



**Western Copper
Corporation**

Project Proposal
Carmacks Copper Project
Yukon Territory

Appendix G

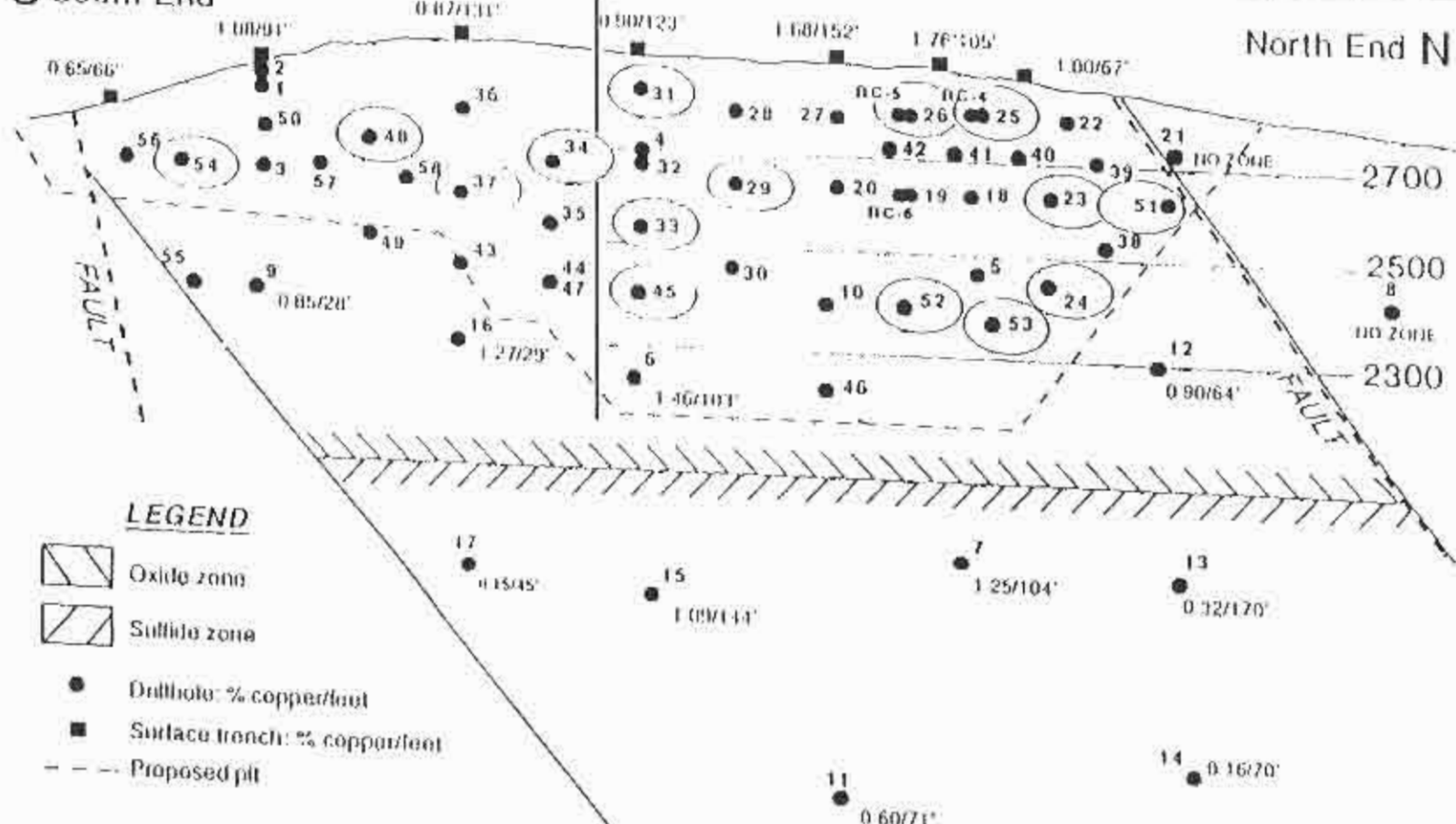
**Summary of Results from the Waste
Rock Characterization Program**

(Hallam Knight Piesold, IEE Addendum No.1, June 1995)






HOLE	INTERVAL TRUE WIDTH	% Cu
1	80'	1.26
2	40'	0.45
3	40'	1.50
4	66'	0.69
5	190'	1.34
10	105'	1.30
18	160'	1.61
19	139'	0.96
20	124'	1.55
22	127'	1.19
23	203'	1.82
24	160'	1.14
25	130'	1.36
26	129'	0.83
27	136'	1.53
28	123'	0.98
29	121'	1.06
30	99'	1.51
31	112'	0.94
32	90'	1.07
33	58'	1.10
34	76'	1.45
35	57'	1.08
36	69'	0.76
37	61'	0.84
38	166'	0.55
39	83'	0.54
40	110'	1.36
41	155'	1.22
42	137'	1.11
43	131'	1.09
45	84'	0.99
46	174'	1.31
47	116'	1.39
48	55'	1.32
49	70'	0.78
50	127'	0.84
51	82'	0.31
52	165'	1.33
53	183'	1.17
54	35'	1.18
55	12'	1.39
56	30'	1.42
57	75'	1.16
58	121'	1.15
RC-4	118'	1.39
RC-5	130'	1.08
RC-6	126'	1.13

S South End

North End N



LEGEND

-  Oxide zone
-  Sulfide zone
-  Drillhole: % copper/foot
-  Surface trench: % copper/foot
-  Proposed pit



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FIGURE 5.1
METALLURGICAL SAMPLE
LOCATIONS

**Western Copper Holdings Ltd.
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**Table 5.1
Waste Rock Mineralogy**

Sample #	Description	Mineralogy		
		Primary	Secondary	Supergene
TS 21 - 178'	Light grey to pink rock with medium grained matrix	Plagioclase - 40% (an 8 or 33) K-feldspar - 15% Hornblende - 6% Biotite - 0.5% Sphene - 1% Quartz - 13% Epidote - 1% Chlorite - 5% Opagues - 0.5%		Clay - 16% (montmorillonite type) Epidote - 1% Pore space - 0.5%
TS 38 - 187'	Light grey, fine to medium grained, rock with granitoid texture	Plagioclase - 70% (An 12 or 29) Quartz - 17% Biotite - 2% Sphene - 0.5% Apatite - 0.5% Magnetite - 1.5%	Montmorillonite - 5.5% Hydrobiotite - 2% Epidote - 0.3% Sericitite - 0.1% Carbonate - 0.1%	
TS 40-33'	Light grey, medium grained rock with granitoid texture and approximately 25% mafic minerals	Plagioclase - 67% (An 11 or 30) Hornblende - 20% Biotite - 5% Sphene - 2% Apatite - 0.8% Magnetite - 0.7%	Hydrobiotite - 2% Epidote - 0.2% Magnetite - 0.2% Carbonate - 0.3%	Montmorillonite - 2% Limonite - 0.1% Pore space - ≤0.1%

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Table 5.2
Waste Rock Quality Test Results (ICP)

Parameter	DDH1-25 10-12	DDH1-25 180-182	DDH1-33 50-52	DDH1-33 150-152	DDH1-33 250-252	DDH1-33 350-352	DDH1-37 50-52	DDH1-37 150-152	DDH1-37 25-252	DDH1-37 349-351	DDH1-53 50-52	DDH1-53 150-152
Aluminium (%)	1.20	1.51	0.87	0.57	0.48	0.71	0.64	0.80	0.45	1.62	0.86	0.70
Arsenic (ppm)	22.00	25.00	17.00	19.00	10.00	11.00	14.00	10.00	6.00	25.00	14.00	15.00
Barium (ppm)	479.00	157.00	114.00	110.00	126.00	84.00	113.00	66.00	100.00	414.00	125.00	169.00
Beryllium (ppm)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bismuth (ppm)	1.00	2.00	1.00	1.00	1.00	9.00	7.00	6.00	6.00	1.00	2.00	5.00
Boron (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cadmium (ppm)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Calcium (%)	1.28	2.08	1.14	0.62	0.32	0.51	0.82	0.88	0.39	1.27	0.88	0.84
Chromium (ppm)	22.00	16.00	16.00	23.00	23.00	28.00	26.00	23.00	30.00	22.00	25.00	26.00
Cobalt (ppm)	7.00	5.00	4.00	3.00	2.00	3.00	3.00	3.00	2.00	8.00	4.00	3.00
Copper (ppm)	1382.00	62.00	12.00	7.00	8.00	193.00	12.00	7.00	164.00	17.00	11.00	19.00
Gold (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron (%)	2.81	2.06	1.71	1.24	1.00	1.68	1.60	1.36	1.22	3.09	1.90	1.34
Lanthanum (ppm)	3.00	3.00	3.00	1.00	1.00	5.00	2.00	2.00	2.00	10.00	2.00	1.00
Lead (ppm)	13.00	13.00	11.00	10.00	1.00	3.00	9.00	6.00	4.00	9.00	7.00	9.00
Magnesium (%)	0.85	0.56	0.63	0.32	0.33	0.43	0.34	0.43	0.28	1.29	0.47	0.40
Manganese (ppm)	500.00	393.00	322.00	197.00	179.00	268.00	179.00	179.00	197.00	715.00	286.00	179.00
Mercury (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Molybdenum (ppm)	3.00	7.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	3.00	1.00	1.00
Nickel (ppm)	2.00	1.00	1.00	1.00	2.00	4.00	3.00	2.00	5.00	7.00	5.00	4.00
Phosphorous (%)	0.12	0.15	0.16	0.11	0.06	0.10	0.14	0.15	0.08	0.16	0.16	0.17
Silicon (%)	0.02	0.33	0.04	0.11	0.02	0.04	0.09	0.11	0.02	0.15	0.19	0.10
Silver (ppm)	1.10	0.40	0.20	0.10	0.10	0.20	0.10	0.10	0.10	0.50	0.10	0.10
Sodium (%)	0.04	0.07	0.06	0.07	0.04	0.05	0.07	0.10	0.04	0.08	0.12	0.12
Strontium (ppm)	20.00	59.00	45.00	32.00	14.00	24.00	40.00	39.00	20.00	71.00	60.00	68.00
Sulphur (ppm)	1.00	4.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Titanium (%)	0.07	0.09	0.06	0.07	0.08	0.10	0.06	0.11	0.06	0.18	0.10	0.10
Tungsten (ppm)	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uranium (ppm)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Vanadium (ppm)	56.00	43.00	31.00	28.00	21.00	35.00	39.00	33.00	27.00	71.00	42.00	31.00
Zinc (ppm)	60.00	45.00	36.00	20.00	22.00	37.00	30.00	25.00	24.00	73.00	39.00	30.00

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Carmacks Copper Project

Table 5.2
Waste Rock Quality Test Results (ICP)

Parameter	DDH1-53 250-252	DDH1-53 350-352	DDH1-53 450-452	DDH1-53 680-682	DDH1-56 50-52	DDH1-56 150-152	DDH1-56 220-222	DDH1-57 50-52	DDH1-57 150-152	DDH1-57 300-302	DDH1-57 350-352	AVERAGE
Aluminum (%)	0.27	0.88	1.64	1.86	1.08	0.72	0.87	1.24	0.70	1.33	1.75	0.91
Arsenic (ppm)	9.00	14.00	32.00	28.00	23.00	13.00	13.00	32.00	12.00	31.00	15.00	16.40
Barium (ppm)	99.00	220.00	391.00	359.00	118.00	100.00	94.00	203.00	198.00	450.00	635.00	196.96
Beryllium (ppm)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Bismuth (ppm)	1.00	1.00	3.00	10.00	10.00	4.00	4.00	8.00	10.00	9.00	1.00	4.12
Boron (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cadmium (ppm)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.92
Calcium (%)	0.19	0.98	2.72	2.43	1.41	0.64	0.65	3.97	0.52	2.69	0.64	1.11
Chromium (ppm)	34.00	32.00	10.00	13.00	25.00	39.00	35.00	19.00	32.00	29.00	34.00	23.28
Cobalt (ppm)	1.00	4.00	5.00	7.00	5.00	3.00	4.00	7.00	4.00	3.00	7.00	3.88
Copper (ppm)	18.00	9.00	27.00	9.00	9.00	10.00	8.00	18.00	71.00	10.00	2344.00	177.08
Gold (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron (%)	0.60	1.90	2.72	2.72	2.58	1.61	1.63	2.57	1.28	1.73	3.41	1.75
Lanthanum (ppm)	1.00	2.00	6.00	2.00	9.00	3.00	4.00	7.00	2.00	8.00	2.00	3.24
Lead (ppm)	3.00	5.00	21.00	21.00	15.00	6.00	4.00	20.00	4.00	21.00	1.00	8.64
Magnesium (%)	0.17	0.51	1.03	0.87	0.75	0.48	0.47	0.74	0.45	0.34	1.23	0.53
Manganese (ppm)	71.00	250.00	518.00	500.00	483.00	322.00	268.00	608.00	286.00	340.00	661.00	316.04
Mercury (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Molybdenum (ppm)	2.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	7.00	2.00	1.96
Nickel (ppm)	1.00	4.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00	2.12
Phosphorous (%)	0.02	0.14	0.14	0.18	0.17	0.10	0.10	0.13	0.07	0.09	0.11	0.11
Silicon (%)	0.02	0.18	0.29	0.33	0.09	0.04	0.13	0.04	0.03	0.32	0.08	0.11
Silver (ppm)	0.10	0.20	0.60	0.60	0.60	0.20	0.20	0.60	0.20	0.90	1.50	0.35
Sodium (%)	0.04	0.14	0.06	0.06	0.09	0.07	0.07	0.04	0.06	0.06	0.09	0.07
Strontium (ppm)	19.00	60.00	47.00	87.00	34.00	36.00	39.00	9.00	23.00	55.00	23.00	36.96
Sulphur (ppm)	1.00	4.00	1.00	3.00	10.00	1.00	3.00	9.00	1.00	7.00	1.00	2.28
Titanium (%)	0.05	0.10	0.11	0.16	0.14	0.08	0.06	0.05	0.09	0.01	0.29	0.09
Tungsten (ppm)	1.00	1.00	6.00	5.00	4.00	11.00	1.00	7.00	1.00	3.00	1.00	2.20
Uranium (ppm)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.60
Vanadium (ppm)	14.00	43.00	59.00	55.00	56.00	32.00	30.00	51.00	27.00	27.00	95.00	37.84
Zinc (ppm)	12.00	39.00	59.00	71.00	52.00	36.00	34.00	51.00	31.00	48.00	93.00	38.68

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Table 5.3a
Acid-Base Accounting

Sample #	Sample Type	Total Sulphur (%)	Paste pH	Neutralizing Potential (NP)	Max Potential Acidity (AP)	Net Neutralizing Potential	NP/AP
Pilot Plant Trench Samples							
	Comp 1	0.10	8.1	8.20	3.13	5.1	2.62
	Comp 2	0.12	8.0	13.3	3.75	9.6	3.55
	Comp 3	0.03	8.1	13.2	0.94	12.3	14.04
Drill Core*							
	Comp 1 +27L•	0.14	8.4	27.2	4.38	22.8	6.21
	Comp 2 +27H	0.08	8.6	15.5	2.50	13.0	6.2
	Comp 3 25-27L	0.01	8.9	31.4	0.31	31.1	101.3
	Comp 4 25-27H	0.08	8.4	12.7	2.50	10.2	5.08
	Comp 5 23-25L	0.04	8.9	21.0	1.25	19.8	16.8
	Comp 6 23-25H	0.03	8.2	12.0	0.94	11.1	12.8
	Comp 7 SE	0.06	8.4	13.4	1.88	11.5	7.1
Waste Rock Samples							
1	DDH 1-25/10-12	0.01	8.2	37.1	0.31	36.8	119.7
2	DDH 1-25/180-182	0.01	8.2	34.5	0.31	34.2	111.3
3	DDH 1-33/50-52	0.01	8.5	24.5	0.31	24.2	79.0
4	DDH 1-33/150-152	0.01	8.6	11.9	0.31	11.6	38
5	DDH 1-33/250-252	0.01	8.6	12.6	0.31	12.3	40.6
6	DDH 1-33/350-352	0.01	8.4	14.5	0.31	14.2	46.8
7	DDH 1-37/50-52	0.01	8.7	12.6	0.31	12.3	40.6
8	DDH 1-37/150-152	0.01	8.8	14.0	0.31	13.7	45.2
9	DDH 1-37/250-252	0.01	8.5	11.3	0.31	11.0	36.5
10	DDH 1-37/349-351	0.01	8.5	37.8	0.31	37.5	121.9
11	DDH 1-53/150-152	0.01	8.7	15.3	0.31	15.0	49.4
12	DDH 1-53/250-252	0.01	8.0	10.1	0.31	9.8	32.6
13	DDH 1-53/350-352	0.01	8.7	15.0	0.31	14.7	48.4
14	DDH 1-53/450-452	0.02	8.3	62.9	0.63	62.3	99.8
15	DDH 1-53/680-682	0.01	8.2	48.3	0.31	48.0	155.8
16	DDH 1-53/50-052	0.01	8.5	16.6	0.31	16.3	53.5
17	DDH 1-56/50-52	0.01	8.6	31.4	0.31	31.1	101.3
18	DDH 1-56/150-152	0.01	8.8	14.0	0.31	13.7	45.2
19	DDH 1-56/220-222	0.01	8.5	33.7	0.31	33.3	108.7
20	DDH 1-57/50-52	0.01	8.1	89.8	0.31	89.5	289.7
21	DDH 1-57/150-152	0.01	8.2	12.9	0.31	12.6	41.6
22	DDH 1-57/300-302	0.01	8.0	55.6	0.31	55.3	179.4
23	DDH 1-57/350-352	0.01	8.3	17.9	0.31	17.6	57.7

* L = low grade ore, H = high grade ore; See Table 3.2b for composite intervals.

(H1811\acid-base.wk3)

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Table 5.3b
Metallurgical Drill Core Composites

Sample #	DDH #	From	To	Length (feet)	Weight (lbs)
-27L	25	18	101	83	235
	26	10	86	76	215
	31	102	167	65	185
				224	635
-27H	25	101	176	75	213
	26	86	146	60	170
	31	32	102	70	199
				205	582
25-27L	23	122	241	119	338
	29	252	291	39	110
	33	323.5	334	10.5	30
	51	88.3	174.9	86.6	246
				255.1	724
25-27H	23	241	336	95	270
	29	164	252	88	250
	33	275	323.5	48.5	138
				231.5	658
23-25L	24	384.5	428	43.5	124
	45	436.2	480	43.8	124
	52	406	440	34	97
	52	555	580	25	71
	53	470.8	539.1	68.3	194
				214.6	610
23-25H	24	428	553	125	355
	45	480	524.3	44.3	126
	52	440	555	115	326
				284.3	807
SE	34	73.5	153.5	80	227
	37	181	245.5	64.5	183
	48	10	68	58	165
	54	160	197.2	37.2	106
				239.7	681

Grand total 4697 lbs

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Table 5.4
SWEP Leachate Quality Standards

Contaminant	Concentration in Waste Extract (mg/L)
Aldicarb	0.9
Aldrin + Dieldrin	0.07
Arsenic	5.0
Barium	100.0
Benzene	0.5
Boron	500.0
Cadmium	0.5
Carbaryl/1-Naphthyl-N-methyl carbamate	9.0
Carbon tetrachloride	0.5
Chlordane	0.7
Chromium	5.0
Copper	100.0
Cyanide (free)	20.0
Diazinon	2.0
DDT	3.0
2,4-D	10.0
Ethylbenzene	0.24
Fluorides	150.0
Heptachlor + Heptachlor epoxide	0.3
Lead	5.0
Lindane	0.4
Mercury	0.1
Methoxychlor	90.0
Nitrate + Nitrite	1000.0
Nitrioltriacetic acid (NTA)	5.0
Pathion	5.0
Pentachlorophenol	3.0
Selenium	1.0
Silver	5.0
Tetrachlorophenol, 2,3,4,6-	0.1
Toluene	2.4
Trichlorophenoxyacetic acid, 2,4,5-(2,4,5-T)	28.0
Trihalomethanes	35.0
Uranium	10.0
Xylenes	30.0
Zinc	500.0

(B.C. Reg. 132/92, s.36(e))

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Carmacks Copper Project

Table 5.5
Analyses of Ore and Pregnant Leach Solutions (PLS)

Parameter	Ore Composite No. 1 (SWEP)	Ore Composite No. 2 (SWEP)	Ore Composite No. 3 (SWEP)	Head PLS (ICP)	Neutralized PLS Filtrate (ICP)	Neutralized PLS Precipitate (SWEP)
Ag	<0.01	<0.01	<0.01	<0.5	<0.1	<0.1
Al	1.39	0.5	<0.01	7487	<0.1	7.6
As	<0.02	<0.02	<0.02	1	<0.1	<0.1
Au	<0.01	<0.01	<0.01	<1	<0.1	<0.1
B	0.02	0.09	<0.01	370	<0.1	5.9
Ba	1.12	0.62	2.06	6	0.8	0.55
Be	<0.005	<0.005	<0.005	0.5	0.03	0.04
Bi	<0.02	<0.02	<0.02	<2	<0.1	<0.1
Ca	47.8	48.8	102.2	570	496.4	1411
Cd	0.005	<0.005	<0.005	0.7	<0.01	0.14
Co	0.01	0.02	0.07	22	0.3	1.2
Cr	<0.01	<0.01	<0.01	2	<0.1	<0.1
Cu	97.17	78.98	74.68	8935	0.8	261.5
Fe	2.68	2.43	2.3	7220	0.2	10.9
Hg	<1	<1	<1	<3	<1	<1
La	<0.01	<0.01	<0.01	1	<0.1	<0.1
Mg	8.2	9.3	13	6527	5445	572
Mn	2	2.86	4.1	816	138.4	134.6
Mo	<0.01	<0.01	<0.01	<1	<0.1	<0.1
Na	6	6	3	150	112	15
Ni	0.03	<0.01	<0.01	12	<0.1	0.3
P	<0.1	<0.1	<0.1	147	<0.1	0.4
Pb	<0.02	0.02	0.05	1	<0.1	<0.1
Sb	<0.02	<0.02	<0.02	<2	<0.1	<0.1
Si	7.62	8.09	11.13	120	9.2	9
Sr	0.31	0.27	0.35	1.1	5	5.3
Ti	<0.01	<0.01	<0.01	4	<0.1	<0.1
V	<0.01	<0.01	<0.01	9	<0.1	<0.1
W	<0.02	<0.02	<0.02	<2	<0.1	<0.1
Zn	0.87	0.72	0.72	31	0.1	7

* All parameter levels expressed in mg/L

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**Table 5.6
SWEP Testing of Waste Rock**

Element (ppm)	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Average
Ag	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01
Cu	5.387	0.04	0.037	0.039	<0.010	6.784	2.0495
Pb	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.04
Zn	0.255	0.097	0.087	0.099	0.092	0.127	0.1262
As	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.03
Sb	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.04
Hg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.02
Mo	0.009	<0.005	<0.005	0.006	<0.005	0.008	0.0063
Tl	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.08
Bi	<0.070	<0.070	<0.070	<0.070	<0.070	<0.070	0.07
Cd	0.004	0.002	<0.002	0.003	<0.002	0.005	0.003
Co	0.029	0.016	0.016	0.02	0.016	0.032	0.0215
Ni	0.012	<0.010	<0.010	0.016	0.015	<0.010	0.0122
Ba	4.878	0.865	1.854	3.887	1.3	4.704	2.9147
W	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.008
Cr	<0.008	<0.008	<0.008	0.014	<0.008	<0.008	0.009
V	0.006	0.006	<0.006	<0.006	<0.006	<0.006	0.006
Mn	6.878	1.968	2.329	3.028	3.231	8.187	4.2702
Be	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Sr	0.977	0.508	0.69	1.026	0.518	0.922	0.7735
B	0.069	0.076	0.064	0.077	0.057	<0.010	0.0588
Se	<0.040	<0.040	<0.040	<0.040	<0.040	0.043	0.0405
Ti	0.072	0.004	0.006	0.017	0.004	0.025	0.0213
Al	3.113	0.823	5.837	3.348	1.264	3.2	2.9308
Ca	546.073	104.578	144.194	417.824	175.848	744.569	355.51
Fe	3.926	4.552	3.89	5.99	9.143	9.759	6.21
Mg	9.031	8.513	11.82	10.683	11.291	12.242	10.597
K	17.483	7.834	6.939	6.108	8.088	20.956	11.235
Li	0.011	0.011	0.013	<0.010	<0.010	0.018	0.0122
P	<0.060	<0.060	<0.060	0.093	<0.060	<0.060	0.0655
Si	14.53	11.316	12.684	12.236	12.561	13.916	12.874
Sn	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.02
Na	12.606	13.47	12.353	12.644	14.368	10.183	12.604

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**Western Copper Holdings Ltd.
Carmacks Copper Project**

**Table 5.7
Sequential Extraction of Waste Rock Composite**

	Al (mg/kg)	Sb (mg/kg)	As (mg/kg)	Ba (mg/kg)	Be (mg/kg)	Bi (mg/kg)	B (mg/kg)	Cd (mg/kg)	Ca (mg/kg)	Cr (mg/kg)	Co (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Pb (mg/kg)
Leach 1	9.55	<0.040	<0.030	83.35	<0.002	1.86	<0.01	<0.002	1307.50	<0.008	<0.002	1.48	<0.010	<0.040
Leach 2	118.76	<0.0005	0.36	82.22	<0.001	<0.001	0.80	2.36	3031.70	<0.008	0.18	43.62	142.76	5.80
Leach 3	4286.00	<0.04	<0.030	31.29	0.06	<0.07	<0.010	<0.002	3590.30	27.87	2.22	114.93	6035.10	2.37
Leach 4	599.00	<0.04	<0.030	18.02	<0.001	<0.07	<0.010	<0.002	448.21	<0.006	0.59	5.28	1050.90	<0.040
Leach 5	55284.00	<5	8.59	947.98	0.79	<5	395.90	0.14	18626.00	18.616	7.16	10.74	12586.00	8.59

	Mg (mg/kg)	Mn (mg/kg)	Hg (mg/kg)	Mo (mg/kg)	Ni (mg/kg)	K (mg/kg)	Se (mg/kg)	Si (mg/kg)	Ag (mg/kg)	Na (mg/kg)	Sr (mg/kg)	Ti (mg/kg)	V (mg/kg)	Zn (mg/kg)
Leach 1	<0.050	14.93	<0.20	<0.005	2.28	<1.0	<0.040	21.34	0.08	171.05	8.29	<0.002	<0.006	59.68
Leach 2	265.12	73.54	0.004	<0.005	0.48	<1.0	<0.040	185.66	<0.001	<0.07	5.88	<0.002	<0.003	2.78
Leach 3	2131.80	103.89	<0.20	0.03	1.65	314.16	1.08	4203.00	0.18	433.95	21.27	69.00	9.45	29.43
Leach 4	424.25	20.66	<0.20	<0.005	<0.01	247.30	<0.040	1086.40	<0.01	129.76	2.31	183.28	2.64	13.33
Leach 5	4163.50	267.07	<3	<1	2.15	7638.30	3.58	4318.90	<1	31860.00	748.29	1981.20	53.70	194.75

**Western Copper Holdings Ltd.
Carmacks Copper Project**

Table 5.8

Projected Fate of Nitrogen Losses from Blasting Residues

Location (Powder Factor 0.2 kg/t)	Type of Explosive	Explosives Losses (t/a)	Nitrogen Losses (tN/a)	Reporting to Mill	Reporting to Waste Dump	Reporting to Mine Water
Ore Production 1.76x10 ⁴ t/a Total Explosives 0.35x10 ⁶ kg/a	AN/FO (83%) 292 t/a Slurry (17%) 60 t/a	AN/FO (1%) 2.92 Slurry (6%) 3.6	AN/FO (33%) 0.96 Slurry (25%) 0.90	(85%) 0.82 (85%) 0.77	--	(15%) 0.14 (15%) 0.13
Waste Production 7.50x10 ⁴ t/a Total Explosives 1.50x10 ⁶ kg/a	AN/FO (83%) 1245 t/a Slurry (17%) 255 t/a	AN/FO (1%) 12.45 Slurry (6%) 15.30	AN/FO (33%) 4.11 Slurry (25%) 3.83	--	(85%) 3.49 (85%) 3.26	(15%) 0.62 (15%) 0.57
Total Production 9.26x10 ⁴ t/a Total Explosives 1.85x10 ⁶ t/a	AN/FO (83%) 1537 t/a Slurry (17%) 315 t/a	AN/FO (1%) 15.37 Slurry (6%) 18.9	AN/FO (33%) 5.07 Slurry (25%) 4.73	1.59	6.75	1.46

**Western Copper Holdings Ltd.
Williams Creek Project**

**Table 5.9
ICP Analysis of Raffinate and Neutralized Raffinate**

Parameter ppm	Raffinate	Neutralized+ Raffinate	% Reduction in Metals*
Aluminum	574.00	0.22	99.96%
Antimony	0.49	0.05	89.80%
Arsenic	0.12	0.02	83.33%
Barium	0.17	0.09	45.03%
Beryllium	0.13	0.00	99.25%
Boron	<0.05	0.05	0.00%
Cadmium	0.12	0.02	87.70%
Calcium	458.20	529.50	-15.56%
Chromium	0.26	0.01	96.59%
Cobalt	0.96	0.01	99.17%
Copper	1.79	0.04	97.93%
Iron	1274.00	2.92	99.77%
Lead	0.07	<0.02	71.43%
Magnesium	350.50	374.20	-6.76%
Manganese	4.32	2.02	53.24%
Mercury	<0.02	<0.02	0.00%
Molybdenum	0.07	0.02	70.27%
Nickel	0.74	0.02	97.31%
Phosphorous	52.51	8.46	83.89%
Silicon	340.00	0.79	99.77%
Silver	0.02	0.01	61.90%
Sodium	32.00	34.00	-6.25%
Strontium	2.11	0.94	55.47%
Titanium	0.11	0.03	73.45%
Tungsten	0.03	<0.02	33.33%
Vanadium	3.11	0.01	99.74%
Zinc	8.95	0.13	98.51%

*values of < are = for % reduction calculations

+raffinate at pH 1.8 was neutralized with slurried lime under aerated conditions to pH 7.0

Western Copper Holdings Ltd.
Carmacks Copper Project

Table 5.10
SWEP Testing of Neutralized Raffinate Precipitate

Element (ppm)	Full Head Neutralized Raffinate
Ag	0.013
Cu	<0.010
Pb	<0.04
Zn	0.094
As	<0.030
Sb	<0.04
Hg	<0.020
Mo	0.02
Tl	<0.080
Bi	<0.070
Cd	0.049
Co	0.025
Ni	0.079
Ba	0.018
W	<0.080
Cr	<0.008
V	<0.006
Mn	26.257
Be	<0.001
Sr	3.527
B	<0.010
Se	0.08
Ti	0.019
Al	10.466
Ca	761.589
Fe	0.029
Mg	536.902
K	6.939
Li	0.035
P	0.066
Si	5.85
Sn	<0.020
Na	13.004

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**Western Copper Holdings Ltd.
Carmacks Copper Project**

**Table 5.11
Sequential Extraction of Neutralized Raffinate Precipitate**

	Al (mg/kg)	Sb (mg/kg)	As (mg/kg)	Ba (mg/kg)	Be (mg/kg)	Bi (mg/kg)	B (mg/kg)	Cd (mg/kg)	Ca (mg/kg)	Cr (mg/kg)	Co (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Pb (mg/kg)
Leach 1	63.81	<0.040	<0.030	0.26	<0.001	<0.07	<0.01	<0.002	20877.00	<0.008	<0.002	<0.01	<0.010	<0.040
Leach 2	12182.00	<0.0005	0.20	<0.002	<0.001	<0.0005	<0.005	2.42	11763.00	<0.008	10.66	<0.01	2750.60	<0.04
Leach 3	35583.00	<0.04	6.84	<0.002	0.66	<0.07	<0.010	2.31	714.15	13.98	25.68	22.95	32896.00	3.09
Leach 4	14.60	<0.04	<0.030	0.16	<0.001	<0.07	<0.010	<0.002	43.16	<0.006	<0.002	1.28	6.36	<0.04
Leach 5	38.15	<5	<3	<1	<0.1	<5	0.55	0.01	17.02	0.15	0.02	0.64	15.61	0.96

	Mg (mg/kg)	Mn (mg/kg)	Hg (mg/kg)	Mo (mg/kg)	Ni (mg/kg)	K (mg/kg)	Se (mg/kg)	Si (mg/kg)	Ag (mg/kg)	Na (mg/kg)	Sr (mg/kg)	Ti (mg/kg)	V (mg/kg)	Zn (mg/kg)
Leach 1	<0.050	203.65	5.820	<0.005	<0.01	<1.000	<0.040	<0.03	0.02	245.04	87.30	0.55	<0.006	0.002
Leach 2	3109.50	319.12	0.004	<0.005	8.80	<1	<0.0005	416.70	<0.001	<0.07	27.86	<0.002	<0.003	87.32
Leach 3	1077.70	331.80	<0.02	1.47	14.70	<1	6.75	1119.70	<0.01	104.25	6.09	107.46	129.48	283.35
Leach 4	1.00	0.28	<0.02	<0.005	<0.01	<1	<0.04	27.80	<0.010	22.24	0.24	1.92	<0.006	1.64
Leach 5	2.92	0.15	<3	<1	0.26	4.92	0.08	<10	<1	5.02	0.34	1.61	0.05	72.80

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WESTERN COPPER HOLDINGS LTD.
Carmacks Copper Project

Table 5.12
Acid Base Accounting of Foundation Area in the Vicinity
of the Heap Leach Pad and Events Pond

Sample Identification	% Sulphur	NP/AP Ratio
DH-C 60-65'	0.02	25.3
DH-C 65-85'	0.02	28.3
DH-E 29'	0.02	61.3
DH-E 40-50'	0.02	38.1
DH-F till 36'	0.02	133.9
TR till 5-2'	0.03	40.6
TR 5-30' bedrock	0.02	27.9
RC 92-01, 0-10	0.02	18.9
RC 92-01, 50-60	0.02	25.1
RC 92-01, 100-110	0.03	18.7
RC 92-01, 150-160	0.02	28.3
RC 92-01, 205-210	0.02	18.1
RC 92-01, 255-265	0.02	27.2
RC 92-09, 55-65	0.02	20.2
RC 92-09, 105-115	0.02	20.8
RC 92-09, 155-165	0.02	29.1
RC 92-09, 205-215	0.02	19.5
RC 92-09, 255-265	0.02	19.2
RC 92-09, 305-315	0.02	27.6
RC 92-09, 305-315 (dup)	0.02	28.7

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Carmacks Copper Project

Table 5.13
Till Layer ICP Analysis After Acid Leaching

TOTAL METALS	DH-F-TILL.36'	TR-5-2-TILL
AL	<0.20	<0.20
Sb	<0.20	<0.20
As	<0.20	<0.20
Ba	0.254	0.162
Be	<0.005	<0.005
Bi	<0.10	<0.10
B	<0.10	<0.10
Cd	<0.010	<0.010
Ca	325	342
Cr	<0.015	<0.015
Co	<0.015	<0.015
Cu	0.058	0.163
Fe	<0.030	<0.030
Pb	<0.050	<0.050
Li	<0.015	<0.038
Mg	13.4	8.72
Mn	0.204	0.422
Mo	<0.030	<0.030
Ni	<0.020	<1.12
P	<0.30	<0.30
K	8.9	6.2
Se	<0.20	<0.20
Si	6.53	6.58
Ag	<0.015	<0.015
Na	18.2	16.8
Sr	0.979	0.788
Tl	<0.10	<0.10
Sn	<0.30	<0.30
Ti	<0.010	<0.010
W	<0.10	<0.49
V	0.030	0.030
Zn	0.084	11.6

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