LOWER PERMIAN

Pk Kalbar Limestone—Pale-gray to pale-yellow and tan, massive to thick-bedded sandy and cherty dolomitic limestone and dolomite; thin shale interbeds; fossiliferous. Forms the cap rock of the Marble Platform, uppermost lithified unit in most of study area; crops out extensively

Pt Torowapa Formation—Interbedded, light-colored, crossbedded sandstone, dark-red silty mudstone and siltstone, light-gray cherty limestone; horizontally bedded basal sandstones are usually reddish brown. This and underlying units are exposed only in steep canyons along southeast border of study area, and in Marble Canyon

Pc Coconino Sandstone—Light-yellow-gray, tangentially crossbedded sandstone

Ph Hermit shale—Thin-bedded, deep-brownish-red siltstone and shale; thin, discontinuous, lighter colored sandstones are interbedded with the siltstones

P.Ps Supai Formation—In upper third light-colored, medium- to thick-bedded sandstone, interbedded with red-brown siltstone and shale; in lower two-thirds interbedded sandstone and limestone

CONTACT—Includes approximately located or concealed intervals

FAULT—Showing direction of displacement, dashed where approximately located

STRIKE AND DIP OF BEDS

BOUNDARY OF STUDY AREA

GEOLOGY, GEOCHEMISTRY, AND MINERAL-RESOURCE POTENTIAL OF THE EMMETT WASH WILDERNESS STUDY AREA (AZ-010-009), COCONINO COUNTY, ARIZONA