Received
July 29, 1997
JMA

DONNA CREEK WATERSHED

AREA	SQUARE KM	HECTARES
A	0.3934	39.34
B	0.6118	61.18
C	0.4953	49.53
D	0.2437	24.37
E	0.0581	5.81
F	0.5690	56.90
F_1	0.2439	24.39
F_2	0.4906	49.06
F_4	0.5109	51.09
F_{4-1}	0.0204	2.04
J	0.0444	4.44
A_1	0.0900	9.00

Area failure scarp. 4.46 ha.

Percent Calculation Area.

56.9/5.81 = 9.79 Times or 979% increase

runoff. Percent.

9.79 x 74.2% = 7.26%

C MacMillan
(A) Mapping Tech
July 29, 1997

Donna Creek Slope Failure Runoff Estimation by Drainage Basin								
Sub-drainage basins					F4(L4)			
Area hectares					51.09			
Area squared meters (m2)					510900			
							TOTAL	MAIN
Month	Day	Total	Total		Runoff		POOL	POOL
		(cm/day)	(m/day)		M3/day	74%	954.68	793.91
May	23	1.906	0.019		9707.1	7183.254	7.524253	9.047945
	24	2.514	0.025		12772.5	9451.65	9.900333	11.90519
	25	4.335	0.043		21968.7	16256.84	17.02857	20.47693
	26	3.881	0.039		19925.1	14744.57	15.44452	18.5721
	27	3.332	0.033		16859.7	12476.18	13.06844	15.71485
	28	2.023	0.02		10218	7561.32	7.920266	9.524153
	29	3.197	0.032		16348.8	12098.11	12.67243	15.23864
	30	4.726	0.047		24012.3	17769.1	18.61263	22.38176
	31	4.874	0.049		25034.1	18525.23	19.40465	23.33417
June	1	4.088	0.041		20946.9	15500.71	16.23655	19.52451
	2	3.112	0.031		15837.9	11720.05	12.27641	14.76244
	3	1.497	0.015		7663.5	5670.99	5.9402	7.143114
	4	2.401	0.024		12261.6	9073.584	9.50432	11.42898
	5	3.119	0.031		15837.9	11720.05	12.27641	14.76244
	6	2.679	0.027		13794.3	10207.78	10.69236	12.85761
	7	2.839	0.028		14305.2	10585.85	11.08837	13.33381
	8	2.449	0.024		12261.6	9073.584	9.50432	11.42898
	9	2.73	0.027		13794.3	10207.78	10.69236	12.85761
	10	2.887	0.029		14816.1	10963.91	11.48439	13.81002
	11	3.997	0.04		20436	15122.64	15.84053	19.04831
Totals M29-J2		19.997	0.2		102180	75613.2	79.20266	95.24153
Totals M23-J1		34.876	0.348		177793.2	131567	137.8126	165.7203
Totals M23-J2		37.988	0.379		193631.1	143287	150.089	180.4827
Totals M23-J11		62.586	0.624		318801.6	235913.2	247.1123	297.1536

July 29, 1993
JM

flow returned
to natural
drainage channels.

Swimming Pool Calculation.

Aug 3, 1997

Jamieson Value Location 4.

flow $0.23\ m^3/sec.$

Daily total $(0.23 m^3/sec \times 60 s \times 60 m \times 24 h)$

$= 19872\ m^3/day.$

Total all Pools $19872\ m^3 / 954.8 m^3 = 20.8$ pools

Main pool plus Diving tank. $19872\ m^3 / 793.91 m^3 = 25.0$ pools

Main 25m pool $19872\ m^3 / 487.5 m^3 = 42.5$ pools

July 21, 1997

Water Volume Four Season Pool Prince George

- Rick Matheson 250 561-2636
- Volome Main Pool Including Diving Tank + Slide Tank.
- 210,000 gal. (Imperial).
- Size 82' × 45' Depth 3' × 6'
  24.99m × 13.72m 0.91m to 1.83m.

  Diving tank 30' × 35' × 11'
  9.14m × 10.66m × 3.35m

- Conversion 1 m = 3.280,840 feet } Forestry Handbook
  1 m^3 = 219.9692 gal } 4^{th} ed 1983 UBC.

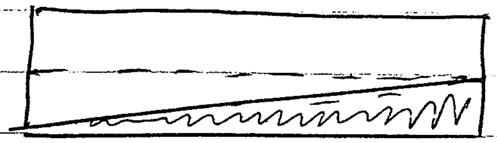
1. Volome main pool plus tank + slide.
   210,000 gal ÷ 219.9692 gal/m^3 = 954.679 m^3

2 Volume mainpool. = 467.51 m^3

3 Dive Tank Volume = 326.40 m^3

4 Volume Slide tank. = 160.76 m^3

Volume main Pool.



$(24.99 \times 13.7 \times .91) + \left(\frac{24.99 \times 13.7 \times .91}{2}\right) = \underline{\underline{467.51 m^3}}$

Volume Dive Tank.

$(9.14 \times 10.66 \times 3.35) \qquad = \underline{\underline{326.40 m^3}}$

$= \underline{\underline{793.91 m^3}}$

Slide Tank. volume $\qquad = \underline{\underline{160.26 m^3}}$

July 21, 1997

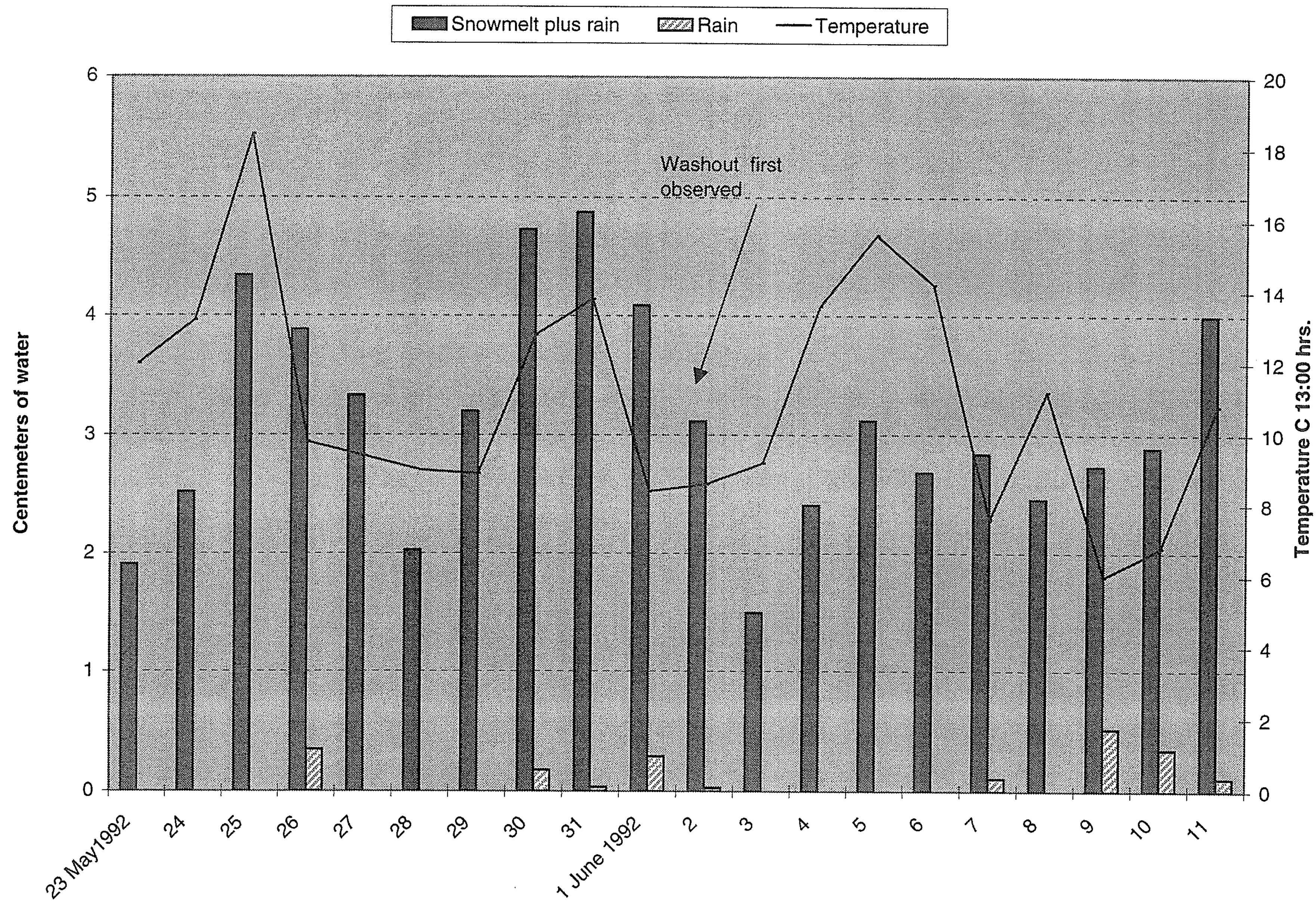
onna Creek Slope Failure Runoff Estimation by Drainage Basin

				A	B	C	D	E	F	F1 (L1)	F2 (L2)	F4(L4)	(L2-L4)	A1	J	Notes	
ub-drainage basins				A	B	C	D	E	F	F1 (L1)	F2 (L2)	F4(L4)	(L2-L4)	A1	J		
rea hectors				39.34	61.18	49.53	24.37	5.81	56.9	24.39	49.06	51.09	2.04	0.009	4.44		
rea squared meters (m2)				393400	611800	495300	243700	58100	569000	243900	490600	510900	20400	90	44400		
onth	Day	Total (cm/day)	Total (m/day)	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	Notes	
ay	23	1.906	0.019	7474.6	11624.2	9410.7	4630.3	1103.9	10811	4634.1	9321.4	9707.1	387.6	1.71	843.6		
	24	2.514	0.025	9835	15295	12382.5	6092.5	1452.5	14225	6097.5	12265	12772.5	510	2.25	1110		
	25	4.335	0.043	16916.2	26307.4	21297.9	10479.1	2498.3	24467	10487.7	21095.8	21968.7	877.2	3.87	1909.2		
	26	3.881	0.039	15342.6	23860.2	19316.7	9504.3	2265.9	22191	9512.1	19133.4	19925.1	795.6	3.51	1731.6		
	27	3.332	0.033	12982.2	20189.4	16344.9	8042.1	1917.3	18777	8048.7	16189.8	16859.7	673.2	2.97	1465.2		
	28	2.023	0.02	7868	12236	9906	4874	1162	11380	4878	9812	10218	408	1.8	888		
	29	3.197	0.032	12588.8	19577.6	15849.6	7798.4	1859.2	18208	7804.8	15699.2	16348.8	652.8	2.88	1420.8		
	30	4.726	0.047	18489.8	28754.6	23279.1	11453.9	2730.7	26743	11463.3	23058.2	24012.3	958.8	4.23	2086.8		
	31	4.874	0.049	19276.6	29978.2	24269.7	11941.3	2846.9	27881	11951.1	24039.4	25034.1	999.6	4.41	2175.6		
ne	1	4.088	0.041	16129.4	25083.8	20307.3	9991.7	2382.1	23329	9999.9	20114.6	20946.9	836.4	3.69	1820.4		
	2	3.112	0.031	12195.4	18965.8	15354.3	7554.7	1801.1	17639	7560.9	15208.6	15837.9	632.4	2.79	1376.4		
	3	1.497	0.015	5901	9177	7429.5	3655.5	871.5	8535	3658.5	7359	7663.5	306	1.35	666	failure noti	
	4	2.401	0.024	9441.6	14683.2	11887.2	5848.8	1394.4	13656	5853.6	11774.4	12261.6	489.6	2.16	1065.6	Zomber visit	
	5	3.119	0.031	12195.4	18965.8	15354.3	7554.7	1801.1	17639	7560.9	15208.6	15837.9	632.4	2.79	1376.4	cross ditches 16:30	rd,df,ce,gz,jm, am,fl
	6	2.679	0.027	10621.8	16518.6	13373.1	6579.9	1568.7	15363	6585.3	13246.2	13794.3	550.8	2.43	1198.8	Jamieson	
	7	2.839	0.028	11015.2	17130.4	13868.4	6823.6	1626.8	15932	6829.2	13736.8	14305.2	571.2	2.52	1243.2		
	8	2.449	0.024	9441.6	14683.2	11887.2	5848.8	1394.4	13656	5853.6	11774.4	12261.6	489.6	2.16	1065.6		
	9	2.73	0.027	10621.8	16518.6	13373.1	6579.9	1568.7	15363	6585.3	13246.2	13794.3	550.8	2.43	1198.8		
	10	2.887	0.029	11408.6	17742.2	14363.7	7067.3	1684.9	16501	7073.1	14227.4	14816.1	591.6	2.61	1287.6		
	11	3.997	0.04	15736	24472	19812	9748	2324	22760	9756	19624	20436	816	3.6	1776		
als M29-J2		19.997	0.2	78680	122360	99060	48740	11620	113800	48780	98120	102180	4080	18	8880		
als M23-J1		34.876	0.348	136903.2	212906.4	172364.4	84807.6	20218.8	198012	84877.2	170728.8	177793.2	7099.2	31.32	15451.2		
als M23-J2		37.988	0.379	149098.6	231872.2	187718.7	92362.3	22019.9	215651	92438.1	185937.4	193631.1	7731.6	34.11	16827.6		
als M23-J11		62.586	0.624	245481.6	381763.2	309067.2	152068.8	36254.4	355056	152193.6	306134.4	318801.6	12729.6	56.16	27705.6		

F4
May 29 24012.3
30 25034.1
31 20946.9
Total 69,993.3
Average 23,331.1

7663.5 ÷ 23,331.1
= 32.8%

July 29, 1997



Snowmelt plus rain
Rain
Temperature
Washout first observed
Centemeters of water
Temperature C 13:00 hrs.
0
1
2
3
4
5
6
0
2
4
6
8
10
12
14
16
18
20
23 May1992
24
25
26
27
28
29
30
31
1 June 1992
2
3
4
5
6
7
8
9
10
11

Temp. / Rainfall > Donna derived Beaudy Graph.

Date.	Temp. App.	ppt. ~~mm~~	cm
23	12		
24	13.2		
25	18.4		
26	9.8	~~24.75~~	.345
27	9.4		
28	9.0		
29	8.9		
30	12.8	~~17.25~~	.173
31	13.8	~~3.45~~	.035
1	8.4	~~28.9~~	.289
2	8.6	~~2.79~~	.028
3	9.2		
4	13.6		
5	15.6		
6	14.2		
7	~~3.6~~ 7.6	~~10.35~~	.104
8	~~11.2~~ ~~6.0~~		
9	6.0	~~51.75~~	.516
10	~~10.8~~ 6.8	~~34.5~~	.345
11.	10.8	~~10.35~~	.104

Relationship temps.

25 = 10

1 = x

1 = 0.4 degrees.

~~100mm = 9~~

14.5 = 100mm

1 unit = .69mm

10mm = 14.5mm

x = 1 mm

1cm = 14.5mm.

x = 1mm

.069

onna Creek Slope Failure Runoff Estimation by Drainage Basin

ub-drainage basins				A		B		C		D	
rea hectares				39.34		61.18		49.53		24.37	
rea squared meters (m2)				393400		611800		495300		243700	
onth	Day	Total (cm/day)	Total (m/day)	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec
ay	23	1.906	0.019	7474.6	0.086512	11624.2	0.134539	9410.7	0.10892	4630.3	0.053591
	24	2.514	0.025	9835	0.113831	15295	0.177025	12382.5	0.143316	6092.5	0.070515
	25	4.335	0.043	16916.2	0.195789	26307.4	0.304484	21297.9	0.246503	10479.1	0.121286
	26	3.881	0.039	15342.6	0.177576	23860.2	0.27616	19316.7	0.223573	9504.3	0.110003
	27	3.332	0.033	12982.2	0.150257	20189.4	0.233674	16344.9	0.189177	8042.1	0.09308
	28	2.023	0.02	7868	0.091065	12236	0.14162	9906	0.114653	4874	0.056412
	29	3.197	0.032	12588.8	0.145704	19577.6	0.226593	15849.6	0.183444	7798.4	0.090259
	30	4.726	0.047	18489.8	0.214002	28754.6	0.332808	23279.1	0.269434	11453.9	0.132568
	31	4.874	0.049	19276.6	0.223109	29978.2	0.34697	24269.7	0.280899	11941.3	0.138209
ne	1	4.088	0.041	16129.4	0.186683	25083.8	0.290322	20307.3	0.235038	9991.7	0.115645
	2	3.112	0.031	12195.4	0.14115	18965.8	0.219512	15354.3	0.177712	7554.7	0.087439
	3	1.497	0.015	5901	0.068299	9177	0.106215	7429.5	0.08599	3655.5	0.042309
	4	2.401	0.024	9441.6	0.109278	14683.2	0.169944	11887.2	0.137583	5848.8	0.067694
	5	3.119	0.031	12195.4	0.14115	18965.8	0.219512	15354.3	0.177712	7554.7	0.087439
	6	2.679	0.027	10621.8	0.122938	16518.6	0.191188	13373.1	0.154781	6579.9	0.076156
	7	2.839	0.028	11015.2	0.127491	17130.4	0.198269	13868.4	0.160514	6823.6	0.078977
	8	2.449	0.024	9441.6	0.109278	14683.2	0.169944	11887.2	0.137583	5848.8	0.067694
	9	2.73	0.027	10621.8	0.122938	16518.6	0.191188	13373.1	0.154781	6579.9	0.076156
	10	2.887	0.029	11408.6	0.132044	17742.2	0.20535	14363.7	0.166247	7067.3	0.081797
	11	3.997	0.04	15736	0.18213	24472	0.283241	19812	0.229306	9748	0.112824
als M29-J2		19.997	0.2	78680		122360		99060		48740	
als M23-J1		34.876	0.348	136903.2		212906.4		172364.4		84807.6	
als M23-J2		37.988	0.379	149098.6		231872.2		187718.7		92362.3	
als M23-J11		62.586	0.624	245481.6		381763.2		309067.2		152068.8	

ub-drainage basins		E		F		F1 (L1)		F2 (L2)	
rea hectares		5.81		56.9		24.39		49.06	
rea squared meters (m2)		58100		569000		243900		490600	
onth	Day	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec
ay	23	1103.9	0.012777	10811	0.125127	4634.1	0.053635	9321.4	0.107887
	24	1452.5	0.016811	14225	0.164641	6097.5	0.070573	12265	0.141956
	25	2498.3	0.028916	24467	0.283183	10487.7	0.121385	21095.8	0.244164
	26	2265.9	0.026226	22191	0.25684	9512.1	0.110094	19133.4	0.221451
	27	1917.3	0.022191	18777	0.217326	8048.7	0.093156	16189.8	0.187382
	28	1162	0.013449	11380	0.131713	4878	0.056458	9812	0.113565
	29	1859.2	0.021519	18208	0.210741	7804.8	0.090333	15699.2	0.181704
	30	2730.7	0.031605	26743	0.309525	11463.3	0.132677	23058.2	0.266877
	31	2846.9	0.03295	27881	0.322697	11951.1	0.138323	24039.4	0.278234
ne	1	2382.1	0.027571	23329	0.270012	9999.9	0.11574	20114.6	0.232808
	2	1801.1	0.020846	17639	0.204155	7560.9	0.08751	15208.6	0.176025
	3	871.5	0.010087	8535	0.098785	3658.5	0.042344	7359	0.085174
	4	1394.4	0.016139	13656	0.158056	5853.6	0.06775	11774.4	0.136278
	5	1801.1	0.020846	17639	0.204155	7560.9	0.08751	15208.6	0.176025
	6	1568.7	0.018156	15363	0.177813	6585.3	0.076219	13246.2	0.153313
	7	1626.8	0.018829	15932	0.184398	6829.2	0.079042	13736.8	0.158991
	8	1394.4	0.016139	13656	0.158056	5853.6	0.06775	11774.4	0.136278
	9	1568.7	0.018156	15363	0.177813	6585.3	0.076219	13246.2	0.153313
	10	1684.9	0.019501	16501	0.190984	7073.1	0.081865	14227.4	0.164669
	11	2324	0.026898	22760	0.263426	9756	0.112917	19624	0.22713
als M29-J2		11620		113800		48780		98120	
als M23-J1		20218.8		198012		84877.2		170728.8	
als M23-J2		22019.9		215651		92438.1		185937.4	
als M23-J11		36254.4		355056		152193.6		306134.4	

ub-drainage basins		F4(L4)		(L2-L4)		A1		J	
rea hectares		51.09		2.04		9		4.44	
rea squared meters (m2)		510900		20400		90000		44400	
onth	Day	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec	Runoff M3/day	Average M3/sec
ay	23	9707.1	0.112351	387.6	0.004486	1710	0.019792	843.6	0.009764
	24	12772.5	0.14783	510	0.005903	2250	0.026042	1110	0.012847
	25	21968.7	0.254267	877.2	0.010153	3870	0.044792	1909.2	0.022097
	26	19925.1	0.230615	795.6	0.009208	3510	0.040625	1731.6	0.020042
	27	16859.7	0.195135	673.2	0.007792	2970	0.034375	1465.2	0.016958
	28	10218	0.118264	408	0.004722	1800	0.020833	888	0.010278
	29	16348.8	0.189222	652.8	0.007556	2880	0.033333	1420.8	0.016444
	30	24012.3	0.27792	958.8	0.011097	4230	0.048958	2086.8	0.024153
	31	25034.1	0.289747	999.6	0.011569	4410	0.051042	2175.6	0.025181
ne	1	20946.9	0.242441	836.4	0.009681	3690	0.042708	1820.4	0.021069
	2	15837.9	0.183309	632.4	0.007319	2790	0.032292	1376.4	0.015931
	3	7663.5	0.088698	306	0.003542	1350	0.015625	666	0.007708
	4	12261.6	0.141917	489.6	0.005667	2160	0.025	1065.6	0.012333
	5	15837.9	0.183309	632.4	0.007319	2790	0.032292	1376.4	0.015931
	6	13794.3	0.159656	550.8	0.006375	2430	0.028125	1198.8	0.013875
	7	14305.2	0.165569	571.2	0.006611	2520	0.029167	1243.2	0.014389
	8	12261.6	0.141917	489.6	0.005667	2160	0.025	1065.6	0.012333
	9	13794.3	0.159656	550.8	0.006375	2430	0.028125	1198.8	0.013875
	10	14816.1	0.171483	591.6	0.006847	2610	0.030208	1287.6	0.014903
	11	20436	0.236528	816	0.009444	3600	0.041667	1776	0.020556
als M29-J2		102180		4080		18000		8880	
als M23-J1		177793.2		7099.2		31320		15451.2	
als M23-J2		193631.1		7731.6		34110		16827.6	
als M23-J11		318801.6		12729.6		56160		27705.6	

July 29, 1997

Calculations Based On AGRA Infiltration Rates

AGRA Earth and Environmental measured and calculated field saturated hydraulic conductivity at various locations on the site. This is essentially a measure of the soil's ability to conduct water. The values at lower depths had the lowest hydraulic conductivities, and I took these values to be the limits on permeability (rate of discharge per unit area (m^3/day). Nonetheless, where AGRA test sites showed different values, I calculated separate permeability rates.

The sediment deposits at location 4, and 5 covered areas of 230 m^2 and 200 m^2, respectively. I do not know the exact surface flow path area on the failure site, because the site has failed, but I have estimated the area to be about 500 m^2 based on possible surface flow paths on the pre failure topography.

1 Permeability

Location 5 Area = 200 m^2

5a (77 cm depth) $K_{fs} = 3.58 \times 10^{-4}$ cm/s $= 3.58 \times 10^{-6}$ m/s

Volume of water infiltrating per day = K_{fs}(m/s) x 86400 s/day x Area (m^2)

[1] 3.58×10^{-6} m/s x 86400 s/day x 200 m^2 = **62 m^3 / day**

5b (95 cm depth) $K_{fs} = 1.0 \times 10^{-6}$ cm/s $= 1.0 \times 10^{-8}$ m/s

[2] 1.0×10^{-8} m/s x 86400 s/day x 200 m^2 = **0.17 m^3 / day**

Location 4 Area = 230 m^2

4b (99 cm depth) $K_{fs} = 3.45 \times 10^{-4}$ cm/s $= 3.45 \times 10^{-6}$ m/s

[3] 3.45×10^{-6} m/s x 86400 s/day x 230 m^2 = **69 m^3 / day**

4c (99 cm depth) $K_{fs} = 1.0 \times 10^{-6}$ cm/s $= 1.0 \times 10^{-8}$ m/s

[4] 1.0×10^{-8} m/s x 86400 s/day x 230 m^2 = **0.20 m^3 / day**

4e (58 cm depth) $K_{fs} = 6.23 \times 10^{-3}$ cm/s $= 6.23 \times 10^{-5}$ m/s

[5] 6.23×10^{-5} m/s x 86400 s/day x 230 m^2 = **1237 m^3 / day**

Failure scarp Failure covers 4.5 ha. Assumed area of flow path = 500 m^2

Scarp A (25 cm depth) $K_{fs} = 9.53 x 10^{-2}$ cm/s = $9.53 x 10^{-4}$ m/s

[6] $9.53 x 10^{-4}$ m/s x 86400 s/day x 500 m^2 = **41,170 m^3 / day**

Scarp B (35 cm depth) $K_{fs} = 5.21 x 10^{-4}$ cm/s = $5.21 x 10^{-6}$ m/s

[7] $5.21 x 10^{-6}$ m/s x 86400 s/day x 500 m^2 = **225 m^3 / day**

Scarp C (45 cm depth) $K_{fs} = 7.56 x 10^{-4}$ cm/s = $7.56 x 10^{-6}$ m/s

[8] $7.56 x 10^{-6}$ m/s x 86400 s/day x 500 m^2 = **327 m^3 / day**

Values [6], [7], and [8] reflect the permeability of surface units and subsurface units of coarse and fine textured materials.

2 Flow

On 31 May 1992 the flow directed to locations 3,4, and 5 was 25,034 m^3/day. 16.1 % (4,030 m^3) flow to location 5, and 74.2 % (18,575 m^3) to location 4. The volume that flowed to location 4, subsequently made its way to the headscarp.

Flow Location 5

[1a] (62 m^3/day / 4030 m^3) x 100 = **1.5 %**

Based on 62 m^3 /day infiltrating into the ground, 1.5 % of the total volume flows subsurface.

[2a] (0.17 m^3/day / 4030 m^3) x 100 = **0.004 %** of the flow is calculated to have occurred subsurface.

At location 5, 98.5 to 99.996 % of the water went overland (flow into basin A).

Flow Location 4

[3a] (69 m^3/day / 18,575 m^3) x 100 = **0.3 %** of the flow is calculated to have occurred subsurface.

[4a] (0.20 m^3/day / 18,575 m^3) x 100 = **0.001 %** of the flow is calculated to have occurred subsurface.

[5a] (1237 m^3/day / 18,575 m^3) x 100 = **6.6 %** of the flow is calculated to have occurred subsurface.

At location 4, 93.4 to 99.999 % of the water flowed overland to the failure site.

Flow Failure Site

Let's assume, for arguments sake, that 6.6 % of the water at location 4 went subsurface, and that the surface water reaching the failure site was reduced accordingly to 17,349 m^3 /day.

[6a] 41,170 m^3/day is greater than the daily input of 17,349 m^3 /day, therefore in this case **all the water would infiltrate** into the ground and flow subsurface above a more impermeable layer.

[7a] (225 m^3/day / 17349 m^3/day) x 100 = **1.3 %** of the water would flow subsurface or water would flow above a stratigraphic unit of similar texture.

[8a] (327 m^3/day / 17349 m^3/day) x 100 = **1.9 %** of the water would flow subsurface or water would flow above a stratigraphic unit of similar texture.

Within the failure scarp, depending on whether very gravelly sand was prevalent as in Scarp A, or sandy silt was prevalent as in Scarp B and C, all of the water flow would flow subsurface, or very little would flow subsurface, respectively. Water would also tend to flow within coarser textured units over the finer textured units found within the stratigraphy of the failure.

3 Summary

On 31 May 1992 about 25,000 m^3 of water flowed towards locations 3,4, and 5. The 9.7 % that flowed to location 3, and the 16.1 % that flowed to location 5 did not flow to the failure area.

Between 93.4 and 99.999 % of the 18,575 m^3 of water, that flowed through location 4 on 31 May, made its way to the failure area below the headscarp via overland flow.

I can come up with two scenarios, depending on different hydraulic conductivities associated with different textures. If surface material was dominated by very gravelly sand, all the water would flow subsurface within the failure site with seepage exit at location 7. If surface materials were sandy silt, most of the water would flow across the failure site as overland flow to the spoon shaped gully at location 7. The important point is that large quantities of water did reach the failure site and did flow via surface and subsurface pathways toward location 7. I can only speculate, on how water flowed through the complex bedding of the sands, silts and gravels found within the failure.