

YUKON

Placer Mining Industry
1998-2002

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Effective April 1, 2003, the administrative and regulatory control of the Mining Inspection
Division transfers from Indian and Northern Affairs to the Yukon government. Its Department
of Energy, Mines and Resources (EMR) will assume responsibility for Mining Inspections. After
April 1, 2003, please contact EMR's Client Services and Inspections Branch at (867) 456-3882 for
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Mining Inspection Division, Yukon Region invites readers to write and inform us of any inaccuracies
or new information with respect to Yukon placer mining industry reports.

*Front cover photograph: Rothschild no. 1 built by Marion Steamshovel Co., Marion, Ohio. Original
caption read, "Canadian no. 1 first electric gold dredge to operate in Klondike at Bear Creek, 1902."
Dawson Museum, 1984.17.4.35.*

*Back cover photograph: Stuart Schmidt's operation on Indian River. The processing plant is a "New
Zealand" style floating trommel.*

Preface

The Mining Inspection Division of the Northern Affairs Program, Department of Indian Affairs and Northern Development, is pleased to present the placer industry report for 1998-2002. This will be our last publication prior to devolving our responsibilities to the Government of the Yukon.

The publication's greatest asset has always been the site knowledge, photographs and articles provided by the miners. We sincerely thank them for taking time from their busy schedules to contribute to this report. We hope that all readers will find the book both interesting and informative.

The industry is entering another period of legislative and administrative change. Mining Inspections is committed to continuing its role in helping the industry to understand the requirements and to find acceptable, economical methods to comply with new policies and processes. Sustainable development and environmental stewardship have increased in profile in the last 25 years and mining practices have improved in response to these changing philosophies. We have seen the introduction of new legislation such as the *Yukon Waters Act*, Part II of the *Yukon Placer Mining Act* and Mining Land Use regulations. Miners have continued to cooperate with our staff under these new demands, for which we thank them.

Placer mining has always played an integral role in the development of the Yukon and will continue to influence our future success as a territory. As we pass through the first few years of the new century, we trust the industry will meet these new challenges with their usual spirit of innovation, inspiration and ingenuity.

On April 1, 2003 our division will devolve to the Department of Energy, Mines and Resources, Client Services and Inspections, Government of the Yukon. We welcome your comments on this publication under our new organization.

Mining Inspections will continue its role in educating and encouraging compliance with the placer mining industry under this new regime.

Thank you also to Wynne Krangle and Peter Long of K-L Services for their invaluable assistance in the layout of this publication.

Préface

La Division des services d'inspection minière du Programme des affaires du Nord (ministère des Affaires indiennes et du Nord canadien) est heureuse de présenter le rapport 1998-2002 sur l'industrie de l'exploitation des placers. Ce sera sa dernière publication avant de transmettre ses responsabilités au gouvernement du Yukon.

Le plus grand atout de la publication a toujours été les articles, les photographies et la connaissance des emplacements fournis par les prospecteurs. Nous les remercions sincèrement d'avoir pris le temps, malgré leurs programmes chargés, de contribuer au présent rapport. Nous espérons que tous les lecteurs trouveront le livre intéressant et instructif.

L'industrie entre dans une autre période de changements législatifs et administratifs. La Division des services d'inspection minière tient à continuer de jouer son rôle en aidant l'industrie à comprendre les conditions et à trouver des méthodes acceptables et économiques pour se conformer aux nouvelles politiques et aux nouveaux processus. L'importance du développement durable et de la gérance de l'environnement a augmenté au cours des vingt-cinq dernières années et les pratiques d'extraction se sont améliorées en réponse à ces changements de philosophie. Nous avons vu l'introduction de nouvelles lois telles que la *Loi sur les eaux du Yukon*, la partie II de la *Loi sur l'extraction de l'or dans le Yukon* et le Règlement sur l'utilisation des terres pour l'exploitation. Les prospecteurs ont continué à coopérer avec notre personnel pour suivre ces nouvelles exigences et nous les en remercions.

L'exploitation des placers a toujours joué un rôle fondamental dans le développement du Yukon et continuera à influencer la réussite de notre avenir comme territoire. Alors que nous traversons les premières années du nouveau siècle, nous espérons que l'industrie relèvera ces nouveaux défis avec son esprit habituel d'innovation, d'inspiration et d'ingéniosité.

Le 1er avril 2003, notre division passera au ministère de l'Énergie, des Mines et des Ressources (Services à la clientèle et inspections) du gouvernement du Yukon. Nous accepterons volontiers vos commentaires sur la présente publication dans le cadre de notre nouvelle organisation.

La Division des services d'inspection minière continuera à jouer son rôle auprès de l'industrie de l'exploitation des placers en faisant de l'éducation et en encourageant la conformité en vertu de ce nouveau régime.

Merci également à Wynne Krangle et à Peter Long de K-L Services, pour leur aide de valeur inestimable dans la mise en page de la présente publication.

Robert Thomson

A/Regional Manager
Mining Inspection Division
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Dawson Mining District
Klondike
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Klondike: Indian River
Klondike: Dominion-Sulphur
Fortymile
Sixtymile
Matson Creek
Dawson Mining District & Whitehorse Mining District
South Klondike
Mayo Mining District
South McQuesten
Mayo
Duncan Creek
Whitehorse Mining District
Big Creek-Nansen
Kluane
Gladstone
Kimberley
Dollis Creek
Livingstone
Sidney Creek
Little Atlin

This publication is dedicated to the memory of the late

Bob Leckie, Mining Inspector



May his standards of excellence continue to influence

the placer industry for all time.

Mineral Resources Directorate

A new organization will be forthcoming post-devolution. For posterity's sake, we include the members and organization of the Mineral Resources Directorate immediately prior to that event.

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Introduction

This report documents the placer mining industry in the Yukon from 1998 to 2002. The information is presented in three sections.

The first section contains an overall view of staking activity, placer gold production and a breakdown of gold produced by creek.

The second section comprises a collection of general interest and historical articles, including a new segment describing the first Yukon placer mining reclamation award. The Robert E. Leckie Award for Outstanding Reclamation Practices was created in honour of Mayo Mining Inspector, Bob Leckie, who passed away in 1999. Details of the award and each year's winners is in this section.

The third section of the report contains detailed descriptions, locations and, in many cases, photographs of various placer mining operations visited by the Mining Inspection Division of the Mineral Resource Directorate during the course of duty.

Whenever possible, the narrative descriptions were compiled from information gathered from the industry. There was not the opportunity for these site descriptions to be edited by the individual miner and we apologize if there is any misleading or incorrect data. Some operations may not have been included if we were unable to contact the miner to complete the questionnaires. Others may seem oversimplified as we were unable to acquire the same level of detail.

The individual reports have been arranged by drainage basin. Streams within each basin are organized alphabetically and the properties on each creek are described in consecutive order from the mouth to the headwaters.

Each descriptive narrative includes the creek name, the operator, the water licence number (if applicable) and the years of operation. The site number included in the heading for each operation corresponds to a location on one of the placer mining area maps. Locations in latitude and longitude are indicative of the general area of the operation and are not definitive.

As the *Yukon Placer Mining Act*, Part 1, does not use the metric system in its calculation of assessment work for allowable credits, for the most part, British units of measure have been used. A conversion table is provided at the end of the publication.

Le présent rapport décrit la situation de l'industrie de l'exploitation des placers dans le territoire du Yukon pour les années 1998 à 2002 inclusivement. La publication se présente en trois sections principales.

Une vue d'ensemble des activités de jalonnement et de la production d'or alluvionnaire ainsi qu'une ventilation de l'or produit par ruisseau sont incluses dans la première section.

La deuxième partie comporte un recueil d'intérêt général et des articles historiques, notamment un nouveau segment décrivant le premier prix de restauration de placers du Yukon. Le prix Robert E. Leckie pour pratiques exemplaires en matière de restauration a été créé en l'honneur de l'inspecteur des exploitations minières de Mayo, Bob Leckie, qui est décédé en 1999. On trouvera les détails du prix et les gagnants de chaque année dans cette section.

La troisième et dernière section du rapport contient les photographies, les emplacements et les descriptions détaillées de diverses exploitations de placers visitées par la Division des services d'inspection minière de la Direction des ressources minérales dans l'exercice de ses fonctions.

Les descriptions ont été rédigées à partir de l'information recueillie auprès de l'industrie, dans la mesure du possible. Nous n'avons pas eu l'occasion de faire réviser ces descriptions d'emplacements par les prospecteurs concernés et nous nous excusons s'il y a des données trompeuses ou inexactes. Il se peut que quelques exploitations ne soient pas incluses si nous ne pouvions pas contacter le prospecteur pour remplir les questionnaires. Certaines descriptions peuvent également sembler trop simplifiées, dans les cas où nous n'avons pas pu obtenir la même quantité de détails.

Les différents rapports sont présentés par bassin hydrographique. Les cours d'eau dans chaque bassin sont en ordre alphabétique et les propriétés pour chaque ruisseau sont décrites en allant de l'embouchure aux sources.

Chaque récit descriptif comprend le nom du ruisseau, l'exploitant, le numéro de permis d'utilisation de l'eau (s'il y a lieu) et les années d'exploitation. Le « N° d'emplacement » inclus dans le titre de chaque rapport correspond à un endroit sur une des cartes de la région d'exploitation des placers. Les latitudes et longitudes données désignent le secteur général de l'exploitation et ne font pas autorité.

Comme la partie 1 de la *Loi sur l'extraction de l'or dans le Yukon* n'emploie pas le système métrique dans son calcul des travaux d'évaluation pour les crédits permis, les unités de mesure britanniques ont été employées dans la plupart des cas. Une table de conversion figure en annexe.

Yukon placer mining industry, 1998-2002

An overview of activity and production

Between 1998 and 2002, the Yukon's placer mining industry was affected by a number of factors, originating both locally and globally. A steadily declining world gold price, and ever-increasing world oil prices, narrowed the profit margin of most Yukon placer mining operations during this time period.

In the face of these economic realities, placer miners have increasingly sought more efficient mining methods. The most popular of these include efficient sluice plants such as the "New Zealand" type floating trommels. Often only one piece of equipment (usually an excavator) is needed at one time while mining. Tailings are easily contoured after mining as the plant distributes the gravel conveniently after washing.

Locally, weather was one of the most important factors affecting placer mining operations. Although 1998 was average, the following year was unusually hot and dry, especially in central Yukon. This created water shortage problems in many Dawson Range and Klondike mining operations. Conversely, 2000 was unusually wet, and flooding caused problems with access to mine sites as well as difficulties maintaining tailings ponds. While 2001 was not as wet as the previous year, some flooding still occurred, especially later in the season. In 2002, an unusually cold spring resulted in a late start for many mining operations, however, the relatively warm fall that followed allowed many miners to compensate and extend their operating season.

A changing and uncertain regulatory regime undoubtedly had an effect on the Yukon's placer mining industry. The advent of Mining Land Use Regulations (Part 2 of the *Yukon Placer Mining Act*) during this period caused some initial disruption for some operators as miners adjusted to the new regulations.

Staking activity

After a small surge of activity in 1999, in the following three years the number of placer claims staked dropped to the lowest level since 1975 (Figure 1). During this same

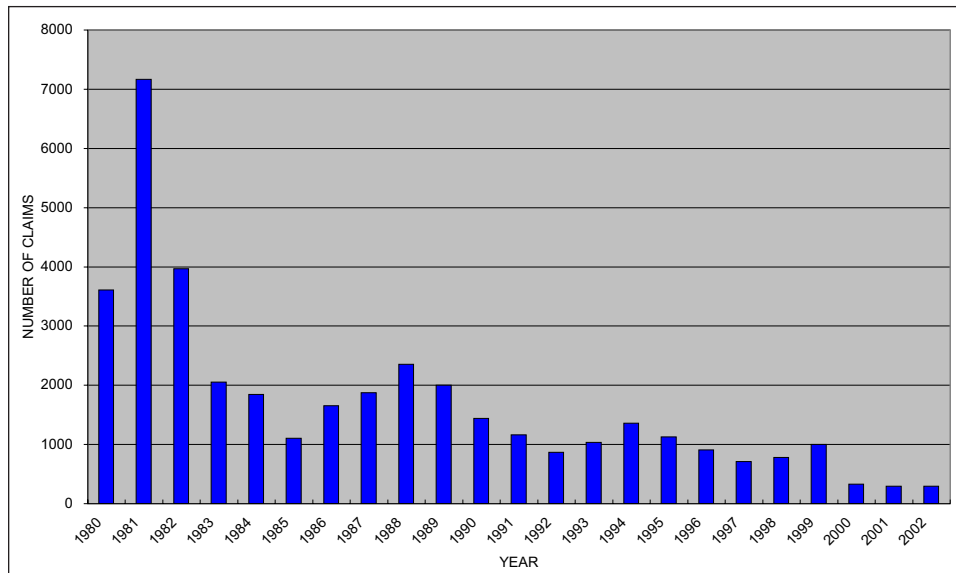


Figure 1. Yukon placer claims staked, 1980-2002.

Figure 2. Yukon placer leases staked, 1980-2002.

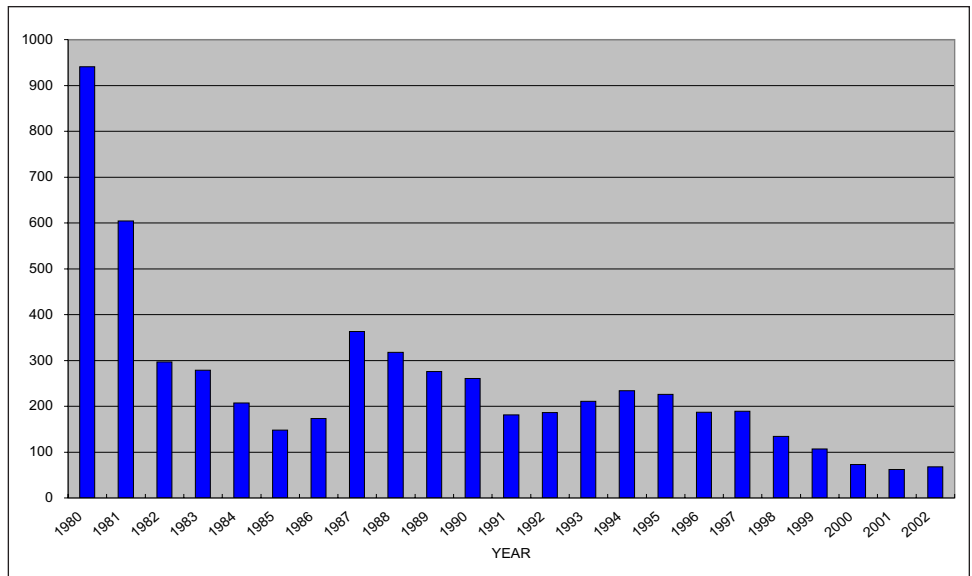


Figure 3. Yukon placer claims in good standing, 1980-2002.

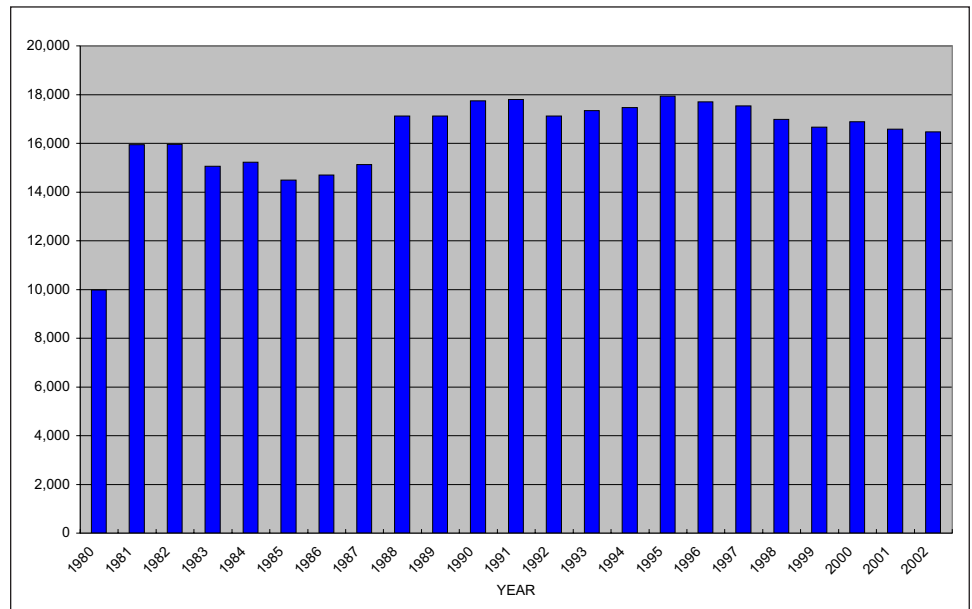
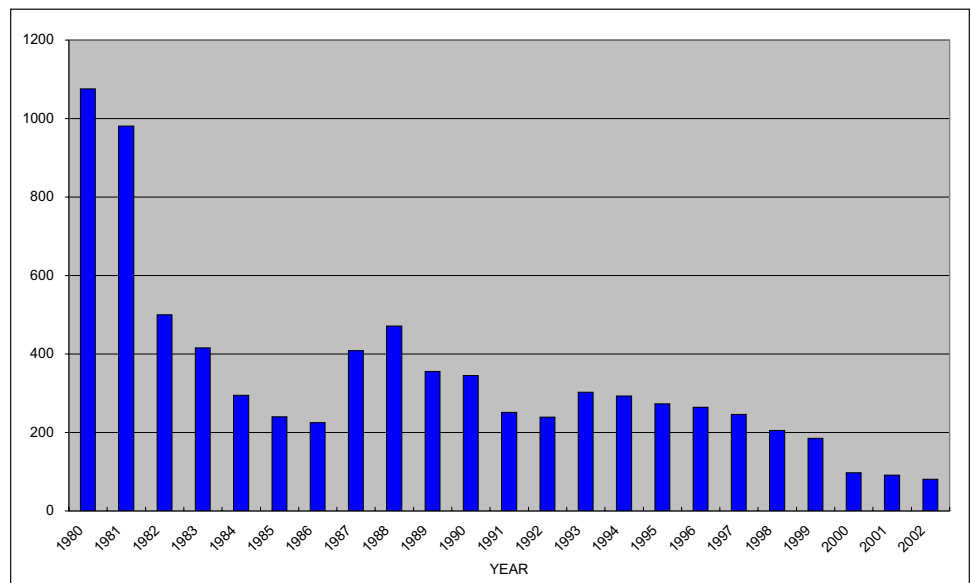


Figure 4. Yukon placer leases in good standing, 1980-2002.



period the number of placer leases staked dropped substantially to the lowest level since the late 1970s (Figure 2).

Although placer claims in good standing dropped slightly after 1998, overall there was little change (Figure 3). However, few new placer mines were developed as placer leases were allowed to expire and the amount remaining in good standing dropped to levels not seen since the 1970s (Figure 4).

Figure 5 shows that the total number of miles of Yukon placer ground held and the annual average price of gold in US dollars continued to have a close relationship between 1998 and 2002.

Active placer mines

The 1998 season saw 161 active placer mining operations, down ten from 1997. Although the number of operations didn't change much, many operations cut personnel, reducing to one shift instead of two, and in some cases high-grading ground to maximize profit in the face of low gold prices.

In 1999, the number of operations rose again to 171, which was reflected in a slightly higher amount of gold production.

The following years were marked by a steady decline in the number of placer operations, with 140 in 2000, 124 in 2001 and 115 in 2002. Continuing high fuel prices and low gold prices were at least partly to blame for this downturn.

Yukon placer gold production

As it has for more than 100 years, the Yukon's placer gold mining industry continued to make a significant contribution to the Yukon's economy between 1998 and 2002. Due to a number of factors including low world gold prices, however, production during this period dropped to its lowest level since 1979.

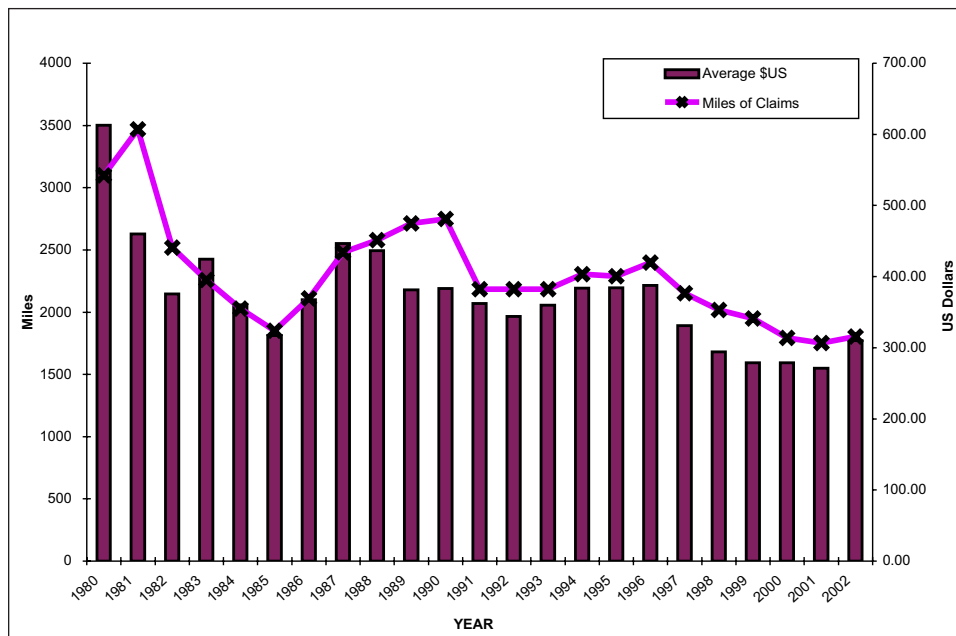


Figure 5. Miles of Yukon placer held versus gold price in U.S. dollars.

In 1998, the industry produced 87,488 crude ounces of gold (Figure 6). Based on an average grade of 800 fine, this is the equivalent of 69,990 fine ounces of gold valued at \$30.55 million (CDN).

A total of 87,680 crude ounces of gold was produced during 1999, which was the equivalent of 70,144 fine ounces with a value of \$29.08 million (CDN). As far as where in the Yukon the gold was produced, relative increases were seen in unglaciated Dawson district, while relative decreases were observed in Livingstone, Kluane, Dawson Range, Mayo and Clear Creek placer areas.

In 2000, gold production dropped to 76,507 crude ounces or 61,206 fine ounces. The total value of the gold decreased to \$25.35 million (CDN).

In 2001, production slid to 70,819 crude ounces or 56,656 fine ounces worth \$23.79 million (CDN). Relative production increases were seen in Klondike, Lower Stewart and Kluane areas, with decreases in all other placer regions.

Placer gold production hit a 23 year low in 2002, with only 66,347 crude ounces (53,078 fine ounces) recorded. Due to a surge in the world gold price this gold was worth more than the previous year's production, at \$25.83 million (CDN). Relative production increases were seen in Klondike, West Yukon, and Mayo placer areas, and decreases were observed in Lower Stewart, Dawson Range, and Kluane areas.

Placer gold production by creek

Table 1 shows the 25 most productive creeks for 1998 to 2002.

Figure 6. Yukon placer gold production, 1980-2002.

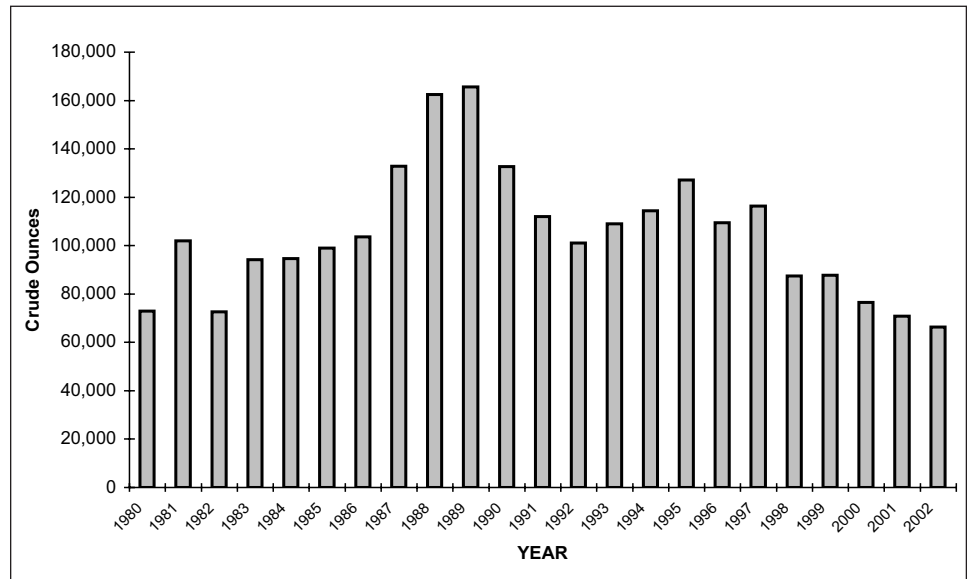


Table 1. Twenty-five most productive creeks, 1998-2002.

1998	crude ounces	1999	crude ounces	2000	crude ounces			
1	Dominion Creek	15,731	1	Dominion Creek	14,828	1	Dominion Creek	15,084
2	Hunker Creek	10,185	2	Sixtymile River	12,824	2	Sixtymile River	10,396
3	Sixtymile River	8,403	3	Hunker Creek	7,757	3	Indian River	6,620
4	Indian River	8,340	4	Indian River	6,800	4	Hunker Creek	5,919
5	Sulphur Creek	5,508	5	Sulphur Creek	6,073	5	Sulphur Creek	5,523
6	Gladstone Creek	3,956	6	Eureka Creek	5,308	6	Black Hills Creek	4,690
7	Black Hills Creek	3,804	7	Canadian Creek	4,748	7	Eureka Creek	3,108
8	Eureka Creek	3,181	8	Black Hills Creek	3,543	8	Last Chance Creek	2,295
9	Canadian Creek	3,008	9	Gladstone Creek	3,021	9	Bonanza Creek	2,192
10	Nansen Creek	2,975	10	Eldorado Creek	2,515	10	Canadian Creek	2,076
11	Bonanza Creek	2,437	11	Nansen Creek	2,278	11	Gladstone Creek	1,884
12	Duncan Creek	1,884	12	Quartz Creek	1,824	12	Quartz Creek	1,345
13	Clear Creek	1,724	13	Bonanza Creek	1,801	13	Nansen Creek	1,313
14	Quartz Creek	1,576	14	Duncan Creek	1,421	14	Thistle Creek	1,262
15	Matson Creek	1,381	15	Henderson Creek	1,284	15	Fourth of July Creek	1,116
16	Haggart Creek	1,233	16	Last Chance Creek	1,074	16	Gold Bottom Creek	1,050
17	Ballarat Creek	1,001	17	Fourth of July Creek	1,060	17	Duncan Creek	891
18	Scroggie Creek	966	18	Thistle Creek	863	18	Gold Run Creek	860
19	Hight Creek	892	19	Gold Bottom Creek	858	19	Henderson Creek	725
20	Henderson Creek	883	20	Kirkman Creek	783	20	Lightning Creek	626
21	Kate Creek	864	21	Lightning Creek	778	21	Scroggie Creek	613
22	Gold Bottom Creek	816	22	Livingstone Creek	683	22	Burwash Creek	540
23	Last Chance Creek	791	23	Klondike River	628	23	Lousetown Bench	408
24	Klondike River	651	24	Kate Creek	624	24	O'Neil Gulch	406
25	Livingstone Creek	519	25	Hight Creek	557	25	Kate Creek	401

2001	crude ounces	2002	crude ounces		
1	Dominion Creek	12,733	1	Dominion Creek	14,527
2	Sixtymile River	8,540	2	Sixtymile River	7,438
3	Last Chance Creek	6,747	3	Hunker Creek	7,398
4	Black Hills Creek	6,424	4	Thistle Creek	6,138
5	Hunker Creek	6,364	5	Last Chance	5,970
6	Indian River	3,839	6	Sulphur Creek	3,688
7	Sulphur Creek	3,473	7	Bonanza Creek	3,656
8	Bonanza Creek	3,001	8	Gold Run Creek	2,452
9	Gladstone Creek	2,919	9	Indian River	1,762
10	Thistle Creek	2,772	10	Gladstone Creek	1,518
11	Gold Run Creek	1,891	11	Gold Bottom Creek	1,070
12	Fourth of July Creek	1,577	12	Lightning Creek	806
13	Quartz Creek	1,259	13	Henderson Creek	759
14	Henderson Creek	1,020	14	Scroggie Creek	750
15	Scroggie Creek	954	15	Kate Creek	736
16	Nansen Creek	934	16	Fourth of July Creek	736
17	Canadian Creek	752	17	Quartz Creek	682
18	Eureka Creek	623	18	Back Creek	510
19	Gold Bottom Creek	575	19	Black Hills Creek	480
20	Back Creek	462	20	Duncan Creek	471
21	Mint Gulch	400	21	Glacier Creek	452
22	Swamp Creek	400	22	Mechanic Creek	444
23	Lightning Creek	395	23	Miller Creek	382
24	Clear Creek	276	24	Canadian Creek	369
25	Nugget Hill	232	25	Mint Gulch	246

World market gold price

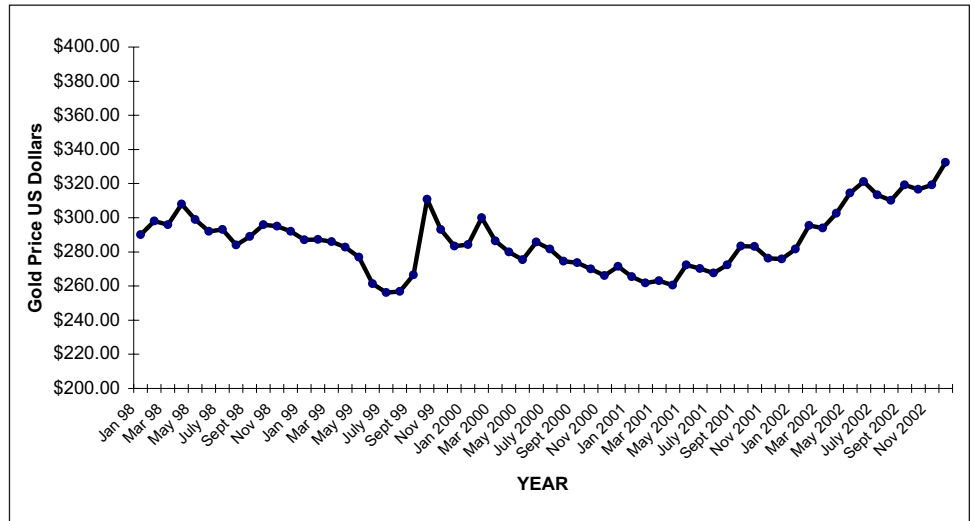
The world gold price remained below \$300 US for much of 1998, averaging \$294 US (\$436 CDN) and peaking only once higher, at \$308 US in April (Figure 7).

In 1999, the average gold price remained low at \$279 US (\$415 CDN), briefly surging to \$310 in October.

In 2000, the average price remained constant at \$279 US (\$415 CDN), and this slowly declined throughout 2001 to average \$271 US for that year. However due to a declining Canadian dollar the equivalent average price was \$420 CDN for 2001.

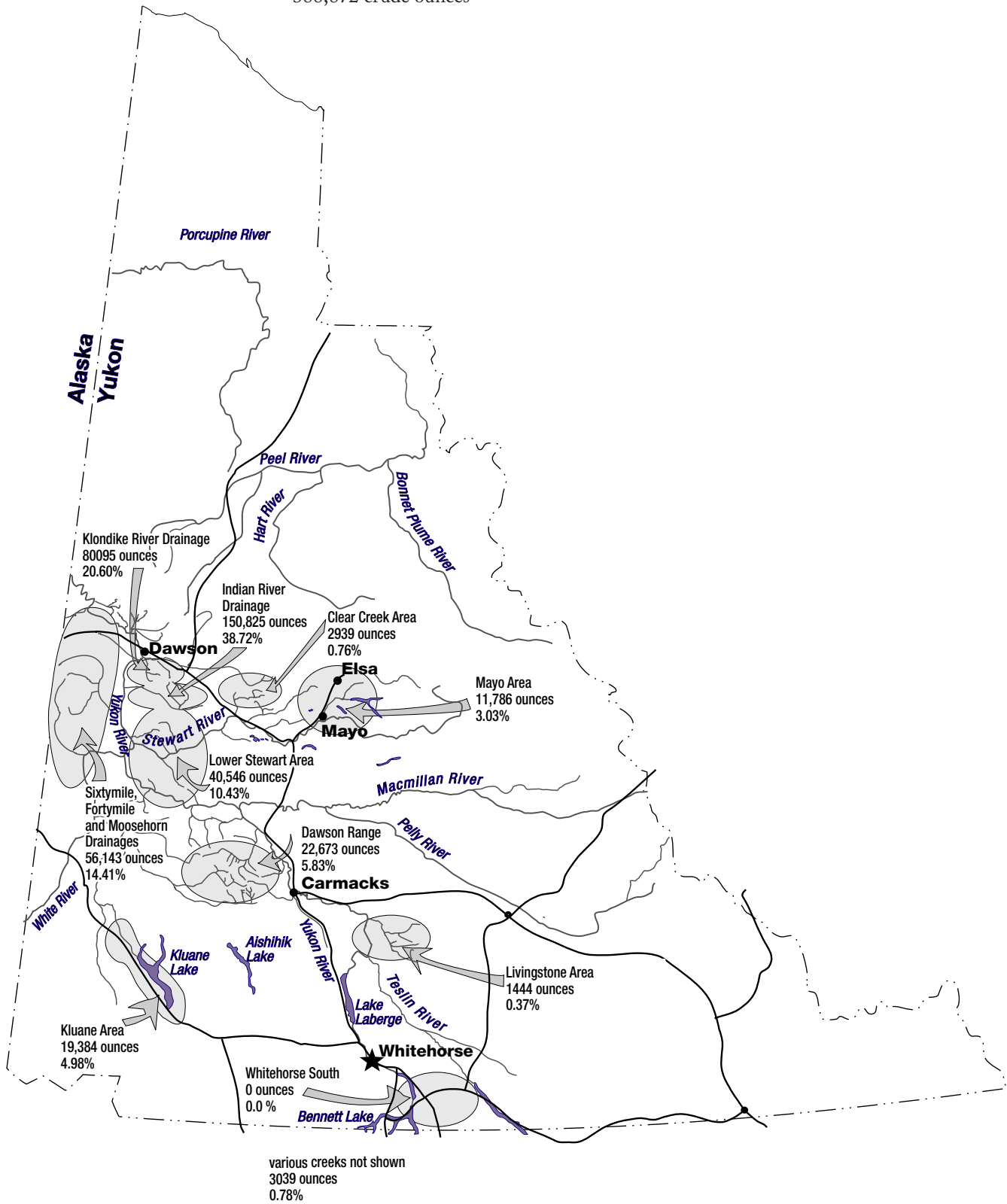
The following year, 2002, was marked by a steady increase in the gold price, from a low of \$281 US in January to a peak at \$332 US in December. The average for 2002 was a healthy \$310 US or \$487 CDN.

Figure 7. Average monthly gold price US dollars, 1998-2002.



Map of Yukon placer gold production, 1998-2002

Total recorded placer gold production 1998-2002
388,872 crude ounces



Placer gold produced from Yukon creeks, 1998-2002

(by mining district)

• in crude ounces

STREAM or RIVER	Tributary to...	1998	1999	2000	2001	2002	1998-2002
Dawson Mining District							
Allgold	Flat	0	0	1	0	0	1
Adams Gulch	Bonanza	0	0	0	0	0	0
Ballarat	Yukon	1001	0	0	0	0	1001
Barker	Stewart	84	0	0	0	0	84
Barlow	Clear	0	0	0	0	0	0
Bear	Klondike	51	335	0	0	0	386
Bedrock	Sixtymile	0	0	0	0	0	0
Big Gold	Sixtymile	0	0	0	0	0	0
Black Hills	Stewart	3804	3543	4690	6424	480	18,942
Bonanza	Klondike	2437	1801	2192	3001	3656	13,087
Brewer	Stewart	0	0	0	0	0	0
Caribou	Dominion	0	0	0	106	243	349
Clear	Stewart	1724	481	244	276	214	2939
Dominion	Indian	15,731	14,828	15,084	12,733	14,527	72,904
Eldorado	Bonanza	352	2515	393	0	0	3260
Excelsior	Yukon	0	0	0	0	0	0
Eureka	Indian	3181	5308	3108	623	37	12,257
Fortymile	Yukon	398	77	12	1	0	488
Foster Gulch	Klondike	0	0	0	0	0	0
Frisco	Yukon	0	0	0	26	0	26
Gay Gulch	Eldorado	0	0	0	0	0	0
Glacier	Sixtymile	469	133	100	0	452	1154
Gold Bottom	Hunker	816	858	1050	575	1070	4368
Gold Hill	Bonanza	0	0	0	0	0	0
Gold Run	Dominion	308	318	860	1891	2452	5828
Henderson	Stewart	883	1284	725	1020	759	4672
Hester	Hunker	0	0	0	19	42	61
Hobo	Klondike	0	0	0	0	0	0
Homestake Gulch	Upper Bonanza	0	0	77	52	33	162
Hunker	Klondike	10,185	7757	5919	6364	7398	37,622
Independence	Hunker	0	0	0	30	65	95
Indian	Yukon	8340	6800	6620	3839	1762	27,361
Josephine	Yukon	0	0	0	0	0	0
Kirkman	Yukon	435	783	0	0	0	1218
Klondike	Yukon	651	628	341	82	121	1822
Last Chance	Hunker	791	1074	2295	6747	5970	16,877
Little Blanche	Quartz	0	0	274	183	167	624
Little Gold	Sixtymile	0	0	0	48	159	207
Lousetown Bench	Yukon	0	0	408	62	0	471
Maisy May	Stewart	0	0	0	22	25	47
Matson	Sixtymile	1381	508	0	0	157	2046
Miller	Sixtymile	0	0	0	1	382	383
Mint Gulch	Hunker	0	0	0	400	246	646
Montana	Indian	0	0	202	162	188	552
Moose	Fortymile	100	258	185	25	191	759
Nugget Hill	Hunker	0	0	172	232	0	404
O'Neil Gulch	Upper Bonanza	0	0	406	0	0	406
Poker	Fortymile	0	0	0	0	0	0
Quartz	Indian	1576	1824	1345	1259	682	6686
Scroggie	Stewart	966	60	613	954	750	3343
Sestak	Yukon	0	0	0	0	0	0
Seven Pup	Victoria Gulch	0	0	59	12	0	71
Sheep	Firth	0	0	0	0	0	0
Sixtymile	Yukon	8403	12,824	10,396	8540	7438	47,601
Sparkling	Yukon	36	0	0	0	0	36
Squaw	Clear	0	0	0	0	0	0
Sulphur	Dominion	5508	6073	5523	3473	3688	24,265
Tenmile	Sixtymile	0	0	0	100	0	100
Thistle	Yukon	143	863	1262	2772	6138	11,178
Thomas	Klondike	0	0	0	0	0	0

continued... **Placer gold produced from Yukon creeks**

• in crude ounces

STREAM or RIVER	Tributary to...	1998	1999	2000	2001	2002	1998-2002
Dawson Mining District							
Too Much Gold	Klondike	0	0	0	0	0	0
Upper Bonanza	Bonanza	113	37	114	11	12	287
Victoria Gulch	Upper Bonanza	0	0	68	0	0	68
80 Pup	Hunker	0	0	0	0	0	0
various Dawson creeks		986	167	490	290	87	2020
Total Dawson District		70,853	71,137	65,226	62,354	59,591	329,161

Mayo Mining District							
Anderson	Mayo Lake	19	6	246	9	47	327
Bear	McQuesten	0	0	0	0	108	108
Carlson	Minto	0	0	0	0	0	0
Davidson	Mayo River	346	21	23	0	38	428
Dawn	Mayo Lake	0	0	0	0	0	0
Dirksen	Mayo Lake	0	0	31	0	0	31
Dublin Gulch	Haggart	0	0	0	0	0	0
Duncan	Mayo River	1884	1421	891	217	471	4883
Empire	No Gold	0	0	0	0	0	0
Gem	Sprague	0	0	0	0	0	0
Haggart	McQuesten	1233	6	0	0	0	1239
Hight	Minto	892	557	20	25	54	1548
Hope Gulch	Lightning	0	0	0	0	0	0
Johnson	McQuesten	0	0	0	0	0	0
Ledge	Mayo Lake	0	0	0	0	0	0
Lightning	Duncan	0	778	626	395	806	2604
McQuesten	Stewart	0	0	0	77	0	77
Minto	Mayo River	0	0	0	7	0	7
Morrison	Seattle	0	0	0	0	0	0
Owl	Mayo Lake	0	0	0	0	61	61
Rodin	South McQuesten	0	0	0	0	0	0
Russell	Macmillan	0	0	0	0	0	0
Sabbath	Johnson	0	0	0	0	0	0
Seattle	McQuesten	0	0	0	0	0	0
Steep	Mayo Lake	0	0	0	0	61	61
Stewart	Yukon	13	0	0	13	0	26
Swede	Haggart	0	6	0	0	48	54
Thunder	Lightning	330	0	0	0	0	330
Vancouver	McQuesten	0	0	0	0	0	0
various Mayo creeks		0	0	8	0	0	8
Total Mayo District		4717	2795	1846	742	1694	11,794

Whitehorse Mining District							
Arch	Donjek	0	0	0	0	0	0
Back	Victoria	0	227	314	462	510	1513
Big Salmon	Yukon	0	0	0	0	0	0
Boliden	Big	64	47	65	0	0	176
Burwash	Kluane	160	362	540	185	222	1469
Canadian	Britannia	3008	4748	2076	752	369	10,953
Casino	Dip	0	0	0	0	0	0
Cottoneva	South Big Salmon	0	0	0	0	0	0
Discovery	Nansen	0	0	0	0	0	0
Dollis	Tatshenshini	0	0	0	0	0	0
Dolly	Nansen	0	0	20	0	0	20
East Fork Nansen	Nansen	0	0	175	0	0	175
Fourth of July	Jarvis	0	1060	1116	1577	736	4489
Gladstone	Kluane Lake	3956	3021	1884	2919	1518	13,299
Great Bear	Lesaux	0	0	0	0	0	0
Guder	Seymour	0	0	0	0	0	0
Happy	Big	0	0	60	157	118	336
Hayes	Selwyn	0	0	0	0	0	0
Hayes tributaries	Selwyn	0	8	0	0	0	8

continued... **Placer gold produced from Yukon creeks**

• in crude ounces

STREAM or RIVER	Tributary to...	1998	1999	2000	2001	2002	1998-2002
Whitehorse Mining District							
Kate	Ladue	864	624	401	184	736	2809
Kenyon	Scottie	0	0	0	0	0	0
Kimberly	Jarvis	13	0	18	22	11	65
Klaza tributaries	Nisling	0	0	0	0	0	0
Lake	South Big Salmon	25	0	0	0	0	25
Little Violet	South Big Salmon	0	0	34	0	56	90
Livingstone	South Big Salmon	519	683	47	0	0	1249
Martin	South Big Salmon	0	0	0	0	0	0
Mechanic	Big	0	0	0	126	444	570
Mendocina	South Big Salmon	0	0	0	0	0	0
Moose Brooke	Lubbock/Atlin	0	0	0	0	0	0
Moosehorn Range	Kenyon/Tanana	0	0	0	0	0	0
Nansen	Nisling	2975	2278	1313	934	230	7729
Porcupine	Donjek	0	0	0	0	0	0
Printers	Cultus	0	0	0	0	0	0
Quill	Kluane	0	0	0	0	0	0
Unnamed	South Big Salmon	0	0	0	0	0	0
Reed	Donjek	0	0	0	0	0	0
Revenue	Big	173	532	203	0	0	908
Ruby	Jarvis	0	0	0	0	62	62
Rude	Dip	69	0	0	0	0	69
Seymour	Big	22	51	89	6	0	168
Sonora	Hayes	0	0	0	0	0	0
South Big Salmon	Big Salmon	0	0	0	0	0	0
Soya	Swamp	0	0	0	0	0	0
Squirrel	Duke	0	0	0	0	0	0
Stoddart	Big	0	0	0	0	0	0
Summit	South Big Salmon	0	80	0	0	0	80
Swamp	Scottie	0	0	198	400	0	598
Swede Johnson	Kluane	0	0	0	0	0	0
Tatshenshini	Alsek	0	0	0	0	0	0
Victoria	Nisling	0	0	0	0	48	48
Wheaton	Lake Bennett	0	0	0	0	0	0
various Whitehorse creeks		100	27	884	0	0	1011
Total Whitehorse District		11,948	13,748	9436	7724	5062	47,917
Firth	Arctic Ocean			0		0	0
Watson Lake Mining District							
Liard River		0	0	0	0	0	0
various Watson Lake creeks		0	0	0	0	0	0
Total Watson Lake District		0	0	0	0	0	0

Summary of placer gold production

Dawson Mining District	70,853	71,137	65,226	62,354	59,591	329,161
Mayo Mining District	4717	2795	1846	742	1694	11,794
Whitehorse Mining District	11,948	13,748	9436	7724	5062	47,917
Watson Lake Mining District	0	0	0	0	0	0
Total	87,518	87,680	76,508	70,820	66,347	388,872

FINENESS OF YUKON PLACER GOLD

DAWSON MINING DISTRICT	FINENESS	DAWSON MINING DISTRICT	FINENESS
Adams Gulch.....	615-746	Henry Gulch.....	605-650
Allgold Creek.....	858-860	Hester Creek.....	850
American Gulch.....	864	Homestake Gulch.....	660-750
Anderson Creek (Fortymile area).....	720-728	Hunker Creek Benches	
Ballarat Creek.....	852-860	Australian Hill.....	850-860
Barker Creek.....	793-900	Dago Hill.....	798-859
Barlow Creek.....	853	Paradise Hill.....	735-802
Bear Creek.....	644-746	Hunker Creek	
Bedrock Creek.....	820	Upper.....	798-859
Big Gold Creek.....	847-854	Middle.....	725-820
Black Hills Creek.....	730-855	Lower.....	701-726
Blueberry Creek.....	880	Independence Creek.....	780-794
Bonanza Creek Benches		Indian River.....	780-843
American Hill.....	864	Irish Gulch.....	624-742
Cheechako Hill.....	750-785	Jackson Gulch.....	829-842
King Solomon Hill.....	785-800	Kirkman Creek.....	860-896
Trail Hill.....	800-805	Klondike River Benches	
Bonanza Creek		Dawson Hill.....	790-825
Upper.....	809-827	Groetschier Bench.....	790-825
Middle.....	781	Jackson Hill.....	835
Lower.....	739-798	Klondike City.....	780-790
Brewer Creek		Last Chance Creek.....	683-832
Brimstone Gulch.....	830	Little Gold Creek.....	860
Browns Creek.....	800	Little Blanche Creek.....	650-710
Bruin Creek.....	800	Log Cabin Creek.....	850-895
Caribou Creek.....	816-840	Lombard Pup.....	860
Childs Gulch.....	750	Lovett Gulch.....	860
Claffey Pup.....	750	Maisy May Creek.....	780-782
Clear Creek.....	820-860	Mariposa Creek.....	895-900
Left Fork Clear Creek.....	730	Matson Creek.....	776-893
Right Fork Clear Creek.....	720-740	Miller Creek.....	827-857
Discovery Pup.....	700	Mint Gulch.....	820-851
Dominion Creek		Montana Creek.....	770
Upper.....	805-832	Monte Cristo Gulch.....	784-796
Middle.....	817-849	Moose Creek (Fortymile area).....	855
Lower.....	790-840	Oro Grande Gulch.....	775
Eighty Pup.....	797	Quartz Creek.....	732-800
Eldorado Creek.....	733-803	Ready Bullion Creek.....	710-717
Eldorado Creek Benches		Rosebute Creek.....	800-810
Gold Hill.....	768	Scroggie Creek.....	895-905
Empire Creek.....	910	Sestak Creek.....	810-815
Eureka Creek.....	677-745	Seven Pup.....	790-850
Fortymile River.....	814-845	Sixtymile River.....	810-840
Fortynine Pup.....		Sparkling Creek.....	880
French Gulch.....	631-750	Stewart River.....	837-850
Friday Gulch.....	790-804	Sulphur Creek.....	790-832
Gauvin Gulch.....	664	Ten Mile Creek.....	830-845
Gay Gulch.....	780-790	Thistle Creek.....	848-895
Glacier Creek.....	830-860	Victoria Gulch.....	807-820
Gold Bottom Creek.....	780-800	15 Pup (Last Chance Creek).....	700
Gold Run Creek.....	830-878	27 Pup (Hunker Creek).....	845
Goring Creek.....	738	27 Gulch (Eldorado Creek).....	750
Henderson Creek.....	720-760	65 Pup.....	960

MAYO MINING DISTRICT	FINENESS	WHITEHORSE MINING DISTRICT	FINENESS
Anderson Creek (Mayo Lake area)	870	Arch Creek.....	870
Boulder Creek.....	800	Back Creek.....	760-836
Canyon Creek.....	825	Boliden Creek.....	890
Davidson Creek.....	840	Bullion Creek.....	871
Dublin Gulch.....	860-923	Burwash Creek.....	860-876
Duncan Creek.....	792-802	Canadian Creek.....	864-883
Fifteen Pup.....	876	Cottoneva Creek.....	830
Fisher Gulch.....	900	Discovery Creek.....	820-850
Gem Gulch.....	895	Eva Creek.....	790
Gill Gulch.....	870	Fourth of July Creek.....	810
Haggart Creek.....	885-895	Gladstone Creek.....	820
Johnson Creek.....	760-820	Guder Creek.....	838
Ledge Creek.....	805-825	Hayes Creek.....	860-880
Lightning Creek.....	830	Hight Creek.....	820-845
McQuesten River.....	870	Kate Creek.....	820
Minto Creek.....	827-835	Kenyon Creek.....	750
Murphy's Pup.....	800-900	Kimberley Creek.....	850-860
Russell Creek.....	850	Klaza River (unnamed tributaries).....	760-830
Steep Creek.....	931-946	Lake Creek.....	895
Swede Creek.....	895	Little Violet Creek.....	866
Thunder Gulch.....	790-825	Livingstone Creek.....	880
		Martin Creek.....	870
		May Creek.....	892
		Mechanic Creek.....	880-910
		Moose Brooks Creek.....	820-837
		Moosehorn Range.....	820
		Nansen Creek.....	800
		Quill Creek.....	878
		Reed Creek.....	889-896
		Revenue Creek.....	860-880
		Rude Creek.....	840-850
		Rusk Creek.....	830
		Seymour Creek.....	860
		Slate Creek.....	800
		Squaw (Dollis) Creek.....	834
		Swamp Creek.....	800
		Tatshenshini River.....	850-866
		Victoria Creek.....	720-730
		Wade Creek.....	900-930

Robert E. Leckie Award for OUTSTANDING RECLAMATION PRACTICES

In 1999, the Mineral Resources Directorate of the Department of Indian Affairs and Northern Development established awards for outstanding reclamation practices in both quartz and placer mining. The award is granted to worthy recipients for reclamation and site restoration efforts that are exceptional, such as the reclaiming of land for which they had no obligation to rehabilitate, adding features to the land that notably enhanced the area and local community, or by returning mined land to a condition that is not only structurally sound but aesthetically pleasing.

This award is proudly named after Robert (Bob) Leckie who served as the Mayo District Mining Inspector from 1987 until his death from cancer in 1999. Bob was born and raised in Calgary, Alberta, and, after graduating from the University of Calgary with a Master's Degree in Environmental Sciences in 1984, he and his wife moved to a property near Mayo, Yukon to pursue his passion for the field of alternate energy and growing in northern latitudes. From 1986-1999, Bob designed and built an energy efficient commercial greenhouse incorporating systems of his design including solar, waste oil and sub-floor heating. The system was powered entirely "off the grid" by a water turbine fed by a hand-built mile-long waterline from McGinty Creek. Several research papers were produced on the feasibility of energy efficient greenhouses in the north.

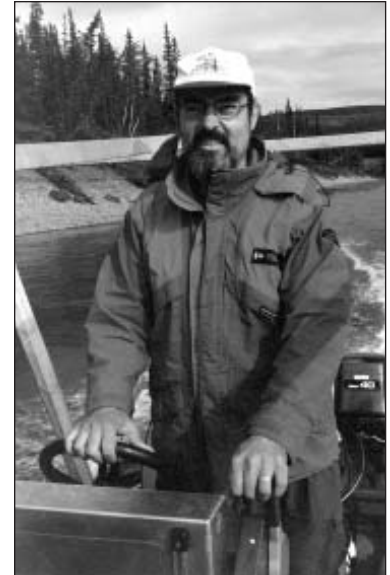
In 1987, Bob took a seasonal job as the mining inspector in Mayo where he put to use his considerable skills and background in Geography and Environmental Science. During Bob's tenure as mining inspector, he became a well-respected figure, both within the industry and with his colleagues, as the level head committed to finding creative solutions to perceived impasses.

Bob was dedicated to developing responsible land use practices for mining, while ensuring that the requirements were practical and possible for the miners to accomplish. He took on the job of educating area miners as to the benefits of thoughtful reclamation practices and, due to his well-reasoned approach, he was met with little resistance. Bob was also instrumental in implementing research projects aimed at defining acceptable standards for placer mining discharge and spent several summers supervising these projects

One of the graduate students who worked with Bob noted in eulogy that Bob would be remembered most of all for simply being who he was. "Ambitious, yet thoughtful, confident, yet unassuming and, above all, trusting. Bob made us want to stretch ourselves to realize our own hopes while remaining peaceful and happy in the process. In his life he demonstrated that the human experience was not so much about achieving goals as it was about the sights seen along the way."

Bob's forward thinking, innovative approach to problem solving and tendency to go beyond expectations for a better finished product, combined with his valuable contributions to the department and the industry, are remembered in this annual award to miners who have themselves done outstanding work for the betterment of the whole.

We are proud to include the 1999 to 2002 recipients of this prestigious award on the following pages, including a special long-time achievement award presented to Ross Mining Ltd.



Robert Leckie

1999

**Robert E. Leckie Award for
OUTSTANDING PLACER MINING RECLAMATION PRACTICES**

presented to

AL DENDYS

Tic Exploration

AL DENDYS has been mining on Gladstone Creek (which flows into the eastern shore of Kluane Lake) since 1992, using two floating trommel wash plants. These plants operate almost 23 hours a day, processing a large volume of pay material.

The large-scale disturbance resulting from an operation of this size has been mitigated by excellent restoration work. The most impressive characteristic of this work is how quickly it follows extraction of the ore.

Immediately following work in any given area, the tailings have been levelled, re-contoured and covered with fine material stockpiled during preparation of the mining cut. To date, this is the finest example of progressive placer mining restoration work in the Whitehorse Mining District.



Tic Exploration operation, Gladstone Creek.

2000**Robert E. Leckie Award for
OUTSTANDING PLACER MINING RECLAMATION PRACTICES***presented to***DAVE MARSTARS**

Grew Creek Ventures Ltd.

DAVE MARSTARS has been placer mining on Hunker Creek since 1998. This property has been mined by other placer miners since the turn of the century, however it has never previously been reclaimed.

Reclamation work during 1999 and 2000 included cleaning up abandoned debris and waste petroleum products from previous miners, contouring of tailings from the current operation and all previous operations to a gentler topography, and spreading of black muck over the contoured tailings to promote rapid re-vegetation. In addition, a wide, stable stream channel was established and small out-of-stream ponds were created to enhance the local habitat.

This operation provides an exceptional example of corporate stewardship of the land. The affects of over a century of mining will not be recognizable thanks to the efforts of Grew Creek Ventures Ltd.



Contoured tailings at Hunker Creek are covered with black muck to enhance natural revegetation.

2001

**Robert E. Leckie Award for
OUTSTANDING PLACER MINING RECLAMATION PRACTICES**

presented to

DOUG BUSAT
T.D. Oilfield Services Ltd.

T.D. OILFIELD SERVICES LTD. has been placer mining near the mouth of Hunker Creek in the Klondike since 1997, using conventional mining methods. Methodical and progressive reclamation practices have taken place at this site since mining began. The restored landscape represents a better than natural terrain, incorporating wetlands and grasslands. The ponds are aesthetically pleasing and provide a waterfowl and wildlife habitat, as well as a recreational area for people.

For the many tourists and local people who drive the Klondike placer loop road, the property is an excellent example of responsible placer mining practices.



This landscape, part of the T.D. Oilfield Services Ltd. operation, can be easily viewed from the much travelled Hunker road.

2001

Robert E. Leckie Award for LONG TIME ACHIEVEMENT IN MINE RECLAMATION

presented to

NORMAN ROSS

Ross Mining Ltd.

NORMAN ROSS of Ross Mining Ltd. was honoured in 2001 by the Department of Indian Affairs and Northern Development and the placer industry for his long-time devotion to sustainable mining practices. Reclamation by Ross Mining consistently exceeded what was required by legislation. Mr. Ross's land-based reclamation program was in place long before the Mining Land Use Regulations were passed in 1998.

Annual reclamation has been a part of the company's operation since it began placer mining on Dominion Creek in the early 1980s. Mined-out areas have been methodically reclaimed, resulting in a landscape with vegetated rolling hills, small lakes and stable and productive stream reaches. The wetlands are favoured by migratory wildlife, and several moose return annually to calve in the willow-rich area.

For two decades, Mr. Ross has dedicated much of his time as a spokesperson for the mining industry. In the 1980s he gave frequent presentations to gold miners on ways to plan for and minimize the costs of land reclamation and stream restoration. He has accommodated many local and foreign government officials and private investors on tours of his operation and has shared his knowledge of good mining practices in the Yukon. Mr. Ross has volunteered over many years as Director and President of the Klondike Placer Miners Association and has participated on various committees to help ensure the development of balanced legislation (Yukon Mining Advisory Committee and the Yukon Placer Committee).

We offer our sincere congratulations to the recipient of this special reclamation award in recognition and appreciation for Mr. Ross's dedication to promoting the development of a sustainable, competitive and healthy placer mining industry whose practices uphold the socio-economic and environmental values of the Yukon.



Ross Mining Ltd. on Dominion Creek, with currently mined areas in the foreground and reclaimed ground in the background.

2002

**Robert E. Leckie Award for
OUTSTANDING PLACER MINING RECLAMATION PRACTICES**

presented to

DAVID McBURNEY
T.D. Oilfield Services Ltd.

DAVID McBURNEY is recognized and congratulated by industry and government for outstanding placer mining reclamation practices on the banks of the Indian River.

Mr. McBurney has gradually moved his operation on one bank of the Indian River upstream, working in an organized and systematic fashion. Whenever previous mining disturbances were encountered, Mr. McBurney has reclaimed the old workings along with his own. Mr. McBurney has sacrificed small portions of mineable ground in order to preserve some stands of large trees adjacent to the original river bank.

Reclamation works were on-going and progressive each year and included mining pits being backfilled and levelled, tailing piles being completely flattened, and overburden being spread evenly over the whole area. Additional efforts included re-contouring and re-vegetation in the mined out areas.



David McBurney's restored river bank, with large rock armouring along the bank and overburden spread up to the edge.

Running water: Supplying the Klondike mines, 1903-1906

David Neufeld

Yukon & western Arctic Historian, Parks Canada

Running water, along with gold, are “the two absolute necessities in placer mining,”¹ according to George White-Fraser, a Klondike mining engineer in the drought summer of 1903. In the Klondike, water was almost always in short supply. Drift mining in the early days took advantage of spring thaw and runoff from the winter snow. However, seasonal shortages were made worse as open cut mining, with its full summer season demand for flowing water, replaced the earlier drifting early in the 1900s. And up on the bench and hillside claims, miners were forced to sell off promising claims because there was, “not enough [water] to make a cup of tea.”²

Gold mining in the Yukon overcame many physical and technical obstacles in the early years of the Rush. However, as the easily worked gold placer deposits close to the surface were exhausted in the first decade of the twentieth century, the desire to maintain a profitable operation demanded ever more innovation and investment from the individual miner. The limited size of individual claims, the high cost of buying adjoining claims, the expense of specialized mining equipment, the demand for greater amounts, and cheaper sources, of power to run the new machines, and, most important of all, the need for reliable and abundant supplies of water severely tested miners, already under the shadow of corporate buyouts. They worked diligently, sometimes alone, often together, to address their problems, coming up with a range of ingenious, and as time passed, increasingly desperate solutions to save the individual mining system. Ultimately, they were forced to sell out to the corporate dredging giants. Many simply abandoned their claims.

The natural supply of spring runoff and summer rain in the Klondike valleys was limited. An average summer in Dawson has only 140 mm of rainfall. A dry summer meant disaster for the miner. In 1903, with just half the normal precipitation, miners up Quartz Creek were soon in trouble. After working for months taking out pay dirt and building up large dumps, they waited for rain. None came and, unable to clean up and pay their bills, they began to abandon the hills.³

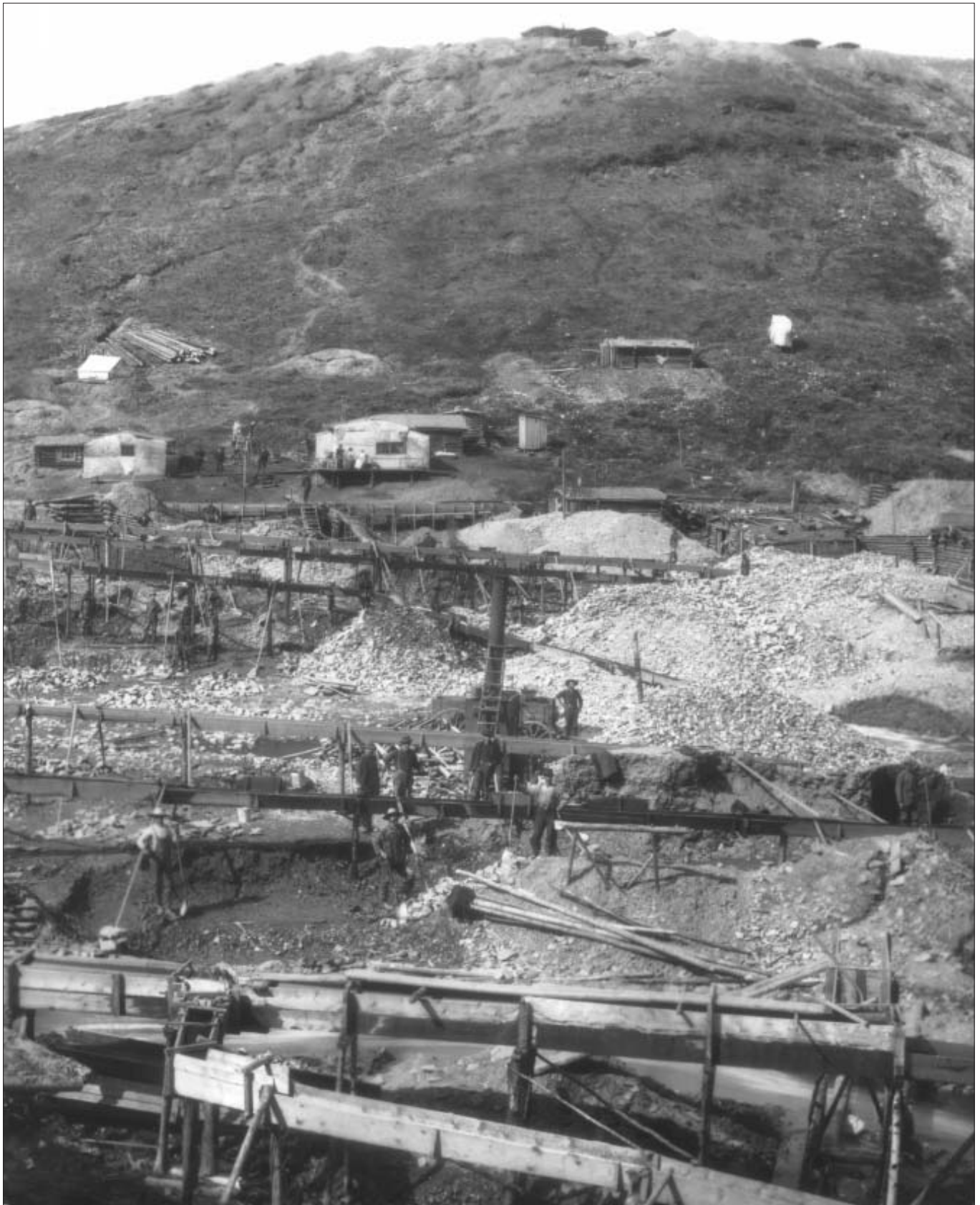
In areas of concentrated mining activity like the Klondike, the legal right to use water became as important as the claim itself. Water rights were granted upon application and review by the Gold Commissioner. However, demand for these rights far outstripped the limited natural supply. The Gold Commissioner’s office in Dawson was overwhelmed by a flood of water applications when Australia Creek was opened in 1904. By fall, the office reported that applications were for

Running water, along with gold, are the two absolute necessities in placer mining.”

George White-Fraser, 1903

*Rocking on a relaxed afternoon at No. 6 Eldorado in 1904.
(PC, A Johns YT-171)*





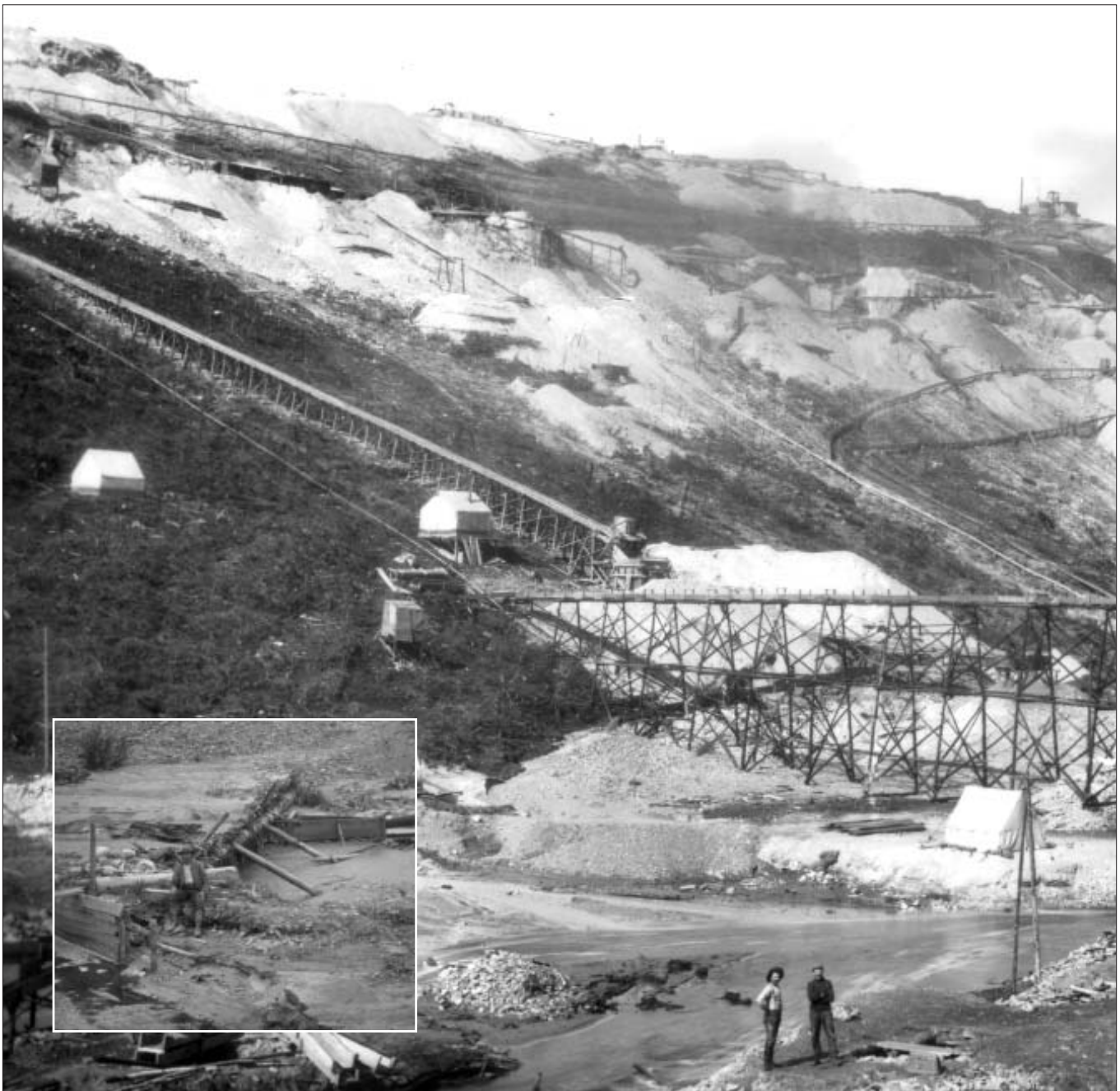
Clean-up piles built up underneath flumes. (PC, A Johns YT-202)

three times the peak flow of the creek.⁴ With such a demand for a limited resource it is not surprising that disagreements appeared and quickly grew to large proportions. In August, 1904, Gold Commissioner Senkler noted 84 cases before his court, the majority “water disputes.”⁵ In the following year he again reported;

*A large proportion of the litigation is due to the scarcity of water. As time goes on the necessity for water to work the lower grade properties at a profit increases. The supply is far less than the demand, and the result is many disputes arise as to the right of priority to what water there is in the creeks and streams in the vicinity of the gold-bearing ground. The production in future...will depend largely on the supply of water... In order to work at a profit water must be brought by gravity from the most available sources. The expense that will be incurred in carrying out water-schemes properly will be very great, and it is, in my opinion, the chief problem confronting the Territory at the present time.*⁶

*A tramway for paydirt down to the creek on Cheechaco Hill.
(PC, A Johns YT-230)*

*Inset: J.P. Anderson at his empty reservoir, 42 b/d (below discovery) Bonanza Creek, 1903.
(PC, A Johns YT-201)*



Individual miners, not blessed with the necessary capital resources to undertake proper “water-schemes,” faced two choices. They either brought or kept water on their claims or, less favoured, moved their gravel to a supply of water.

On hillside claims, complex networks of potholes and wing dams saved as much of the spring thaw and irregular summer rain as possible. This supply was supplemented by water carried up the hills in pails and oil cans.⁷ Using rockers, which allowed the miner to reuse water, was slow and back-breaking work, but it required much less water than sluicing. Some miners, with access to the creeks, erected gravity tramways to haul their paydirt down to the valley for washing up.

The obvious need for better distribution of water encouraged the formation of several varieties of water management systems. In the Atlin area, which suffered from the same shortage of water, the Willow Creek Miner’s Co-operative Association was formed in the summer of 1899.⁸ After having “suffered long and patiently and the water monopolists had had things all their own way...,” over 100 miners organized themselves to develop a two-mile long ditch from Pine Creek to their claims along Willow Creek. Shares in the co-operative were sold to finance the ditch and assist miners in need. Miners volunteered their own labour to dig the ditch. In late August, 1899, the ditch was completed and water began to flow to the claims.⁹

Commercial water pumping firms were more common in the Klondike. As early as 1899, Falcon Joslin and his brother built a small ditch along Dominion Creek. Roughly three miles long, the ditch supplied the Joslin brothers with water for their own claims and for sale to neighbouring miners. They operated the ditch briefly and then sold out to a larger operator, Joslin moving from mining to real estate and mining agent.¹⁰ While water supply companies soon ran into financial and technical problems as the scale of operations increased, larger mining firms working hydraulic plants continued to supply

*McDonald’s pumping plant.
(PC, A Johns YT-150)*





individual miners with water surplus to their own needs. In dry years, and as hydraulic operators expanded their operations, this surplus disappeared and neighbouring miners were once again out of water. In 1904, a year with average summer rainfall, miners on Cheechako Hill were able to purchase water from the Pacific Coast Mining Co. Their large pumping plant on Bonanza Creek brought up “2 sluiceheads of muddy, used water” to a reservoir where it could be recirculated. The Electric Light Co. of Dawson balanced its utility load by pumping water from Bonanza Creek to a reservoir 350 feet above the creek. From here water was sold for \$7.50 per hour for each sluicehead.¹¹

The regional water shortfall prompted the Klondike mining industry to promote several ideas to increase the local natural supply of water. One of the first of these projects was undertaken by Joseph and Ellen Acklin.¹² The Acklins had established a farm on the sunny north side of the Klondike River about three kilometres above Dawson. While raising vegetables and hay were profitable, the farming business was quickly abandoned when gold was discovered on the property. After hydraulic mining began in the dry summer of 1903, the Acklins found their mining operations limited by the availability of water. They applied for water rights from Moosehide Creek and the Twelve Mile River. Surveys for two ditches were completed the following year and construction of the ditches began. However, the perennial problem of poor capitalization brought the project to a halt uncompleted in 1905.

Miners’ difficulties and the failure of these small-scale projects led to a growing demand for government involvement in the water supply

*Hydraulic mining operations of the Pacific Coast Mining Co. on Cheechako Hill.
(PC, A Johns YT-223)*



Editorial cartoon in the Klondike Nugget of February 3, 1903 supporting the active campaign of miners for a central government water supply system for the Klondike.

TO RAIN OR NOT TO RAIN?



Mr. Foster and Mr. Oliver had three separate encounters in the House of Commons over the Yukon proposal to hire a rainmaker. In the meantime Yukon — and presumably Hatfield also — went on quietly with the preparation. The rain — if rain there come — will fall as of old on the just and the unjust alike, so that were Mr. Foster in Yukon, instead of criticizing its people at a range of five thousand miles, he would get as thorough a soaking as the ninety and nine just persons who need no rain — nor repentance.

Hatfield's arrival in Dawson prompted a vigorous debate in the House of Commons over the use of government funds to hire a rainmaker. (Yukon World, June 5, 1906)

ground once more. His report on “the project to supply the Klondike Mining District with a complete water system for hydraulicing and sluicing purposes” was completed in February, 1906.¹⁴ The proposed water system, estimated to cost over \$6 million to construct and nearly \$600,000 annually to operate, included over 350 kilometres of canal, 29 kilometres of metal syphon, and five kilometres of tunnel. It was to draw water from far up the main branch of the Klondike River and distribute it to miners on Bonanza and Hunker creeks as well as the north side of the Indian River basin. The high cost of the system and the rapidly changing needs of the Klondike mining industry, however, eroded the government’s, probably always limited, interest in the project and it was quietly shelved.

Unable to raise either commercial or government capital for the development of a regional water system, the Klondike-based mining operations lost control of their future. Future capital flows, directed to different types of projects, would force major changes in the system of Klondike mining. The miners, however, did not give up so easily and as economic pressures on their operations increased so did their desperation.

The creeks supplying the water for Klondike mining were precipitation fed. Since it was becoming clear that it would be difficult, and expensive, to supplement the local water supply from external sources, some mining companies argued for increasing the natural local supply. Nine of the larger companies, mostly hydraulic operations, approached the Territorial Council in the summer of 1905 with a proposal to hire a professional rainmaker. The Council accepted the idea. A \$10,000 contract with Charles M. Hatfield, a California “precipitationist,” was signed, “to increase the rainfall...

business.¹³ During the hearings of the Britton Commission, looking into the Treadgold Concession, several miners called upon the government to undertake the construction and operation of a centralized water supply and distribution system. The example of Calgoorlie, where the Australian government built a 350-mile long pipeline into the desert to carry water to a mining field, was raised several times.

The Canadian government responded to the water difficulties of the Klondike and the demands of the miners by preparing a survey of a possible water system. In the spring of 1903, W. Thibaudeau, a civil engineer with the Department of the Interior, was instructed to prepare a preliminary plan for a massive water system. He surveyed the upper Klondike watershed through March and April preparing topographical maps and identifying several possible ditch routes. Two years later he was ordered to prepare a detailed water proposal.

Thibaudeau worked on the government proposal through the summer and fall of 1905, reviewing his earlier work, considering competing commercial proposals, and studying the

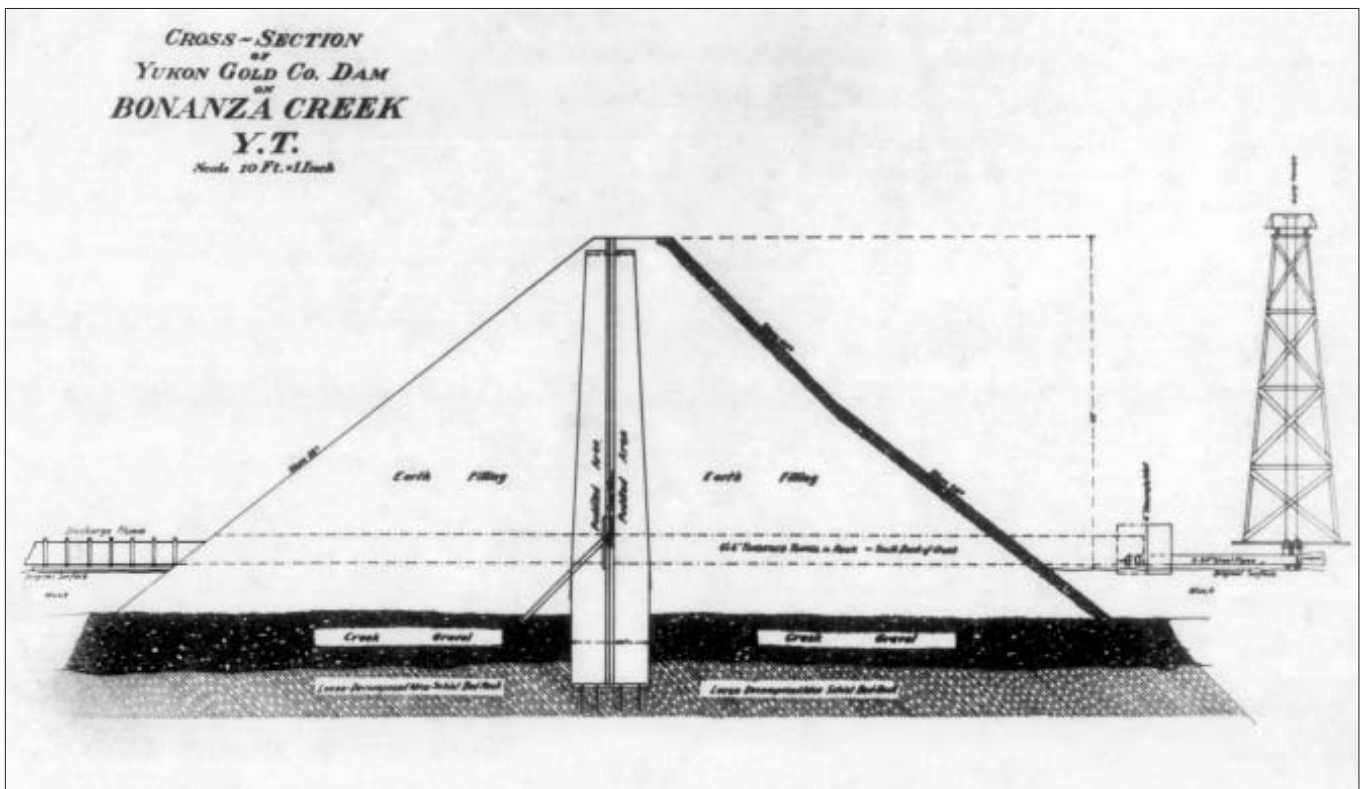
sufficient to insure, as far as ample rainfall will, a successful and prosperous summer for the placer mining industry of the Dawson District.”¹⁵

Hatfield and his assistant arrived in Dawson during an early summer hot spell in 1906. By the 11th of June he had set up his equipment; a tall tower, containers with a variety of his rainmaking chemicals, and devices for sending them into the atmosphere, on the top of King Solomon’s Dome. Hatfield immediately began his demonstration and “threatening clouds” soon gathered around the Dome. Despite the fulminations and stink produced by the apparatus, only two small showers of six millimetres on the 15th and 17th followed, and the newspaper noted “the sluiceboxes [remained] as dry as a wagon tongue.” One of Hatfield’s neighbours, J.W. Berg on Quartz Creek, noted dryly that he and his wife, “had come to town to take a bath.”¹⁶

Chief Isaac, the chief of the Hän people at Moosehide, took advantage of the local consternation and claimed Hatfield’s failure was due to the power of the First Nation’s four Medicine Men. The chief, long familiar with local weather patterns, stated that he would stop the rain until Hatfield was dismissed. He further promised that his Medicine Men would produce “oceans of rain” for just \$5000. The Territorial Council, already sold on Hatfield’s “scientific method,” dismissed Chief Isaac’s offer as superstitious nonsense. Hatfield’s subsequent failure was attributed to the still imperfect understanding of the principles of scientific rainmaking. Hatfield himself grasped the crux of the problem in his farewell to Dawson, “It is a well known fact that the hydraulic miner requires a great deal of water, which they did not receive.” Other ways of addressing the water shortage were necessary.¹⁷

The failure of the individual mining system to address the water supply problem was only the most obvious of a host of technical and economic shortcomings in the efficient mining of the more deeply buried Klondike placer deposits. The result was a continuing drop in the production of gold. Relying on luck to strike gold, unable to effectively mine their small holdings, subject to rapidly escalating costs for power and water, the individual miners of the Klondike felt besieged in the land they felt they had made for themselves. It would be the highly centralized and outside-controlled corporations that

Yukon Gold drawing of dam at 57 a/d (above discovery), Upper Bonanza Creek. Construction took place between August 1906 and July 1908. (PC dwg. 3.A20.74)



would invest the capital and solve the technical problems of the goldfields. However, the individualistic mining system that founded a newcomer society in the Yukon would be pushed to the margins.

Notes

¹National Archives of Canada. Transcripts of Public Hearings, Britton Commission Inquiry Into the Treadgold and Other Concessions in the Yukon Territory, p. 52. (Here after referred to as Britton Commission).

²Britton Commission, p. 211.

³Britton Commission, pp. 56 and 175.

⁴Canadian Mining Review, Dec., 1904, p. 257.

⁵Annual Report of the Dept. of Interior, 1903-04, Yukon Territory, p. 6-7.

⁶From H.A. Innis, Settlement and the Mining Frontier (Toronto, 1936) p. 223.

⁷Britton Commission, p. 300.

⁸Reports of the Willow Creek Miner's Co-operative Association by Alfred Carmicheal were published in the Atlin Claim, Aug. 19 and 26, 1899.

⁹Co-operative actions were also promoted in the Klondike. An example is noted in Britton Commission, p. 238.

¹⁰Britton Commission, p. 579.

¹¹Annual Report of the Surveyor-General, 1906, p. 157 and Britton Commission, p. 410.

¹²From L. Green, The Gold Hustlers (Anchorage, 1977) pp. 90-96.

¹³Britton Commission, pp. 233, 250, 290-291, 298-299. Information on the Australian example was also reported in the Dawson Daily News of July 28, 1910 and the Canadian Mining Review, Nov., 1904.

¹⁴Surveyor-General, 1906, p. 127.

¹⁵Hatfield's contract noted in Parliament of Canada Sessional Paper No. 174, 1906.

¹⁶Yukon World, June 6, 7, 10, 12, 13, 16 and July 7, 1906.

¹⁷Yukon World, June, 14, 1906 for Chief Isaac's proposal and June 17 and 27, 1906. Weather information courtesy of Don Watt, A.E.S. Weather Station, Whitehorse and Daily Climatological Data 2.0, Climate Services Division (A.E.S. Sept., 1989).

A comparison of drilling techniques for deposits containing free gold using radiotracers: A summary of results

Randy R. Clarkson, P. Eng.

In recent years, there has been a dramatic increase in the development of gold deposits located in semi-consolidated and unconsolidated materials such as placer gravels, oxidized rock and soils, which may contain particles of free gold. It is often difficult to recover representative samples due to the high density and malleability of the native gold particles.

In many cases alternative drilling techniques such as reverse circulation, normal circulation and auger drills have been used to obtain representative samples for the exploration and evaluation of these deposits. In the absence of accurate impartial comparative information, drillers and their equipment have often been selected for their penetration rate or cost-per-foot rather than for sampling accuracy. The resulting sample assays can be significantly different to those obtained by diamond drilling or by other bulk sampling methods. Some of these differences can be attributed to the potentially erratic distribution of free gold in both lode and alluvial deposits. However, some errors may be due to the incorrect selection, design and/or operation of the drilling equipment.

Radiotracer drill testing methodology

In the summers of 1992 and 1994, the author designed and carried out a statistically valid research program using mildly radioactivated gold particles as tracers radiotracers. Walsh (1986) was the first to research and develop the use of radioactive gold (Au^{198}) to test gold recovery equipment. Clarkson (1994-1996) further developed field testing procedures using radioactivated gold as tracers to provide a statistically valid, rapid, simple, cost-effective and safe method of evaluating the gold recovery efficiency of virtually any device which recovers gold, including sluiceboxes, jigs and drills.

Radioactive gold has a very short half-life of 2.7 days and rapidly disintegrates to normal background levels of radiation within a few weeks, thus eliminating the long-term storage problems normally associated with other radioactive materials. Radiotracer testing technology avoids both the high costs and the unpredictable error levels common when conventional testing procedures are applied to ores containing free gold particles.

Two types of fully cased normal circulation (N/C) drills, two types of reverse circulation (R/C) drills and three solid auger drills were evaluated under a variety of field conditions. A frozen cylindrical core of compacted gravels containing four sizes (1.2, 0.60, 0.30 and 0.15 mm), (+14, +28, +48 and +100 mesh) of radiotracers was placed at various depths in 44 drill holes and the holes were re-drilled. Scintillometers were used to track free gold losses due to spillage and blow-by around the collar (top) of the hole. Some gold particles were located in temporary traps in the drilling equipment and these particles would have contaminated subsequent samples (as carry-over).

Results

Several myths commonly attributed to particular drilling methods were dispelled. There was no significant difference between the recoveries of the four sizes of gold

particles with any of the drills tested. Observations and down-hole scintillometer records indicated that the free gold particles did not follow the bit down the hole and were either carried out of the hole or forced onto the sides of the hole at or above the depth at which the radioactive gold was positioned. A brief summary of the results of these tests is included in the table below.

Normal circulation drills

The normal circulation, fully cased drills provided the highest and most consistent gold recoveries, even under adverse drilling conditions. The two drills tested used an outside casing with a drive shoe on the bottom and a separate inner string of drill rods with a drill bit. The Schram drill used a tricone bit on its drill rods and drove its drill casing down with a pneumatic hammer. The Barber Dual Rotary drill used a down-the-hole hammer drill bit for drilling harder rock and pushed its drill casing down with its separate hydraulic table. The drill cuttings sample was swept from the bit face through an annular space between the drill rods and casing to the surface. On surface, a rotating swivel head maintained a seal between the casing and drill rods and directed the cuttings through a hose and its many fittings to a sampling cyclone.

Three deep holes (average tracer depth of 24 m) and six shallower holes (11 m) were tested in the Atlin and Fort Steele Mining Districts of British Columbia. Net radiotracer gold recoveries (not including spillage, blow-by and carry-over losses) for both drills tested were relatively high (averages of 75-78%) and consistent (range of recovery = 20-21%). Sample spillage losses at Atlin were increased when ultra high

A comparison of drill performance. D-T-H = down the hole.

Parameters	CASED-NORMAL		REVERSE-CIRCULATION		AUGER
	Rotary Tricone	Dual D-T-H	Rotary Tricone	Single D-T-H	Average
Drill bit diameter (mm)	152	127	115	110	185
Drill rod or auger diameter (mm)	114	114	89	95	154
Casing outside diameter (mm)	184	184	N/A	N/A	N/A
Tracer core position (depth) (m)	24	11	17	13	6
Number of holes traced	3	6	4	6	20
Drilling rate per shift (m)					
	31	33	50	47	21
Drilling rate per person (m)					
	16	16	25	24	21
Penetration m/h					
Organic soils	11	16	23	19	16
Gravels	6	8	15	N/A	12
Frozen gravel	N/A	N/A	N/A	18	7
Boulders	1	2	1	12	1
Bedrock	2	6	3	14	2
Highest gold recovery (%)	84	87	82	88	86
Lowest gold recovery (%)	64	66	0	0	45
Range of gold recovery (%)	20	21	82	88	41
Gold spillage losses (%)					
	18	11	4	16	0
Carry-over losses/contamination (%)					
	2	5	2	14	0
Blow-by losses around collar (%)					
	3	0.4	18	1	1
Losses remaining in drill hole (%)					
	3	5	51	31	32

viscosity drill cuttings slurries kept radioactive gold particles and other density minerals in suspension. Sample spillage and sample volumes were increased at Fort Steele when high-pressure ground water was encountered in gravel seams. Fully cased normal-circulation drills should be used for unconsolidated soils and for deep, wet, or bouldery gravels. The casing shoe should be drilled or driven at least 300 mm ahead of the drill bit when unconsolidated materials are being sampled. This separation may have to be increased if high-pressure ground water is encountered. The drill bit may have to be pushed below the casing shoe for short intervals if hard boulders are encountered.

Reverse circulation drills

The reverse circulation drills had the highest drilling rates but their extremely inconsistent gold recoveries preclude their use for the evaluation of free gold grades. Dual tube reverse circulation drilling (also known as R/C or center sample recovery) uses a double-walled drill pipe and compressed air and/or water to flush drill cuttings away from the bit face and to carry the cuttings to surface.

Two types of reverse circulation drills were tested: a rotary tricone with no casing seal at the collar, and a down-the-hole hammer with an air crossover system. The net radiotracer recoveries (not including spillage, blow-by and carry-over losses) for the two R/C drills were very low (averages of 25 and 38%). In addition, their extreme range of net recoveries (from 0 to 88%) would make it very difficult to determine the grade of the drill sample containing free gold with any precision.

Water injection (required to prevent plugging) dramatically increased segregation, entrapment (carry-over) and spillage losses and made it very difficult to collect and contain the samples. The erosive action of the high-pressure air and water, which was used to flush the cuttings, increased the tendency for caving in the holes. This erosion also created a rough surface along the walls of the hole which helped trap an average of 31 to 51% of the radiotracers in the drill holes. When an external casing was not installed to seal the collar of the hole, blow-by sample losses were excessive (an average of 18%, almost equal to the recovery of the sampling system).

Even though surges of high-pressure air and water were used to flush the long length of the sample recovery systems, many tracers remained trapped in the rotary head, hose, hose fittings and sampling cyclones. To remove these tracers, the cyclone and hose fittings had to be taken apart and cleaned. This contamination and carry-over of values would have created errors in estimated gold grades.

Solid auger drills

The three solid auger drills tested provided reasonably consistent gold recoveries and reasonable drilling rates for shallow (up to 50 m depth) holes in semi-consolidated or frozen soils and gravels, but were not suitable for drilling hard boulders or deep into hard bedrock. The average net recoveries of 64%, 81% and 62% (not including spillage or carry-over) of the three drills were very close to their expected recoveries. The auger drills had higher and more consistent recoveries than the two types of Rdrills (rotary drills) which were tested and would be more suitable for determining the grade of a deposit in semi-consolidated or frozen materials.

Auger drill holes should be at least 150 mm in diameter to reduce errors caused by the nugget effect. The auger samples should be collected in a large flat pan surrounding the collar of the hole. The samples should be shoveled into pails and marked in order of depth. Holes should be drilled their full depth (to bedrock) without pulling and cleaning the rods. The approximate depth of gold values recovered may be inferred by

processing the pails sequentially. Auger drill grade and volume calculations are based on the volume displaced by the auger flights and not on the volume displaced by its larger diameter bit.

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Key words

radioactive, radiotracers, free gold, drills, reverse circulation, auger, evaluation

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James (Jimmy) Lynch: Goldminer and gunner, 1913 to 2002

by Mike McDougall

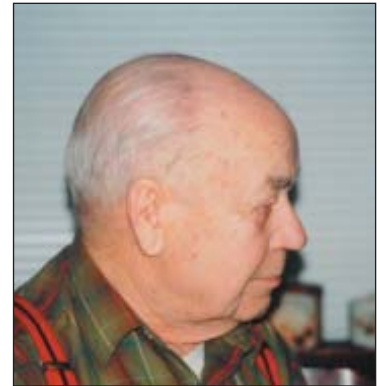
Jim Lynch was born in Birkenhead, Liverpool, England to an Irish family. Jim was the first-born child arriving on the first day of August, 1913. Later, two brothers and two sisters joined him and by the time Jim was an early teen, his father's job as a tram conductor just barely kept the family fed.

England was in the depths of a bitter economic depression and job prospects were poor when Jim was growing up. In 1929, he decided to sign up for a government program to have his passage paid to Canada. In return, he committed to work a minimum of three years. The job was menial, a farmhand at a southern Ontario dairy farm, and the accommodations were spartan. Jim's loft was over the cow barn, but the food was good and he grew to like the work and became quite good at it. When he had finished his time at the farm, he took some of his pay in the form of a bicycle and started to pedal to the west. Imagine his surprise at the distance and the climate of northern Ontario in the late fall! Jim quickly exchanged his bicycle for a train ticket in Sudbury.

Jim arrived in Vancouver in the mid-1930s. In a practice now largely forgotten, he had been given a letter of introduction by his family to relatives, Jim's cousin May and her husband Don Morrison. Don had a roofing company in Vancouver and Jim spent a few years as a steeplejack on the skyline of Vancouver. Jim recalled a time they put a new roof on Christ Church Cathedral and just how almost perpendicular those steeples were. Raised as a staunch Catholic, I'm sure Jim wondered at the probity of his work on the centre of the Anglican Church diocese.

In the spring of 1937, Jim and a friend booked tickets on the coastal steamer to Skagway, Alaska and the Whitepass railroad to Whitehorse in the Yukon. At 24 years of age, he was fascinated with the north and had heard that the Yukon Consolidated Gold Corporation (YCGC) was hiring in Dawson City. The two arrived at Whitehorse in March of 1937, too late for the winter sleigh ride to Dawson City and too early for river navigation. With his last \$75, Jim purchased a ticket to Dawson City on the Whitepass Airlines, a Ford Tri-Motor. Arriving in Dawson, they discovered that the YCGC was not hiring yet, so with a local map and a supply of grub they decided to see what was at the town of Sixtymile. While maps of the time, and even today, show a town at Sixtymile, it has always been just a collection of gold mining camps with no facilities for travellers. The journey took three days on foot along what is now known as the Top of the World Highway, which was then called the Sixtymile road. Jim and his friend ploughed through waist-deep snowdrifts, sometimes rolling over them when they couldn't push through them. They stayed in road houses which were still standing from the initial gold rush years and even took a picture of each other at a road house just as the tourists do today.

Jim and his friend arrived at the mining camp of Ray and Gordon Stewart of McCormick and Stewart Mining Company on Miller creek. Ray, amazed at seeing them, asked them how they had got out there. When they relayed their adventures, Ray's first question was "Do you want a job?" As these fellows were the first ones to travel on the Sixtymile road since late the previous fall, Ray figured they had what it took to be successful placer camp hands. Jim's first job for the McCormick and Stewart



Jimmy Lynch.



Bucket of Slaves” - Miners in the bucket were lowered into shaft to fill bucket with pay gravels to send to surface. McCormack and Stewart operation, Miller Creek, 1938. From left front, Gus Vinblad, unknown. In the bucket, Jim Lynch, unknown, Johnny Titus.

Mining Company was cutting wood on the hillsides above Glacier and Big Gold creeks, the exact place he would have his camp some 60 years later!

Wood was an important commodity for the placer mines of 1937. Wood fed the steam boilers used to thaw gravel faces, run the winches to lower the miners into the shaft and to lift the pay gravels up out of the shaft.

Most importantly, it fed the cookhouse stove to satisfy the appetites of men made hungry by hard work and inclement weather. Wood was used to shore up shafts so that the sides would not slough in as the buckets of gravel were hauled to the surface. While the tight gravels of the Miller Creek high channel didn't require any sets or props in the drifts, they did require a most important piece of wood - a willow sapling. This was placed at the base of the shaft at the start of each shift between the roof and the bedrock and as long as the stick would slide in and out of place easily, all was well. If it began to bow or stick, then the tracks were pulled out and the drift was abandoned. A tight stick meant that the roof was beginning to sag and was probably ready to collapse.

In the summers of 1937, 1938 and 1939, Jim worked an eight-hour shift at the mine on Miller Creek and in his off hours he explored the countryside around the surrounding creeks and valleys of the Sixtymile. In the winters, he built a cabin and provisioned himself with moose and caribou and with a partner, cut wood for the mine on Miller creek. One winter, Jim contracted with the Holbrook Dredge crew to haul his winter supplies into the Fiftymile River with their Caterpillar 22. While he was there, he spent that winter trapping the valleys of Fiftymile River, Boucher Creek and the Sixtymile River.

In the fall of 1939, with war clouds gathering in Europe, Jim headed outside and enlisted in the Canadian army in New Brunswick. He travelled overseas to the south of England for further training on artillery. Jim was a sergeant with a Canadian Artillery unit in charge of a 25-pound gun; they were first deployed operationally at the landing in Sicily in 1943 and worked their way up the length of Italy. Rotated out of active duty for a short time, he came back to Canada on a war bond tour. He spoke to large groups of people about his wartime experience to encourage people to purchase war bonds to help fund Canada's war effort abroad. Upon his return to active duty just after the Normandy invasions in 1944, Jim was given command of a tank (mobile gun) in a mobile artillery unit. I well remember his smile when he described the life of a mobile gunner and the hint of pride that it was one of the last machines still operational when they entered Germany almost a year later. At the end of the war Jim stayed on with the occupying forces for a year in Germany, and then returned to Canada. Altogether, he had served in the United Kingdom, the Mediterranean and in Europe. He was awarded the Canadian Volunteer Service Medal and Clasp, the Defence Medal, Italy Star, the 1939-1945 Star and the France and Germany Star.

Like many of his generation, Jim Lynch gave his best years in the service of his country in the 1939 to 1945 world war. Partly as a result of the long hours and days without sleep and the constant stress during the war years, including having been knocked unconscious by close shell bursts a number of times, Jim suffered from seizures for a number of years. In the immediate post war years, Jim would often, as he put it, "just flop out for hours at a time." Later these seizures were controlled by medication. After a period of convalescence at the Veterans Hospital in Vancouver, Jim returned to his beloved Yukon in late 1948 at the age of 35. Although the veterans department suggested he take a job as a park warden at one of the new parks in the territory, Jim declined and headed back to the Sixtymile country. Jim bought out an oldtimer and set up a hand-mining operation next to Jim Bungate's place on upper Glacier Creek. Jim Bungate was one of the original oldtimers who had walked into the country in the gold rush days and had been hand mining on Glacier Creek ever since.

The face of placer mining had changed during the war years and many of the oldtimers had sold out or passed away. The new miners were now using mobile

mechanized equipment for the first time in the production of the gold. There were many war surplus Caterpillar Tractors equipped with bulldozer blades, available for a reasonable price, which meant smaller operators were able to mine deposits that were inaccessible to the large dredges or of an insufficient grade to make it worthwhile. The popular term for these owner/operators was “Cat miners.” In 1948, an Alaskan bulldozer mining company called Yukon Explorations acquired rights to an inactive dredge and the dredge ground on Glacier Creek and Big Gold Creek. Harold Schmidt and Glen Franklin managed the company and introduced a new way of mining to the valley. Harold Schmidt had met Jim on his claim on Glacier Creek and knowing he had experience with diesel engines during the war, asked Jim to come and work for them. Jim preferred to work alone, so with one helper, he ran the stripping program in front of the dredge for Glen Franklin. The stripping program was a solitary occupation which suited Jim just fine. When not stripping with the hydraulic monitor unit or running down the drains or frozen humps on an old D-7 Caterpillar bulldozer, Jim “made myself generally useful around the dredge camp.” Jim called the “catskinners” (men hired to drive the bulldozers) in the camp the “Alcan Commandos,” in reference to the many locals who had learned their trade during the construction of the Alaska Highway.

In the middle 1950s, Jim tired of the stress of camp life and the monotony of the stripping program and decided to walk down the Sixtymile River to Enchantment Creek. Here Jim prospected, trapped, built line cabins and caches and walked over the next 10 years or so. It was normal for him to walk from the creek to the post office at Glacier Creek to see Joe Myers and to get the mail and walk right back again, regardless if it was winter or summer. The round trip distance was approximately 80 miles. His only contact with the outside during the winter months was Pat Callison with his ski-equipped bush plane. Pat would land on a snow strip that Jim had hand-cleared and packed down with his snow shoes.

In the middle 1960s, as the placer mining industry becoming increasingly more mechanized, Jim realized that his hand operation at Enchantment Creek was just too far from the existing road network to be an economic mine. He headed back up to Glacier Creek to prospect and stake leases to cover ground that had been dropped by Yukon Explorations when their mining and dredging of the ground had been completed in 1960. Jim discovered that there was gold left on the margins of the creek, which had been covered by frozen muck during dredging and previous mine operations. Jim renovated an abandoned cabin at the dredge camp which had been built in the early part of the gold rush and was still sound.

In 1967, Jim acquired his first piece of heavy equipment, a 1937 Caterpillar RD-7 bulldozer. The machine had been part of the YCGC fleet and was sold off when the company stopped dredging in 1966. Jim used it to crowd the creek into the bank to facilitate water stripping and to push the pay gravels up to his sluice box. Jim had an interesting relationship with that old “Cat.” He would curse its shortcomings, saying that it pushed too fast because the gear ratios were made for farming and for towing and not for pushing a blade; or the transmission was fragile and broke down too often; and that the blade was far too wide for so little horsepower. On the other hand, he would often say in later years as he gazed upon his camp and his claims on Glacier Creek that he “owed it all to that old RD-7.”

During the late 1960s and early 1970s, Sixtymile River and Glacier Creek were fairly quiet. Ole and Donna Medby, Lorenzo Grimard and Emile Faucher and a very few others were Jim’s only neighbours. Jim mined mostly on his own with his cousin, May Morrison, visiting in the summers to help out with the mining and the cooking. As the price of gold increased in the 1970s, Jim hired a helper to assist with the sluicing and the stripping, but continued mining “his way,” using the creek and a pump unit and monitor he had purchased from Glen Franklin to help strip and “shrink down” the overburden before sluicing the uncovered gravels through a single run sluice box. The



Jim Lynch with winter provisions in November 1938. Sixtymile River valley below the mouth of Big Gold Creek.



Pump unit and monitor purchased from Glen Franklin

pump unit was a self-contained water pump and hydraulic monitor mounted on a screened base that contained the pump intake.

In use, the pump unit was towed into the creek with a Caterpillar bulldozer. A small dam was pushed up downstream of the set-up and once the water reached a sufficient depth, the engine and pump were started. The flow of water from the monitor washed down the thawed muck. In addition, the same system could be used to wash the fines and clays out of the pay gravels to make it easier to sluice. One can only imagine the din of standing so close to a General Motors 6-71 Diesel engine working hard to project a stream of water at 60 pounds per square inch! One time, Jim told us,

the monitor got away from him, swung around and knocked the muffler off the engine. Jim put up with the vagaries of the machine because (as he put it), "it is far cheaper to move mud with water than with a Cat." When the old and much cursed RD-7 would not move the pump unit anymore, Jim parked it and called the local Caterpillar dealer and, sight unseen, ordered a machine to replace it. Finning Equipment, the northern distributor, delivered a used Caterpillar bulldozer, model 3T D-7, which took over as his main bulldozer.

Jim mined through the 1970s with the two machines and his old style single run sluice box. The water was gravity fed to the box through a ditch down the centre of the valley from a large water reservoir constructed upstream. An increase in gold prices and some good cuts in the early 1980s and Jim was able to purchase some modern equipment. A brand new 966 Caterpillar loader and a D7G bulldozer with sealed and lubricated tracks made work much easier during the long days on the creek. Jim then added a second D7G to his fleet for the purpose of stripping thawed ground in late fall.

The area of Glacier Creek he was preparing was riddled with oldtimers' workings, and occasionally, Jim got stuck in one of these placer "rooms" or shafts. His response to this dilemma was to get the second tractor, hook it to the offending bulldozer, and either pull or push it out. It took a little bit of careful management as the stuck tractor had to be left in gear with the engine running to provide a power assist to get it out. Once free of the mud, the driver-less tractor would begin to walk away. Jim would quickly park the tow cat, jump off and run "like hell" to catch the escaping vehicle. Jumping up on it and shutting it down before it got into more trouble was tricky work, especially for a man in his mid-70s!

Realizing that he would not be able to mine all of his ground in his lifetime, Jim started leasing part of his ground to other operators in the late 1980s. He continued to mine and prepare his own cuts, but the work was becoming increasingly more difficult. An old knee injury continually flared up, causing him a great deal of pain. Jim added the last piece of equipment to his fleet in the late 1980s, when he purchased a used Komatsu D155 bulldozer with a U-blade and adjustable ripper. He also modified his sluice box to help catch more of the fine gold particles. With the tightening environmental rules around the amount of sediment discharge into the creek, he reasoned that he would have to use a bulldozer to do the bulk of stripping and his D-7 Caterpillars were just too small for the job.

Unfortunately, Jim's health worsened just after he made the purchase of the big tractor and it fell to later operators to fully utilize the promise of the larger equipment. Starting in the late 1980s, Jim spent more and more time at the McDonald Lodge (an extended care facility) in Dawson City, both in summer and in winter. He came out to his camp only after the ferry was in on the Yukon River and returned in the fall, usually mid-October, before the ferry was pulled for the winter. After the war, Jim had decided not to marry and had never possessed a driving licence as he always thought his post-war health problems would cause his early demise. He only started to drive again when he was in his late 60s, but worsening eyesight had forced him to give it up by the time he was 82. To solve the problem of his transportation, Jim would arrange a driver for his truck from Dawson. The driver would have an enjoyable and informative trip en route to Sixtymile and maybe an evening with Jim at his camp at Glacier. One such driver, Chuck McKenzie, turned into a good friend, and the two of them spent two summers touring all over in Jim's truck until Chuck's health prevented further travel. Jim always kept his truck licenced and ready to go until the last year of his life. He never wanted to be a burden to anyone and he valued his independence.

In winter, Jim would travel, using his cousin May Morrison's place in Vancouver as his base. After she passed away in early 1994, he stayed with his old friend Velma Laverty in Edmonton. Jim travelled to visit and always to walk, claiming it was what kept him fit and in shape. In fact, one of his major criticisms of our place in Kamloops was that "it was always too damn icy to walk there." Jim could be seen any time of the year in Dawson walking the Yukon River dike or to the "dairy" (as he called the liquor store) for a bottle of his favourite whiskey, Crown Royal. I am sure that Jim was a bit of a terror in his younger years on his irregular trips to town. Jim and his pal "Shebango" (William "Coach" Krychusky) holed up in a small cabin in Dawson all winter must have been interesting. When he was working on the claim, however, Jim would only have a drink before dinner, not after, maintaining that the meal spoiled the effect of good whiskey!

Those drinking habits changed in later years as working became more difficult for him, to include any time after lunch as a good time for a drink! In an effort to keep you for a visit, his favourite greeting "would you have a drink?" usually garnered success. Many a time I sat on his wood box in my dirty mining coveralls with a glass of water while Jim recounted tales of recent or ancient history. The cabin was always immaculate and as neat as a pin. Jim cooked on his wood stove in all but the hottest of weather and always had a rain barrel full of fresh water at the front door. He was very much the bachelor, with regular routines. First night in camp, he cooked a pork chop or a bit of steak with potatoes and some vegetables for supper and the next morning, bacon and eggs for breakfast. The saved or spilled bacon fat was rubbed into the top of the stove so that it gleamed like new. Stew-making was a favourite dish in his culinary repertoire. A good grade of beef steak replaced the moose of earlier years. The meat was cubed and seared to lock in the flavour. Vegetables and potatoes were added and the whole thing left in the pressure cooker to simmer on the stove till supertime, good and tender on the same day and great for the next 2 or 3 days. When asked to come

The D7G sitting in front of Jim's shop at Glacier Creek





Jim Lynch at Glacier Creek camp in September of 2000.

to dinner Jim would often decline, saying “Not today thanks, I’ve got a good stew going!”

Jim was active at his mine until the mid-1990s after which he turned the mining over to the author, Mike McDougall and wife, Kim and family. He concentrated on his garden and the lawn he had cultivated over many years around his camp at Sixtymile. A running battle with the weeds and the willows that kept encroaching on his lawn and surrounding the buildings, kept Jim operating one of his D-7s at the camp to the end so he could “run them down”! His zeal to burn back the dead grass and weeds was nearly his undoing on more than one occasion. When the fire would run up to one of the old buildings, Jim would jump up on his D-7 and plough the fire down to the point where he could beat it back by hand from the buildings. I arrived once to find one of the old buildings completely surrounded and Jim’s pants on fire at the cuffs. After a few tense moments, we got him safely doused and the buildings saved. Jim grudgingly allowed that maybe “he just couldn’t move as quickly as he used to!” His garden and his lawn were his pride and joy and more than once I have heard him say to a visitor when driving in, “just don’t chew up my lawn!” You knew he had the right stuff, not to mention a very green thumb, when he would bring you a bunch of his prize beets, parsnips, carrots or lettuce for your supper.

Jim Lynch’s thoughtfulness was remarkable. He always studied things to discover the most efficient way to get them done. I once asked Jim about his experiences with grizzly bears. He said he never carried a gun while travelling in the bush during all those miles on foot in the back country where bears were numerous. The only time a bear caused him more than a moments trouble when it wouldn’t get off the trail, Jim just walked around it. Jim said this about his wildlife encounter: “I don’t bother the bear and he doesn’t bother me.” Jim had a respect for the bear and its territory and the bear respected him accordingly.

And in a way that is how Jim lived his whole life!

Jim Lynch passed away August 1, 2002 in Whitehorse, Yukon, just hours into his 89th year.

ABOUT THE AUTHOR: *Mike McDougall came to the Yukon in 1983 from Toronto, Ontario to join his family at their placer operation on Sixtymile River. When Jim Lynch discovered Mike could fix his all-terrain vehicle, a friendship was born. In 1984, Mike met his future wife Kim. Jim kept an “eye” on these “kids” as he called Mike and Kim at their first mine and later as his family grew to include children, monitored his expansions. When Jim could no longer work his mine on Glacier Creek, he asked Kim and Mike to operate it on his behalf. During their 18 years at Sixtymile, Jim and Mike and his family remained staunch friends and kept an “eye” out for him in Jim’s later years. They will miss him always, along with many placer miners and Dawsonites alike.*

Mike and his family returned permanently to Kamloops in 2000, due to low gold prices and high operational costs. They now own a business selling Yamaha recreational products, but hope that one day, they will be able to return to the Yukon and to the life of mining that they learned to love.

Dredges in the Yukon

Number	Make	Buckets (feet ³)	Start	Finish	Mined (yard ³)	Where	Remarks
Discovery Dredge	Risdon	3.25	1901	1908	Unknown	42B/D Bonanza Creek- Discovery Bonanza Creek	From Cassiar Bar, shipped to Circle, Alaska (steam)
Can#1-NW#1-YC#1	Marion	7	1905	1938	15,447,289	Bear Creek mouth-21B/D Hunker-17B/LD Dominion Creek	Parts for YC#11
Bonanza Basin Co.	Allis Chalmers	61	1906	1909	Unknown	Klondike mouth	Originally steam powered, fate unknown
YG#1-YC#7	Bucyrus	5	1906	1950	19,435,899	Lower Bonanza Creek- Quartz Creek	Quartz mouth-abandoned
YG#1-YC#9	Bucyrus	5	1906	1966	19,258,037	Lower Bonanza Creek- Bear Creek-Sulphur Creek	Sulphur Creek @ Meadow Gulch-abandoned
YG#2	Bucyrus	5	1907	1918	5,747,219	Lower Bonanza Creek- Bear Creek-Sulphur Creek	Parts to Hight Creek- Dredge- Mayo Mining District
YG#4-NW#2-YC#5	Marion	7	1908	1943	28,937,006	Lower Hunker-41B/D Hunker Creek-249B/LD Dominion Creek	Burned by lightning strike
YG#6-YC#6	Bucyrus	7	1908	1966	41,481,619	90B/D Bonanza Creek- Gold Run Creek-Lower Sulphur Creek	Dominion Creek near Australia pipeline-abandoned
YG#5	Bucyrus	7	1908	1917	6,714,922	Lower Hunker Creek-31B/D Bonanza Creek-7 Eldorado Creek	Parts shipped to Malaysia
YG#7	Marion	7	1908	1911	1,546,533	36B/D Hunker Creek	Shipped to Iditarod, Alaska
Can#2-YC#2	Marion	16	1910	1942	48,855,501	Klondike River valley	Near Quigley Gulch- abandoned
YG#8	Bucyrus	7	1911	1917	4,688,302	4A/D Bonanza Creek	Shipped to Malaysia (steel hull)
YG#9	Bucyrus	7	1911	1915	2,420,066	7 to 26 Eldorado Creek	Shipped to Idaho (steel hull)
Can#3-YC#3	Marion	16	1913	1952	48,266,723	Lower Klondike River- Lower Bonanza Creek	
Can#4-YC#4	Marion	16	1913	1959	65,559,475	Klondike River-lower Bonanza Creek to 17 A/D Bonanza Creek	Parks Canada exhibit, Bonanza Creek
YC#8	Yuba	7	1938	1966	19,578,477	Middle Sulphur Creek	Abandoned
YC#10	Yuba	7	1939	1964	18,604,366	10B/LD Dominion Creek to 175B/LD	Near Kentucky Creek- abandoned
YC#11	Yuba	7	1939	1966	21,921,063	59B/DHunker Creek-Last Chance Creek	Last Chance Creek- abandoned
YC#12	Marion	2.5	1953	1965	1,881,200	Middle Dominion Creek	Near Hunter Creek bought by Parks Canada (steel hull)
Total sluiced					370,343,697 yd³		

Abbreviations

Can	Canadian Klondike Mining Company
NW	North West Corp/New North West Corp.
YG	Yukon Gold Company
YC	Yukon Consolidated Gold Corp.
A/D	Above Discovery
B/D	Below Discovery
B/LD	Below Lower Discovery

Rated daily processing capacity

5 cubic feet- 3500 yard ³
7 cubic feet - 5000 yard ³
16 cubic feet - 16,000 yard ³

Note

These dredges worked in the Klondike area only. Other dredges in the Yukon operated on Sixtymile River, Fortymile River, Henderson Creek, Thistle Creek, Clear Creek (2.5 ft³, built by Walter Johnson Company, 1939), Gladstone Creek, Hight Creek, Stewart River, and the Yukon River (Cassiar bar). The last dredge to operate in the Klondike was No. 11 at the mouth of Last Chance Creek, November, 1966.

