

OCCURRENCES OF GOLD ANOMALIES IN SELECTED  
SAND AND GRAVEL DEPOSITS AND PLACER DEPOSITS  
ALONG THE UNION PACIFIC RIGHT OF WAY IN SOUTHERN WYOMING

BY  
ERIC L. NIELSEN

FOR  
W. DAN HAUSEL

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## INTRODUCTION

This segment of the exploration for gold anomalies has been devoted to continued sampling of sand and gravel deposits and placer deposits. Deposits within Permo-Triassic red beds were also sampled. A few of the stream placers have been mentioned in brief references in early periodicals published during the late 1800's and early 1900's.

Several previously undocumented or poorly explored gold deposits were discovered as a result of the efforts of this study. No attempt was made to investigate the original source of any gold recovered or to determine economic potential of the deposits. That would require more thorough and detailed exploration including bulk sampling which is beyond the scope of this project. There is reason to believe that some of the deposits sampled may have significant economic potential. Through continued exploration many more anomalous gold deposits may be discovered in the future.

## PROCEDURES USED DURING COLLECTION AND PROCESSING OF SAMPLES

Some general locations for sampling were suggested by W. Dan Hausel. Many other areas considered to be of interest were also sampled. Specific sample sites were selected in the field.

At gravel pits and deposits away from water, buckets of sand and gravel were collected from various places perceived to be sites where gold deposition may have occurred and transported to water for panning. Stream placer deposits were sampled where sand and gravel bars existed or where natural traps occurred. Many placer areas proved difficult to sample due to the abundance of cobbles and boulders with little available gravel. Panning was done at the collection site.

Panning was accomplished with the use of a black plastic 17 inch Keene gold pan and a 10 inch black plastic Keene gold pan. Material was panned down to heavy black sand concentrates.

The concentrates were assayed for gold in the Geological Survey of Wyoming analytical laboratory by analyst Robert Gregory using standard AAS (atomic absorption spectrophotometry) and the results are reported in ppm Au (parts per million gold).

## SAMPLE LOCATIONS AND ASSAY RESULTS

### North Platte River Gravel

Along the east bank of the North Platte River in SW SW Sec.25, T21N, R85W near historic Fort Steele is an abandoned and reclaimed gravel pit previously owned by Union Pacific and now owned by Mr. Dick Lake. Mr. Lake had dug a hole about 10 feet deep into old bar gravel with a backhoe in preparation for a well. This excavation was approximately 100 yards from a side channel of the North Platte River. The material excavated consists of sand, gravel and cobbles. Material originating from the bottom of the hole was panned. There were plenty of heavy black sands and nearly every pan contained a few tiny visible particles of gold. The concentrates assayed 7.4 ppm Au.

Downstream are several large sand and gravel deposits along the river including recent bars and ancient bars. With the abundance of sand and gravel present, the North Platte River may contain a large quantity of finely divided gold. This river may deserve further study.

Gold has been recovered from the North Platte as far downstream as western Nebraska. There is brief historical reference to the planning of a placer gold mining venture near Alcova, Wyoming during 1946 (Thomas, 1946). This mining may not have occurred since no further reference was found.

## **Elk Mountain Area**

### **Gravel Pit**

Situated on each side of the road on the north line of NW Sec. 1, T19N, R81W near Elk Mountain's Mill Creek are large gravel deposits covering several acres with an average thickness of more than 10 feet at the sample site. Approximately 200 feet south of the line was a steep embankment containing various sizes of material from fine sand and clay to cobbles. The sample was collected near the bottom of the embankment.

An extremely small amount of heavy black sand concentrates were present. These yielded 1.3 ppm Au when assayed.

### **Fish Creek Placer**

Fish Creek is a very small stream flowing from the south east side of Elk Mountain. Permissible access was limited to the approximate center of S1/2N1/2 Sec. 14, T19N, R81W. A sample was panned from sand and gravel bars on the north edge of the stream approximately 50 feet upstream from a small bridge. An extremely small amount of heavy black sand was recovered. The concentrates assayed 2.1 ppm Au.

### **Rattlesnake Creek Placer**

Rattlesnake Creek flows in a general northerly direction after leaving the west side of Elk Mountain then west to join Pass Creek. This was a difficult area to find a decent sample

location since the creek bed was mostly mud with areas of cobbles and very little available gravel. Only one gravel bar was found and this was in a poor location for gold deposition. A sample was panned from this bar which is located in SW SW Sec. 26, T20N, R82W. A small amount of heavy black sand was concentrated which assayed 0.6 ppm Au.

An attempt was made to sample a tiny stream in NW SW Sec. 35, T20N, R81W on the northeast side of Elk Mountain which is not named on the maps but is locally known as U.L. Creek. There was no heavy black sand or other heavy minerals to concentrate. After panning material from several shallow deposits of sand with no resulting concentrates, panning was discontinued without a sample being collected.

Elk Mountain's Mill Creek was also not sampled since no good place to sample could be located. This stream is tiny and has a steep gradient. The small channel consists mostly of cobbles and boulders. At the base of Elk Mountain is a subdivision with many homesites and a dam across the creek creating a pond. Downstream from the pond the water is slow moving and the channel floor is mostly mud.

Although there is brief reference to some "colors" of gold having been panned from beds of eastern spring branches of Elk Mountain, (Report of the Secretary of the Interior to Congress, 1871, p. 319), there has never been any extensive placer mining activity in the area. From the results of assays and minor exploration done in the Elk Mountain area, there does not seem to



be economically recoverable quantities of gold present.

### **Tributaries to the Medicine Bow River**

There was reported to be a lot of placer mining activity on the streams of Onemile, Threemile, Foote Creek, Rock Creek, the forks of Dutton Creek, Cooper Creek, Wagonhound and others in the year 1896. Estimated value of the gravel these contained was from 50 to 75 cents per cubic yard using 1896 gold prices (Anonymous, 1896, p. 38). These reports may be somewhat exaggerated.

#### **Wagonhound Creek Placer**

Wagonhound Creek flows in a northerly direction from the northern end of the Medicine Bow Mountains. A sample was panned from bar deposits along the stream in the bottom of a steep walled, timbered canyon near the north end of a park or clearcut area in the NW of what would be Sec. 6, T18N, R79W if it were shown on the map as having been surveyed. Cobbles and boulders were abundant and good gravel deposits were sparse. Several particles of gold were visible in the concentrates. The concentrates assayed 256 ppm Au. Although this area has potential for small, rich deposits of gold, large scale placer mining may not be practical. More thorough investigation of this area may be warranted to attempt to locate the source of this gold.

### **Foote Creek Placer**

Foote Creek drains northeast from the northern end of the Medicine Bow Mountains. At the sample location in the NE SE Sec. 33, T19N, R79W, the creek is small with many old beaver ponds silted in and grassed over. Water has cut through them creating a small channel where deposits of rubble from boulder to sand and gravel size have accumulated. In a few places very angular sand and gravel are deposited on top of the mud and clay sediment of the channel floor. A very small amount of concentrates were recovered since the deposits sampled contained very little heavy black sands. A couple of very tiny particles of gold were visible in the concentrates. The concentrates assayed 92 ppm Au.

Although the surface deposits in this area are very small there is a very good chance that gravel buried deep under the surface may contain a significant quantity of disseminated gold. The source of this gold is not readily evident but may be worth investigating.

### **Onemile Creek South of Arlington**

Onemile Creek flows between and nearly parallel to Rock Creek and Threemile Creeks until its confluence with Threemile Creek approximately 4 1/2 miles northeast of Arlington. At the sample location in the SW SE Sec. 31, T19N, R78W, the creek is small and flows in the bottom of a canyon. Most bar deposits present are small. Concentrates panned from several bars were combined. Very little heavy black sand was present. Some tiny

particles of gold were visible in the concentrates. The assay provided a yield of 87 ppm Au.

This is another stream with such small surface deposits that large scale mining efforts probably would not be practical. Exploration in search of the source of the gold may be advisable.

#### **West Fork of Dutton Creek**

The West Fork of Dutton Creek emanates from north end of the Medicine Bow Mountains approximately 2 miles west of Cooper Hill and flows north then east around Deer Mountain where it converges with the East Fork of Dutton Creek. Gravel deposits on each side of a fence crossing the creek, which is probably on the section line between SE SE Sec. 9 and SW SW Sec. 10, T18N, R78W, were sampled. The deposits contained a rather small amount of heavy black sand resulting in a small sample. The recovered concentrates contained several particles of gold and assayed 113 ppm Au. Exploration may be warranted to find the source of this gold anomaly.

The East Fork of Dutton Creek could not be sampled due to the lack of permissible access to the upper reaches near Cooper Hill and the absence of gravel deposits and water in the creek downstream at the time this was explored. Further downstream is flowing water, but the creek has mud bottom containing cobbles in some areas.

### **Threemile Creek Placer**

Threemile Creek is a tributary of Rock Creek originating in the Medicine Bow Mountains approximately 5 miles south of Arlington and joins Rock Creek several miles northeast of Arlington. The stream has a small flow of water in the upper reaches but is accessible only by a very bad trail road. No gravel deposits were found upstream although no attempt was made to explore very far.

Downstream in the SE Sec. 8, T18N, R78W, the water flows underground leaving the surface channel dry except during flooding. Some sand and gravel deposits are present in the dry channel. Natural effects and efforts by landowners to control flooding have created unnatural conditions affecting gold concentration. Good natural traps are almost nonexistent.

Several 5 gallon buckets of sand and gravel collected from various places along the dry stream bed were transported to a man made pond downstream where water flow had returned to the surface and were panned down to the heavy black sand concentrates. There was not much black sand present. Assay of these concentrates revealed no detectable gold. This location does not seem to be a very promising placer gold area.

Downstream in the N1/2 SW Sec. 4, T18N, R78W, a sample was panned from a large bar deposit south about 75 feet from where the trail road fords the stream. This bar consisted of sand and gravel up to small boulders. There was a very small amount of heavy black sand concentrates. They assayed 4.6 ppm Au.

### **Sevenmile Creek**

Sevenmile Creek drains from the northeastern flanks of the Medicine Bow Mountains flowing in a somewhat easterly direction to James Lake several miles east of the mountains. Permissible access was limited and the only place found to collect a sample was a small bar approximately 100 feet west of the fence which is probably on the section line between the SE Sec. 24 T17N, R78W and SW Sec. 19, T17N, R77W. The creek bed was composed primarily of boulders and large cobbles with very few sand and gravel deposits. The panned sample contained an extremely small amount of heavy black sand concentrate. One flake of gold almost 1 mm. long was present in one pan. Assay of the concentrates provided a yield of 124 ppm Au.

There may be some potential for gold to have been concentrated deep under the boulders in the creek bed. The use of heavy equipment would probably be necessary to make a more thorough investigation with extensive sampling. On property downstream where permission to sample had not been granted, sand and gravel deposits may be more plentiful.

### **Tributaries to the Little Laramie River and Associated Deposits**

#### **Dry Wash in NW Sec. 16, T16N, R77W, Tributary to Nellis Creek**

Nellis Creek is a tiny stream with little water actually flowing. It emanates from the east side of the Medicine Bow Mountains and joins the Middle Fork of Mill Creek a few miles

northeast. In the area explored no gravel deposits were present to sample. The channel had a few places with cobbles and mud bottom with many places grown over by grass. Due to these conditions this creek was not sampled.

Cutting diagonally across the NW Sec. 16 is a deep wash containing an abundance of sand and gravel in the lower end which enters Nellis Creek drainage near the center of S1/2 S1/2 Sec. 9, T16N, R77W. Some 5 gallon buckets of material were collected from a large deposit of sand and gravel a few feet north of the fence crossing the wash in NE NE NW Sec. 16, T16N, R77W. This material was transported to water and panned. Plenty of black sand was present and some tiny particles of gold were visible in the concentrates. Assay of the concentrates provided a yield of 5.2 ppm Au.

Due to the small sample size and probability of missing any good paystreaks, this would be a good area to explore more thoroughly. Gold may be distributed throughout this deposit which is several hundred yards long. Deposits up the wash may contain more gold and coarser gold. This area may have significant economic potential. The source of the gold is probably the widespread outwash material covering the entire area, from which the gold has been concentrated in gullies and washes.

### **Middle Fork of Mill Creek**

The Middle Fork of Mill Creek is one of the three forks draining from the east flanks of the Medicine Bow Mountains approximately 7 miles north of Centennial and converging a few miles downstream to form Mill Creek. Mill Creek joins the Little Laramie River a few miles to the east. This Mill Creek should not be confused with the Mill Creek on the east side of Elk Mountain.

The first historical reference to placer mining for gold on Mill Creek was in the year 1864 when a man and his son, who were not identified in the reference, were reported to have panned \$2 to \$3 per day. Before the end of the summer the father was killed by Indians and the son left the area. Ten years later the area was prospected again without any large values being found. (Anonymous, 1907, p. 5)

The June, 1905 issue of The Wyoming Industrial Journal reported that two "Coloradoans", Geo. Mugler and John McClure, were working a 1260 acre placer claim on Mill Creek in the Centennial district and making an income of \$1.50 a day washing by hand. They had recovered nuggets valued as high \$5 and quite a number worth \$2. They were preparing to set up a hydraulic operation. (Anonymous 1905, p. 17) No further reference to their future activity was found.

Mr. Tage Benson of Laramie related that his grandfather had recovered gold from the Middle Fork of Mill Creek during the 1930's (Oral communication, 1992).

Evidence of previous placer activity can be found in several places along the Middle Fork of Mill Creek in Sec. 36, T17N, R78W. Old mining equipment along with old tailings were found during exploration of the area. Several old prospect pits of unknown origin are present along the south slope of the hill north of the creek.

Locating a place to sample which had never been worked before and positively did not have previously washed tailings gravel was a difficult task. The bottom of the stream is a bed of boulders with very few gravel deposits. There is some gravel occupying spaces between the boulders, but the origin of this and other surface gravel is suspect since it probably washed downstream from tailing piles.

A site was selected on the south bank a few feet west of the trail road fording the stream in NE NE Sec. 1, T17N, R78W, where a beaver or other animal had dug under the roots of a tree at water level. Insitu gravel and cobbles were present which were scratched out with difficulty from along these tunnel walls and panned. There was a fair amount of heavy black sand present. Concentrates in several pans contained visible flakes of gold up to approximately 1 mm. in length. All visible gold was removed for microscopic inspection for evidence of crystal growth. No assay was performed.

The boulders in the bottom of the channel did not seem to have been disturbed to any great extent. There may be an abundance of coarse gold beneath the boulders which could have



good economic potential for a small scale mining operation.

#### **Prospect Pits near Middle Fork Mill Creek**

On the side of the hill north of the Middle Fork of Mill Creek in the S1/2 of the SE SE Sec. 36, T17N, R78W, are several prospect pits of various sizes. The hills are covered by a layer of soil dispersed with gravel, cobbles, and boulders of various size. Some 5 gallon buckets of gravel mixed with soil were collected from various places along the banks of a prospect excavation at the south end of a small grove of trees in a slight swale. Gravel mixed with soil containing clay was collected from the next excavation west and a few feet higher on the hill. This excavation is actually a trench parallel to the contour of the hillside. The horizon containing gravel is generally the top six inches and it is sparsely dispersed through the soil.

Panning produced very small amounts of heavy black sand. The samples from these two prospects were combined for assay since they were essentially the same type of material from nearly the same level on the hillside. The combined concentrates provided a yield of 66.8 ppm Au.

West of these prospects and at the base of the hill is a large set of prospect pits with piles of material containing more gravel than the previously sampled prospects. The gravel is dispersed through the soil as in the other pits and is generally in the top 1 1/2 feet or less of the surface horizon. Several 5 gallon buckets of gravel and soil were collected from various

places in the pits and from the piles. Panning produced a small amount of heavy black sands. One very small particle of gold was visible in the concentrates. They assayed 25.4 ppm Au.

**Gully in SW NW Sec. 6, T16N, R77W**

A gully north of a small tributary stream of the South Fork of Mill Creek located in the SW NW Sec. 6 was sampled because the gully cut through a thick horizon containing abundant sand and gravel to boulder size material. Several 5 gallon buckets of material from small gravel deposits in the bottom of the gully were collected and transported to water for panning. The concentrates contained a fair amount of heavy black sand and several flakes of gold up to 1 mm. in length. All visible gold was removed for microscopic inspection for evidence of crystal growth. No assay was performed on the remaining concentrates.

**Gravel Draw in SW SW Sec. 4 and SE SE Sec. 5, T16N, R77W.**

The trail access road through this area follows the length of this draw on the north side of a small gully eroded along the bottom. The draw cuts through an area of localized gravel deposits. All gravel in this region which was found exposed insitu was dispersed through soil within the deposit. Natural forces of erosion over an extended period of time have concentrated the eroded gravel in pockets or traps between boulders along the bottom of the gully.

Several 5 gallon buckets of this material collected from

various places along this gully were transported to water and panned. Several small particles of gold were present in the concentrates. One small nugget (or large flake, depending on what standard is used) 3 mm. across and approximately 0.5 mm. thick, weighing 0.2 grains was removed from the concentrates. The remaining heavy black sand concentrates containing the rest of the visible gold assayed 23.9 ppm Au.

There is high probability that every draw and gully cutting through this region may contain gold which has been concentrated from the scattered outwash material which covers the surface of the surrounding area of several sections. There are larger accumulations of outwash material in a few places. One area which seems to have several feet thick accumulation is along the hillside south of the confluence of Nellis Creek and Mill Creek in the NW NE Sec. 10, T16N, R77W. This deposit is just south and east of the ford of the trail crossing Nellis Creek and is one of the larger deposits containing boulders with gravel and soil which may hold a significant quantity of gold. This deposit was not sampled because no areas of concentration could be found and bulk sampling of such a massive deposit was not feasible.

Since there is such widespread distribution of outwash boulders and accompanying dispersed gravel with gold found in several locations which has apparently been concentrated due to reworking of this material, there is a high probability that this entire region of several sections could have a significant quantity of gold which could be recovered by mechanical mining

methods or more efficiently by heap leach methods. No previous documentation of this gold anomaly was found during this study. There may be many other areas surrounding the Medicine Bow Mountains which contain similar gold anomalies.

The South Fork and North Fork of Mill Creek were not sampled. The North Fork was reported to be dry and the South Fork was nearly dry with occasional puddles in Sec. 4, T16N, R77W, where the bridge crossing is located. Since they drain areas of outwash deposits some gold has probably been concentrated as a result. Access is difficult in this area since boulder fields cover the terrain, so no attempt was made to sample upstream areas and lower portions of these creeks contain mostly mud channel beds.

#### **Gravel Pit in NE Sec. 13, T16N, R77W**

A small excavation with a pile of gravel combined with soil on its east side is situated near the south side of the trail road through NE Sec. 13, T16N, R77W, providing a good opportunity to sample this area. Since the bottom of the pit contained a few inches of water, material from the pile was panned at the site. A fair amount of heavy black sand concentrates was recovered, although much of the soil had high clay content making panning difficult. The concentrates assayed 2.3 ppm Au. This area has fair gravel potential.

### **Fossil Placers of Permo-Triassic Redbeds**

Gold has been documented in Triassic redbeds worldwide with the best known occurrences in the bentonitic clays of the Chinle Formation of Utah and Arizona (Heylmun, 1992). Gold was also discovered to exist at several locations in fossil placers in channel conglomerates enclosed by Triassic red siltstone beds during a study of the Wadesboro Basin in North and South Carolina by the U.S.G.S. (D'Agostino and Whitlow, 1989).

North of Laramie, deeply trenched excavations within the Laramie landfill waste disposal site have exposed insitu Permo-Triassic redbeds composed of claystone with fossil channel deposits consisting of sand to cobble size material of unknown origin enclosed within the unit. These fossil channel deposits are from a remote source, possibly from ancestral Rocky Mountains as far away as the Uncompaghre Mtns. or Front Range of Colorado or elsewhere. There is no known information regarding these fossil channel deposits (Dr. Brainerd Mears, Jr., oral communication, Sept., 1992).

Several 5 gallon buckets of sand and gravel were collected from various places in the exposed channel deposits within the sides of the recently excavated northernmost trench located in the NW NW Sec. 22, T16N, R73W. The material within this deposit was consolidated but not cemented and was relatively easy to dislodge with a spade.

A sample of the redbed claystone which had been pulverized by heavy equipment during excavation of the trench was also

collected from the bottom of the trench away from the area of the channel deposit to negate chance of contamination.

These were transported to a water source and were panned. The sand and gravel sample provided a fair amount of heavy black sand concentrates and a couple of tiny particles of visible gold. Assay of the concentrates provided a yield of 7.8 ppm Au.

The pulverized claystone was difficult to pan and provided no black sand. A small amount of red concentrates were saved for assay. No gold was detected by the subsequent assay.

Information provided by Laramie prospector, Dean Farris led to sampling of this intriguing anomaly of which any possible economic potential is questionable. The extent of these deposits is completely unknown. Maybe somewhere closer to their source are great deposits of gold buried in fossil placers which would be of economic importance. A comprehensive study would have to be undertaken to determine extent and value of this anomaly.

#### **Historic Emigrant Gulch Hydraulic Mine**

This historic mine has virtually been forgotten and the location almost lost to posterity. Historical references are vague and limited.

It is known that "Pay-dirt" was discovered on Rock Creek about forty miles northwest of Laramie in the early part of 1876 by prospecting the loose dirt near the Old Overland Trail. A camp was established and in May 1877 hydraulic mining began. Fifty-three mining claims were recorded between June 18 and

August 27 during the first summer. The actual amount of gold recovered may have been small since no production was recorded. The camp died out within a few years (Anonymous, 1907, p. 4). Another reference states that the discovery was in late 1876 and that ditches were constructed to lead water from Rock Creek to one of the bars with ensuing hydraulic mining (Strahorn, 1877). From this information one would suppose that the first hydraulic activity was actually on Rock Creek proper. This may be possible although no supporting evidence was found.

An 1897 issue of the Engineering and Mining Journal reports that the Overland Placer Company was operating two 3 inch giants day and night washing nearly 2,000 cu. yds. of dirt each 24 hours. Over 20,000 cu. yds. of gravel passed through the sluice boxes in the first few weeks. At the time of the reported account they were working the east side of Emigrant Gulch. The ground was reported to average 75 cents worth of gold per cubic yard (Anonymous, 1897, p. 673).

No available maps were found which had Emigrant Gulch located and nearly all of the people interviewed had no knowledge of the mine ever existing. Through industrious efforts of investigation and interviews with many individuals who were knowledgeable about the history of the region, the site of this historic mine was finally located. Arlington resident, Mr. Chet Pitcher, is the only living person found who has intimate knowledge of the hydraulic mining activity in the Rock Creek area. He was able to identify the exact location of the site of

the mine workings. At one time he had some of the old monitor nozzle parts in his antique collection.

The location of the Emigrant Gulch Hydraulic Mine is in the NW Sec. 24, T19N, R79W. A portion of the area mined on the east side, previously mentioned and described in the reference, is visible from Interstate 80 approximately a mile northwest of Arlington in the first gulch north of the highway at the base of the large hill. The Old Overland Trail can be seen traversing the side of the hill above Emigrant Gulch to the east.

The primary area has a ditch several feet deep along the west bank of the gulch. The main operation seems to have been with gravel which was in the gulch and along the lower edges. There are a couple of areas along the east bank that were washed and the scarred hillside is still very evident. According to Mr. Pitcher, the entire bottom of the gulch for several hundred yards was covered with sand and gravel washed down from the operation. This is now almost completely grown over with grass. A small hill east of the trail in the SW Sec. 13, north of the primary mine location, is another place that shows evidence of hydraulic washing.

Mr. Pitcher's stepfather was personally acquainted with two of the original miners, Herb King and John King. He related the story they told his stepfather about the miners, including themselves, not being paid for their labor. The Kings took the sack containing the gold and distributed the gold among all the miners in an amount to compensate for back pay. That was the



last of the hydraulic mining in this area. It probably was not a very profitable venture (Chet Pitcher, oral communication, Sept. 1992).

Samples were collected in 5 gallon buckets from the area along the east bank in several locations. The layer containing gravel was so shallow that sampling was limited to skimming material from the top six inches. Gravel from around the hillside was collected wherever gold may have been concentrated as a result of runoff from snow melt and rain within small thin gravel deposits along small rills. Some material from the west bank on the west side of the ditch was collected where exposed gravel had washed to the bottom and from the exposed surface layer containing the gravel. The majority of the sample collected consisted of sandy soil with some gravel. There are no really good gravel deposits left undisturbed.

The buckets of material were transported to Foote Creek, which is the second drainage west of the hydraulic site, for panning. There was not much heavy black sand concentrate. Visible particles of gold were present in some pans. All concentrates were combined and assayed 8.8 ppm Au.

The results from this sample support the possibility of widespread anomalous gold throughout outwash gravel in the surface horizon surrounding the Medicine Bow Mountains to the east and north.

## SUMMARY

This study has continued to unveil the presence of important gold anomalies. The most significant discovery is the presence of coarse to fine gold disseminated through a vast area of shallow outwash gravel which was probably deposited as a result of the rapid melting of glaciers. This definitely deserves more study to find out if this deposit may be economically feasible to mine.

Several stream placers hosted gold which should provoke interest in further exploration. Some of these may be rich enough to be profitably mined by small scale mechanical recovery methods while others would probably require heavy equipment to do the job.

The most valuable historical discovery is the location of the historic Emigrant Gulch Hydraulic Mine site along with information concerning the mining activities. This was probably the one of the first major placer mining efforts on the north end of the Medicine Bow Mountains. More information about this historic mine would be nice to have available.

Probably the most intriguing deposit sampled is the fossil channel enclosed within the Permo-Triassic redbeds north of Laramie. There are many uncertainties regarding this ancient channel deposit. One fact that is certain is the presence of gold. Little could be determined about this deposit. Study of this fossil placer would be a very challenging project and the

effort could lead to a very rich gold deposit somewhere.

Unfortunately the gravel pits which were sampled did not yield large amounts of gold but, the study has proven that gold is present in gravel deposits all through the study area and consideration should be given to recovering it as a byproduct whenever possible. The area of glacial outwash material described above could also provide a good supply of gravel and crushed rock. The efforts of this study have provided a lucrative amount of new information about the gold and gravel resources in southern Wyoming.

There may very well be many anomalous gold deposits waiting to be discovered in Wyoming. Surely, by further exploration, many more could be discovered. Only by continued exploration of the kind performed during this study will they ever be found. This project should be continued until the entire state of Wyoming has been thoroughly explored.

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**SAND AND GRAVEL DEPOSITS AND PLACERS**

Sample Number	Description	Au (ppm)
SG-1-92	North Platte River gravel	7.4
SG-2-92	Elk Mountain gravel pit	1.3
SG-3-92	Permo-Triassic channel deposit	7.8
SG-4-92	Permo-Triassic redbed	nd
SG-5-92	Dry wash in Sec. 16, T16N, R77W	5.2
SG-6-92	Gravel draw in Sec. 4 & 5, T16N, R77W	23.9
SG-7-92	Prospect pits near Mill Creek	66.8
SG-8-92	West prospect pit near Mill Creek	25.4
SG-9-92	Gully in Sec. 6, T16N, R77W	Au removed
SG-10-92	Gravel pit in Sec. 13, T16N, R77W	2.3
SG-11-92	Emigrant Gulch Hydraulic Mine site	8.8
PL-1-92	Wagonhound Creek placer	256.0
PL-2-92	West Fork of Dutton Creek placer	113.0
PL-3-92	Foote Creek placer	92.0
PL-4-92	Onemile Creek placer	87.0
PL-5-92	Fish Creek placer	2.1
PL-6-92	Sevenmile Creek placer	124.0
PL-7-92	Rattlesnake Creek placer	0.6
PL-8-92	Dry Channel on Threemile Creek	nd
PL-9-92	Threemile Creek placer	4.6
PL-10-92	Middle Fork Mill Creek placer	Au removed

Note: nd = not detected.

Au removed = All visible gold removed for microscopic inspection and sample was not assayed.

MISCELLANEOUS SAMPLE LOCATIONS INCLUDING A MINE DUMP  
AND EXPOSED OUTCROPS

By  
Eric L. Nielsen

For  
W. Dan Hausel

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## Introduction

While traveling around the areas to be sampled for gold in placer deposits, occasionally interesting outcrops were found exposed and were therefore sampled. These were assayed for precious metals. Some were also assayed for rare earth elements.

The dump of an old mine located on Threemile Creek was also sampled. This provided some information about an interesting anomaly of base and precious metals. None of these deposits are of economic value.

Information was provided about other old mine sites which were not sampled due to time and mileage constraints. There were probably many small, relatively rich pockets of ore that were discovered and mined out during the early days. All that remains today are old shafts or caved adits with small mine dumps.

## Exposed Outcrops

Located in the NW Sec. 6, T18N, R78W, are a series of quartz outcrops which form the crest of the ridge which the trail road traverses. These are prominently exposed massive outcrops of white quartz with tan and brown staining which intrude the surrounding schist. Samples QO-1-92 and QO-2-92 are samples from the quartz outcrop and QO-3-92 is a sample of the stained schist. No gold was detected by the assay.

Near the center of the E 1/2 Sec. 33, T19N, R79W, an outcrop of quartz is located near the top of a ridge along the trail road. Quartz and what looks like quartzite heavily stained with brown, reddish brown, and yellow stain is found at two locations, one on each side of the trail road and about 75 ft. apart. Some rock surfaces seemed to be coated with hematite. The quartz intrudes a quartz pebble conglomerate which is also stained reddish brown. There is staining found on the surface and inside almost all of the samples collected here. Samples QO-4-92 was quartz and QO-5-92 was quartzite taken from the outcrop near the top of the ridge near the trail. Sample QO-6-92 was quartz and quartzite from the outcrop approximately 75 ft. northeast of the one previously described.

Sample QO-7-92 was collected from an old prospect pit approximately 75 yards southwest of the other outcrops and a few yards west of the road. This prospect is in what seems to be an altered zone in the quartz pebble conglomerate. Trace amounts



but no worthwhile values were found during the assay of these samples.

An outcrop of chlorite schist occurred lower on a small ridge between two small hills east of the previously mentioned the sample location. It was stained in the partings and had enough brown material present that it seemed worthwhile to sample. Labeled sample no. OTC-1-92, but called OCT1-92 on the assay report from Bondar-Clegg, this sample contained only trace amounts of the elements analyzed.

#### **Mine on Threemile Creek**

In the approximate center of the NE Sec. 8, T18N, R78W, in the west wall of the canyon is an old adit which is caved shut, reported by a landowner to have been blasted shut years ago for safety reasons. The mine is into an altered zone in limestone, but the actual metals sought could not be readily determined by visual examination of material on the mine dump located at the base of the sidehill. A sample, no. 3MI-92, of material found on the mine dump was collected for assay. This is an interesting anomaly, but probably of little economic importance since only traces of precious and base metals were found during the assay.

## Summary

Although sampling of these outcrops and the mine dump did not lead to any valuable deposits, information was still gleaned from the effort. There is not likely to be any obvious outcrops which have not been thoroughly examined by the early day prospectors roaming the region.

The mine on Threemile Creek is interesting, but not enough information is available concerning its origin and history. Several other old shafts and mines are also reported to be in this area which should be investigated.

**Assay Results of Mine Dump and Outcrop Samples**

Sample No.	Description	Assay (ppm)				
		Au	Ag	Cu	Pb	Zn
QO-1-92	Quartz outcrop in NW Sec. 6, T18N, R78W	nd				
QO-2-92	Quartz outcrop, same area	nd				
QO-3-92	Schist intruded by qtz.	nd				
3MI-92	Mine dump, Three Mile Creek	0.6	3.2	1328	50.1	62.9

The following results are from samples of Qtz., Quartzite, Qtz. pebble conglomerate found in E 1/2 Sec. 33, T19N, R79W, and schist found in NW NE SE Sec. 33, T19N, R79W.

	Au (ppb)	Ag	LA	CE	Nd	Sm (ppm)	EU	Tb	Tm	YB
QO-4-92	<5	1.6	<1	<2	<10	<0.1	<0.5	<1	<10	<1
QO-5-92	8	<0.1	20	32	14	2.0	0.5	<1	<10	<1
QO-6-92	<5	<0.1	5	9	<10	0.3	<0.5	<1	<10	<1
QO-7-92	<5	<0.1	4	6	<10	0.6	<0.5	<1	<10	<1
OTC-1-92	<5	<0.1	9	21	<10	2.5	0.7	<1	<10	2

	Lu	SC	TH (ppm)	U	Y
QO-4-92	<0.2	0.2	<0.5	<1	<1
QO-5-92	<0.2	1.9	6.2	1	4
QO-6-92	<0.2	0.4	0.9	<1	<1
QO-7-92	<0.2	1.3	1.7	2	6
OTC-1-92	0.4	25.4	2.6	<1	22

