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Property'

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EXCELLENT PROPERTY

PRELIMINARY REPORT ON THE INDEX PROPERTY LILLOOET MINING DIVISION, BRITISH COLUMBIA

LILLOOET. THIS TOWN IS ABOUT 225 MILES NORTH, BY ROAD, FROM VANCOUVER, BRITISH COLUMBIA AND IT IS ON THE PACIFIC GREAT EASTERN RAILWAY DISTANT ABOUT 100 MILES FROM VANCOUVER. THE INDEX IS ABOUT 75 MILES SOUTH WEST OF LILLOOET, BY COTTONWOOD CREEK. THIS CREEK TRAVELERS A MORE HEAVY TRAILER THAN THAT THAT IN WHICH TEXAS CREEK FLOWS, AND

INTRODUCTION:

UPWARD SIDE OF THE MOUNT, LARGER PRECIPITATION AND HIGH FOG IN MORE OPEN COUNTRY. THERE WOULD BE SOME SORT OF AN ACCESS ROAD WILL HAVE TO BE THE INDEX MINE WAS LOCATED IN 1914, AND SOME ORE WAS SHIPPED DURING 1916 - 1918. SINCE THEN A NUMBER OF EFFORTS HAVE BEEN MADE TO BRING THE MINE INTO PRODUCTION. BUT, MORE BECAUSE OF HUMAN FRAILITIES RATHER THAN THE LACK OF ORE, NOTHING CONSTRUCTIVE HAS HAPPENED AT THIS EXCELLENT MOLYBDENITE PROPERTY OVER THE PAST 40 YEARS. NO EXISTING LOGGING ROAD WILL BE HELD BACK IN THE CONSTRUCTION OF A ROAD TO THE MINE.

LAST YEAR, IN APRIL AND MAY, THE WRITER WAS ENGAGED IN EVALUATING PLACER GROUND NEAR THE JUNCTION OF THE FRASER RIVER AND TEXAS CREEK. WHILE IN THE AREA, FLOAT, CARRYING MOLYBDENITE WAS OBSERVED IN TEXAS CREEK, AND ALONG THE BANKS OF THE FRASER. IT IS PROBABLE THAT IN THE PAST PROSPECTORS TRACED THIS FLOAT TO ITS SOURCE. THE OBSERVER THEREFORE DECIDED THAT, SINCE THE AREA WAS UNDER EXAMINATION, SOME ATTEMPT SHOULD BE MADE TO INVESTIGATE THE MINERAL POTENTIAL UP TEXAS CREEK. IT IS TO BE NOTED THAT THE EXAMINATION OF THE INDEX WAS CARRIED OUT SOLELY FOR ACADEMIC INFORMATION, JUST IN CASE SOME DATA ABOUT THE PROPERTY MIGHT BE REQUIRED AT SOME FUTURE DATE. THE OBSERVER HUMBLY ADMITS THAT COLLECTING FINE OR RARE MINERAL SPECIMENS IS ONE OF HIS MEANS OF RELAXATION. HENCE, IN SPENDING THREE DAYS IN THE AREA, THE PROPERTY WAS MORE THOROUGHLY EXAMINED (WITH A VIEW TO COLLECTING SPECIMENS) ON THIS BASIS, THAN WITH THE ECONOMIC POTENTIAL IN MIND. THE RESULT WAS A VERY COMPLETE APPRAISAL OF THE INDEX, WHICH INFORMATION IS NOW USEFUL IN COMPILING THIS REPORT.

LOCATION AND ACCESS:

THE INDEX MINE IS ON THE SUMMIT BETWEEN THE NORTH FORK OF TEXAS CREEK AND COTTONWOOD CREEK. THE SUMMIT IS AT AN ELEVATION OF 3000-3500', AND TRENDS IN A WESTERLY DIRECTION. ACCESS TO THE PROPERTY IS VIA TRAILS UP TEXAS AND COTTONWOOD CREEK. THE TRAIL ALONG THE FORMER CREEK WAS USED BY PREVIOUS OPERATORS, BUT HAS BEEN IN DISUSE SO LONG THAT ALL OF THE EIGHT BRIDGES WHICH CROSSED THE CREEK ARE NOW OUT. OF THE 5 MILES OF TRAIL, 6 ARE IN A CANYON. AT HIGHWATER THE TRAIL IS INUNDATED, AND

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GEOLOGICAL CONSULTANT:
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RECENT SHIPMENT OF POLYGENITE ORE WAS MADE IN 1976. 8 TONS, INCLUDING POLYGENITE, WERE PACKED OUT ON HORSES. THIS ORE WAS PROBABLY HAND-SORTED, AND REPRESENTS ONLY THE HIGHEST GRADE. IT IS PROBABLE THAT THE AVERAGE GRADE IS AROUND 8-12% POLYGENITE.

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THE BEST ROAD OF THE POLYGENITE MINERALIZATION IS A GENERALLY IMPASSABLE.

TEXAS CREEK JOINS THE FRASER SOME 13 MILES SOUTH OF LILLOOET. THIS TOWN IS ABOUT 223 MILES NORTH, BY ROAD, FROM VANCOUVER, BRITISH COLUMBIA; AND IT IS ON THE PACIFIC GREAT EASTERN RAILWAY, DISTANT ABOUT 150 MILES FROM VANCOUVER. THE INDEX IS ABOUT 15 MILES SOUTH WEST OF LILLOOET, UP COTTONWOOD CREEK. THIS CREEK TRAVERSES A MUCH GENTLER TERRAIN THAN THAT THROUGH WHICH TEXAS CREEK FLOWS. AND BEING ON THE LEeward SIDE OF THE SUMMIT, LESSER PRECIPITATION HAS RESULTED IN MORE OPEN COUNTRY. THUS, SINCE SOME SORT OF AN ACCESS ROAD WILL HAVE TO BE BUILT TO THE INDEX, IT IS SUGGESTED THAT THE COTTONWOOD AREA RECEIVE MORE CONSIDERATION THAN THE TEXAS CREEK SIDE.

SOME LOGGING HAS BEEN DONE ON BOTH SIDES OF THE SUMMIT, HOWEVER, MOST OF THE LOGGING HAS BEEN CONFINED TO THE LOWER ELEVATIONS, SO EXISTING LOGGING ROADS WILL NOT HELP MUCH IN THE CONSTRUCTION OF A ROAD TO THE SUMMIT. BUT THERE IS SUFFICIENT TIMBER AVAILABLE FOR ALL MINING PURPOSES. AND IT IS PROBABLE THAT SOME OF THIS TIMBER MIGHT BE ENOUGH INCENTIVE TO THE LOGGER TO PARTICIPATE IN THE CONSTRUCTION OF A ROAD TO THE SUMMIT.

ALTHOUGH THERE ARE SOME STEEP SLOPES AT HIGHER ELEVATIONS, MOST OF THE COTTONWOOD AREA IS COVERED BY GRAVEL. THEREFORE ROAD CONSTRUCTION SHOULD NOT BE VERY EXPENSIVE, NOR SHOULD THE 15 MILES TAKE LONG TO BUILD. ONCE CONSTRUCTION HAS BEGUN, THE ROADMAKING SHOULD PROGRESS AT A RATE OF 1/2 MILE PER DAY. AND AT HIGHER ELEVATIONS LESS TIMBER SHOULD ALLOW CONSTRUCTION TO PROCEED AT THE RATE OF 1 MILE PER DAY.

WATER IS AVAILABLE AT ALL TIMES. THERE ARE MANY SMALL LAKES IN THE SUMMIT AREA. THESE WOULD SUPPLY SUFFICIENT WATER FOR THE MINE AND CAMP.

SINCE THE MINE IS AT 7500', WINTERS ARE SEVERE. SNOWFALL IS TYPICAL OF OTHER HIGH REGIONS, AND TENDS TO BE ABOUT 10-12'. HOWEVER, SINCE THE AREA IS UNDER THE INFLUENCE OF PACIFIC CLIMATE, TEMPERATURES ARE NOT EXCESSIVELY LOW. THE RAINFALL IS NOT HEAVY, AND BETWEEN MAY AND OCTOBER THE COUNTRY MAY BE CONSIDERED AN INTEGRAL PART OF THE INTERIOR DRY BELT. ALSO, THE COTTONWOOD AREA BEING ON THE LEeward SIDE, PRECIPITATION IS LESS THAN THAT ON THE TEXAS CREEK SIDE.

GEOLOGICAL DESCRIPTION:

THE PROPERTY, A NUMBER OF OLD CROWN GRANTS, HAS ATTRACTED THE ATTENTION OF VARIOUS INDIVIDUALS OVER THE PAST 40 YEARS, BUT THE ONLY

RECORDED SHIPMENT OF MOLYBDENITE ORE WAS MADE IN 1916. 8 TONS, GRADING 15.01% MOLYBDENITE, WERE PACKED OUT ON HORSES. THIS ORE WAS PROBABLY HAND-COBBED, AND REPRESENTS ONLY THE HIGHEST GRADE. IT IS PROBABLE THAT THE AVERAGE GRADE IS AROUND 6-8% MOLYBDENITE.

THE HOST ROCK OF THE MOLYBDENITE MINERALIZATION IS A FINE-TO MEDIUM-GRAINED GRANITE STOCK THAT IS ROUGHLY ELLIPTICAL IN PLAN. THE LONG AXIS OF THE ELLIPSE RUNS IN A WESTERLY DIRECTION FOR ABOUT 1.5 MILES. IT IS ABOUT 3000' WIDE. THIS STOCK HAS BEEN FRACTURED, LONGITUDINALLY, BY FOUR MAJOR SYSTEMS. AND MOLYBDENITE OCCURS IN THESE SYSTEMS AS LARGE POCKETS AND LENSES. THE MAIN SHOWINGS OCCUR ON A STEEP SOUTHWESTERLY SLOPE, WHICH IS COMPRISED OF 60% GRANITIC TALUS AND 40% GRANITIC OUTCROP. MOLYBDENITE OCCURS IN AND CLOSE TO JOINTS IN THE GRANITE. WEATHERING HAS RESULTED IN A QUANTITY OF STRAW-YELLOW MOLYBDIC OCHRE, WHICH CAN BE SEEN AT A GREAT DISTANCE, AND HAS SERVED AS AN EXCELLENT GUIDE TO TRACING THE VARIOUS SEAMS AND LENSES. VERY LITTLE PYRITE WAS OBSERVED.

THE JOINT SYSTEMS WHICH TRAVERSE THE GRANITE TREND ABOUT N70E, AND HAVE A VERTICAL DIP. THESE JOINTS ALL CARRY INTENSIVE MOLYBDENITE MINERALIZATION, IN LENSES UP TO 16' LONG AND TWO FEET WIDE. CROSS JOINTS, BETWEEN THE FOUR MAJOR SYSTEMS ARE ALSO WELL MINERALIZED BY STREAKS 3 TO 4" WIDE AND UP TO 10' LONG. AT SOME POINTS THIS MINERALIZATION FORMS A BOX-WORK, SO THAT NO SPECIFIC AREA IS BARREN OF MOLYBDENUM. IT IS REPORTED THAT FORMER INVESTIGATORS FOUND MATERIAL ASSAYING FROM 1% TO 7% MOLYBDENITE IN THIS BOX-WORK. THUS, ALTHOUGH AT FIRST INSPECTION THE BOX-WORK APPEARS LOW GRADE THE MATERIAL CONTAINED THEREIN WOULD STILL BE VERY GOOD HILL FEED. THE GANGUE IN THE LENSES CONSISTS MAINLY OF QUARTZ, PARTLY KAOLINIZED FELDSPARS, AND A MINOR AMOUNT OF SERICITE. VERY FEW FERRO-MAGNESIAN MINERALS WERE NOTED.

THE LENSES ARE IN A LARGE SLIGHTLY RUSTY ZONE OF FRACTURES, ROUGHLY PARALLEL TO THE MAIN JOINTS SYSTEM, WHICH TRENDS N70E. THE ZONE IS NOT CONTINUOUS OVER THE TOTAL LENGTH, BUT AT SOME POINTS IS MORE THAN 200' WIDE, AND UP TO 1500' LONG. THE RUST PROBABLY IS DERIVED FROM MINOR IRON MINERALS WITHIN THE GRANITE, AND TENDS TO HIDE THE CHARACTERISTIC YELLOW OF MOLYBDIC OCHRE. ALTOGETHER SOME 5 OR 6 OF THESE ZONES WERE OBSERVED OVER THE TOTAL LENGTH OF THE EXPOSURES.

EXAMINATION OF THE TALUS SLOPE INDICATED THAT MORE OF THESE FRACTURE ZONES EXIST, AT LOWER ELEVATIONS. SOME MOLYBDENITE FLOAT WAS FOUND ABOUT 1500' BELOW THE KNOWN OCCURRENCES. THIS FLOAT WAS NOT DERIVED FROM HIGHER UP, SINCE THE ROCK WAS SLIGHTLY DIFFERENT, AND THERE IS NOT MUCH EVIDENCE THAT THE ROCK AT HIGHER ELEVATIONS WEATHERS THAT FAR Laterally. SOME OF THE TALUS IS DERIVED FROM OUTCROPS AT LEAST 500' SOUTHWEST (Laterally) OF THE PRESENT KNOWN MINERALIZATION. THEREFORE THE FLOAT FOUND DEFINITELY INDICATED A MUCH WIDER ZONE OF FRACTURING, CARRYING MOLYBDENITE MINERALIZATION, THAN THAT KNOWN TO EXIST. ALSO, SINCE THE FLOAT WAS FOUND SOME 1500' BELOW THE KNOWN

OCCURRENCES, IT IS PROBABLE THAT AT LEAST 1000' OF DEPTH OF ORE MAY BE EXPECTED.

SUMMARY AND CONCLUSIONS:

THE INDEX PROPERTY APPEARS TO BE VERY WORTHY OF FURTHER EXPLORATION. ALTHOUGH IT IS LOCATED AT A RATHER HIGH ELEVATION, IT IS IDEALLY SITUATED GEOGRAPHICALLY. IT IS ONLY 15 MILES FROM EXISTING ROADS, RAILWAYS, AND TOWNS. POWER IS AVAILABLE WITHIN A SHORT DISTANCE, SINCE THE SITE IS ONLY SOME 20 MILES FROM THE BRIDGE RIVER INSTALLATIONS, AT SETON LAKE, OF THE BRITISH COLUMBIA ELECTRIC COMPANY.

IN THE PAST MINING AND EXPLORATION WAS DONE BY HAND. THIS WAS A SLOW AND COMPARATIVELY UNPRODUCTIVE PROCESS. ACCESS TO THE SITE WAS BY PACK TRAIL, AND IN ITS SHORT PERIOD OF OPERATION, NO ROAD WAS BUILT TO THE MINE BECAUSE THERE WAS NEITHER EQUIPMENT CAPABLE OF ROAD CONSTRUCTION, NOR DID MANY PUBLIC ROADS EXIST. THE PACIFIC GREAT EASTERN HAD NOT YET BEEN BUILT. AND THERE WAS A LIMITED MARKET FOR MOLYBDENUM.

AN ACCESS ROAD TO THE INDEX WILL PROBABLY COST ABOUT \$600 TO \$800 PER MILE. THERE IS NOT MUCH ROCK WORK TO BE DONE, AND THAT THAT EXISTS SHOULD NOT ADD APPRECIABLY TO THE TOTAL COST. THIS ROAD SHOULD BE BUILT IN ORDER TO FACILITATE INTENSIVE EXPLORATION OF THE MINE.

IT IS RECOMMENDED THAT A DIAMOND DRILLING PROGRAM BE SET UP. AT PRESENT THE OBSERVER HAS INSUFFICIENT DATA AVAILABLE TO OUTLINE THE POSITIONS OF THE HOLES. BUT, SINCE THE STRUCTURES CARRYING THE MOLYBDENITE MINERALIZATION ARE VERTICAL, A SYSTEM OF HORIZONTAL HOLES, WHERE POSSIBLE, AND HOLES AT LOW ANGLES, SHOULD DETERMINE THE DEPTH, QUANTITY AND QUALITY OF THE MINERALIZATION.

WHILE DRILLING IS BEING DONE AN EXTENSIVE SYSTEM OF CUTS AND STRIPPING SHOULD BE LAID OUT. THERE IS LITTLE OVERBURDEN, AND MUCH OF THE ROCK IS ROTTEN. THEREFORE A DB CAT AND A GAS PLUGGER SHOULD BE VERY USEFUL IN DISCLOSING THE EXTENT OF MINERALIZATION.

A SMALL CAMP CAN BE LOCATED IN THE COTTONWOOD VALLEY. AT PRESENT A CAMP HOUSING 10 MEN SHOULD BE SUFFICIENT. AND AT A LATER DATE, WHEN MORE INTENSIVE OPERATIONS BEGIN, A LARGER CAMP CAN BE BUILT. IT IS SUGGESTED THAT PREFABRICATED BUILDINGS BE USED, SINCE CUTTING TREES AND BUILDING LOG CABINS IS EXPENSIVE IN MAN-HOURS AND MATERIALS.

AT PRESENT NO VALID ESTIMATE OF TONNAGE CAN BE GIVEN, BECAUSE CONCLUSIVE DATA IS LACKING. BUT, A CONTINUOUSLY MINERALIZED BODY SOME 8000' LONG AND 3000' WIDE SHOULD CARRY A CONSIDERABLE QUANTITY OF COMMERCIAL ORE. THE ORE WAS CERTAINLY NOT POURED IN FROM THE TOP. AND RECENT OBSERVATION INDICATES A DEPTH OF AT LEAST 1000'. THE

MINERALIZATION PROBABLY CONTINUES FOR A CONSIDERABLE DISTANCE BELOW THIS DEPTH. HOWEVER, THE PRESENTLY KNOWN MINERALIZATION OCCUPIES A BLOCK 8000 X 3000 X 1000', OR ABOUT 1,800,000,000 TONS OF ROCK. IT IS ESTIMATED, BY OBSERVATION, THAT SOME 1% OF THIS TONNAGE IS ORE. THUS IT CAN BE EXPECTED THAT AT LEAST 18,000,000 TONS WILL CARRY MOLYBDENUM ORE. IT IS OBVIOUS THAT NOT ALL OF THIS TONNAGE WILL BE COMMERCIAL GRADE. BUT THE SIZE AND GRADE OF THE OBSERVED LENSES, STREAKS AND VEINS IN THE FOUR FRACTURE SYSTEMS, PLUS THE BUNCHES AND ROSETTES OF ORE IN THE FRACTURE WALLS, INDICATE THAT ABOUT 20% OF THE "ORE TYPE" ROCK WILL BE COMMERCIAL. IT MAY THEREFORE BE EXPECTED THAT THE POTENTIAL OF THE INDEX CAN BE PLACED AT AROUND 1,600,000 TONS OF 6% MOLYBDENITE. OBVIOUSLY, THIS ORE IS TOO LOW A GRADE FOR DIRECT SHIPMENT. THEREFORE ANY OPERATION CONTEMPLATED MUST INCLUDE A MILL. AND THE SIZE OF THE MILL WILL BE DEPENDENT ON WHATEVER PRODUCTION RATE IS REQUIRED.

NO REAL COST OF EXPLORATION CAN BE GIVEN AT PRESENT. IT IS PROBABLE, HOWEVER, THAT DIAMOND DRILLING WILL COST \$5.50 TO \$8.00 PER FOOT. PRESENT RECOMMENDATIONS ARE FOR AT LEAST 5000' OF DRILLING. THE ROAD SHOULD COST BETWEEN \$9000 AND \$12,000. AND A CAMP CAN BE PUT UP FOR LESS THAN \$3000. SINCE A CAT WILL BE USED FOR THE ROAD, IT CAN ALSO BE USED FOR STRIPPING AND TRENCHING. THIS WORK SHOULD NOT COST MORE THAN \$100 PER DAY, AND SHOULD NOT LAST MORE THAN 30 DAYS.

THE ABOVE COSTS OF EXPLORATION MAY SEEM HIGH. BUT IN THE OBSERVER'S OPINION THIS EXPLORATION SHOULD RESULT IN THE IMMEDIATE DEVELOPMENT OF THE 13 CROWN GRANTED CLAIMS COMPRISING THE INDEX MINE. MOLYBDENUM IS NOW A METAL MUCH IN DEMAND. THEREFORE THESE 600 000 ACRES OF WELL MINERALIZED GROUND SHOULD BE CAPABLE OF A LONG AND PRODUCTIVE OPERATION. THIS AREA HAS NEVER BEEN INTENSIVELY EXPLORED, EXCEPT FOR GOLD. HOWEVER, IT IS IN A WELL MINERALIZED REGION, IN WHICH ARE LOCATED THE PIONEER AND BRALORNE MINES. AND THE EASTERN EDGE OF THE COAST RANGE BATHOLITH, WHICH THIS REGION COVERS, IS WELL KNOWN FOR ITS MINERAL PRODUCTION. MOLYBDENITE IS COMPARATIVELY SCARCE IN CANADA, AND SINCE THE INDEX IS ONE OF THE FEW KNOWN LOCALITIES EVERY EFFORT SHOULD BE MADE TO BRING IT INTO PROFITABLE PRODUCTION. AND THE FACT THAT IT IS LOCATED CLOSE TO KNOWN, ALTHOUGH DIFFERENT, PRODUCING MINES SHOULD BE ENOUGH INCENTIVE TO PROCEED WITH THE NECESSARY EXPLORATION, FORTHWITH.

RESPECTFULLY SUBMITTED,



ROBERT STEINER, P. GEOL.