Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes
		192		Less alteration, core recovered broken.
18	95%			
		195		Fracture planes coated with gypsum and kaolin.
				Limonite in biotite grains.
			Quartz monzonite porphyry phenocrysts of orthoclase, chloritized dark minerals, recovered in 6-8 inch lengths to 205.5 feet	
		200		
9	100%			
				Concentration of dark minerals, probably pyrolusite.
		205		
				Quartz pale green and limonite stained possible copper mineralization, rock altered and soft
				Talc alteration of feldspar, pyrolusite on fractures
				Quartz veinlet, Limonite stain and open space quartz crystals.
20	85%	210		
			Granite composition, hematite stain on fractures	
				Quartz veinlet
		210		Talc and kaolin alteration of plagioclase.

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes
	21	216	Quartz monzonite porphyry phenocrysts of orthoclase in a groundmass of plagioclase and quartz, talc alteration in plagioclase, biotite in dark books, dark minerals contain limonite pseudomorphs	
21	100%	220		Vertical fractures and more intense alteration, sericite, kaolin and talc. Quartz veinlet and limonite.
		225		Dark minerals chloritized Concentration of dark minerals.
			Quartz monzonite porphyry	limonite stain in talc alteration Hematite stain on fractures
22	100%	230		More intense fracturing, limonite stained. Chloritization of dark minerals, Plagioclase stained dark brown.
				Hematite stain on fractures
				8/30/68
		235	Quartz diorite	Chlorotization of dark minerals. Pyrolusite dendrites on fractures. Some chlorite, much limonite stain on fractures
23	100%		Quartz monzonite porphyry.	
		239		

Box No.	Core Recovery	Depth	Description	Notes
	240	240	Quartz monzonite porphyry, phenocrysts of orthoclase feldspar in a groundmass of plagioclase and quartz.	
23	90%			Concentration of very fine grained dark minerals. Talc alteration of plagioclase begins again
	245	245		Limonite stain on fractures. Chloritization of dark minerals - Veinlets of chloritic material.
				Bleached plagioclase - veinlet of dark minerals, pyrolusite dendrites on fractures.
	250	250		Carbonate in ~~bedding~~ planes - chloritization in fractures
24	100%			
	255	255		Concentration of stained biotite
25	100%		Quartz monzonite porphyry, contains phenocrysts of orthoclase in a groundmass of plagioclase and quartz	Veinlets of chloritic material. some alteration of dark minerals to chlorite and limonite, pyrolusite dendrites on fractures. Very soft fractured zone, crushed rock saturated with carbonate.
		260		
				Dark minerals altered to limonite. Chloritic zone - quartz veinlets

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued

9/I/68

Box No.	Core Recovery	Depth	Description	Notes
6	100%	265		Chlorite veinlets, sheared and altered zone, soft, wax-like luster.
				Quartz veinlet - soft broken core, chloritized veinlets
		270		Talc alteration.
			Quartz monzonite porphyry, orthoclase phenocrysts, bleached plagioclase.	Limonite pseudomorphs in quartz veinlet, Limonite in talc.
				Biotite is chloritized. Limonite veinlet.
7	90%	275		Soft waxy material in phenocrysts - results from carbonate saturation of extremely soft crushed rock.
		280	Granitic composition.	Talc alteration of plagioclase. Limonite pseudomorphs and quartz veinlet. Bleached zone.
		285	Aphanitic "gabbro" phase, dark green, very heavy and abundant pyrolusite dendrites.	

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

9/4/68

Box No.	Core Recovery	Depth	Description	Notes
		288		Limonite in fractures as small particles
28	90%	290		Rock recovered in tiny fragments.
				Less alteration - orthoclase visible.
			Granite, medium textured orthoclase with chlorite veinlets	Limonite pseudomorphs on fractures.
			quartz content increases to 25-30%, plagioclase increases.	quartz veinlet- chloritic alteration.
29	100%	295	Quartz monzonite porphyry, kaolinized feldspar	
		300		Limonite in association with dark minerals.
30	100%		Quartz monzonite porphyry, phenocrysts of orthoclase	Broken zone. Chloritic veinlets.
				Crushed zone - very soft, no greater alteration than above.
		305		Pyrolusite on fracture surfaces.
			Gradation to granitic composition	Extremely crushed zone - very soft, little alteration.
31	80%	310		Some talc

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

9/4/68

Box No.	Core Recovery	Depth	Description	Notes
		312		More alteration and limonite stain, kaolinization, talc, dark minerals on fractures, sheared, soft, pyrolusite.
31	80%	315		
		316	Quartz monzonite porphyry, alterrating with granite and aphanitic gabbro phase, slickensided and crushed, soft.	Carbonate on fractures. Malachite stain - extremely crushed and sheared at 60 degree angle to depth of 321 feet.
				9/5/68
		320		1/2 inch quartz veinlet, malachite stain and limonite.
			Very soft, kaolinized.	Hematite stain, malachite is also associated with dark minerals
32	90%			
				Pyrolusite dendrites on fractures.
		325		
				Concentration of dark minerals.
			Quartz monzonite porphyry, orthoclase phenocrysts, dark minerals limonite stained or altered, plagioclase bleached, unaltered biotite is present	Some chloritization. Talc alteration of plagioclase
		330		Pyrolusite dendrites on fractures.
33	95%			Concentration of dark minerals, Talc and chlorite alteration, slickensides with 1/8 inch fault gouge
				Concentrationof altered biotite. Talc and chlorite alteration. Some unaltered biotite.
		335		

Kaiser Cement and Gypsum Corporatiom Core Boring KC-1, Core Log, Continued

9/5/68

Box No.	Core Recovery	Depth	Description	Notes
		336	Quartz monzonite porphyry, orthoclase phenocrysts upto 3/4 X 1 inch, bleached plagioclase, some altered biotite, intensely fractured, rock is coherent and hard.	Slickensides, hematite stained. Pyrolusite dendrites on fracture surfaces. Quartz veinlet containing chlorite.
		340		
4	90%			
		345		Biotite is intensively chloritized.
				Broken core zone, unaltered biotite.
5	95%	350	Bleached plagioclase.	
				9/6/68
		355	Quartz monzonite porphyry, phenocrysts of orthoclase, unaltered biotite, some hematite stain, carbonate on fracture planes, bleached plagioclase	Some chloritic stain.
6	100%			
		359		

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

9/6/687

Box No.	Core Recovery	Depth	Description	Notes
36	100%	360	Quartz monzonite porphyry, orthoclase phenocrysts, unaltered black books of biotite are present, some hematite stain, carbonate on fracture surfaces, bleached plagioclase	Concentration of pyrolusite. Chloritic stain on feldspar. Pink stain on plagioclase. Chloritic alteration of biotite, concentration of biotite.
37	100%	365	Aphanitic phase, very fine textured, same composition as coarser textured phase,	Crushed zone, very soft.
			Quartz monzonite porphyry, orthoclase phenocrysts, unaltered biotite, some hematite stain, carbonste on fracture planes, bleached plagioclase.	Pyrolusite on fractures. Chloritic alteration of biotite. 1/8 inch fault gouge on fracture plane.
		370		Epidote stain on fracture.
			Aphanitic (Aplite) same composition as coarser textured phase.	Pyrolusite on fractures.
38	80%	375	Quartz monzonite porphyry, orthoclase phenocrysts, unaltered biotite is present, some hematite stain, bleached plagioclase.	Carbonate on fractures. Rock is sheared - fractures spaced 1/8 inch.
		380	Aphanitic phase, same composition as coarser phase, pegmatitic.	Coarse texture feldspar and tourmaline
		383		1/2 inch quartz vein in 60 degree fractures.

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued

9/7/58

Box No.	Core Recovery	Depth	Description	Notes
39	95%	385	Quartz monzonite porphyry, orthoclase phenocrysts, quartz has granular appearance, possibly altered, unaltered biotite is present associated with chloritic stain in plagioclase.	Hematite stain surrounding biotite. Chloritic stain and altered biotite. Light green silicate alteration of plagioclase - some cubic limonite pseudomorphs. Sulfide voids in 1/2 inch wide 70 degree fracture with quartz veinlet.
		390		pyrolusite dendrites on fractures.
40	95%		Quartz monzonite porphyry, orthoclase phenocrysts, medium textured, biotite is present in black unaltered books and in chloritic altered grains which carry limonite pseudomorphs.	Kaolinized soft altered zone
		395		Closely spaced high angle fracturing is present. Some fractures filled with quartz and carbonate. Cubic limonite pseudomorph in quartz veinlet. Orthoclase appears silicified.
		400		
41	95%		Quartz monzonite porphyry, orthoclase phenocrysts, biotite is chloritized	2 - 1/4 inch veinlets of quartz with cubic limonite pseudomorphs, some hematite stain. Pyrolusite dendrites on bedding planes.
		405		Bleached plagioclase. Unaltered biotite.

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes
41	95%	408	Quartz monzonite porphyry, orthoclase phenocrysts, unaltered biotite	
		410		Very sparse pyrite
42	100%	415		Chlorotized veinlets, hematite stain associated with biotite.
				Very sparse pyrite.
		420	Quartz monzonite porphyry, phenocrysts of orthoclase, unaltered biotite is present.	Aplite zone.
				Sparse grains of pyrite.
		425		
		430	Quartz monzonite porphyry.	

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

9/10/68

Box No.	Core Recovery	Depth	Description	Notes
		432	Quartz monzonite porphyry, orthoclase phenocrysts, unaltered biotite	Very sparse pyrite
44	100%	435		Very sparse pyrite
				Cubic limonite pseudomorph, plagioclase bleached, hematite stain with biotite.
		440	Quartz monzonite porphyry, phenocrysts of orthoclase, unaltered biotite.	
45	100%			Hematite stain on biotite
		445		
				Limonite pseudomorphs associated with chlorite, dendrites of pyrolusite.
			Quartz monzonite porphyry, phenocrysts of orthoclase, biotite is chloritized, bleached plagioclase	
46	97%	450		
				Limonite pseudomorph in veinlet Some crysocolla
		455		

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued

9/10/68

Box No	Core Recovery	Depth	Description	Notes
47	100%	456	Quartz monzonite porphyry, phenocrysts of orthoclase, unaltered biotite, some concentration of dark minerals.	Some chloritized feldspar and biotite. Very sparse pyrite. Crysocolla veinlet in fracture.
		460		
				Abundant limonite in veinlets.
	95%	465	Quartz-monzonite porphyry, orthoclase phenocrysts, unaltered biotite, massive hard rock	
		470		Very sparse pyrite
	95%	475		Aplite and pegmatitic zone 477 - 481 feet.
		479		Copper carbonate stain.

Kaiser Cement and Gypsum Corporation Core Boring KC-1, Core Log, Continued.

9/10/68

Box No.	Core Recovery	Depth	Description	Notes
		480	Quartz monzonite porphyry, orthoclase phenocrysts, biotite altered to chlorite, plagioclase stained with hematite.	Tourmalinein pegmatitic quartz and feldspar
49	80%	485		pyrite, very sparse occurring in grains associated with biotite and in fractures with orthoclase.
			Quartz monzonite porphyry, orthoclase phenocrysts, biotite is unaltered.	pyrite, very sparse
50	100%	490		
		495		pyrite in veinlets and sparse grains.
			Quartz monzonite porphyry	
51	100%	500		pyrite very soft crushed zone

A-11 SAMPLE ANALYSIS LOG

Sample No.	Depth	%Cu
57	503-06'	.11
58	516-20	.20
59	522-28	.10
60	528-34	.06
61	534-38	.05
62	538-48	.05
63	551-52	.07
64	552-57	.05
65	567-74	.06
66	576-80	.07
67	580-85	.06
68	588-93	.15
69	597-602	.19
72	617-22	.13
70	631-39	.08
71	639-40	.05
73	649-54	.05
74	654-58	.05
75	658-62	.05
76	662-67	.07
77	667-72	.06
78	672-77	.07
79	677-81	.05
80	681-86	.06
81	686-91	.14
82	691-95	.05
83	695-700	.06
84	700-705	.06

Hole No. K.C. No. 1

Sample No.	Depth	%Cu	%Mo
86	709-14'	.05	
87	714-20	.05	
88	720-21	.27	
89	721-24	.07	
90	724-28	.06	
91	728-32	.10	
92	732-33	.10	
93	733-38	.05	
94	738-42	.05	
95	742-44	.05	
96	744-46	.08	
97	746-52	.06	
98	752-57	.06	
99	757-61	.05	
100	761-65	.05	
101	765-70	.05	
102	770-75	.05	
103	775-79	.05	
104	779-84	.06	
105	784-89	.06	
106	789-94	.06	
107	794-98	.05	
108	798-803	.06	
109	803-09	.08	.01
110	809.5-10	.10	.02
111	810-15	.08	.01
112	815-18	.13	0
113	818-22	.06	0

KC-1

Box No.	Core Recovery	Depth	Description	Notes.
	100%	502	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, hard, fresh rock, recovered in lengths up to 24 inches	Limonite grains in biotite, pyrolusite dendrites on fracture surfaces. Thin crysocolla coating in vertical fracture with limonite veinlet. Possible sulfide zone with tiny grains.
52	100%	506		
	100%	510	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, hard, fresh rock, recovered in lengths up to 20 inches	Pyrite grain in epidote. Limonite grains in biotite. Pyrolusite dendrites on fractures.
53	100%	514		
	90%	518	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% some alteration to chlorite, limonite, chocolate brown makes up 1 to 2 percent of rock.	Limonite grains in rock up to 1/2 inch in size Grains of crysocolla and limonite make up 1 to 2 percent of rock. Grades into granite from 514 to 519. Abundant limonite grains with a few relict grains of chalcopyrite. Pyrolusite dendrites on fractures.
54	100%	522		Tiny grains of native copper on fractures and in biotite to 528 feet.
55	100%	526	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some zones of biotite are altered to chlorite, very sparse pyrite grains and slight malachite or crysocolla stain.	
	90%	530		
		534		
		538		

Box No.	Core Recovery	Depth	Description	Notes
56	90%	540 544	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some grains medium green having chlorite alteration, hard, unaltered rock, recovered in lengths up to 3 feet.	Limonite grains make up 1/2 to 1 percent of rock
	100%			
57	100%	548 552	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, some zones have alteration of biotite to chlorite, recovered in lengths up to 3 feet, hard, unaltered rock, biotite alteration is probably a deuteric effect, hematite stain on biotite.	Limonite grains in chloritized biotite. Pyrite in orthoclase cleavage in tiny veinlet
	100%	556		
58	90%	560 564	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 3-5% in black platy grains, some biotite grains have chlorite alteration, some red stain associated with biotite, probably hematite, possibly cuprite, recovered in lengths up to 2 feet, some slight alteration near low angle fractures up to 1 inch in thickness	Limonite grains in chloritized biotite. Limonite stained zones 2 inches wide near low angle fracture planes.
59	100%	568 572 576	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 3-5% in black platy grains, some biotite grains have chlorite alteration, some red hematite stain associated with biotite recovered in lengths up to 2 feet, soft, broken, altered zone from 574 to 575 feet	

Box No.	Core Recovery	Depth	Description	Notes
60	100%	578 582	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, some biotite altered to chlorite, some limonite stain near fractures, some limonite grains in biotite, red hematite stain associated with biotite, sparse pyrite in tiny veinlets, some grains of limonite in rock.	Pyrite and possible bornite in tiny vertical fractures. Several pyrite grains present with chlorite altered biotite.
61	90%	586 590	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some plagioclase stained red in association with abundant pyrite and some chalcopyrite.	Abundant pyrite and some chalcopyrite 5 to 10% of rock.
62	100%	594 598 602	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, some epidote and chlorite alteration of biotite, sulfides (pyrite and chalcopyrite) are present in disseminated grains and in veinlets in vertical fractures, hematite red stain in rock forming minerals with pyrite.	Fairly abundant pyrite and chalcopyrite (1/2 to 1% of rock)
63	100%	606 610 614	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some epidote and chlorite alteration of biotite, rare grains of pyrite are present in biotite and altered biotite, slight hematite stain with biotite, hard, fresh rock, recovered in lengths up to 2 feet.	

Box No	Core Recovery	Depth	Description	Notes.
64	100%	616 620	Altered quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, extensive alteration of biotite to chlorite, extends into ramifying veinlets throughout rock, rock is shattered and intensely fractured, incipient alteration of rock forming minerals to chlorite, grains and veinlets of limonite throughout rock, probably pseudomorphs after pyrite and chalcopyrite, no sulfides remain.	Limonite in veinlet with crysocolla coatings.
65	100%	624 628	622 - Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, much of the biotite has some degree of chlorite alteration which extends into microscopic fractures near biotite grains, some grains and veinlets stained with limonite.	Pyrolusite dendrites on fractures. Grains of limonite in high angle fractures to 631 feet.
66	100%	632 636 640	631 - Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some biotite has chlorite and epidote alteration, chlorite stain on mineral grains, some kaolin alteration is present, sparse limonite grains in biotite.	Bright blue grains of possible covellite.
67	100%	644 648	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in altered grains with hematite stain and some chlorite alteration, rock appears green from chlorite content, sparse limonite grains.	Possible chalcocite in tiny grains with quart Sparse limonite grains in fractures.
68	100%	652	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains,	Pyrolusite dendrites in fractures. Tiny sulfide grains in fractures.

Box No.	Core Recovery	Depth	Description	Notes.
			chloritic alteration is present in fractures and in biotite.	Pyrite and chalcopyrite grains with chlorite.
68	100%	654		Pyrite and chalcopyrite zone in veinlets.
	100%			
		658	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, chlorite alteration is present in biotite.	
69	100%	662		Pyrite and chalcopyrite grains in biotite. Epidote stain in feldspars. Limonite stained and limonite grains in fract
	100%	666		Pyrite grains in steeply dipping fractures.
70	100%	670	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some chloritic alteration of biotite throughout interval, hard rock, recovered in lengths up to 2 feet.	Tiny grains of native copper are present in biotite. Tiny sulfide grains with chlorite and quartz. Pyrite and chalcopyrite in vertical veinlet and in isolated grains. Limonite in veinlets following fractures.
		674		Pyrite and chalcopyrite in tiny grains, in fractures, and veinlets to 677 feet.
	15%			
71	100%	678	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, intense alteration of biotite to chlorite in some grains, hard rock, recovered in lengths up to 2 feet.	Pink stain in rock forming minerals with pyrite and possible tiny chalcopite grains. Abundant bright red hematite stain in fractures to 685.
		682		
	100%	686		Intense chlorite alteration.
72	100%	690	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, chloritic alteration is present in biotite grains,	

Box No.	Core Recovery	Depth	Description	Notes.
72	100%	692	upper 4 feet of interval is badly fractured and weathered, lower 6 feet is slightly altered and weathered, recovered in lengths up to 8 inches.	A few tiny microscopic grains of native copper are present.
73	90%	696 700	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some biotite grains are altered to chlorite, hard rock, recovered in lengths up to 1 foot.	Grains of pyrite and possible grains of chalcopyrite with bornite.
		704		Pyrite and pyrolusite or sooty chalcocite in fractures. Disseminated tiny grains of sulfide are presen to 705.
74	100%	708 712	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, chlorite alteration of biotite, limonite grains occur in biotite, very rare pyrite and chalcopyrite grains remain with biotite.	Disseminated tiny sulfide grains rimmed with limonite. One relict chalcopyrite grain remai in occurrence with biotite. Chalcopyrite grains disseminated in core.
75	90%	716 720	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some biotite altered to chlorite.	Veinlet of chalcopyrite and scattered grains of sulfide throughout rock for entire interval. Abundant chalcopyrite in veinlet.
76	100%	724 728	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, hard, fresh rock, recovered in lengths up to 2 feet.	

Box No.	Core Recovery	Depth	Description	Notes.
	100%	730		Pyrite and chalcopyrite in disseminated grains.
	100%	734	Granite, large crystals of orthoclase in a groundmass of smaller quartz grains, very sparse grains of plagioclase biotite 5% in black grains, hard, fresh rock, recovered in lengths up to 2 feet,	
	100%	738	rock is hard, silicified, quartz coatings are present in fractures, some alteration of biotite to chlorite.	
	100%	742	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, chlorite alteration is present in biotite, silicif-	Veinlet of chalcopyrite to 746 feet.
	100%	746	ication ispresent, pyrite and	
	100%	750		
	100%	754	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, chlorite alter- ation is present in plagioclase and in biotite, sparse grains of pyrite and chalcopyrite are present throughout the interval.	Chlorite alteration is present in plagioclase.
	100%	758		
	100%	762	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, chlorite alteration is present in biotite and plagioclase feldspar, tiny grains and veinletssof pyrite and chalcopyrite are present throughout interval	Fault gouge on fractures are incrusted with tiny sulfide grains. Possible steely chalcocite grains with pyrite and chalcopyrite.
		762		

Box No.	Core Recovery	Depth	Description	Notes.
80	100%	768		
81	100%	772 776	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black platy grains, some chloritic alteration of biotite, either chloritic alteration is present in plagioclase or rock approaches granite composition, grains and tiny veinlets of pyrite and chalcopyrite are present throughout interval.	Tiny grains and veinlets of chalcopyrite and pyrite are present throughout interval, probably less than 1/2 percent of rock.
82	95% 95%	780 784 788	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, pyrite and chalcopyrite occur in biotite and in cleavage of feldspars as grains and as tiny discontinuous veinlets, some alteration of biotite to chlorite near tiny fractures, hard, fresh rock,	Possible steely chalcocote grains with pyrit Sparse grains of pyrite and chalcopyrite occ throughout rock.
83	100% 100%	792 796	Quartz monzonite porphyry, top of interval is nearly granite composition, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains, some chlorite alteration is present.	Pyrite and chalcopyrite occur as scatterec grains in dark minerals throughout the interval
84	95%	800 804	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains with some chlorite alteration, Fault gouge and kaolin alteration zones contain abundant sulfides in this interval.	Pyrite and chalcopyrite increasing associat with pink stain in orthoclase. Intense kaolin and sericite altered zone in 60 degree fractures - 5 to 10% sulfides - pyrite and chalcopyrite. More sulfides are present in entire interva probably 1 to 2 percent.

Box No.	Core Recovery	Depth	Description	Notes.
		806		
	17%			Molybdenite - galena white and platy with pyrite.
84				
	95%		Fine textured granite phase- orthoclase and quartz, interspersed with zones of intensely altered rock having horizontal and low angle partings, altered rock contains approximately 1% sulfides, largely pyrite and chalcopyrite.	Molybdenite.
		810		
	90%			
85		814	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, chlorite alteration of biotite and plagioclase, rock is sheared in lower part of interval.	
	95%			Limonite grains after pyrite in altered rock.
		818		Abundant tiny grains of sulfides in 60 degree fractures.
86	100%		Quartz monzonite porphyry, orthoclase feldspar in a groundmass of plagioclase and quartz, biotite 5% in black grains, chloritic alteration in rock, some zones intensely sheared.	
		822		
			Total Depth - 820 feet	

Resume of Core Boring KC-1; Located 25 feet south and 25 feet west of the north center end of claim 6, Section 3, T5S, R11E; and a comparison of conditions between core boring KC-1 and KC-5.

Rock Types Encountered in Core Boring KC-1:

1. Quartz monzonite porphyry consisting of phenocrysts of orthoclase in a groundmass of plagioclase and quartz.

2. Thin intervals containing a fine textured granite phase which may be pegmatitic, some local areas contain crystals of muscovite mica up to 1/2 inch in size. Tourmaline and pseudomorphs of limonite after pyrite?are present in outcrops. Some orthoclase is present as large phenocrysts and the rock containing tiny euhedral quartz crystals may be contained in orthoclase with large crystals in crystallographic continuity. Much of the altered rock encountered in Core Boring KC-5 has a similar occurrence of tiny quartz crystals. The altered rock may be of granite composition rather than quartz monzonite.

3. A rock of diorite composition was encountered between 78 feet and 160 feet depth. Chloritic alteration is present obscuring the original texture of the rock. An outcrop with similar alteration is present 90 feet south of core boring KC-1 and may represent the same rock.

Fault Zones: Zones containing gouge, kaolin, chlorite, and sericite alteration have been encountered at four intervals in core boring KC-1. Intervals at 800 to 810 feet and 573 to 574 feet depth are associated with a low angle set of fractures (30 degrees approximately and varying to 45 degrees).containing fault gouge and/or kaolin and sericite alteration. Mineralization is more intense at these locations, the only molybdenite noted was encountered at 808 to 810 feet depth. Possible faults in the intervals 395 to 365 feet and 320 to 280 feet depth are associated with the granite (possibly pegmatitic) dikes. These zones may be fault zones or possibly result from alteration produced by the granite dikes. An excellent possibility exists that the granite dikes follow low angle fault planes.

Ambiguities exist as to the probable dip of the fault planes which appear to control centers of alteration. In core boring KC-1 the field data and subsurface indications are that major faulting dips north at angles of 30 to 45 degrees. Near core boring KC-5 sericitized zones surrounded abundant dark red hematite or limonite stain dip south at 70 to 80 degrees. In Box "O" wash to the east of section 2, T5S, R11E major fault planes have been observed containing similar mineralization dipping at low angles in both a north and south direction.

Faults, probably later than the thrust faults, trend nearly north-south in the study area and probably tilt the major blocks of rock between faults to the southeast. Alluvium is present over much of section 3 and and the southwest portion of section 2, T5S, R11E. No bedrock was encountered in borings KC-2 and KC-3 to depths of 80 and 72 feet respectively. An area of outcrop occurs with a north 35 east trend across section 2 and section 11, T5S, R11E probably marking a boundary between bedrock exposures and alluvium. A second possibility is that the mineralized rocks are simply silicified and outcrop because of a greater resistance to weathering.

Mineralization and Rock Alteration:

The rock alteration found in the core borings is epidotization, chloritization, kaolinization, and sericitization in varying intensitys. Epidote alteration is present as greenish yellow stain in mineral grains. Theoretically this occurrence marks the earliest stage of rock alteration. Very weak alteration is indicated since no minerals are affected except very susceptible plagioclase feldspars. Chlorite alteration is present as alteration in biotite mica in its commonest occurrences, and near ramifying fracture systems where more intense alteration is present. Chloritization results in removal of sulfide mineralization in most cases - but this condition may result from weathering of sulfides in oxidizing waters near fractures. Sericite and kaolin are formed in fracture planes in widths up to several feet. In addition, thick zones of kaolin and sericite were encountered in core boring KC-5. This alteration indicates active hydrothermal solutions and conditions favorable for massive sulfide mineralization. It is believed that alteration followed low angle fault planes possibly in connection with granite dikes emplaced along the same planes of weakness.

The alteration appears to be cyclic in both core boring locations, but is more intense in core boring KC-5. The hypothetical sequence is ad follows:

The interval for a complete cycle of mineralization described below is 225 to 270 feet.

1. Faulting surrounded by intense kaolin and sericite alteration and chlorite alteration decreasing with distance above and below the intensely altered interval.

2. Sulfide mineralization with pyrite and chalcopyrite mineralization in biotite and in 60 and 85 degree fractures. No sulfides are present in 60 degree fractures except in the deepest portion of core boring KC-1.

3. Orthoclase feldspar is stained with hematite and native copper is associated with this stage of alteration. Probably reducing conditions in a relatively thin interval.

4. Repetition of 2. Pyrite and chalcopyrite present in dark minerals and in fractures.

5. Repetition of 1. Sericite and kaolin alteration with more abundant sulfides.

This sequence has repeated itself in both deep core borings drilled to date. Of course, weathered sequences with no mineralization was encountered in shallower intervals and has the effect of removing sulfides to some extent to the total depth drilled. Several possibilities may account for the mineralization. An excellent possibility is that the postulated faults discussed above were the major conduits of mineralizing hydrothermal solutions and results in alternating strong and weak mineralized zones. A second possibility is that electrical currents produced by weathering produces alternating oxidizing and reducing conditions.

No native copper was present between 800 and 820, therefore, the occurrence at 670 feet is anomalous. Predictions of probable native copper at greater depth is as follows:

870 to 880 feet.
1040 to 1050 feet.
1220 to 1230 feet.
1395 to 1405 feet.

Higher sulfide concentrations were encountered on the same basis at 805 to815 feet depth. Higher sulfide concentrations can be expected at the following depth using the same reasoning process described above.

980 to 990 feet
1155 to 1165 feet
1335 to 1345 feet.

A similar sequence more obscured by alteration is present in core boring KC-5. An intensely hematite stained zone was encountered between 775 and 784 feet which probably is the interval where native copper is to be expected. None was observed - however - the chemical analysis will be the final proof of whether the copper occurrence is present. Using a similar analogy to the sequence described above and an interval of 270 feet native copper is to be expected in the following intervals.

775 to 784 feet
1045 to 1055 feet
1315 to 1325 feet.

Higher sulfide concentrations are to be expected in intervals listed below including molybdenite

515 to 525 feet - completely oxidized
785 to 795 feet
1055 to 1065 feet
1320 to 1330 feet

This information may prove valuable if either boring is deepened or as a guide in evaluating further exploration locations.

Yours very truly,

Robert S. Reppert

Robert S. Reppert.

Resume of Core Boring KC-5, Project - A-11, Located near Florence, Arizona In Section 2, T5S, R11E.

Core Boring KC-5 was drilled to a total depth of 800 feet. The rock encountered was a quartz monzonite porphyry containing altered zones of clay and sericite. Sericite alteration which completely replaces the original rock is present in three major zones at 70 to 110 feet, 205 to 260 feet, and 610 to 670 feet depth.

Sericite and associated altered rocks in the interval from 70 to 110 feet contain a fair abundance of crysocolla mineralization. Surface indications contain the same sequence of alteration and mineralization. Crysocolla in fractures is the outermost mineralized zone on each side of the sericite alteration at depths of 62 to 68 feet and 83 to 89 feet. Hematite as abundant stain and sulfide void fillings occur between the sericite zone and the fracture filling mineralization described above. at depths of 68 to 73 feet and 78 to 83 feet depth. The central portion containing sericite is present in the interval 73-to 78 feet and contains some crysocolla mineralization. The entire zone constitutes a width of 8 to 9 feet in the fracture zone which dips approximately 70 degrees south.

A second ore zone was encountered between 152 and 173 feet depth. Abundant massive pyrolusite is present with some malachite and crysocolla mineralization. Pyrolusite is associated with crushed rock having little alteration. The core is easily split with finger pressure. An excellent possibility exists that a low angle sole fault intersection is present at this depth controlling mineralization.

Sericite and kaolin altered zones in the interval 205 to 260 feet and 610 to 670 feet depth contains no mineralization. Intensely altered and sheared rock alternates with hard unaltered rock recovered in lengths up to three feet.

Resume of Core Boring KC-5, Continued.

Possibly the fractures in the deeper intervals are not in the path of mineralizing solutions whether they are of hydrothermal or ground waters. Deeper fractures may have been sealed by movements along low angle faults. Mineralization in a mine located near the northeast corner of Section 2, T5S, R11E is found below the low angle sole faulting indicating a hydrothermal origin. Apparently the sulphate solutions were not available to carry the copper downward to the water table, or at least the process was not completed. If further drilling is undertaken it is recommended that locations be made to intersect these favorable structural features at prospective intersections.

A number of samples from the prospective ore zones and alteration zones have been submitted for testing. The results of these assays may assist in determining whether further drilling is justified.

Log of hole

Assays for selected intervals - have 8 ore from 62'-85' @ 1.70%

Where are samples < 62' and between 85'-111'

A-11 SAMPLE ANALYSIS LOG

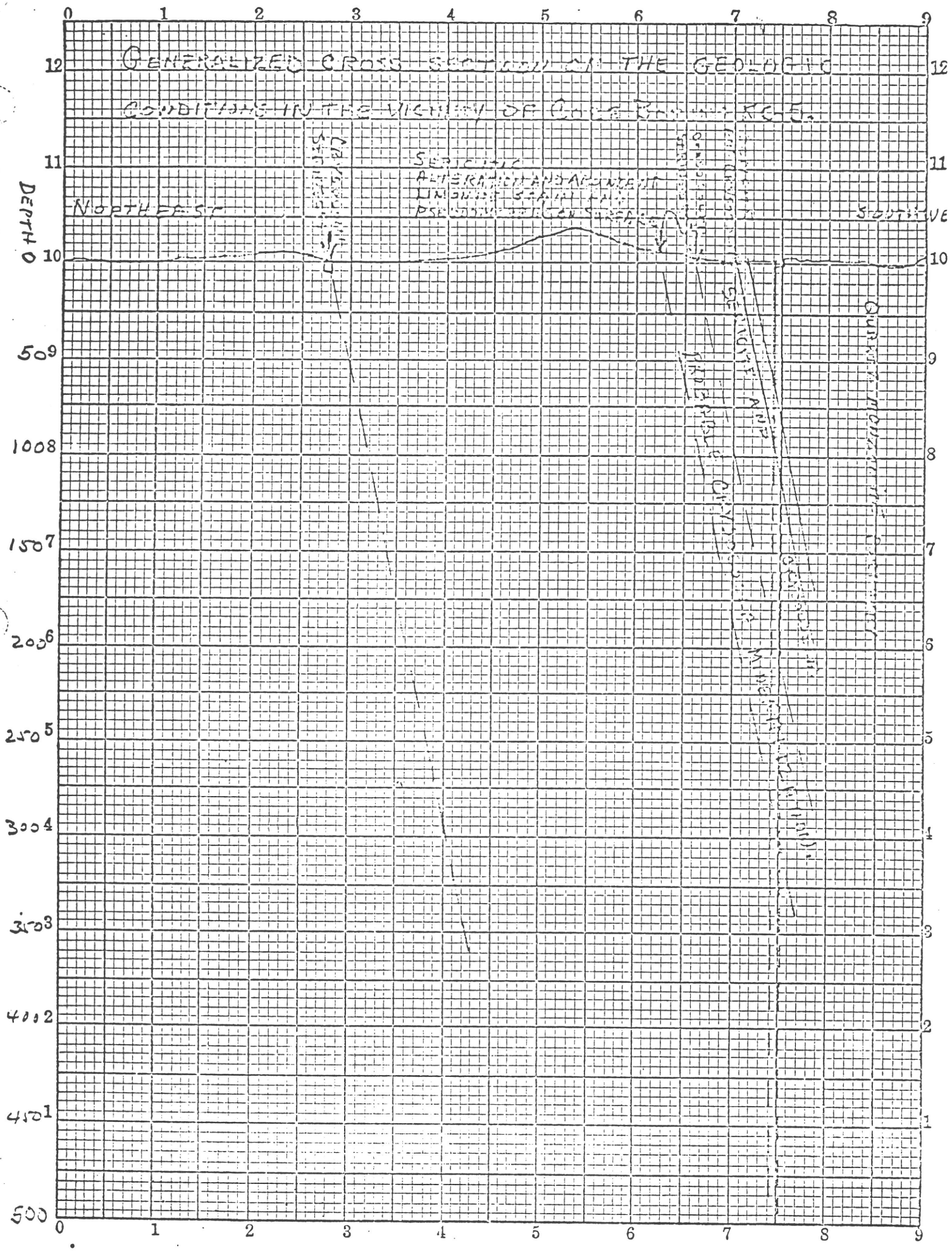
Sample No.	Depth	%Cu
24	62-66.5'	.84
25	66.5-73	.19
26	73-78	.92
27	78-83	.23
28	83-85	2.68
29	111-115	.12
30	158-162	.10
31	162-168	.22
32	168-173	.30
36	180-184	.13
37	188-192	.07
38	198-204	.05
39	209-19	.05
40	225-27.5	.29
41	241-45	.06
42	245-47	.06
43	252-55	.05
44	274-82	.05
45	379-86	.06
46	390.5-393	.05
47	414-17	.05
48	468-77.5	.05
49	528-37	.05
50	537-49	.05

Wt. avg. 23' of 0.70% Cu

162'-184' / 22'@

Hole K.C.-5

Sample	Depth	%Cu
51	549-55'	.05
52	673-74	.05
53	679-91	.04
54	747-58	.05
55	761-65	.04
56	775-84	.05


GENERALIZED CROSS SECTION OF THE GEOLOGIC
CONDITIONS IN THE VICINITY OF
NORTHEAST
SOUTHWEST
DEPTH
0
1
2
3
4
5
6
7
8
9
10
11
12
500
1000
1500
2000
2500
3000
3500
4000
4500

Kaiser Cement and Gypsum Corporation Core Boring KC-5, Core Log

Location: Florence, Arizona; Project A-11; Located 2875 feet from west line and 1800 feet from south line, Section 2, T5S, R11E.

Drillers: R. Collum and R. Carpenter

Core Described By: Robert S. Reppert

CORE RECOVERY 181'8 77.5%

Box No.	Core Recovery	Depth	Description	Notes
1	100%	20–25	Quartz monzonite porphyry, phenocrysts of orthoclase, groundmass is plagioclase and quartz, 5% of rock is unaltered biotite, carbonate and kaolin on fractures, some hematite stain surrounding biotite, plagioclase is altered.	Some chloritic alteration books — Aphanitic zone Chloritic alteration of plagioclase Veinlet with chloritic alteration
	50%	25–30		Very soft broken zone Limonite stain with biotite orthoclase altered to kaolin-contains intergrown tiny quartz crystals
	80%	30–35		Very soft kaolinized zone Quartz veinlet - sheared
2	85%	35	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, 5% of rock is unaltered biotite carbonate and kaolin on steeply dipping fracture planes, some limonite stain surrounding biotite, rock is slightly weathered, badly weathered in fractures	Less weathered rock, some broken zones. Slickensided fractures.

Kaiser Cement and Gypsum Corporation Core Boring KC-5, Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes
2	100%	38		
3	66%	40	Quartz monzonite porphyry, orthoclase phenocrysts in a groundmass of plagioclase and sparse quartz, 5% of sample is unaltered biotite, dark minerals occur in biotite and in plagioclase, rarely inaltered zones of orthoclase, slightly weathered, fractures are limonite stained	Fracture with 1/8 inch fault gouge.
		45		Pyrolusite on fracture planes.
	100%			Bleached plagioclase, epidote alteration of biotite, epidote on fracture surfaces 1/2 inch apart.
		50		Hematite coating on fracture and tiny grains of hematite in feldspar giving a deep red color.
	66%		Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, 5% biotite, weathered, limonite stain associated with biotite, some chloritic alteration of plagioclase or possible malachite stain.	Red stain associated with chloritic alteration.
4	100%	55		Intensely fractured zone. Pyrolusite dendrites on fractures, sericitized biotite associated with limonite stain. Aplite zone
				Limonite grains in light green altered plagioclase.
	35%	60		

Kaiser Cement and Gypsum Corporation Core Boring KC-5, Core Log, Continued.

Box No.	Core Recover	Depth	Description	Notes
	35%	62		Crysocolla coating on fractures - and disseminated grains in rock - slickensides.
	75%			
	66%	65		
5		70		Crysocollareplaces plagioclase and talc alteration. Sericitized monzonite with abundant limonite stain with talc.
	100%			Contains zones of sericitized rock with heavy hematite and limonite stain.
6	100%	75	Sericite, light green, soapy feel, very fine grained, contains zones and grains of crysocolla	
		80	Sericitized monzonite, recovered in small fragments, abundant sulfide voids, rock is extensively stained orange-red to hematite red (Possible vanadium or lead oxidation residues.)	
		85		Crysocolla is present as coatings on fracture surfaces and in disseminated grains, assiciated with abundant pyrolusite

Kaiser Cement and Gypsum Corporation Core Boring RC-9, Core Log, continued.

Box No	Core Recovery	Depth	Description	Notes
7	85%	86	Monzonite porphyry, 5% biotite in black plates, altered with chloritic stain and some crysocolla (10%), zones at top and bottom of interval recovered in small chips and fragments.	Hematite stain and sericitic alteration, slight crysocolla stain. End of crysocolla mineralization.
	70%	90		Chalcedonic quartz stained with chocolate brown limonite.
	100%	95		
	15%		Quartz monzonite porphyry alternating with intensely sericitized rock containing euhedral quartz and hematite and limonite stain.	Intensely altered zone of sericite and quartz, quartz is sometimes epidote colored
8	20%	100		
		105		
		109		Slight malachite stain?

Kaiser Cembnt and Gypsum Corporation, Core Boring KC-5, Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes
8	30%	110		Slight malachite stain?
	100%	115		Concentration of Pyrolusite.
	90%	120	Quartz monzonite porphyry, very soft and broken, some zones sericitized, biotite completely altered in upper 2 feet of interval, unaltered biotite in remainder.	Hematite stain on slickensided surface, veinlets of limonite, sericitized and kaolinized zone, malachite stain
9	100%			Chloritic stain in very soft rock.
	60%	125		Very soft rock - crumbles easily with finger pressure, sericitized with some malachite stain, plagioclase is altered.
	100%	130	Quartz monzonite porphyry, phenocrysta of orthoclase, groundmass is plagioclase and quartz, some chloritic alteration in fractures and plagioclase, very soft and broken in upper and lower portions.	Chlorite stain - possible slight malachite stain.
	10%			

Kaiser Cement and Gypsum Corporation Core Boring KC-5, Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes
		135		Talc like yellowish green alteration of plagioclase
10	100%			Abundant yellowish green alteration of plagioclase, abundant limonite and hematite stain in very soft rock, intensely kaolinized in and near fractures
		140		Chlorite stain - hematite stain in fractures.
	100%		Quartz monzonite porphyry, phenocrysts of orthoclase, groundmass of phaneritic plagioclase and quartz, unaltered biotite is present over much of interval, crushed and broken at top of interval, core is easily split with finger pressure.	
	33%			Crushed, closely spaced fractures with sericiti alteration
		145		Plagioclase bleached, light grayish green stain in plagioclase, malachite? Sericitized zone.
	100%			
	50%		Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, much kaolin and sericite, intensely broken crushed, and slickensided.	Chloritized biotite. Pyrolusite is abundant.
		150		
				Talc coated slickensides.
	70%			
2				Limonite pseudomorphs in rock, Limonite and malachite stain in quartz.
		155		Quartz vein 1 1/2 inches wide with pyrolusite stain.
	95%			Sericitized zone, abundant pyrolusite.
				Slight malachite stain, Veinlets of limonite.

Kaiser Cement and Gypsum Corporation Core Boring KC-5, Core Log, Continued

Box No.	Core Recovery	Depth	Description	Notes
	100%	160		Kaolinized zone with pyrolusite stain. Limonite pseudomorphs, possible malachite stain, massive limonite stain.
	100%		Quartz monzonite porphyry, phenocrysts of orthoclase, groundmass of plagioclase and quartz, rock is very soft, sericitized, abundant slickensided surfaces. The "pyrolusite" evolves chlorine in hydrochloric acid, also gives a green color in nitric acid, possible copper present	Hematite replaces orthoclase, open-space along fractures, voids in replaces orthoclase, some limonite stain - boxwork structure in voids, vertical limonite veinlets. Sericitized zone - very soft, abundant pyrolusite and chlorite.
13	95%	165		Abundance of pyrolusite, sparse malachite stain, possible silver. Abundant pyrolusite up to 30% of rock with quartz vein.
	100%	170	Quartz monzonite porphyry, orthoclase phenocrysts, groundmass of plagioclase and quartz, very soft and broken in upper part of interval to harder in lower portion, alteration has left remnants of unaltered rock shaped like pebbles.	Abundant pyrolusite with some malachite possible silver mineralization. Rock is less altered and harder.
14	100%	175		
		180		

Kaiser Cement and Gypsum Corporation Core Boring KC-5, Core Log, Continued

Box No	Core Recovery	Depth	Description	Notes
	100%	182	Quartz monzonite porphyry, orthoclase phenocrysts in a groundmass of plagioclase and quartz, very soft and broken, much of core can be split with finger pressure, some zones show intense kaolinization and sericitization, mica is biotite	Intensely crushed and slickensided zone.
	100%			Pyrolusite on fracture surfaces. Rock is altered to fine grained sericite and quartz.
	100%	185		
15	60%			Pale green talc alteration of plagioclase, orthoclase stained by hematite.
				Zone of massive orthoclase containing tiny muscovite mica grains.
	80%			Pyrolusite veinlet, intense kaolinization and abundant slickensides, plagioclase bleached.
	30%	190	Quartz monzonite porphyry, orthoclase phenocrysts in a groundmass of plagioclase and quartz, biotite is present in unaltered zones, altered zones contain muscovite, very soft and broken, sericitization and kaolinization.	
				Hematite stain and some alteration.
	100%			Rock is composed of kaolin and quartz with hematite and limonite stain.
				Slight epidote stain, bleached plagioclase.
16		195		
	95%			
				Quartz veinlets, hematite coloration in 1/4 inch fault gouge associated with intense kaolinization.
		200		
	60%		Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, biotite 5% in black grains with some sericite alteration, rock is very soft and broken, slight malachite stain on some fragments, sericite and kaolin alteration.	Slickensides and gouge on fractures. Pink stain on orthoclase.
	66%			Sericite zone - possible slight malachite stain.

Kaiser Cement and Gypsum Corporation Core Boring KC-5, Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes
		205		
17	15%	11		
		10		
		9		
		210		Intense sericitization, some pyrolusite stain.
	80%	8		
		7		
		215		
	60%	6		
				Slickensides and fault gouge in fracture surfaces, intensely kaolinized.
	10%	5	Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz, very soft and broken	
		4	220	
	60%			Slight epidote stain.
		3		
18	100%	2		
		225	Sericite, pale green, soft, bright muscovite grains, white and clayey on fracture surfaces contains 1-3% of grains of micaceous mineral with high luster, black, probably a pyrolusite incrustation.	Pyrolusite in fractures and grains.
	65%	1		Epidote stain in altered rock, Slight malachite stain. Plagioclase altered to green translucent silicate mineral.

Kaiser Cement and Gypsum Corporation Core Boring KC-5 Core Log, Continued.

Box No.	Core Recovery	Depth	Description	Notes.
		12		
	65%		Sericite	
		11	230	Bands of alteration on fracture planes
	100%		Quartz monzonite porphyry	Green silicate stain on plagioclase.
		10	Granite, mosaic of orthoclase and quartz grains, biotite 5% in black platy grains, less broken and harder than rock above, alteration and slickensides on some fracture planes	
19	100%	9		Two inch zone of fine textured gabbro with abundant limonite in contact. Slickensided surface covered with limonite stain and silicate "Antigorite" stain.
			235	
		8		
	100%	7		
		6	240	Red hematite stain in plagioclase, fractures c coated with quartz and carbonate with pyrolusit dendrites. Fractures coated with antigorite stain.
		5	Quartz monzonite porphyry, sericitic alteration, rock consists of quartz, sericite, and 2-3% biotite intergrown with pyrolusite.	Feldspar has some hematite stain- less alteration, quartz veinlet.
	100%	4	Sericite and kaolin, pale green, soft, small amount of pyrolusite present as black grains.	Sericite has epidote stain.
			245 Quartz monzonite porphyry	
	70%	3		
			Sericite and kaolin	
20		2		Plagioclase altered to antigorite? possible slight malachite stain.
	40%	1	250 Kaolin and sericite, very light gray, fine textured, soft.	Pyrolusite present as grains and dark gray coatings.
	75%		Quartz monzonite porphyry, phenocrysts of orthoclase in a groundmass of plagioclase and quartz,	Kaolinized badly altered quartz monzonite