APPENDIX NO. 4

DETAILS OF TESTS:

Grum Master Composite, Various Vangorda Composites and Mixtures of Grum/Faro & Vangorda/Faro Composites

TEST NO. 86

Purpose: To repeat Test 40, but replace NaCN with PK-3C* in the primary grind and regrind.

Procedure: Standard procedure.

Feed: 2000 grams of minus 10 mesh Vangorda Composite 3.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne						Time, minutes			pH
	Na_2CO_3	PK-3C*	A317 3418A	MIBC	Na_2SiO_3	NaCN	Grind	Cond.	Froth	
Primary Grind	2000	250	-	-	-	-	40	-	-	-
Pb Rougher	-	-	5	15	-	-	-	1	4	-
	-	-	5	10	-	-	-	1	3	-
	-	-	5	10	-	-	-	1	3	-
Pb Regrind	-	100	-	-	-	-	20	-	-	-
Pb 1st Cleaner	-	-	-	5	100	20	-	1	4	9.7
	-	-	1	5	-	-	-	1	6	-
Pb 1st Cl Scav	-	-	5	5	-	-	-	1	3	-
Pb 2nd Cleaner	-	-	-	5	50	50	-	1	5	-
	-	-	4	5	-	-	-	1	5	-
Pb 3rd Cleaner	-	-	-	5	50	25	-	1	4	9.8
	-	-	2	5	-	-	-	1	4	-
Pb 4th Cleaner	-	-	-	5	50	25	-	1	3	-
	-	-	2	5	-	-	-	1	3	-
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A350	DF1012						
Condition	1500	-	-	-	-	-	-	5	-	-
	-	800	-	-	-	-	-	5	-	11.6
Zn Rougher	-	-	20	10	-	-	-	2	4	-
	-	-	10	-	-	-	-	1	3	-
Zn Regrind (PM)	250	-	-	-	-	-	10	-	-	-
High Int. Cond	-	-	10	-	-	-	-	15	-	-
Zn 1st Cleaner	-	-	-	3	-	-	-	1	5	11.2
Zn 1st Cl Scav	-	-	5	5	-	-	-	1	3	-
Zn 2nd Cleaner	250	-	-	-	-	-	-	1	4	11.7
Zn 3rd Cleaner	250	-	-	3	-	-	-	1	3	11.9
Zn 4th Cleaner	250	-	-	3	-	-	-	1	3	11.9

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 86

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb Cleaner Concentrate	11.30	0.57	67.80	4.45	9.8	0.5
2. Pb 4th Cleaner Tail	7.30	0.37	42.80	7.03	4.0	0.5
3. Pb 3rd Cleaner Tail	8.20	0.41	33.70	6.77	3.5	0.6
4. Pb 2nd Cleaner Tail	61.60	3.10	24.90	8.61	19.6	5.2
5. Pb 1st Cl Scav Conc	35.80	1.80	36.20	8.40	16.5	2.9
6. Zn Cleaner Concentrate	148.70	7.47	3.69	50.50	7.0	73.6
7. Zn 4th Cleaner Tail	14.30	0.72	15.70	23.60	2.9	3.3
8. Zn 3rd Cleaner Tail	14.20	0.71	18.80	15.00	3.4	2.1
9. Zn 2nd Cleaner Tail	17.00	0.85	13.60	6.85	2.9	1.1
10. Zn 1st Cl Scav Conc	57.50	2.89	11.10	6.10	8.2	3.4
11. Zn 1st Cl Scav Tail	147.50	7.41	3.93	1.39	7.4	2.0
12. Zn Rougher Tail	1466.30	73.70	0.79	0.33	14.8	4.8
Head (Calc)	1989.70	100.00	3.94	5.13	100.0	100.0

Combined Products

Products 1 and 2		0.94	58.00	5.47	13.8	1.0
Products 1 to 3		1.35	50.60	5.86	17.3	1.6
Products 1 to 4		4.45	32.70	7.78	36.9	6.8
Products 1 to 5		6.25	33.70	7.96	53.4	9.7
Products 6 and 7		8.19	4.75	48.10	9.9	76.9
Products 6 to 8		8.90	5.87	45.50	13.3	79.0
Products 6 to 10		12.64	5.05	33.90	24.4	83.5
Products 6 to 11		20.05	6.23	21.90	31.8	85.5

TEST NO. 87

Purpose: To repeat Test 86, but reduce PK-3C* addition and add collector to the grind and regrind.

Procedure: Standard procedure.

Feed: 2000 grams of minus 10 mesh Vangorda Composite 3.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne						Time, minutes			pH
	Na_2CO_3	PK-3C*	A317 3418A	MIBC	Na_2SiO_3	NaCN	Grind	Cond.	Froth	
Primary Grind	1500	150	10	-	-	-	40	-	-	-
Pb Rougher	-	-	5	15	-	-	-	1	4	9.4
	-	-	5	5	-	-	-	1	3	-
	-	-	5	5	-	-	-	1	3	-
Pb Regrind	-	50	10	-	-	20	20	-	-	-
Pb 1st Cleaner	-	-	5	5	100	-	-	1	4	9.3
	-	-	5	5	-	-	-	1	6	-
Pb 1st Cl Scav	-	-	5	2.5	-	-	-	1	3	-
Pb 2nd Cleaner	-	-	-	2.5	50	50	-	1	5	9.5
	-	-	4	2.5	-	-	-	1	5	-
Pb 3rd Cleaner	-	-	-	2.5	50	25	-	1	4	9.6
	-	-	2	2.5	-	-	-	1	4	-
Pb 4th Cleaner	-	-	-	-	50	25	-	1	3	9.6
	-	-	-	2.5	-	-	-	1	3	-
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A350	DF1012						
Condition	1500	-	-	-	-	-	-	5	-	-
	-	800	-	-	-	-	-	5	-	11.4
Zn Rougher	-	-	20	10	-	-	-	2	4	-
	-	-	10	-	-	-	-	1	3	-
Zn Regrind (PM)	500	-	-	-	-	-	10	-	-	-
High Int. Cond	-	-	10	-	-	-	-	15	-	-
Zn 1st Cleaner	-	-	-	3	-	-	-	1	5	11.6
Zn 1st Cl Scav	-	-	5	3	-	-	-	1	3	-
Zn 2nd Cleaner	250	-	-	-	-	-	-	1	4	11.9
Zn 3rd Cleaner	250	-	-	3	-	-	-	1	3	11.9
Zn 4th Cleaner	250	-	-	3	-	-	-	1	3	12.0

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 87

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb Cleaner Concentrate	99.70	5.00	60.80	8.24	75.7	8.1
2. Pb 4th Cleaner Tail	15.60	0.78	23.80	15.60	4.6	2.4
3. Pb 3rd Cleaner Tail	13.70	0.69	12.00	11.00	2.1	1.5
4. Pb 2nd Cleaner Tail	36.40	1.83	7.40	8.27	3.4	3.0
5. Pb 1st Cl Scav Conc	8.70	0.44	7.16	14.30	0.8	1.2
6. Zn Cleaner Concentrate	124.90	6.27	0.99	52.70	1.5	65.4
7. Zn 4th Cleaner Tail	13.50	0.67	1.72	40.60	0.3	5.4
8. Zn 3rd Cleaner Tail	9.30	0.47	2.58	26.10	0.3	2.4
9. Zn 2nd Cleaner Tail	9.80	0.49	2.54	11.10	0.3	1.1
10. Zn 1st Cl Scav Conc	23.20	1.16	2.14	9.86	0.6	2.3
11. Zn 1st Cl Scav Tail	108.90	5.46	1.30	1.78	1.8	1.9
12. Zn Rougher Tail	1530.10	76.74	0.45	0.35	8.6	5.3
Head (Calc)	1993.80	100.00	4.01	5.06	100.0	100.0

Combined Products

Products 1 and 2		5.78	55.80	9.23	80.3	10.5
Products 1 to 3		6.47	51.10	9.42	82.4	12.0
Products 1 to 4		8.30	41.50	9.17	85.8	15.0
Products 1 to 5		8.74	39.80	9.43	86.6	16.2
Products 6 and 7		6.94	1.06	51.50	1.8	70.8
Products 6 to 8		7.41	1.16	49.90	2.1	73.2
Products 6 to 10		9.06	1.36	42.70	3.0	76.6
Products 6 to 11		14.52	1.34	27.30	4.8	78.5

TEST NO. 88

Purpose: To repeat the Pb circuit of Test 87, but entirely replace NaCN with PK-3C* in the Pb circuit.

Procedure: Standard procedure.

Feed: 2000 grams of minus 10 mesh Vangorda Composite 3.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

	Reagents Added, grams per tonne					Time, minutes			pH
	Na_2CO_3	PK-3C*	A317 3418A	MIBC	Na_2SiO_3	Grind	Cond.	Froth	
Primary Grind	1500	150	10	-	-	40	-	-	-
Pb Rougher	-	-	5	15	-	-	1	4	9.4
	-	-	5	5	-	-	1	3	-
	-	-	5	5	-	-	1	3	-
Pb Regrind	-	70	10	-	-	20	-	-	-
Pb 1st Cleaner	-	-	5	5	100	-	1	4	9.3
	-	-	5	5	-	-	1	6	-
Pb 1st Cl Scav	-	-	5	2.5	-	-	1	3	-
Pb 2nd Cleaner	-	50	10	5	50	-	1	5	9.4
	-	-	5	5	-	-	1	5	-
Pb 3rd Cleaner	-	25	5	2.5	-	-	1	4	9.3
	-	-	3	2.5	-	-	1	4	-
Pb 4th Cleaner	-	25	3	2.5	-	-	1	3	9.2
	-	-	3	2.5	-	-	1	3	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 88

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb Cleaner Concentrate	50.30	2.52	63.50	6.89	39.3	3.3
2. Pb 4th Cleaner Tail	28.80	1.44	48.30	9.28	17.1	2.6
3. Pb 3rd Cleaner Tail	27.50	1.38	37.50	10.60	12.7	2.8
4. Pb 2nd Cleaner Tail	61.50	3.08	21.20	11.30	16.0	6.7
5. Pb 1st Cl Scav Conc	15.50	0.78	5.69	11.90	1.1	1.8
6. Pb 1st Cl Scav Tail	193.20	9.67	1.92	9.57	4.6	17.8
7. Pb Rougher Tailing	1620.00	81.13	0.46	4.16	9.2	65.0
Head (Calc)	1996.80	100.00	4.07	5.19	100.0	100.0

Combined Products

Products 1 and 2		3.96	58.00	7.76	56.4	5.9
Products 1 to 3		5.34	52.70	8.49	69.1	8.7
Products 1 to 4		8.42	41.20	9.52	85.1	15.4
Products 1 to 5		9.20	38.20	9.72	86.2	17.2
Products 1 to 6		18.87	19.60	9.64	90.8	35.0
Products 6 and 7		90.80	0.62	4.74	13.8	82.8

TEST NO. 104

Purpose: To repeat the Vangorda procedure on the Vangorda Master Composite, but substitute PKD* complex for NaCN.

Procedure: As shown below.

Feed: 2000 grams of minus 10 mesh Master Composite (3458B).

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

	Reagents Added, grams per tonne					Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Na_2SiO_3	Grind	Cond.	Froth	
Primary Grind	2000	200	-	-	-	40	-	-	-
Pb Rougher	-	-	20	15	-	-	1	4	9.0
	-	-	5	5	-	-	1	3	-
	-	-	5	5	-	-	1	3	-
Pb Regrind	-	75	20	-	-	30	-	-	-
Pb 1st Cleaner	-	20	-	5	100	-	1	4	9.5
	-	-	2.5	5	-	-	1	6	-
Pb 1st Cl Scav	-	-	5	2.5	-	-	1	3	-
Pb 2nd Cleaner	-	50	-	2.5	50	-	1	4	-
	-	-	5	2.5	-	-	1	4	-
Pb 3rd Cleaner	-	25	-	-	50	-	1	3	9.6
	-	-	2.5	2.5	-	-	1	3	-
Pb 4th Cleaner	-	25	2.0	-	50	-	1	2	-
	-	-	1.0	2.5	-	-	1	2	-
Combine lead rougher and 1st cleaner scavenger tails for zinc flotation.									
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A350	DF1012					
Condition 1	2500	-	-	-	-	-	5	-	-
2	-	800	-	-	-	-	5	-	12.0
Zn Rougher	-	-	20	10	-	-	2	4	-
	-	-	10	5	-	-	1	3	-
Zn Regrind (PM)	1000	-	-	-	-	30	-	-	-
H.I. Cond	-	-	15	-	-	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	1	5	11.8
zn 1st Cl Scav	-	-	10	5	-	-	1	3	-
Zn 2nd Cleaner	500	-	-	-	-	-	1	4	-
Zn 3rd Cleaner	500	-	-	-	-	-	1	3	-
Zn 4th Cleaner	500	-	-	-	-	-	1	2	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 104

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	76.8	3.84	58.10	7.91	57.5	6.6
2. Pb 4th Cleaner Tail	20.1	1.01	33.30	10.30	8.6	2.2
3. Pb 3rd Cleaner Tail	25.4	1.27	19.50	11.20	6.4	3.1
4. Pb 2nd Cleaner Tail	95.9	4.79	8.06	10.50	9.9	10.9
5. Pb 1st Cl Scav Conc	29.7	1.48	8.05	10.80	3.1	3.4
6. Zn 4th Cleaner Conc	100.9	5.04	1.68	53.90	2.2	58.6
7. Zn 4th Cleaner Tail	11.1	0.55	4.52	29.00	0.6	3.4
8. Zn 3rd Cleaner Tail	10.2	0.51	4.67	15.80	0.6	1.7
9. Zn 2nd Cleaner Tail	16.5	0.83	2.87	4.59	0.6	0.8
10. Zn 1st Cl Scav Conc	29.6	1.48	2.16	3.94	0.8	1.3
11. Zn 1st Cl Scav Tail	164.7	8.23	0.93	1.03	2.0	1.8
12. Zn Rougher Tail	1419.6	70.97	0.42	0.40	7.7	6.2
Head (Calc)	2000.5	100.00	3.88	4.63	100.0	100.0

*Zn Circuit

Calculated Grades and Recoveries

Products 1 and 2		4.85	52.90	8.41	66.1	8.8
Products 1 to 3		6.12	46.00	8.98	72.5	11.9
Products 1 to 5		12.39	26.80	9.79	85.5	26.2
Products 6 and 7		5.59	1.96	51.50	2.8	62.0
Products 6 to 8		6.10	2.19	48.50	3.4	63.7
Products 6 to 10		8.41	2.25	36.30	4.8	65.8
Products 6 to 11		16.64	1.60	18.90	6.8	67.6
Products 6 to 12		87.61	0.64	3.91	14.6	73.8

TEST NO. 105

Purpose: To repeat the conditions of Test 78 (Project 3458B, Comp. 4) but replace depressant DS20 with PKD* complex.

Procedure: Standard.

Feed: 2000 grams of minus 10 mesh Composite 4 (3458B).

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

	Reagents Added, grams per tonne					Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Na_2SiO_3	Grind	Cond.	Froth	
Primary Grind	2000	150	-	-	-	40	-	-	-
Pb Rougher	-	-	10	25	-	-	1	4	9.9
	-	-	5	5	-	-	1	3	-
	-	-	5	5	-	-	1	3	-
Pb Conc Regr	-	50	20	-	-	20	-	-	-
Pb 1st Cleaner	-	10	-	-	100	-	1	4	9.7
	-	-	5	10	-	-	1	6	-
Pb 1st Cl Scav	-	-	5	5	-	-	1	3	-
Pb 2nd Cleaner	-	25	10	2.5	50	-	1	4	9.7
	-	-	5	5	-	-	1	4	-
Pb 3rd Cleaner	-	12.5	-	2.5	50	-	1	3	-
	-	-	5	5	-	-	1	3	9.6
Pb 4th Cleaner	-	-	5	5	-	-	1	3	-
Combine lead rougher and 1st cleaner scavenger tails for zinc flotation.									
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A350	DF1012					
Condition 1	2500	-	-	-	-	-	5	-	-
2	-	800	-	-	-	-	5	-	12.0
Zn Rougher	-	-	20	5	-	-	1	4	-
	-	-	10	2.5	-	-	1	3	-
Zn Regrind (PM)	1000	-	-	-	-	20	-	-	-
H.I. Cond	-	-	10	-	-	-	15	-	-
Zn 1st Cleaner	-	-	-	5	-	-	1	5	11.7
zn 1st Cl Scav	-	-	10	5	-	-	1	3	-
Zn 2nd Cleaner	500	-	-	-	-	-	1	4	12.1
Zn 3rd Cleaner	500	-	-	-	-	-	1	3	-
Zn 4th Cleaner	500	-	-	-	-	-	1	2	12.3

*This information is proprietary and confidential to Lakefield Research.

tallurgical Results - Test 105

oduct	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
Pb 4th Cleaner Conc	54.3	2.72	61.90	4.12	75.0	3.0
Pb 4th Cleaner Tail	13.7	0.68	8.45	8.03	2.6	1.4
Pb 3rd Cleaner Tail	22.4	1.12	4.45	6.97	2.2	2.1
Pb 2nd Cleaner Tail	71.1	3.56	1.58	5.71	2.5	5.3
Pb 1st Cl Scav Conc	32.3	1.62	1.05	5.68	0.8	2.4
Zn 4th Cleaner Conc	96.4	4.83	0.46	54.80	1.0	69.7
Zn 4th Cleaner Tail	11.6	0.58	1.21	36.40	0.3	5.6
Zn 3rd Cleaner Tail	12.6	0.63	1.57	16.80	0.4	2.8
Zn 2nd Cleaner Tail	20.7	1.03	1.22	5.04	0.5	1.4
Zn 1st Cl Scav Conc	21.0	1.05	1.46	4.29	0.7	1.2
Zn 1st Cl Scav Tail	101.2	5.07	0.59	0.97	1.3	1.3
Zn Rougher Tail	1540.2	77.11	0.37	0.19	12.7	3.8
ad (Calc)	1997.2	100.00	2.25	3.80	100.0	100.0

1 Circuit

lculated Grades and Recoveries

oducts 1 and 2		3.40	51.20	4.90	77.6	4.4
oducts 1 to 3		4.52	39.60	5.42	79.8	6.5
oducts 1 to 5		9.70	19.20	5.57	83.1	14.2
oducts 6 and 7		5.41	0.54	52.80	1.3	75.3
oducts 6 to 8		6.04	0.65	49.10	1.7	78.1
oducts 6 to 10		8.12	0.82	37.70	2.9	80.7
oducts 6 to 11		13.19	0.73	23.60	4.2	82.0
oducts 6 to 12		90.30	0.42	3.61	16.9	85.8

TEST NO. 106

Purpose: To repeat the conditions of Test 82 (Project 3458B, Comp. 5) but replace NaCN with PKD* complex.

Procedure: Standard.

Feed: 2000 grams of minus 10 mesh Composite 5.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

	Reagents Added, grams per tonne					Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Na_2SiO_3	Grind	Cond.	Froth	
Primary Grind	2000	200	-	-	-	40	-	-	-
Pb Rougher	-	-	5	15	-	-	1	3	9.4
	-	-	5	2.5	-	-	1	3	-
	-	-	5	2.5	-	-	1	3	-
Pb Conc Regr	-	75	20	-	-	30	-	-	-
Pb 1st Cleaner	-	20	-	5	100	-	1	3	9.0
	-	-	2.5	5	-	-	1	2	-
Pb 1st Cl Scav	-	-	5	-	-	-	1	2	-
Pb 2nd Cleaner	-	20	-	-	50	-	1	2	9.0
	-	-	5	2.5	-	-	1	2	-
Pb 3rd Cleaner	-	10	-	-	25	-	1	2	8.9
	-	-	2.5	2.5	-	-	1	1	-
Pb 4th Cleaner	-	10	1.0	2.5	25	-	1	2	8.9
Combine lead rougher and 1st cleaner scavenger tails for zinc flotation.									
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A350	DF1012					
Condition 1	2500	-	-	-	-	-	-	-	-
2	-	500	-	-	-	-	-	-	-
Zn Rougher	-	-	10	5	-	-	1	2	11.8
	-	-	5	-	-	-	1	2	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 106

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	5.80	0.29	62.20	1.12	29.4	0.4
2. Pb 4th Cleaner Tail	3.40	0.17	30.80	1.66	8.5	0.3
3. Pb 3rd Cleaner Tail	9.10	0.45	17.50	1.69	12.8	0.9
4. Pb 2nd Cleaner Tail	23.90	1.19	5.65	1.58	11.0	2.2
5. Pb 1st Cl Scav Conc	15.20	0.75	1.90	1.56	2.3	1.4
6. Zn Rougher Conc	98.80	4.90	0.36	2.28	2.9	13.2
7. Zn Rougher Tail	1858.70	92.25	0.22	0.75	33.1	81.6
Head (Calc)	2014.90	100.00	0.61	0.85	100.0	100.0

Combined Products

Products 1 and 2		0.46	50.60	1.30	37.9	0.7
Products 1 to 3		0.91	34.20	1.49	50.7	1.6
Products 1 to 4		2.10	18.00	1.54	61.7	3.8
Products 1 to 5		2.85	13.80	1.55	64.0	5.2
Products 6 and 7		97.15	0.23	0.83	36.0	94.8

TEST NO. 108

Purpose: To repeat Test 106 (Vangorda, Comp. 5) but with reduced PKD* complex and Na_2SiO_3 additions.

Procedure: Standard.

Feed: 2000 grams of minus 10 mesh Composite 5.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

	Reagents Added, grams per tonne					Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Na_2SiO_3	Grind	Cond.	Froth	
Primary Grind	2000	100	-	-	-	40	-	-	-
Pb Rougher	-	-	10	15	-	-	1	3	9.2
	-	-	5	-	-	-	1	3	-
	-	-	5	-	-	-	1	3	-
Pb Conc Regr	-	50	20	-	-	30	-	-	-
Pb 1st Cleaner	-	-	-	5	50	-	1	3	9.0
	-	-	5	-	-	-	1	2	-
Pb 1st Cl Scav	-	-	5	-	-	-	2	2	-
Pb 2nd Cleaner	-	20	-	-	20	-	1	2	9.1
	-	-	5	-	-	-	1	2	-
Pb 3rd Cleaner	-	10	-	-	10	-	1	2	-
	-	-	2.5	-	-	-	1	1	-
Pb 4th Cleaner	-	10	-	-	10	-	1	2	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 108

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	9.30	0.47	41.60	1.48	27.9	0.8
2. Pb 4th Cleaner Tail	6.00	0.30	10.70	1.27	4.6	0.4
3. Pb 3rd Cleaner Tail	32.80	1.63	7.51	1.10	17.4	2.0
4. Pb 2nd Cleaner Tail	92.40	4.60	2.26	0.82	14.8	4.2
5. Pb 1st Cl Scav Conc	32.80	1.63	1.47	0.69	3.4	1.2
6. Pb 1st Cl Scav Tail	184.50	9.19	0.56	1.42	7.3	14.5
7. Pb Rougher Tailing	1649.40	82.18	0.21	0.84	24.6	76.9
Head (Calc)	2007.20	100.00	0.70	0.90	100.0	100.0

Combined Products

Products 1 and 2		0.77	29.60	1.40	32.5	1.2
Products 1 to 3		2.40	14.60	1.20	49.9	3.2
Products 1 to 4		7.00	6.49	0.95	64.7	7.4
Products 1 to 5		8.63	5.54	0.90	68.1	8.6
Products 1 to 6		17.82	2.97	1.17	75.4	23.1

TEST NO. 109

Purpose: To repeat conditions of Test 105 on Vangorda Master Composite.

Procedure: Standard.

Feed: 2000 grams of minus 10 mesh Vangorda Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

	Reagents Added, grams per tonne					Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Na_2SiO_3	Grind	Cond.	Froth	
Primary Grind	2000	150	-	-	-	40	-	-	-
Pb Rougher	-	-	20	20	-	-	1	4	9.1
	-	-	10	5	-	-	1	3	-
	-	-	5	5	-	-	1	3	-
Pb Conc Regr	-	50	20	-	-	30	-	-	-
Pb 1st Cleaner	-	10	-	5	100	-	1	4	9.0
	-	-	5	2.5	-	-	1	5	-
Pb 1st Cl Scav	-	-	5	5	-	-	2	3	-
Pb 2nd Cleaner	-	25	10	2.5	50	-	1	4	9.1
	-	-	5	5	-	-	1	3	-
Pb 3rd Cleaner	-	10	-	2.5	50	-	1	3	-
	-	-	5	2.5	-	-	1	2	-
Pb 4th Cleaner	-	10	2.5	2.5	-	-	1	3	9.2
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A350	DF1012					
Condition 1	2500	-	-	-	-	-	5	-	-
2	-	600	-	-	-	-	5	-	11.6
Zn Rougher	-	-	20	5	-	-	1	4	-
	-	-	10	2.5	-	-	1	3	-
Zn Conc Regr	1000	-	-	-	-	20	-	-	-
H.I. Cond	-	-	10	-	-	-	10	-	-
Zn 1st Cl	-	-	-	5	-	-	1	5	11.5
Zn 1st Cl Scav	-	-	10	5	-	-	1	3	-
Zn 2nd Cl	500	-	-	-	-	-	1	4	12.0
Zn 3rd Cl	500	-	-	-	-	-	1	3	12.2
Zn 4th Cl	500	-	-	-	-	-	1	2	12.3

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 109

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	70.3	3.52	55.80	8.75	50.5	6.8
2. Pb 4th Cleaner Tail	26.9	1.35	19.80	18.20	6.9	5.5
3. Pb 3rd Cleaner Tail	35.0	1.75	11.30	16.00	5.1	6.2
4. Pb 2nd Cleaner Tail	98.7	4.94	8.32	10.70	10.6	11.7
5. Pb 1st Cl Scav Conc	17.5	0.88	9.74	14.20	2.2	2.8
6. Zn 4th Cleaner Conc	58.0	2.90	2.27	51.40	1.7	33.2
7. Zn 4th Cleaner Tail	17.3	0.86	4.98	34.90	1.1	6.7
8. Zn 3rd Cleaner Tail	19.0	0.95	5.56	21.30	1.4	4.5
9. Zn 2nd Cleaner Tail	31.3	1.57	4.43	9.24	1.8	3.2
10. Zn 1st Cl Scav Conc	22.2	1.11	5.05	12.10	1.4	3.0
11. Zn 1st Cl Scav Tail	140.2	7.01	2.35	2.69	4.2	4.2
12. Zn Rougher Tail	1462.4	73.16	0.70	0.75	13.1	12.2
Head (Calc)	1998.8	100.00	3.89	4.50	100.0	100.0

*Zn Circuit

Calculated Grades and Recoveries

Products 1 and 2		4.87	45.80	11.40	57.4	12.3
Products 1 to 3		6.62	36.70	12.60	62.5	18.5
Products 1 to 5		12.44	23.50	12.00	75.3	33.0
Products 6 and 7		3.76	2.89	47.60	2.8	39.9
Products 6 to 8		4.71	3.43	42.30	4.2	44.4
Products 6 to 10		7.39	3.88	30.80	7.4	50.6
Products 6 to 11		14.40	3.14	17.10	11.6	54.8
Products 6 to 12		87.56	1.10	3.44	24.7	67.0

TEST NO. 117

Purpose: To perform a standard Grum test on a 1:1 mixture of Grum Composite G-1 and Vangorda Master Composite.

Procedure: Standard procedure.

Feed: 2000 grams of minus 10 mesh 1:1 Grum Comp G-1 and Vangorda Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	$Ca(OH)_2$	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	750	180	8	-	40	-	-	-
Pb Rougher	-	-	40	15	-	1	2	10.6
	-	-	-	5	-	1	3	-
	-	-	20	5	-	1	3	-
	-	-	5	5	-	1	3	-
Pb Conc Regrind	-	100	20	-	40	-	-	-
Pb 1st Cleaner	-	-	-	10	-	1	3	9.5
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	15	-	-	-	1	3	9.5
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	15	-	-	-	1	2	-
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	10	1.2	2.5	-	1	3	9.6
Combine lead rougher and 1st cleaner scav tails for zinc flotation.								
Zn Circuit:		**$CuSO_4$**	**A343**	**DF1012**				
Condition	2000	-	-	-	-	5	-	-
	-	600	-	-	-	5	-	-
Zn Rougher	-	-	30	10	-	1	3	11.9
	-	-	10	5	-	1	3	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int Cond	-	-	20	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.5
Zn 1st Cl Scav	-	-	10	2.5	-	1	3	-
Zn 2nd Cleaner	500	-	-	-	-	1	4	11.9
Zn 3rd Cleaner	500	-	-	-	-	1	3.5	12.1
Zn 4th Cleaner	500	-	-	-	-	1	3	12.2

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 117

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	31.30	1.57	62.10	5.47	31.1	1.8
2. Pb 4th Cleaner Tail	13.70	0.68	35.00	9.25	7.6	1.3
3. Pb 3rd Cleaner Tail	17.40	0.87	21.90	11.70	6.1	2.2
4. Pb 2nd Cleaner Tail	98.80	4.94	13.30	14.60	21.0	15.3
5. Pb 1st Cl Scav Conc	7.50	0.38	9.24	14.00	1.1	1.1
6. Zn 4th Cleaner Conc	112.90	5.65	5.20	48.10	9.4	57.8
7. Zn 4th Cleaner Tail	13.70	0.69	9.17	19.20	2.0	2.8
8. Zn 3rd Cleaner Tail	22.80	1.14	6.49	9.82	2.4	2.4
9. Zn 2nd Cleaner Tail	52.30	2.62	3.69	4.11	3.1	2.3
10. Zn 1st Cl Scav Conc	28.30	1.42	4.40	5.83	1.9	1.8
11. Zn 1st Cl Scav Tail	234.50	11.73	1.33	1.26	5.0	3.2
12. Zn Rougher Tail	1365.30	68.31	0.43	0.55	9.3	8.0
Head (Calc)	1998.50	100.00	3.14	4.70	100.0	100.0

Combined Products						
Products 1 and 2		2.25	53.90	6.61	38.7	3.1
Products 1 to 3		3.12	45.00	8.03	44.8	5.3
Products 1 to 5		8.44	24.80	12.10	66.9	21.7
Products 6 and 7		6.34	5.63	45.00	11.4	60.6
Products 6 to 8		7.48	5.76	39.60	13.8	63.0
Products 6 to 10		11.52	5.12	27.40	18.8	67.1
Products 6 to 11		23.25	3.21	14.20	23.8	70.3
Products 6 to 12		91.56	1.14	4.02	33.1	78.3

TEST NO. 118

Purpose: To repeat Test No. 117, but on a mixture of 3 parts Grum Composite G-1 and 1 part Vangorda Master Composite.

Procedure: Standard procedure.

Feed: 2000 grams of minus 10 mesh 3:1 Grum Comp G-1 and Vangorda Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	$Ca(OH)_2$	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	750	180	8	-	40	-	-	-
Pb Rougher	-	-	40	15	-	1	2	10.8
	-	-	-	5	-	1	3	-
	-	-	20	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	-	100	20	-	40	-	-	-
Pb 1st Cleaner	-	-	5	10	-	1	3	9.5
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	15	-	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	15	-	-	-	1	2	9.7
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	10	1.2	2.5	-	1	3	-
Combine lead rougher and 1st cleaner scav tails for zinc flotation.								
Zn Circuit:		**$CuSO_4$**	**A343**	**DF1012**				
Condition	2000	-	-	-	-	5	-	-
	-	600	-	-	-	5	-	-
Zn Rougher	-	-	30	10	-	1	3	11.8
	-	-	10	5	-	1	3	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int Cond	-	-	20	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.6
Zn 1st Cl Scav	-	-	10	5	-	1	3	-
Zn 2nd Cleaner	500	-	-	-	-	1	4	-
Zn 3rd Cleaner	500	-	-	-	-	1	3.5	12.1
Zn 4th Cleaner	500	-	-	-	-	1	3	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 118

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	50.30	2.52	64.20	5.25	55.4	2.7
2. Pb 4th Cleaner Tail	20.80	1.04	22.40	10.90	8.0	2.3
3. Pb 3rd Cleaner Tail	26.20	1.31	12.40	11.10	5.6	3.0
4. Pb 2nd Cleaner Tall	102.90	5.14	6.37	12.60	11.2	13.4
5. Pb 1st Cl Scav Conc	16.20	0.81	4.94	13.40	1.4	2.2
6. Zn 4th Cleaner Conc	110.20	5.51	1.90	52.90	3.5	60.2
7. Zn 4th Cleaner Tall	9.10	0.45	5.70	23.30	0.9	2.2
8. Zn 3rd Cleaner Tail	13.20	0.66	4.03	10.20	0.9	1.4
9. Zn 2nd Cleaner Tail	31.80	1.59	2.18	3.65	1.2	1.2
10. Zn 1st Cl Scav Conc	30.20	1.51	2.52	4.65	1.3	1.5
11. Zn 1st Cl Scav Tail	207.40	10.36	0.74	1.03	2.6	2.2
12. Zn Rougher Tail	1382.60	69.10	0.34	0.54	8.0	7.7
Head (Calc)	2000.90	100.00	2.92	4.84	100.0	100.0

Combined Products

Products 1 and 2		3.56	52.00	6.90	63.4	5.0
Products 1 to 3		4.87	41.30	8.03	69.0	8.0
Products 1 to 5		10.82	22.00	10.60	81.6	23.6
Products 6 and 7		5.96	2.19	50.70	4.4	62.4
Products 6 to 8		6.62	2.37	46.60	5.3	63.8
Products 6 to 10		9.72	2.36	33.10	7.8	66.5
Products 6 to 11		20.08	1.53	16.50	10.4	68.7
Products 6 to 12		89.18	0.61	4.14	18.4	76.4

TEST NO. 119

Purpose: To repeat Tests 117 and 118, but on a mixture of 1 part Grum Composite G-1 and 3 parts Vangorda Master Composite.

Procedure: Standard procedure.

Feed: 2000 grams of minus 10 mesh1:3 Grum Comp G-1 and Vangorda Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	$Ca(OH)_2$	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	500	180	16	-	40	-	-	-
Pb Rougher	-	-	50	15	-	1	2	9.8
	-	-	-	5	-	1	3	-
	-	-	20	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	-	100	25	-	40	-	-	-
Pb 1st Cleaner	-	-	10	10	-	1	3	9.5
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	5	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	15	-	-	-	1	2	10.0
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	10	1.2	2.5	-	1	3	-
Combine lead rougher and 1st cleaner scav tails for zinc flotation.								
Zn Circuit:		**$CuSO_4$**	**A343**	**DF1012**				
Condition	2000	-	-	-	-	5	-	-
	-	800	-	-	-	5	-	12.0
Zn Rougher	-	-	30	10	-	1	3	-
	-	-	10	5	-	1	3	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 119

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	63.50	3.17	53.00	8.39	51.0	5.8
2. Pb 4th Cleaner Tail	41.10	2.05	22.80	13.10	14.2	5.9
3. Pb 3rd Cleaner Tail	48.30	2.41	9.87	11.70	7.2	6.2
4. Pb 2nd Cleaner Tail	162.80	8.12	4.34	8.74	10.7	15.5
5. Pb 1st Cl Scav Conc	43.10	2.15	2.66	7.02	1.7	3.3
6. Zn Rougher Conc	378.00	18.85	1.41	13.80	8.1	56.9
7. Zn Rougher Tail	1268.40	63.25	0.37	0.47	7.1	6.4
Head (Calc)	2005.20	100.00	3.29	4.58	100.0	100.0

Combined Products

Products 1 and 2		5.22	41.10	10.20	65.2	11.7
Products 1 to 3		7.63	31.30	10.70	72.4	17.9
Products 1 to 4		15.75	17.40	9.69	83.1	33.4
Products 1 to 5		17.90	15.60	9.37	84.8	36.7
Products 6 and 7		82.10	0.61	3.53	15.2	63.3

NO. 120

Purpose: To repeat Test No. 117, but replace $Ca(OH)_2$ with Na_2CO_3 in the primary grind and double the collector to the regrind.

Procedure: Pb circuit only.

Feed: 2000 grams of minus 10 mesh1:1 Grum Comp G-1 and Vangorda Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	1500	180	8	-	40	-	-	-
Pb Rougher	-	-	40	15	-	1	2	10.4
	-	-	-	5	-	1	3	-
	-	-	20	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	-	100	40	-	40	-	-	-
Pb 1st Cleaner	-	-	-	10	-	1	3	9.6
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	15	-	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	15	-	-	-	1	2	9.5
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	10	-	2.5	-	1	3	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 120

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb 4th Cleaner Conc	89.20	4.45	52.60	7.47	70.5	7.0
2. Pb 4th Cleaner Tail	23.90	1.19	16.30	10.90	5.8	2.7
3. Pb 3rd Cleaner Tail	31.20	1.56	7.45	10.20	3.5	3.3
4. Pb 2nd Cleaner Tail	150.50	7.51	3.54	9.17	8.0	14.5
5. Pb 1st Cl Scav Conc	23.90	1.19	3.05	9.05	1.1	2.3
6. Pb 1st Cl Scav Tail	282.20	14.09	1.06	7.27	4.5	21.5
7. Pb Rougher Tail	1402.20	70.01	0.31	3.31	6.6	48.7
Head (Calc)	2003.10	100.00	3.32	4.76	100.0	100.0

Combined Products

Products 1 and 2		5.64	44.90	8.19	76.3	9.7
Products 1 to 3		7.20	36.80	8.63	79.8	13.0
Products 1 to 4		14.71	19.80	8.90	87.8	27.5
Products 1 to 5		15.90	18.60	8.92	88.9	29.8
Products 1 to 6		29.99	10.35	8.14	93.4	51.3
Products 6 and 7		84.10	0.52	3.97	11.1	70.2

TEST NO. 121

Purpose: To repeat Test No. 120, but return to lime in the grind and increase PKD complex* to the regrind.

Procedure: Pb circuit only.

Feed: 2000 grams of minus 10 mesh1:1 Grum Comp G-1 and Vangorda Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	$Ca(OH)_2$	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	750	180	8	-	40	-	-	-
Pb Rougher	-	-	40	15	-	1	2	11.0
	-	-	-	5	-	1	3	-
	-	-	20	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	-	150	40	-	40	-	-	-
Pb 1st Cleaner	-	-	-	10	-	1	3	9.6
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	5	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	15	-	-	-	1	2	9.7
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	10	-	2.5	-	1	3	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 121

Product	Weight		Assays %		% Distribution	
	g	%	Pb	Zn	Pb	Zn
1. Pb Cleaner Conc	45.30	2.26	59.00	6.25	41.1	2.9
2. Pb 4th Cleaner Tail	11.90	0.59	26.00	11.00	4.7	1.3
3. Pb 3rd Cleaner Tail	23.10	1.15	15.70	13.20	5.6	3.1
4. Pb 2nd Cleaner Tail	91.70	4.58	11.20	15.40	15.8	14.6
5. Pb 1st Cl Scav Conc	27.90	1.39	8.36	15.20	3.6	4.4
6. Pb 1st Cl Scav Tail	299.20	14.94	4.70	16.60	21.6	51.3
7. Pb Rougher Tail	1504.50	75.09	0.33	1.44	7.6	22.4
Head (Calc)	2003.60	100.00	3.25	4.84	100.0	100.0

Combined Products

Products 1 and 2		2.85	52.20	7.24	45.8	4.2
Products 1 to 3		4.00	41.70	8.95	51.4	7.3
Products 1 to 4		8.58	25.40	12.40	67.2	21.9
Products 1 to 5		9.97	23.00	12.80	70.8	26.3
Products 1 to 6		24.91	12.00	15.10	92.4	77.6
Products 6 and 7		90.03	1.06	3.96	29.2	73.7

Metallurgical Results - Test 142

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	61.20	3.07	66.40	5.20	63.8	2.7	
2. Pb 4th Cleaner Tail	14.10	0.71	36.10	11.30	8.0	1.4	
3. Pb 3rd Cleaner Tail	26.90	1.35	19.30	14.00	8.2	3.3	
4. Pb 2nd Cleaner Tail	75.60	3.78	5.46	16.90	6.5	11.0	
5. Pb 1st Cl Scav Conc	16.30	0.82	2.36	16.50	0.6	2.3	
6. Zn 4th Cleaner Conc	94.60	4.74	0.74	56.10	1.1	45.9	57.9
7. Zn 4th Cleaner Tail	12.80	0.64	1.48	42.30	0.3	4.7	5.9
8. Zn 3rd Cleaner Tail	12.30	0.62	1.64	28.00	0.3	3.0	3.8
9. Zn 2nd Cleaner Tail	32.10	1.61	1.49	17.80	0.7	4.9	6.2
10. Zn 1st Cl Scav Conc	21.60	1.08	1.72	19.60	0.6	3.7	4.6
11. Zn 1st Cl Scav Tail	171.50	8.59	0.79	3.40	2.1	5.0	6.3
12. Zn Rougher Tail	1457.30	72.99	0.34	0.96	7.8	12.1	15.3
Head (Calculated)	1996.30	100.00	3.19	5.80	100.00	100.00	100.0

*Zn Circuit

Combined Products							
Products 1 and 2		3.78	60.70	6.34	71.8	4.1	
Products 1 to 3		5.13	49.80	8.36	80.0	7.4	
Products 1 to 5		9.73	28.60	12.40	87.1	20.7	
Products 6 and 7		5.38	0.83	54.50	1.4	50.6	63.8
Products 6 to 8		6.00	0.91	51.70	1.7	53.6	67.6
Products 6 to 10		8.69	1.12	41.40	3.0	62.2	78.4
Products 6 to 11		17.28	0.96	22.50	5.1	67.2	84.7
Products 6 to 12		90.27	0.46	5.09	12.90	79.30	100.0

TEST NO. 142

Purpose: To repeat conditions of Test 107 (locked cycle test on Composite G-1) on the Grum Master Composite.

Procedure: Standard.

Feed: 2000 grams of minus 10 mesh Grum Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	$Ca(OH)_2$	PKD* Complex 1:1	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	750	180	8	-	40	-	-	-
Pb Rougher	-	-	40	10	-	1	2	9.8
	-	-	-	5	-	1	3	-
	-	-	20	5	-	1	3	-
	-	-	5	5	-	1	3	-
Pb Conc Regrind	-	100	20	-	40	-	-	-
Pb 1st Cleaner	-	-	-	12.5	-	1	3	8.8
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	15	-	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	15	-	-	-	1	2	8.6
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	10	-	2.5	-	1	3	8.5
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Condition	2000	-	-	-	-	5	-	-
	-	600	-	-	-	5	-	11.6
Zn Rougher	-	-	30	5	-	1	3	-
	-	-	10	2.5	-	1	3	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	20	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.5
Zn 2nd Cleaner	500	-	-	-	-	1	4	11.9
Zn 3rd Cleaner	500	-	-	-	-	1	3.5	-
Zn 4th Cleaner	500	-	-	-	-	1	3	12.0

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 143

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	103.10	5.16	50.40	9.54	80.3	8.6	
2. Pb 4th Cleaner Tail	13.70	0.69	12.60	14.40	2.7	1.7	
3. Pb 3rd Cleaner Tail	14.80	0.74	7.92	15.20	1.8	2.0	
4. Pb 2nd Cleaner Tail	73.30	3.67	3.27	16.70	3.7	10.7	
5. Pb 1st Cl Scav Conc	23.20	1.16	1.73	15.50	0.6	3.1	
6. Zn 4th Cleaner Conc	87.00	4.36	0.68	55.60	0.9	42.2	57.0
7. Zn 4th Cleaner Tail	14.70	0.73	1.08	44.00	0.2	5.6	7.6
8. Zn 3rd Cleaner Tail	14.30	0.72	1.19	32.30	0.3	4.0	5.5
9. Zn 2nd Cleaner Tail	26.30	1.32	1.17	17.70	0.5	4.0	5.5
10. Zn 1st Cl Scav Conc	24.10	1.21	1.19	14.40	0.5	3.0	4.1
11. Zn 1st Cl Scav Tail	156.70	7.84	0.66	3.19	1.6	4.4	5.9
12. Zn Rougher Tail	1446.70	72.40	0.31	0.85	6.9	10.7	14.4
Head (Calculated)	1997.90	100.00	3.24	5.75	100.00	100.00	100.0

*Zn Circuit

Combined Products							
Products 1 and 2		5.85	45.90	10.10	83.0	10.3	
Products 1 to 3		6.59	41.70	10.70	84.8	12.3	
Products 1 to 5		11.42	25.30	13.10	89.1	26.1	
Products 6 and 7		5.09	0.74	53.90	1.1	47.8	64.6
Products 6 to 8		5.81	0.79	51.30	1.4	51.8	70.1
Products 6 to 10		8.34	0.91	40.60	2.4	58.8	79.7
Products 6 to 11		16.18	0.79	22.50	4.0	63.2	85.6
Products 6 to 12		88.58	0.40	4.80	10.90	73.90	100.0

TEST NO. 143

Purpose: To repeat conditions of Test 93 (locked cycle test on Composite G-2) on the Grum Master Composite.

Procedure: Standard.

Feed: 2000 grams of minus 10 mesh Grum Master Composite.

Grind: 30 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	$Ca(OH)_2$	Thiourea* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	750	150	8	-	30	-	-	-
Pb Rougher	-	-	40	10	-	1	2	10.2
	-	-	-	5	-	1	3	-
	-	-	20	5	-	1	3	-
	-	-	-	5	-	1	2	-
Pb Conc Regrind	-	50	20	-	30	-	-	-
Pb 1st Cleaner	-	-	-	10	-	1	3	8.9
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	15	-	2.5	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	15	-	-	-	1	2	9.0
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	15	-	2.5	-	1	3	-
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Conditioner	2000	-	-	-	-	5	-	-
	-	600	-	-	-	5	-	-
Zn Rougher	-	-	25	5	-	1	3	11.7
	-	-	15	-	-	1	3	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	20	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.5
Zn 1st Cl Scav	-	-	10	-	-	1	3	-
Zn 2nd Cleaner	500	-	-	-	-	1	4	11.9
Zn 3rd Cleaner	500	-	-	-	-	1	3.5	-
Zn 4th Cleaner	500	-	-	-	-	1	3	12.0

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 144

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	83.10	4.18	58.10	7.87	75.0	5.7	
2. Pb 4th Cleaner Tail	21.30	1.07	23.10	15.00	7.6	2.8	
3. Pb 3rd Cleaner Tail	20.20	1.02	9.03	12.70	2.8	2.3	
4. Pb 2nd Cleaner Tail	62.80	3.16	3.15	11.70	3.1	6.4	
5. Pb 1st Cl Scav Conc	19.50	0.98	2.47	13.10	0.7	2.2	
6. Zn 4th Cleaner Conc	134.40	6.76	0.61	55.70	1.3	65.7	81.6
7. Zn 4th Cleaner Tail	7.60	0.38	1.56	29.00	0.2	1.9	2.4
8. Zn 3rd Cleaner Tail	8.50	0.43	1.39	13.90	0.2	1.1	1.3
9. Zn 2nd Cleaner Tail	26.70	1.34	0.97	4.18	0.4	1.0	1.2
10. Zn 1st Cl Scav Conc	14.00	0.70	1.13	4.33	0.3	0.5	0.7
11. Zn 1st Cl Scav Tail	253.40	12.74	0.50	0.91	2.0	2.0	2.5
12. Zn Rougher Tail	1337.20	67.24	0.31	0.71	6.4	8.4	10.3
Head (Calculated)	1988.20	100.00	3.24	5.73	100.00	100.00	100.0

*Zn Circuit

Combined Products

Products 1 and 2		5.25	51.00	9.32	82.6	8.5	
Products 1 to 3		6.27	44.10	9.87	85.4	10.8	
Products 1 to 5		10.41	27.80	10.70	89.2	19.4	
Products 6 and 7		7.14	0.66	54.30	1.5	67.6	84.0
Products 6 to 8		7.57	0.70	52.00	1.7	68.7	85.3
Products 6 to 10		9.61	0.77	41.80	2.4	70.2	87.2
Products 6 to 11		22.35	0.62	18.50	4.4	72.2	89.7
Products 6 to 12		89.59	0.39	5.15	10.80	80.60	100.0

TEST NO. 144

Purpose: To repeat conditions of Test 141 (Composite G-3) on the Grum Master Composite.

Procedure: Standard.

Feed: 2000 grams of minus 10 mesh Grum Master Composite.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	Na_2CO_3	PKD* Complex 3:7 PKD:NaCN	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	1500	250	8	-	40	-	-	-
Pb Rougher	-	-	40	15	-	1	5	9.2
	-	-	15	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	250	75	10	-	30	-	-	-
Pb 1st Cleaner	-	-	-	5	-	1	3	9.1
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	-	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	20	-	-	-	1	2	9.0
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	20	-	2.5	-	1	3	-
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Condition	2000	-	-	-	-	5	-	-
	-	1000	-	-	-	5	-	11.4
Zn Rougher	-	-	40	5	-	1	3	-
	-	-	20	2.5	-	1	2	-
	-	-	10	2.5	-	1	2	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	25	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.3
	-	-	10	2.5	-	1	2	-
Zn 1st Cl Scav	-	-	5	2.5	-	1	2	-
Zn 2nd Cleaner	500	-	-	2.5	-	1	5	11.8
Zn 3rd Cleaner	500	-	-	-	-	1	4	-
Zn 4th Cleaner	500	-	-	2.5	-	1	3	12.0

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 145

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	102.40	5.13	50.20	8.07	79.0	7.3	
2. Pb 4th Cleaner Tail	21.90	1.10	11.10	13.50	3.8	2.6	
3. Pb 3rd Cleaner Tail	24.20	1.21	5.41	10.60	2.0	2.3	
4. Pb 2nd Cleaner Tail	81.30	4.07	2.51	12.70	3.1	9.1	
5. Pb 1st Cl Scav Conc	31.50	1.58	2.22	11.00	1.1	3.1	
6. Zn 4th Cleaner Conc	130.00	6.51	0.70	55.00	1.4	63.2	83.7
7. Zn 4th Cleaner Tail	7.30	0.37	2.05	23.20	0.2	1.5	2.0
8. Zn 3rd Cleaner Tail	10.70	0.53	1.67	9.75	0.3	0.9	1.2
9. Zn 2nd Cleaner Tail	30.40	1.52	1.07	3.13	0.5	0.8	1.1
10. Zn 1st Cl Scav Conc	20.20	1.01	1.32	3.59	0.4	0.7	0.8
11. Zn 1st Cl Scav Tail	368.60	18.46	0.44	0.60	2.5	2.0	2.6
12. Zn Rougher Tail	1168.00	58.51	0.32	0.63	5.7	6.5	8.6
Head (Calculated)	1996.50	100.00	3.26	5.66	100.00	100.00	100.0

*Zn Circuit

Combined Products

Products 1 and 2		6.23	43.30	9.03	82.8	9.9	
Products 1 to 3		7.44	37.10	9.28	84.8	12.2	
Products 1 to 5		13.09	22.20	10.60	89.0	24.4	
Products 6 and 7		6.88	0.77	53.30	1.6	64.7	85.7
Products 6 to 8		7.41	0.84	50.20	1.9	65.6	86.9
Products 6 to 10		9.94	0.92	38.20	2.8	67.1	88.8
Products 6 to 11		28.40	0.61	13.80	5.3	69.1	91.4
Products 6 to 12		86.91	0.41	4.93	11.00	75.60	100.0

TEST NO. 145

Purpose: To repeat conditions of Test 144 on a 75:25 mixture of Grum Master Composite and Faro III ore.

Procedure: Standard.

Feed: 1500 grams of Grum Master Composite + 500 grams of Faro III ore.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	1500	250	8	-	40	-	-	-
Pb Rougher	-	-	40	15	-	1	5	9.4
	-	-	15	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	250	75	10	-	30	-	-	-
Pb 1st Cleaner	-	-	-	5	-	1	3	9.2
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	-	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	20	-	-	-	1	2	9.1
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	20	-	2.5	-	1	3	-
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Condition	2000	-	-	-	-	5	-	-
	-	1000	-	-	-	5	-	11.7
Zn Rougher	-	-	40	5	-	1	3	-
	-	-	20	2.5	-	1	2	-
	-	-	10	2.5	-	1	2	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	25	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.6
	-	-	10	2.5	-	1	2	-
Zn 1st Cl Scav	-	-	5	2.5	-	1	2	-
Zn 2nd Cleaner	500	-	-	2.5	-	1	5	11.9
Zn 3rd Cleaner	500	-	-	-	-	1	4	12.0
Zn 4th Cleaner	500	-	-	2.5	-	1	3	-

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 146

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	97.80	4.92	52.30	6.94	76.6	6.1	
2. Pb 4th Cleaner Tail	24.70	1.24	15.90	11.00	5.9	2.4	
3. Pb 3rd Cleaner Tail	26.40	1.33	7.71	10.60	3.0	2.5	
4. Pb 2nd Cleaner Tail	90.30	4.54	2.73	12.20	3.7	9.9	
5. Pb 1st Cl Scav Conc	39.80	2.00	1.63	10.20	1.0	3.6	
6. Zn 4th Cleaner Conc	134.50	6.76	0.57	53.80	1.1	64.9	86.1
7. Zn 4th Cleaner Tail	7.50	0.38	1.30	17.10	0.1	1.2	1.5
8. Zn 3rd Cleaner Tail	11.80	0.59	1.07	8.24	0.2	0.9	1.2
9. Zn 2nd Cleaner Tail	35.80	1.80	0.75	2.86	0.4	0.9	1.2
10. Zn 1st Cl Scav Conc	24.50	1.23	0.76	2.49	0.3	0.6	0.7
11. Zn 1st Cl Scav Tail	451.20	22.69	0.31	0.36	2.1	1.5	1.9
12. Zn Rougher Tail	1044.40	52.52	0.36	0.59	5.6	5.5	7.4
Head (Calculated)	1988.70	100.00	3.36	5.60	100.00	100.00	100.0

*Zn Circuit

Combined Products

Products 1 and 2		6.16	45.00	7.76	82.5	8.5	
Products 1 to 3		7.49	38.40	8.26	85.5	11.0	
Products 1 to 5		14.03	21.60	9.81	90.2	24.5	
Products 6 and 7		7.14	0.61	51.80	1.2	66.1	87.6
Products 6 to 8		7.73	0.64	48.50	1.4	67.0	88.8
Products 6 to 10		10.76	0.67	35.60	2.1	68.5	90.7
Products 6 to 11		33.45	0.43	11.70	4.2	70.0	92.6
Products 6 to 12		85.97	0.39	4.91	9.80	75.50	100.0

TEST NO. 146

Purpose: To repeat the conditions of Test 144 on a 50:50 mixture of Grum Master Composite and Faro III ore.

Procedure: Standard.

Feed: 1000 grams of Grum Master Composite + 1000 grams of Faro III ore.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	1500	250	8	-	40	-	-	-
Pb Rougher	-	-	40	15	-	1	5	9.3
	-	-	15	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	250	75	10	-	30	-	-	-
Pb 1st Cleaner	-	-	-	5	-	1	3	9.2
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	-	-	-	1	3	-
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	20	-	-	-	1	2	9.1
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	20	-	2.5	-	1	3	-
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Condition	2000	-	-	-	-	5	-	-
	-	1000	-	-	-	5	-	11.6
Zn Rougher	-	-	40	5	-	1	3	-
	-	-	20	2.5	-	1	2	-
	-	-	10	2.5	-	1	2	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	25	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.4
	-	-	10	2.5	-	1	2	-
Zn 1st Cl Scav	-	-	5	2.5	-	1	2	-
Zn 2nd Cleaner	500	-	-	-	-	1	5	11.8
Zn 3rd Cleaner	500	-	-	-	-	1	4	-
Zn 4th Cleaner	500	-	-	-	-	1	3	12.0

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 147

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	84.90	4.29	64.10	5.45	76.8	4.8	
2. Pb 4th Cleaner Tail	11.00	0.56	23.10	11.60	3.6	1.3	
3. Pb 3rd Cleaner Tail	13.60	0.69	13.10	11.30	2.5	1.6	
4. Pb 2nd Cleaner Tail	54.60	2.76	4.56	11.70	3.5	6.6	
5. Pb 1st Cl Scav Conc	30.90	1.56	3.53	13.20	1.5	4.2	
6. Zn 4th Cleaner Conc	126.40	6.38	0.89	54.90	1.6	71.8	88.1
7. Zn 4th Cleaner Tail	7.40	0.37	2.19	22.10	0.2	1.7	2.1
8. Zn 3rd Cleaner Tail	11.30	0.57	1.95	9.96	0.3	1.2	1.4
9. Zn 2nd Cleaner Tail	25.30	1.28	1.31	3.55	0.5	0.9	1.1
10. Zn 1st Cl Scav Conc	14.40	0.73	1.35	3.55	0.3	0.5	0.7
11. Zn 1st Cl Scav Tail	195.10	9.85	0.68	0.74	1.9	1.5	1.8
12. Zn Rougher Tail	1405.10	70.96	0.37	0.27	7.3	3.9	4.8
Head (Calculated)	1980.00	100.00	3.58	4.88	100.00	100.00	100.0

*Zn Circuit

Combined Products

Products 1 and 2		4.85	59.40	6.16	80.4	6.1	
Products 1 to 3		5.54	53.60	6.80	82.9	7.7	
Products 1 to 5		9.86	32.00	9.18	87.9	18.5	
Products 6 and 7		6.75	0.96	53.10	1.8	73.5	90.2
Products 6 to 8		7.32	1.04	49.70	2.1	74.7	91.6
Products 6 to 10		9.33	1.10	39.80	2.9	76.1	93.4
Products 6 to 11		19.18	0.88	19.70	4.8	77.6	95.2
Products 6 to 12		90.14	0.48	4.41	12.10	81.50	100.0

TEST NO. 147

Purpose: To repeat the conditions of Test 144 on a 50:50 mixture of Faro III and Vangorda Master Composite ores.

Procedure: Standard.

Feed: 1000 grams of Faro III ore + 1000 grams Vangorda Master Composite**
** over 1 year in storage.

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	2000	250	8	-	40	-	-	8.9
Pb Rougher	500	-	40	15	-	1	5	9.6
	-	-	15	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	500	75	10	-	30	-	-	-
Pb 1st Cleaner	-	-	-	5	-	1	3	9.5
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	-	-	-	1	3	9.3
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	20	-	-	-	1	2	9.2
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	20	-	2.5	-	1	3	-
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Condition	2000	-	-	-	-	5	-	-
	-	1000	-	-	-	5	-	11.5
Zn Rougher	-	-	30	10	-	1	3	-
	-	-	10	2.5	-	1	2	-
	-	-	10	2.5	-	1	2	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	20	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.4
	-	-	5	-	-	1	2	-
Zn 1st Cl Scav	-	-	5	2.5	-	1	2	-
Zn 2nd Cleaner	500	-	-	-	-	1	5	11.9
Zn 3rd Cleaner	500	-	-	-	-	1	4	-
Zn 4th Cleaner	500	-	-	-	-	1	3	12.0

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 148

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	81.50	4.08	66.60	5.76	71.7	5.0	
2. Pb 4th Cleaner Tail	14.80	0.74	31.40	11.30	6.1	1.8	
3. Pb 3rd Cleaner Tail	19.70	0.99	15.30	12.20	4.0	2.6	
4. Pb 2nd Cleaner Tail	58.40	2.92	5.78	11.10	4.4	7.0	
5. Pb 1st Cl Scav Conc	17.20	0.86	6.20	12.10	1.4	2.2	
6. Zn 4th Cleaner Conc	119.50	5.98	1.13	53.80	1.8	69.1	84.9
7. Zn 4th Cleaner Tail	9.00	0.45	2.28	23.10	0.3	2.2	2.7
8. Zn 3rd Cleaner Tail	12.80	0.64	1.87	11.50	0.3	1.6	1.9
9. Zn 2nd Cleaner Tail	23.20	1.16	1.25	3.70	0.4	0.9	1.1
10. Zn 1st Cl Scav Conc	12.20	0.61	1.27	3.81	0.2	0.5	0.6
11. Zn 1st Cl Scav Tail	150.80	7.55	0.60	0.83	1.2	1.4	1.7
12. Zn Rougher Tail	1478.50	74.02	0.42	0.36	8.2	5.7	7.1
Head (Calculated)	1997.60	100.00	3.79	4.66	100.00	100.00	100.0

*Zn Circuit

Combined Products							
Products 1 and 2		4.82	61.20	6.61	77.8	6.8	
Products 1 to 3		5.81	53.40	7.56	81.8	9.4	
Products 1 to 5		9.59	34.70	9.05	87.6	18.6	
Products 6 and 7		6.43	1.21	51.70	2.1	71.3	87.6
Products 6 to 8		7.07	1.27	48.00	2.4	72.9	89.5
Products 6 to 10		8.84	1.27	39.20	3.0	74.3	91.2
Products 6 to 11		16.39	0.96	21.50	4.2	75.7	92.9
Products 6 to 12		90.41	0.52	4.19	12.40	81.40	100.0

TEST NO. 148

Purpose: To repeat the conditions of Test 144 on a 75:25 mixture of Vangorda Master Composite and Faro III ores.

Procedure: Standard.

Feed: 500 grams of Faro III ore + 1500 grams Vangorda Master Composite

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	Na_2CO_3	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	2000	250	8	-	40	-	-	8.7
Pb Rougher	500	-	40	15	-	1	5	9.2
	-	-	15	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	500	75	10	-	30	-	-	-
Pb 1st Cleaner	-	-	-	5	-	1	3	9.4
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	-	-	-	1	3	9.2
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	20	-	-	-	1	2	9.2
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	20	-	2.5	-	1	3	-
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Condition	2000	-	-	-	-	5	-	-
	-	800	-	-	-	5	-	11.3
Zn Rougher	-	-	25	10	-	1	3	-
	-	-	10	2.5	-	1	2	-
	-	-	10	2.5	-	1	2	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	15	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.2
	-	-	5	2.5	-	1	2	-
Zn 1st Cl Scav	-	-	5	2.5	-	1	2	-
Zn 2nd Cleaner	500	-	-	-	-	1	5	11.8
Zn 3rd Cleaner	500	-	-	-	-	1	4	-
Zn 4th Cleaner	500	-	-	-	-	1	3	12.0

*This information is proprietary and confidential to Lakefield Research.

Metallurgical Results - Test 150

Product	Weight		Assays %		% Distribution		
	g	%	Pb	Zn	Pb	Zn	Zn*
1. Pb 4th Cleaner Conc	82.20	4.11	64.30	6.14	70.3	5.4	
2. Pb 4th Cleaner Tail	15.80	0.79	31.50	11.70	6.6	2.0	
3. Pb 3rd Cleaner Tail	18.70	0.94	15.80	14.10	4.0	2.8	
4. Pb 2nd Cleaner Tail	68.90	3.45	5.17	14.00	4.7	10.3	
5. Pb 1st Cl Scav Conc	21.70	1.08	3.70	13.90	1.1	3.2	
6. Zn 4th Cleaner Conc	91.60	4.59	1.26	52.30	1.5	51.4	67.4
7. Zn 4th Cleaner Tail	13.60	0.68	1.98	37.20	0.4	5.4	7.1
8. Zn 3rd Cleaner Tail	14.70	0.74	2.02	24.30	0.4	3.8	5.1
9. Zn 2nd Cleaner Tail	29.60	1.48	1.63	9.62	0.6	3.1	4.0
10. Zn 1st Cl Scav Conc	33.10	1.66	1.43	7.40	0.6	2.7	3.4
11. Zn 1st Cl Scav Tail	227.10	11.36	0.78	1.52	2.4	3.7	4.9
12. Zn Rougher Tail	1381.30	69.12	0.40	0.42	7.4	6.2	8.1
Head (Calculated)	1998.30	100.00	3.76	4.67	100.00	100.00	100.0

*Zn Circuit

Combined Products

Products 1 and 2		4.90	59.00	7.03	76.9	7.4	
Products 1 to 3		5.84	52.10	8.17	80.9	10.2	
Products 1 to 5		10.37	31.40	10.70	86.7	23.7	
Products 6 and 7		5.27	1.35	50.40	1.9	56.8	74.5
Products 6 to 8		6.01	1.43	47.10	2.3	60.6	79.6
Products 6 to 10		9.15	1.46	33.90	3.5	66.4	87.0
Products 6 to 11		20.51	1.09	15.90	5.9	70.1	91.9
Products 6 to 12		89.63	0.56	3.97	13.30	76.30	100.0

TEST NO. 150

Purpose: To repeat the conditions of Test 148, but replace Na_2CO_3 with $Ca(OH)_2$ in the lead circuit.

Procedure: Standard.

Feed: 500 grams of Faro III ore + 1500 grams Vangorda Master Composite

Grind: 40 minutes at 65 % solids in a lab ball mill.

Conditions:

Stage	Reagents Added, grams per tonne				Time, minutes			pH
	$Ca(OH)_2$	PKD* Complex	A317 3418A	MIBC	Grind	Cond.	Froth	
Primary Grind	1500	250	8	-	40	-	-	8.3
Pb Rougher	200	-	40	10	-	1	5	9.5
	-	-	15	5	-	1	3	-
	-	-	10	5	-	1	3	-
Pb Conc Regrind	150	75	10	-	30	-	-	-
Pb 1st Cleaner	-	-	-	5	-	1	3	9.0
	-	-	5	2.5	-	1	3	-
Pb 1st Cl Scav	-	-	5	2.5	-	1	2	-
Pb 2nd Cleaner	-	20	-	-	-	1	3	8.9
	-	-	5	2.5	-	1	2	-
Pb 3rd Cleaner	-	20	-	-	-	1	2	-
	-	-	2.5	2.5	-	1	2	-
Pb 4th Cleaner	-	20	-	2.5	-	1	3	8.8
Combine lead rougher and 1st cleaner tailings for zinc flotation								
Zn Circuit:	$Ca(OH)_2$	$CuSO_4$	A343	DF1012				
Condition	2000	-	-	-	-	5	-	-
	-	800	-	-	-	5	-	11.4
Zn Rougher	-	-	25	10	-	1	3	-
	-	-	10	2.5	-	1	2	-
	-	-	5	2.5	-	1	2	-
Zn Conc Regrind	1000	100	-	-	30	-	-	-
High Int. Cond	-	-	15	5	-	15	-	-
Zn 1st Cleaner	-	-	-	-	-	-	5	11.2
Zn 1st Cl Scav	-	-	10	2.5	-	1	2	-
Zn 2nd Cleaner	500	-	-	-	-	1	5	11.8
Zn 3rd Cleaner	500	-	-	-	-	1	4	-
Zn 4th Cleaner	500	-	-	-	-	1	3	12.1