MEMORANDUM

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DATE: July 21, 2008

TO: Paul Johnson, Osisko Exploration Ltd.

FROM: Murray Fitch and Nava Pokharel, Simon Beaulieu, Golder Associates Ltd.

RE: Annual Water Balance Analysis for the Osisko Malartic Mine, Revision 1

1. INTRODUCTION

This revised memorandum summarizes the results of our preliminary water balance analysis for the Osisko Malartic Mine and is updated from our original memorandum of May 16, 2008. The assessments address our understanding of the following two "cases" for which water is required:

- **Case 1 – Startup:** For startup, a total of 6 million m^3 (Mm^3) of water is required, which can be collected over two years.
- **Case 2 – Operations:** Once in operation, the mine will require approximately 9.45 Mm^3 of water annually. A minimum of 2.84 Mm^3/yr (7,700 m^3/day) is expected to be supplied from groundwater pumping (based on groundwater modeling results), with the remainder from other water sources such as surface runoff.

The water balance assessments for the two cases are discussed below. The assessments are based on "regional analyses" of data from Environment Canada flow gauging stations in the vicinity of Malartic. These long-term stations provide invaluable data that would ideally be supplemented by flow measurements of the local watersheds, including the Malartic River. A flow gauging program of a local watershed and of the Malartic River was recently initiated, but more data (one year's worth or more) will be required before this information can be used to supplement the regional data.

The water balance assessments were conducted to a screening level – shortcuts were made to speed the analysis at the expense of hydrologic and statistical rigour. Further refinement of the work would include a more detailed examination of the individual watersheds involved in the regional analysis, including a review of precipitation and land cover. Further refinement would also include an evaluation of the system required to actually capture runoff (pumps and pipelines). This level of effort was not considered warranted at this stage of the water balance analysis.

In the Operational Case assessment, two time "snapshots" or "conditions" were evaluated:

- The "pre-development condition" reflects the current state of the local watershed, which includes several large ponds. From a water supply perspective, pre-development condition is the more conservative (i.e. less runoff) condition, with large evaporative losses from the existing tailings pond surfaces.
- The "post-development condition" reflects the land use at full build-out of the project, including a tailings stack, overburden dumps, and the mine pit. Runoff during the post-development condition will be greater than during the pre-development condition largely due to the elimination of evaporation from the tailings pond surfaces.

Only the pre-development condition was assessed for the Startup Case.

2. DATA

2.1 Methodology

The annual water balance is based on the following equation:

Volume of water available for mine use = [runoff from local watersheds] + [pumping from Malartic River] + [direct precipitation on tailings and storage ponds] – [evaporation from ponds] + [groundwater pumping] + [release from tailings] – [spill from storage pond] – [water stored as an ice cover on the storage pond]

Groundwater seepage, either into or out of the storage ponds, was not assessed. Based on Golder's experience at other locations, release from tailings was assumed to be negligible.

2.2 Runoff from Watersheds

Estimates of the runoff from the local watersheds near Malartic were based on an analysis of runoff from regional long-term gauged watersheds within 150 km of Malartic. The fundamental assumption of this analysis is that the runoff patterns and volumes from these regional stations are representative, and can be applied to the local watersheds. This is typically an appropriate assumption when evaluating annual flows, but inappropriate for flood flows, since the Malartic local watersheds are much smaller than those of the gauged sites.

The regional analysis included 26 stations within approximately 150 km of Malartic. To reduce inappropriate correlation in the dataset and increase the validity of the statistics, multiple stations on a single river were either combined (if watershed areas were comparable) or the "best" station on the watercourse selected (based on period of record or size of watershed, the smaller the better). A frequency analysis of annual flow was conducted for each station to determine the annual water yield (in mm or L/s/km^2) for dry years with return periods ranging from 2 to 100 years. Table 1 summarizes these frequency analyses. There is significant variability in annual water yield between stations. For example, the annual water yield of the regional stations for a 2-year return period ranged from 339 to 577 mm, with an average of 458 mm (i.e. the lowest yield was 74% of the average). There is also an overall trend towards slightly lower annual water yield for small watersheds, which is most pronounced for longer time periods. Figure 1 shows the relationship between water yield and drainage area for 2, 10, and 50-year return periods for gauges with watershed areas that are less than 3,000 km^2. For example, the predicted runoff for a 1 km^2 watershed in the 2-year event is approximately 90% of that of a 2,500 km^2 watershed. For a 50-year event, the ratio is approximately 80%.

2.3 Precipitation and Evaporation

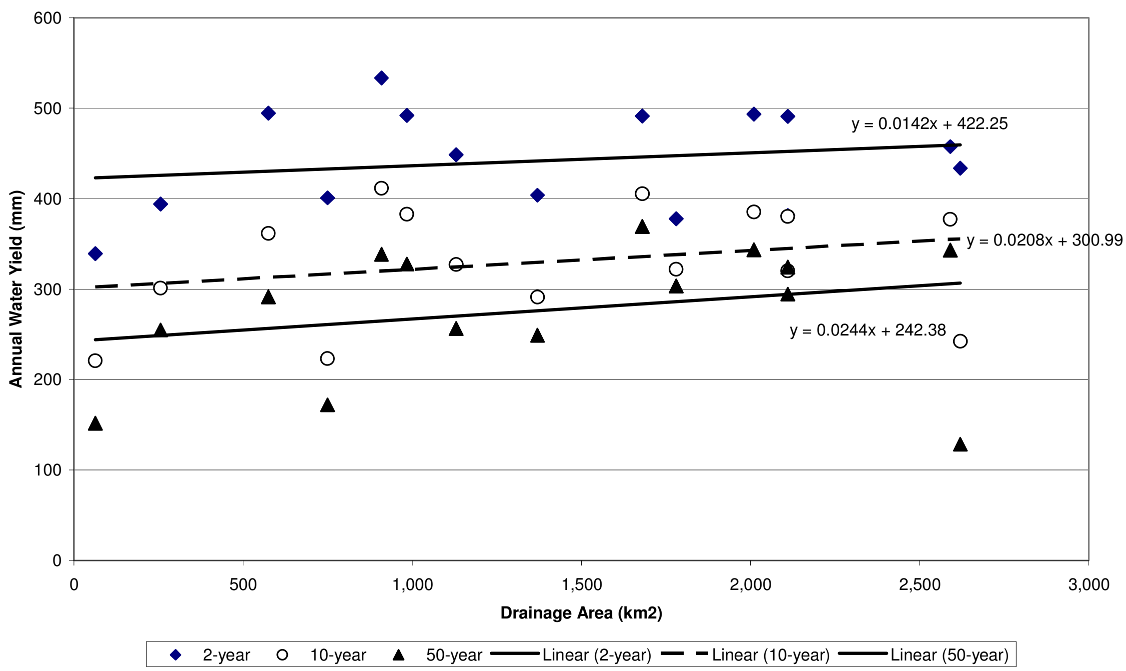
The precipitation data at Val D'Or Airport (Climate ID: 7098600) for the period of record (1951 to 2006) and evaporation data at Amos (Climate ID: 7090120) for the period of 1968 to 1993 were used in the analysis. In the monthly water balance assessment of the Operational Case, monthly precipitation and evaporation data were required for the period from 1970 to 2001. In the assessment, measured evaporation data from 1994 to 2001 were not available, and long-term average monthly averages were used to infill missing data.

Table 1: Summary of Frequency Analysis of Water Yield of Regional Stations

No.	Name of Station	Station ID	Drainage Area (km^2)	Approx. Distance From Malartic (km)	Years of Record	Period of Record	Annual Water Yield for 2 to 100 Year Return Periods (mm/year)					
							2	5	10	20	50	100
1	FARR CREEK AT NORTH COBALT	02JE018	63	125	12	1971-1983	339	262	221	187	152	129
2	LARDER RIVER ABOVE RAVEN LAKE	02JC010	256	112	10	1981-1991	394	332	301	278	255	241
3	MAGANASIPI (RIVIERE) AU LAC JOHNSON	02KA01	575	127	30	1970-2000	494	405	362	328	291	268
4	MATABITCHUAN RIVER AT RABBIT LAKE DAM	02JE021	749	136	48	1946-1994	401	304	223	205	172	143
5	MATTAWA RIVER BELOW BOUILLON LAKE	02JE020	909	141	27	1971-1998	533	453	412	377	338	313
6	KINOJEVIS (RIVIERE) EN AVAL DU LAC PREISSAC	02JB004	984	30	34	1938-1972	492	418	383	356	328	310
7	AMABLE DU FOND RIVER AT SAMUEL DE CHAMPLAIN PROVINCIAL PARK	02JE019	1,130	140	23	1972-1995	448	368	327	294	256	232
8	LADY EVELYN RIVER AT LADY EVELYN LAKE	02JD011	1,370	150	54	1946-2000	404	324	291	269	249	239
9	KINOJEVIS (RIVIERE) EN AVAL DE LA RIVIERE VILLEMONTEL	02JB003	1,680	32	18	1948-1966	491	432	405	387	369	360
10	BLANCHE RIVER ABOVE ENGLEHART	02JC008	1,780	135	34	1968-2002	378	337	322	312	303	299
11	BELL (RIVIERE) A SENNETERRE-2	03AC00	2,010	61	36	1927-1963	493	417	385	363	343	333
12	DUMOINE (RIVIERE) AU LAC DUMOINE	02KJ003	2,110	92	36	1967-2003	381	339	320	307	294	288
13	KINOJEVIS (RIVIERE) A CLERICY	02JB013	2,590	61	38	1965-2003	458	401	377	360	343	333
14	GENS DE TERRE (RIVIERE) AU BARRAGE CABONGA	02LG00	2,620	132	74	1929-2003	434	307	242	188	128	89
15	HARRICANA (RIVIERE) A AMOS	04NA00	3,680	33	83	1915-1998	506	432	400	378	357	346
16	DUMOINE (RIVIERE) AU LAC ROBINSON	02KJ004	3,760	125	38	1965-2003	431	367	336	313	288	272
17	DUMOINE (RIVIERE) EN AMONT DE LA RIVIERE DES OUTAOUAIS	02KA01 1	4,350	146	44	1905-1949	401	349	328	313	298	289
18	MONTREAL RIVER AT UPPER NOTCH GENERATING STATION	02JD008	6,480	129	41	1930-1971	377	323	303	290	279	273
19	MONTREAL RIVER AT LOWER NOTCH GENERATING STATION	02JD010	6,600	123	22	1972-1994	360	304	276	256	237	226
20	OUTAOUAIS (RIVIERE DES) AU RESERVOIR DOZOIS	02JA003	8,210	66	55	1948-2003	573	507	468	434	393	364

No.	Name of Station	Station ID	Drainage Area (km²)	Approx. Distance From Malartic (km)	Years of Record	Period of Record	Annual Water Yield for 2 to 100 Year Return Periods (mm/year)					
21	MEGISCANE (RIVIERE) EN AMONT DU LAC PARENT	03AC00	8,310	73	17	1966-1983	567	490	458	435	412	398
22	OUTAOUAIS (RIVIERE DES)	02JB006	14,000	40	49	1954-2003	498	428	391	360	324	300
23	BELL (RIVIERE) EN AMONT DU LAC MATAGAMI	03AC00	22,200	120	41	1962-2003	536	482	463	451	441	437
24	OUTAOUAIS (RIVIERE DES) BARRAGE DES RAPIDES DES QUINZE/CENTRAL DES RAPIDES DES QUINZE	02JB008 /02JB02	23,400	98	88	1915-2003	452	360	303	251	187	141
25	WASWANIPI (RIVIERE) A LA CHUTE ROUGE	03AB00	31,900	139	37	1966-2003	577	521	495	476	456	443
26	OTTAWA RIVER NEAR TIMISKAMING / OTTAWA RIVER AT LA CAVE RAPIDS	02JE003 /02JE01	46,100	126	81	1912-194	496	422	389	363	337	320
						Average	458	388	353	328	301	284
						10th Percentile	377	306	259	228	180	142
						25th Percentile	401	333	303	281	255	239
						Max	577	521	495	476	456	443
						Min	339	262	221	187	128	89

Figure 1: Relationship between Regional Annual Water Yield and Drainage Area for 2, 10 and 50 Year Return Periods



3. STARUP CASE WATER BALANCE ASSESSMENT

As discussed above, Osisko requires 6 Mm^3 of start-up water, which will be collected over a two year period. Table 2 presents summary statistics for a two year moving average (i.e. "running average") of annual flows at the 13 stations from Table 1 with drainage areas smaller than 4,000 km^2 and periods of record of 20 years or greater. This analysis was conducted with the following steps:

- Calculation of two year moving average annual yield (i.e. runoff in mm) for each selected station using its annual flow record and drainage area. Each entry in the list is the average runoff over two years. Gaps in the annual flow record were ignored, so the total number of entries in each list was one less than the number of annual flows.

- Conduct frequency analyses of moving average flows for each station (from previous step). The results are similar to a frequency annual analysis of annual water yields, where the results would be reported according to "return period", typically ranging from the 1 in 2 year flow to the 1 in 100 year flow, as given in Table 1. However, the use the term "return period" is incorrect when applied to the moving average flow statistics, and consequently the results are reported as "probabilities".
- Calculate summary statistics (e.g. mean, median, and minimum) for the 13 stations. These results reflect the variability in flow statistics across the 13 stations. For example, the average of the p=0.1 (equivalent to the "10-year event") statistics for each of the 13 stations is 390 mm in Table 2.

Table 2: Flow Statistics for Environment Canada Gauging Stations Near Malartic Annual Water Yields based on Two Year Moving Average

Flow Statistic	Annual Yield (mm)					
	p=0.5	p=0.2	p=0.1	p=0.05	p=0.02	p=0.01
average	473	417	390	369	347	334
min	386	330	289	243	191	155
max	633	561	525	496	464	443
10th percentile	392	346	307	281	253	235
median	478	427	406	384	359	344
90th percentile	522	465	437	414	394	388

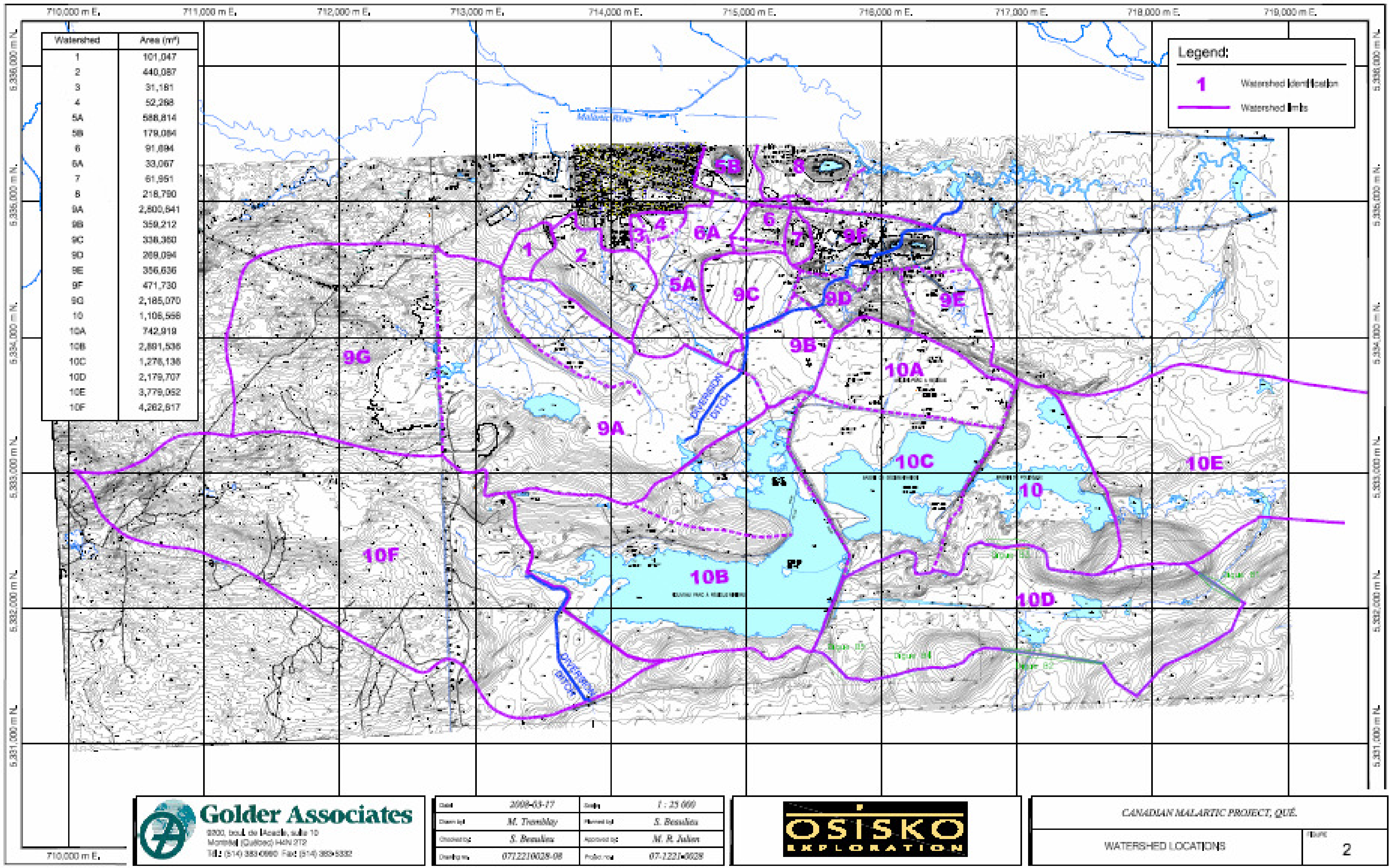
Note: only stations with drainage areas less than 4,000 km^2 and periods of record exceeding 20 years were included.

The results in Table 2 are report in millimeters of annual runoff. Annual runoff in Mm^3/km^2 can be calculated by dividing the results of Table 2 by 1,000. Surface runoff to the ponds could be captured from mine site areas 10, 10A, 10B, 10C, and 10D, with a total surface area of 8.2 km^2. This area includes 4.72 km^2 of dry surfaces, 2.1 km^2 of existing ponds, and the 1.38 km^2 reservoir area. Conservatively using the 10^{th} percentile statistics of Table 2 in this assessment, the total runoff from the dry areas for p=0.5, p=0.1, and p=0.01 events (equivalent to 2, 10, and 100 year return periods) would be 3.7, 2.9 and 2.2 Mm^3 over two years. Using the "average" statistic from Table 2 would result in runoff volumes of 4.5, 3.7 and 3.2 Mm^3. The future storage pond area 10D has a total watershed are of 2.38 km^2, of which 1.38 km^2 will ultimately be occupied by the storage reservoir. As the pond grows, the area will provide less runoff and a greater evaporative surface. As mentioned above the mine area also includes about 2.1 km^2 pond area.

The "net precipitation" (precipitation minus evaporation) is positive for the 25 years of available overlapping data. Net precipitation for the 10-year dry and average conditions are 128 mm and 242 mm, respectively. For the 1.38 km^2 storage reservoir and 2.1 km^2 existing ponds, this equates to additional volumes of 0.9 Mm^3 and 1.7 Mm^3 over two years. Statistics for the 100-year dry event were not calculated, but it is expected that the net precipitation would be close to zero.

In summary, if the runoff from the mine site is comparable to the "average" condition of the regional watersheds and two average runoff years were to occur, then the runoff provided by mine site area would be 4.5 Mm^3 over two years. Approximately 1.7 Mm^3 would be provided by the storage reservoir and existing ponds. The total net runoff volume to the pond would be 6.2 Mm^3. In a p=0.1 (approximately 10-year dry) event, the total runoff volume would be approximately 3.7 Mm^3 (Mine site) + 0.9 Mm^3 (net volume from existing ponds and reservoir) = 4.6 Mm^3.

If the local watersheds prove to be less productive than the regional averages suggest, then the runoff to the ponds will be less than what is described above. For example, assuming the 10^{th} percentile regional flows, the total net runoff from mining would be 5.4 Mm^3 and 3.8 Mm^3 for the average and p=0.1 events, respectively.


Watershed | Area (m²)
1 101,047
2 440,087
3 31,181
4 52,288
5A 588,814
5B 179,084
6 91,894
6A 33,067
7 61,951
8 218,790
9A 2,800,841
9B 359,212
9C 338,380
9D 268,094
9E 356,636
9F 471,730
9G 2,185,070
10 1,106,568
10A 742,919
10B 2,891,536
10C 1,278,138
10D 2,179,707
10E 3,779,092
10F 4,262,817
Legend:
Watershed identification
Watershed limits
Malartic River
DIVERSION DITCH
710,000 m E.
711,000 m E.
712,000 m E.
713,000 m E.
714,000 m E.
715,000 m E.
716,000 m E.
717,000 m E.
718,000 m E.
719,000 m E.
5,336,000 m N.
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WATERSHED LOCATIONS
2

OPERATIONAL CASE WATER BALANCE ASSESSMENT

The Osisko Malartic operation requires approximately 9.45 Mm^3 of water per year. To assess the reliability of the local watersheds and the Malartic River as a source of surface water, an Excel-based monthly water balance was developed using monthly measured flows from the nearby Rivière Kinojevis à Cléricy (02JB013). This station, which has a drainage area of 2,590 km^2, has approximately 30 years of record, and annual flows statistics that are comparable to the average of the regional stations.

The spreadsheet model incorporates the following elements:

- runoff from local watersheds;
- direct precipitation on ponds;
- evaporation from ponds;
- overflow of storage pond;
- storage of water as ice formed between November and April, and released in May;
- groundwater pumping (2.84 Mm^3/year);
- runoff from the tailings stack, mine pit, and overburden dump (all runoff is assumed to be captured);

The following elements were not incorporated in the model:

- Release water from tailings. Golder's experience at similar operations suggests that tailings release water volumes will be minimal.
- Seepage into or out of the storage pond.

In addition, it was assumed that all water on site (i.e. from all watersheds shown in Figure 2) could be captured. At this stage, the mechanics of operationally moving this water have not been finalized.

Two watershed conditions were considered in the assessment:

- "Pre-development". This is equivalent to the existing condition, with evaporation from the tailings ponds in watersheds 10B, 10C and 10. This is the most conservative condition.
- "Post-development". This condition reflects full build-out from the mine, with the existing tailings ponds covered, and runoff being received (and somehow captured) in the storage

pond.

These two conditions are addressed in the following sections.

3.1 Pre-Development Condition

The flows from the local catchment watershed areas 9A, 10, 10A, 10B, 10C, 10D, 9G, 10F and mine pit area were considered in the pre-development condition. Print-outs from the spreadsheet models are provided in Attachment A, and summarized in Table 3. The table reports the percentage of the Malartic River flow that is assumed to be diverted. The "flow adjustment factor" allows for various levels of conservatism to be assumed in the local runoff calculation. As discussed previously, the runoff from the reference watershed, the Rivièrie Kinojevis à Cléricy, is comparable to the average of the regional stations. As noted previously, however, actually runoff can vary substantially between regional watersheds. In Table 1, for example, it can be seen that the smallest annual regional water yield for the 2-year event is 339 mm, or 74% of the annual average water yield at the Cléricy station. The ratio is 65% for the 10-year event. The 10th percentile ratios are slightly higher: 82% and 81% for the 2-year and 10-year events, respectively. However, the 100-year event ratio is just 38%. The less conservative 25th percentile flows are 71% of those at the Cléricy station for the 100-year event.

Adjustment factors of 75%, 85% and 100% were evaluated to cover "typical" ranges of runoff rates in the regional analysis. Calculation summary results are presented in Attachment A.

Table 3: Operational Case (Pre-Development Condition) Water Balance Analysis Results

Percentage of Malartic River diverted	Flow Adjustment Multiplier	Maximum cumulative deficit (Mm^3)	Number of Years Reservoir Storage < 0.8 (Mm^3) (out of 31 years of assessment)[1]	Number of years with greater than 1 Mm^3 deficit (out of 31 years of assessment)
0%	0.5	4.3	31	23
0%	0.6	3.7	29	13
0%	0.7	0.8	16	0
0%	0.8	0.0	0	0
10%	0.5	2.2	31	14
10%	0.6	0.9	21	0
10%	0.7	0.0	0	0
20%	0.5	1.7	28	8
20%	0.6	0.0	0	0

Notes: [1] 0.8 million m^3 is approximately one month of water use.

The following conclusions can be drawn from the results presented in Table 3:

- Under pre-development conditions, pumping from the Malartic River (or some other external source) would likely be required if the local watersheds yield less than 80% of the regional average. This is quite possible since i) smaller watersheds are typically more prone to drought conditions than large watersheds and ii) the local Malartic watersheds are low-lying and swampy, and therefore likely have higher than regional average evapotranspiration rates.
- If 10% of Malartic River flows were diverted, then sufficient water would be available in most years if the local watersheds prove to be as productive as 70% of the regional average.

3.2 Operational Condition

As the mine develops, the existing tailings ponds will be covered by more hydrologically productive surfaces, including a waste dump, tailings stack, and mine pit. In the operational condition analysis only the ultimate post-development condition was considered, in which watershed areas 9A, 9B, 9C, 10, 10A, 10B and 10C are replaced by mine facilities. The result is a more favourable water balance for the mine provided that all water can be captured from all watersheds and mine surfaces.

The results of the operational condition analysis are presented in Table 4 and Attachment B. Best estimate runoff coefficients of 0.8 were assumed for the waste dump and 0.7 for the tailings stack and mine pit. However, a flow adjustment multiplier for the man-made structures (waste dump, tailings stack and mine pit) was also incorporated in the model to assess the sensitivity of the water balance these runoff coefficients. For example, if the flow adjustment multiplier for man-made structures were set to 0.6, then the effective runoff coefficient for the waste dump would be 0.48 (e.g. 0.8 x 0.6). Melting and freezing was assumed to occur at an average monthly temperature of -2C.

Table 4: Operational Case (Operational Condition) Water Balance Analysis Results

Percentage of Malartic River diverted	Flow Adjustment Multiplier For Natural Watersheds	Flow Adjustment Multiplier for man-made structures	Maximum cumulative deficit (Mm^3)	Number of Years Reservoir Storage < 0.8 (Mm^3) (out of 31 years of assessment)	Number of years with greater than 1 Mm^3 deficit (out of 31 years of assessment)
0%	0.8	0.4	1.30	21	2
0%	0.8	0.5	0.0	0	0
0%	0.7	0.5	1.10	17	1
0%	0.7	0.6	0	0	0
0%	0.6	0.6	0.4	9	0
10%	0.6	0.7	0	0	0

The following conclusions can be drawn from the results presented in Table 4:

- Water supply is secure in the case of no pumping from the Malartic River if runoff from the local watersheds is about 70% of the regional average and the effective runoff coefficient of the man-made structure is about 0.40 to 0.45.

- If 10% of Malartic River flows are pumped, then runoff from the local watersheds would be sufficient provided local watersheds produce 60% of regional averages and the effective runoff coefficient of the man-made structure is about 0.40 to 0.45. This assumption also requires that all on-site runoff be captured.
- The analysis period is for a 31 year period of record. However, the lowest recorded annual runoff at the Cléricy station in this period is close to the 100-year event.

4. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis conducted, the following conclusions may be drawn:

- Assuming that the local watersheds produce somewhat comparable runoff to those in the region, there will be sufficient water to fill the storage pond for startup provided that groundwater pumping rates of 2.84 Mm^3/year or greater are maintained.
- Until the existing tailings ponds are covered and hydrologically productive surfaces exist, there is a risk of insufficient water availability for operations unless about 10% flow of Malartic River is diverted, or some other external source is found.
- Once the tailings ponds are covered, there is a much greater chance of providing all required operational water from the local watershed and man-made structures.
- The uncertainty in this assessment will be reduced as more information is gained through the flow measurement program that has been initiated for the local watershed.
- Operationally, Osisko would have several months to respond to an impending water shortage. Typically, by August or September that likelihood of a water shortage would become clear. Storage volumes are always lowest in late winter (February through April), since surface flows during the winter are negligible. Periods of very low storage pond levels typically occur in years when runoff is insufficient to fill the pond during spring runoff.

Attachment A

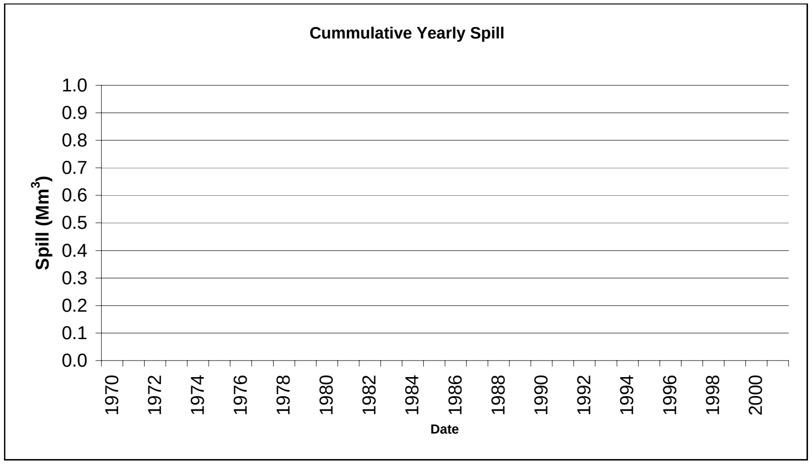
Operational Case (Pre-Development Condition)

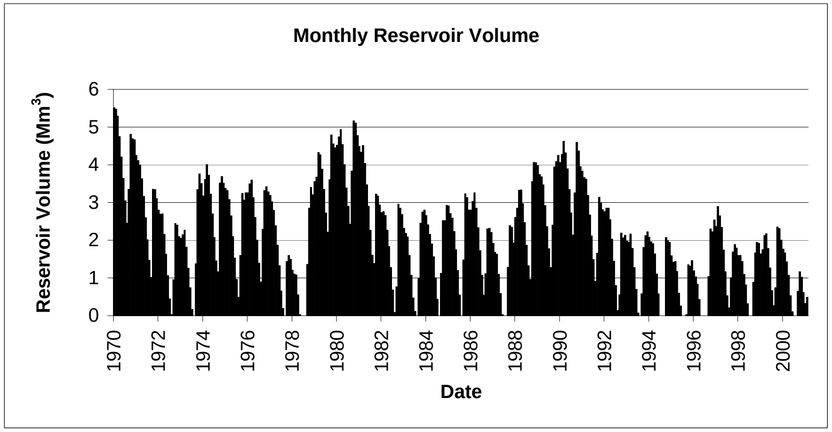
Water Balance Assessment Summaries

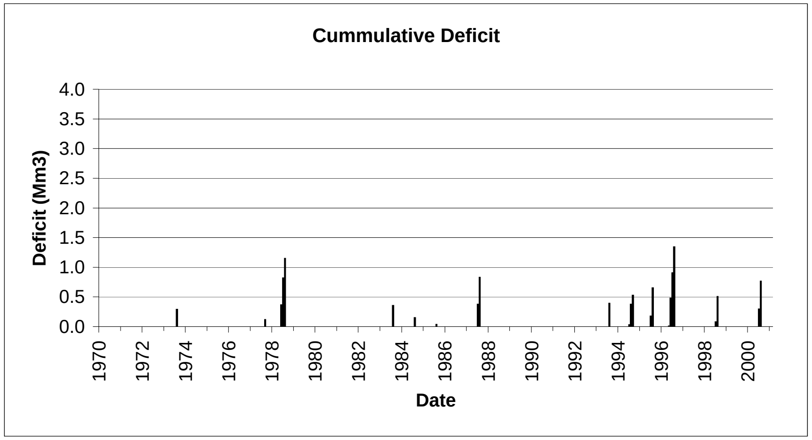
Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590 km^2	
Malartic catchment %	0.0%	total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19 km^2	
Catchment 10F Area	4.26 km^2	
Other Catchment Area	3.10 km^2	
Total Local Catchment Area	9.55 km^2	includes 0% of Malartic catchment
Waste Dump	2.58 km^2	
Mine Pit	1.29 km^2	total runoff area = 18.84 km2
Tailings Stack	5.42 km^2	
Waste Dump Runoff Coefficient	80%	
Mine Pit Runoff Coefficient	70%	
Tailings Stack Runoff Coefficient	70%	
Area of Resevoir	1.38 km^2	(Area at 325 masl elevation)
Reservoir Volume	6 Mm^3	
Groundwater Supply	0.24 Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79 Mm^3/month	
Melt Temperature	-2	
% loss in Winter Months	0%	
Start month of ice formation	11	Ice atlas - starts Nov 15
Start of ice deterioration	5	Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85 m	
Runoff Adjustment Multiplier	0.8	(For natural Watersheds)
Runoff Coefficient Multiplier	0.4	(For Manmade Structures)

Maximum deficit	1.3 Mm^3		
Number of years with deficit >1 Mm^3	2	out of	31
Reservoir Storage < 0.8 Mm3	21	out of	31



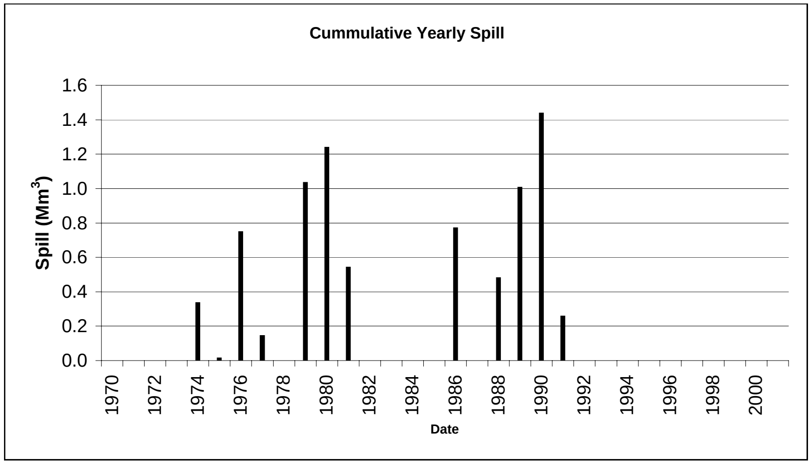


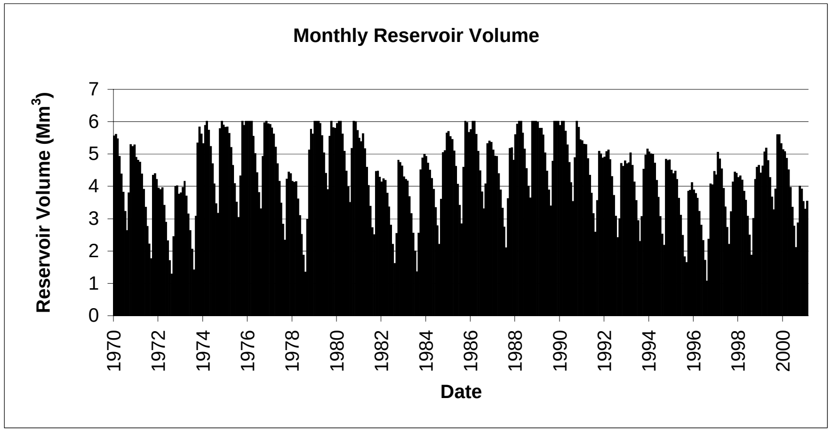


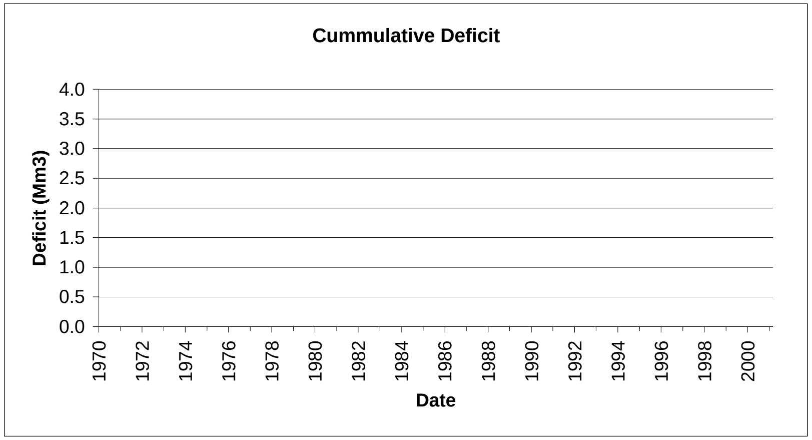
Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590 km^2	
Malartic catchment %	0.0%	total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19 km^2	
Catchment 10F Area	4.26 km^2	
Other Catchment Area	3.10 km^2	
Total Local Catchment Area	9.55 km^2	includes 0% of Malartic catchment
Waste Dump	2.58 km^2	
Mine Pit	1.29 km^2	total runoff area = 18.84 km2
Tailings Stack	5.42 km^2	
Waste Dump Runoff Coefficient	80%	
Mine Pit Runoff Coefficient	70%	
Tailings Stack Runoff Coefficient	70%	
Area of Resevoir	1.38 km^2	(Area at 325 masl elevation)
Reservoir Volume	6 Mm^3	
Groundwater Supply	0.24 Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79 Mm^3/month	
Melt Temperature	-2	
% loss in Winter Months	0%	
Start month of ice formation	11	Ice atlas - starts Nov 15
Start of ice deterioration	5	Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85 m	
Runoff Adjustment Multiplier	0.8	(For natural Watersheds)
Runoff Coefficient Multiplier	0.5	(For Manmade Structures)

Maximum deficit	0.0 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	0	out of	31



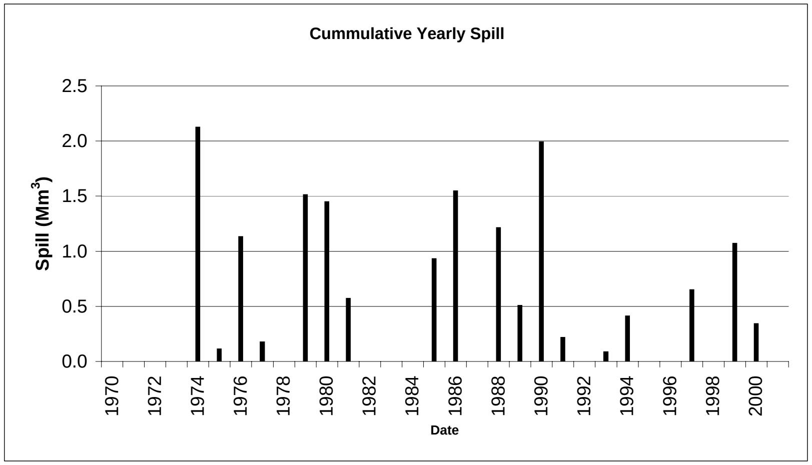


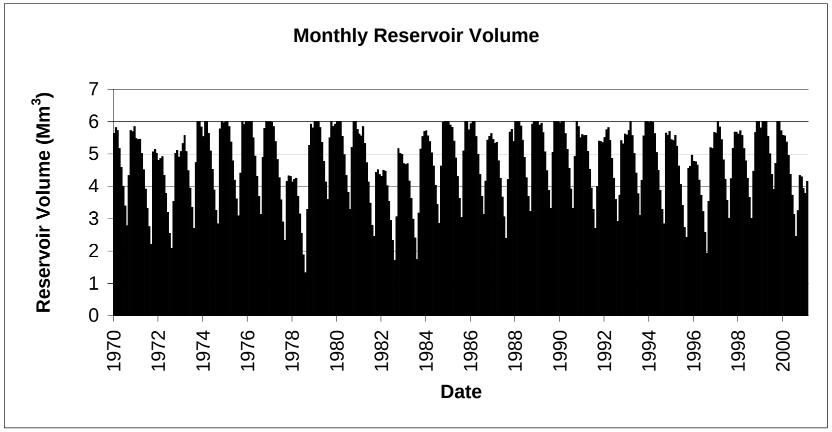


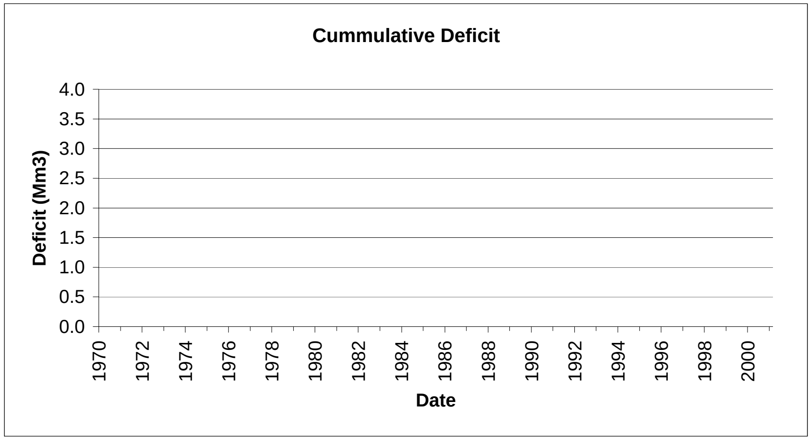
Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590 km^2	
Malartic catchment %	0.0%	total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19 km^2	
Catchment 10F Area	4.26 km^2	
Other Catchment Area	3.10 km^2	
Total Local Catchment Area	9.55 km^2	includes 0% of Malartic catchment
Waste Dump	2.58 km^2	
Mine Pit	1.29 km^2	total runoff area = 18.84 km2
Tailings Stack	5.42 km^2	
Waste Dump Runoff Coefficient	80%	
Mine Pit Runoff Coefficient	70%	
Tailings Stack Runoff Coefficient	70%	
Area of Resevoir	1.38 km^2	(Area at 325 masl elevation)
Reservoir Volume	6 Mm^3	
Groundwater Supply	0.24 Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79 Mm^3/month	
Melt Temperature	-2	
% loss in Winter Months	0%	
Start month of ice formation	11	Ice atlas - starts Nov 15
Start of ice deterioration	5	Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85 m	
Runoff Adjustment Multiplier	0.6	(For natural Watersheds)
Runoff Coefficient Multiplier	0.6	(For Manmade Structures)

Maximum deficit	0.4 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	9	out of	31







Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590 km^2	
Malartic catchment %	0.0%	total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19 km^2	
Catchment 10F Area	4.26 km^2	
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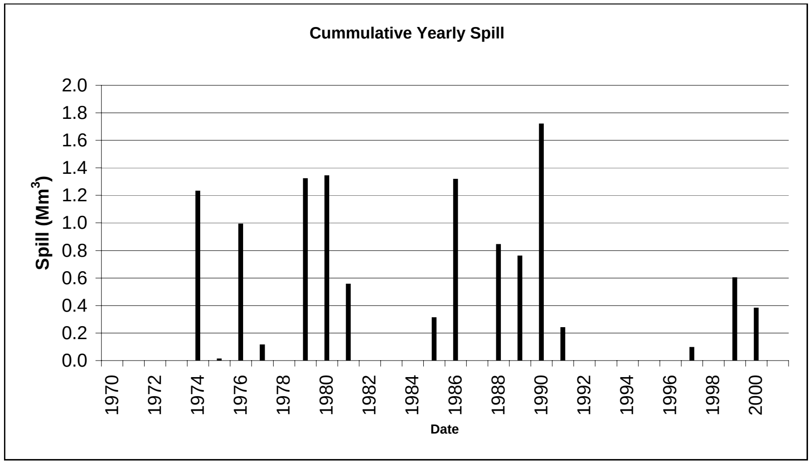
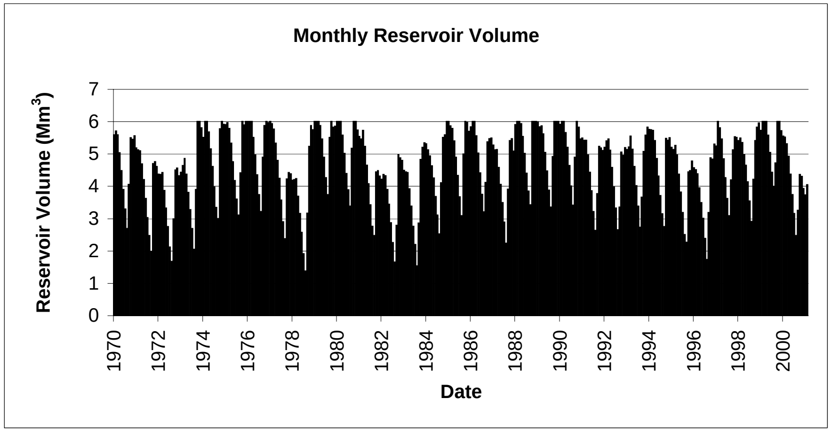
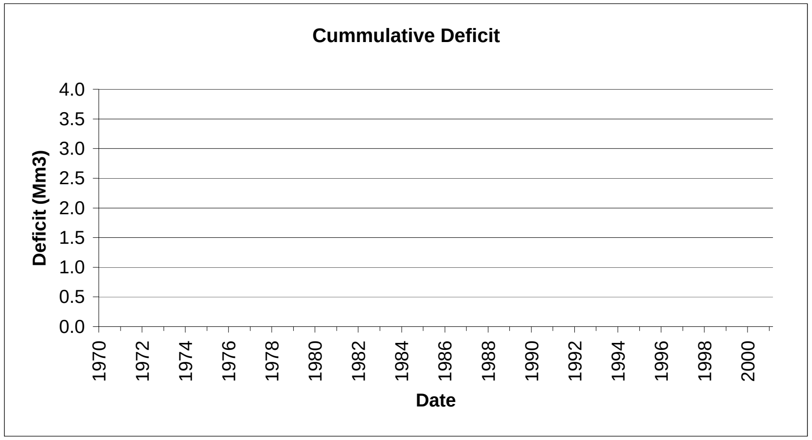
Total Local Catchment Area	9.55 km^2	includes 0% of Malartic catchment
Waste Dump	2.58 km^2	
Mine Pit	1.29 km^2	total runoff area = 18.84 km2
Tailings Stack	5.42 km^2	
Waste Dump Runoff Coefficient	80%	
Mine Pit Runoff Coefficient	70%	
Tailings Stack Runoff Coefficient	70%	
Area of Resevoir	1.38 km^2	(Area at 325 masl elevation)
Reservoir Volume	6 Mm^3	
Groundwater Supply	0.24 Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79 Mm^3/month	
Melt Temperature	-2	
% loss in Winter Months	0%	
Start month of ice formation	11	Ice atlas - starts Nov 15
Start of ice deterioration	5	Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85 m	
Runoff Adjustment Multiplier	0.7	(For natural Watersheds)
Runoff Coefficient Multiplier	0.6	(For Manmade Structures)

Maximum deficit	0.0 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	0	out of	31



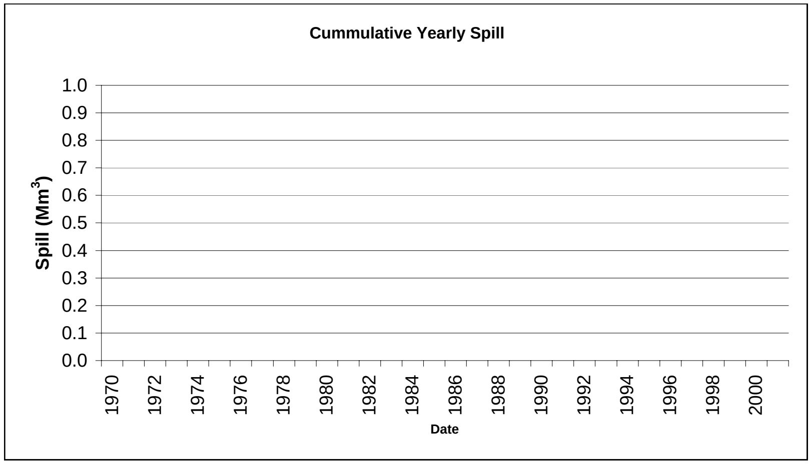


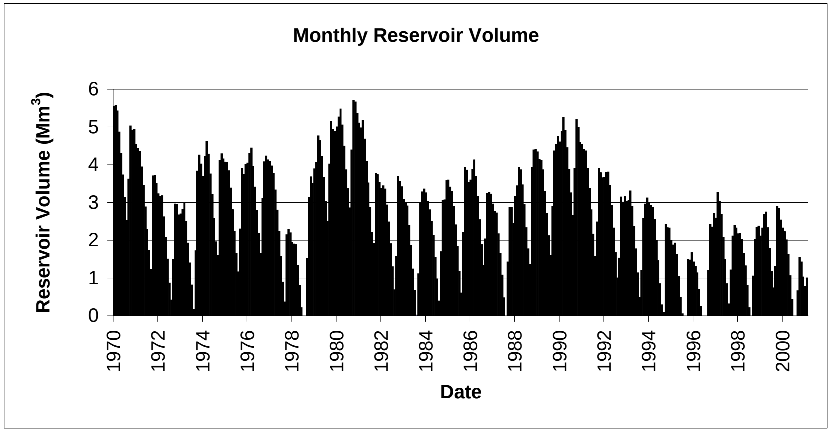


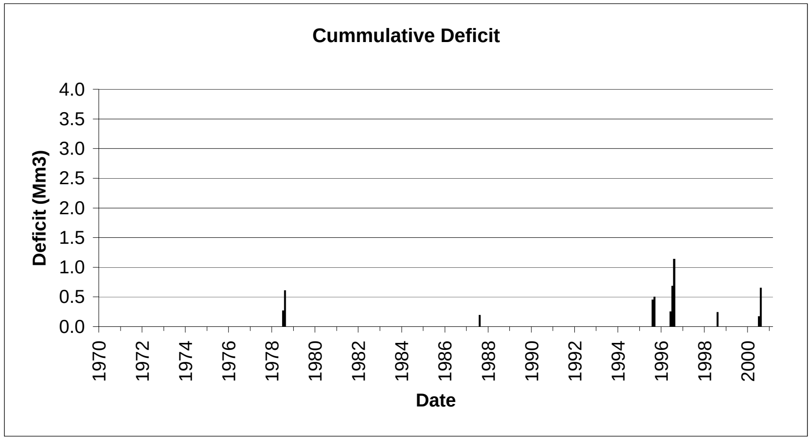
Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590 km^2	
Malartic catchment %	0.0%	total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19 km^2	
Catchment 10F Area	4.26 km^2	
Other Catchment Area	3.10 km^2	
Total Local Catchment Area	9.55 km^2	includes 0% of Malartic catchment
Waste Dump	2.58 km^2	
Mine Pit	1.29 km^2	total runoff area = 18.84 km2
Tailings Stack	5.42 km^2	
Waste Dump Runoff Coefficient	80%	
Mine Pit Runoff Coefficient	70%	
Tailings Stack Runoff Coefficient	70%	
Area of Resevoir	1.38 km^2	(Area at 325 masl elevation)
Reservoir Volume	6 Mm^3	
Groundwater Supply	0.24 Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79 Mm^3/month	
Melt Temperature	-2	
% loss in Winter Months	0%	
Start month of ice formation	11	Ice atlas - starts Nov 15
Start of ice deterioration	5	Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85 m	
Runoff Adjustment Multiplier	0.7	(For natural Watersheds)
Runoff Coefficient Multiplier	0.5	(For Manmade Structures)

Maximum deficit	1.1 Mm^3		
Number of years with deficit >1 Mm^3	1	out of	31
Reservoir Storage < 0.8 Mm3	17	out of	31



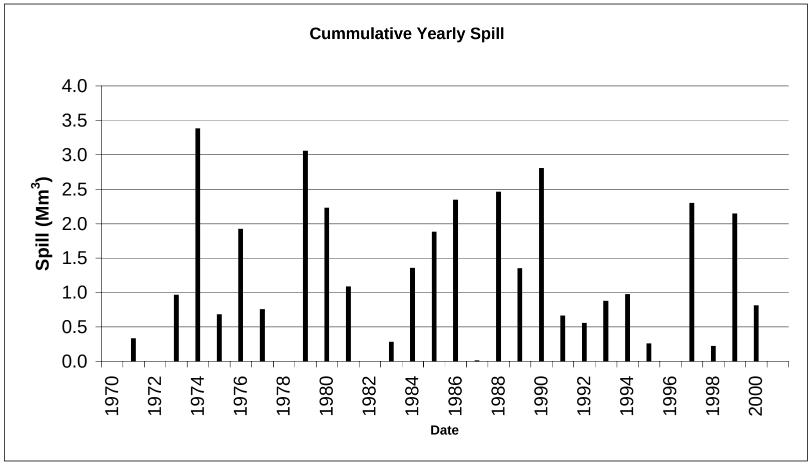


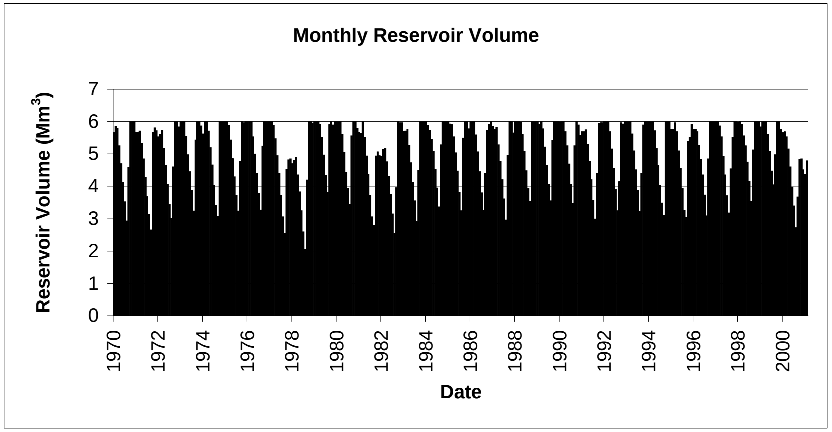


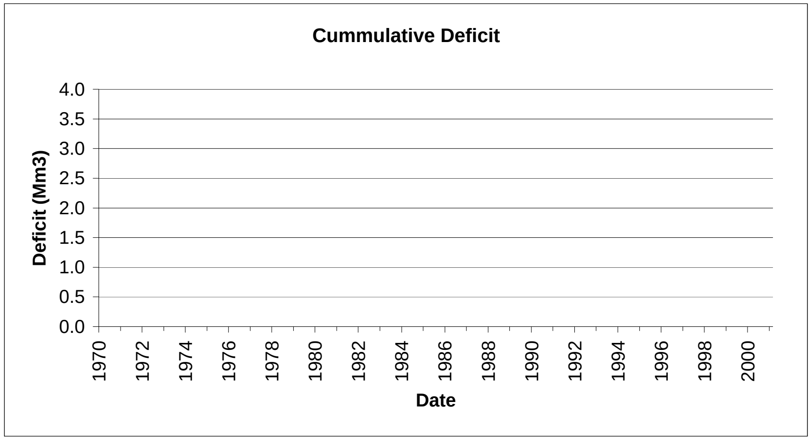
Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590 km^2	
Malartic catchment %	10.0%	total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19 km^2	
Catchment 10F Area	4.26 km^2	
Other Catchment Area	3.10 km^2	
Total Local Catchment Area	11.87 km^2	includes 10% of Malartic catchment
Waste Dump	2.58 km^2	
Mine Pit	1.29 km^2	total runoff area = 21.16 km2
Tailings Stack	5.42 km^2	
Waste Dump Runoff Coefficient	80%	
Mine Pit Runoff Coefficient	70%	
Tailings Stack Runoff Coefficient	70%	
Area of Resevoir	1.38 km^2	(Area at 325 masl elevation)
Reservoir Volume	6 Mm^3	
Groundwater Supply	0.24 Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79 Mm^3/month	
Melt Temperature	-2	
% loss in Winter Months	0%	
Start month of ice formation	11	Ice atlas - starts Nov 15
Start of ice deterioration	5	Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85 m	
Runoff Adjustment Multiplier	0.6	(For natural Watersheds)
Runoff Coefficient Multiplier	0.7	(For Manmade Structures)

Maximum deficit	0.0 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	0	out of	31







Attachment B

Operational Case (Operational Condition)

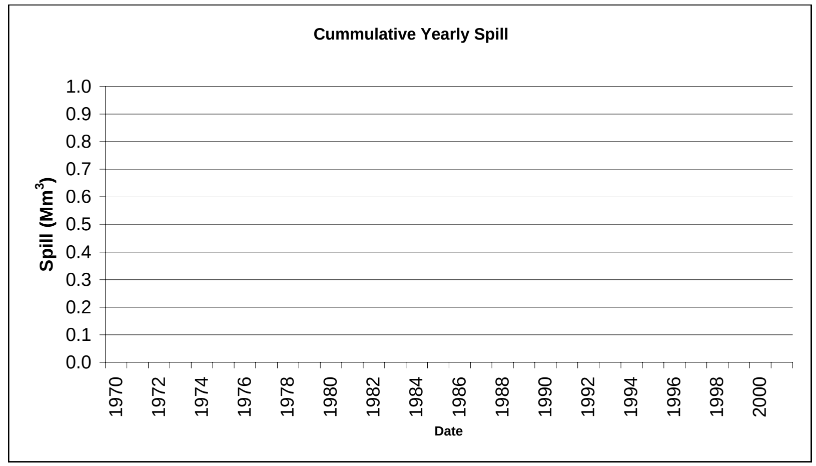
Water Balance Assessment Summaries

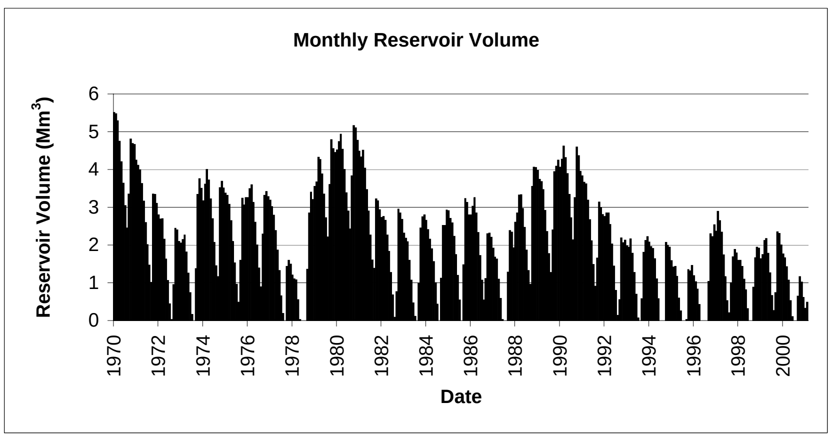
Operational Condition Monthly Water Balance Results

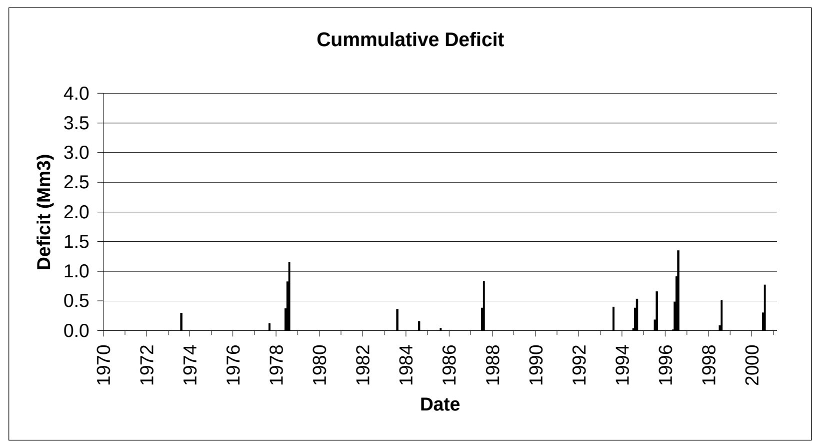
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590	km^2	
Malartic catchment %	0.0%		total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19	km^2	
Catchment 10F Area	4.26	km^2	
Other Catchment Area	3.10	km^2	
Total Local Catchment Area	9.55	km^2	includes 0% of Malartic catchment
Waste Dump	2.58	km^2	
Mine Pit	1.29	km^2	total runoff area = 18.84 km2
Tailings Stack	5.42	km^2	
Waste Dump Runoff Coefficient	80%		
Mine Pit Runoff Coefficient	70%		
Tailings Stack Runoff Coefficient	70%		
Area of Resevoir	1.38	km^2	(Area at 325 masl elevation)
Reservoir Volume	6	Mm^3	
Groundwater Supply	0.24	Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79	Mm^3/month	
Melt Temperature	-2		
% loss in Winter Months	0%		
Start month of ice formation	11		Ice atlas - starts Nov 15
Start of ice deterioration	5		Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85	m	
Runoff Adjustment Multiplier	0.8		(For natural Watersheds)
Runoff Coefficient Multiplier	0.4		(For Manmade Structures)

Maximum deficit	1.3 Mm^3		
Number of years with deficit >1 Mm^3	2	out of	31
Reservoir Storage < 0.8 Mm3	21	out of	31



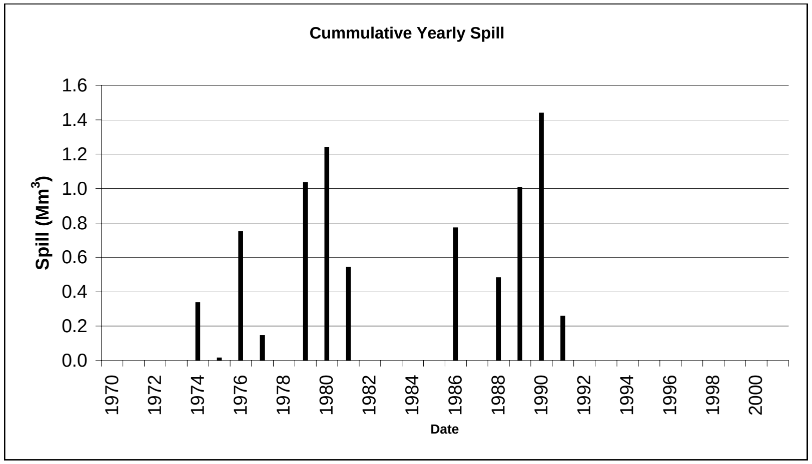


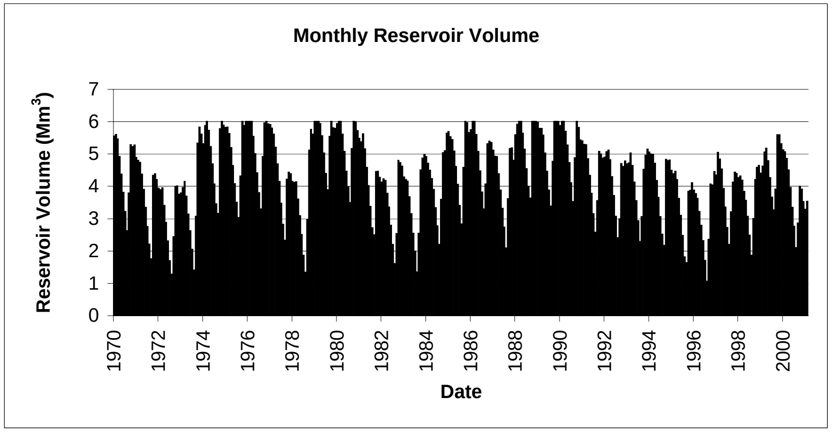


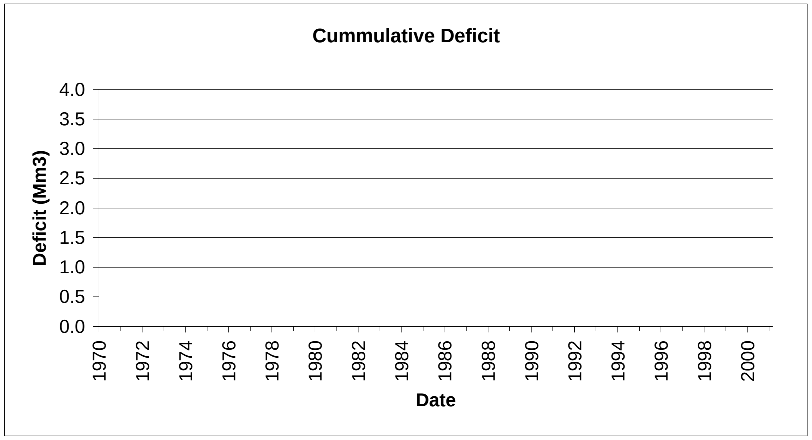
Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590	km^2	
Malartic catchment %	0.0%		total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19	km^2	
Catchment 10F Area	4.26	km^2	
Other Catchment Area	3.10	km^2	
Total Local Catchment Area	9.55	km^2	includes 0% of Malartic catchment
Waste Dump	2.58	km^2	
Mine Pit	1.29	km^2	total runoff area = 18.84 km2
Tailings Stack	5.42	km^2	
Waste Dump Runoff Coefficient	80%		
Mine Pit Runoff Coefficient	70%		
Tailings Stack Runoff Coefficient	70%		
Area of Resevoir	1.38	km^2	(Area at 325 masl elevation)
Reservoir Volume	6	Mm^3	
Groundwater Supply	0.24	Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79	Mm^3/month	
Melt Temperature	-2		
% loss in Winter Months	0%		
Start month of ice formation	11		Ice atlas - starts Nov 15
Start of ice deterioration	5		Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85	m	
Runoff Adjustment Multiplier	0.8		(For natural Watersheds)
Runoff Coefficient Multiplier	0.5		(For Manmade Structures)

Maximum deficit	0.0 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	0	out of	31





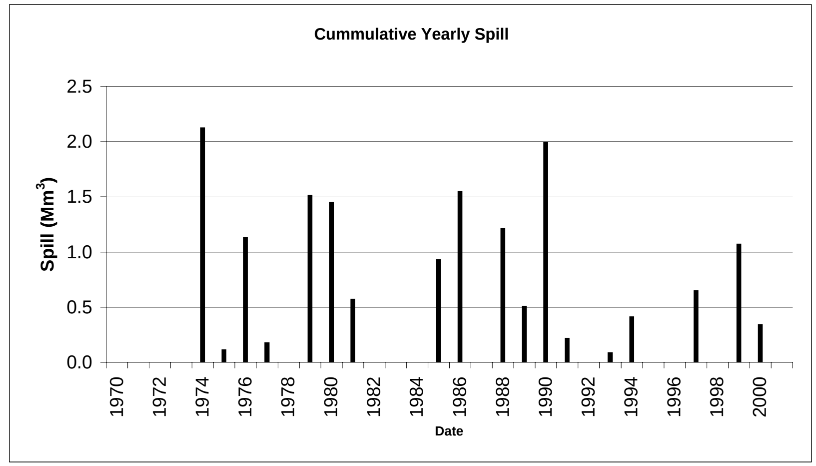


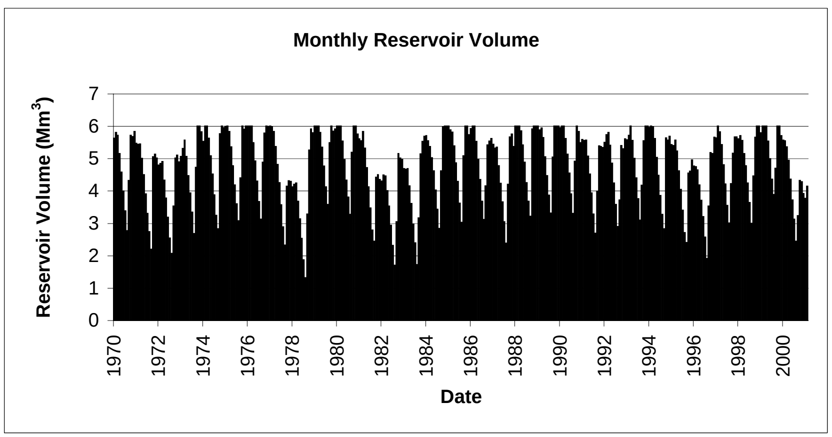
Operational Condition Monthly Water Balance Results

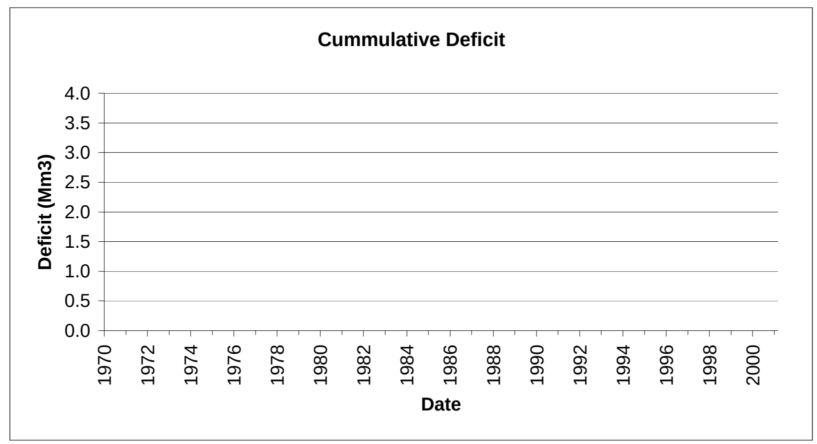
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590	km^2	
Malartic catchment %	0.0%		total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19	km^2	
Catchment 10F Area	4.26	km^2	
Other Catchment Area	3.10	km^2	
Total Local Catchment Area	9.55	km^2	includes 0% of Malartic catchment
Waste Dump	2.58	km^2	
Mine Pit	1.29	km^2	total runoff area = 18.84 km2
Tailings Stack	5.42	km^2	
Waste Dump Runoff Coefficient	80%		
Mine Pit Runoff Coefficient	70%		
Tailings Stack Runoff Coefficient	70%		
Area of Resevoir	1.38	km^2	(Area at 325 masl elevation)
Reservoir Volume	6	Mm^3	
Groundwater Supply	0.24	Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79	Mm^3/month	
Melt Temperature	-2		
% loss in Winter Months	0%		
Start month of ice formation	11		Ice atlas - starts Nov 15
Start of ice deterioration	5		Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85	m	
Runoff Adjustment Multiplier	0.6		(For natural Watersheds)
Runoff Coefficient Multiplier	0.6		(For Manmade Structures)

Maximum deficit	0.4 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	9	out of	31







Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590 km^2	
Malartic catchment %	0.0%	total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19 km^2	
Catchment 10F Area	4.26 km^2	
Other Catchment Area	3.10 km^2	
Total Local Catchment Area	9.55 km^2	includes 0% of Malartic catchment
Waste Dump	2.58 km^2	
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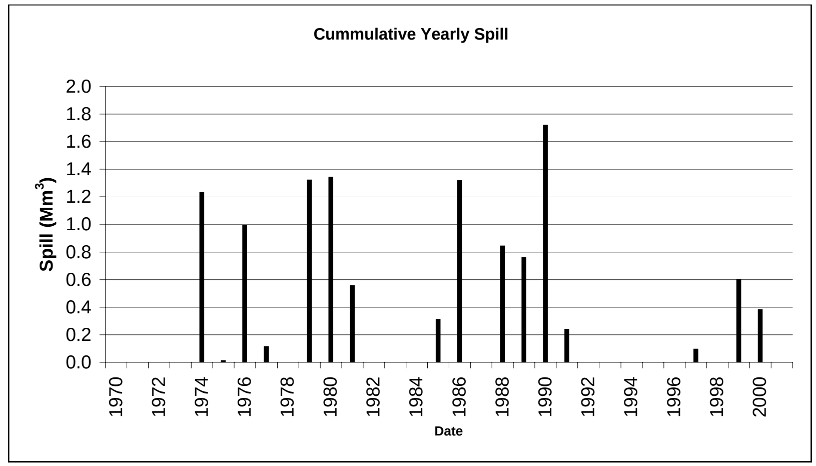
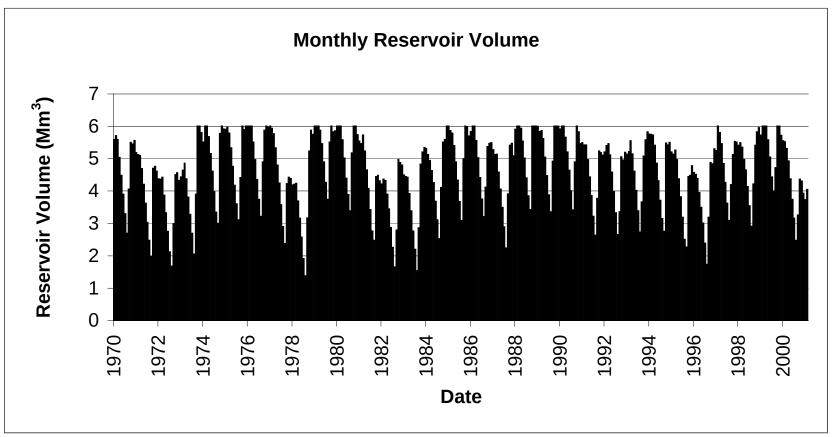
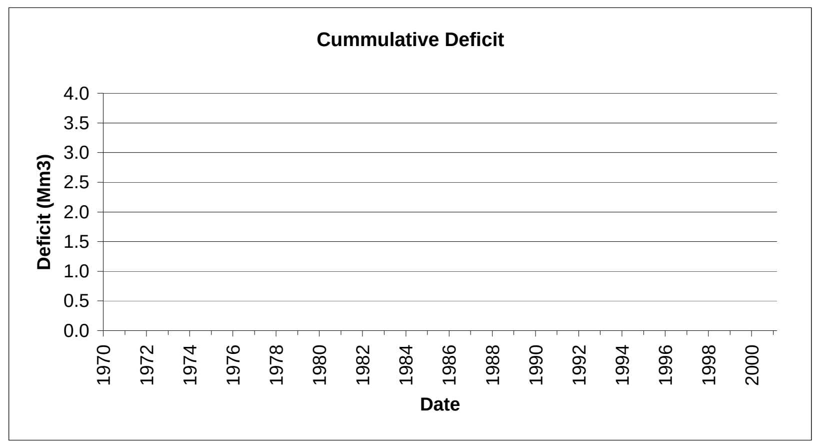
Tailings Stack	5.42 km^2	
Waste Dump Runoff Coefficient	80%	
Mine Pit Runoff Coefficient	70%	
Tailings Stack Runoff Coefficient	70%	
Area of Resevoir	1.38 km^2	(Area at 325 masl elevation)
Reservoir Volume	6 Mm^3	
Groundwater Supply	0.24 Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79 Mm^3/month	
Melt Temperature	-2	
% loss in Winter Months	0%	
Start month of ice formation	11	Ice atlas - starts Nov 15
Start of ice deterioration	5	Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85 m	
Runoff Adjustment Multiplier	0.7	(For natural Watersheds)
Runoff Coefficient Multiplier	0.6	(For Manmade Structures)

Maximum deficit	0.0 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	0	out of	31







Operational Condition Monthly Water Balance Results

Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590	km^2	
Malartic catchment %	0.0%		total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19	km^2	
Catchment 10F Area	4.26	km^2	
Other Catchment Area	3.10	km^2	
Total Local Catchment Area	9.55	km^2	includes 0% of Malartic catchment
Waste Dump	2.58	km^2	
Mine Pit	1.29	km^2	total runoff area = 18.84 km2
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Area of Resevoir	1.38	km^2	(Area at 325 masl elevation)
Reservoir Volume	6	Mm^3	
Groundwater Supply	0.24	Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79	Mm^3/month	
Melt Temperature	-2		
% loss in Winter Months	0%		
Start month of ice formation	11		Ice atlas - starts Nov 15
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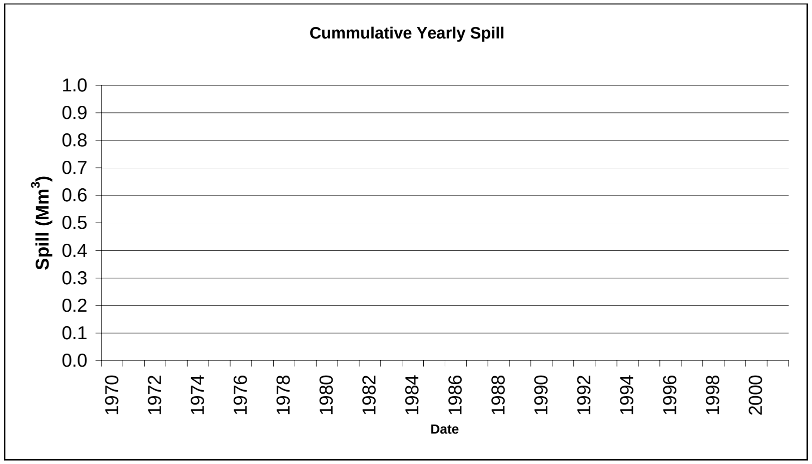
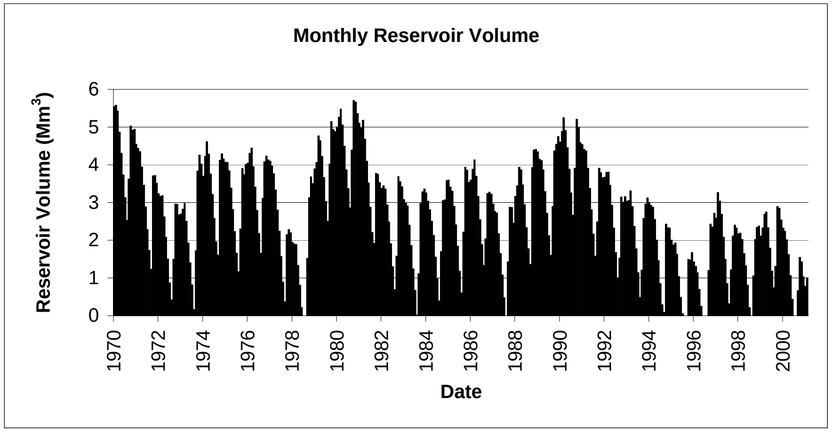
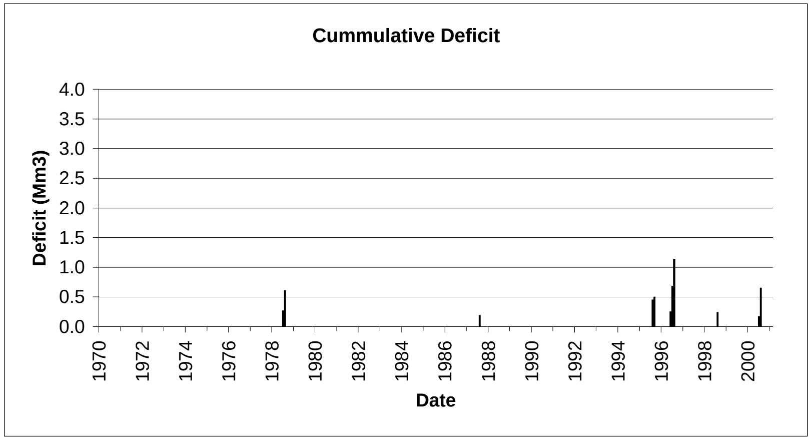
Ice Depth	0.85	m	
Runoff Adjustment Multiplier	0.7		(For natural Watersheds)
Runoff Coefficient Multiplier	0.5		(For Manmade Structures)

Maximum deficit	1.1 Mm^3		
Number of years with deficit >1 Mm^3	1	out of	31
Reservoir Storage < 0.8 Mm3	17	out of	31







Operational Condition Monthly Water Balance Results
Station: Kinojevis (Riviere) a Clericy

Reference Catchment Area	2590	km^2	
Malartic catchment %	10.0%		total Malartic catchment is 23.2 km^2
Catchment 9G Area	2.19	km^2	
Catchment 10F Area	4.26	km^2	
Other Catchment Area	3.10	km^2	
Total Local Catchment Area	11.87	km^2	includes 10% of Malartic catchment
Waste Dump	2.58	km^2	
Mine Pit	1.29	km^2	total runoff area = 21.16 km2
Tailings Stack	5.42	km^2	
Waste Dump Runoff Coefficient	80%		
Mine Pit Runoff Coefficient	70%		
Tailings Stack Runoff Coefficient	70%		
Area of Resevoir	1.38	km^2	(Area at 325 masl elevation)
Reservoir Volume	6	Mm^3	
Groundwater Supply	0.24	Mm^3/month	***(Updated No. July 9, 2008)***
Withdrawal Rate	0.79	Mm^3/month	
Melt Temperature	-2		
% loss in Winter Months	0%		
Start month of ice formation	11		Ice atlas - starts Nov 15
Start of ice deterioration	5		Ice atlas - starts April 15, assume melting in May
Ice Depth	0.85	m	
Runoff Adjustment Multiplier	0.6		(For natural Watersheds)
Runoff Coefficient Multiplier	0.7		(For Manmade Structures)

Maximum deficit	0.0 Mm^3		
Number of years with deficit >1 Mm^3	0	out of	31
Reservoir Storage < 0.8 Mm3	0	out of	31