TABLE 2.1

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT

MEAN MONTHLY AND ANNUAL PRECIPITATION

Location:	Likely, B.C.		Mine Site		Barkerville	
Elevation:	724 m		1000 m		1265	
Location:	52° 36'N 121° 32'W		52° 30'N 121° 35'W		53° 4'N 121° 31'W	
	Mean (mm)	Std. Dev. (mm)	Mean (mm)	Std. Dev. (mm)	Mean (mm)	Std. Dev. (mm)
Jan	74.2	27.0	75.5	27.0	103.0	44.4
Feb	60.2	27.7	58.1	27.7	85.6	42.5
Mar	37.8	13.5	44.5	13.5	85.3	29.1
Apr	42.2	20.9	43.1	20.9	61.8	24.5
May	36.6	15.4	50.6	15.4	65.9	28.9
June	66.3	29.7	81.5	29.7	89.2	28.8
July	47.0	27.4	65.7	27.4	81.7	31.0
Aug	82.0	35.7	83.1	35.7	102.3	53.0
Sept	50.4	27.1	60.4	27.1	85.4	39.9
Oct	61.6	42.3	60.4	42.3	88.4	37.4
Nov	58.4	18.8	57.3	18.8	86.6	28.2
Dec	83.0	36.9	74.8	36.9	108.7	42.5
Annual	699.7	116.4	755	116.4	1043.9	112.7

Source :

Canadian Climate Normals, 1951-1980, Temperature and Precipitation Atmospheric Environment Service, Environment Canada.

TABLE 2.2

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT

PROBABLE MAXIMUM PRECIPITATION

1 hour PMP	= 78 mm	= 78 mm/hour
6 hour PMP	= 88 mm	= 14.6 mm/hour
24 hour PMP	= 163.3 mm	= 6.8 mm/hour

Source :

Rainfall Frequency Atlas for Canada, W.D. Hogg, D.A. Carr, Supply and Services Canada 1985.

TABLE 2.3

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT

ESTIMATED PAN EVAPORATION AT SITE

	Quesnel	Williams Lake	Site
May	98	88	93
June	130	124	127
July	151	144	148
August	131	129	130
September	81	77	79
October	39	38	38
Total	630	600	615

Source:

Based on computed potential evapotranspiration data by AES using Thornthwaite model, increased by an empirical factor of 1.25 to bring into line with pan evaporation data.

TABLE 2.4

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT

SEISMIC RISK CALCULATION

ENERGY, MINES AND RESOURCES CANADA
GEOLOGICAL SURVEY OF CANADA

ENERGIE, MINES ET RESSOURCES CANADA
COMMISSION GEOLOGIQUE DU CANADA

SEISMIC RISK CALCULATION *

CALCUL DE RISQUE SEISMIQUE *

REQUESTED BY/ DEMANDE PAR: Jeremy Haile / Knight & Piesold Ltd. mj

SITE: Mt. Polley, B.C.

LOCATED AT/ SITUE AU: 52.55 NORTH/NORD 121.63 WEST/OUEST

PROBABILITY OF EXCEEDENCE PER ANNUM/ PROBABILITE DE DEPASSEMENT PAR ANNEE	0.010	0.005	0.0021	0.001
PROBABILITY OF EXCEEDENCE IN 50 YEARS/ PROBABILITE DE DEPASSEMENT EN 50 ANS	40 %	22 %	10 %	5 %
PEAK HORIZONTAL GROUND ACCELERATION (G) / ACCELERATION HORIZONTALE MAXIMALE DU SOL (G)	0.021	0.028	0.037	0.046
PEAK HORIZONTAL GROUND VELOCITY (M/SEC) / VITESSE HORIZONTALE MAXIMALE DU SOL (M/SEC)	0.043	0.056	0.077	0.094

* REFERENCES

1. NEW PROBABILISTIC STRONG SEISMIC GROUND MOTION MAPS OF CANADA: A COMPILATION OF EARTHQUAKE SOURCE ZONES, METHODS AND RESULTS. P.W. BASHAM, D.H. WEICHERT, F.M. ANGLIN, AND M.J. BERRY EARTH PHYSICS BRANCH OPEN FILE NUMBER 82-33, OTTAWA, CANADA 1982.

2. ENGINEERING APPLICATIONS OF NEW PROBABILISTIC SEISMIC GROUND-MOTION MAPS OF CANADA. A.C. HEIDEBRECHT, P.W. BASHAM, J.H. RAINER, AND M.J. BERRY CANADIAN JOURNAL OF CIVIL ENGINEERING, VOL. 10, NO. 4, P. 670-680, 1983.

3. NEW PROBABILISTIC STRONG GROUND MOTION MAPS OF CANADA. P.W. BASHAM, D.H. WEICHERT, F.M. ANGLIN, AND M.J. BERRY, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, VOL. 75, NO. 2, P. 563-595, 1985.

4A. SUPPLEMENT TO THE NATIONAL BUILDING CODE OF CANADA 1985, NRCC NO. 23178. CHAPTER 1: CLIMATIC INFORMATION FOR BUILDING DESIGN IN CANADA. CHAPTER 4: COMMENTARY J: EFFECTS OF EARTHQUAKES.

4B. SUPPLEMENT DU CODE NATIONAL DU BATIMENT DU CANADA 1985, CNRC NO 23178F. CHAPITRE 1: DONNEES CLIMATIQUES POUR LE CALCUL DES BATIMENTS AU CANADA. CHAPITRE 4: COMMENTAIRE J: EFFETS DES SEISMES.

TABLE 2.4 (Continued)

SEISMIC RISK CALCULATION

SITE Mt. Polley, B.C.

ZONING FOR ABOVE SITE/ ZONAGE DU SITE CI-DESSUS

1985 NBCC/CNBC: ZA = 0; ZV = 1; V = 0.05 M/S

ACCELERATION ZONE/ ZONE D'ACCELERATION ZA=0
ZONAL ACCELERATION/ ACCELERATION ZONALE 0.00 G

VELOCITY ZONE/ ZONE DE VITESSE ZV=1
ZONAL VELOCITY/ VITESSE ZONALE 0.05 M/S

1985 NBCC/CNBC **
SEISMIC ZONING MAPS/ CARTES DU ZONAGE SEISMIQUE

PROBABILITY LEVEL: 10% IN 50 YEARS
NIVEAU DE PROBABILITE: 10% EN 50 ANNEES

G OR M/S	ZONE	ZONAL VALUE/ VALEUR ZONALE
0.00		
	0	0.00
0.04		
	1	0.05
0.08		
	2	0.10
0.11		
	3	0.15
0.16		
	4	0.20
0.23		
	5	0.30
0.32		
	6*	0.40

* ZONE 6: NOMINAL VALUE/ VALEUR NOMINALE 0.40;
SITE-SPECIFIC STUDIES SUGGESTED FOR IMPORTANT PROJECTS/
ETUDES COMPLEMENTAIRES SUGGEREES POUR DES PROJETS D'IMPORTANCE.

** FOR NBCC APPLICATIONS, CALCULATED ZONE VALUES AT A SITE SHOULD BE REPLACED BY EFFECTIVE ZONE VALUES [ZA(EFF) OR ZV(EFF)] AS SHOWN BELOW/
POUR APPLICATIONS SELON LE CNBC, ON DOIT REMPLACER LES VALEURS ZONALES CALCULEES POUR UN SITE PAR LES VALEURS EFFECTIVES [ZA(EFF) OU ZV(EFF)] COMME MONTRE CI-DESSOUS:

1. IF/SI (ZA - ZV) > 1, ===> ZA(EFF) = ZV + 1.

OR/OU

2. IF/SI (ZA - ZV) < 1, ===> ZA(EFF) = ZV - 1.

OR/OU

3. IF/SI ZV=0 AND/ET ZA > 0, ===> ZV(EFF) = 1.

(SEE REFERENCE 2 CITED ABOVE, PAGE 677)
(VOIR PAGE 677 DE LA REFERENCE 2 CI-DESSUS)

TABLE 3.1

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT

SUMMARY OF PERMEABILITY TESTING IN OPEN PIT

Hole No.	Depth Interval (ft)	Measured Permeability (cm/s)
MP89-145	40-60	1.0×10^{-6}
	70-90	4.6×10^{-6}
	100-120	5.0×10^{-7}
	130-150	3.5×10^{-6}
	160-180	1.3×10^{-5}
	190-210	$< 3.0 \times 10^{-6}$
	220-240	8.7×10^{-7}
MP89-146	60-80	8.8×10^{-6}
	90-110	5.0×10^{-7}
	120-140	6.9×10^{-7}
	150-170	3.1×10^{-6}
	180-200	1.5×10^{-5}
	210-230	5.7×10^{-6}
	240-260	2.2×10^{-6}
	270-290	3.7×10^{-6}
	300-320	1.1×10^{-5}
	330-350	1.6×10^{-4}
	360-380	1.5×10^{-6}
	390-410	$< 1.5 \times 10^{-6}$
	420-440	6.9×10^{-7}

TABLE 3.1 (Continued)

Hole No.	Depth Interval (ft)	Measured Permeability (cm/s)
MP89-146 (Con't)	460-480	9.8×10^{-7}
	480-520	1.0×10^{-6}
	520-560	2.5×10^{-6}
	600-640	4.8×10^{-6}
	640-700	2.0×10^{-6}
MP89-147	20-50	3.2×10^{-4}
	50-80	6.8×10^{-6}
	80-120	2.6×10^{-6}
	120-160	4.0×10^{-5}
	160-200	1.4×10^{-4}
	200-240	1.8×10^{-5}
	240-280	6.2×10^{-6}
	280-320	1.8×10^{-5}
	320-360	7.5×10^{-7}
	360-400	7.5×10^{-7}
MP89-148	20-60	1.0×10^{-4}
	60-100	6.6×10^{-4}
	100-140	3.0×10^{-3}
	140-180	4.2×10^{-4}
	180-220	4.8×10^{-5}
	220-260	3.0×10^{-5}
	260-300	7.2×10^{-6}
	300-340	4.9×10^{-4}

TABLE 3.1 (Continued)

Hole No.	Depth Interval (ft)	Measured Permeability (cm/s)
MP89-155	20-50	2.8×10^{-5}
	50-90	1.6×10^{-5}
	90-130	3.4×10^{-4}
	130-170	4.7×10^{-6}
	170-210	$< 1.0 \times 10^{-7}$
	210-250	$< 1.0 \times 10^{-7}$
	250-290	1.0×10^{-7}
	290-330	1.7×10^{-6}
	330-370	9.4×10^{-7}
	370-410	4.5×10^{-6}
	410-450	1.5×10^{-7}
	450-490	6.8×10^{-3}
	490-530	1.4×10^{-4}
	530-570	3.6×10^{-5}
	570-610	2.7×10^{-4}
	610-650	$< 1.0 \times 10^{-7}$
	650-700	$< 1.0 \times 10^{-7}$
Geometric Mean of all tests:		8.4×10^{-6} cm/s

TABLE 3.2

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT
GROUNDWATER LEVELS IN PROPOSED OPEN PIT AREA

DEPTH TO GROUNDWATER TABLE (m) IN MONITORING WELLS

Date	MP89-107	MP89-146	MP89-151
August 16, 1989	28.0	14.7	35.5
November 8, 1989	10.0	10.5	31.0

DEPTH TO PHREATIC SURFACE (m) IN MULTIPLE PNEUMATIC PIEZOMETERS

	MP89-147A	-147B	-147C	MP89-155A	-155B
Tip Depth (m)	27.6	59.0	88.8	7.8	157.7
Date					
August 2, 1989	3.2	2.6	4.5	-	-
August 15, 1989	3.5	2.4	4.6	-	-
November 12, 1989	2.2	1.6	9.2	2.7	*

* Reading beyond capacity of read-out box.

TABLE 4.1

IMPERIAL METALS CORPORATION
MT. POLLEY PROJECT

PRELIMINARY SLOPE DESIGN

DESIGN SECTOR	PIT SLOPE ORIENTATION	BENCH FACE ANGLE	BENCH HEIGHT (m)	BENCH WIDTH (m)	INTER-SLOPE ANGLE
I	All slopes	70°	20	8.5	52°
II	Favourable conditions	75°	20	8.5	55°

Notes: 1. Pit slope design based on fully drained slope conditions.

2. Pit slope design to be reviewed during initial development of pit, as actual conditions are encountered.