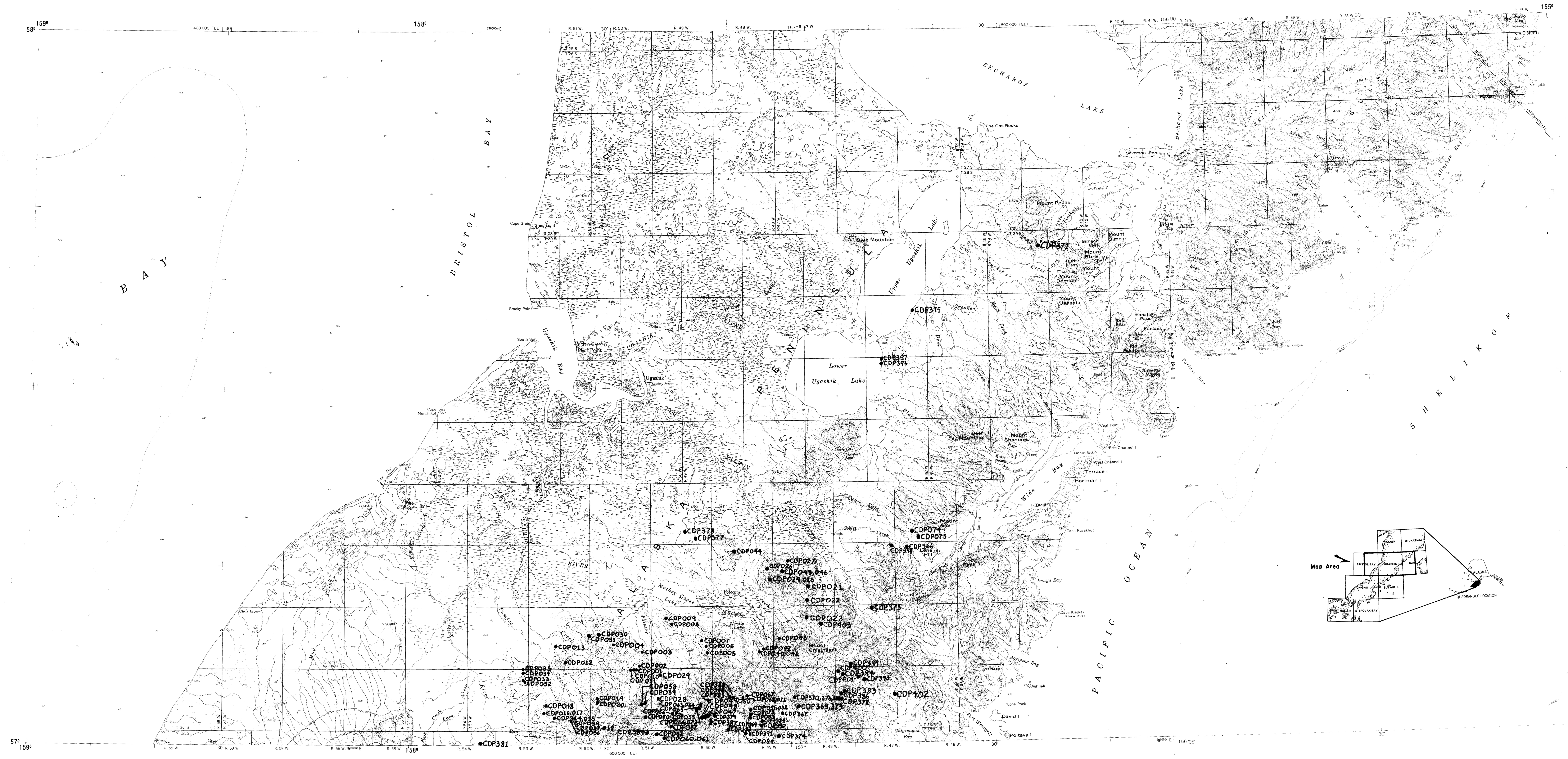
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN-FILE REPORT
80-142



Base From U. S. Geological Survey, 1963

SCALE 1:250 000
25 MILES
25 KILOMETERS
CONTOUR INTERVAL FEET
DATUM IS MEAN SEA LEVEL

Semi-quantitative Spectrographic

Percent — Parts Per Million

LAB NO.	FIELD NO.	LATITUDE	LONGITUDE	Fe%	Mg%	Ca%	Ti%	Mn	Ag	As	Au	B	Ba	Be	Bi	Cd	Co	Cr	Cu	La	Mo	Nb	Ni
CDP001	79Yb001A	57 06 17	157 25 25	5	1	2	.3	1000	N	N	N	10	1500	1	N	N	10	20	50	L	N	N	10
CDP002	79Yb003A	57 06 43	157 24 45	1.5	.2	2	.2	150	N	N	N	N	5000	2	N	N	5	L	7	30	N	N	10
CDP003	79Yb005	57 07 48	157 24 37	5	2	1.5	.7	1000	N	N	N	L	700	1	N	N	20	30	50	N	N	N	20
CDP004	79Yb006C	57 08 16	157 28 59	5	1.5	1.5	.5	700	N	N	N	L	1000	1	N	N	10	30	30	L	10	N	20
CDP005	79Dt001	57 07 38	157 14 20	5	3	1	1	500	N	N	N	20	700	1	N	N	20	30	100	20	N	L	50
CDP006	79Dt002	57 08 10	157 14 30	5	1	1.5	.7	300	N	N	N	10	1000	1	N	N	10	50	50	L	N	N	30
CDP007	79Dt004	57 08 39	157 15 10	5	.7	.2	.5	1000	N	N	N	30	1500	1	N	N	15	50	20	L	10	N	70
CDP008	79Dt005	57 10 00	157 19 42	3	.5	.5	.5	500	N	N	N	10	1000	1	N	N	7	20	10	N	N	N	15
CDP009	79Dt006	57 10 39	157 20 50	5	3	3	1	700	N	N	N	10	300	1	N	N	20	100	70	L	N	L	70
CDP010	79Yb008A	57 06 13	157 25 55	7	1.5	1	.7	1000	N	N	N	L	700	L	N	N	20	50	30	N	N	N	30
CDP011	79Yb009A	57 06 13	157 26 05	.7	.15	1.5	.15	100	N	N	N	N	3000	2	N	N	N	L	5	20	N	N	5
CDP012	79Dt007	57 06 53	157 36 29	5	5	3	1	1000	N	N	N	L	200	1	N	N	30	200	100	N	N	L	200
CDP013	79Dt010	57 08 12	157 38 01	5	5	3	1	700	N	N	N	L	300	L	N	N	50	200	50	N	N	N	150
CDP014	79Dt016A	57 02 12	157 38 13	10	2	3	G1	1500	N	N	N	10	1000	1.5	N	N	30	20	100	30	N	N	15
CDP015	79Dt016B	57 02 12	157 38 13	3	1.5	1	.3	1000	N	N	N	L	300	2	N	N	10	10	7	N	N	N	15
CDP016	79Dt017A	57 02 36	157 39 43	5	2	1.5	.5	1000	N	N	N	10	700	1	N	N	20	100	50	N	N	N	30
CDP017	79Dt017B	57 02 36	157 39 43	2	.5	1	.3	500	N	N	N	N	1500	2	N	N	5	L	L	20	N	N	5
CDP018	79Dt019	57 03 15	157 39 29	5	2	1.5	1	1000	N	N	N	10	1000	1	N	N	15	30	100	20	N	L	10
CDP019	79Yb016	57 03 45	157 31 24	10	3	2	1	1500	N	N	N	10	500	L	N	N	20	50	20	30	N	N	20
CDP020	79Yb018	57 03 31	157 31 28	5	2	.7	.3	700	L	N	N	15	700	1	N	N	7	20	15	20	N	L	10
CDP021	79Dt020	57 13 09	156 58 51	3	1.5	2	.2	1500	N	N	N	N	700	1	N	N	10	70	7	N	L	N	[illegible]
CDP022	79Dt024	57 12 02	156 58 30	3	1.5	10	.2	2000	N	N	N	70	500	1	N	N	15	100	50	N	10	N	50
CDP023	79Dt029	57 12 00	156 58 50	3	2	2	.5	1500	N	N	N	3	500	1	N	N	15	150	20	20	N	N	100
CDP024	79Yb031B	57 13 45	157 04 32	2	1.5	1	.2	700	N	N	N	20	500	1	N	N	10	150	30	N	N	N	70
CDP025	79Yb031C	57 13 47	157 04 34	3	1.5	2	.3	500	N	N	N	L	300	1	N	N	10	50	150	N	N	N	20
CDP026	79Yb035	57 14 43	157 04 58	5	1.5	2	.3	500	N	N	N	10	300	L	N	N	7	150	50	N	L	N	100
CDP027	79Yb040	57 15 17	157 01 41	2	1	1.5	.15	500	N	N	N	15	500	1	N	N	7	30	30	N	L	N	30
CDP028	79Ce004B	57 03 50	157 21 59	3	1.5	.2	.5	700	N	N	N	10	300	L	N	N	15	20	20	N	N	N	20
CDP029	79Ce007	57 05 48	157 21 50	3	1	.5	.3	500	N	N	N	20	500	L	N	N	5	20	15	N	N	N	15
CDP030	79Ce009A	57 09 12	157 31 07	5	3	3	.5	700	N	N	N	L	300	1	N	N	20	200	100	N	N	N	200
CDP031	79Ce012A	57 09 08	157 32 50	5	3	2	.7	500	N	N	N	L	200	L	N	N	30	150	100	N	N	N	150
CDP032	79Ce017A	57 05 12	157 42 45	3	2	2	.5	500	N	N	N	L	200	1	N	N	20	150	70	N	N	L	200
CDP033	79Ce018A	57 05 21	157 43 01	3	2	2	.3	500	N	N	N	L	150	L	N	N	15	100	30	N	N	N	50
CDP034	79Ce020A	57 05 57	157 43 04	5	2	3	.3	700	N	N	N	L	100	L	N	N	20	100	20	N	N	N	150
CDP035	79Ce021A	57 06 17	157 43 02	1.5	.2	.5	.1	200	N	N	N	10	300	L	N	N	5	L	7	N	N	N	15
CDP036	79Ce022A	57 02 01	157 35 32	5	.5	1	1	700	N	N	N	L	200	L	N	N	7	20	150	L	N	N	20
CDP037	79Ce022B	57 02 02	157 35 30	3	1.5	1	.2	700	N	N	N	L	500	L	N	N	7	30	15	N	N	N	20
CDP038	79Ce022D	57 02 07	157 35 24	3	1	5	.2	G5000	N	N	N	L	200	L	N	N	5	20	7	50	N	N	15
CDP039	79Ce022F	57 02 07	157 35 13	3	1.5	1	.5	500	N	N	N	L	200	L	N	N	7	20	10	N	N	N	10
CDP040	79Ce023	57 07 45	157 06 17	1.5	.15	1.5	.2	1000	N	N	N	50	100	L	N	N	5	20	10	N	N	N	20
CDP041	79Ce023C	57 07 44	157 06 07	3	.7	.7	.3	300	N	N	N	70	300	1	N	N	7	70	30	L	N	N	70
CDP042	79Ce026B	57 07 54	157 05 38	3	1.5	.3	.3	700	N	N	N	20	500	L	N	N	10	30	50	N	N	N	70
CDP043	79Ce032A	57 08 53	157 03 20	5	1.5	2	.3	700	N	N	N	10	300	L	N	N	15	15	15	N	N	N	15
CDP044	79Ce037	57 16 03	157 10 08	5	2	2	.5	1000	N	N	N	L	200	L	N	N	20	100	50	N	N	N	50
CDP045	79Ce040A	57 14 26	157 02 39	2	1	1.5	.2	1500	.7	N	N	10	700	1	N	N	10	50	50	N	N	N	20
CDP046	79Ce040	57 14 23	157 02 35	2	1	.05	.2	1500	1.5	N	N	20	500	L	N	N	5	20	50	N	N	N	10
CDP047	79Ce045B	57 02 18	157 14 34	10	2	1.5	.5	1000	L	N	N	50	1000	1	N	N	20	150	150	30	7	N	100
CDP048	79Ce045C	57 02 15	157 14 48	5	1.5	1	.3	700	N	N	N	30	700	L	N	N	10	50	30	L	N	N	50
CDP049	79Ce047A	57 02 09	157 15 11	3	1	.07	.2	700	N	N	N	70	500	1	N	N	7	30	10	N	N	N	30
CDP050	79Ce048	57 02 12	157 15 26	7	3	1.5	.5	1000	N	N	N	50	1000	1	N	N	20	100	100	L	N	L	100
CDP051	79Ce050A	57 02 37	157 07 04	3	3	1	.5	500	N	N	N	15	700	1	N	N	15	50	20	L	N	L	50
CDP052	79Ce050B	57 02 37	157 07 04	2	.15	1.5	.3	300	N	N	N	50	150	1	N	N	10	20	15	L	N	N	30
CDP053	79Ce052A	57 02 03	157 07 41	3	.3	1	.5	500	N	N	N	100	200	1.5	N	N	10	50	30	L	N	N	70
CDP054	79Ce055A	57 00 46	157 08 42	5	1.5	2	.3	700	N	N	N	30	1000	1	N	N	10	70	5	L	N	N	70
CDP055	79Ce057	57 02 33	157 19 11	1	.15	.05	.3	30	N	N	N	50	70	1	N	N	5	70	15	N	N	L	30
CDP056	79Ce059B	57 02 34	157 19 37	.5	.1	.15	.07	500	N	N	N	100	300	2	N	N	N	L	N	N	N	L	5
CDP057	79Ce060A	57 01 30	157 19 52	5	1.5	1	.7	700	N	N	N	10	1000	1	N	N	15	70	30	L	N	N	30
CDP058	79Yb045	57 03 18	157 24 28	3	.7	1	1	1000	L	N	N	50	1000	1.5	N	N	N	50	30	N	N	N	5
CDP059	79Yb046A	57 03 23	157 24 15	10	2	2	.7	1000	N	N	N	20	200	1	N	N	20	30	7	30	N	L	30
CDP060	79Yb049A	57 01 29	157 21 17	2	.7	5	.2	2000	N	N	N	30	500	L	N	N	7	70	20	N	N	N	50
CDP061	79Yb049B	57 00 29	157 21 17	5	1.5	.2	.5	700	L	N	N	50	1000	1.5	N	N	20	150	150	20	N	N	100
CDP062	79Yb052	57 00 48	157 22 19	5	2	1	.5	1000	N	N	N	20	1000	1	N	N	20	100	50	L	N	N	70
CDP063	79Dt045A	57 03 07	157 15 24	5	1	.5	.3	1500	.5	N	N	20	500	1	N	N	10	50	100	N	N	N	30
CDP064	79Dt045B	57 03 07	157 15 24	15	.7	3	.2	3000	1	N	N	15	200	L	N	N	10	70	300	N	N	N	20
CDP065	79Dt045D	57 02 56	157 15 30	10	5	5	1	1000	N	N	N	10	300	1	N	N	70	300	100	L	N	N	300
CDP066	79Dt045E	57 03 00	157 16 05	1.5	.07	.15	.05	700	L	N	N	30	1500	1.5	N	N	N	L	10	L	N	L	5
CDP067	79Dt048	57 04 00	157 08 20	5	3	2	.7	1000	N	N	N	70	700	L	N	N	50	200	100	L	N	N	150
CDP068	79Dt049A	57 03 45	157 08 45	3	1.5	1	.3	500	.5	N	N	70	700	1	N	N	15	100	100	N	N	N	100
CDP069	79Dt050	57 01 38	157 05 58	5	2	2	.5	700	N	N	N	20	500	L	N	N	15	20	30	N	L	N	20
CDP070	79Dt054	57 02 15	157 24 15	10	3	3	1	2000	N	N	N	10	300	L	N	N	20	50	L	N	N	N	20
CDP071	79Dt049B	57 03 45	157 08 45	3	1	1.5	.5	300	N	N	N	50	1000	1	N	N	5	10	15	N	N	L	10
CDP072	79Dt045F	57 03 00	157 16 05	1.5	.15	.7	.07	2000	N	N	N	50	700	2	N	N	N	N	30	N	5	L	10
CDP073	79Ce051A	57 02 20	157 07 37	.3	2	1.5	.5	1000	N	N	N	50	700	1	N	N	30	70	30	N	N	N	50
CDP074	79Dt066A	57 17 40	156 42 12	5	1	1.5	.7	700	N	N	N	20	500	1	N	N	15	50	30	N	N	N	30
CDP075	79Dt067A	57 17 08	156 41 29	5	2	5	.7	1000	N	N	N	20	500	1	N	N	20	20	100	N	L	N	20
CDP366	79Ce065A	57 16 20	156 43 10	3	1	1.5	.5	1000	N	N	N	N	500	1	N	N	7	30	30	N	N	N	20
CDP367	79Ce082A	57 02 29	157 02 42	3	7	15	.2	3000	N	200	N	N	30	L	N	N	L	15	10	N	N	N	5
CDP368	79Dt083	57 03 48	157 10 50	3	1.5	1	.7	3000	N	N	N	N	300	L	N	N	7	30	20	N	N	N	20
CDP369	79Dt091A	57 03 09	157 00 19	5	2	3	1	500	N	N	N	100	200	1.5	N	N	10	100	100	N	5	N	30
CDP370	79Ws011B	57 03 54	157 01 03	3	1	.15	.5	700	N	N	N	70	300	1	N	N	5	100	15	N	5	L	20
CDP371	79Dt131	57 41 25	156 21 41	10	3	3	G1	1000	N	N	N	20	500	L	N	N	15	70	100	N	N	N	50
CDP372	79Dt099	57 03 42	156 53 32	10	1.5	.7	.7	700	N	N	N	20	500	1	N	N	10	15	5	N	N	N	7
CDP373	79Dt091B	57 03 09	157 00 19	5	2	2	.7	700	N	N	N	30	500	1	N	N	10	20	20	N	N	N	30
CDP374	79Ws503	57 00 33	157 03 23	5	2	1	.5	700	N	N	N	20	300	1	N	N	10	20	15	N	N	N	30
CDP375	79Ce089A	57 11 16	156 49 01	3	1.5	1.5	.3	700	N	N	N	N	300	L	N	N	7	30	15	N	N	N	20
CDP376	79Ws011A	57 03 54	157 01 03	7	2	.3	1	1000	N	N	N	50	500	1	N	N	30	300	150	N	N	N	200
CDP377	79Ce086A	57 17 16	157 16 05	10	5	5	G1	1000	N	N	N	L	100	L	N	N	50	100	30	N	N	N	100
CDP378	79Ce085A	57 17 49	157 18 12	10	2	3	G1	700	N	N	N	N	200	1	N	N	30	300	20	N	N	N	200
CDP379	79Ce075B	57 02 31	157 13 22	10	2	1	.7	1000	N	N	N	30	500	1	N	N	15	50	50	N	N	N	50
CDP380	79Ws011C	57 03 54	157 01 03	5	2	2	.5	700	N	N	N	N	300	L	N	N	15	30	10	N	N	N	30
CDP381	79Dt077	57 00 02	157 49 40	15	3	3	1	1500	N	N	N	L	500	1	N	N	20	15	150	N	N	N	15
CDP382	79Ce072A	57 01 08	157 11 03	5	2	2	.5	1000	N	N	N	15	300	1	N	N	10	15	15	N	N	N	7
CDP383	79Dt100	57 04 20	156 53 10	10	.7	L	.5	200	.5	N	N	70	200	1	N	N	5	50	100	N	N	N	15
CDP384	79Ce077	57 01 53	157 05 57	10	2	.1	.3	1000	N	N	N	30	150	1	N	N	30	100	150	N	N	N	100
CDP385	79Ws008	57 03 30	157 13 53	G20	L	L	.015	30	L	N	N	L	N	L	N	N	5	L	500	N	150	N	70
CDP386	79Dt099A	57 04 05	156 53 30	10	2	.7	.7	700	N	N	N	N	300	1	N	N	15	15	15	N	N	N	10
CDP387	79Ce073	57 01 53	157 13 55	10	3	3	.7	1000	N	N	N	15	200	L	N	N	20	20	30	N	N	N	15
CDP388	79Dt084	57 03 39	157 10 41	7	3	1.5	.7	1500	N	N	N	10	300	1	N	N	15	50	50	N	N	N	30
CDP389	79Ws007	57 00 55	157 24 06	10	2	.5	.3	500	N	N	N	50	700	1.5	N	N	5	15	30	N	N	N	5
CDP390	79Ce079	57 01 25	157 06 01	5	.5	L	.7	200	N	N	N	70	300	L	N	N	5	150	10	N	N	N	30
CDP391	79Ws009	57 00 48	157 07 47	10	1	2	.7	300	N	N	N	L	300	L	N	N	10	10	10	N	N	N	5
CDP392	79Dt103	57 05 58	156 48 40	7	2	2	.7	500	N	N	N	N	200	1	N	N	10	50	20	N	N	N	20
CDP393	79Dt103A	57 04 41	156 48 41	10	2	1.5	.5	700	N	N	N	N	500	1	N	N	15	50	30	N	N	N	20
CDP394	79Ce094A	57 05 45	156 53 17	10	3	3	.7	700	N	N	N	N	300	1	N	N	15	100	20	L	N	N	50
CDP395	79Dt113	57 36 19	156 41 55	15	3	5	G1	1000	N	N	N	10	200	L	N	N	20	30	15	N	N	N	30
CDP396	79Dt128	57 31 56	156 46 40	15	2	3	1	1000	N	N	N	30	200	L	N	N	10	50	15	N	N	N	20
CDP397	79Dt129	57 32 20	156 46 30	15	3	1.5	G1	1000	N	N	N	20	150	L	N	N	50	150	20	N	N	N	50
CDP398	79Yb053A	57 16 30	156 45 35	3	.7	1	.3	500	N	N	N	N	300	1	N	N	5	20	7	N	N	N	20
CDP399	79Yb065A	57 06 42	156 52 10	10	3	1	.7	700	N	N	N	50	300	L	N	N	20	100	70	N	N	N	50
CDP400	79Yb066A	57 05 59	156 53 53	10	1.5	.15	.5	200	N	N	N	100	500	1.5	N	N	15	100	30	20	N	N	200
CDP401	79Yb067A	57 05 38	156 50 49	10	2	5	1	700	N	N	N	20	500	1	N	N	15	30	10	L	N	N	30
CDP402	79Yb069A	57 04 14	156 45 15	3	.7	1	.7	700	N	N	N	N	100	1	N	N	L	L	5	N	N	N	5
CDP403	79Dt143C	57 10 00	156 56 43	10	2	1.5	.5	500	N	N	N	20	300	1	N	N	7	70	30	N	N	N	30

Parts Per Million (continued) — Atomic Absorption

LAB NO.	Pb	Sb	Sc	Sn	Sr	V	W	Y	Zn	Zr	Th	Au	Cu	Pb	Zn	Rock/Outcrop Description	Sample Type
CDP001	L	N	30	N	700	300	N	30	L	100	N	N(.05)	50	30	75	mafic sandstone	background
CDP002	20	N	10	N	1000	70	N	70	L	200	N	N	5	35	45	silicic sandstone	background
CDP003	15	N	50	N	200	300	N	50	N	150	N	N	25	20	90	pebblestone	background
CDP004	10	N	50	N	500	300	N	50	L	200	N	N	25	10	60	intermediate sill	mineralized
CDP005	L	N	50	N	500	500	N	30	N	150	N	N	45	25	75	mafic dike	mineralized
CDP006	10	N	30	N	500	300	N	30	L	100	N	N	35	20	100	sandstone	background
CDP007	10	N	20	N	100	200	N	50	L	100	N	N	20	20	90	feldspathic sandstone	background
CDP008	L	N	30	N	200	150	N	30	N	100	N	N	15	20	75	volcanic sandstone	background
CDP009	L	N	50	N	1000	300	N	30	N	100	N	N	40	15	45	gabbroic dike	mineralized
CDP010	15	N	50	N	300	300	N	50	N	100	N	N	20	20	95	feldspathic sandstone	background
CDP011	10	N	10	N	1000	50	N	50	N	150	N	N	5	35	45	silicic sill	mineralized
CDP012	10	N	50	N	700	300	N	50	L	150	N	N	50	15	50	basalt porphyry	background
CDP013	L	N	50	N	700	500	N	30	N	100	N	N	50	20	45	basalt porphyry	background
CDP014	L	N	70	N	500	500	N	70	L	150	N	N	60	30	70	diorite sill	background
CDP015	15	N	20	N	150	100	N	30	L	150	N	N	5	20	45	sandstone	background
CDP016	10	N	30	N	200	300	N	30	L	70	N	N	35	20	20	mafic sill	background
CDP017	15	N	10	N	700	50	N	50	L	150	N	N	5	25	50	sandstone	background
CDP018	15	N	30	N	500	300	N	70	L	150	N	N	60	25	100	diorite	background
CDP019	15	N	50	N	300	500	N	100	L	150	N	N	10	25	90	sandstone	background
CDP020	20	N	20	N	200	150	N	70	N	200	N	N	15	20	60	shale	background
CDP021	L	N	20	N	500	200	N	20	L	100	N	N	10	20	45	diorite	background
CDP022	10	N	30	N	500	200	N	50	L	100	N	N	30	30	60	sandstone	background
CDP023	10	N	30	N	200	200	N	50	L	200	N	N	10	15	30	sandstone	background
CDP024	10	N	20	N	200	200	N	15	500	70	N	N	30	25	400	andesite dike	mineralized
CDP025	N	N	30	N	700	500	N	20	L	70	N	N	100	15	65	andesite dike	mineralized
CDP026	L	N	20	N	500	300	N	15	L	100	N	N	40	20	45	intrusive	mineralized
CDP027	L	N	15	N	500	200	N	15	L	100	N	N	55	25	85	dike	mineralized
CDP028	15	N	30	N	200	300	N	20	L	100	N	N	30	30	100	conglomeratic sandstone	background
CDP029	15	N	30	N	200	300	N	15	N	100	N	N	20	15	35	hornfels	mineralized
CDP030	L	N	30	N	700	300	N	20	L	70	N	N	30	20	35	basalt flow	background
CDP031	L	N	50	N	500	500	N	30	L	100	N	N	55	20	50	basalt	background
CDP032	N	N	30	N	700	300	N	20	L	100	N	N	30	15	35	basalt	background
CDP033	N	N	30	N	500	200	N	20	L	70	N	N	45	20	35	basalt	background
CDP034	N	N	50	N	300	300	N	20	L	70	N	N	70	20	40	basalt	background
CDP035	N	N	10	N	200	50	N	L	N	70	N	N	15	10	35	andesite/dacite	mineralized
CDP036	L	N	70	N	500	500	N	50	200	100	N	N	250	25	120	mafic porphyry	background
CDP037	10	N	20	N	200	300	N	30	N	70	N	N	25	25	70	feldspathic sandstone	background
CDP038	L	N	30	N	200	200	N	50	N	50	N	N	15	35	65	sub-graywacke	background
CDP039	L	N	30	N	300	300	N	20	L	100	N	N	15	25	70	conglomerate	background
CDP040	N	N	15	N	100	100	N	10	N	20	N	N	20	15	50	feldspathic sandstone	background
CDP041	15	N	20	N	100	200	N	30	L	100	N	N	55	30	120	shale	background
CDP042	L	N	20	N	100	200	N	20	L	50	N	N	60	25	85	arkosic sandstone	background
CDP043	L	N	30	N	500	300	N	30	L	100	N	N	15	15	15	dacite tuff	background
CDP044	10	N	50	N	500	500	N	30	L	70	N	N	55	30	40	basalt breccia	background
CDP045	L	N	20	N	700	200	N	20	500	50	N	N	55	15	360	dacite	background
CDP046	70	N	15	N	N	150	N	10	200	70	N	N	65	140	190	dacite	mineralized
CDP047	L	N	50	N	500	500	N	70	N	100	N	N	50	20	45	hornfels/siltstone	background
CDP048	15	N	30	N	200	300	N	20	L	100	N	N	30	35	85	sandstone	background
CDP049	N	N	15	N	L	100	N	15	L	70	N	N	10	10	50	sandstone	background
CDP050	10	N	50	N	1000	300	N	30	L	100	N	N	55	20	85	siltstone	background
CDP051	10	N	30	N	1000	200	N	20	N	150	N	N	20	15	50	dacite	background
CDP052	L	N	20	N	200	150	N	20	L	150	N	N	25	15	45	dacite	mineralized
CDP053	L	N	20	N	300	200	N	20	L	100	N	N	35	15	60	andesite/dacite	mineralized
CDP054	10	N	20	N	700	300	N	20	L	100	N	N	10	20	60	andesite/dacite	background/mineralized
CDP055	N	N	20	N	N	100	N	L	L	70	N	N	55	15	95	siltstone/shale	background
CDP056	L	N	5	N	100	15	N	20	L	50	N	N	L(5)	15	10	dacite/rhyolite	background
CDP057	15	N	50	N	500	300	N	50	L	100	N	N	30	25	100	shale/siltstone	background
CDP058	30	N	50	N	700	300	N	20	L	150	N	N	25	35	20	sandstone	mineralized
CDP059	15	N	50	N	150	300	N	50	L	150	N	N	10	30	40	dike	mineralized
CDP060	L	N	20	N	300	200	N	30	L	70	N	N	25	25	40	sandstone	background
CDP061	20	N	30	N	200	500	N	20	L	150	N	N	100	35	110	shale	background
CDP062	10	N	30	N	500	300	N	30	N	150	N	N	40	20	55	sandstone	background
CDP063	10	N	20	N	150	150	N	10	200	70	N	N	45	20	150	diorite	background
CDP064	30	N	15	L	100	100	N	10	500	50	N	N	160	55	180	sandstone/siltstone	background
CDP065	L	N	50	N	700	500	N	50	700	150	N	N	50	30	400	siltstone	background
CDP066	30	N	5	N	L	N	N	15	1000	50	N	N	15	35	700	dike	background
CDP067	N	N	50	N	1500	300	N	30	N	100	N	N	45	20	60	porphyritic andesite	background
CDP068	15	N	30	N	300	300	N	30	L	70	N	N	65	25	120	siltstone	background
CDP069	10	N	30	N	500	300	N	20	L	100	N	N	10	10	5	dacite	background
CDP070	L	N	70	N	200	700	N	70	200	150	N	N	5	15	95	sandstone	background
CDP071	L	N	20	N	200	200	N	30	N	100	N	N	10	10	10	sandstone	background
CDP072	20	N	5	N	100	L	N	20	2000	50	N	N	30	30	1200	sill	background
CDP073	N	N	20	N	1500	300	N	20	N	150	N	N	30	15	35	andesite/dacite	background
CDP074	L	N	20	N	500	300	N	20	L	50	N	N	25	15	60	sandstone	background
CDP075	L	N	50	N	300	500	N	50	N	100	N	N	45	15	15	diorite	background
CDP366	10	N	7	N	1000	100	N	N	N	10	N	N	25	10	35	sandstone	background
CDP367	L	N	5	N	300	70	N	L	N	20	N	N	15	H35	60	carbonate vein	mineralized
CDP368	L	N	15	N	200	200	N	10	500	50	N	N	25	10	420	sandstone	background
CDP369	10	N	20	N	500	300	N	20	N	70	N	L(.05)	85	H25	60	andesite	background
CDP370	20	N	15	N	1000	150	N	20	N	50	N	N (.05)	35	30	35	sericitically altered rock	mineralized
CDP371	10	N	20	N	300	300	N	15	N	30	N	N	65	20	90	siltstone	background
CDP372	10	N	15	N	700	200	N	15	N	150	N	N	10	15	65	andesite	background
CDP373	10	N	15	N	1000	200	N	10	N	100	N	N	25	15	50	andesite	background
CDP374	L	N	15	N	1000	200	N	10	N	150	N	N	30	15	40	andesite	background
CDP375	L	N	10	N	200	100	N	10	N	20	N	N	10	10	15	sandstone	background
CDP376	15	N	20	N	200	300	N	20	L	150	N	N	110	10	30	hornfels/siltstone	background
CDP377	L	N	30	N	700	500	N	20	L	70	N	N	40	20	40	basalt/diabase	background
CDP378	10	N	20	N	700	300	N	30	N	100	N	N	30	10	55	basalt/andesite	background
CDP379	20	N	15	N	700	150	N	15	L	50	N	N	65	25	110	siltstone	background
CDP380	10	N	15	N	1000	150	N	10	N	70	N	N	25	20	40	andesite	background
CDP381	10	N	20	N	1000	300	N	30	L	100	N	N	120	25	70	diorite/andesite	background
CDP382	L	N	15	N	500	150	N	10	N	70	N	N	5	10	L(5)	dacite	background
CDP383	10	N	15	N	L	100	N	L	N	150	N	N	65	20	30	andesite	background
CDP384	L	N	15	N	L	150	N	10	N	100	N	N	140	25	110	sandy siltstone	background
CDP385	L	N	N	N	N	20	N	N	N	N	N	1.5	440	20	55	sandstone	mineralized
CDP386	15	N	15	N	700	200	N	20	N	100	N	N(.05)	20	20	60	andesite	background
CDP387	10	N	30	N	700	300	N	20	N	70	N	N	25	15	25	dacite	background
CDP388	L	N	20	N	500	150	N	20	N	70	N	N	45	20	60	hornfels/sandstone	background
CDP389	L	N	10	N	200	50	N	30	N	300	N	N	35	20	25	hornfels	mineralized
CDP390	70	N	15	N	N	300	N	15	N	200	N	N	10	85	150	sandstone	mineralized
CDP391	N	N	20	N	300	300	N	15	N	50	N	N	15	20	45	dacite	mineralized
CDP392	L	N	15	N	1000	200	N	10	N	150	N	N	40	20	70	basalt	background
CDP393	10	N	15	N	700	200	N	10	N	100	N	N	30	15	45	basalt	background
CDP394	10	N	15	N	1000	200	N	20	N	100	N	N	25	20	55	andesite/dacite	background
CDP395	10	N	30	N	700	300	N	20	L	30	N	N	30	20	70	sandstone	background
CDP396	10	N	20	N	500	300	N	20	L	50	N	N	30	20	70	sandstone	background
CDP397	10	N	20	N	300	700	N	20	L	100	N	N	30	25	120	sandstone/siltstone	background
CDP398	L	N	5	N	1500	70	N	10	N	10	N	N	20	20	25	sandstone	background
CDP399	10	N	20	N	200	300	N	20	L	50	N	N	70	30	120	sandstone	background
CDP400	15	N	20	N	L	300	N	30	L	100	N	N	60	35	130	sandstone	background
CDP401	10	N	15	N	700	300	N	20	N	100	N	N	25	25	60	felsic sill	mineralized
CDP402	10	N	10	N	200	100	N	30	N	150	N	N	5	15	40	conglomerate	mineralized
CDP403	10	N	15	N	500	300	N	20	N	50	N	N	45	25	65	siltstone	background

Sample collection

Samples are primarily single grab samples, although a few are composite. The samples were chosen for background data, although some were from mineralized areas, thus the reader is cautioned that the sample population is biased in favor of background data. Field No. refers to year sample was collected (1979), collecting geologist (Dt, Robert Detterman; Ce, James Case; Yb, Elizabeth Yount; Ws, Frederic Wilson), and field number of the individual geologist.

Sample preparation and analytical procedures

Samples were crushed to minus 0.25 inches (minus 6.35 mm) using a chipmunk crusher. Each sample was split and one fraction ground to minus 150-mesh using a vertical pulverizer with ceramic plates.

Samples were analyzed for thirty elements with a DC-arc emission spectrograph using a six-step, semiquantitative method described by Grimes and Marranzino (1968). In addition, an atomic absorption spectrophotometric method described by Ward and others (1969) was used to determine the concentration of copper, lead, and zinc.

Explanation of data

For the semipuantitative spectrographic analyses, results were reported as six steps per order of magnitude (1.0, 1.5, 2.0, 3.0, 5.0, and 7.0, or powers of ten of these numbers). These values are approximate midpoints of the class intervals shown below.

Reported value	Class interval limits
1.0	0.83 - 1.2
1.5	1.2 - 1.8
2.0	1.8 - 2.6
3.0	2.6 - 3.8
5.0	3.8 - 5.6
7.0	5.6 - 8.3

The precision of the semiquantitative spectrographic method has been evaluated by Motooka and Grimes (1976). Repeatability of a determination within plus or minus one and two reporting value(s) is approximately 83 and 96 percent respectively.

Analyses done by the atomic absorption method are not reported on the six step scale thus they are more precise than the spectrographic analyses.

Analytical data are shown in Table 1, using the following symbols. An "N" indicates the particular element was not detected in the sample. An "L" indicates that the element was present but in an amount below the lower limit of determination. A "G" followed by a value means the element was present in an amount exceeding the upper limit of determination. All data reported in parts per million unless otherwise indicated.

References cited

Grimes, D. J., and Maranzino, A. P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analyses of geologic materials: U.S. Geol. Survey Circ. 591, 6p.

Motooka, J. M., and Grimes, D. J., 1976, Analytical precision of one-six order semiquantitative spectrographic analyses: U.S. Geol. Survey Circ. 738, 25p.

Ward, F. N., Nakagawa, H. M., Harms, T. F., and Van Sickle, G. H., 1969, Atomic absorption methods of analyses useful in geochemical exploration: U.S. Geol. Survey Bull. 1289, 45p.

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.

SAMPLE LOCATION MAP AND ANALYTICAL DATA FOR ROCK SAMPLES COLLECTED IN 1979, UGASHIK AND KARLUK QUADRANGLES, ALASKA

By

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1980