TABLE 5.3
Watershed Snow Water Equivalents (SWE)

Watershed	Watershed Area (km^2)	2003			2004		
		Surveyed SWE (mm)	Post Survey SWE (mm)	Total Pre-Melt SWE (mm)	Surveyed SWE (mm)	Post Survey SWE (mm)	Total Pre-Melt SWE (mm)
Third Portage	88.9	99.8	11.6	111.4	128.3	2.8	131.1
Tern	21.4	104.3	11.6	115.9	134.6	2.8	137.4
Drilltrail	85.6	106.6	11.6	118.2	139.3	2.8	142.1
Drilltrail Total	107	106.2	11.6	117.8	138.4	2.8	141.2
Second Portage	14.6	105.9	11.6	117.5	138.9	2.8	141.7
Second Portage Total	210.5	103.4	11.6	115.0	134.1	2.8	136.9

Note that the watershed areas obtained by GIS analysis, as reported in Table 5.2, differ by up to 5% from the areas reported in Table 4.1. The latter are the more accurate and the former are less accurate due to the 50 m grid basis for the terrain analysis; therefore, the more accurate areas are used to obtain volumes.

The snow water equivalents listed in Table 5.3 distributed over the watershed areas represent the volumes of water released by the melting of the snowpack within each watershed in spring 2003 and 2004. The 2004 snow survey result for the overall watershed of 136.9 mm SWE is 19 percent higher than the SWE of 115.0 mm found in 2003. Comparison of snow depths along the transects indicates that depths overall were generally somewhat greater in 2004, with slightly lesser depths on intermediate slopes (6 to 15 %), but considerably greater depths in the shelter of steep slopes, except that SE slopes had lesser depths for both steepness categories. Snow densities were higher for most terrain classes in 2004.

Comparison of total adjusted snowfall for Baker Lake for the 2003 and 2004 hydrologic years shows that the amounts were practically the same at 147.9 cm and 150.2 cm, respectively (Table 3.11), indicating that the observed differences in SWE could be attributable to variability in wind conditions resulting in less over-winter sublimation losses and greater snow densities and accumulation depths. Comparison of 2003 and 2004 wind speeds (Figures B.10.6 and B.10.7) shows that wind speeds in 2004 were significantly lower than in 2003 over the January – March period. Inherent limitations in accuracy, although difficult to quantify, may explain some of the observed differences, but the overall trend as indicated by the data seems reasonable.

6.0 CONCLUSIONS

Hydrometric and climate monitoring were conducted at the Meadowbank Gold Project during 2004, as a continuation of monitoring work initiated in September 1997 with installation of the climate station. A full program of hydrometric and climate monitoring was implemented in 2002.

Temperatures during 2004 were generally one to two degrees colder than the mean. Total precipitation in the region for 2004, as recorded at Baker Lake, was lower than in 2003, mostly due to lower summer rainfall. Total precipitation for both years was below average.

The 2004 spring snow water equivalent of 136.9 mm, based on the snow survey data, was 19 percent higher than that estimated for 2003. This difference is thought to be mainly attributable to wind conditions, which were less severe over the 2003 – 2004 winter season than for the preceding year.

Runoff was monitored at four lake outlet stations in the project area. The annual runoff values range from 76 mm for Third Portage Lake and 101 mm for Second Portage Lake, to 118 mm for Drilltrail Lake. These values are about 20 to 30 percent lower than the 2003 runoff values, and reflect the relatively dry conditions of the last two years.

Several uncertainties with respect to assumptions and data gaps have been identified in this and previous reports. The main issues are as follows:

1. Snowfall amounts at the project site have not been measured, as the site is not occupied through the winter season. Estimation of snowfall amounts at the project site are suspected of being too low, and an improved approach should be attempted.
2. Post-season runoff volumes have been estimated to date on the basis of the estimated duration of post-season discharge before freeze-up. This approach should be verified by use of the seasonal September to May water level data.
3. End of winter water levels for Third Portage Lake have been identified as anomalous. These should be verified by adding one or more additional sites for manual survey of seasonal water levels.

It is recommended that these issues be reviewed at an appropriate stage in the overall program and that further studies be undertaken as appropriate.

7.0 CLOSURE

This report presents climatic and hydrometric monitoring data collected at Meadowbank over the 2004 season, limited analysis and interpretation of the data, conclusions, and recommendations for future work.

This report has been prepared for the exclusive use of Cumberland Resources Ltd. and their legitimate agents and representatives.

Respectfully submitted,

AMEC Earth & Environmental Limited

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15 February 2006

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APPENDIX A

PHOTOGRAPHS

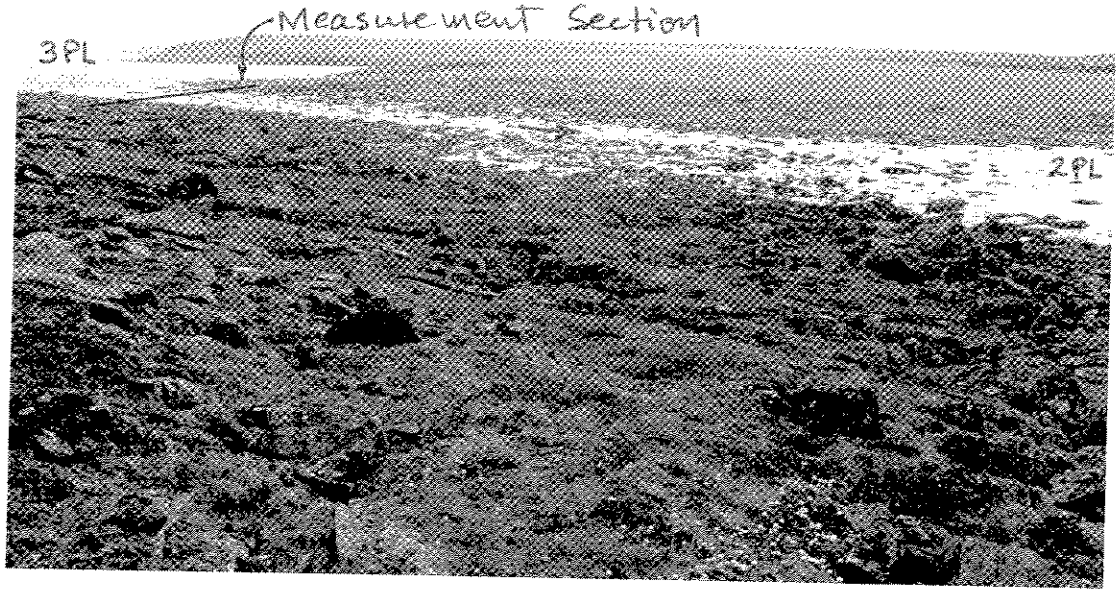

Photo 1 9 – 10 July 1998. 3PL west outlet channel, looking upstream.

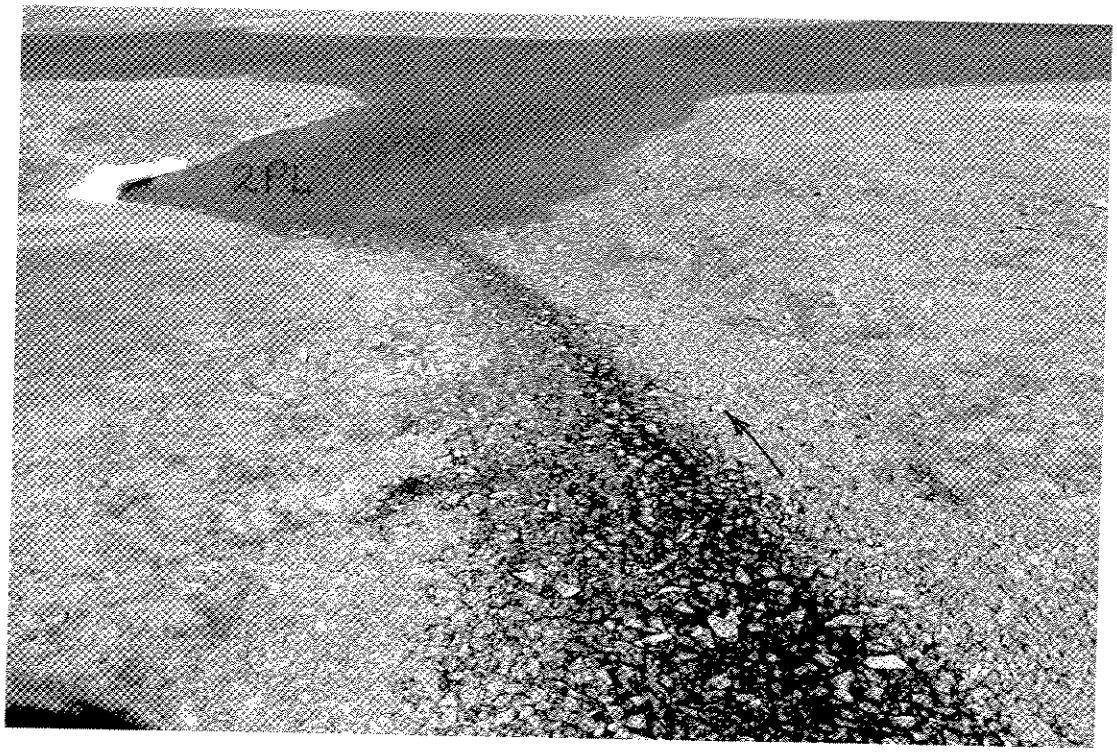

Photo 2 9 – 10 July 1998. 3PL west outlet channel, looking downstream to 2PL.

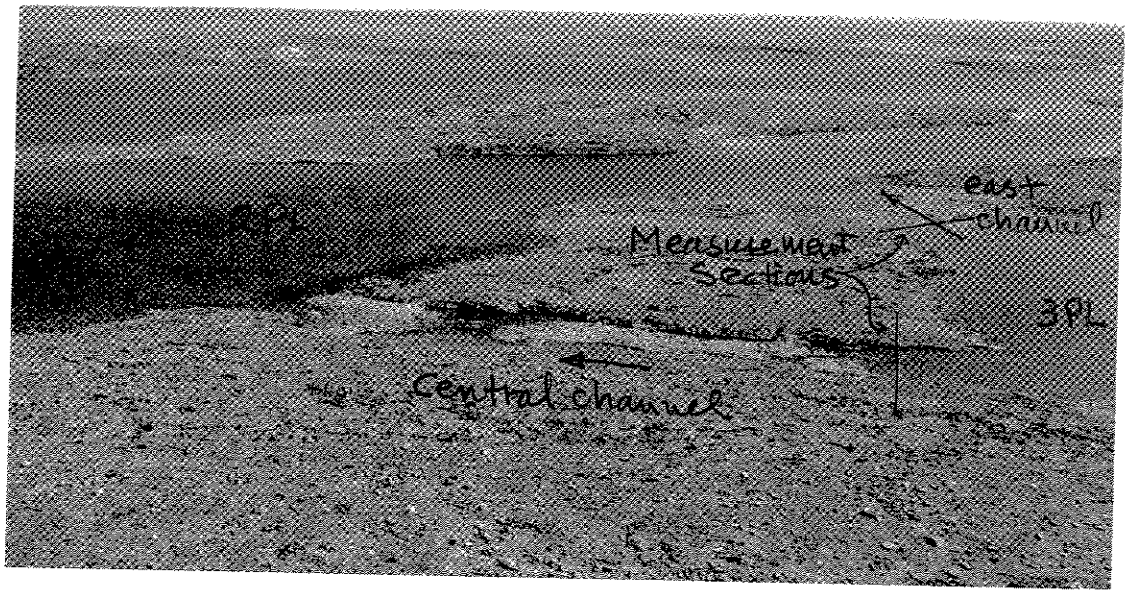

Photo 3 9 – 10 July 1998. 3PL central and east outlet channels.

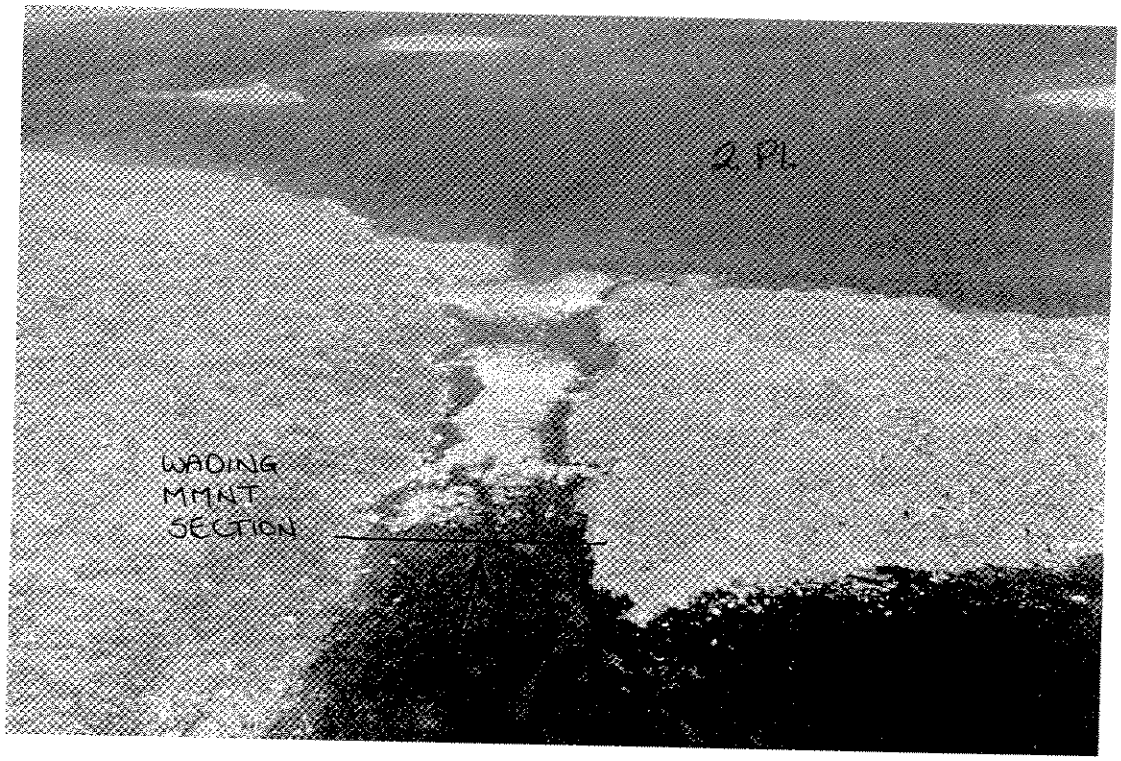

Photo 4 9 – 10 July 1998. 3PL central outlet channel.

Photo 5 9 – 10 July 1998. 3PL east outlet channel.

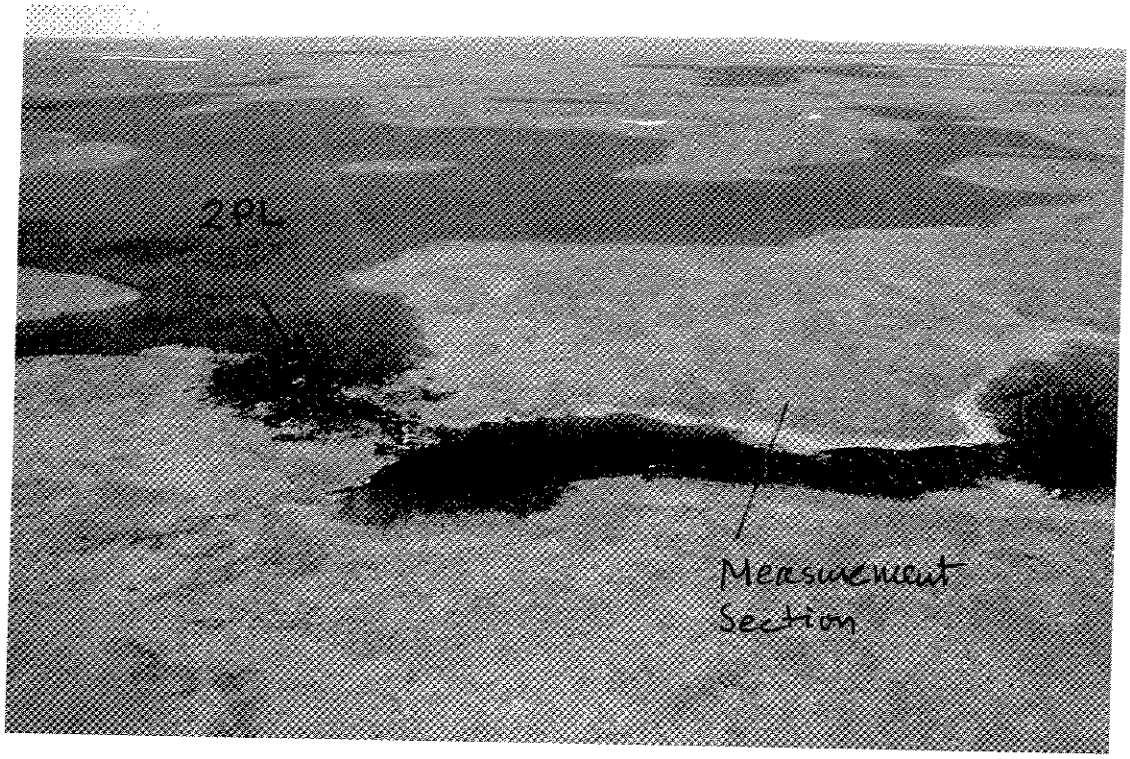

Photo 6 9 – 10 July 1998. 2PL outlet channel to Tehek Lake, looking north.