

Kluane Project IV YMIP 13-021 Grassroots Placer Final Report

Dick McKenna January 31, 2014

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Project Rationale

Several key factors were considered in the selection of the Kluane Project grassroots placer program. A brief, point form outline of these factors is given as follows...

:

- 1. The relatively "unexplored" nature of the region
- 2. The presence of rich placer ground in the nearby vicinity
- 3. A bedrock type of predominantly Kluane Schist
- 4. Ease of access, and

5. GSC Summary Reports: *The Kluane Mining District 1904* by R.G. McConnell, and *Exploration in Southwestern Yukon*, 1914 by D.D. Cairns. A quote from the latter report states *"On Cultus Creek some prospecting has been done, and on an un-named tributary joining that stream on it's left bank, gold is reported to have been found in encouraging amounts."*



Map 1: Shows the target location of Kluane Project IV, a 5 claim block on Cultus Creek left limit tributary and 2 claims on Cultus Creek. The white circles indicate active operations on nearby creeks (2012) – some have been major producers. Since the 1970's Gladstone and Fourth of July Creeks alone have produced over 50,000 ounces of gold. Most of the named (and a few un-named) creeks have produced at least some gold in the past, including Printers Creek, the right limit tributary of Cultus Creek, located about 2 km downstream from the target tributary.

Background

Kluane Project IV is a continuation of Kluane Projects 1, 2 and 3 YMIP Grassroots placer programs carried out during the 2010 – 2012 prospecting seasons. The goal of the Kluane Project(s) has been to prospect (with hand tools) a small left limit tributary of Cultus Creek (and vicinity) for the presence of gold in economic values. Detailed reports on the events and findings all of these projects will be found on file at YMIP (YMIP 10-116,11-051, 12-003). Notwithstanding and for the sake of continuity, a brief summary of these programs will be given as follows.

Kluane Project I (2010)

This project was carried out intermittently between the months of June and October 2010 during which a total of 54 man-days were spent on the project divided between Dick McKenna, Henry Johnson and Dylan McGinty. A brief summary of the events and findings of KP1 are as follows:

A tent camp was established at Cultus Bay (Kluane Lake) and access to the target location (5 km westward along Ruby Creek Road.) was made daily via a 4x4 truck. A low impact trail was built to access the gulch which is located on the south side of Cultus Creek and across from Ruby Road. Much deadfall and dense foliage was encountered and 5 log bridges were required to cross the creek

A target location on the lower portion of the gulch was chosen and a total of 11 (3 - 8 ft.) holes and 2 small trenches were hand dug. These holes for the most part followed the baseline of the gulch from about 600 to 1200 feet from its mouth. Nowhere was bedrock met, however the presence of large boulders (+/- 100 pounds) at the bottom of the holes may indicate that bedrock is near. All holes along the baseline were similar in that about 3 - 4 ft. of "muck" was encountered overlying unsorted "unfrozen" gravels. Both holes on the left bank encountered frozen muck/gravel a few feet down. Both trenches were small and were discontinued due to sloughing.

About 15mgs of gold was recovered from about 7 cubic feet of gravel panned from various levels. This gold was very evenly distributed throughout the samples with no trends or richer sections encountered.

Two discovery claims were staked at the foot of the gulch with the addition of two regular size claims

tied on in an upstream direction (3500 ft. total length of claims). Assessment work carried out on the claims during the season covers 14 years and has been filed (5 years paid for and 9 years banked).

Subsequent prospecting had revealed a gorge at about the 3000 foot level¹ of the gulch where (schist) rimrock suddenly appears in the form of a canyon about 20 feet wide by about 50 feet high. Further exposures of rimrock were discovered several hundred feet downstream on the right limit where the base of the valley widens to about 100 feet. Due to the widening of the valley and the leveling of the stream at this place it was determined that it would be a prime target location for the following season (YMIP 11-051).

Kluane Project I I (2011)

Kluane Project II (YMIP Grassroots Placer 11-051) was carried out intermittently between the months of June and October 2011 during which a total of 65 man-days were spent on the project divided between Dick McKenna, Henry Johnson and Dylan McGinty. A brief summary of events and findings of KPII are as follows:

The construction of a 12'x16' pre-fabricated frame structure on Cultus Creek for the accommodation of workers. – a great improvement from the previous years tent camp at Cultus Bay. Further improvements were made to the trail, including the repair of a few creek crossings and a re-routing to the much more level eastern bank (right limit).

Tools, equipment (wheelbarrow, (20)5-gallon buckets etc.) and a 16 ft. handmade sluice-box and associated equipment (flume, piping, pumps) was transferred by hand to the site of target location 2 (+/- 2600 level of the gulch and about 400 ft. from the mouth of the gorge).

A total of three (4x7-8ft.) holes were dug following the creek about 50 to 100 feet between. All holes intercepted about 3-4 feet of moss, root, soil and silt/sand (along with a few rocks to 18") and then about 4 feet of coarse gravels. Much like the holes dug at target location 1 (approximately 1800 ft. downstream). All holes were dry (low water table), no frozen sections were encountered and nowhere was bedrock met. Gravel from these holes was panned with similar gold recovery as target location 1 (average of 1 color or flake every second pan).

¹In this report "level" refers to feet in an upstream direction from the mouth.

A total of three trenches were dug: trench 3 was located at about the 2450 level, left limit floodplain. Under about 12 to 18 inches of moss and soil a mass of frozen silt was encountered throughout the entire trench (8 ft. x 25 ft.). Some places were semi-frozen and could be dug in about an inch but much was frozen hard as a rock. This trench was subsequently (and quickly) abandoned.

Trench 4 was² located on the opposite bank floodplain at about the 2640 level. Dimensions of this trench were 6 ft. x 9 ft. x 5 ft. deep. Ground encountered in this trench was very similar to the holes with the exception of a few semi-frozen lenses of silt/sand.

Trench 5 was the largest trench dug on the claims thus far with dimensions of 8 ft. x 25 ft. and a maximum depth of 9 feet. This trench was attached to trench 4 heading in a direction towards the right bank (It should be noted that due to large spruce trees present in the valley the location of large trenches is limited). Here the silt/sand overburden sloped towards the creek: ie: it was about 3 feet deep on the east side and about 5 feet deep on the west before gravel was encountered. A few small patches of frozen silt/sand was encountered on the west (creekside) of this trench. About 4 feet was gained on the east side of the trench and 9 feet on the west. Gravels here were the coarsest ever encountered with rocks up to 300 - 400 pounds, especially near the bottom. This trench was discontinued for the sake of safety to workers. Gravels at the bottom of this trench produced the best flakes and colors of gold thus far.

About 3.5 cubic feet of gravels was panned from the holes and trenches with a very similar recovery of colors and flakes as the previous seasons panning. The sluice box was finally installed late in the season and about 50 cubic feet of gravels was run through it however factors such as less then optimum water pressure and riffle angles etc. prevented a reliable sample being gained.

Two more claims were added onto the gulch claims and two (double discovery) claims were staked on Cultus Creek straddling the mouth of the gulch. The total length of the claims now being 2500 feet on Cultus Creek and 4500 feet on the gulch.

Assessment work on the claims including reclamation of the 3 holes and Trench 4 adds up to \$1200 (6 years) and has been filed. Trench 5 was not filed for since it may be enlarged in the future.

Further prospecting was carried out revealing exposures of rimrock on the right bank about 100 + feet west (but higher in elevation) of Trench 5. Also on Cultus Creek in the vicinity of the gulch's mouth

²Has been reclaimed.

several bedrock benches were examined. It was decided that both of these locations would be prime targets for the following seasons holes/trenches.

Kluane Project I I I (2012)

Kluane Project III (YMIP Grassroots Placer 12-003) was carried out intermittently between the months of June and October 2012 during which a total of 65 man-days were spent on the project divided between Dick McKenna, Henry Johnson, Dylan McGinty and George Bill. A brief summary of events and findings of KPIII are as follows:

As per the recommendations of KP2, prospecting was concentrated in the vicinity of Trench 5 (3000 level) and on the Cultus bench (and creek level) with an additional trench (Trench 7) being dug on the tributary lower right limit (600 level). In total, 3 small and 3 large trenches were dug on these targets – the three largest being by far the largest (+/- 10ft. x 20ft.) on the project to date. Altogether an interesting variety of ground conditions were met in these widely dispersed targets. Unfortunately much of the ground encountered (except Trench 7) was not advantageous to gold recovery. On the up side: much important information was learned about the subsurface of the claim block as a whole. Also on the up, and not due to lack of trying, samples panned from Trench 7 proved twice as auriferous as any encountered on the gulch thus far.

A brief description of the trenches are as follows:

<u>Trench 6 (3000 level) Gulch:</u> Dimensions of 8ft x 20ft. Dug against a large graniodiorite boulder on the right limit. A frozen blue clay was encountered under a few feet of muck in all sections of the trench. This is the only occurrence of blue clay encountered thus far in the gulch. No gravel or concentration of heavies was found on the clay. The clay could be chipped off about six inches and let thaw for 30 minutes and then another 3 or so inches could be further chipped. About one foot was gained in one place with the clay being continuous.

<u>Cultus Bench Trench 1 & 2</u>: Both 4ft x 6ft. Both encountered jagged "bedrock" of schist under about 18" to 2 ft of dark compact mucky silt. No gravel was encountered so it was decided to move about 50 ft downstream and against the hillside.

<u>Cultus Bench Trench 3:</u> About 50 ft downstream from Trench 2. Dimensions are irregular staring with a 10ft x 20 ft footprint with two short shafts (+- 5 ft) and much excavation taking place in the lower

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section. In all about 25 yards of gravel was removed from this trench. Under about one foot of turf a course gravel was encountered to a depth of a maximum of about 7 feet where a flat section of a compact tan colored silt was found. This silt was dug into several feet more without bedrock being encountered. However by the looks of the adjacent rimrock it is undoubtedly close.

A 10ft by 12 ft section of gravel was taken off of the silt which should have acted as a "false bedrock" and out of about 40 pans less then a dozen gold particles were recovered – far below the average for the gulch.

<u>Cultus Trench 4 (creek level)</u>: this trench was dug on the creek level as opposed to the bench (+/- 20 higher in elevation). Dimensions of 8 ft x 6 ft x 3 ft. One foot of turf and then 18 inches to 2 feet of gravel on top of a wavy blue clay. The clay dips toward the creek and below the water table. A few pods of black sand up to 3 inches in diameter were found on this clay but surprisingly only a few small flakes and colors were recovered upon panning.

<u>Trench 7 Gulch (600 level)</u>: Dimensions of 10 ft x 25 ft by a maximum of 5 ft. This trench was dug late in the season in a last effort to find suitable gravel for testing. Located on the lower right limit of the gulch where the creek valley begins to widen. Under about 1 foot of soil and organics a fairly fine gravel was encountered to 5 feet where digging stopped. This gravel being finer and with a wider variety of rocks then the norm on the gulch. About 30 pans were taken from the bank section of the trench contained twice the gold recovery as was the norm for the gulch also.

Recommendations for Kluane Project IV was to continue digging Trench 7 and sample the gravels using the sluice box and to reclaim many of the earlier trenches dug to date.

Kluane Project IV

Project Summary

A total of 72 man/days was spent on KP4 divided between Dick McKenna, Henry Johnson and George Bill. Dylan McGinty who worked on the project the three years previous, was busy with his own endeavors however he did lend a hand during the sluicing portion of the program. All things considered it was a safe and invigorating year for all (with no vehicles being swamped in the creek also).

High water restricted access to the claims for the last part of July and all of August however during early July and all of September and October much work was able to be carried out. This years program concentrated on reclamation of some of the previously dug trenches as well as expanding Trench 7 and sluicing a portion of the gravels.

In regards to yards of gravel moved, this year has been the best on the project thus far by a good margin. In total 105 yards was moved including 64 yards of reclamation and 41 yards of new trenching. 18 yards of gravel from the bottom of Trench 7 was sluiced before freeze-up. Here a definite learning curve was to be had, however by the time it was finished a relatively good handle on the sluice was gained.

Finally, the claim block was grouped into a group of 7 claims (with the 2 claims above the gorge being allowed to lapse). This configuration allows more resources to be effectively delivered to prime target locations in future.

Ample information on the details, events and findings of KP4 will be found in the following pages of this report...

Work Performed

Reclamation

A total of 64 yards of material was reclaimed on the various trenches including: all of the Cultus Creek trenches and the 2012 section of Trench 7. Fortunately, phase one of Trench 7 was refilled at the same time as phase two was being dug, doubling the value of assessment work being performed.

The work itself proved a lot easier then digging 60 yards but was still no minor task. Probably about 25 - 30% of the man/days was spent doing the reclamation. Special attention was payed in assuring the proper material was placed back in the proper location (be it gravel, rocks, silt etc.) and the forest mat was placed back on top. A bit of leaf litter and twigs scattered on top finished the job to relatively



Illustration 2: Cultus Bench Trenches 1 and 2 after reclamation.

undisturbed appearance.

Illustration 3: Gulch Trench 7 (phase 1) reclamation underway.

Trenching

New trenching consisted of 41 yards of material taken from two trenches. Trench 5 Cultus (located across the access road to Ruby by about 50 feet) was 9ft x 4ft x 3ft in depth (+/- 4 yards.). Under about 8 inches of turf 3 feet of grey colored silt was encountered (much like at the bottom of Cultus Bench 3). The trench was dug primarily to cover the assessment work required of the claim.



Illustration 4: Cultus Creek Trench 5 after excavation. Note *Illustration 5:* Excavation of Gulch Trench 7 expansion. that it is entirely in a grey silty material.

Trench 7 Gulch was expanded 12 feet by 15 feet in a downstream direction and to a maximum of 7 feet deep. The root and soil mat was about a foot deep in all locations with relatively fine gravel with the exception of a few small courser sections. A few larger boulders were found to 100 pounds but nothing like in all of the upper gulch diggings which produce many large boulders to 100's of pounds. Digging actually proved to be very satisfactory. Interestingly, the large graniodiorite boulders which are scattered on surface throughout the gulch (and are surely tons) have never been encountered at depth.

A total of 38 yards of gravel was removed from Trench 7. About 20 yards went back into Trench 7 phase one reclamation with the remaining 18 yards being sluiced. Fortunately the sluicehead was located about 20 feet from the end of the trench so conveyance of gravel was carried out with little difficulty by hand in 5 gallon buckets (60% full). Challenges were had in removing the gravel as the trench got deeper, however with a little ingenuity a hoisting method using a plank, a 5-gallon bucket



Illustration 6: Trench 7 expansion with turf removed. Fortunately only about 1 foot of turf was encountered above the gravel. About 6 stumps (as at left) had to be removed. These would be undermined and pulled out by hand.



Illustration 7: The same end of Trench 7 after considerable trenching. Picks, spades and 5-gallon pails being the primary tools of the hand trencher. Platform is used to stand on while hoisting 5-gallon pails using long-handled spade (at center).



Illustration 8: A satisfactory approach was to bench into the gravel and lift out the gravel in 5-gallon pails onto the next level and then out. From there it would be conveyed to the sluice in the background.

Illustration 9: Hank and George busy on Trench 7. In such a confined space all movement must be synchronized - one going in for a load and the other going out with a load.



Illustration 10: 16" expanded metal hopper box with hinge and angled chute for screening out the large rocks.



Illustration 11: Sluice box at ready for another run.



Illustration 12: Loading of the hopper box. George is standing on the sluice feed.

<u>Sluicing</u>

The top 3 feet of gravel from the trench (20 yards) was put back into Trench 7 phase 1. The next 12 yards (between 3 and 5 feet deep) working towards the end of the trench, was used as sluice feed for the first 4 runs. The last 6 yards was taken from the far end of the trench to about 6 - 7 feet in depth and was used for sluice feed for the last 4 runs.

For the first 12 yards of testing, gravel was stockpiled at the sluicehead in 6-yard quantities (upon a tarp) whereupon 3 yards would be sluiced and a cleanup being made and then the next 3 yards would be run through with a cleanup etc. Digging and stockpiling would be the work of one day and sluicing and cleanup would be done the following day. This approach worked out well and was about the maximum throughput of the system due to the fact that any more gravel then 6 yards at the sluice



Illustration 14. The whole nine vards (actually 6) ready for the dipper for washing the gravel (washer malfunctioned). becomes too cumbersome a pile.

From a manpower point of view it looks like a four person crew is optimum: two load the sluice (with spades), one operates the hopper and another takes care of tailings and water hose etc. The sluice seems to be able to process as much gravel as two can load. The feed rate being about 1.5 yards per hour or better. Sluicing was carried out late into the season so that the last cleanup was frozen fast into the matting and had to be taken to town for thawing. Details on the sluice box performance and gold recovery will be found in the Analysis section of this report.

The first 4 cleanups of about 8 gallons of concentrates apiece produced an enormous amount of black sand with very little flakes or color. After panning about 35 pans (40%) of the concentrates it

became quite apparent that something was wrong³. After some thought it was decided that the water flow was probably too fast so it was slowed down (volume) by about 40% for the next run (6 yards) with satisfactory results – less black sand and more gold recovered.

Illustration 15: Sluicing the first run of gravel. Note the speed of the water (probably too fast).

Illustration 16: Washing out one of the mats. This one is Nomad matting (miner's moss). This matting proved favorable in that it held a lot of heavies and was easy to wash out.

For the next sluice run of 6 yards, a cleanup was made every 1.5 yards with 4 cleanups in total. Even with about 16 feet of matting to wash out, cleanup was not a substantial task. In all it took about an hour to do the clean-up and have the riffles and matting back in place for the next run. The substantial task was panning the concentrates of about 30 gallons (+/- 8 gallons per cleanup). This was done in Whitehorse at the applicants home.

Fortunately for the lay of the land, the tailings were able to be discharged into a mossy depression just below the bottom of the sluice. This method proved quite trouble free although periodic shoveling of the gravel and sludge toward the creek side of the pond (so as to form a kind of a dam barrier) was attended to several times per sluice run. Note that as per regulations for the stream class⁴, all sluicing equipment and tailings must be kept at least 10 meters from the stream OHM.

³For details refer to Analysis section of this report.

⁴Class 3 stream.

Assessment Work Recorded

All of the work performed on the claims during the 2013 season was filed with the recorder (as required). For hand trenching the rate is \$40 per yard dug in undisturbed ground and \$20 per yard for reclamation. Fortunately \$40 per yard was given for reclamation of trench 7 due apparently to a decision made by the mining recorder (cool). For hand trenching \$200 covers one year on one claim, thus 5 yards dug or 10 yards reclaimed covers the yearly assessment work.

New Trenching	Yards	` (<u>\$)Value</u>
Gulch Trench 7 phase 1	32 ⁵	\$1280
Gulch Trench 7 phase 2	38	\$1520
Cultus Trench 5	3	<u>\$120</u>
	TOTAL <u>73</u>	TOTAL \$ <u>2920</u>
Reclamation	<u>Yards</u>	(<u>\$)Value</u>
Gulch Trench 7 phase 1	32	\$1280
Cultus Bench Trench 1	2	\$40
Cultus Bench Trench 2	2	\$40
Cultus Bench Trench 3	25	\$500
Cultus Trench 4	3	<u>\$60</u>
	TOTAL <u>64</u>	TOTAL <u>\$1920</u>

Grand TOTAL \$4840

NOTE: This figure covers 24 claim years on the claim group of 7. Due to filing work before grouping, the claim group as a whole has been renewed for 2 years, whereas some claims (within the group) are renewed for as much as 5 years (as a single claim).

⁵Dug in 2012.

Analysis

Sluice box Performance

The sluice box used for testing the gravels is a home made model with a 16" hopper feed and three runs of about 7 feet apiece. Water was supplied by a 2.5 inch Briggs & Stratton pump. The built in washer was faulty so a dipper was used to wash the input gravel. Tailings were released into a mossy depression located > 10 meters from the gulch OHM (ordinary high water mark). For complete specs of the sluice box please refer to the Appendix.

The gradient (slant) of the sluicing sections was about 15, 8 and 4 degrees from the level respectively - 4 degrees being the last run. This configuration seemed to work well allowing the rocks to work their way through the runs without hanging up. Packing of the riffles (which were used only on the first section) was a steady occurrence regardless of water flow. Also the third section gathered an access of sludge and had to be raked almost continuously. For this reason, as well as the fact that it turned out to be collecting little to no gold, it was not used on run 2 and run 4.

As previously noted, the water flow on the first four runs of 3 yards each turned out to be too fast. With the high collection of black sand and low collection of gold (as compared to what an average pan would get) something was obviously out of order. After some thought it was surmised that due to the shape of the gold particles as compared to the black sand particles, the later was sinking quicker – even though the black sand was about 3 times as light. Gold being flat, would ride on top of the water and black sand being jagged, would quickly sink. Surmising or not, slowing down the water flow by up to 40%, substantially increased gold recovery.

The last 6 yards of test gravel was run through the sluice with the reduced water flow. As the season was getting late, it was important to obtain as much information (results) to form a basic comparative analysis between each individual clean-up. Clean-ups were thus done every 1.5 yards, as apposed to every 3 yards as was done with the first 12 yards sluiced.

The performance of the sluice box in regards to gold (and other heavies) recovery is discussed following the panning results section of the report.

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Panning Results

Concentrates

Sluice run 1 produced about 35 gallons of concentrates from 4 cleanups – each cleanup producing about 8 gallons between the three sections. The last section collected the most (+/- 3.5 gallons) followed by the first section (+/- 2.5 gallons) with the second section collecting about 2 gallons.

The first section contained some rocks (to about 1") due to the riffles. The second and third section material had the appearance much like cat litter, however a little darker due to the black sand.

Illustration 17: concentrates from the first cleanup. Sections 1 to 3 from left to right respectively.

Sluice run 2 produced a very similar amount (and makeup) of concentrates even though the amount of gravel sluiced during this run was half as much. As noted previously, only about 40% of the concentrates from the first run was panned whereas all of the concentrates from sluice run 2 was panned.

The pan used was a medium size pan with each pan containing 3 heaping cups of material. It was decided to use a relatively small amount of material per pan to insure accuracy as any larger sample size would produce a too cumbersome amount of black sand. Panning results from the 2 runs are as follows....

Panning Results

<u>Sluice run 1</u>

Clean-up 1

	Sectior	<u>1 1</u>	Section	<u>12</u>	Section	<u>13</u>
	<u>Flakes</u>	<u>Colors</u>	<u>Flakes</u>	Colors	<u>Flakes</u>	<u>Colors</u>
Pan 1 Pan 2 Pan 3 Pan 4 Pan 5 Pan 6 Pan 7	0 0 0 0 2 0	0 0 1 1 0 0	0 0 0 0 1	1 0 0 1 0 0	0 0 0 0 0 0	2 0 2 0 0 0
Pan 8 Pan 9 Pan 10	0				0 0 0	1 0 0
TOTAL	2	3	1	2	0	5
TOTAL particles	5		3		5	
Black sand content (per pan av.)	> 15	gm.	> 50	gm.	< 5 g	m.

Clean-up 2

	Section	<u>n 1</u>	NOTE : Flakes and colors as designated here is a relative term. A flake may be
	<u>Flakes</u>	Colors	from 0.5 mm to about 1.5 mm. A small color could be 100 times smaller then
Pan 1	0	2	A large flake.
Pan 2	0	0	·
Pan 3	1	0	
Pan 4	0	0	
Pan 5	0	1	
Pan 6	0	0	
Pan 7	2	1	
Pan 8	0	0	
Pan 9	0	2	
TOTAL	3	6	
TOTAL particles	9		
			NOTE:
Black sand content (per pap av)	> 15 gm.		Due to a low gold recovery, panning of the remaining concentrates from sluice run 1 was discontinued.
(Po. Pollon)			Sluice run 2

Clean-up 1

	Section	<u>1</u>	Section	<u>12</u>	Section	3
	<u>Flakes</u>	<u>Colors</u>	Flakes	Colors	<u>Flakes</u>	<u>Colors</u>
Pan 1 Pan 2 Pan 3 Pan 4 Pan 5 Pan 6 Pan 7 Pan 8 Pan 9 Pan 10	1 5 3 5 5 5 3	4 8 18 15 7 15 11	0 0 1 0 1 0	1 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	2 0 2 1 0 0 0 1 0
TOTAL	27	88	2	1	0	7
TOTAL particles	115		3		7	
Black sand content	< 10 g	ım.	> 50 g	gm.	< 5 gr	n.

(per pan av.)

Clean-up 2

	Section	<u>1</u>	Section 2	
	<u>Flakes</u>	<u>Colors</u>	<u>Flakes</u>	Colors
Pan 1	4	9	0	3
Pan 2	7	8	0	0
Pan 3	5	8	0	0
Pan 4	4	9	0	0
Pan 5	4	9	0	0
Pan 6	3	10	0	0
Pan 7	6	12		
Pan 8	3	8		
TOTAL	36	73	0	3
TOTAL particles	109		3	
Black sand content (per pan av.)	< 10 g	ım.	> 40 (gm.

Clean-up 3

	Section 1		Section	2	Section 3		
	<u>Flakes</u>	<u>Colors</u>	<u>Flakes</u>	<u>Colors</u>	<u>Flakes</u>	<u>Colors</u>	
Pan 1	10	8	0	0	0	0	
Pan 2	7	9	0	1	0	0	
Pan 3	5	6	0	0	0	0	

Pan 4	4	9		0	0	0	0
Pan 5	4	7		1	0	0	0
Pan 6	4	15				0	0
Pan 7	4	10				0	0
Pan 8	3	8				1	0
Pan 9	2	3				0	0
Pan 10						0	0
Pan 11						0	0
Pan 12						0	0
TOTAL	43	75		1	1	1	0
TOTAL particles	1	18		2		1	I
Black sand Content (per pan av.)	< 1() gm.		> 5	0 gm.	< 5	5 gm.

Clean-up 4

	<u>Secti</u>	<u>on 1</u>	Section 2		
	<u>Flake</u>	es Colors	Flak	<u>es</u> <u>Colors</u>	
Pan 1 Pan 2 Pan 3 Pan 4 Pan 5 Pan 6 Pan 7	6 3 7 6 10 8 7	9 8 13 12 10 22 11	0 0 2 0	0 0 0 0	
TOTAL	47	85	2	0	
TOTAL particles	13	32	2		
Black sand content	< 10) gm.	> 5	0 gm.	

Observations & Findings

Due to the low recovery rate of sluice run 1, only sluice run 2 will be examined in this section.

Furthermore, since section 1 is collecting over 95% of the gold recovered, only those sections will be examined as follows...

<u>Flakes</u>	<u>Colors</u>	<u>Total</u>
---------------	---------------	--------------

<u>Cleanup 1</u>	27	88	115
<u>Cleanup 2</u>	36	73	109
<u>Cleanup 3</u>	43	75	118
<u>Cleanup 4</u>	47	85	132

Due to the present difficulty of separating the black sand from the gold, an actual weight of gold recovered cannot be determined, however an educated estimate (from previous testing) indicates the total weight is probably about 250 milligrams.

The first observation made when looking at numbers is that the flake to color ratio is getting higher with each successive cleanup. Secondly, with the exception of cleanup 2, the total amount of gold particles is also getting higher with each successive cleanup. Cleanup 2 however probably weighs more then cleanup 1 due to the higher amount of flakes. Since cleanup one was the shallowest and cleanup 4 the deepest it appears that gold content of the gravel is getting higher with depth.

The total weight of the gold being about 250 mg translates to about 45 mg per yard. When looking at the figures of 27 flakes in cleanup one and 47 flakes in cleanup 4 however, it is probable that cleanup 4 produced almost twice the gold as in cleanup 1, or about 80 mg per yard.

80 mg per yard probably cannot be mined at a profit under any circumstances, however this is overlying gravel and no pay streak or bedrock has been found. How much gold is lying on bedrock of course cannot be determined but a report⁶ done on the Klondike White Channel Gravels provides some interesting insight as follows....

A 150 foot shaft was dug to bedrock and samples were panned every 6 feet. The top 100 feet produced about \$0.02 per cubic yard (av.), the next 46 feet produced about \$0.10 per cubic yard and the last 6 feet (most of it actually lying on bedrock) produced \$4.16 per cubic yard. Thus, the bottom 6 feet contained about 200 times the gold per yard as the top 100 feet.

⁶Bostock Memoir 284 pg. 220.

The gulch diggings are not exactly the White Channels Gravels but the study does provide a glimpse into the character of gold deposition and the possibilities. Should the gulch diggings possess similar characteristics the amount of gold resting on bedrock would translate to 80 mg x 200 = 16,000 mg or about 16 grams per yard. Mineable deposits in the Yukon averaging 500 mg per yard are not uncommon.

Sluice Box Performance

When looking at the panning results it looks like about 95% of the gold being recovered is being recovered in the first sluice section. And since the following two sections are recovering very little gold the sluice box configuration is probably satisfactory. In future is important however to keep a good eye on the water flow at all times. In order to save cleanup time the third section should be removed. The second section should however be used periodically as a monitoring device.

About two yards per hour seems to be the feed rate of the sluice. This seems to be satisfactory, especially since that is about how fast 2 can load with spades. In future however it is probably a good idea to place between 8 and 10 yards at the sluice head (cumbersome or not) and do a cleanup every 4 to 5 yards, or two cleanups per run.

It is also recommended to use Nomad matting for the entire first section as Nomad holds more concentrates then most (if not all) types of matting used in the industry.

Conclusions & Recommendations

Kluane Project 4 proved to be a successful prospecting season in many respects despite the access problems encountered during the later half of July and all of August. Fortunately during September and October much catchup was done. The water level of the lake and creeks had dropped to a manageable level and the water in the gulch was still sufficient to supply the sluice.

Weather was also pleasing with only a few days of rain encountered while in the field. Insects were also minimal as is the norm for September and October. The only drawback was the amount of daylight which did reduce the amount of fieldwork able to be performed. Still, KP4 proved to be the most successful season to date in regards to yardage moved (105) and in assessment work performed (\$3560).

A good handle on the sluice box in regards to operation and recovery was also gained in a relatively short time. Not to say that it had been completely figured out however a good start in that regard has been had.

Gold recovery has not been payable yet, but with such a small sample size and at such a shallow depth this can only be expected. What has been determined however is that the gravels are getting richer with depth. The gravel itself, and the digging of the gravel has proved to be very satisfactory (as compared to the upper gulch diggings) with very little large rocks being met. This condition allows the gravel to be dug as much as twice as fast as would rocky gravel – very favorable indeed.

Finally, the claims have been grouped with several years assessment work applied to them. This will allow a more effective and efficient prospecting program in future, where one target can be fully concentrated on without the need to move about popping holes in 7 different claims just to cover assessment work required.

<u>Recommendations</u> are to continue excavating trench 7 in both width and depth and to sluice the lower gravels. To ensure safety of workers it will have to be widened to about 20 feet from 12 feet in the downstream section. This should allow a depth of about 16 feet with the possibility of a 6 foot shaft for a maximum depth of 22 feet. This should provide about 100 yards of gravel – the lower 50 yards being sluiced.

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Appendix

Cost of Goods & Services Purchased

\$1,200
\$ 4320
\$ 300
\$ 200
\$ 7700
\$ 600
\$ 2200
\$ 1500

TOTAL <u>\$ 18,020</u>

YMIP Contribution \$14,400

Applicant Contribution \$3,620

Distances and GPS coordinates

Cultus Creek tributary (NTS 115G01)

Distances:

Whitehorse City limit (north) – Silver City Road = 203 km. Silver City Road – Cultus Bay road = 2.2 km. (on right) Cultus Bay road (start) – Ruby Road jnt. = 19.1 km. Ruby Road jnt, - Target location trailhead (on right) = 5.8 km. Trailhead to Hole 7 = approximately 1000 ft.

GPS coordinates:

Trench 7: N 61 deg. 08.819 min., W 138 deg. 19.443 min. Alt: 2901 ft.

⁷Henry Johnson's wages are funded by YMIP whereas Dylan and Georges are privately funded.

Sluice Box Specifications

<u>Sluice Box</u>	
Material Incidentals:	³ ⁄ ₄ inch plywood L-brackets, 2 ½" wood-screws, waterproof wood glue
Length: Width:	16 feet (two 8-foot sections) section 1: 20" (inside dimensions)
Height:	9 inches
Matting	 (1) 20" x 18" section of Nomad Matting (miner's moss) (2) 20" x 18" sections of Rolland Matting (2) 18" x 18" sections of Rolland Matting
Riffles	 (2) 20" x 36" sections of expanded aluminum (1"x ½"openings) (2) 20" x 36" sections of expanded aluminum (1"x ½"openings) (1) 20" x 40" section of hardwood riffles (1 ¾ wide by ¾ inch height with 3-inch spacing.
<u>Hopper Box</u>	
Material: Length Width Height Grizzly	 ³/₄ inch plywood 24 inches 24 inches 40 inches 16"x16" expanded metal (1"x ¹/₂ " diamond openings)
Accessories	Plumbed with water sprinkler system (washer) 50 feet of 1 ¼ inch rubber hose with attachments (1) 1 ½ H.P. gasoline powered water-pump

NOTE: The above includes some very costly items. For instance the Nomad Matting (\$32 per sq. ft.), Rolland Matting (\$22 per sq. ft.), Expanded aluminum (\$180), Pump & Hose (\$420), Hardwood Riffles (\$110) etc.

List of Kluane Project claims

<u>Grant #</u>
P 509427
P 509428
P 509679
P 509676
P 50694
P 50718
P 509677

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