SRK Consulting (Canada) Inc.
Suite 800 – 1066 West Hastings Street
Vancouver, B.C. V6E 3X2
Canada

vancouver@srk.com
www.srk.com

Tel: 604.681.4196
Fax: 604.687.5532

Memo

To:	Deloitte & Touche on behalf of FMCPO	**Date:**	September 26, 2006
cc:		**From:**	John Chapman
Subject:	2005/06 Task 19b Anvil Range Mining Complex: Dump Water Quality Prediction Revisions	**Project #:**	SRK File 1CD003.069

1 Introduction

The purpose of this memorandum is to summarize the revisions that have been made to the Faro Mine Site Waste Rock Dump water quality prediction calculations as a result of the following recent studies:

- 05/06 Task 19a, revised waste dump water balance assessment (Ric Janowicz et. al, 2006); and,
- 05/06 Task 18, updated ARD monitoring results from waste dump seeps (SRK, 2006).

2 Key Findings from 2005 Programs

2.1 Dump Water Balance

The water balance for the Faro, Grum and Vangorda waste rock dumps, which had been developed previously using the CHRM model, was revised on the basis of new field data (Janowicz, Hedstrom and Granger, 2006).

In summary, the results indicated that rainfall infiltration was almost twice as much as the snowmelt infiltration. The results also indicated that infiltration from snowmelt was lowest on south facing slopes, due to rapid melt and runoff. The maximum infiltration occurred on the north facing slopes, due to the slow rate of the melt. Faro dump snowmelt infiltration was simulated to be approximately 80 percent of the snowmelt infiltration at the Grum and Vangorda dump sites. Snowmelt runoff from flat areas was high because of the relatively low permeability of the compacted horizontal surfaces.

Moderate summer runoff was simulated for all hydrologic response units, except for bubble dump surfaces as the runoff from these surfaces is generally very low except for small amounts along the dump margins.

In each of the three dumps (Faro, Grum and Vangorda), flat areas were simulated to have the least recharge, largely due to the relatively impervious nature of the compacted surface, combined with high rates of evaporation. The greatest recharge occurred on the north, east and west facing slopes, which have the lowest evaporation rates. South facing slopes have moderate amounts of recharge because of rapid snowmelt runoff. Bubble surfaces also have moderate amounts of recharge because of high rates of evaporation.

Overall recharge was estimated to be 208, 229 and 219 mm per year for Faro, Grum and Vangorda waste rock dumps, respectively. However, monthly precipitation and temperature data for the Faro Airport meteorological station indicated that precipitation amounts during the study period were quite high, with the 2004/05 water year amount representing the maximum of the 28-year record. A frequency analysis of the data indicated that the 2004/05 data represented a 65-year return period. The air temperature data during the study period was also found to be quite high, and was significantly wetter and warmer than normal. It was concluded that, in terms of groundwater recharge, it is likely that historical rates over the last 28 years were lower than those simulated for the study period.

The average infiltration estimates provided above are about 52-55% of precipitation. However, considering that the study period was exceptionally wet, the previously adopted estimate of 45% of infiltration is believed to be more reasonable for an average year. Infiltration rates for base case conditions were, therefore, not altered as a result of these latest infiltration estimates.

2.2 Seepage Water Quality

2.2.1 Faro

For the purpose of assigning water quality to each of the waste rock and low grade ore stockpiles in the dump water quality prediction calculations, the seepage water quality monitoring results were divided into various water quality types. The classification of each seepage monitoring station, as used in the water quality prediction calculations, is shown is shown in Table 1. Table 2 provides a summary of the updated water quality estimates for each of the seepage water quality types. For convenience, the water quality estimates as used in the 2003/04 calculations are provided in Table 3 to enable a direct comparison between the current and past estimates. In general, while the concentration estimates for a number of parameters have increased, overall the water quality for each type classification remains about the same. The maximum zinc concentration for Type 2 Waste Rock has increased by a factor of 1.7, and that of Type 3 Ore has increased by a factor of 1.3, which indicates that estimated future loadings are likely to be higher than previously estimated.

The source terms in the load calculation spreadsheets have been updated to reflect the most current concentration estimates.

2.2.2 Grum and Vangorda

Similar to the Faro Dump calculations, the seepage water quality summaries for each of the seepage types used in the dump water and load calculations are summarised in Table 4, updated for the 2005 seepage monitoring results. Table 5 provides a summary of the previously used estimates to enable a direct comparison between the current and past values. As for the Faro water quality types, in general the overall the water quality for each type classification remains about the same. The source terms in the load calculation spreadsheets have been updated to reflect the most current concentration estimates. Average zinc concentrations have increased about 20 to 60%, which means that the corresponding base case load estimates will increase proportionately. In contrast, maximum zinc concentrations detected in the seepage have increased by up to a factor of four, which suggests that estimated future loadings may increase somewhat from the current estimates.

3 Summary of Revision to Dump Water Quality Model

Infiltration estimates ranging from 52 to 55% of annual precipitation for the 2005 study period were above previous estimates. However, since the study period represented an exceptionally wet year, the previously adopted estimate of 45% of infiltration was retained for average conditions.

Concentration ranges were recalculated for the water quality types at Faro and Vangorda/Grum and the input the load calculation spreadsheets have been revised accordingly. Some increases in estimated future concentrations may be observed as a result of the revised input estimates.

Table 1: Summary of Faro Site Seepage Monitoring Station Water Quality Type Classification

Type 1 (pH >6.5, Zn <5 mg/L)		Type 2 (pH 6 – 7, Zn concentrations ranging from 4 to 595 mg/L)		Type 3 (pH <6, Zn typically >40mg/L)	
ID	**Location**	**ID**	**Location**	**ID**	**Location**
Waste Rock		**Waste Rock**		**Waste Rock**	
SRK-FD02	Upper Parking Lot Dump	SRK-FD8	East Main Dump	SRK-FD13	Intermediate Dump
SRK-FD07	Toe of Northeast Dump	SRK-FD14 (1 of 6)	Ranch Zone Dump	SRK-FD20	Faro Creek Diversion
SRK-FD16	Upper Northwest Dump	SRK-FD18 (1 of 6)	Upper Northwest Dump	SRK-FD21 (4 of 7)	Northeast Dumps towards Pit
SRK-FD17	Upper Northwest Dump	SRK-FD21 (3 of 7)	Northeast Dumps towards Pit	SRK-FD22 (1 of 3)	Northeast Dumps towards Pit
SRK-FD18	Upper Northwest Dump	SRK-FD22 (2 of 3)	Northeast Dumps towards Pit	SRK-FD23 (3 of 6)	Northeast Dumps towards Pit
SRK-FD26	Northeast Dumps towards Pit	SRK-FD23 (3 of 6)	Northeast Dumps towards Pit	SRK-FD24 (1 of 8)	Northeast Dumps towards Pit
SRK-FD44 (1 of 3)	Intermediate Dump	SRK-FD24 (7 of 8)	Northeast Dumps towards Pit	SRK-FD27 (1 of 4)	Northeast Dumps towards Pit
SRK-FD50	Zone II East	SRK-FD27 (3 of 4)	Northeast Dumps towards Pit	SRK-FD30 (1 of 5)	West Main Dump
		SRK-FD30 (4 of 5)	West Main Dump	SRK-FD36	West Main Dump
		SRK-FD40 (3 of 7)	Faro Valley Dump	SRK-FD47	Intermediate Dump
		SRK-FD44 (1 of 3)	Intermediate Dump	SRK-FD49 (1 of 2)	Intermediate Dump
		SRK-FD48	Intermediate Dump		
		SRK-FD49 (1 of 2)	Intermediate Dump		
		Ore and Oxide		**Ore and Oxide**	
		SRK-FD1	Ore and Low Grade Ore Stockpiles	SRK-FD33	Mill
		SRK-FD9	Ore and Low Grade Ore Stockpiles; West Main Dump		
		SRK-FD10	Ore and Low Grade Ore Stockpiles; West Main Dump	SRK-FD34	Mill
		SRK-FD12	Ore and Low Grade Ore Stockpiles; West Main Dump	SRK-FD35 (2 of 4)	Mill
		SRK-FD31	Ore and Low Grade Ore Stockpiles, West Main Dump	SRK-FD38 (1 of 2)	Ore and Low Grade Ore Stockpiles
		SRK-FD32	Mill		
		SRK-FD35 (2 of 4)	Mill		
		SRK-FD38 (1 of 2)	Ore and Low Grade Ore Stockpiles	SRK-FD46	Oxide Fines Stockpile, Mill
Other		**Other**		**Other**	
SRK-FD14 (5 of 6)	Ranch Zone Dump	SRK-FD19	Lower Northwest Dump	SRK-FD37	Medium Grade Stockpile
SRK-FD05	Toe of Northeast Dump			SRK-FD40 (4 of 7)	Faro Valley Dump
SRK-FD06	Toe of Northeast Dump			SRK-FD04	Oxide Fines Stockpile

Table 2: Summary of Faro Site Water Quality Type Concentrations Estimates Through 2005

	Parameter	Field pH (s.u.)	Acidity pH 8.3	Alkalinity Total	Chloride	Sulphate	Arsenic	Silver	Calcium	Magnesium	Potassium	Sodium	Aluminum	Cadmium	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Zinc
	Detection Limit	0.0	1	1	0.5	1	0.20	0.01	0	0	2.0	2	0.2	0.01	0.01	0.01	0.03	0.05	0.01	0.05	0.005
Type 1	Average	7.1	9	137	1.4	449	0.20	0.01	100	75	4.8	17	0.2	0.01	0.01	0.01	0.03	0.05	0.09	0.05	1.6
	Median	7.1	7	147	1.0	391	0.2	0.01	96	69	3.3	5.4	0.2	0.01	0.01	0.01	0.03	0.05	0.01	0.05	1.4
	Min	6.5	1	21.3	0.5	3.1	0.2	0.01	7.46	1	2.0	2.0	0.2	0.01	0.01	0.01	0.03	0.05	0.005	0.05	0.01
	Max	8.1	29	252	5	2470	0.2	0.01	263	378	24	150	0.2	0.01	0.016	0.01	0.101	0.15	0.519	0.09	5.3
	N	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Type 2 Waste	Average	6.5	49	55	1.7	1441	0.22	0.01	191	218	7.4	13	0.4	0.04	0.086	0.10	2.9	0.06	3.7	0.22	25
	Median	6.6	38	45.1	0.8	1035	0.20	0.01	173	122	7.3	5	0.2	0.033	0.06	0.032	0.53	0.05	2.3	0.13	23
	Min	5.7	15	4	0.5	345	0.2	0.01	49.1	51.9	2.8	2.0	0.2	0.01	0.01	0.01	0.03	0.05	0.188	0.05	3.9
	Max	7.2	168	179	10	8180	0.6	0.03	398	1750	21.4	122	1.6	0.104	0.56	0.704	20.2	0.15	26	1.84	87
	N	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Type 2 Ore	Average	6.6	438	208	10	3596	0.32	0.02	478	475	12	41	0.3	0.12	0.39	0.13	38	0.09	36	0.57	228
	Median	6.5	420	223	12.3	4110	0.2	0.02	504	627	13	49	0.3	0.05	0.43	0.03	23.4	0.1	48.6	0.6	215
	Min	6.1	22	13	0.7	962	0.2	0.01	216	51	6.0	7	0.2	0.01	0.015	0.01	0.05	0.05	0.844	0.05	13.6
	Max	7.3	2160	365	25	6290	0.6	0.03	604	873	17	69	0.6	0.62	1.06	0.779	135	0.23	84.9	1.43	595
	N	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Type 3 Waste	Average	4.1	796	15	3.1	1836	0.25	0.01	191	201	7.4	11.1	14	0.17	0.33	2	80	0.34	11	0.59	117
	Median	3.8	178	4	0.90	1590	0.2	0.01	220.5	143	6.6	4.7	4.64	0.09	0.23	0.9185	13.5	0.131	5.915	0.3335	43.75
	Min	2.6	27	1	0.50	69	0.2	0.01	6.45	3.8	2.0	2.0	0.2	0.01	0.01	0.03	0.03	0.05	0.161	0.05	2.2
	Max	5.9	8750	92	23.8	4780	1	0.05	410	717	19.8	114	73	0.967	1.5	8.06	550	1.6	64.3	3.2	877
	N	25	26	26	25	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Type 3 Ore	Average	3.9	8616	7	63	10861	11.0	0.1	245	332	25	30	127	5.5	2.7	65	1548	1.1	131	2.3	3349
	Median	3.3	2185	2	3.8	4330	1.5	0.05	225.5	200.5	8.5	17	11.3	1.28	1.05	2.74	160.5	0.7545	63.8	0.8	1170
	Min	2.3	43	1	0.50	334	0.2	0.01	23.2	37	2.0	2.0	0.2	0.02	0.010	0.01	0.03	0.05	0.0	0.06	20.7
	Max	7.0	49500	31	1050	59000	87	0.6	508	2220	100	100	986	31.6	11.5	559	15100	3.0	811	11.1	14200
	N	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Others (average only)	FD04	2.4	30970	1.00	342	35523	30.8	0.4	378	1655	73	73	502	10	11	187	6748	2	936	7.7	6930
	FD05/06	7.2	11	204	1.7	420	0.20	0.01	124	88	3.8	6.3	0.20	0.010	0.010	0.010	0.030	0.05	0.069	0.05	2.2
	FD14	7.6	9	118	2.46	1681	0.20	0.01	186	247	16	93	0.20	0.010	0.010	0.010	0.030	0.05	0.12	0.07	2.7
	FD19	6.9	98	369	4.4	3670	0.33	0.02	575	561	9	20	0.33	0.024	0.079	0.035	0.434	0.081	19	0.36	56
	FD37	2.5	18400	1.5	25	22800	32.7	0.3	262	467	51	51	161	19.3	6.9	196	1880	1.5	254	6.8	9968
	FD40	3.2	311	1	1.76	773	0.200	0.010	57	82	2.0	3.0	11.9	0.12	0.22	1.58	30.2	0.25	5.5	0.197	79

Table 3: Summary of Initial Faro Site Water Quality Type Concentrations Estimates (Through 2003/2004)

Type	Statistic	pH	Acidity	Alk	Cl	SO4	As	Ag	Ca	Mg	K	Na	Al	Cd	Co	Cu	Fe	Pb	Mn	Ni	Zn
Faro Type 1	Average	7.3	14	185	1.6	722	0.10	0.01	154	114	6.5	29	0.2	0.01	0.01	0.01	0.03	0.06	0.11	0.06	2.5
	Median	7.2	15	190.5	1.6	493	0.1	0.005	145	86	4.0	7.5	0.2	0.01	0.01	0.01	0.03	0.05	0.05	0.05	2.0
	Min	6.6	3	112	0.5	266	0.1	0.005	82.2	27	3.0	4.0	0.2	0.01	0.01	0.01	0.03	0.05	0.005	0.05	0.17
	Max	8.1	29	242	2.7	2470	0.1	0.005	263	378	24	122	0.2	0.01	0.01	0.01	0.03	0.15	0.422	0.09	5.3
	N	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Faro Type 2 Waste	Average	6.7	51	137	1.6	1701	0.11	0.01	288	231	7.9	16	0.3	0.03	0.052	0.04	1.9	0.06	4.9	0.17	26
	Median	6.8	46	71.5	1.3	1425	0.10	0.01	227	177	8.0	11	0.2	0.02	0.045	0.01	0.12	0.05	2.8	0.12	26
	Min	5.8	15	4	0.5	334	0.1	0.005	49.1	37	2.0	3.0	0.2	0.01	0.01	0.01	0.03	0.05	0.037	0.05	3.9
	Max	7.3	115	407	4.6	3860	0.2	0.01	628	584	15	122	1.6	0.09	0.15	0.5	20.2	0.23	19	0.6	51
	N	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Faro Type 2 Ore	Average	6.5	601	242	12	3783	0.17	0.01	491	505	13	49	0.4	0.16	0.41	0.08	33	0.10	44	0.61	261
	Median	6.4	477	319.5	15	4285	0.15	0.01	529	635	14	54	0.4	0.07	0.45	0.05	31.95	0.075	49.5	0.63	221
	Min	6.2	37	13	0.7	962	0.1	0.005	272	51	7.0	11	0.2	0.01	0.03	0.01	0.09	0.05	3.84	0.05	13.7
	Max	7.0	2160	350	17.5	4600	0.3	0.015	576	694	17	69	0.6	0.62	0.53	0.3	89.9	0.2	54	0.9	595
	N	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Faro Type 3 Waste	Average	3.9	968	16	3.1	1614	0.11	0.01	173	161	6.4	7.5	15	0.16	0.30	2	76	0.36	10	0.56	109
	Median	3.4	177	1	0.60	1170	0.1	0.005	239	104	5.0	4.0	4.1	0.08	0.20	0.58	3.91	0.08	3.79	0.24	46.7
	Min	2.6	27	1	0.50	69	0.1	0.005	6.45	3.8	2.0	2.0	0.2	0.01	0.01	0.03	0.03	0.05	0.161	0.05	2.2
	Max	5.9	8750	92	23.8	4780	0.3	0.015	410	504	14	36	73	0.85	1.5	8.06	416	1.6	64.3	3.2	751
	N	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Faro Type 3 Ore	Average	3.4	14470	6	126	17107	15.3	0.1	305	727	39	44	207	6.5	5.0	92	2773	1.5	388	3.9	4260
	Median	2.5	6550	1	2.9	7490	9	0.1	268	235	20	46	71	6.9	1.7	7.8	1040	1.78	125	1.5	2260
	Min	2.2	227	1	0.50	700	0.2	0.005	107	38.8	2.0	2.0	0.2	0.12	0.080	0.14	1.3	0.3	5.7	0.08	128
	Max	6.0	49500	31	1050	59000	87	0.3	504	3210	100	100	986	15.5	20	559	15100	3.0	2360	15	10900
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Others (average only)	FD04	2.4	30970	1.00	342	35523	30.8	0.2	378	1655	73	73	502	10	11	187	6748	2	936	7.7	6930
	FD05/06	7.2	12	204	1.9	462	0.10	0.01	133	95	3.9	6.9	0.20	0.010	0.010	0.010	0.030	0.05	0.044	0.05	2.2
	FD14	7.6	16	111	0.77	2050	0.10	0.01	211	283	18	121	0.20	0.013	0.013	0.027	0.317	0.05	0.14	0.07	6.0
	FD19	7.1	85	398	2.1	3680	0.13	0.01	601	558	10	20	0.25	0.013	0.055	0.038	0.785	0.063	18	0.31	45
	FD37	2.4	11700	1.0	0.50	14850	18.9	0.1	242	273	31	31	94	11.3	4.0	127	1410	1.3	149	4.1	6985
	FD40	4.3	98	10	0.57	386	0.100	0.005	42	46	2.0	2.7	2.8	0.05	0.09	0.37	2.2	0.08	2.3	0.093	35

Table 4: Summary of Vangorda - Grum Water Quality Type Concentrations Estimates Through 2005

Type	Parameter	Field pH (s.u.)	Acidity pH 8.3	Alkalinity Total	Chloride	Sulphate	Arsenic	Silver	Calcium	Magnesium	Potassium	Sodium	Aluminum	Cadmium	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Zinc
Detection Limits		**0.01**	**1**	**1**	**0.5**	**0.5**	**0.2**	**0.01**	**0.05**	**0.1**	**2**	**2**	**0.2**	**0.01**	**0.01**	**0.01**	**0.03**	**0.05**	**0.005**	**0.05**	**0.005**
Vangorda/Grum Type 1a	Average	7.46	9	310	1.9	303	0.2	0.010	143	63	2.4	2.8	0.20	0.01	0.01	0.01	0.04	0.05	0.13	0.06	0.032
	Median	7.44	6.8	324	1.7	349	0.2	0.010	148	68	2.0	2.9	0.20	0.01	0.01	0.01	0.03	0.05	0.006	0.05	0.007
	Min	6.73	1.0	108	0.50	7.0	0.2	0.010	42	23	2.0	2.0	0.20	0.01	0.01	0.01	0.03	0.05	0.005	0.05	0.005
	Max	7.93	40	447	5.0	620	0.2	0.010	286	136	4.0	4.9	0.20	0.01	0.01	0.01	0.21	0.05	1.9	0.13	0.389
	N	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Vangorda/Grum Type 1b	Average	7.35	21	505	2.7	1239	0.2	0.010	325	230	7.1	11	0.20	0.01	0.01	0.01	0.03	0.05	0.16	0.41	4.0
	Median	7.45	19	541	2.3	1210	0.2	0.010	337	213	7.0	11	0.20	0.01	0.01	0.01	0.03	0.05	0.062	0.38	3.0
	Min	6.65	1.0	255	0.50	332	0.2	0.010	115	70	2.5	2.0	0.20	0.01	0.01	0.01	0.03	0.05	0.005	0.22	1.7
	Max	7.96	69	700	5.0	2170	0.2	0.011	477	438	12	18	0.20	0.01	0.05	0.04	0.03	0.05	1.00	0.92	17.2
	N	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Vangorda/GrumType 2	Average	6.32	492	139	0.77	3349	0.4	0.018	2	435	9.2	8.7	0.37	0.12	1.8	0.02	62	0.10	116	2.8	267
	Median	6.22	224	160	0.54	2690	0.2	0.010	1	370	11	10	0.20	0.08	0.88	0.01	5.5	0.07	42	2.4	125
	Min	5.89	38	14	0.50	323	0.2	0.010	0	27	2.0	2.0	0.20	0.04	0.06	0.01	0.03	0.05	3.3	0.11	20
	Max	7.08	2550	317	1.3	13700	2.0	0.100	10	1880	20	20	2.00	0.70	10.3	0.03	243	0.50	1000	7.2	1650
	N	19	19	19	15	19	19	19	19	19	19	19	19	19	19	18	19	19	19	19	19
Vangorda/Grum Type 3	Average	4.29	7777	28	8.5	18823	1.8	0.033	11	1937	12	9.3	52	4.1	10.8	9	1034	0.9	1218	8.9	3587
	Median	3.92	3925	2.5	0.70	10210	0.4	0.020	5	663	10	5.2	15	1.0	4.6	0.31	524	0.59	217	4.9	1590
	Min	2.55	213	1.0	0.50	1550	0.2	0.010	0	105	4.0	2.3	0.40	0.10	0.30	0.02	0.12	0.10	18	0.8	87
	Max	5.93	28700	127	50	67700	19.0	0.100	38	7400	28	20	339	23.2	38	180	4100	2.5	4030	26	13100
	N	30	30	30	21	30	14	14	30	30	19	19	26	30	30	25	30	18	30	30	30
Faro Type 2 Waste	Average	6.5	116	53	1.9	1453	0.23	0.012	200	205	7.4	15	0.4	0.05	0.095	0.09	5.6	0.06	4.7	0.22	42
	Median	6.5	38	43.2	0.9	1020	0.2	0.01	182	120	7.0	5	0.2	0.03	0.06	0.034	0.948	0.05	2.6	0.12	21
	Min	5.7	15	4	0.5	345	0.2	0.01	49.1	37.5	2.8	2.0	0.2	0.01	0.01	0.01	0.03	0.05	0.188	0.05	3.9
	Max	7.2	2160	179	10	8180	0.6	0.03	398	1750	21.4	122	1.6	0.46	0.56	0.704	89.9	0.2	37	1.84	581
	N	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Faro Type 3 Waste	Average	4.1	796	15	3.1	1836	0.25	0.012	191	201	7.4	11.1	14	0.17	0.33	2	80	0.34	11	0.59	117
	Median	3.8	178	4	0.90	1590	0.20	0.01	220.5	143	6.6	4.7	4.64	0.09	0.23	0.9185	13.5	0.131	5.915	0.3335	43.75
	Min	2.6	27	1	0.50	69	0.20	0.01	6.45	3.8	2.0	2.0	0.2	0.01	0.01	0.03	0.03	0.05	0.161	0.05	2.2
	Max	5.9	8750	92	23.8	4780	1	0.05	410	717	19.8	114	73	0.967	1.5	8.06	550	1.6	64.3	3.2	877
	N	25	26	26	25	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26

Table 5: Summary of Initial Vangorda/Grum Site Water Quality Type Concentrations Estimates (Through 2003/2004)

Type	Statistic	pH	Acidity	Alk	Cl	SO4	As	Ag	Ca	Mg	K	Na	Al	Cd	Co	Cu	Fe	Pb	Mn	Ni	Zn
Vangorda/Grum Type 1a	Average	7.46	10	325	1.6	255	0.1	0.005	137	56	2.4	2.6	0.20	0.01	0.01	0.01	0.03	0.05	0.16	0.05	0.009
	Median	7.47	6.0	338	1.7	313	0.1	0.005	153	64	2.0	3.0	0.20	0.01	0.01	0.01	0.03	0.05	0.005	0.05	0.005
	Min	7.85	1.0	186	0.50	7.0	0.1	0.005	45	24	2.0	2.0	0.20	0.01	0.01	0.01	0.03	0.05	0.005	0.05	0.005
	Max	6.87	40	405	2.5	575	0.1	0.005	219	81	4.0	4.0	0.20	0.01	0.01	0.01	0.03	0.05	1.9	0.07	0.028
	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Vangorda/Grum Type 1b	Average	7.29	23	526	2.1	1093	0.1	0.005	323	205	7.1	10	0.20	0.01	0.01	0.01	0.03	0.05	0.10	0.38	3.0
	Median	7.31	19	546	2.2	1165	0.1	0.005	337	210	7.0	11	0.20	0.01	0.01	0.01	0.03	0.05	0.056	0.38	2.7
	Min	7.84	1.0	278	0.90	593	0.1	0.005	201	108	3.0	4.0	0.20	0.01	0.01	0.01	0.03	0.05	0.005	0.22	1.7
	Max	6.67	69	700	2.8	1350	0.1	0.005	380	347	10	16	0.20	0.01	0.03	0.01	0.03	0.05	0.43	0.59	5.1
	N	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Vangorda/GrumType 2	Average	6.44	352	134	0.77	2878	0.1	0.005	351	374	9.0	8.2	0.28	0.11	1.4	0.01	40	0.08	67	2.6	184
	Median	6.34	203	144	0.60	2785	0.1	0.005	399	389	11	10	0.20	0.09	0.85	0.01	2.9	0.09	39	2.0	107
	Min	7.08	53	27	0.50	766	0.1	0.005	199	54	2.0	2.0	0.20	0.05	0.06	0.01	0.03	0.05	3.7	0.14	23
	Max	6.03	755	289	1.3	4440	0.1	0.005	436	602	13	13	0.40	0.28	3.0	0.02	127	0.10	139	5.3	412
	N	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Vangorda/Grum Type 3	Average	4.08	6279	26	1.4	15482	0.1	0.005	432	1624	12	8.7	40	3.5	9.5	29	706	1.0	996	8.0	2948
	Median	3.67	2550	3.0	0.50	13100	0.1	0.005	445	721	10	4.0	14	1.2	6.0	0.69	243	0.70	232	7.0	1650
	Min	6.21	581	1.0	0.50	2470	0.1	0.005	196	105	4.0	4.0	0.40	0.45	0.75	0.07	0.12	0.10	18	1.1	352
	Max	2.55	16500	160	11	33400	0.1	0.005	528	3490	20	20	339	8.5	22	180	3040	2.5	2600	17	6990
	N	13	13	13	13	13	13	13	13	13	7	7	12	13	13	7	13	7	13	13	13
Faro Type 2 Waste	Average	6.7	51	137	1.6	1701	0.11	0.006	288	231	7.9	16	0.3	0.03	0.052	0.04	1.9	0.06	4.9	0.17	26
	Median	6.8	46	71.5	1.3	1425	0.1	0.005	227	177	8.0	11	0.2	0.02	0.045	0.01	0.12	0.05	2.8	0.12	26
	Min	5.8	15	4	0.5	334	0.1	0.005	49.1	37	2.0	3.0	0.2	0.01	0.01	0.01	0.03	0.05	0.037	0.05	3.9
	Max	7.3	115	407	4.6	3860	0.2	0.01	628	584	15	122	1.6	0.09	0.15	0.5	20.2	0.23	19	0.6	51
	N	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Faro Type 3 Waste	Average	3.9	968	16	3.1	1614	0.11	0.006	173	161	6.4	7.5	15	0.16	0.30	2	76	0.36	10	0.56	109
	Median	3.4	177	1	0.60	1170	0.10	0.005	239	104	5.0	4.0	4.1	0.08	0.20	0.58	3.91	0.08	3.79	0.24	46.7
	Min	2.6	27	1	0.50	69	0.10	0.005	6.45	3.8	2.0	2.0	0.2	0.01	0.01	0.03	0.03	0.05	0.161	0.05	2.2
	Max	5.9	8750	92	23.8	4780	0.3	0.015	410	504	14	36	73	0.85	1.5	8.06	416	1.6	64.3	3.2	751
	N	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17