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ENVIRONMENT CANADA
CONSERVATION AND PROTECTION
ENVIRONMENTAL PROTECTION
PACIFIC AND YUKON REGION

BASELINE MONITORING DOME MOUNTAIN PROJECT - June 27, 1988 -

> By Benoit Godin and Michael Hagen

> > March 1992

TD 899 .M5 Baseline monitoring Dome Mountain project, June 27, 1988.

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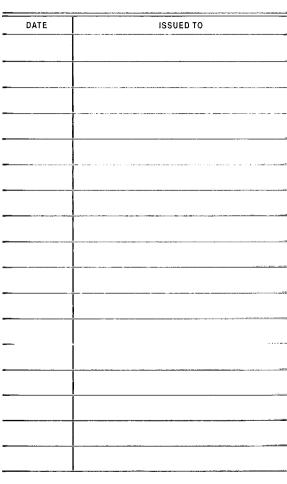


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INTRODUCTION

The Dome Mountain Project is located in the Guess Creek drainage basin about 35 kilometres east of Smithers. The gold mine project has underground workings on the east slope of Dome Mountain at the 1,400 metre level. Drainage is eastward via Fedral Creek and Guess Creek. Guess Creek joins the Fulton River just upstream of Fulton Lake (Figure 1). Production started in 1991.

Salmon are limited to the lower reaches of Fulton River below Fulton Lake by a 16 metre high dam. The dam was constructed for flow control and water supply for the DFO Fulton spawning channels for sockeye. This facility provides a major contribution to commercial and native fisheries on the Skeena River, and is approximately 50 km downstream of the Dome Mountain Project. Small natural populations of chinook, coho, and pink also spawn in the Fulton River downstream of the dam. Guess Creek and the lower reaches of Fedral Creek are stable and productive systems for cutthroat trout and, to a lesser extent, Dolly Varden char.

Site description

Station	Location	Remarks
1	Guess Creek upstream	1 km upstream of Betty Creek
2	Fedral Creek upstream	600 metres upstream of Guess Creek
3	Betty Creek upstream	400 metres upstream of Guess Creek
4	Guess Creek downstream	Below swampy area

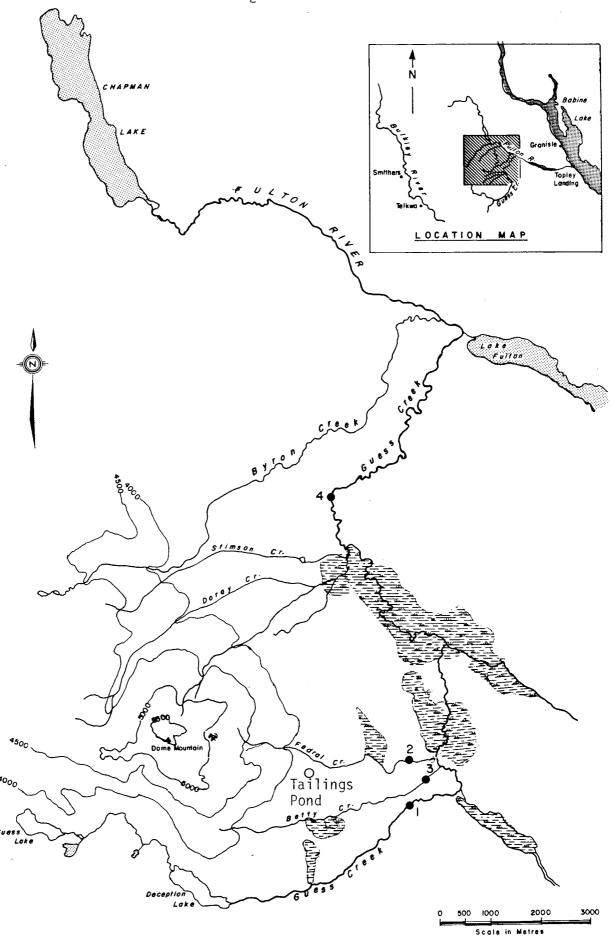


FIGURE I RECEIVING WATER SAMPLING STATIONS AT THE DOME MOUNTAIN MINE SITE

MATERIALS AND METHODS

The site was visited on June 27, 1988. Water and sediment samples were collected at four stations. Water quality analysis included alkalinity, pH, conductivity, sulphate, ammonia, nitrite, nitrite/nitrate, total organic and inorganic carbon, total residues, non-filterable residues, and turbidity. The samples were packed with ice until analysis. Dissolved metals were filtered the same day through a 0.45 micron cellulose nitrate membrane filter. Total and dissolved metals were preserved with 0.5 ml nitric acid per 100 ml. All samples were collected in clean polyethylene bottles. The bottles for metal analysis were previously acid washed. Hardness was determined from the dissolved metal sample.

Inductively Coupled Argon Plasma (ICP) was used for the total and dissolved metal analysis and gave a reading of twenty-seven metals. Cadmium, copper, and lead samples were re-analysed with the graphite furnace when the values were below two times the detection limit of the ICP procedure. Analytic procedures were in accordance with the Environment Canada, Pacific Region, Laboratory Manual (Anon., 1979).

Sediment samples were collected from the streambed with a clean acrylic corer. Four replicates were taken at each site. The samples were placed in kraft bags and kept cool until analysed. The samples were air dried, sieved to <150 um, digested with aqua regia, and analysed for heavy metals using ICP. A portion of the sediments were ignited at 550° C in a muffle furnace. The loss of weight was reported as volatile residues and the remainder as fixed residues. The total nitrogen was determined by autoclaving the sediments with potassium persulphate in a basic environment, the process converts all forms of nitrogen into nitrate. The results are obtained using a colorimetric method.

RESULTS

The water metal results can be found in Table 1, while the other water quality results are found in Table 2. Sediment results are in Table 3.

Metals at or near the detection limit in all samples included aluminium, antimony, arsenic, beryllium, boron, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, phosphorus, selenium, silver, tin, titanium, vanadium, and zinc. NFR was <5 at all sites and total residues ranged from 63 to 85 mg/l. Betty Creek (Station 3) samples had the highest total residue values (85 mg/g), and the highest sample concentrations for iron (0.252 mg/l), magnesium (2.2 mg/l), manganese (0.032 mg/l), and sodium (1.3 mg/l). Fedral Creek (Station 2) samples had the next highest total residue values (76 mg/l), and the highest samples concentrations for barium (0.05 mg/l), calcium (17.4 mg/l), and strontium (0.072 mg/l). All metal levels are low compared to other areas of northwest B.C.

Water samples from all sites were soft and mildly alkaline. Values for nitrogen, sulphate, and carbon compounds were low. The parameters are those of a pristine environment.

Cobalt, silver, and tin were undetected in sediments. Cadmium (1.2 ug/g) and lead (31 ug/g) were detected only in sediments from Fedral Creek. Mercury (0.186 ug/g) was highest in sediments from Guess Creek upstream (Station 1), as were volatile residues (7%), and total nitrogen (1850 ug/g). Generally, sediment metal values are consistent with, or lower than, those from other areas in northwestern B.C., and indicate a clean environment.

Table 1 Water Quality - Dome Mountain Project
June 27, 1988

Station Number		TOTICP AG MG/L	DISICP AG MG/L	TOTICP AL NG/L	DISICP AL MG/L	TOTICP AS MG/L	DISICP AS MG/L	TOTICP B MG/L	DISICP B MG/L	TOTICP BA MG/L	DISICP BA NG/L	TOTICP BE MG/L	DISICP BE NG/L	TOTICP CA MG/L	DISICP CA MG/L
	Repl. 1	<0.01	<0.01	0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.026	0.024	<0.001	<0.001	13.2	12.6
	Repl. 2	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.027	0.024	<0.001	<0.001	13.4	12.6
1	Repl. 3	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.026	0.025	<0.001	<0.001	13.4	
	Average									0.026	0.024			13.3	
	s.D.									0.001	0.001			0.1	0.1
	Repl. 1	<0.01	<0.01	<0.05	<0.05	<0.05	(0.05	<0.01	<0.01	0.050	0.045	<0.001	<0.001	17.5	
	Repl. 2	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.049	0.044	(0.001	<0.001	17.3	16.3
2	Repl. 3	<0.01	<0.01	0.08	<0.05	<0.05	<0.05	<0.01	<0.01	0.050	0.044	(0.001	<0.001	17.5	16.4
	Average									0.050	0.044			17.4	
	S.D.									0.001	0.001			0.1	0.2
	Repl. 1	<0.01	<0.01	<0.05	(0.05	<0.05	<0.05	<0.01	<0.01	0.038	0.035	<0.001	<0.001	15.4	
	Repl. 2	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.037	0.035	(0.001	<0.001	15.0	
3	Repl. 3	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.038			<0.001	15.3	14.5
	Average									0.038	0.035			15.2	
	S.D.								~~-	0.001	0.000			0.2	0.1
	Repl. 1	<0.01	<0.01	<0.05	0.1	<0.05	<0.05	<0.01	<0.01	0.031	0.028	<0.001	<0.001		
	Repl. 2	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.031	0.027	<0.001		13.2	
. 4	Repl. 3	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	0.031	0.028	<0.001	<0.001	13.1	12.4
	Average									0.031	0.028			13.3	12.4
	s.D.									0.000	0.001			0.2	0.1

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Table 1. cont.

Water Quality - Dome Mountain Project June 27, 1988

	TOTICP CD MG/L	TOTGF CD MG/L	DISICP CD MG/L	DISGF CD MG/L	TOTICP CO MG/L	DISICP CO MG/L	TOTICP CR MG/L	DISICP CR MG/L	TOTICP CU MG/L	TOTGF CU MG/L	DISICP CU MG/L	DISGF CU MG/L	TOTICP FE MG/L	DISICP FE MG/L	TOTICP MG MG/L	DISICP MG MG/L
Repl. 1	<0.005	<0.0001	<0.005	<0.0001	<0.005	<0.005	<0.005	(0.005	<0.005	<0.0005	<0.005	0.0006	0.061	0.027	1.8	1.7
•				<0.0001	<0.005	<0.005	<0.005	<0.005	(0.005	<0.0005	<0.005	<0.0005	0.056	0.030	1.8	1.6
Repl. 3	<0.005	<0.0001	<0.005	<0.0001	(0.005	(0.005	<0.005	<0.005	<0.005	<0.0005	<0.005	0.0009	0.058	0.030	1.8	1.7
Average												0.0008	0.058	0.029	1.8	1.7
S.D.							-					0.0002	0.003	0.002	0.0	0.1
Repl. 1	<0.005	<0.0001	<0.005	<0.0001	<0.005	<0.005	(0.005	<0.005	<0.005	<0.0005	<0.005	<0.0005	0.054	<0.005	1.7	
Repl. 2	<0.005	<0.0001	(0.005	<0.0001	(0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.005	(0.0005	0.043	0,006	1.8	1.7
Repl. 3	<0.005	<0.0001	<0.005	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.005	(0.0005	0.058	0.007	1.8	
Average													0.052	0.007	1.8	
S.D.													0.008	0.001	0.1	0.1
Repl. 1	<0.005	<0.0001	(0.005	<0.0001	<0.005	(0.005	(0.005	<0.005	<0.005	(0.0005	<0.005	<0.0005	0.262	0.181	2.3	2.1
Repl. 2	<0.005	<0.0001	<0.005	<0.0001	<0.005	(0.005	<0.005	<0.005	<0.005	<0.0005	(0.005	(0.0005	0.244	0.189	2.2	2.1
Repl. 3	<0.005	<0.0001	<0.005	<0.0001	(0.005	<0.005	(0.005	(0.005	<0.005	<0.0005	<0.005	(0.0005	0.249	0.181	2.2	2.1
Average													0.252	0.184	2.2	2.1
s.b.													0.009	0.005	0.1	0.0
Repl. 1	(0.005	<0.0001	<0.005	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.005	<0.0005	0.188	0.107	1.8	1.7
Repl. 2	(0.005	(0.0001	≈ <0. 005	(0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.005	<0.0005	0.211	0.104	1.8	1.7
-						<0.005	<0.005	<0.005	<0.005	<0.0005	0.119		0.198	0.106	1.8	
Average													0.199	0.106	1.8	
S.D.													0.012	0.002	0.0	0.1
	Repl. 1 Repl. 2 Repl. 3 Average S.D. Repl. 3 Average S.D.	CD MG/L Repl. 1 (0.005 Repl. 2 (0.005 Repl. 3 (0.005 Average S.D Repl. 1 (0.005 Repl. 2 (0.005 Average S.D Repl. 1 (0.005 Repl. 2 (0.005 Repl. 2 (0.005 Repl. 3 (0.005 Average S.D Repl. 1 (0.005 Repl. 2 (0.005 Repl. 3 (0.005 Average S.D	CD CD MG/L MG/L Repl. 1 (0.005 (0.0001 Repl. 2 (0.005 (0.0001 Average S.D Repl. 1 (0.005 (0.0001 Average S.D Repl. 1 (0.005 (0.0001 Average S.D Repl. 1 (0.005 (0.0001 Repl. 2 (0.005 (0.0001 Repl. 2 (0.005 (0.0001 Average S.D Repl. 1 (0.005 (0.0001 Average S.D Repl. 1 (0.005 (0.0001 Average S.D Repl. 1 (0.005 (0.0001 Repl. 2 (0.005 (0.0001 Repl. 2 (0.005 (0.0001 Repl. 3 (0.005 (0.0001 Average	CD CD CD CD MG/L MG/L Repl. 1 (0.005 (0.0001 (0.005 Repl. 2 (0.005 (0.0001 (0.005 Average S.D	CD	CD CD CD CD CD CD CO CO MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L	CD CD CD CD CD CO CO CO MG/L MG/L MG/L MG/L MG/L MG/L MG/L Repl. 1 (0.005 (0.0001 (0.005 (0.0001 (0.005 (0.005 Repl. 2 (0.005 (0.0001 (0.005 (0.0001 (0.005 (0.005 Average S.D	CD CD CD CD CD CD CD CO CO CO CR MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L	CD	CD	CD	CD	CD	CD	CD	CD

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Table 1, cont.

Water Quality - Dome Mountain Project June 27, 1988

Station Number		TOTICP MN MG/L	DISICP NN NG/L	TOTICP NO NG/L	DISICP NO NG/L	TOTICP NA NG/L	DISICP NA NG/L	TOTICP NI NG/L	DISICP NI NG/L	TOTICP P MG/L	DISICP P MG/L	TOTICP PB MG/L	TOTGF PB MG/L	DISICP PB MG/L	DISGF PB MG/L	TOTICP SB MG/L	DISICP SB MG/L
	Repl. 1	0.005	0.003	<0.01	<0.01	1.0	1.0	(0.02	<0.02	<0.01	<0.01	<0.05	0.0009		<0.0005	(0.05	
	Repl. 2		0.002	<0.01	<0.01	1.0	1.0	<0.02	<0.02	<0.01	<0.01	(0.05	0.0007		<0.0005	<0.05	
1	Repl. 3		0.002	<0.01	<0.01	1.0	1.0	<0.02	<0.02	<0.01	(0.01	<0.05	0.0007	<0.05	<0.0005	(0.05	<0.05
-	Average		0.002			1.0	1.0						0.0008				
	S.D.	0.000				0.0	0.0						0.0001				
	Repl. 1	0.002	<0.001	<0.01	<0.01	0.9	0.9	<0.02	<0.02	<0.01	<0.01	<0.05	0.0018		<0.0005		
	Repl. 2			(0.01	0.01	0.9	0.9	<0.02	<0.02	<0.01	0.01	(0.05	0.0021		<0.0005		
2	Repl. 3			<0.01	<0.01	0.9	0.9	<0.02	<0.02	<0.01	<0.01	<0.05	0.0022	<0.05	<0.0005	(0.05	<0.05
-	Average					0.9	0.9						0.0020				
	S.D.	0.000				0.0	0.0						0.0002				
	Repl. 1	0.032	0.030	<0.01	<0.01	1.3	1.2	<0.02	<0.02	<0.01	(0.01	<0.05	0.0012	<0.05	0.0014	<0.05	
	Repl. 2	0.032				1.3			<0.02	<0.01	<0.01	0.08	0.0016		<0.0005		
3	Repl. 3				<0.01	1.4		<0.02	<0.02	<0.01	<0.01	<0.05	0.0032	<0.05	<0.0005	<0.05	<0.05
J	Average					1.3	1.3						0.0020				
	S.D.	0.000				0.1	0.1						0.0011				
	Repl. 1	0.011	0.006	<0.01	<0.01	1.2	1.1	<0.02	<0.02	<0.01	<0.01	<0.05	0.0027	<0.05	<0.0005	<0.05	
	Repl. 2		0.005			1.2		<0.02	<0.02	(0.01	<0.01	<0.05	0.0028	(0.05	<0.0005	<0.05	
4	Repl. 3					1.2		<0.02	0.08	<0.01	<0.01	<0.05	0.0030	(0.05	<0.0005	<0.05	(0.05
7	Average					1.2							0.0028				
	S.D.	0.000				0.0							0.0002				

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Table 1, cont.

Water Quality - Dome Mountain Project June 27, 1988

Station Number		TOTICP SE MG/L	DISICP SE NG/L	TOTICP SI MG/L	DISICP SI MG/L	TOTICP SN NG/L	DISICP SN MG/L	TOTICP SR MG/L	DISICP SR MG/L	TOTICP TI MG/L	DISICP TI MG/L	TOTICP V MG/L	DISICP V MG/L	TOTICP 2N MG/L	DISICP ZN MG/L
		<0.05	<0.05	1.68	1.58	<0.05	<0.05	0.051	0.047	<0.002	<0.002	<0.01			
	Repl. 1	(0.05			1.58	(0.05	(0.05	0.051	0.046	<0.002	<0.002	<0.01		<0.002	(0.002
	Repl. 2	(0.05			1.61	<0.05	<0.05	0.051	0.047	<0.002	<0.002	<0.01	<0.01	<0.002	<0.002
1	Repl. 3			1.67	1.59			0.051	0.047						
	Average S.D.			0.01	0.02			0.000	0.001						
	Repl. 1	<0.05	<0.05	2.17	2.03	<0.05	<0.05	0.073	0.067	<0.002					
	-				2.02			0.072	0.066	<0.002	<0.002	<0.01		<0.002	
•	Repl. 2	<0.05				<0.05	<0.05	0.072	0.066	<0.002	<0.002	<0.01	<0.01	<0.002	
2	Repl. 3			2.15				0.072	0.066						
	Average S.D.			0.03				0.001	0.001						
	D-m1 1	<0.05	<0.05	2.41	2.34	<0.05	<0.05	0.065	0.060	<0.002				<0.002	
	Repl. 1 Repl. 2						(0.05	0.063	0.059	<0.002					
3	Repl. 3	_				<0.05	<0.05	0.064	0.059	(0.002	<0.002	<0.01			
3	Average			2.40				0.064	0.059	- 					
	S.D.			0.03				0.001	0.001						
	D1 1	<0.05	(0.0 5	1.88	1.73	(0.05	<0.05	0.052	0.048	<0.002	(0.002				
	Repl. 1							0.052	0.046	<0.002	(0.002				
	Repl. 2							0.051	0.047	<0.002	(0.002	(0.01	<0.01	<0.002	
4	Repl. 3			1.87				0.052	0.047						
	Average S.D.			0.01				0.001	0.001						

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Table 2

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Water Quality - Immediates - Dome Mountain Project June 27, 1988

Station		ALK	COND	PH	DISICP HT	DISICP HC	NH3	NO2	NO2,3	S04	TIC	TOC	N	FR	TR	TURB	
Number		NG/L	UNHO/C	REL.U.	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	NG/L	MC	G/L 	NG/L	FTU	
	Repl. 1	37.5	83	8.1	38.5	38.4	<0.005	<0.005	0.025		4	6	4	< 5			0.2
	Repl. 2	37.5		8.0	38.1	38.1	<0.005	<0.005	0.016		4	6	4	<5			0.2
1	Repl. 3	37.5		8.0	38.8	38.7	<0.005	<0.005	0.017	4	4	6	4	< 5			0.1
-	Average	37.5		8.0	38.5	38.4			0.019	•	4	6	4		6		0.2
	S.D.	0.0				0.3			0.005	()	0	0			2 0	0.1
	Repl. 1	47.0	100	8.1	48.4	48.3	0.009	<0.005	<0.005		4	9	1	< 5			0.1
	Repl. 2	47.0				47.6	<0.005	<0.005	<0.005	4	4	9	1	<5	7		0.3
2	Repl. 3	47.0				47.7	<0.005	<0.005	<0.005		4	9	1	<5	7		0.3
-	Average	47.0								4	4	9	1		7		0.2
	S.D.	0.0								4	0	0	0			2 (0.1
	Doml 1	44.0	88	8.0	45.5	45.2	(0.005	(0,005	0.006	;	3	9	7	<5	, {		0.3
	Repl. 1						<0.005		0.006		2	9	6	<5			0.3
3	Repl. 2 Repl. 3						0.021		0.005		2	9	8	< 5	, 8		0.2
3	-								0.006		2	9	7		8	35 (0.3
	Average S.D.	0.3							0.001		1	0	1			1 (0.1
	Repl. 1	37.0	78	8.0	38.7	38.1	0.007	<0.005	<0.005		4	6	6	<5			о.з
	Repl. 2	37.5			38.0	37.7	<0.005	<0.005	0.020	;	3	6	6	<5			0.4
4	Repl. 3	37.5		8.0	38.5	38.2	(0.005	<0.005	0.009	;	3	6	6	∢ 5	_		0.4
-	Average	37.3		8.0	38.4	38.0			0.015	3	3	6	6		6		0.4
	s.D.	0.3		0.0	0.4	0.3			0.008	:	l	0	0			3 0	0.1

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Table 3

Sediment Quality - Dome Mountain Project June 27, 1988

Station Number		SEDICP AG UG/G	SEDICP AL UG/G	SEDICP AS UG/G	SEDICP BA UG/G	SEDICP BE UG/G	SEDICP CA UG/G	SEDICP CD UG/G	SEDICP CO UG/G	SEDICP CR UG/G	SEDICP CU UG/G	SEDICP FE UG/G	SEDHG HG UG/G	SEDICP NG UG/G	SEDICP MN UG/G
	Repl. 1	<2	20700	10	216	0.4	5720	2.1	<20	30.5	43.4	37400	0.517	7030	1300
	Repl. 2			10		0.4	6310	<0.8	(20	32.8	28.8	39500	0.087	7150	1570
1	Repl. 3	(2		48	218	0.4	5840	<0.8	₹20	30.7	27.8	37300	0.067	7090	1240
•	Repl. 4	₹2		10	203	0.4	5760	<0.8	<20	29.9	27.3	36800	0.074	6850	
	Average		20800	10	214	0.4	5908			31.0	31.8	37750	0.186	7030	
	S.D.		548	0	8	0.0	273			1.3	7.7	1196	0.221	130	164
	Repl. 1	(2	18800	43	428	0.6	6300								
	Repl. 2	<2	15900	44	360	0.5	5040								1870
2	Repl. 3	<2	15200	35	348	0.5	4860						0.094		1680
	Repl. 4	₹2	16600	46	370	0.5	5630								2190
	Average		16625			0.5	5458			35.1					
	s.D.		1559	5	35	0.0	651	0.5		3.5	2.9	2238	0.017	221	349
	Repl. 1	(2	14300	26	322	0.4	5330								
	Repl. 2	<2	16400	25		0.4	5100								
3	Repl. 3	<2	15000	23		0.4	2960							4470	
	Repl. 4	<2	15600	26		0.5	2680							4490	687
	Average		15325	25			4018			27.3				5130	
	S.D.		892	1	76	0.0	1391			4.9	1.5	10490	0.015	772	1104
	Repl. 1	< 2	17100	25	242	0.5	6360								
•	Repl. 2	<2	15300	20	203	0.4	5360				20.4				1130
4	Repl. 3	(2	14800	21	274	0.5	5870								1150
	Repl. 4	<2	14800	20	258	0.4	5800								
	Average	~	15500				5848			26.0					1223
	s.D.		1092	2	30	0.1	410			2.9	1.8	2211	0.009	181	159

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Table 3, cont.

Sediment Quality - Dome Mountain Project June 27, 1988

Station Number		SEDICP MO UG/G	SEDICP NA UG/G	SEDICP NI UG/G	SEDICP P UG/G	SEDICP PB UG/G	SEDICP SI UG/G	SEDICP SN UG/G	SEDICP SR UG/G	SEDICP TI UG/G	SEDICP V UG/G	SEDICP ZN UG/G	SFR MG/KG	SVR MG/KG	TN UG/G
	D-=1 1	3	670	20	810	43	586	<8	36.2	387	74	1320	935000	65000	1700
	Repl. 1 Repl. 2	3		17	850	<8	568	<8	39.2	409	79	187	923000	76600	2000
1	Repl. 3			20		<8	606	€8	36.6	359	73	139	930000	69700	1900
1	Repl. 4	2				<8	584	<8	35.0	366	72			68800	1800
	Average						586		36.8	380				70025	1850
	S.D.	1	228		22		16		1.8	23	3	585	4992	4833	129
	Repl. 1	7	280	27	980	29	662	۲8	46.3	321	81			59300	1100
	Repl. 2				920	35	644	10	37.6	339	80	248		43400	820
2	Repl. 3				890	30	611	<8	37.5	325	76	256	958000	41700	850
-	Repl. 4	6	200	23	940	30	664	<8	40.0	291	76	219	951000	49300	880
	Average	_		28	933	31	645		40.4	319	78				913
	S.D.	1	454	3	38	3	25		4.1	20	3	16	7805	7948	127
	Repl. 1	5	910	21	860	10	715	<8	39.4	381				49700	1100
	Repl. 2	5	290	10	940	9	651	<8	39.0						1500
3	Repl. 3		350	10	890	<8	616	<8>							170
_	Repl. 4		200	10	840	10	566	8>							
	Average		438	13	883	10	637		33.1						718
	s.D.	1	321	5	43	1	63		7.1	12	3	53	23627	23264	693
	Repl. 1	. 4	220	17	1000	(8)	580	<8	47.6						
•	Repl. 2	2	190	10	940	∢ 8	496	(8							930
4	Repl. 3		180	10	880	<8	541	<8	41.5	342					950
_	Repl. 4		180	10	880	<8	547	<8							
	Average		193	12	925		541		42.5						
	S.D.	1		3	57		35		3.4	39	5	12	10472	10176	62

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REFERENCE

Anonymous. 1979. Laboratory Manual. Department of the Environment, Environmental Protection Service. Department of Fisheries and Ocean, Fisheries and Marine Service, (Pacific Region).