

**BC Geological Survey  
Assessment Report  
37376**



Assessment Report  
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Technical

TOTAL COST: \$121,360

AUTHOR(S): Robert W. Yorke-Hardy, Mining Technologist

SIGNATURE(S): 

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MX-4-228, MX-4-630

YEAR OF WORK: 2017

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):

PROPERTY NAME: Klinker, Ewer

CLAIM NAME(S) (on which the work was done): Pre July 22, 2017 on 523016, 523025, 523026, 523033, 532954, 835907, 835910;  
post July 22, 2017 on 523012, 835927, 523030, 523033, 1053300, 1053302.

Report preparation January 29, 2017 to March 27, 2018 after acquiring tenure 1057169

COMMODITIES SOUGHT: Opal, Basalt, Gold, Diatomaceous Earth

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION:

NTS/BCGS: 82L/05

LATITUDE: 50 ° 21 ' 33 " LONGITUDE: 119 ° 33 ' 55 " (at centre of work)

OWNER(S):

1) Robert W Yorke-Hardy

2)

MAILING ADDRESS:

PO Box 298,

Verno, BC V1T 6M2

OPERATOR(S) [who paid for the work]:

1) Opal Resources Canada Inc

2)

MAILING ADDRESS:

as above

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Precious opal, common opal, agate, volcanic hosted opal, columnar basalt, gold, zeolite, diatomaceous earth,

quartz veins/stockwork, calcite veins/stockwork gold and minor sulphides

Tectonic Belt Intermontane Overlap Assemblage, Harper Ranch

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 12030, 19152, 24370, 24606, 20266, 13649

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<b>GEOLOGICAL (scale, area)</b>			
Ground, mapping		835927, 523016	\$11,160
Photo interpretation			
<b>GEOPHYSICAL (line-kilometres)</b>			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
Soil			
Silt			
Rock			
Other			
<b>DRILLING (total metres; number of holes, size)</b>			
Core			
Non-core			
<b>RELATED TECHNICAL</b>			
Sampling/assaying opal rock, basalt, rhyolite, zeolite, DE		523016, 835907, 523025, 532954, 1053300 & 1053302	\$68,320
Petrographic			
Mineralographic			
Metallurgic			
<b>PROSPECTING (scale, area)</b>			
<b>PREPARATORY / PHYSICAL</b>			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)		837907, 532954	\$7,310
Underground dev. (metres)			
Other Reclamation, Mob-Demob, camp			\$34,570
<b>TOTAL COST:</b>			<b>\$121,360</b>

**Assessment Work Report – Klinker & Ewer Properties**

**Event #s 5679379, 5691199 5691201 & 5691207**  
**FIELD WORK June 2, 2017 to October 10, 2017**

Addendum to Interim Report on  
Bulk Sampling Programs and support.

**NTS Map 82L 05**

UTM (NAD 83) 315510.164N 5584699.173W (center of work area)  
Lat. 50deg 23.122min N Long. 119deg 34.264min W

**VERNON MINING DIVISION**

Prepared By: Opal Resources Canada Inc.  
Robert W. Yorke-Hardy, Mining Technologist  
P.O. Box 298,  
Vernon, B.C.  
V1T 6M2

Prepared by: Dated: March 27, 2018

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## Summary

Evaluation of the Klinker Opal Deposit is an ongoing activity. This evaluation requires bulk sampling and vertical integration to finished product and test marketing in order to assess economic viability. There is no 'commodities market' for Opal in order to determine value and there is no precedence in Canada to follow in order to assist in this endeavor. The BC Government and the mining community as a whole do not understand or give much relevance to this deposit. Despite this world class opal gemstones continue to be discovered.

Location in 2017 and initial examination of a quartz/agate vein system on the JR indicates the potential for free gold mineralization. Diatomaceous earth and zeolite mineralization showings warrant further examination and testing.

## Assessment Work Program Description

During the period from June 2, 2017 to October 12, 2017 physical work valued in excess of \$119,980 was conducted on various mineral tenures and \$4,500 on technical report preparation and NOW maps for a grand total of \$121,360. Of this sum \$52,820 of this work was conducted prior to staking additional claims on July 22, 2017 and has been recorded on line under Event # 5679379; for assessment credits extending the expiry date to January 1, 2019. The additional sum of \$63,060 was recorded under Event #5691199 for assessment credits extending the expiry date to Jan. 1, 2020 Event # 5679379 was warrant recorded on December 31, 2017. A second filing, Event # 5691199 was recorded on March 27, 2018. The claims worked on and to which work was applied are contiguous. This technical report was compiled over the period January 29, 2018 to March 27, 2018. Assessment work supported by the cost of preparing this report was applied in Event #5691207 On March 27, 2018 to advance claims made contiguous by the staking of Tenure 1057169 on Dec 22, 2017 to January 1, 2020.

*(See copy of event confirmation pages attached.)*

This work was conducted on behalf of the owner; Robert W. Yorke-Hardy as a continuing work program on the **OK Westside Property**, otherwise referred to as the Klinker, Ewer and Upper Pinaus & Upper McGregor Creek Mineral Property; which program was initially commenced in 2008. In 2012 OK Westside Project was split into two parts because Department of Mines in Kamloops required two separate permit applications to be completed. Permit #s are MX- 4-228 and MX-4-630.

Both hand work and mechanized reclamation work was conducted. Reclamation work, the mechanized work portion of the work in 2017 work; was conducted under MX-4-630 and MX-4-228.

The first tranche of work was conducted on Tenure #'s 523016, 523025, 523026, 523033, 532954, 835907, 835910. The second tranche of work started on July 22, 2017 and also included work on tenures 1053300 and 1053302, 523032 and 523030.

The 2017 program consisted of 26 man-days on reclamation, 12 man-days on mob/de-mob, 12 man-days on physical work as preparation for mapping and sampling, 6 man-days on technical work re NOW application, 2 man-days on technical work property overview and advise re D.E. and Zeolites, 71 man-days on technical work related to opal sample sorting, 25 man-days on technical work related to prospecting, mapping, sampling and report preparation.

As set out hereinabove a total of 138 man-day's of work were conducted. A total of 10 tonnes of previously excavated opal bearing rock was sorted to recover contained opals. Samples of quartz/agate vein material, diatomaceous earth and zeolites were

collected for study.

The Klinker/Ewer property is underlain in part by a basal sequence of opal bearing clast and matrix supported lahars and sediments of the Eocene Kamloops Group which are similar to those that host precious opal initially discovered in 1991 on the Klinker 1 & 2 claims. In 2016 an occurrence of precious opal, the Claudia Zone, was explored on ground outside the area of the main Klinker deposit on which extensive work has been conducted since its discovery in 1991. The Claudia Opal Zone, appears to represent a second significant precious opal occurrence and warrants further exploration.

Some apparently unrelated mineral occurrences have been noted in previous work reports; but only the main Klinker Opal 'deposit' and the Lady King Basalt deposit have been seriously explored since discovery. The Lady King Basalt deposit consists of a large plug of columnar basalt and rhyolite occur in the north-west corner of the claims.

The different, non-opal or columnar basalt, mineral occurrences located and worked on in recent years where the main areas in which reclamation was conducted in 2017; during which more extensive mineral potential was exposed. Due to these new revelations the reclamation work did not result in the backfilling of all old trenches. Reclamation in zones of interest instead consisted of contouring the side cast from those trenches where mineral potential warrants further work. Numerous trenches and pits were backfilled and contoured by machine and later remaining trenches were explored by hand. These areas are:

1. the JR quartz/agate vein system – with suspected free gold &
2. the 716 quartz stockwork zones

A program of trenching and test pitting is recommended in order to further explore the extent and potential of the Claudia Zone occurrence of precious opal, Diatomaceous Earth (DE), Zeolites and fine-grained quartz sand layer. The relationship to the main Klinker deposit is unknown but may represent a silica source for the formation of opal. An initial test conducted on the DE shows good potential provided volume of material can be sourced.

Further exploration to determine the number and extent of vein occurrences at the JR Zone is recommended and 32 element ICP plus gold assay is recommended to test samples taken in 2017.

Type, quality and extent of the Diatomaceous Earth (DE) and quartz sand industrial mineral occurrences should be further investigated; as to the multiple occurrences of various zeolites encountered in 2017; and should be related to previous work.

A program of overburden removal is recommended using a small backhoe/excavator in the most favourable DE and Zeolite areas. Additional geological mapping is recommended as well as a preliminary air-photo interpretation to identify the most favourable structures on the claims for precious opal formation keeping in mind the potential for epithermal mineralization hosted in Tertiary volcanics.

As previously recommended further work is warranted on the Basalt project, the Dave Zone and the Bouleau Lake red jasper, which should be assayed for gold/silver and trace elements.

## Introduction

This report describes the 2017 work program on the Klinker/Ewer claim block which is a continuation of the bulk sampling work program carried out since 2008. The program has included further sampling work to determine if precious opal at the Claudia Zone occurs in host rocks similar to those that host opal on the nearby Klinker deposit. A total of 128 man days of field work were conducted between June 2, 2017 and October 10, 2017 and this report was prepared over the period Jan 29<sup>th</sup> to Mar 27<sup>th</sup> 2018 . Work conducted included reclamation work at three sites and included the taking of Diatomaceous Earth and silica sand samples and the location of a new deposit of landscaping ground-cover material. Opal bearing rock previously stockpiled was sorted

The main focus of the exploration work was for opal and was concentrated in those areas noted for abundant agate and previously noted occurrences of common opal in the vicinity of the northwest corner of the old Klinker 1 mineral claim; as well as outcrop exposures at other sites on the mineral claims.

During the period from June 2, 2017 to July 22, 2017 work valued in excess of \$55,000 was conducted on various mineral tenures. This of sum \$55,000 plus \$21,745.52 of PAC was recorded on line under Event # 5679379 on December 31, 2017 for assessment credits extending the expiry date to January 1, 2019. See copy of confirmation page attached.

Further, between July 22, 2017 and October 10, 2017 work value in excess of \$68,000 was conducted on various mineral tenures and Report preparation costs of \$4,500 between Dec 2017 and March 26, 2018. This of sum \$72,000 was recorded on line under Event #s 5691199 & 5691207 on March 27, 2018 for assessment credits extending the expiry date to January 1, 2020. See copy of confirmation pages attached.

## Property Location Map:

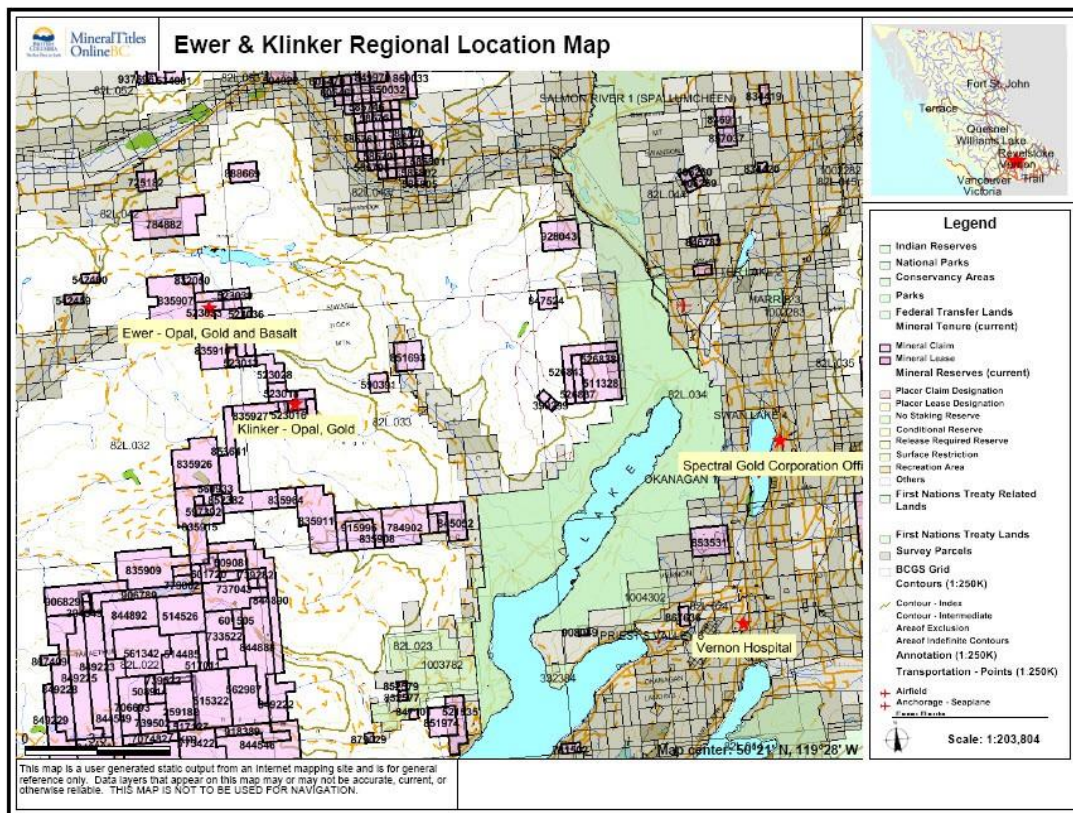


### Location and Access:

The Westside properties are located from 13 west of the City of Vernon, British Columbia at the south end of the block to 30 kilometres north-west at the north end of the block; of the City of Vernon, British Columbia and are situated in the West Okanagan Plateau, at the upper limits of Pinaus Creek, Ingram Creek, which drain north into the Salmon River; Bouleau Creek which drains into Whiteman Creek and then into Okanagan Lake; and McGregor and Ewer Creeks which drain eastward into Equesis Creek, which in turn drains south-east into the west side of Okanagan Lake at a point 9.5 kilometres south-west of the north end of the lake. The claims are distributed north and south of the Klinker Mining Lease extending from Pinaus Lake on the north to the area north of Bouleau Creek. The center of the property at the Klinker Mining Lease is approximately 319250 m E/5581200 m N (UTM zone 11U-WGS 84). The Klinker property is accessible via the McGregor Creek forestry access road off the main Six Mile Creek Road situated some 13 kilometres south on Westside Road off Highway 97 N about 12 kilometres by road from Vernon, B. C. via Hwy. 97. The mining lease is centered at the 10.5 kilometer mark on the McGregor Creek Road.

The balance of the large claim block is accessed by a network of logging and recreational roads extending up Naswhito, Bouleau and McGregor Creeks, and roads around Pinaus Lake to the north accessed from Westwold BC via Ingram Ck. Road, Pinaus Lake Road and Knight Road. The central part of the property is presently accessible via two-wheel drive during the period from early June to mid-October, but a 4-wheel drive vehicle is recommended for other parts of the property. Snow cover commences in mid-October and can last until late May.

### Property Access Map:



**Physiography and Vegetation:**

The central portion of the Klinker/Ewer claim block in Lot 5251 which is situated 23 kms. North- west of Vernon BC The block of claims extends contiguously to cover ground from just south of Pinaus Lake in the north to Bouleau Lake in the south. The highest elevation on the property is just over 1300 metres which is situated in the central portion of the 4536.35 hectare claim block.

A main hydro powerline crossing the northern portion of the property originates at the Mica Dam and comes cross-country from the north-east past Enderby, passing south of Pinaus Lake enroute to the upper Salmon River Valley and Douglas Lake area between Westwold and Merritt B.C. and then on to the B.C. lower mainland. The power line right-of-way is clear cut for widths ranging from 80 to 120 metres.

The claim block is on crown land and no portion covers “private property”. A great portion of the claim block was affected by pine beetle kill and has been clear-cut logged and replanted with dominantly Lodgepole Pine. Some localized stands of fir and spruce/balsam do occur.

The eastern half and northern portions are on crown land and have been selectively logged, probably prior to 1950. The crown land portions between Woods Lake west to the height of land has significant quantities of merchantable timber, mainly Douglas Fir with some Lodgepole Pine. Minor cedar balsam stands occur in low lying areas. Extensive steep rock cliffs and numerous other rock outcrops line both sides of Cain Creek.

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**Property Description:**

The Klinker/Ewer property is comprised of 33 mineral titles as listed below. See also the claim map for further information.

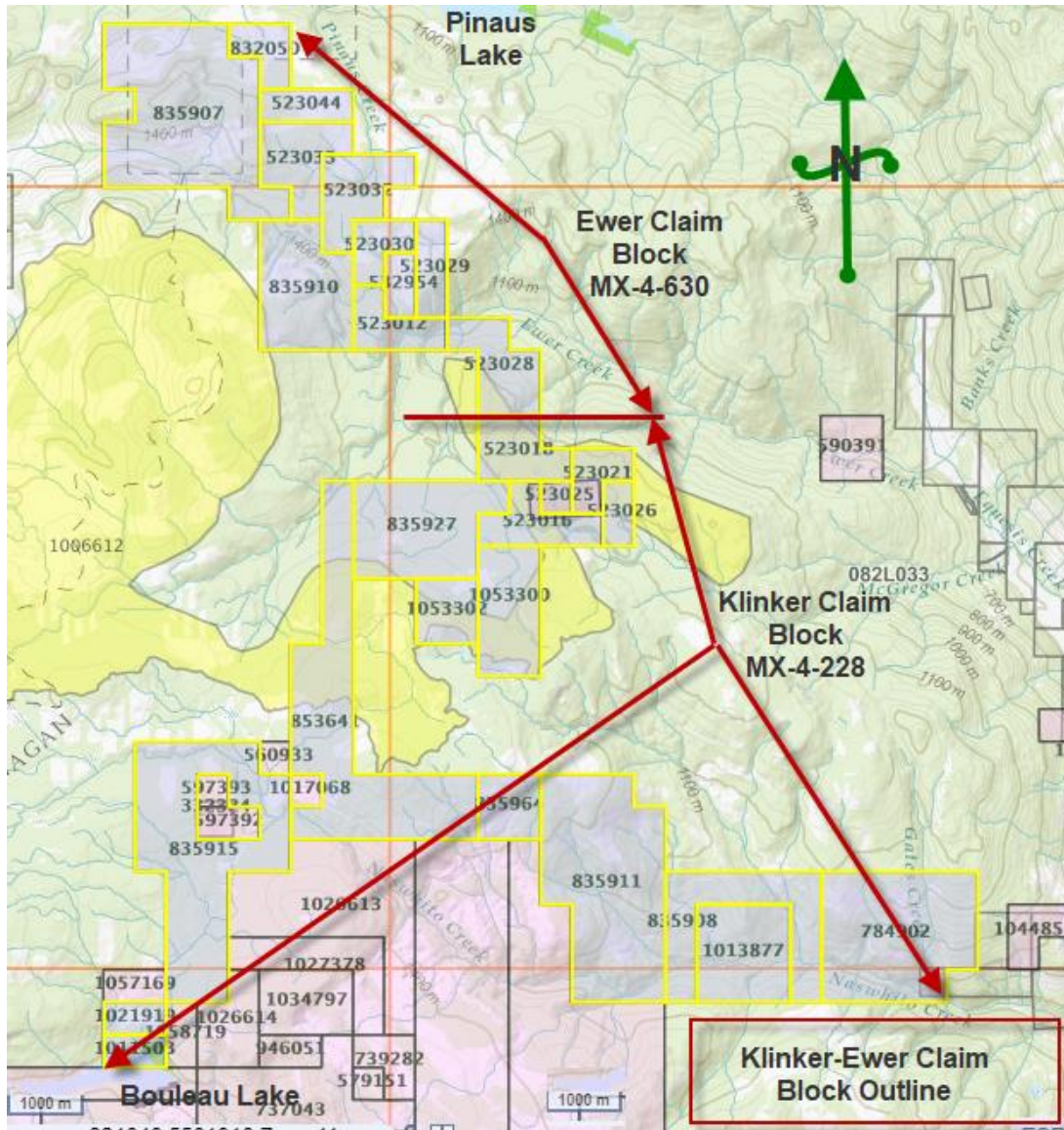
Title Number	Claim Name	Owner	Title Type	Title Sub Type	Map Number	Issue Date	Good To Date	Status	Area (ha)
<a href="#">391569</a>		<a href="#">129660</a> 100%	Mineral	Lease	<a href="#">082L033</a>	2002/MAY/16	2018/MAY/16	GOOD	50.00
<a href="#">523012</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	82.42
<a href="#">523016</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	103.08
<a href="#">523018</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	103.06
<a href="#">523021</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	61.84
<a href="#">523025</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	20.61
<a href="#">523026</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	41.23
<a href="#">523028</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	123.64
<a href="#">523029</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	61.81
<a href="#">523030</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	61.80
<a href="#">523032</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	123.59
<a href="#">523033</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	123.58
<a href="#">523044</a>		<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2005/NOV/30	2019/JAN/01	GOOD	61.78
<a href="#">532954</a>	NEWJR	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2006/APR/24	2019/JAN/01	GOOD	41.21
<a href="#">784902</a>	GATES 1	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/JUN/02	2019/JAN/01	GOOD	392.12
<a href="#">832050</a>	BAS EXT.	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/AUG/24	2019/JAN/01	GOOD	61.77
<a href="#">835907</a>	SPEC 1	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/OCT/14	2019/JAN/01	GOOD	514.84
<a href="#">835908</a>	SPEC 2	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/OCT/14	2019/JAN/01	GOOD	227.01
<a href="#">835910</a>	SPEC 4	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/OCT/14	2019/JAN/01	GOOD	226.63
<a href="#">835911</a>	SPEC 5	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/OCT/14	2019/JAN/01	GOOD	495.24
<a href="#">835915</a>	SPEC 6	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/OCT/14	2019/JAN/01	GOOD	495.20
<a href="#">835927</a>	SPEC 8	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/OCT/14	2019/JAN/01	GOOD	268.01
<a href="#">835964</a>	BAG 1	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2010/OCT/14	2019/JAN/01	GOOD	82.52
<a href="#">853641</a>	NORTH GROUP CONNECT	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2011/MAY/05	2019/JAN/01	GOOD	495.04
<a href="#">1011503</a>	AL 1	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2012/JUL/26	2020/JAN/01	GOOD	41.29
<a href="#">1013877</a>	SPUD 1	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2012/OCT/20	2019/JAN/01	GOOD	185.75
<a href="#">1021919</a>	AL 2	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2013/AUG/28	2020/JAN/01	GOOD	41.28
<a href="#">1051944</a>	JCB	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">092J</a>	2017/MAY/12	2018/MAY/12	GOOD	145.11
<a href="#">1051968</a>	GOTCHA 1	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">092J</a>	2017/MAY/14	2018/MAY/14	GOOD	20.74
<a href="#">1051970</a>	GOTCHA 2	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">092J</a>	2017/MAY/14	2018/MAY/14	GOOD	20.74
<a href="#">1053300</a>	PETE RD EXT.	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2017/JUL/22	2018/JUL/22	GOOD	164.96
<a href="#">1053302</a>	HAILSTONE	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2017/JUL/22	2018/JUL/22	GOOD	82.48
<a href="#">1057169</a>	CONNECT	<a href="#">129660</a> 100%	Mineral	Claim	<a href="#">082L</a>	2017/DEC/22	2018/DEC/22	GOOD	41.28

Total Hectares including Mining Lease = 5061.66

The “owner of record” for the claims making up the Klinker/Ewer claim block is Robert W. Yorke-Hardy.

The expiry date shown herein reflects Event # 5624012 application of work supported by the filing of this report describing the ongoing fieldwork conducted during the 2017 season. The claims are recorded in the Kamloops Mining Division of British Columbia. The claims have been located in accordance with the requirements of the Mineral Act of the Province of British Columbia.

## Ewer-Klinker Group Claim Map:



### Opal Property History:

#### **Property History:**

Most of the claims cover ground which has been held previously by others at various times, but there has been no great amount of exploration work, and so the history is limited. Regionally, the first geological work was done by George M. Dawson and R.A Daly, followed in 1930-31 by C.E Cairnes and in 1959 by A.G. Jones (GSC Memoir 296).

#### **Exploration History:**

Initial exploration in the area resulted from the discovery of placer gold on a number of creeks, including Naswito (Siwash) Creek, Whiteman and Bouleau Creek, Equesis Creek, and Newport and Moffat Creeks. These creeks occupy steep, v-shaped valleys, and production has been mainly from bedrock gravels.

According to Assessment Report 28822 (for the Westmoreland Property) the first recorded mineral occurrence in the Vernon area was in the 1870s when placer gold was discovered in Whiteman Creek and Bouleau Creek. According to Assessment Report (AR) 19100, placer mining was carried out intermittently on Naswhito Creek between 1889 and 1959, and records from 1895 indicate a yearly output of 90 ounces of gold with a final production total estimated at 1650 ounces (Jones: 1959). Placer gold exploration and mining (through tunnels) was first reported in 1889. From 1915-18, hydraulic mining reportedly produced 19 kilograms of placer gold (Bulletin 28). Minor reported production during 1924-35 was about 1 kilogram.

At Naswhito Creek, Quaternary gravels host placer gold mineralization. At the base of a 60-metre thick sequence of gravels, sand and clay, 1 metre or so of rusty-weathering gravel hosts the best values, with the highest concentration occurring on bedrock. The fineness of the gold is reported to average about 840. The gravels extend to the north past Equesis Creek and cover an area of about 6 square kilometres.

At Equesis Creek, Quaternary gravels along the creek host placer gold mineralization. Good values are reported along sections of the creek, particularly in the vicinity of its junction with Musgrave Creek. NOTE: This location is also located just down-stream from where McGregor Creek and Ewer Creek, which drain the ground on either side of the Klinker Mining Lease; enter Equesis Creek.

Lode gold exploration has taken place on a number of showings, mainly hosted by older rocks below the Tertiary sediments and volcanic rocks. Some of the more important epithermal gold properties explored more recently are the Bouleau Creek area Brett, Vodd, and Boul showings.

Some of these are described briefly elsewhere in this report.

The most important mineral deposits in the area have been the gypsum/anhydrite deposits at Falkland which were in production for many years.

More recently, gem opal was found near the headwaters of McGregor Creek by Glen Grywacheski and Robert Yorke-Hardy. The discovery has led to the development of a commercial gem opal business based in Whistler, BC with material from the Klinker Mining lease. The Klinker 1 and 2 claims were initially staked in July of 1991, following the forfeiture of the Rocket #1 claim. There was no work recorded on the Rocket #1. The Klinker claims were staked by R. Yorke-Hardy and G. Grywacheski. The original interest in this ground was the perceived potential for gold mineralization. At the time of staking an abundance of agate and some white common opal was noted. Later, Grywacheski discovered precious opal on the property. Gold prices dropped and precious opal prospect was pursued.

Opal extraction from the property from 1995 to 2003 was approximately 500 tonnes of rock, from which substantial precious opal has been recovered processed into jewellery and test marketed. Exploration and development to date indicates additional precious opal is available to be mined and opal continues to be recovered from the earlier bulk sample to sustain current marketing efforts. Y-H Family Holdings Inc. (formerly Okanagan Opal Inc. and Spectral Gold Corporation) holds ownership of the Opal mineral lease (KLINKER) and full 100% rights, title and interest to explore this property for gold and other metallic minerals. Common opal and agate has long been known to occur in tertiary volcanic rocks in the region.



This entire region was heavily staked during a “staking rush” in 1988 which occurred as a result of gold discovered by Huntington Resources on the Brett property located farther to the south, on Whiteman Creek. No other mineral exploration has been noted in the area except on the Way 1 mineral claim located west of the Klinker/Ewer property. It saw grassroots exploration for gold in 1988-89 and is being retained by Big I Development, a Vancouver based junior mining company, because of this property’s potential to host Brett/Huntington epithermal type gold mineralization in the underlying Eocene volcanics.

Within the Kamloops volcanics, numerous agate, opal and obsidian showings are present in the area, including the productive Klinker precious opal deposit which occurs at the head of McGregor Creek in the center of the Westside claim block. The Klinker property was initially explored for gem opal and is still a source of this material. However, earlier, it was recognized from numerous placer gold workings on McGregor, Bouleau, and Naswhito and Whiteman Creeks (all flowing eastward from the Okanagan Highlands) that lode gold deposits must occur in the area. Epithermal gold veins have now been found at the Brett and Boul properties near Bouleau Creek and other locations. The Dave showing, within the Westside property, is believed to be an epithermal deposit.

R. W. Yorke-Hardy initially located the Klinker 1 and 2 mineral claims in 1991. Subsequent discovery of precious opal on these claims has resulted in extensive exploration and development work since that time. In 2015 occurrences of agate and white common opal float were observed and the writer was aware of previously noted occurrences of precious opal in the area of the vicinity of the northwest corner of mining lease Tenure 391569 (DL5251). Extensive exploration by Yorke-Hardy et al was conducted during the period 1991 to 2004.

Until 2017 Y-H Family Holdings Inc, was the registered owner of the mining lease and the Klinker/Ewer property holds the claims which cover an extensive Miocene aged(?) “lake basin environment” hosting layers of bentonite clay, Diatomaceous earth and minor “opalized” sediments interbedded with rhyolite tuff ash beds. These tenures are now owned by Robert Yorke-Hardy.

Also, an occurrence of palagonite is recorded on the west flank of Tuktakamin Mtn. north of Pinaus Lake.

Recent years have seen exploration and bulk sampling on columnar basalt in the north-west part of the claims and confirmation of DE noted by Read in 1995, Zeolites and quartz veining/stockworks.

## **GEOLOGICAL SETTING**

### **Regional Geology**

Regional Geology is modified from Klinker Property - AR 24370 by R. W. Yorke Hardy.

The geology of the Westside Ok area was mapped and interpreted by Dr. Peter Read Ph.D., during the 1994 field seasons and is reported in the MEMPR Geological Fieldwork 1995 Report in an article titled "Industrial Mineral Potential of the Tertiary Rocks, Vernon (Map Sheet 82L) and adjacent map areas"; as is summarized below. Although Reads comments initially applied to the Klinker claim, the discussion is valid for the larger Westside claim block:

The Klinker (and Westside) claims are underlain by mostly volcanic rocks of the **Eocene Kamloops Group** that form a broad upright syncline that extends 150 kilometres north-northeast from Trepanier on the west side of Okanagan Lake to the east of Kamloops. The inward dipping limbs of this syncline are exposed in crosscutting valleys including Whiteman Creek to the south and west and Ewer to the north. The limbs of this syncline are offset by north to northeast striking high angle, west-side down normal faults with offsets up to 100 metres within an airfall tuff lens as recorded by Read 1995. Estekwalan and Tuktakamin mountains to the north of the Klinker Claims represent the highest peaks with exposures of volcanic rocks that have a minimum thickness of 600 metres.

The oldest rocks in the vicinity of the Klinker Claims are exposed in Ewer Creek to the north of the property and approximately 500 metres to the east of the Discovery Pit. These basement rocks consist of gently west dipping grey green andesite flows and lapilli tuff of the **Harper Ranch Group** of Late Paleozoic age that are overlain on the Klinker Claims by Eocene **Dewdrops Flats Formation** rocks that host precious opal. This formation consists of augite-olivine basaltic and andesitic flows, interflow breccia and minor basaltic tuff. This sequence on the Klinker Claims consists of 200 metres of mostly breccia and lahar with minor flows. The Dewdrop Flats Formation is overlain to the north and within Ewer Creek by a thin sequence of opalized tuffaceous shale and siltstone at the base of the Bouleau Member of the Kamloops Group that extends at least 4 kilometres and is up to 30 metres in thickness, (Read 1995).

#### **DEPOSIT TYPES**

Initially, the Klinker property was explored for gem opal, and is still a source of this material. However, earlier, it was recognized from numerous placer gold workings on McGregor, Bouleau, and Naswhito and Whiteman Creeks (all flowing eastward from the Okanagan Highlands) that lode gold deposits must occur in the area. Some of these have now been found at the Brett property, Bouleau Creek and many other locations where epithermal gold and silver have been identified. The Agate/Opal occurrences are possibly high-level manifestations of epithermal activity.

In addition to the gem grade opal and epithermal gold/silver properties, other deposits such as skarn copper, copper-molybdenum and molybdenum porphyry deposits are present in the area. The target sought by Spectral, based on the spectral signatures obtained to date, is epithermal gold-silver, but other targets will be kept in mind as sampling data suggests other targets may be present.

The best deposit model for the Ewer-Klinker properties is the low-sulphide epithermal model. This would involve the flow of gold-bearing silica solutions through the volcanic pile, generally along

strong structural elements (Faults fractures) and could result in vein or disseminated gold in quartz veins or silicified zones.

## **SUMMARY OF DOCUMENTED REGIONAL MINERALIZATION**

Aside from the known occurrence of precious opal on the Klinker Mining Lease, many “showings of agate and opal are found in the area.

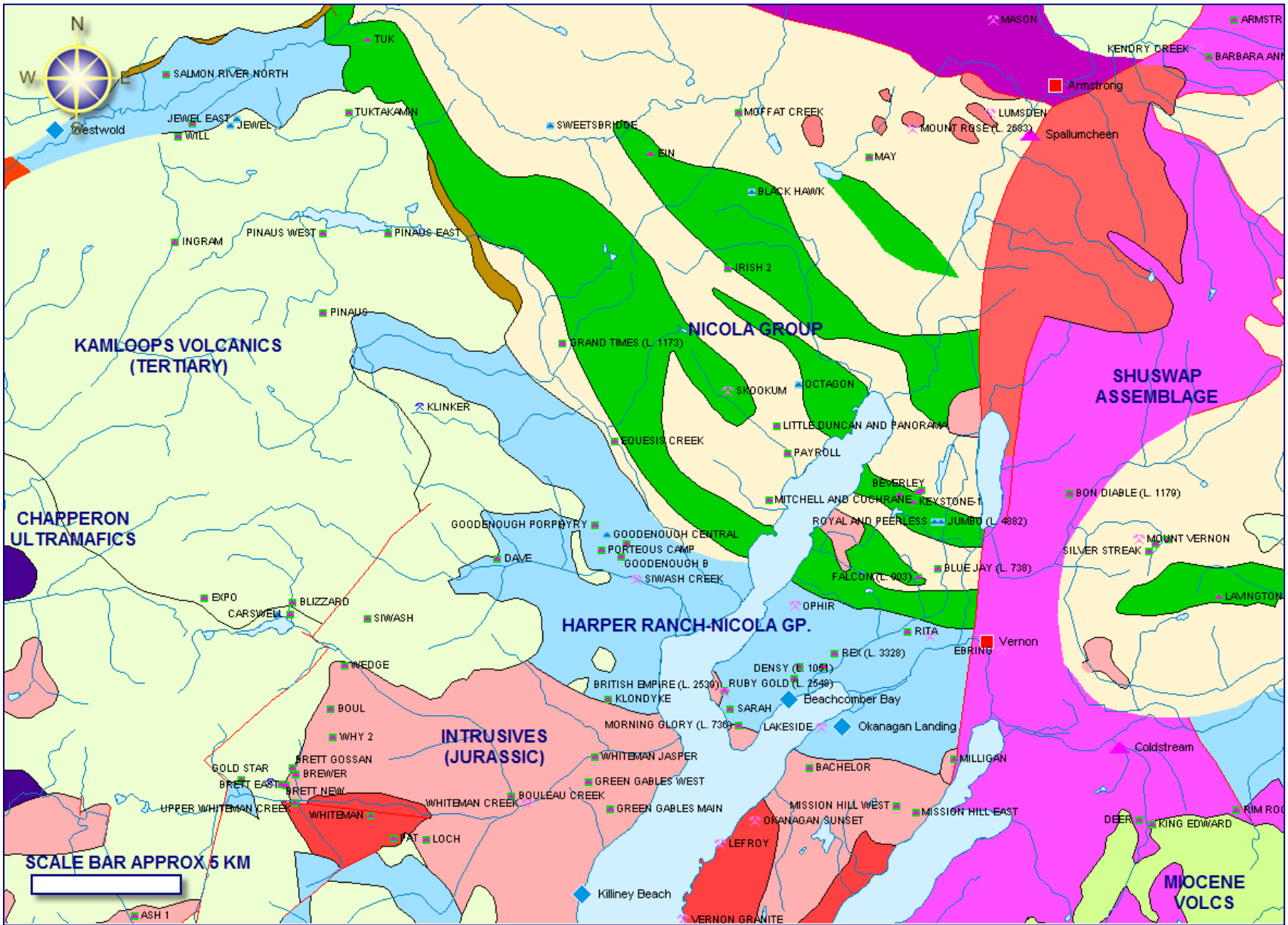
Minfile showings actually within or very near to the subject claims are shown below. Those shaded in yellow are within the Westside claim blocks:

<b>Minfile Number</b>	<b>Minfile Name</b>	<b>Easting NAD83</b>	<b>Northing NAD83</b>	<b>Commodity</b>
82L SW 159	PINAUS	314319	5585782	DIATOMITE
082LSW125	KLINKER	317616	5581648	PRECIOUS OPAL
082LSW116	DAVE	319875	5575387	GOLD
082LSW023	EXPO	308326	5575297	SILVER, AGATE
082LSW122	PINAUS WEST	314704	5588860	AGATE, GEMSTONES
082LSW102	PINAUS EAST	317221	5588525	AGATE, GEMSTONES
082LSW104	INGRAM	308929	5589221	AGATE, GEMSTONES
082L SW 065	JEWEL	311648	5593452	COPPER, GOLD, SILVER

Other properties noted from Minfile are given in the following table; these are near the subject claims but are on ground held by others.:

<b>Minfile Number</b>	<b>Minfile Name</b>	<b>Easting NAD83</b>	<b>Northing NAD83</b>	<b>Commodity</b>
082LSW047	Brewer	311018	5568027	Au, Ag, Cu, Pb, Zn
082LSW084	Brett East	310570	5567672	Au
082LSW110	Brett	310002	5567878	Au, Ag
082LSW130	Gold Star	308860	5568105	Au, Ag
082LSW131	Brett New	310412	5567709	Au
082LSW132	Brett Gossan	310890	5568310	Au, Ag
082LSW151	Upper Whiteman Creek	310822	5566952	Au
082LSW157	Why 2	312630	5569300	Au, Ag
082LSW046	Nash Siwash	314549	5573715	Au, Ag
082LSW069	Boul	312688	5570380	Au, Ag
082LSW073	Wedge	313419	5571993	Au, Ag
082LSW105	Blizzard	311732	5574711	Opal, Agate, Gemstones
082LSW109	Carswell	311577	5574253	Agate, Gemstones, Ag
082LSW144	Rubinca Mine	311083	5574302	Agate, Gemstones, Ag

REGIONAL GEOLOGY AND SHOWINGS



## **Property Geology**

Evidence of epithermal alteration, alunite and clays, opal/agate veining have been located at numerous locations throughout the OK West Property. Epithermal texture such as brecciation with open spaced fillings, drusy cavities, crustification, symmetrical banding has been noted, consistent with epithermal characteristics. The type of alteration presently being encountered would suggest that economic mineralization, if present, may be encountered at some depth below the current levels of exposure. Strong structural features occur coincident with alteration zones and with multi-element spectral 'anomalies'. Weakly anomalous values for minerals which are often considered to be trace elements for epithermal mineralization (As, Sb, Hg) have been located at several locations. Gold was observed in opal and nontronite during scanning electron microscope work conducted on the Klinker precious opal deposit (Kruber Thesis, 2000), and specks of gold were observed in panned concentrate samples taken from streams draining 'Spectral Clusters'. These areas should be mapped and prospected in more detail, as should the known mineralization at the Expo and Dave Minfile showings.

Property Geology is in part derived from a discussion in an assessment report specifically for the Klinker (opal) property - AR 24370).

According to Read (1995) the Klinker Claims (now a Mineral Lease) are underlain by the basal 100 metres of the **Dewdrop Flats Formation** of the Kamloops Group consisting of aphanitic and porphyritic augite-olivine basalt and basaltic andesite flows and tephra.

These volcanoclastics include a belt of predominantly northwesterly trending lahars, volcanic breccia and lapilli tuffaceous sediments and flows that are overlain by a sequence of cream colored weathered tuffaceous shale and waterlain rhyolite ash with an estimated thickness of 30 metres that contains diatoms, palynomorphs, plant and fish fossils. Locally, this sequence has been altered to a grey vitreous opaline chert that may represent a sinter deposit which represents the base of the Bouleau Member (Read 1995). Diatomaceous earth has been exposed and sampled in a dug-out north and west of the Caramel Pit within the opal workings.

Late Paleozoic grey green meta-andesites of the **Harper Ranch Group** that outcrop several hundred metres to the east of the Discovery Zone and to the north of the property along the bottom of Ewer Creek form the basement underlying the Eocene, which gently dips to the west.

Precious opal exposed during excavation of the Discovery, Bluebird and Caramel Pits is hosted mostly in a mixture of high energy lahar and volcanic breccia that is differentially weathered and consists of monolithologic sediments with angular to rounded clasts of basalt, in part vesicular, aphanitic and porphyritic that range in size from approximately 5 cms to 1.5 metres in diameter.

The clasts are supported in a green to brown locally friable, porous lapilli tuff matrix that consists of angular to sub-rounded grains including igneous rock fragments, minor hematite, manganese and sub-angular bleached fragments. The lapilli matrix material which wraps around clasts, form irregular well stratified beds that dip gently to the southwest at 15 to 22 degrees. These lapilli lenses develop locally as interbedded sequences up to 2 metres in thickness. Mappable units of interbedded lahars and tuff have been identified in each of the excavated areas. Correlation of the geology between these excavated outcrops is difficult due to overburden cover and the discontinuous nature and irregularity of the locally interbedded sediments.

The composition of the individual lahars varies within the mapped area. Locally, bleached, salmon pink to rusty red coloured mixtures of clast supported lahar and volcanic breccia with clasts from one centimetre to five centimetres are hematized and less differentially weathered. These outcrop in the Caramel and Caramel Extension Pits and in exposures north of the Bluebird, north and east of the Discovery Zone area and the Red Rock zone. They consist of between 80 to 90% clasts set in a lapilli tuffaceous matrix. Small pebble sized clasts infill between the larger clasts. About 90% of the clasts are basaltic of which 40% are vesicular and zeolitized. Zeolitization is more prevalent in the more clast supported lahar, breccia mixtures north and east of the Caramel Zone and commonly occurs infilling vesicles rather than filling fractures.

The extent of zeolitization has not been fully determined but may be related to the proximity to faulting and related fracturing. Zeolites are in close proximity to north-south faulting on the west side of the Bluebird zone and coat opalized surfaces of cavities infilled with agate.

At other locations, the lahars contain up to 50% bleached clasts as exposed in the Caramel Pit. Exposures of fresh grey-green coloured andesitibasaltic lahar with angular to rounded clasts underlie the high energy lahars exposed at surface in the East Discovery Cut. Minor calcite infills some vesicles and may be a result of replacement of detrital grains during diagenesis of the basic material.

Is it worth adding anything about the opal and agate mineralization on fractures and the fact that the opal and some lahars are anomalous in gold. Scanning electron microscopy has noted minute particles of free gold.

### **Structural Geology and Faulting:**

The basal basaltic lahars on the Klinker Claims form a series of flows with beds striking between 300 to 320 degrees and dipping gently to the southwest at 15 to 22 degrees. Within these lahars are small sill like flows, fresher basaltic intrusions up to approximately four metres in width that extend from the east side of the Caramel Pit to a little north of the Bluebird Pit at approximately 2+50N, 0+60W. The matrix supported lahars may represent the margins or leading edges of the flows within a sub aerial environment and are important because they appear to be the main host for the opal. Also, the areas of noticeable hematite alteration may represent the contact margins or tops of subsequent flows in a sub aqueous terrane.

Faulting may be expressed topographically in the form of minor linear troughs which are occupied by bodies of water and dense brush, vegetation cover. Exposed precious opal bearing host rocks in the Bluebird Zone and Discovery Zone are bounded to the east and west by north-south trending faults. To the east of the 1995 Discovery Cut, a 010 degree trending right lateral strike-slip fault dips 81 degrees to the northwest and plunges approximately 25 degrees to the southwest. The slickensided surfaces are coated with manganese and minor chlorite. The amount of offset is undetermined. A strike-slip fault dips steeply to the west at the Bluebird zone. Slickensides trend 005 degrees and plunge 20 degrees to the south and are also coated with manganese and chlorite. The amount of movement here is undetermined. Similar strike-slip 020 degree faulting is evident at the 1477 Bench Open Cut associated with significant opalized host rock.

The most important fracture sets that are opal bearing include those that strike at between 300 to 340 degrees, 040 to 080 degrees, 350 to 360 degrees, and 020 degrees all having steep dips with the greatest concentrations of opal forming at the fault intersections in the hanging wall of the crosscutting fractures. White common opal tends to form above the

main precious opal horizon and can act as a marker horizon in some exposures. Silica emplacement in the form of both precious and common opal is possibly restricted by the effectiveness of the impermeable nature of fresher volcanic clasts that act as damming fronts so that most of the opal within the volcanoclastic rocks occurs as a vesicle infill within scoriaceous clasts, as a cement within the matrix and as an infill along fractures between clasts and fractures that crosscut through the clasts. Greater concentrations of opal occur at the intersection of crosscutting fractures within the more permeable highly weathered basalts in the Discovery and Bluebird Zones where more abundant voids and openings are formed by possible dissolution of the host. Some of these void spaces form up to 5% of the open cut faces in the Caramel, Bluebird and Discovery Pit at or along fault surfaces and are infilled with subhorizontal interlayered jelly opal and common white opal.

Other fractures that are infilled with precious opal appear curved, irregular and discontinuous especially in the eastern portion of the Discovery Zone area. 040 degree structures are splays off the northerly striking fractures crosscut by 360 degree fractures. These fracture sets are closely spaced in the thinly bedded sediments and may represent dilational fractures associated with compaction. 080 degree fractures are discontinuous fractures infilled with agate in the Discovery Zone vary in width from a few millimetres up to 2 cms and extend for distances up to 50 cms. Other fractures part infilled with precious and common opal appear as irregular hairline to 2 to 5 mm. northerly trending veinlets.

In the Discovery Zone, most of the clasts within the detailed mapped grid areas are composed of fresh vesicular basalt. Fresh surfaces were obtained from breaking bleached clasts. On surface, agate appears more widespread than common opal. Precious opal is restricted to the main fracture sets and vesicular clasts within, or in close proximity to the intersection of these fractures which suggests that opal formed after the deposition of the clasts.

The timing of vein development has not been fully determined and is likely related to regional stresses. The formation of opal and zeolitization appears post movement as evidenced along 020 degree slickensided surfaces in the 1477 Bench open-cut and also appears post emplacement of small basaltic flows.

Possible slumping in the lahars along the exposed portion of this north-south fault may indicate that movement along the southwest dipping lahars is to the southwest and basining of these volcanoclastics is to the northwest. Also, these sequences may be volumetrically greater in the vicinity of the Klinker and Ewer mineral claims. Footwall sediments along this north easterly trending fault include purple clast supported breccia that exhibits 020 degree fracturing with minor Agate and Zeolite infillings that are void of opal.

Silica veining is largely single stage with minor second stage veining that exhibits internal stratification of the silica. The plane of deposition is not parallel to bedding attitudes of the lahars but is instead sub horizontal suggesting deposition at some time after formation and tilting of the lahars. The veins appear irregular and discontinuous having varying thicknesses.

Vein deflection and ponding around clasts is evident with very minor detexturing. Veins are clean walled other than extensive manganese coating fracture surfaces and solution channels both through and around the clasts.

Evidence of pure agate nodules found on surface more abundantly to the south and east of the Discovery zone might be a result of their erosion from the lahars hosting agate and opal or from younger overlying tuffaceous shales and waterlain rhyolite ash sequences.

Mapping and prospecting has determined that the lahar debris flow, the main opal host rock, extends beyond the limits of Klinker claims (an on to the outlying claims held by Spectral).

Known opal occurrences are more fully described in Assessment Report # 24370) with the main concentrations, and all known precious opal occurrences; being in the vicinity of the Discovery, Bluebird, Caramel and Caramel Extension zones. Peter Read (Regional Survey – Report # 25361) has described the various rock units in the northern portions of the area of interest. See also geological mapping and descriptions in AR 24909.

No plutonic igneous exposures rocks have been identified within the area of interest. Known plutonic rocks on other properties referenced in the historic work conducted by Chevron Minerals, Prosperity Gold Corp and Golden Porphyrite Ltd. confined to the extreme southwest part of these historic properties where granite and granodiorite of the Jurassic Valhalla pluton occur along Bouleau Creek. Read (1996) relates these to Ingram stocks southwesterly from Falkland. Discussions of local geology for other parts of the property are derived from various Assessment Reports.

### **2017 Assessment Work Description and Discussion:**

The 2017 work was conducted on Tenure #'s 523016, 523025, 523026, 523033, 532954, 835907, 835910; after of July 22<sup>nd</sup> work was also conducted on 523012, 835927, 523030, 523033. Additional work was conducted after July 22<sup>nd</sup>, this being the staking date for the tenures 1053300 & 1053302.

A total of \$119,480 of assessment work was conducted in the field in 2017. Additional net \$43807.24 funds from PAC brought total work applied to \$167,778.24.

A total of \$55,820 of this work was conducted prior to staking additional claims on July 22, 2017. \$55,000 of this amount of work along with \$21,745.52 PAC has been recorded under Event # 5679379; for assessment credits of \$76,745.52 extending the expiry date to January 1, 2019

After final tabulation the sum of \$32,930 in reclamation work & mob & de-mob costs; the sum of \$7,310 in physical work, the sum of \$79,240 in Technical work; for a total of \$119,480; not including preparation of this report.

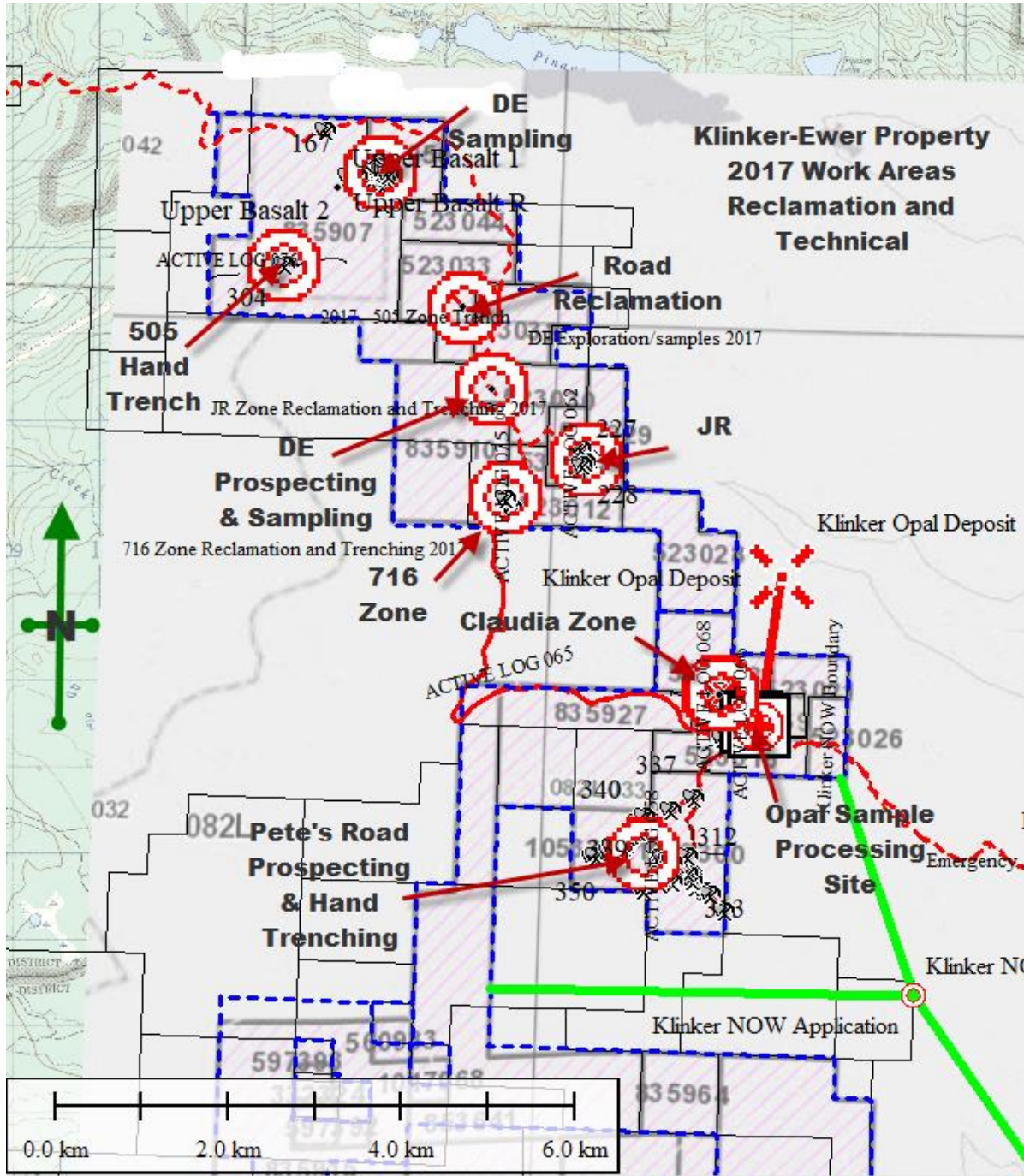
An additional \$63,660 and \$26,349.67 from PAC, totaling \$90,009.67; was applied on event #5691199 on March 27, 2018 to advance the anniversary dates of the above claims to a common anniversary date of January 1, 2020.

An additional \$4,500 was applied on event #5691207 on March 27, 2018 of which \$212.05 went to advance the anniversary dates of the above claims to a common anniversary date of January 1, 2020 and \$4,287.95 to PAC.

A minimum total of \$123,980 in eligible assessment work was conducted. Event #s 5679379, 5691199 and 5691207 are supported by this report.



The following map shows claim locations and work locations.



Note: WP #s 304 & 312 on map above for general quick reference to following list of work location coordinates; see also field notes in Appendix I.

## 2017 Work Location Coordinates for areas worked

- Note: Elevations are not corrected

WP #		Coordinates	
272	18-JUL-17 9:20:41AM	N50 21.743 W119 34.278	4917 ft Claudia Zone
273	18-JUL-17 9:21:40AM	N50 21.743 W119 34.278	4916 ft Claudia Zone
274	18-JUL-17 9:23:18AM	N50 21.740 W119 34.277	4916 ft Claudia Zone
275	18-JUL-17 9:25:26AM	N50 21.740 W119 34.279	4916 ft Claudia Zone
276	18-JUL-17 9:37:43AM	N50 21.747 W119 34.308	4931 ft Claudia Zone
277	18-JUL-17 9:40:13AM	N50 21.728 W119 34.314	4930 ft Claudia Zone
278	18-JUL-17 9:42:06AM	N50 21.730 W119 34.311	4930 ft Claudia Zone
279	18-JUL-17 9:52:33AM	N50 21.722 W119 34.325	4929 ft Claudia Zone
280	18-JUL-17 9:54:53AM	N50 21.716 W119 34.336	4928 ft Claudia Zone
281	18-JUL-17 9:58:06AM	N50 21.707 W119 34.332	4930 ft Claudia Zone
282	18-JUL-17 9:58:54AM	N50 21.698 W119 34.318	4924 ft Claudia Zone
283	18-JUL-17 10:20:09AM	N50 21.576 W119 34.171	4851 ft Claudia Zone
284	18-JUL-17 10:24:55AM	N50 21.491 W119 34.050	4799 ft Claudia Zone
285	18-JUL-17 11:44:53AM	N50 22.833 W119 36.377	4406 ft 716 Zone
286	18-JUL-17 11:46:51AM	N50 22.848 W119 36.401	4417 ft 716 Zone
287	18-JUL-17 11:50:36AM	N50 22.892 W119 36.461	4445 ft 716 Zone
288	18-JUL-17 11:52:27AM	N50 22.899 W119 36.455	4442 ft 716 Zone
289	18-JUL-17 11:56:03AM	N50 22.904 W119 36.449	4438 ft 716 Zone
290	18-JUL-17 11:57:42AM	N50 22.906 W119 36.441	4434 ft 716 Zone
291	18-JUL-17 11:59:42AM	N50 22.909 W119 36.443	4433 ft 716 Zone
292	18-JUL-17 12:01:21PM	N50 22.907 W119 36.452	4434 ft 716 Zone
293	18-JUL-17 12:04:06PM	N50 22.904 W119 36.459	4435 ft 716 Zone
294	18-JUL-17 12:07:20PM	N50 22.906 W119 36.461	4434 ft 716 Zone
295	18-JUL-17 12:08:10PM	N50 22.905 W119 36.462	4435 ft 716 Zone
296	18-JUL-17 12:09:52PM	N50 22.904 W119 36.460	4434 ft 716 Zone
297	18-JUL-17 12:12:34PM	N50 22.904 W119 36.461	4434 ft 716 Zone
298	18-JUL-17 12:15:39PM	N50 22.899 W119 36.461	4436 ft 716 Zone
299	18-JUL-17 12:18:02PM	N50 22.901 W119 36.464	4436 ft 716 Zone
300	18-JUL-17 12:18:52PM	N50 22.900 W119 36.464	4440 ft 716 Zone
301	18-JUL-17 12:20:22PM	N50 22.898 W119 36.470	4438 ft 716 Zone
302	18-JUL-17 12:22:51PM	N50 22.896 W119 36.463	4443 ft 716 Zone
303	18-JUL-17 12:33:25PM	N50 22.905 W119 36.454	4437 ft 716 Zone
304	19-JUL-17 11:28:29AM	N50 24.310 W119 38.701	4473 ft 505 Hand Trench
305	19-JUL-17 12:46:00PM	N50 23.233 W119 35.841	4333 ft JR Zone
306	19-JUL-17 12:50:32PM	N50 23.234 W119 35.820	4340 ft JR Zone
308	19-JUL-17 12:55:55PM	N50 23.231 W119 35.749	4386 ft JR Zone
309	19-JUL-17 1:02:06PM	N50 23.232 W119 35.745	4390 ft JR Zone
310	19-JUL-17 1:41:28PM	N50 23.122 W119 35.723	4343 ft JR Zone
311	20-JUL-17 11:36:55AM	N50 21.448 W119 34.264	4459 ft JR Zone
312	20-JUL-17 11:57:50AM	N50 20.629 W119 34.591	5193 ft Pete's Road Work
313	20-JUL-17 12:01:53PM	N50 20.590 W119 34.515	5224 ft "
314	20-JUL-17 12:03:24PM	N50 20.596 W119 34.514	5226 ft "
315	20-JUL-17 12:08:04PM	N50 20.599 W119 34.518	5225 ft "

WP #	Coordinates		
316	20-JUL-17 12:13:18PM N50 20.585 W119 34.513	5226 ft	Pete's Road Area
317	20-JUL-17 12:16:22PM N50 20.581 W119 34.514	5226 ft	"
318	20-JUL-17 12:25:12PM N50 20.526 W119 34.476	5259 ft	"
319	20-JUL-17 12:32:04PM N50 20.505 W119 34.400	5260 ft	"
320	20-JUL-17 12:34:20PM N50 20.499 W119 34.385	5266 ft	"
321	20-JUL-17 12:35:13PM N50 20.501 W119 34.393	5263 ft	"
322	20-JUL-17 12:43:34PM N50 20.378 W119 34.197	5272 ft	Pete's Road Area
323	20-JUL-17 12:48:44PM N50 20.481 W119 34.334	5267 ft	"
324	20-JUL-17 12:58:06PM N50 20.550 W119 34.506	5267 ft	"
325	20-JUL-17 1:00:00PM N50 20.562 W119 34.513	5256 ft	"
326	20-JUL-17 1:07:16PM N50 20.609 W119 34.556	5224 ft	"
327	20-JUL-17 1:15:52PM N50 20.656 W119 34.653	5226 ft	"
328	20-JUL-17 1:17:55PM N50 20.667 W119 34.672	5230 ft	"
329	20-JUL-17 1:26:13PM N50 20.666 W119 34.673	5231 ft	"
330	20-JUL-17 1:27:21PM N50 20.676 W119 34.709	5231 ft	"
331	20-JUL-17 1:30:26PM N50 20.673 W119 34.726	5237 ft	"
332	20-JUL-17 1:35:22PM N50 20.666 W119 34.751	5247 ft	"
333	20-JUL-17 1:46:20PM N50 20.595 W119 34.813	5276 ft	"
334	20-JUL-17 1:57:45PM N50 20.658 W119 34.770	5253 ft	"
335	20-JUL-17 2:24:03PM N50 20.712 W119 34.562	5148 ft	"

Diatomaceous Earth sample taken at N50 24.758 W119 37.640 Basalt Zone

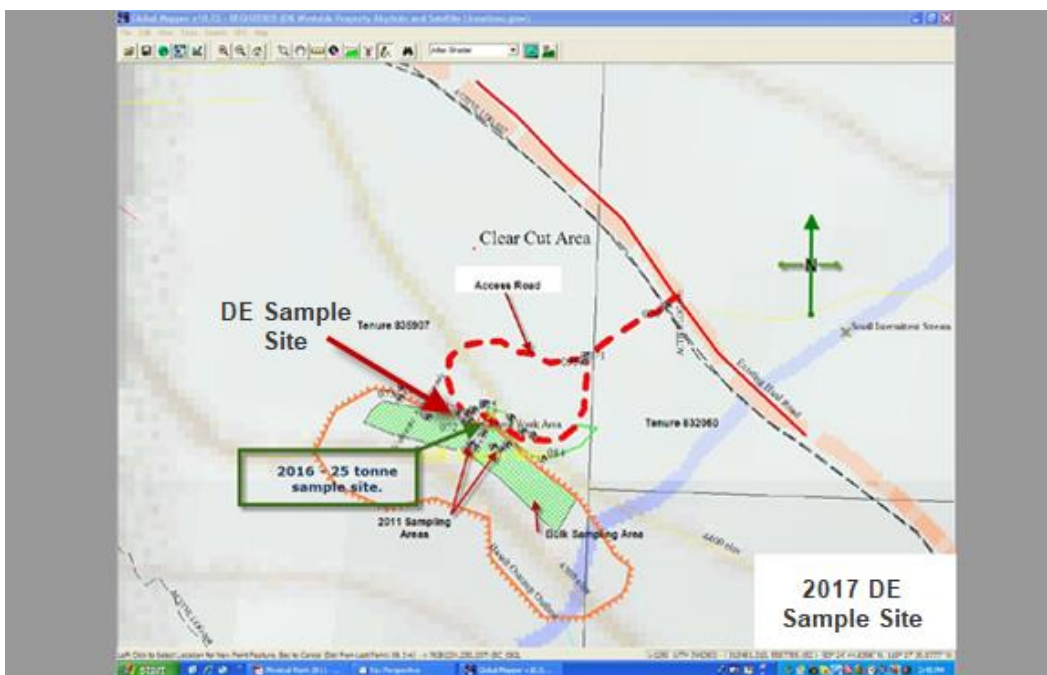
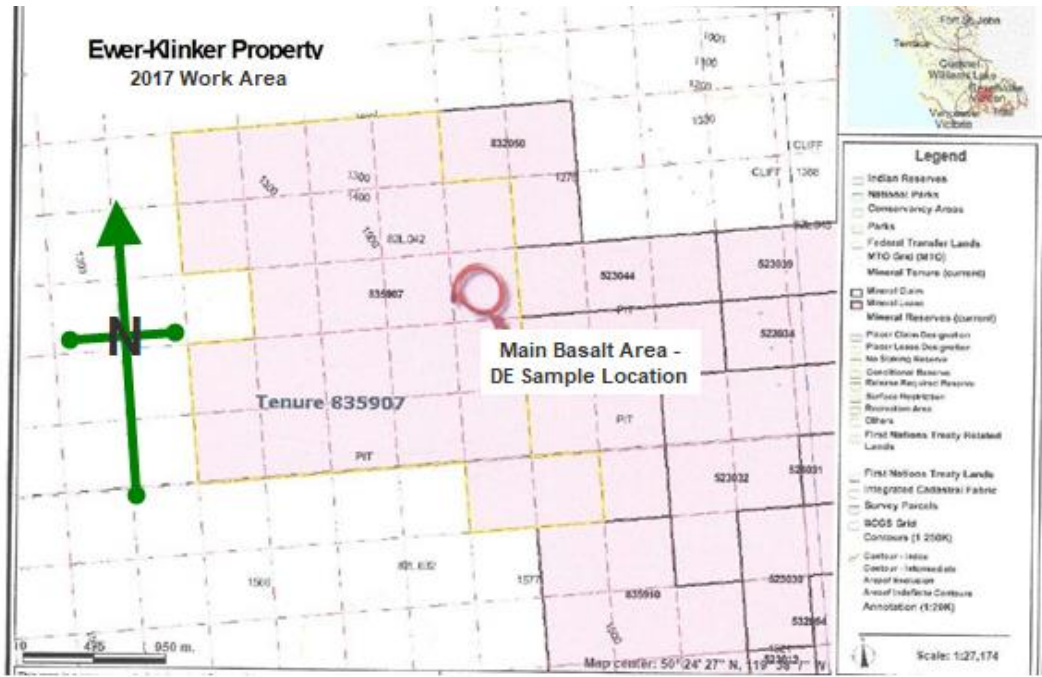


**Ewer MX-4-630 Area – DE Sample Basalt Area, 505 Zone, 716 and JR Zone Area:**

Mechanical reclamation work was conducted under MX-4-630 in these three areas. Mechanical work on June 22<sup>nd</sup> consisted of temporary road washout repair on 835910 and 523030, trench and pit backfilling and contouring on 532954 using a TD 9 crawler followed by a JD 325 skid steer with both bucket and back hoe attachments.

**Basalt Area – Diatomaceous Earth – Lat 50 24.758N Long 119 37.640W  
UTM 313335.213N, 5587811.875E**

No mechanical work was conducted here in 2017. The location of the DE exposure was visited on June 5, 2017 with a visiting German geologist who confirmed the discovery.







Diatomaceous Earth discovery sampled at Basalt Zone



Initial Samples of D.E. were collected. The following description relates to a sample taken from the zone pictured above.

E-mail report from Verne Hogg, CEO; ZMM Canada Minerals Corp.

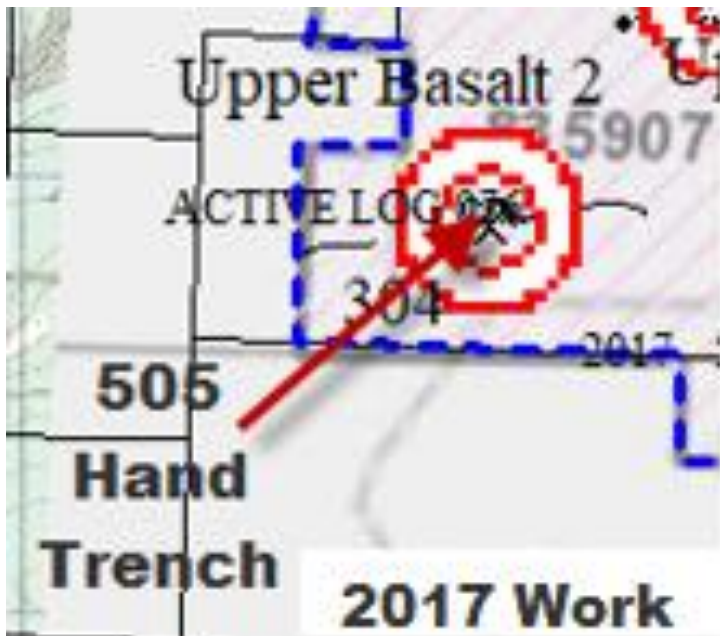
*"I have run some physio chemical tests on your diatomaceous earth. The material handles very similarly to the ZMM DE near Ashcroft. I have no doubt that if you have any quantity that it could be used in some of the applications. The advantage here is that we going to build some processing and packaging capacity to market our DE if we can locate sufficient quantities of your DE, it could be shipped and processed at our facility in Ashcroft. Next year, when it is accessible, I will come and take a look."*

Physio Chemical Properties of your DE

- Color – beige, off white
- Minor iron staining
- Moisture content as received – approximately 20%
- PH in a slurry - 7
- Samples were dried at 350° F for two hours and the color lightens when dried
- Apparent bulk density – 23 to 25 lb/ft<sup>3</sup>
- Optical examination shows black specks at approximately 1%
- Black specs are Fe as it was removed by magnetic separation.
- Optically horizontal bedding is apparent.
- In a suspension test of material ground to -10 mesh, and stirred, the DE settles with the coarse material at the bottom of the column. Finer material at the top with approximately 1 to 2% very fine material that stayed in suspension for 18 hours. Some, never settled.
- The DE was acid tested with no physical reaction.

Further DE and silica sand prospecting and sampling was conducted on 716 Zone and along the road cut on Tenure 523030.

**505 Zone hand trenching: WP 304**



Sporadic white opal and some Hyalite opal was noted in outcroppings along the hydro line. An area of some 20mx2.5m was cleared to a depth of up to 0.5m to examine mineralization in the brecciated?? or matrix supported lahar rhyolite flow.



White opal occurrences in grey colored fragmented/brecciated rhyolite

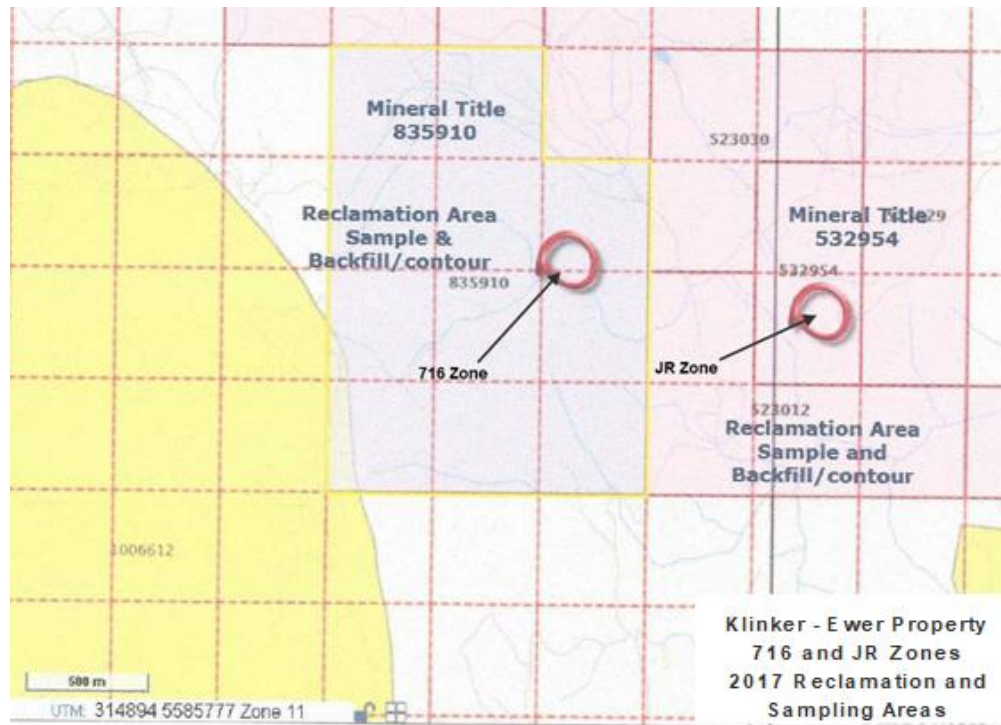


White opal occurrences in grey colored fragmented/brecciated rhyolite.



## **716 and JR Area – 835910 & 532954**

The work on the Ewer project consisted reclamation work in the form of road rehabilitation, trench back filling and side-cast contouring in the 716 and JR Zones. No new disturbance was committed.



### **716 Zone – WP 303**

Non-mechanical technical work and was comprised mainly of reclamation work and cleaning trenches for mapping and sampling. During this activity a layer of D.E. was discovered. Note distinctive light coloration in pictures below of reclaimed areas. The depth and surface extent of this should be actively explored.

### **JR Zone – WP 257**

Non-mechanical technical work and was comprised mainly of cleaning trenches for mapping and sampling. Samples of quartz vein/agate and opalized material were taken for processing and testing. It is recommended that some 32 element ICP plus gold assays should be conducted.

Initial panning of clean-up material gathered after cutting several pieces of this vein material on a diamond saw showed multiple small flecks of free gold. This requires confirmation; but if true, will be a very significant discovery. Work related to examining the cut pieces under binocular microscope is about to commence.





716 Reclamation. Note color change due to high Diatomaceous Earth content in soil.



716 Reclamation. Light coloration due to Diatomaceous Earth content in overburden.





Example of active exploration trench at JR Zone that remains open. Side cast has been contoured.



Example of JR Zone reclamation in areas disturbed but no longer under active exploration.

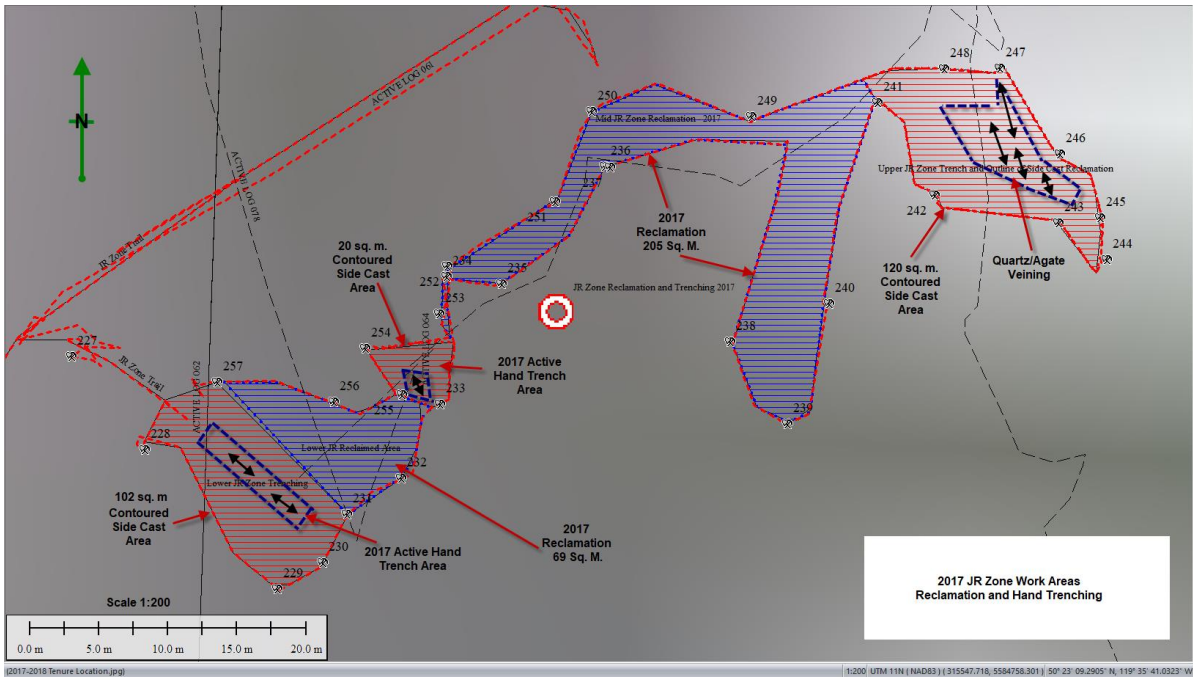
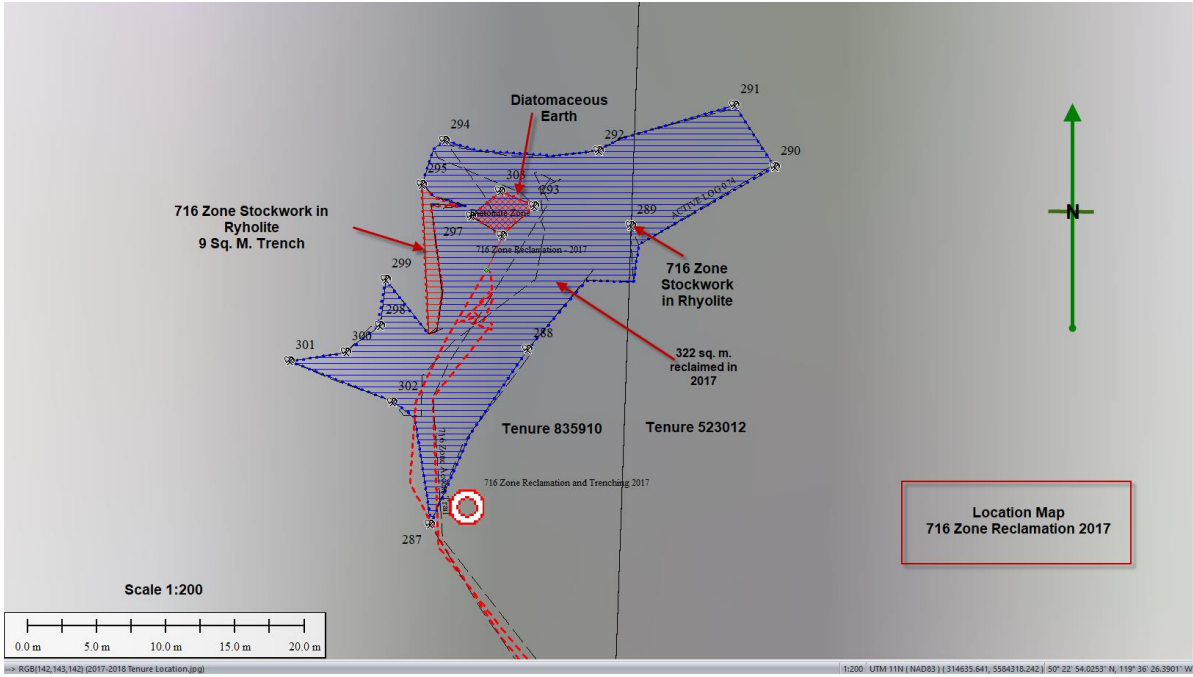


Quartz/Agate vein material located during reclamation of the JR Zone trenches.



**716 and JR Zone Reclamation:**

Mechanical work using TD 9 cat and JD 325 All but the main showings were backfilled. The side cast at these showings was contoured but not back filled as more work is recommended. No new surface area disturbance was created during mechanical work. 322 sq. m. was reclaimed leaving 9 sq. m. disturbed at the 716 Zone and 274 sq. m. was reclaimed at the JR with a further 242 sq. m. contoured but not fully reclaimed.



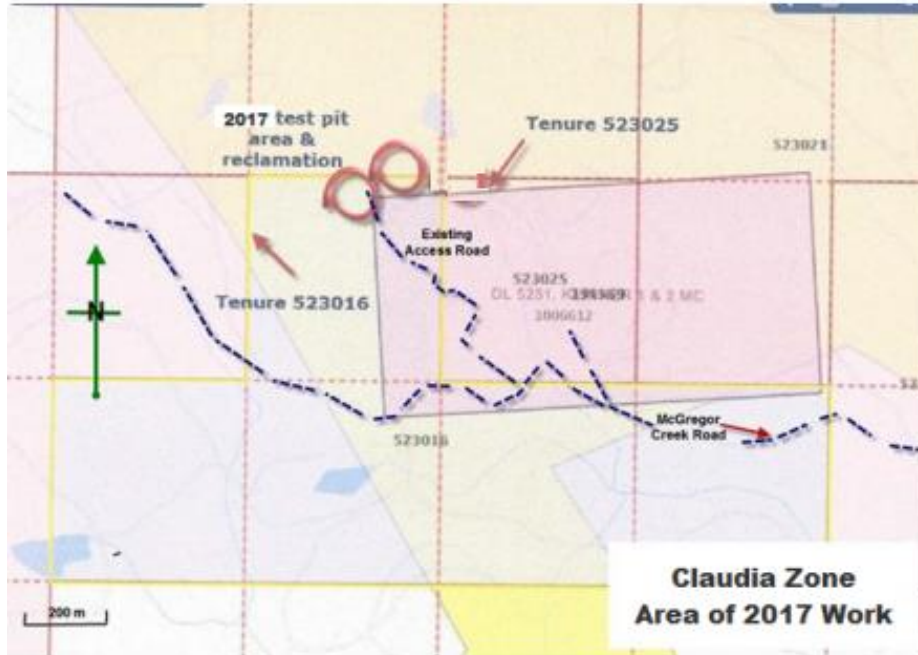
## Under Klinker MX-4-228 – Mapping and Opal Bulk Sampling

### Claudia Zone/Klinker – Opal Bulk Sampling – Tenures 523016 – WP 272

Mechanical work on Claudia:

Reclamation work was conducted to backfill and contour trenched areas. The main trenches were left open for cleaning, mapping and sampling.

Non-mechanical work commenced on June 8, 2017. Twelve (12) man days of physical work followed by technical work consisting of mapping, sampling and sample processing. See detailed cost sheet.



In total three pits were hand cleaned and mapped. See following maps and pictures.

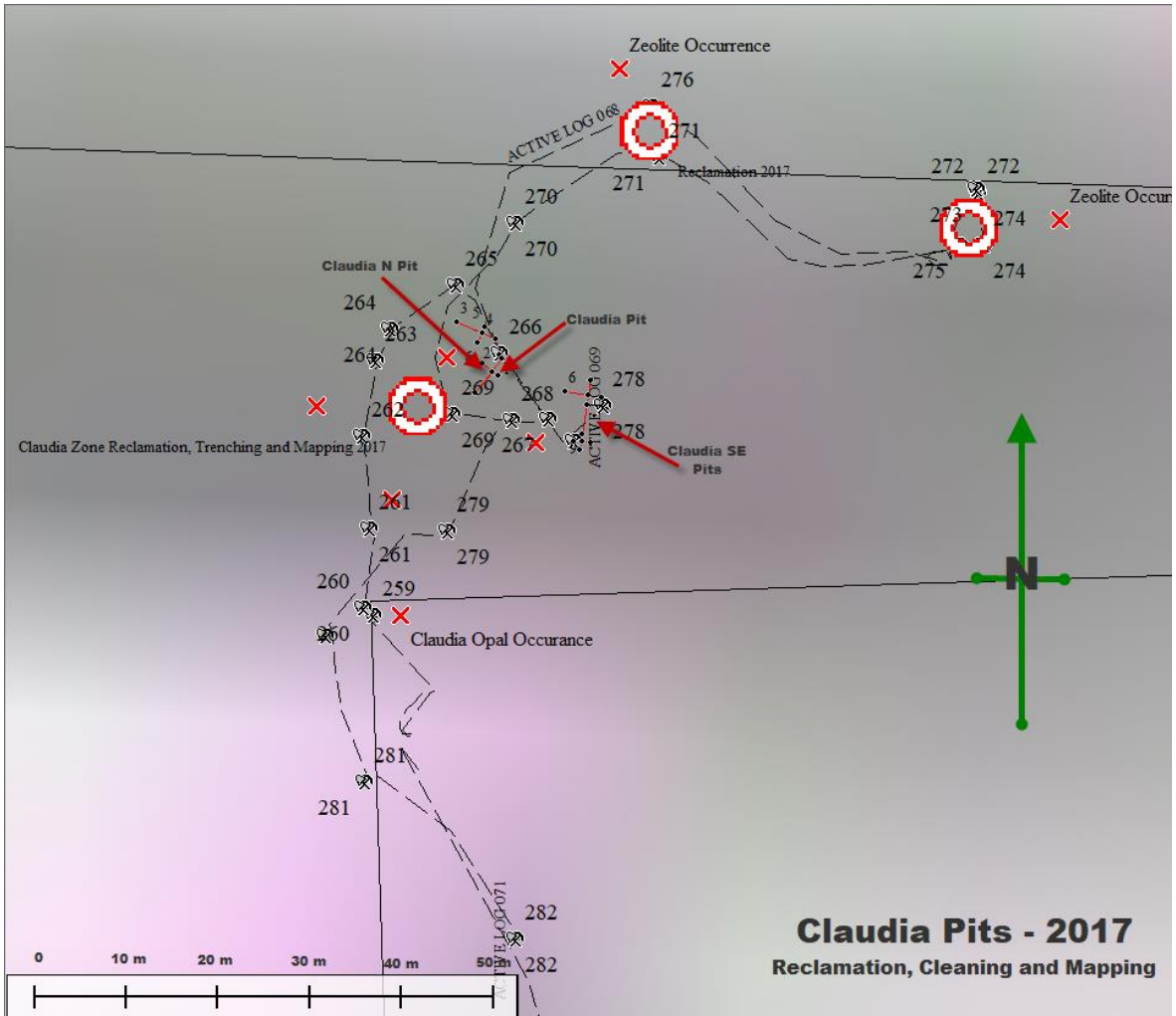


Opal in vesicles basalt

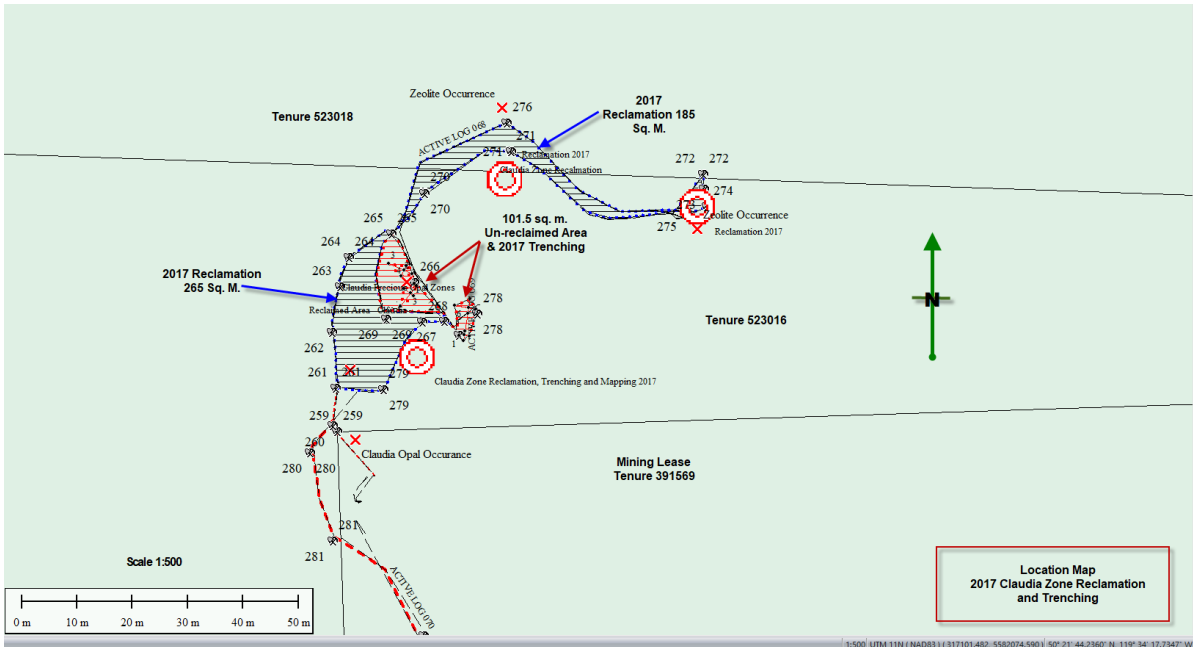


Opal on fractures in lahar

WP 266 Area



WP 266 Area







Claudia Pit



Claudia Pit



Claudia Pit

Claudia Zone Reclamation covered two areas totalling 450 sq.m. (265 sq.m. and 185 sq. m.); leaving a total of 101.5 sq.m. unreclaimed within which 2017 trenching was conducted. Maximum trench depths are from 0.4 to 0.7 meters. See detailed maps of the trenched areas below.





Claudia North Pit showing white opal



Claudia North Pit



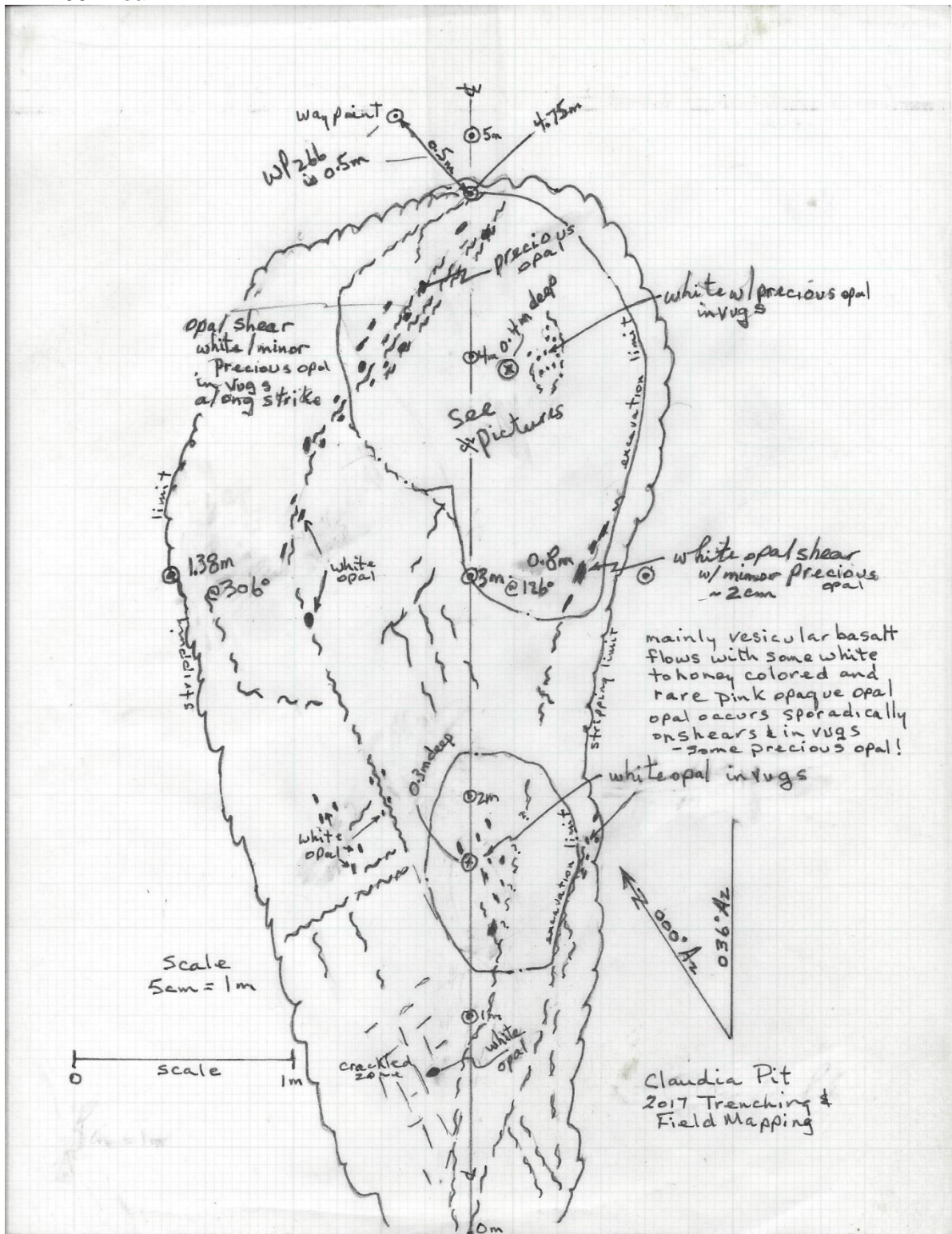
Claudia SE – South section



Claudia SE – North section



WP 266 Area



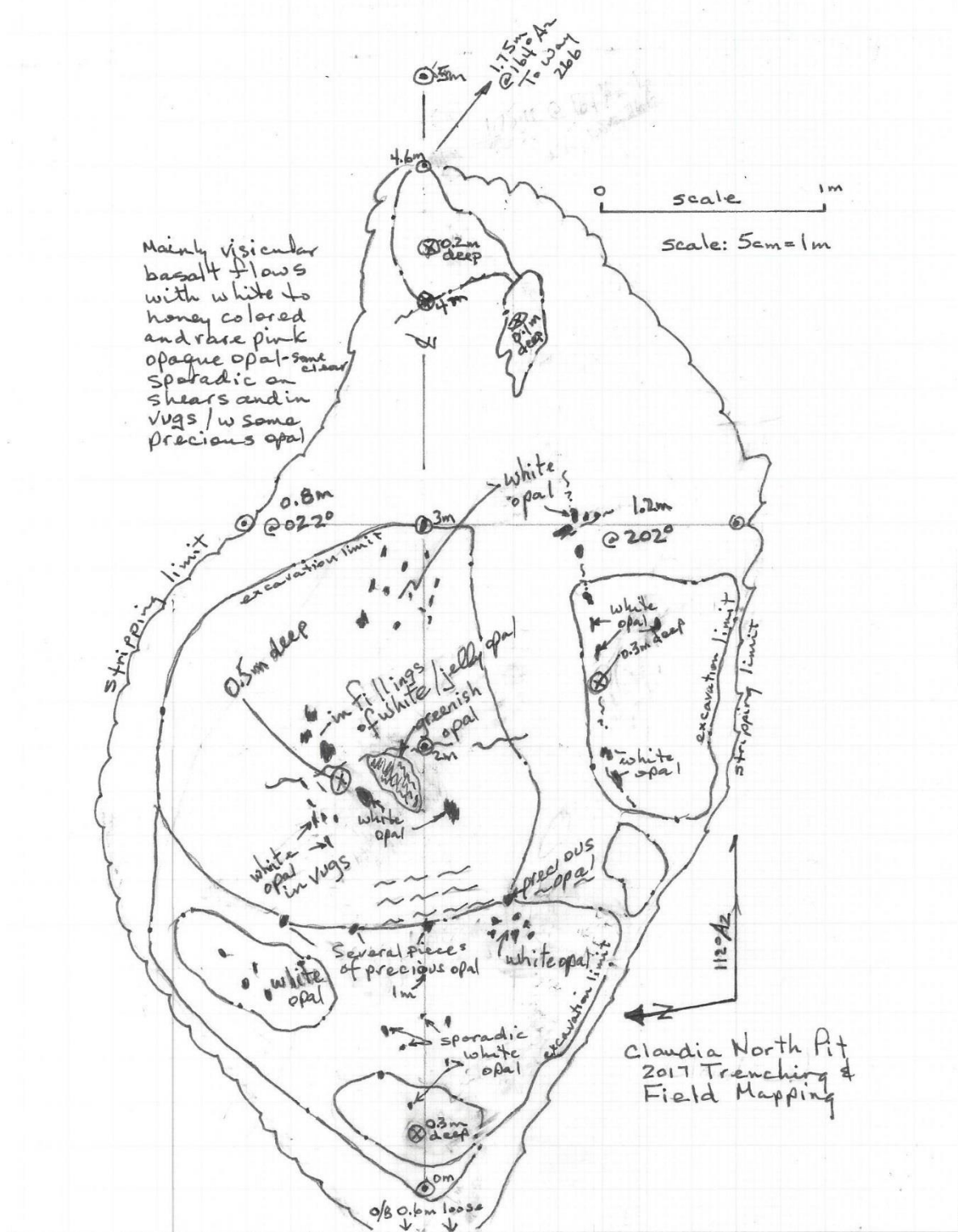
Hydraulic system on skid-steer used to operate small chipping hammer in addition to manual hammer and chisel work to expose the opalized zones in order to examine them and determine existence of precious opal.

Cuttable pieces of precious opal were discovered in the Claudia Pit, the Claudia North Pit and in the northern section of the Claudia SE Pit.



Several pieces of opaque pink base colored common opal were discovered. This is rare. Typically pink opal comes from Peru and information suggestion that it is higher in silica, approaching chalcedony. It is often called 'Angle Skin' opal.

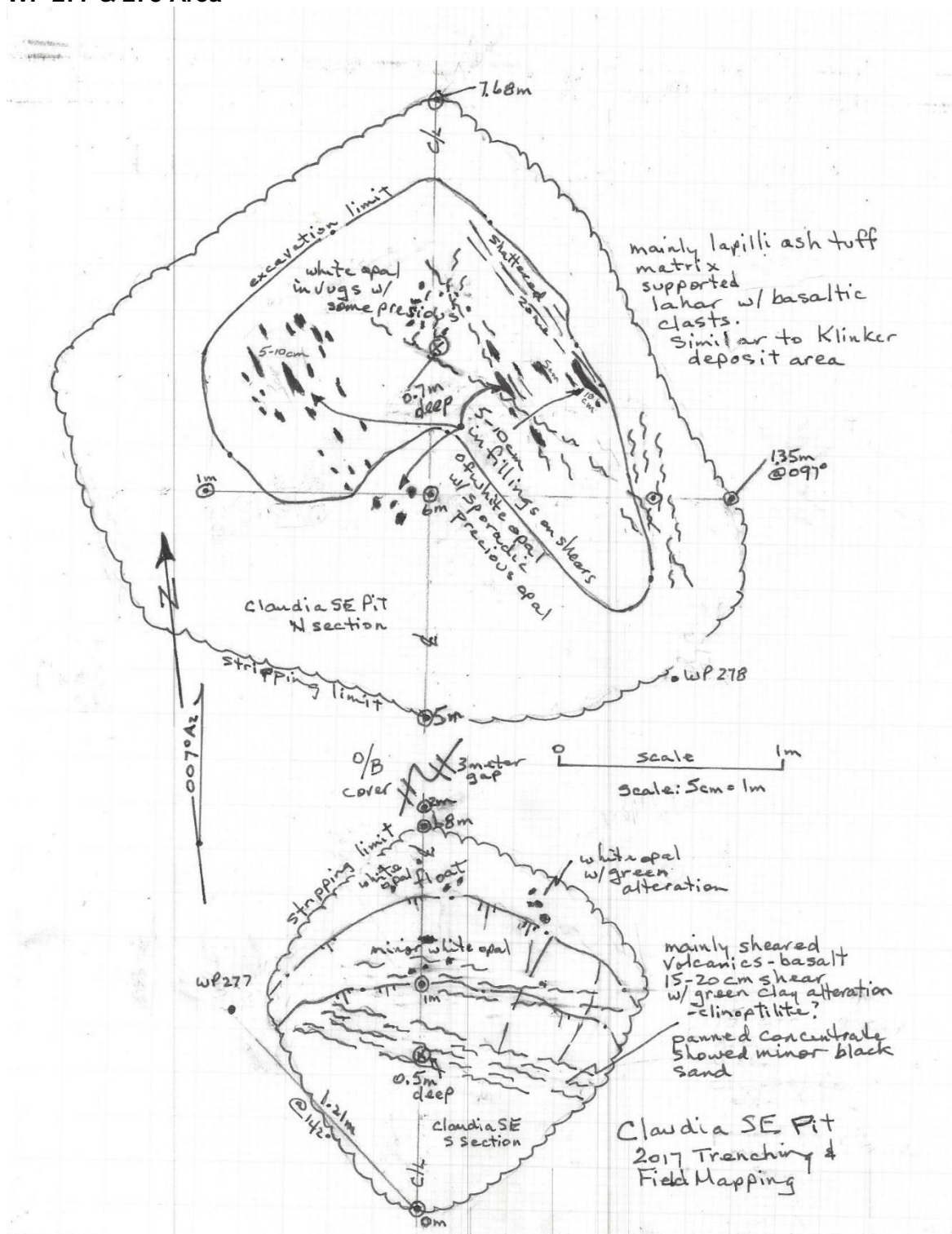
**WP 266 Area**



'Pink opal rarely has a play of color' i.e. is rarely 'precious'; although several pieces of precious pink opal have been discovered at the Klinker deposit and have cut very

attractive and marketable gemstones. Test marketing is under way.

**WP 277 & 278 Area**



Several precious opal cabochons were cut from the material collected from the Claudia Zone activity. The largest cut stone finished weight was a 0.5 oval shaped carat cabochon which exhibited a bright multi-color play of color.





Zeolite Specimen. Zeolite in basalt at Claudia Zone



Zeolite in basalt at western portion of Claudia Zone

Similar Zeolite occurrences are found on the mining lease and are documented by Kruber.

All 2017 mechanical reclamation and manual physical work was conducted within the confines of previously recorded disturbances. Stockpiles of the remaining unsorted material gathered over the past several years will need to be run through the screening/sorting plant at a future date. This will commence once a renewed work permit is obtained.

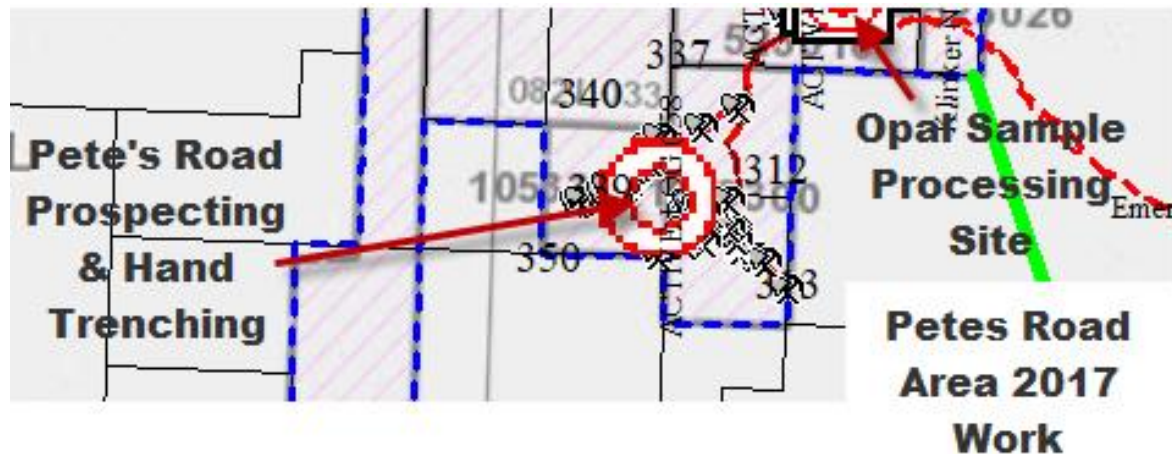
Opal sorting in 2017 was conducted manually at the sample sorting site on the Klinker opal minesite.

### **Pete's Road Work 2017: WP 322 to 335**

Following the July 22 staking of Tenures 1053300 & 1053302 time was spent prospecting and hand trenching along logging roads that had not existed during previous exploration activities.

Exposures of intensely fragmented black and brown rhyolite along these roads suggests a large into source potential of landscape material. Bulk sampling by hand yielded several containers of material for testing and market evaluation.

Columnar basalt and flat jointed basalt blocks that can be split into 1 to 2 inch thick slabs was also located.



Grab samples of various potential 'landscape products' were taken to local landscaper supply companies and are under consideration to be added to their product line once test samples can be taken.





Black Rhyolite landscape material, shattered; providing small material without blasting.



Brown rhyolite landscape material



Flat, thinly jointed basalt – tile potential.



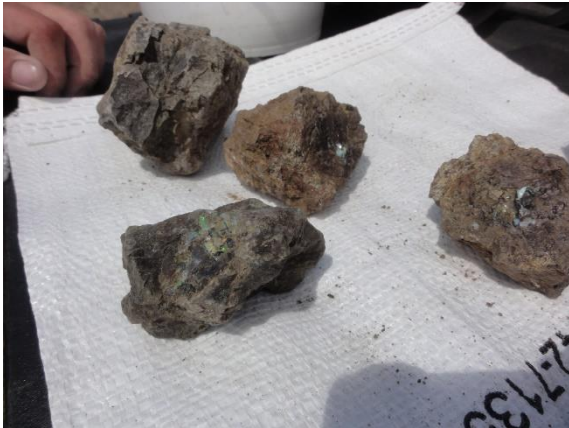
## **Opal Sorting and Sampling Activities/Methodology**

Typical mining industry extraction and concentrating techniques would result in destruction of the opal. There is no mechanical or chemical means of releasing opal from the host rock and capturing/concentrating the opal. Each piece of rock needs to be visually examined to determine opal content prior to further processing by hand cutting, grinding and polishing. Even small concentrations of colorful opal can be utilized.

All mine run and stockpile material processed has to be clean/cleaned, dried and hand sorted to detect and extract the contained opal material. Most of this sampling and sorting work activity in 2017 was conducted by R. W. Yorke-Hardy.

The rock is hand sorted down to 60-80 mesh sizes to collect all of the precious and semi-precious opal and agate. Most of the final sorting, grading, gemstone cutting and valuation is conducted off site.

A total of 15 tonnes of previously stockpiled material were sorted and sampled. The recovered opal material is undergoing further work in order to determine gemstone value. This additional gemstone work is not assessed herein.



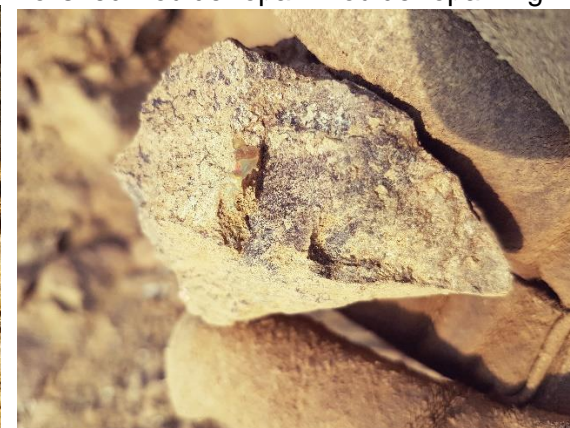
Cutable Boulder Opal pieces



Polished Boulder opal Boulder opal ring



Solid, cuttable crystal opal in matrix



Solid, semi-crystal opal in matrix



Close examination of this washed but un-screened material shows a large number of smaller fragments of opal; including a number of cuttable solid opals and boulder opal pieces.

The collected opal bearing material, the process referred to as “sampling” techniques currently being used, have evolved over time since 1994 and have proven to be the only way to test this opal deposit. The pictures above demonstrate the that has been created in order to test the market. In this way the overall value of the Opal can be assessed.



Opal Chip  
Inlay



Boulder  
opal



Boulder Opal  
in matrix



Boulder opal  
Capped Doublet

The above pictures are examples of Opal Product and polished boulder opal stone created from sampled opal.

The opal gathering and sorting methods, having been developed and used since our first program in 1994, have proven over time to be the only effective and most efficient technique for gathering opal to analyze. Over \$1.5 million has been spent. In the past many technical reports have been written on this property/project; but, at this stage testing is being conducted on some of the various opal occurrences discovered other than the main ones. Efforts to attract investment to take the main deposit into production has not been forthcoming. Chinese investors provided funds in 2014 but they walked away.



Unlike exploring for other minerals, it is not possible to grab an opal rock sample and have it crushed, pulverized and assayed to determine its valuable mineral content; i.e. precious opal gemstone material. This action would destroy these opal gemstones.

Furthermore, there is no chemical or mechanical method of collecting opal and no analytical method to determine grade of an opal. In order to evaluate the various opal deposit(s) on the property it is necessary to separate the opal bearing material from waste rock “physically” using a person’s hands and eyes. This process involves carefully breaking and/or cutting larger rocks down to expose and segregate the contained opal; this followed by opal cutting prior to having a gemstone that can be “valued” and used in jewellery creation.

Only at the cut stone stage can the true value of the gemstone be determined and it is only at this stage when the economic potential of this deposit, and likely any precious opal deposit, can be assessed.

Another issue regarding market development is market awareness and price awareness. Unlike diamonds and other precious gemstones and metals there is not a commodities market for opal. There are international standards for grading and pricing opal but much of the valuation is subjective.

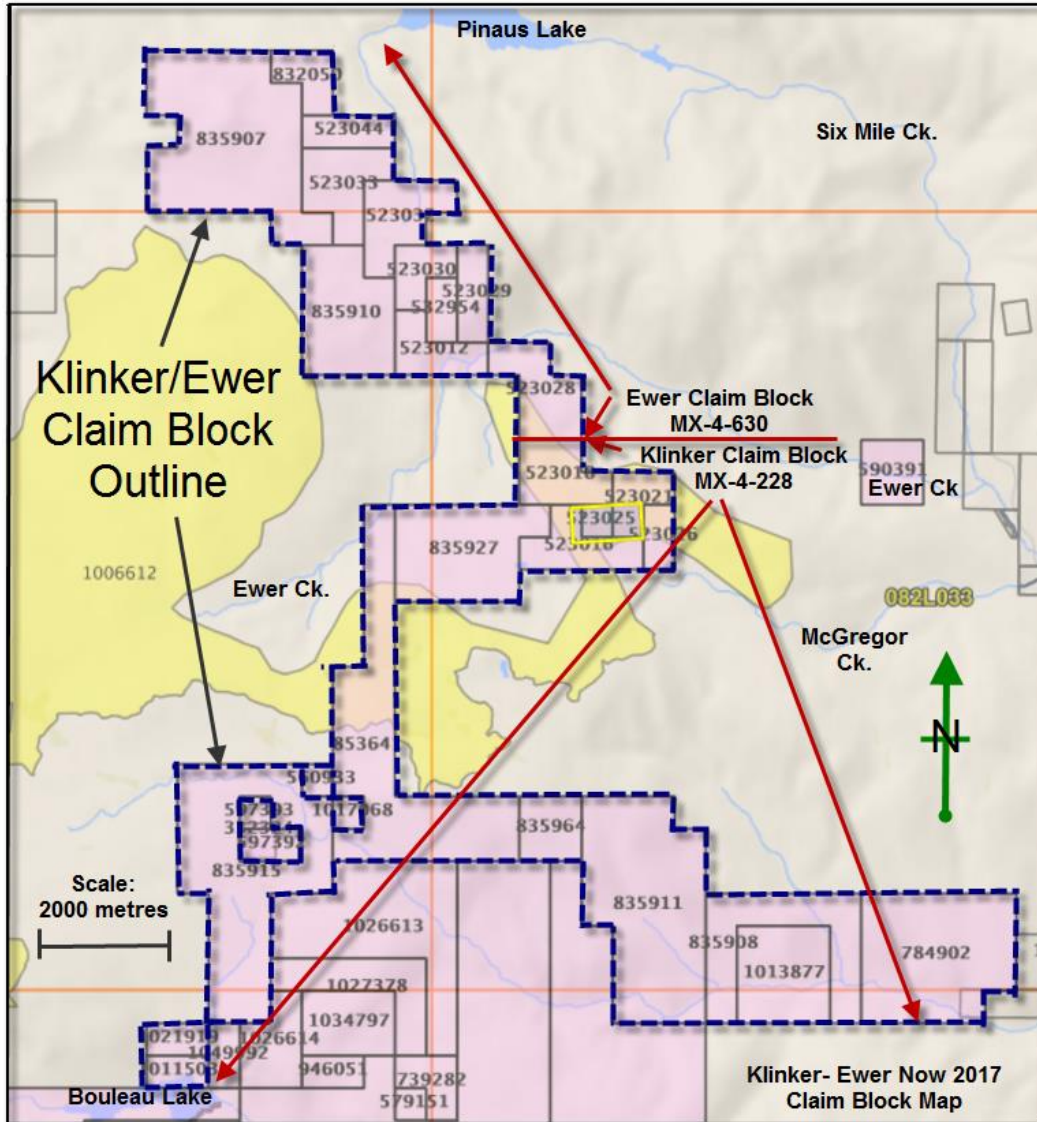
This opal collection activity is not considered “analysis of a mineral or rock sample including a bulk sample to assess characteristics pertinent to the assessment of a mineral resource”. Rather, the physical activity of gathering the opal bearing material does not provide any determination of value or grade i.e. “assess characteristics pertinent to the assessment of a mineral resource”. This part of our activity simply enables us to physically acquire/obtain the opal bearing material in a form which will then allow said opal bearing material to be examined obtaining a preliminary visual verification and to then proceed to the analysis/valuation process in order to “assess characteristics pertinent to the assessment of a mineral resource”. This technique is the only one available.

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**NOW application Process 2016:**

A further two-year extension was requested but was denied despite the fact that permitted work and disturbances were well below approved levels. Application for a new permit was undertaken in June 2017 but due to technical difficulties related to the Government's ability to print maps to scale the process has been held up.



Tenures 105300 & 1053302 added subsequent to creation of this map at the start of the new NOW application process.

Repeated efforts over the summer were rejected by the Mines Inspector who insisted that my maps would only print out at 91% of the design scale. This problem/delay persisted through the fall- winter of 2017/2018

New and revised maps were again submitted at the beginning of March 2018 and accepted March 20, 2018. A letter of acknowledgement regarding Mines Act Permit Amendment was received on March 21, 2018.

### **Equipment/Supplies Used:**

Site transportation of personnel and materials was conducted by F350 – crew cab. A second F350 – crew cab was in site as an emergency vehicle. Supplies and equipment included required fire tools and Level 2 first aid equipment. Hand tools used consisted of shovels, picks, power saw, chains and slings.



A TD 9 cat and a JD 325 skid steer and attachments (including backhoe with stationary thumb and two buckets) were transported to the site and were used to conduct reclamation work. F 350 pickups were used to haul equipment, supplies and personnel. A total of 103 vehicle days travelling an average of ~121 kms. per day. Two trailers, 16 ft and 20 ft, were used within the property to haul skid steer c/w attachments and sampled opal bearing material and for de-mob of equipment and sampled material. Opal Resources Canada Inc.'s stationary man-camp was used from June 2, 2017 to October 10, 2017. A 20lb hydraulic Stanley chipping hammer was used regularly to break up larger boulders of opal bearing material and for test pitting at the Claudia Zone.





2010 JD 325 with backhoe attachment used for reclamation and operating 20 lb hydraulic chipping hammer for hand trenching and rock sampling/testing.



Opal cutting and processing is conducted using diamond saws, diamond grinding and polishing wheels.

## **Conclusions and Recommendations**

Precious opal proximal to the north-west corner of Lot 5251 had been located but had not been mechanically physically explored. Similarly, ground to the immediate south may also be a favourable location for precious opal if the clast supported lahars extend to the south. An excavator with hydraulic hammer should be used to open a one to two meter deep trenches/pits in the area of the main three Claudia pits.

It is recommended that these opal showings be further explored given the apparent positive results of the 2017 program. Further processing of sampled material is required to obtain final determination of economic value and to relate that value back to the overall value of the deposit.

The development of additional precious opal occurrences corroborated in 2016 and 2017 will enhance the economic potential of the overall Okanagan Opal Business being pursued. The greatest deterrent to commercialization remains lack of financing to further develop the product line and to develop the market for finished product.

Exploration in the Ewer/Klinker claim block to date has resulted in discovery of a number of agate, silica and jasper alteration areas, some of which are associated with the contact of volcanic lahars with a broad, lake sediment unit indicative of a near-surface spring environment. It is anticipated that further precious opal may also be discovered. Removal of overburden with a small track mounted excavator is recommended to expose precious opal bearing outcrop.

The potential for ground covered by the claims to host epithermal gold mineralization associated with Tertiary volcanics has not been fully assessed. The location of a Quartz/Agate vein system at the JR Zone in 2017 indicates the potential for free gold mineralization. Further evaluation of the possible gold potential of the property is required.

The extensive quartz stockwork and zone of calcite veining at the Dave Zone is recommended for physical work to further explore and sample these zones.

An extensive deposit of Columnar Basalt has been identified. Bulk sampled material is being test marketed. A detailed product development, market study and selling campaign is justified. Potentially extensive occurrences of diatomaceous earth at the main basalt showing and the surrounding region warrants further testing and exploration. Removal of overburden with a small track mounted excavator is recommended to expose DE zones.

### **Additional Recommendations**

- Data review of all mineral deposit information from Assessment reports available of Minfile/Map Place and ARIS
- Preliminary sampling over targets, to include heavy mineral (pan) sampling, stream sediment, soil, biogeochemical and rock sampling with concurrent prospecting
- If rock sampling is positive for gold/silver, detailed work may include soil grids, trenching, magnetometer, VLF-EM and possibly IP surveys
- Review of adjacent mineral deposits and showings which might be held by others
- Any targets which develop from this first phase would be diamond drilled, in a second phase of exploration.



**Cost Statement:**

All equipment used is owned by Opal Resources Canada Inc. and was charged out in accordance with the following "Comparative Cost Sheet". This chart compares 'ORCI' rates charged out for assessment work activities and the rates charged are below 2017 Blue Book Rates.

Detailed daily cost, personnel and activity sheets are provided starting on Page 46 to 49 following the Summarized Cost Statement sheet on Page 45.

Rental equipment - Item	4 week rental rate	prorated daily charged	2016-17 Blue Book Hourly Allowed	2016-17 Blue Book Prorated Daily	Differential	Comment
20# Hydraulic chipping hammer	350	12.50		20.80	8.30	versus blue book pneumatic chipping hammer based on 4 - 10 ft lengths versus air hose
40 ft hydraulic hose	160	5.71				
pressure regulator	120	4.29				
couplers - hammer to skid steer	30	1.07		3.45	2.38	Chipping Bit
Accessory - mol point	30	1.07				estimate based on 15 per 1.00 thousandth inch wear
14" wet tub saw	480	17.14				
Accessory - diamond blade	50	1.79				
7" wet tub saw	270	9.64				
Accessory - diamond blade	30	1.07				estimate based on 15 per 1.00 thousandth inch wear
1 - 4500 watt generator	500	17.86		55.60	37.74	plus fuel and lubricants
24" bar chain saw	375	13.39		29.55	16.16	plus fuel and lubricants
2 - 1 1/2" Hi pressure pumps	1200	42.86		38.90	-3.96	plus fuel and lubricants
2 - 1 1/2" Intake Hoses		0.00		0.00	0.00	
2 - 1 1/2" discharge Hoses - 300ft		5.00		9.63	4.63	
150' - 1 1/2" Fire Hose	80	2.86		11.25	8.39	3.75x3
Fire Hose nozzle	45	1.61				
325 JD Skid Steer	3120	111.43	35.65	285.20	173.77	without operator plus fuel and lubricants, insurance estimate based on power trencher
9 ft. backhoe attachment	750	26.79		12.50	8.21	
tooth bucket for Skid steer	120	4.29				
smooth bucket for skid steer	150	5.36				
pallet forks for skid steer	200	7.14				
16 ft equipment trailer	160	5.71		49.20	43.49	
20 ft equipment trailer	200	7.14		67.50	60.36	
300 gal water tank on trailer		20.00		46.60	26.60	16.40 for tank+31.20 for trailer
1000 gal water tank		5.00		21.25	16.25	
5000 # winch		5.00				
Yamaha 450 ATV	1500	50.00		52.83	2.83	
1st Aid gear - WCB	500	17.86		43.87	26.01	Level 3 first aid room 160.92 - 117.05 ETV - vehicle
Radio Equipment - WCB		25.00				
Emergency Transport vehicle		117.05				1 ton F350 crew cab with canopy plus fuel and lubricants, insurance and licensing as applicable
5% contingency		545.62				
		27.28				
<b>Total</b>		<b>572.90</b>			<b>431.17</b>	<b>Additional Differential based on Blue Book 2016-17 rates</b>
		<b>Charged out Rate</b>			<b>971.17</b>	<b>Rate using Blue Book</b>

Communication in camp

- 1 two-way radio – base station in camp
- 1 two-way radio – mobile in truck
- 1 two-way radio – hand held
- Satellite internet communication system, Skype phone, computer & monitor

**Comparative Cost Sheet**

## **COST STATEMENT SUMMARY**

See detailed Cost Breakdown following this Page:

**COST STATEMENT 2017 Exploration Program: Klinker and Ewer**  
**FIELDWORK PROGRAM COST SUMMARY: June 2, 2017 to October 10, 2017**

**2017 Work Program For Assessment - Costs**

Mob and Reclamation															Total	Cumulative
Date	Personnel	Description	Work Performed	Wages	Veh. Desc.	Vehicle Cost	Food & Accom	Tools/Equip Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total	Cumulative	
<b>Event # 1</b>																
02-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$50	\$30		powersaw, hand tools	McGregor FSR		Clear drainage for water off road	\$690		
03-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$50	\$30		powersaw, hand tools	McGregor FSR		Clear drainage for water off road	\$690		
04-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$50	\$30		powersaw, hand tools	McGregor FSR		Clear drainage for water off road	\$690		
05-Jun	Bob Yorke-Hardy	Technologist	Mob to camp	\$450	F 350	\$150	\$50	\$30		powersaw, hand tools	Klinker		Clear drainage for water off road	\$690		
06-Jun	Bob Yorke-Hardy	Technologist	Mob to camp	\$450	F 350	\$150	\$100	\$60		generator, powersaw	Klinker			\$760		
07-Jun	Bob Yorke-Hardy	Technologist	Commission camp	\$450	F 350	\$150	\$100	\$60		generator, pumps	Klinker			\$760		
09-Jun	Bob Yorke-Hardy	Technologist	Commission camp	\$450	F 350	\$150	\$100	\$60		generator, pumps	Klinker			\$760		
10-Jun	Bob Yorke-Hardy	Technologist	Commission camp	\$450	F 350	\$150	\$100	\$60		generator, pumps	Klinker			\$760		
13-Jun	Bob Yorke-Hardy	Supervisor/technologist	Mob to camp	\$450	F 350	\$150	\$50	\$30		generator, pumps	Klinker			\$690		
	Gary Rysavy	Helper		\$250				\$50						\$300		
22-Jun	Bob Yorke-Hardy	Supervisor/technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		generator, TD 9	Ewer - Beav	523033, 835910		\$1,240		
	Bruce Essington	Operator	Fix washouts/Backfill trench	\$250	Jeep 4x4	\$150	\$50	\$240		JD 325, buckets,				\$690		
	Donna	Helper	Broom and shovel work	\$250			\$50	\$30		Backhoe, 2 trailer				\$330		
		Truck transport						\$800		Low bed from Vernon						
23-Jun	Bob Yorke-Hardy	Supervisor/technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		generator, TD 9	Ewer - Claud	532954/523016		\$1,240		
	Bruce Essington	Operator	Backfill trenches	\$250	Jeep 4x4	\$150	\$50	\$240		JD 325, buckets,				\$690		
	Donna	Labourer	Broom and shovel work	\$250			\$50	\$30		Backhoe, 2 trailer				\$330		
24-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		generator,	JR - lower	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
25-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		JD 325, buckets,	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
26-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		Backhoe, 2 trailer	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
27-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
28-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
29-Jun	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
01-Jul	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
02-Jul	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
04-Jul	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
08-Jul	Bob Yorke-Hardy	Supervisor/technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
09-Jul	Bob Yorke-Hardy	Supervisor/technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	JR	532954	Reclamation - Examine/Backfill trenches/contour	\$1,240		
10-Jul	Bob Yorke-Hardy	Supervisor/technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	716 Zone		Reclamation - Examine/Backfill trenches/contour	\$1,240		
11-Jul	Bob Yorke-Hardy	Supervisor/technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	Claudia	523016	Reclamation - Examine/Backfill trenches/contour	\$1,240		
12-Jul	Bob Yorke-Hardy	Supervisor/technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	Claudia	523016	Reclamation - Examine/Backfill trenches/contour	\$1,240		
13-Jul	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	Claudia	523016	Reclamation - Examine/Backfill trenches/contour	\$1,240		
14-Jul	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540		"	Claudia	523016	Reclamation - Examine/Backfill trenches/contour	\$1,240		
		Sub Total		\$31,900		\$13,400	\$4,350	\$2,700	\$11,450					\$31,900	\$31,900	
<b>Event # 2</b>																
27-Jul	Bob Yorke-Hardy	Technologist	Reclamation	\$450	F 350	\$150	\$100	\$540			Claudia	523016	Complete Reclamation - Equipment to Camp	\$1,240		
11-Oct	Bruce Essington	Operator	De-mob	\$250	Jeep 4x4	\$150	\$50	\$240		TD9			Walk cat down McGregor	\$690		
	Donna	Helper	De-mob	\$250			\$50	\$30					Swamper/helper	\$330		
12-Oct	Bob Yorke-Hardy	Supervisor/technologist	De-mob	\$450	F 350	\$150		\$540						\$1,140		
	Bruce Essington	Helper	De-mob	\$250										\$250		
	Donna	Helper	De-mob	\$250										\$250		
		Sub Total		\$3,900		\$1,900	\$450	\$200	\$1,350					\$3,900	\$3,900	



**2017 Work Program For Assessment - Costs**

Physical															
Date	Personnel	Description	Work Performed	Wages	Veh. Desc.	Vehicle Cost	Food & Accom	Tools/Equip Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total	Cumulative
<b>Event # 1</b>															
08-Jul	Yuriy Shevchuk	Helper	Cleanighand trenching	\$250	4x4 dodge	\$150	\$100		\$30	hand tools	Claudia	523016		\$0	
09-Jul	Yuriy Shevchuk	Helper	Cleaning pits	\$250	4x4 dodge	\$150	\$100		\$30	hand tools	Claudia	523016		\$530	
10-Jul	Yuriy Shevchuk	Helper	Cleaning pits	\$250	4x4 dodge	\$150	\$100		\$30	hand tools	Claudia	523016		\$530	
11-Jul	Yuriy Shevchuk	Helper	Cleaning pits	\$250	4x4 dodge	\$150	\$100		\$30	hand tools	Claudia	523016		\$530	
12-Jul	Bruce Essington	Operator	Brushing/slowe old truck	\$250	Jeep 4x4	\$150	\$50		\$30	hand tools	Claudia	523016		\$480	
	Donna	Labourer	Cleaning/helper	\$250			\$50		\$30	hand tools	Claudia	523016		\$330	
15-Jul	Bob Yorke-Hardy	Technologist	Hand Pits	\$450	F 350	\$150	\$100		\$30	hand tools	Claudia	523016		\$730	
	Sub Total			\$3,660		\$1,950	\$600	\$600	\$210					\$3,660	\$3,660
<b>Event # 2</b>															
04-Aug	Bob Yorke-Hardy	Technologist	Hand Pits	\$450	F 350	\$150	\$100		\$30	hand tools	Claudia	523016		\$730	
05-Aug	Bob Yorke-Hardy	Technologist	Hand Pits	\$450	F 350	\$150	\$100		\$30	hand tools	Claudia	523016		\$730	
06-Aug	Bob Yorke-Hardy	Technologist	Hand Pits	\$450	F 350	\$150	\$100		\$30	hand tools	Pete/Road	1053300 & 1053302		\$730	
07-Aug	Bob Yorke-Hardy	Technologist	Hand Pits	\$450	F 350	\$150	\$100		\$30	hand tools	Pete/Road	1053300 & 1053302		\$730	
08-Aug	Bob Yorke-Hardy	Technologist	Hand Pits	\$450	F 350	\$150	\$100		\$30	hand tools	Pete/Road	1053300 & 1053302		\$730	
	Sub Total			\$3,650		\$2,250	\$750	\$500	\$150					\$3,650	\$3,650

**2017 Work Program For Assessment - Costs**

Technical															
Date	Personnel	Description	Work Performed	Wages	Veh. Desc.	Vehicle Cost	Food & Accom	Tools/Equip Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total	Cumulative
<b>Event # 1</b>															
08-Jun	Bob Yorke-Hardy	Technologist	Overview of property-verify	\$450	F 350	\$150	\$100							\$700	
	Joerg	Geologist	Advice about DE and Zeel	\$650										\$650	
14-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		generator,Hyd Hammer	Klinker			\$1,240	
15-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		JD 325, buckets,	Klinker			\$1,240	
16-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		Backhoe, 2 trailer	Klinker			\$1,240	
17-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		"	Klinker			\$1,240	
18-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		"	Klinker			\$1,240	
19-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		"	Klinker			\$1,240	
20-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		"	Klinker			\$1,240	
21-Jun	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		"	Klinker			\$1,240	
03-Jul	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450	F 350	\$150	\$100	\$540		"	Klinker			\$1,240	
05-Jul	Bob Yorke-Hardy	Technologist	NOW Application	\$450	F 350	\$150					Office			\$0	
06-Jul	Bob Yorke-Hardy	Technologist	NOW Application	\$450	F 350	\$150					Office			\$0	
07-Jul	Bob Yorke-Hardy	Technologist	NOW Application	\$450	F 350	\$150					Office			\$0	
16-Jul	Bob Yorke-Hardy	Technologist	NOW Application	\$450	F 350	\$150					Office			\$0	
17-Jul	Bob Yorke-Hardy	Technologist	Expedite/mapping	\$450	F 350	\$150	\$100	\$540		generator,Hyd Hammer	Office/Claudia			\$1,240	
18-Jul	Bob Yorke-Hardy	Technologist	GPS	\$450	F 350	\$150	\$100	\$540		JD 325, buckets,	Claudia/7'16			\$1,240	
19-Jul	Bob Yorke-Hardy	Technologist	GPS/mapping	\$450	F 350	\$150	\$100	\$540		Backhoe, 2 trailer	505JR			\$1,240	
20-Jul	Bob Yorke-Hardy	Technologist	mapping	\$450	F 350	\$150	\$100	\$540		"	Pete's Road	835927		\$1,240	
21-Jul	Bob Yorke-Hardy	Technologist	NOW Application	\$450	F 350	\$150					Office			\$0	
	Sub Total			\$20,470		\$9,200	\$2,850	\$1,400	\$7,020					\$20,470	\$20,470

2017 Work Program For Assessment - Costs

Date	Personnel	Description	Work Performed	Wages	Veh. Desc.	Vehicle Cost	Food & Accom	Tools/Equip Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total	Cumulative
<b>Event # 2</b>															
12-Jul	Fittman(2)	two labourors	Opal sample sorting	\$100											
	Gore(2), Hamala(2)	four labourors	Opal sample sorting	\$200											
22-Jul	Bob Yorke-Hardy	Technologist	NOW/Expedite	\$450 F 350		\$150								\$0	
23-Jul	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540		generator Hyd Hammer	Klinker			\$1,240	\$500
	Mike Yorke-Hardy	Helper	Opal sample sorting	\$250			\$50								
24-Jul	Bob Yorke-Hardy	Technologist	mapping	\$450 F 350		\$150	\$100	\$540		Backhoe, 2 trailer			Claudia	\$1,240	\$1,240
25-Jul	Bob Yorke-Hardy	Technologist	mapping/sorting	\$450 F 350		\$150	\$100	\$540					Claudia	\$1,240	\$1,240
26-Jul	Bob Yorke-Hardy	Technologist	prospecting	\$450 F 350		\$150	\$100	\$540					Pete/Road	\$1,240	\$1,240
27-Jul	Bob Yorke-Hardy	Technologist	mapping	\$450 F 350		\$150	\$100	\$540					Pete/Road	\$1,240	\$1,240
28-Jul	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540		generator Hyd Hammer	Klinker			\$1,240	\$1,240
29-Jul	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540		JD 325, buckets,	Klinker			\$1,240	\$1,240
	Chris Yorke-Hardy	Helper	Opal sample sorting	\$250			\$100			Backhoe, 2 trailer	Klinker			\$350	\$1,240
30-Jul	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
31-Jul	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
03-Aug	Bob Yorke-Hardy	Technologist	mapping/sorting	\$450 F 350		\$150	\$100	\$540					Claudia	\$1,240	\$1,240
05-Aug	Lovell(2), Eltridge	three labourors		\$150											
09-Aug	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
10-Aug	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
11-Aug	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
12-Aug	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
13-Aug	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Phillips, Bednarz	two labourors		\$100											
14-Aug	Bob Yorke-Hardy	Technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
15-Aug	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
16-Aug	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
17-Aug	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
18-Aug	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
	Tingstad, Kladi	two labourors		\$100											
	Boulton, Heinrich	four labourors		\$200											
	Hanson	two labourors		\$100											
19-Aug	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
20-Aug	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
21-Aug	Bob Yorke-Hardy	Supervisor/technologist	Sampling QZ/Agate	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
	Sharron Hubbard	Helper	Clean Trenches	\$250			\$100						JR & 716	\$350	\$1,240
22-Aug	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Charlebois	Helper (3)	Opal sample sorting	\$150			\$150						Klinker	\$300	\$1,240
23-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
24-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
25-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
26-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
27-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
28-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
29-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
30-Aug	Bob Yorke-Hardy	Technologist	Clean map sample	\$450 F 350		\$150	\$100	\$540					JR & 716	\$1,240	\$1,240
16-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
17-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
18-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
19-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
20-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
21-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
22-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
23-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sharron Hubbard	Helper	Opal sample sorting	\$250			\$100						Klinker	\$350	\$1,240
24-Sep	Bob Yorke-Hardy	Supervisor/technologist	Opal sample sorting	\$450 F 350		\$150	\$100	\$540					Klinker	\$1,240	\$1,240
	Sub Total	\$57,780		\$23,950		\$6,300	\$5,900	\$21,030						\$57,780	\$57,780

<b>Cost Summary</b>	
Event # 1 - Prior to July 22	\$56,030
Event # 2 - Post to July 22	\$65,330
<b>Total Work</b>	<b>\$121,360</b>

Cumulative Totals \$121,360

Total Person Days --- 138	
person days reclamation+mob-demob	36 days
person days sampling and sort opal	12 days
person days technical work	90 days

## Statement of Qualifications

I, Robert W. Yorke-Hardy, of Vernon, British Columbia, do hereby certify that:

1. I am a Mining Technologist residing at 684 Otter Lake Crossroad, Armstrong, British Columbia. I have accumulated 52 years of experience in the Mining/Mineral Exploration and related Industries. I, directly, indirectly or through Opal Resources Canada Inc., have provided management and technical expertise and exploration/development services on the Ewer/Klinker Project since 1991.
2. I am a graduate of the British Columbia Institute of Technology, Burnaby, British Columbia and I have practiced my profession for 50 years. I was a registered, charter member of the Association of Applied Science Technologists and Technicians of British Columbia. I was a member and a director of the B.C. and Yukon Chamber of Mines.
3. Robert Yorke-Hardy and his wife Alana Yorke-Hardy(deceased) owned and operated Y-H Technical Services Ltd.(YHT) of P.O. Box 298, Vernon, B.C., a mineral exploration services company; until its closure August 31, 2000. YHT or the Yorke-Hardy's provided all technical and managerial services to Okanagan Opal Inc.(later called Spectral Gold Corporation) from 2003 to 2016.
4. I, Robert Yorke-Hardy, am the sole owner, Director and Officer of the company Opal Resources Canada Inc. and I am the sole owner of the subject mineral tenures.
5. I, Robert Yorke-Hardy, am the only individual with sufficient first hand technical knowledge and detailed background information regarding the day to day operations of the comprehensive Okanagan Opal Business able to provide the information and details required to affordably conduct this work and assess the project potential.
6. This Report is based on knowledge and experience I have personally gained about the Okanagan Opal Business and Klinker Opal Project over the period from 1991 to the present; having personally lead this project each step of the way from initial discovery to development readiness and marketing. This report is based on work performed by myself, under my direction or by others while in my presence.



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R. W. Yorke-Hardy, Mining Technologist  
March 26, 2018

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July 9/17

Waypoints

## JR Zone

- 227 JR Lower trench access  
 228 JR Lower Trench - north end - west side cast  
 229 JR Lower Trench - south end - west side cast  
 230 JR Lower Trench - south end - east side cast  
 231 JR Original of exposure - agate location  
 232 - outline of work  
 233 - " " "  
 234 - " " "  
 235 - " " "  
 236 - " " "  
 237 - " " "  
 238 - " " "  
 239 - " " " - South  
 240 - " " "  
 241 - JR Upper Trench - north end - west side cast  
 242 - JR upper trench - west side cast  
 243 - JR upper trench - south west side cast  
 244 - JR upper trench - south east side cast  
 245 - JR upper trench - east side cast  
 246 - JR upper trench - " " "  
 247 - JR upper trench - north end - east side  
 248 - JR upper trench - north end access  
 249 JR upper trench - trail

- JR 250 - outline of work  
 JR 251 - " " "  
 JR 252 - trench access  
 JR 253 - agate / opal exposure  
 JR 254 - outline of work - side cast  
 JR 255 - south east edge lower work area  
 JR 256 - east edge lower trench area  
 JR 257 - north end lower trench access

## JR 716

258 - start of trail to 716

July 18/17 - Claudia Zone (NW corner land)

- 259 - corner pin  
 260 - trail  
 261 - reclaimed pit tree  
 262 - " " "  
 263 - " " "  
 264 - NW <sup>corner</sup> part of Claudia Zone  
 265 - NE corner of Claudia Zone  
 266 - Claudia Pits - vesicular volc  
 w/ common & some pr ecruis opal.  
 267 - trail to Billy Pit.  
 268 - SE corner Claudia Zone  
 269 - SW corner Claudia Zone

July 20/17 - Stan Road

- Recan in Am - went back to get GPS

311 Stan Rd - McGregor Jnt

312 Jnt

313 } Volcanic <sup>gray</sup> slate beds - thinly layered to 6cm

314 } - potential landscape ground cover

315 Black vesicular basalt - gray residue and eggs

316 " " " "

317 Black slaty volc - potential ground cover

318 Black vesicular basalt - broken <sup>green</sup> opal?

319 } " " " " gray residue in bags

320 } " " " "

321 volc slate bed - thinly layered - brown

322 end of road

323 Black volc - smaller vesicles - <sup>15m exposure</sup> dark to light gray residue

324 " 2x exposure

325 " " - continuation of above

326 Black ves volc w/ light brown ash? trace fillings

327 " " " " " "

328 " " " " " "

329 } contact zone of black slaty volc

330 } Black Slaty volc - contact w/ brown ves volc

331 } do brown slaty volc - mixed - <sup>some of layer</sup> opal/eggs

332 continue under mthly to 332 - Black vesicular <sup>at 332</sup>

333 Road bend to South

334 Sub of black volc w/ glassy appearance - <sup>possibly</sup> vesicular <sup>very filling</sup>

End of road

335 - same as 330 - under mthly from jnt

July 24/17

Claudin Rct - same main structure

Soots as at Minkler namely

080-090°, 760, 350 & 30-40°

precious & white opal on vesicles in basaltic flow - vugs elongated E/W

- see pics

July 25/17

clean pits at North Claudin

July 26/17

WP336 = 311 - Pete Rd - McGregor jnt

337 - Rd jnt to right (west)

338 - Rd jnt - left to volc plug - right to lake bottom sed - <sup>no opal</sup>

339 - end of right hand road - <sup>replaced</sup> clear cut

340 - upper SW edge of replaced/clear cut

341 - basalt float - small pcs columnar

342 - old logging road

343 - " " "

344 - " " "

345 - ? road? start of wet zone

can see basalt plus another



- 270 - trail  
 271 - " - small pest pit - reclaimed  
 272 - " - pest pit - reclaimed  
 273 - " - reclaimed pit area N/E  
 274 <sup>start</sup> Zeolite " - " " SE  
 275 Zeolite pit  
 276 <sup>small pit</sup> Vesicular Vole - minor common opal  
 277 small pit - chrysotile & silica common opal  
 278 - bally pit - common opal - minor pyrite  
 279 <sup>off</sup> trail to bedrock - common opal in vesic  
 280 - trail  
 281 - 3 <sup>x 1 m</sup> pit beside trail - reclaimed  
 282 - access trail - old skid trail  
 Pan Sample  
 283 - large clearing - logging land in <sup>example of 200m</sup> reclaimed  
 284 - start of trail to Claudia  
 285 @ WP 258 - 716 zone trail start  
 286 - Edge of old clear cut - ~~filled~~ 10 yrs?  
 287 - SE corner of 716 zone work area  
 288 - East edge - start of exposure cut  
 289 - East edge - site cast from exposure  
 290 - ~~NE~~ edge - contained excavated material  
 291 - West - " " "  
 292 - West edge - site cast from exposure  
 293 - West edge - reclaimed trench

- 293 contact lake bottom sediments & hydroxide  
 293 - West edge start of exposure cut  
 295 - old 716 trench NW end of existing  
 296 - NE branch 716 Trench  
 297 - West 716 trench  
 298 - <sup>100</sup> Sed 716 trench  
 299 - edge of contour reclaimed area  
 300 - edge of " " } backfilled  
 301 - West limit of " " } trenches  
 302 - Edge of 716 work area  
 303 - contact lake bottom sediments  
 black volcanic - next to hydroxide  
 - sample of rusty LB sediments & contact  
 black material  
 July 19/17  
 304 - Rhodolite processing common opal  
 - hydroxide? old way 639  
 - cleaned 3 meter of site - pictures  
 305 - JB area - north road - old  
 306 - White opal & agate in <sup>North</sup> cut bank  
 308 - Old Post Clutch 1 foot  
 309 - vein N/E - W/E/W cross - agate & opal  
 310 - Base of road up to JB trenches

- 346 - Beside web zone  
 347 - Yellow rip of basalt debris into left (E) <sup>flow zone</sup>  
 348 - ball of pcs & lump of volcanic ash  
 349 - filling rib - some basalt debris  
 350 - massive plug of basalt - flat stone  
 351 - east side of talus @ base - basalt  
<sup>now 335</sup> - see pic of large slab like pieces.  
 352 - top of talus - see pic of peak of doe  
 - see pic of talus to snow cap  
 353 - old soil sample site? <sup>lay on basalt</sup>  
 354 <sup>no WP</sup> - west doe of talus - all grey/black  
 355 <sup>20355</sup> - plug of soil debris - see pic  
 - reddish matrix  
 356 <sup>354</sup> - laminated basalt - see pic  
 - grey/black and olivine?  
 - weathers brown on some surface  
 358 = 351  
 359 - basalt - likely slump of basalt  
 360 - basalt center cap - smaller blocks  
 361 - water hole  
 362 = 343  
 363 = 342  
 364 - water hole 4m  $\Phi$   
 365 - running creek - small D.S. or less  
 Salt for panning  
 366 = 359 end of road

Aug 6/17

WP 367 = WP 334

- 368 - 1/2 black rhyolite - <sup>large 1200</sup> - <sup>stone</sup> <sup>stone</sup>  
 - see 352 & 089 - like 332 WP  
 369 - sub % fine grey volc - 3/4 clay <sup>some</sup>  
 370 - " " " " " " <sup>708</sup>  
 371 = 330 conduct zone  
 372 % & sub % of veggy volc <sup>weathered</sup>  
 373 - SW corner, calc block <sup>grey/brown</sup>  
 374 - volcanic ash exposed by blow down trees  
 375 - volcanic ash on forest floor  
 376 - volcanic plug? - some basalt @ 1235  
 - hot stone but olivine - jointing 320  
 377 - laminated basalt dip 65° W 170° Az  
 378 = 373  
 379 = 333 - rhyolite w some ice

Aug 7/17

- 378 = Knight Rd cattle guard - near <sup>bridge</sup> <sup>bridge</sup>  
 379 = Rd jct - to JK Zone  
 380 = fossil bed & SiO<sub>2</sub> sand bed.  
 381 & 382 - red soil - GP 32m - since Aug 60  
 destroyed <sup>reading</sup> - previously not seen  
 - sampled at depth of 30cm to 1m  
 383 - small lake - dam - 8m GP  
 iron rich ferric  
 boulders & coatings  
 - basalt areas  
 for repair at culverts

384 ?  
 385 - diatomite - lake Hoffman Seals  
 386 - "

## GPS Way Points : Klinker Ewer Assessment Report – 2017

See Field Notes and Work Area Maps. Note: Elevations are not corrected

WP#		Lat/Long Coordinates	
227	09-JUL-17 10:07:08AM	N50 23.149 W119 35.705 4380 ft	JR Zone
228	09-JUL-17 10:14:16AM	N50 23.146 W119 35.700 4386 ft	
229	09-JUL-17 10:17:21AM	N50 23.140 W119 35.692 4384 ft	
230	09-JUL-17 10:20:28AM	N50 23.141 W119 35.689 4391 ft	
231	09-JUL-17 10:24:25AM	N50 23.143 W119 35.688 4394 ft	
232	09-JUL-17 10:25:08AM	N50 23.145 W119 35.684 4395 ft	
233	09-JUL-17 10:26:59AM	N50 23.148 W119 35.682 4402 ft	
234	09-JUL-17 10:31:43AM	N50 23.153 W119 35.682 4402 ft	
235	09-JUL-17 10:32:12AM	N50 23.152 W119 35.679 4405 ft	
236	09-JUL-17 10:33:48AM	N50 23.157 W119 35.673 4410 ft	
237	09-JUL-17 10:34:05AM	N50 23.157 W119 35.672 4408 ft	
238	09-JUL-17 10:37:22AM	N50 23.151 W119 35.665 4406 ft	
239	09-JUL-17 10:39:31AM	N50 23.147 W119 35.661 4405 ft	
240	09-JUL-17 10:40:40AM	N50 23.152 W119 35.659 4410 ft	
241	09-JUL-17 10:42:35AM	N50 23.160 W119 35.656 4414 ft	
242	09-JUL-17 10:43:50AM	N50 23.157 W119 35.653 4416 ft	
243	09-JUL-17 10:46:54AM	N50 23.156 W119 35.645 4415 ft	
244	09-JUL-17 10:49:03AM	N50 23.154 W119 35.642 4414 ft	
245	09-JUL-17 10:50:14AM	N50 23.156 W119 35.642 4414 ft	
246	09-JUL-17 10:51:50AM	N50 23.158 W119 35.645 4416 ft	
247	09-JUL-17 10:53:05AM	N50 23.162 W119 35.649 4416 ft	
248	09-JUL-17 10:55:15AM	N50 23.161 W119 35.652 4415 ft	
249	09-JUL-17 10:56:00AM	N50 23.159 W119 35.664 4408 ft	
250	09-JUL-17 10:58:14AM	N50 23.159 W119 35.674 4401 ft	
251	09-JUL-17 10:59:40AM	N50 23.156 W119 35.676 4399 ft	
252	09-JUL-17 11:01:09AM	N50 23.153 W119 35.682 4393 ft	
253	09-JUL-17 11:03:39AM	N50 23.151 W119 35.682 4391 ft	
254	09-JUL-17 11:06:44AM	N50 23.150 W119 35.687 4387 ft	
255	09-JUL-17 11:09:02AM	N50 23.148 W119 35.685 4387 ft	
256	09-JUL-17 11:11:04AM	N50 23.148 W119 35.689 4384 ft	
257	09-JUL-17 11:11:31AM	N50 23.148 W119 35.696 4382 ft	JR Zone
258	09-JUL-17 1:20:24PM	N50 22.833 W119 36.384 4406 ft	716 Zone Rd Jnct.
259	18-JUL-17 8:52:32AM	N50 21.717 W119 34.332 4937 ft	Claudia Zone
260	18-JUL-17 8:54:26AM	N50 21.717 W119 34.333 4935 ft	
261	18-JUL-17 8:57:07AM	N50 21.722 W119 34.332 4935 ft	
262	18-JUL-17 8:58:17AM	N50 21.727 W119 34.333 4933 ft	
263	18-JUL-17 8:59:22AM	N50 21.732 W119 34.332 4933 ft	
264	18-JUL-17 9:00:50AM	N50 21.734 W119 34.331 4934 ft	
265	18-JUL-17 9:04:01AM	N50 21.736 W119 34.325 4934 ft	
266	18-JUL-17 9:04:27AM	N50 21.732 W119 34.321 4932 ft	
267	18-JUL-17 9:08:12AM	N50 21.729 W119 34.316 4933 ft	
268	18-JUL-17 9:10:00AM	N50 21.729 W119 34.320 4932 ft	
269	18-JUL-17 9:11:43AM	N50 21.729 W119 34.325 4931 ft	



## GPS Way Points : Klinker Ewer Assessment Report – 2017

See Field Notes and Work Area Maps. Note: Elevations are not corrected

WP#		Lat/Long Coordinates	
270	18-JUL-17 9:16:00AM	N50 21.740 W119 34.320	4931 ft
271	18-JUL-17 9:17:21AM	N50 21.744 W119 34.307	4929 ft
272	18-JUL-17 9:20:41AM	N50 21.743 W119 34.278	4917 ft
273	18-JUL-17 9:21:40AM	N50 21.743 W119 34.278	4916 ft
274	18-JUL-17 9:23:18AM	N50 21.740 W119 34.277	4916 ft
275	18-JUL-17 9:25:26AM	N50 21.740 W119 34.279	4916 ft
276	18-JUL-17 9:37:43AM	N50 21.747 W119 34.308	4931 ft
277	18-JUL-17 9:40:13AM	N50 21.728 W119 34.314	4930 ft
278	18-JUL-17 9:42:06AM	N50 21.730 W119 34.311	4930 ft
279	18-JUL-17 9:52:33AM	N50 21.722 W119 34.325	4929 ft
280	18-JUL-17 9:54:53AM	N50 21.716 W119 34.336	4928 ft
281	18-JUL-17 9:58:06AM	N50 21.707 W119 34.332	4930 ft
282	18-JUL-17 9:58:54AM	N50 21.698 W119 34.318	4924 ft
283	18-JUL-17 10:20:09AM	N50 21.576 W119 34.171	4851 ft
284	18-JUL-17 10:24:55AM	N50 21.491 W119 34.050	4799 ft
285	18-JUL-17 11:44:53AM	N50 22.833 W119 36.377	4406 ft
286	18-JUL-17 11:46:51AM	N50 22.848 W119 36.401	4417 ft
287	18-JUL-17 11:50:36AM	N50 22.892 W119 36.461	4445 ft
288	18-JUL-17 11:52:27AM	N50 22.899 W119 36.455	4442 ft
289	18-JUL-17 11:56:03AM	N50 22.904 W119 36.449	4438 ft
290	18-JUL-17 11:57:42AM	N50 22.906 W119 36.441	4434 ft
291	18-JUL-17 11:59:42AM	N50 22.909 W119 36.443	4433 ft
292	18-JUL-17 12:01:21PM	N50 22.907 W119 36.452	4434 ft
293	18-JUL-17 12:04:06PM	N50 22.904 W119 36.459	4435 ft
294	18-JUL-17 12:07:20PM	N50 22.906 W119 36.461	4434 ft
295	18-JUL-17 12:08:10PM	N50 22.905 W119 36.462	4435 ft
296	18-JUL-17 12:09:52PM	N50 22.904 W119 36.460	4434 ft
297	18-JUL-17 12:12:34PM	N50 22.904 W119 36.461	4434 ft
298	18-JUL-17 12:15:39PM	N50 22.899 W119 36.461	4436 ft
299	18-JUL-17 12:18:02PM	N50 22.901 W119 36.464	4436 ft
300	18-JUL-17 12:18:52PM	N50 22.900 W119 36.464	4440 ft
301	18-JUL-17 12:20:22PM	N50 22.898 W119 36.470	4438 ft
302	18-JUL-17 12:22:51PM	N50 22.896 W119 36.463	4443 ft
303	18-JUL-17 12:33:25PM	N50 22.905 W119 36.454	4437 ft
304	19-JUL-17 11:28:29AM	N50 24.310 W119 38.701	4473 ft
305	19-JUL-17 12:46:00PM	N50 23.233 W119 35.841	4333 ft
306	19-JUL-17 12:50:32PM	N50 23.234 W119 35.820	4340 ft
308	19-JUL-17 12:55:55PM	N50 23.231 W119 35.749	4386 ft
309	19-JUL-17 1:02:06PM	N50 23.232 W119 35.745	4390 ft
310	19-JUL-17 1:41:28PM	N50 23.122 W119 35.723	4343 ft
311	20-JUL-17 11:36:55AM	N50 21.448 W119 34.264	4459 ft
312	20-JUL-17 11:57:50AM	N50 20.629 W119 34.591	5193 ft
313	20-JUL-17 12:01:53PM	N50 20.590 W119 34.515	5224 ft

716 Zone Rd Jnct.

505 Trench

JR Zone

Pete's Road Jnct.

## GPS Way Points : Klinker Ewer Assessment Report – 2017

See Field Notes and Work Area Maps. Note: Elevations are not corrected

WP#		Lat/Long Coordinates	
314	20-JUL-17 12:03:24PM	N50 20.596 W119 34.514	5226 ft
315	20-JUL-17 12:08:04PM	N50 20.599 W119 34.518	5225 ft
316	20-JUL-17 12:13:18PM	N50 20.585 W119 34.513	5226 ft
317	20-JUL-17 12:16:22PM	N50 20.581 W119 34.514	5226 ft
318	20-JUL-17 12:25:12PM	N50 20.526 W119 34.476	5259 ft
319	20-JUL-17 12:32:04PM	N50 20.505 W119 34.400	5260 ft
320	20-JUL-17 12:34:20PM	N50 20.499 W119 34.385	5266 ft
321	20-JUL-17 12:35:13PM	N50 20.501 W119 34.393	5263 ft
322	20-JUL-17 12:43:34PM	N50 20.378 W119 34.197	5272 ft
323	20-JUL-17 12:48:44PM	N50 20.481 W119 34.334	5267 ft
324	20-JUL-17 12:58:06PM	N50 20.550 W119 34.506	5267 ft
325	20-JUL-17 1:00:00PM	N50 20.562 W119 34.513	5256 ft
326	20-JUL-17 1:07:16PM	N50 20.609 W119 34.556	5224 ft
327	20-JUL-17 1:15:52PM	N50 20.656 W119 34.653	5226 ft
328	20-JUL-17 1:17:55PM	N50 20.667 W119 34.672	5230 ft
329	20-JUL-17 1:26:13PM	N50 20.666 W119 34.673	5231 ft
330	20-JUL-17 1:27:21PM	N50 20.676 W119 34.709	5231 ft
331	20-JUL-17 1:30:26PM	N50 20.673 W119 34.726	5237 ft
332	20-JUL-17 1:35:22PM	N50 20.666 W119 34.751	5247 ft
333	20-JUL-17 1:46:20PM	N50 20.595 W119 34.813	5276 ft
334	20-JUL-17 1:57:45PM	N50 20.658 W119 34.770	5253 ft
335	20-JUL-17 2:24:03PM	N50 20.712 W119 34.562	5148 ft
336	26-JUL-17 10:04:14AM	N50 21.451 W119 34.260	4825 ft
337	26-JUL-17 10:25:21AM	N50 21.076 W119 34.521	4901 ft
338	26-JUL-17 10:43:34AM	N50 21.000 W119 34.746	4950 ft
339	26-JUL-17 10:51:57AM	N50 20.954 W119 34.989	4995 ft
340	26-JUL-17 10:58:41AM	N50 20.917 W119 35.048	5049 ft
341	26-JUL-17 11:26:43AM	N50 20.860 W119 35.089	5084 ft
342	26-JUL-17 11:31:56AM	N50 20.841 W119 35.117	5092 ft
343	26-JUL-17 11:34:35AM	N50 20.828 W119 35.137	5092 ft
344	26-JUL-17 11:39:37AM	N50 20.816 W119 35.163	5096 ft
345	26-JUL-17 11:43:24AM	N50 20.803 W119 35.167	5093 ft
346	26-JUL-17 11:47:36AM	N50 20.782 W119 35.171	5103 ft
347	26-JUL-17 11:51:12AM	N50 20.762 W119 35.188	5129 ft
348	26-JUL-17 11:56:49AM	N50 20.747 W119 35.202	5156 ft
349	26-JUL-17 12:09:48PM	N50 20.696 W119 35.248	5257 ft
350	26-JUL-17 12:25:06PM	N50 20.678 W119 35.287	5304 ft
351	26-JUL-17 12:45:54PM	N50 20.690 W119 35.361	5339 ft
352	26-JUL-17 12:46:36PM	N50 20.690 W119 35.361	5338 ft
353	26-JUL-17 12:50:22PM	N50 20.687 W119 35.413	5355 ft
354	26-JUL-17 1:02:59PM	N50 20.685 W119 35.480	5396 ft
355	26-JUL-17 1:03:24PM	N50 20.684 W119 35.480	5398 ft
356	26-JUL-17 1:07:37PM	N50 20.691 W119 35.452	5364 ft

Pete's Rd Inct.

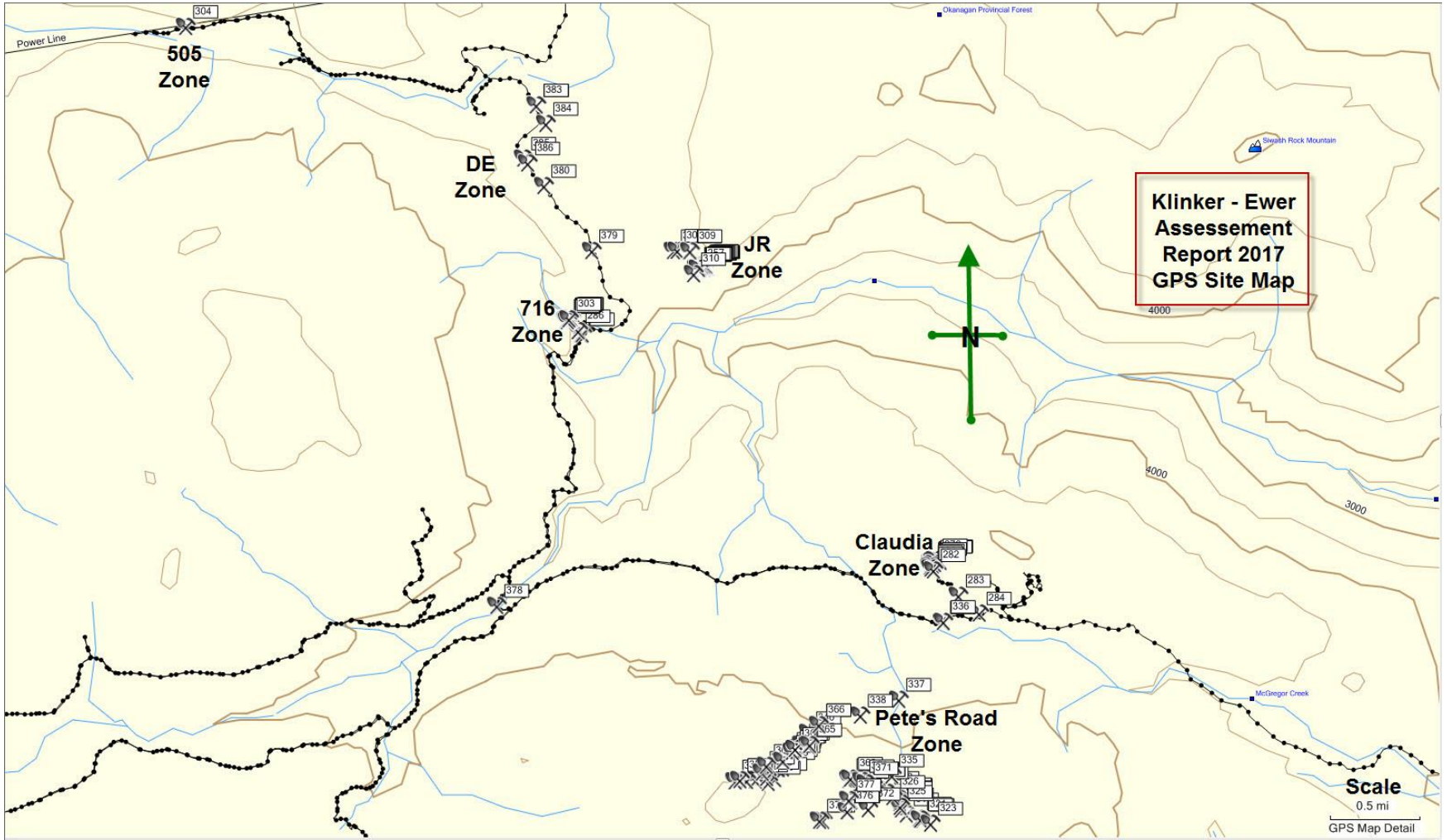
## GPS Way Points : Klinker Ewer Assessment Report – 2017

See Field Notes and Work Area Maps. Note: Elevations are not corrected

WP#		Lat/Long Coordinates	
357	26-JUL-17 1:07:49PM	N50 20.691 W119 35.452	5364 ft
358	26-JUL-17 1:18:57PM	N50 20.701 W119 35.295	5313 ft
359	26-JUL-17 1:35:32PM	N50 20.726 W119 35.321	5323 ft
360	26-JUL-17 1:41:12PM	N50 20.759 W119 35.297	5273 ft
361	26-JUL-17 1:50:14PM	N50 20.782 W119 35.200	5155 ft
362	26-JUL-17 1:56:15PM	N50 20.826 W119 35.145	5130 ft
363	26-JUL-17 1:58:22PM	N50 20.840 W119 35.128	5123 ft
364	26-JUL-17 2:04:36PM	N50 20.856 W119 35.051	5073 ft
365	26-JUL-17 2:14:42PM	N50 20.859 W119 35.043	5053 ft
366	26-JUL-17 2:27:42PM	N50 20.955 W119 34.989	4965 ft
367	06-AUG-17 2:14:32PM	N50 20.659 W119 34.767	5189 ft
368	06-AUG-17 2:21:52PM	N50 20.691 W119 34.813	5174 ft
369	06-AUG-17 2:28:20PM	N50 20.698 W119 34.804	5184 ft
370	06-AUG-17 2:34:05PM	N50 20.686 W119 34.736	5201 ft
371	06-AUG-17 2:37:14PM	N50 20.675 W119 34.712	5204 ft
372	06-AUG-17 2:56:43PM	N50 20.551 W119 34.700	5277 ft
373	06-AUG-17 3:06:17PM	N50 20.540 W119 34.820	5290 ft
374	06-AUG-17 3:24:24PM	N50 20.495 W119 34.967	5338 ft
375	06-AUG-17 3:29:06PM	N50 20.495 W119 34.985	5348 ft
376	06-AUG-17 4:10:09PM	N50 20.540 W119 34.823	5283 ft
377	06-AUG-17 4:16:09PM	N50 20.595 W119 34.813	5260 ft
378	07-AUG-17 11:47:59AM	N50 21.528 W119 36.877	4708 ft
379	07-AUG-17 12:00:11PM	N50 23.233 W119 36.320	4376 ft
380	07-AUG-17 12:06:26PM	N50 23.545 W119 36.601	4307 ft
381	07-AUG-17 12:40:10PM	N50 23.933 W119 36.645	4232 ft
382	07-AUG-17 12:40:30PM	N50 23.933 W119 36.645	4218 ft
383	07-AUG-17 12:47:36PM	N50 23.933 W119 36.646	4229 ft
384	07-AUG-17 12:59:26PM	N50 23.844 W119 36.590	4217 ft
385	07-AUG-17 2:05:29PM	N50 23.677 W119 36.719	4204 ft
386	07-AUG-17 2:12:40PM	N50 23.654 W119 36.696	4212 ft

Pete's Road Inct.  
Knight/McGregor Inct





## APPENDIX II

### MINFILE DESCRIPTIONS FOR THE PROPERTY

#### **MINFILE No 082LSW125**

#### **Name KLINKER, OKANAGAN OPAL, KLINKER OPAL Mining Division Vernon**

BCGS Map 082L033

Status Developed Prospect NTS Map 082L05E Latitude 50° 21' 31"

N UTM 11 (NAD 83)

Longitude 119° 33' 51" W Northing 5581648

Easting 317616

Commodities Opal, Gemstones, Agate Deposit Types Q11 : Volcanic-hosted opal Tectonic Belt Intermontane

Terrane Overlap Assemblage, Harper Ranch

Capsule Geology The Klinker showing is located 23 kilometres west-northwest of Vernon, north of McGregor Creek.

In this area, Upper Triassic to Lower Jurassic Nicola Group sedimentary and volcanic rocks unconformably overlie sedimentary and volcanic rocks of the Devonian to Triassic Harper Ranch Group. These units are intruded by Middle Jurassic granitic rocks. Extensive Eocene Kamloops Group and Penticton Group volcanic and sedimentary rocks overlie the older units.

The Klinker property covers several concentrations of precious opal developed in the basal 100 metres of the Kamloops Group. The hostrock is a volcanic breccia-lahar complex composed of angular to rounded clasts of andesite and basalt ranging from 0.2 to 0.6 metre in diameter in a lapilli tuff matrix. In the lahar, the tuff has bedding which swirls around the clasts. Lapilli tuff lenses up to 5 metres thick develop locally and indicate that the volcanic succession dips 20 to 30 degrees to the west. Thin andesite or basalt flows and intrusions up to 4 metres thick are scattered throughout. On McGregor Creek Forestry Access Road, about 500 metres east of the discovery pit, outcrops of grey-green meta-andesite flows and lapilli tuffs of probable Late Paleozoic age form the basement which dips gently westward and underlies the valley bottom of Ewer Creek north of the property.

On the property, precious opal, agate and common opal fill fractures in the Eocene rocks and permeate podiform rock masses which are up to 0.5 metre in diameter in the lahars. The rock masses are smaller in the lapilli tuffs and absent in the flows or intrusions. Precious opal-filled fractures preferentially develop in sets with the following three preferred strikes: 025 +/- 10 degrees, 070 +/- 10 degrees and 330 +/- 15 degrees; all sets have steep dips. The podiform rock masses commonly form beside or across opal-filled fractures. In the masses, precious opal fills voids developed during the formation of the hostrock, and later openings apparently formed by local dissolution of the host. Here and there the precious opal, agate and common opal have layering which is subhorizontal even in subvertically oriented fracture fillings. The presence of this subhorizontal layering in these materials, which is not subparallel to the orientation of the gently west-dipping lapilli tuff, implies that the precious opal, agate and common opal precipitated after the beds were tilted.

Of the six shallow pits exposing the precious opal on the Klinker property, the discovery pit is the largest at 2100 square metres, and together with the smaller Bluebird pit, probably the richest because of subequally developed podiform masses and fracture fillings. A right-lateral strike-slip fault dips 80 degrees northwest (slickensides trend/plunge 195/25S), passes along the eastern side of the pit, and offsets the lahars an indeterminate amount. In the other shallow pits, the Tripod, Red Rock and the Caramel and its extension, podiform masses in the lahars developed at the expense of fracture fillings. A lapilli tuff underlies the eastern side of the Caramel pit. Outside the pit areas, the primary openings of the rock are either mostly empty or less commonly filled with agate, common opal, chabazite - a highly hydrated zeolite, and other unidentified zeolites (P. Read, personal communication, 1995).

The opal is white, orange or red, with some fire-green and fire-orange opal reported. Most of the precious opal is described as having a light orange base, is clear and full of colour. At surface the opal is hydrophane, but becomes more solid at shallow depths. The banded agate has grey, white and clear bands. The opal was discovered in 1991.

Besides precious opal, common opal and agate at the Klinker deposit, there are other fracture-fill minerals which include non-precious facet-grade opal, quartz, celadonite, amorphous manganese oxides, clinoptilolite, heulandite, stilbite, jarosite, clays and rarely, clacite. Non-precious, facet-grade opal is typically orange and honey coloured, similar to Mexican "fire opal". Common opals occur as transparent, translucent and opaque types in white, honey, brown, amber, orange and grey colours. Quartz can occur as small, inward facing, terminated crystals within vugs. X-ray diffraction analysis notes that kutnahorite and saponite co-exist with opal. Opal from the Klinker property is classified as opal-CT, using Jones and Segnit's (1971) grade classification. Most stones from deposits with precious and common opal are classified as opal-A (Frye, 1981).

Okanagan Opal Inc. conducted test pitting and some rockhound sales transpired (Information Circular 1996-1, page 20).

There was enough volume of commercial grade opal excavated during the 1994 season's bulk sampling program to provide the raw material necessary to start a small scale gemstone cutting and retail sales business. Sorting, grading and cutting of finished gemstones began on a limited scale in November 1994 and continued through to late December 1994. This program re-commenced in January 1, 1995 and is scheduled to produce sufficient quality and quantity of finished 'opal product' to commence a local retail sales operation by May 1, 1995 (Assessment Report 24606).

Small scale test mining and market was ongoing in 1996. Okanagan took a 316.5-tonne bulk sample of opal-bearing material from test pits. The company has set up a workshop and retail outlet at Vernon where opal jewelery and specimens are produced and sold.

EM EXPL 1996-A24,D5,D7; 1997-40

**EMPR ASS RPT 24370, \*24606**

EMPR FIELDWORK 1982, pp. 89-92; 1987, pp. 55-58; 1988, pp. 355-363; \*1997, pp. 321-327; 1998-1, p. 24

EMPR INF CIRC 1995-9, p. 20; 1996-1, p. 20; 1997-1, p. 23 EMPR MAP 37;  
5214G; 7216G

EMPR OF 1989-5; 1990-30

EMPR PF (In 082LSW General - Claim Map, 1966; Cab & Crystal article "We truly can be thankful" by R.W. Yorke-Hardy, Vol. 3 Number 6, 1991; \*Property description, P. Read, 1995; Gem & Mineral Federation of Canada Newsletter, Spring 1999, Vol.18, No.2, pp. 10-12; Okanagan Opal Inc. Website (Feb. 1999): Company History & Information, 5 p.; Yorke-Hardy, Bob (Spring 2000) Okanagan Opal - Successful development at the Klinker Opal Deposit, Volume 1, Number 2, 3 pages; Yorke-Hardy, Bob (Winter/Spring 1999): Precious Opals in Canada, Volume 3, Number 1, 3 pages) EMPR RGS 1976

GSC MEM 296

GSC OF 637; 736; 2167 GSC P 89-

1E, pp. 51-60

CIM '97 Vancouver Program, April 27-30, 1997, p. 61

WWW <http://www.opalscanada.com>; <http://www.gemnews.net>; <http://www.canadianrockhound.com> Lapidary Journal \*February 1993, pp. 63-66

**MINFILE No 082LSW159**

**Name PINAUS Mining Division Vernon**

BCGS Map 082L032

Status Showing NTS Map 082L05E Latitude 50° 23'

41" N UTM 11 (NAD 83)

Longitude 119° 36' 45" W Northing 5585782

Easting 314319

Commodities Diatomite Deposit Types F06 : Lacustrine diatomite Tectonic Belt

Intermontane Terrane Quesnel

Capsule Geology At the Pinaus showing, waterlain, tuffaceous (rhyolite ash) shale and siltstone lie at the base of a rhyolite succession which passes upwards into rhyolite tephra and flows. The Diatomaceous earth locally develops at the base of this succession.

These Diatomaceous rocks are absorbant, light in colour and weight, and contain a mixture of tuffaceous debris and diatom filaments. The age of these rocks appears to be Miocene based on preliminary evaluations of well preserved fossil leaves and pollen grains (personal communication in 1996 with L. Donaldson, Okanagan College). This would make the rhyolitic succession part of the Miocene Chilcotin Group.

Bibliography GSC MEM 296 GSC OF

481; 637

GSC P 89-1E pp. 51-60

Church, B.N. (1996): The Geological Setting of Industrial Minerals, Precious Stones and Au-Ag Veins in Tertiary Outliers of the Okanagan-Boundary District (82E, 82L) (in press).



**MINFILE No 082LSW116****Name DAVE, DAVE 2 Mining Division Vernon**

BCGS Map 082L033

Status Showing NTS Map 082L05E Latitude 50° 18'

11" N UTM 11 (NAD 83)

Longitude 119° 31' 46" W Northing 5575387

Easting 319875

Commodities Gold Deposit Types

Tectonic Belt Intermontane Terrane Harper Ranch

Capsule Geology The Dave showing is located 18 kilometres west-northwest of Vernon, north of Naswhito Creek.

In this area, Upper Triassic to Lower Jurassic Nicola Group sedimentary and volcanic rocks unconformably overlie sedimentary and volcanic rocks of the Devonian to Triassic Harper Ranch Group. These units are intruded by Middle Jurassic granitic rocks. Extensive Eocene Penticton Group volcanic and sedimentary rocks overlie the older units.

A quartz vein in Harper Ranch Group tuffs and volcanic rocks hosts gold mineralization. The vuggy vein is hematite and limonite stained. A 6.5-metre chip sample analysed 5.73 grams per tonne gold (5730 parts per billion) (Assessment Report 19152).

In 1988-89, Geotronic Surveys Ltd. carried out geological mapping.

Bibliography EMPR ASS RPT \*19152

EMPR FIELDWORK 1982, pp. 89-92; 1987, pp. 55-58; 1988, pp. 355-363; 2000, pp. 191-222 EMPR MAP 37, 5214G, 7216G

EMPR OF 1989-5, 1990-30

EMPR PF (In 082LSW General - Claim Map, 1966) EMPR RGS 1976

GSC MEM 296

GSC OF 637, 736, 2167 GSC P 89-

1E pp. 51-60