MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
9/1		~~120~~
9/3		~~110~~
		220

September 1, 1965

Memorandum

To: The File

From: F. M. Murphy, Mining Engineer

Subject: OME-6492 (Molybdenum)
Keevil Mining Group Limited
Nuna Claims
Glacier Bay Mining District, Alaska

JUSTIFICATION FOR DENIAL OF APPLICATION

The Applicant requests aid in core drilling seven holes a total of 5,000 feet to explore for molybdenum. The project is estimated to cost $121,500.00.

The property consists of 35 unpatented claims located by James Walper and held by the Applicant under an option dated March 31, 1965. The claims are on a small mountain on the east side and near the head of Muir Inlet on Glacier Bay. Until about 1936 the claim area was covered by the Muir Glacier, which later receded in this area. The area can be reached by motor launch from Juneau about 120 miles by water to the southeast.

Molybdenum was noted in the area in 1941. In 1942-43, W. S. Twenhofel mapped and reported on the area (U.S.G.S. Bull. 947-B). The U.S.B.M. in R.I. 4421, March 1949, by R. S. Sanford, G. A. Apell, and F. A. Rutledge, covers some drilling and trenching in the area. The application states the property has been staked intermittently for many years and examined by various companies.

The bedrocks of the area include a metamorphosed sedimentary sequence of tightly folded Paleaozoic hornfels with some shale and limestone. The earliest intrusions are a group of dark altered dikes and sills. The hornfels were later intruded by a small body of quartz monzonite porphyry probably in early Cretaceous time after the folding of the bedded rocks.

The oldest bedded rock unit in the area consists of thin-bedded limestone and a few shale beds. Conformably overlying the limestone is a thick section of hornfels which can be differentiated into three units. All three units are fine-grained, hard, and dense, and they closely resemble chert. The lower unit is thin-bedded and has a few limy beds. The middle unit is thin-bedded and contains many beds of coarse grained clinozoisite. The upper hornfels unit is thick-bedded.

The molybdenite occurs in a contact aureole in the upper hornfel unit surrounding the intrusive monzonite mass. The deposits are of two types--a fault type and a stockwork type. The latter is by far the largest deposit; however, the fault types which are all within the stockwork have a higher molydenum grade. Molybdenite is the most conspicuous metallic mineral in the deposits, because much of it occurs as films and thin plates along the margin of the quartz veinlets.

The U.S.B.M. core drilled two holes in the stockwork type deposits. Hole No. 2, 238.1 feet in length, reached a vertical depth of 169 feet below the surface. Hole No. 1, 46.7 feet in length averaged 0.042 percent and Hole No. 2 0.072 percent molybdenum. A total of 203 channel samples in the stockwork averaged 0.07 percent molybdenum. Twelve channel samples taken of the fault type deposits averaged 0.10 percent molybdenum.

The deposits are believed to be genetically related to the intrusive quartz monzonite porphyry. Twenhofel notes the fact that the siliceous outer parts of the intrusive mass grade inward into quartz veinlets penetrating the intrusive rock and outward into the hornfels to form the stockwork deposits, which indicates the outer parts of the intrusive body may have contained the channels through which the silica and molybdenum-bearing solutions moved upward from depth.

The area contains an estimated 100,000,000 tons (to 500-foot depth) of molybdenite-bearing material. However, with an average grade of 0.07 percent molybdenum it could not be profitably exploited.

Mr. W. H. Gross, the Applicant's consulting geologist, notes in his report there is practically no chance that there is a significant body of material outcropping in the area that could be considered ore under present conditions. Also, he could see no particular reason why the siliceous country rock should be more favorable for the occurrence of higher-grade molydenite in depth than it is at the presently exposed surface.

Because of the extensive zone of alteration, Gross thinks the monzonite intrusive body increases in size with depth. He states that low-grade mineralization occurs from place to place within this intrusive and that molybdenite concentration might occur at the top of an intrusive apophyse which is covered so that the deposit, although lower topographically, would be "high" geologically. The proposed drill holes are designed to test this possibility.

Bull. 947-B, pages 14-15, the second paragraph under "Stockwork," notes that the mineralized (molybdenum) aureole does not extend inward into the intrusive monzonite core or its silicified outer parts. This is repeated in R.I. 4421 on page 4. There is no geologic evidence in the reports submitted, including the Gross report, that the quartz monzonite porphyry intrusive might contain a concentration of molybdenite at depth. This is pure speculation probably based on the fact that quartz monzonite porphyry is a favorable formation for a number of known molybdenum occurrences.

Since the proposed work is essentially prospecting, it is not eligible for OME aid; hence, it is recommended that the application be denied.

Fred M. Murphy

Fred M. Murphy

FMMurphy/gla (9-1-65)
cc to: Director's Reading File
Division File
Economic Geology File
OME File
OME Reading File

September 1, 1965

Memorandum

To: The File

From: F. M. Murphy, Mining Engineer

Subject: OME-6492 (Molybdenum)
Keevil Mining Group Limited
Nuna Claims
Glacier Bay Mining District, Alaska

JUSTIFICATION FOR DENIAL OF APPLICATION

The Applicant requests aid in core drilling seven holes a total of 5,000 feet to explore for molybdenum. The project is estimated to cost $121,500.00.

The property consists of 35 unpatented claims located by James Walper and held by the Applicant under an option dated March 31, 1965. The claims are on a small mountain on the east side and near the head of Muir Inlet on Glacier Bay. Until about 1936 the claim area was covered by the Muir Glacier, which later receded in this area. The area can be reached by motor launch from Juneau about 120 miles by water to the southeast.

Molybdenum was noted in the area in 1941. In 1942-43, W. S. Twenhofel mapped and reported on the area (U.S.G.S. Bull. 947-B). The U.S.B.M. in R.I. 4421, March 1949, by R. S. Sanford, G. A. Apell, and F. A. Rutledge, covers some drilling and trenching in the area. The application states the property has been staked intermittently for many years and examined by various companies.

The bedrocks of the area include a metamorphosed sedimentary sequence of tightly folded Paleaozoic hornfels with some shale and limestone. The earliest intrusions are a group of dark altered dikes and sills. The hornfels were later intruded by a small body of quartz monzonite porphyry probably in early Cretaceous time after the folding of the bedded rocks.

The oldest bedded rock unit in the area consists of thin-bedded limestone and a few shale beds. Conformably overlying the limestone is a thick section of hornfels which can be differentiated into three units. All three units are fine-grained, hard, and dense, and they closely resemble chert. The lower unit is thin-bedded and has a few limy beds. The middle unit is thin-bedded and contains many beds of coarse grained clinozoisite. The upper hornfels unit is thick-bedded.

The molybdenite occurs in a contact aureole in the upper hornfel unit surrounding the intrusive monzonite mass. The deposits are of two types--a fault type and a stockwork type. The latter is by far the largest deposit; however, the fault types which are all within the stockwork have a higher molydenum grade. Molybdenite is the most conspicuous metallic mineral in the deposits, because much of it occurs as films and thin plates along the margin of the quartz veinlets.

The U.S.B.M. core drilled two holes in the stockwork type deposits. Hole No. 2, 238.1 feet in length, reached a vertical depth of 169 feet below the surface. Hole No. 1, 46.7 feet in length averaged 0.042 percent and Hole No. 2 0.072 percent molybdenum. A total of 203 channel samples in the stockwork averaged 0.07 percent molybdenum. Twelve channel samples taken of the fault type deposits averaged 0.10 percent molybdenum.

The deposits are believed to be genetically related to the intrusive quartz monzonite porphyry. Twenhofel notes the fact that the siliceous outer parts of the intrusive mass grade inward into quartz veinlets penetrating the intrusive rock and outward into the hornfels to form the stockwork deposits, which indicates the outer parts of the intrusive body may have contained the channels through which the silica and molybdenum-bearing solutions moved upward from depth.

The area contains an estimated 100,000,000 tons (to 500-foot depth) of molybdenite-bearing material. However, with an average grade of 0.07 percent molybdenum it could not be profitably exploited.

Mr. W. H. Gross, the Applicant's consulting geologist, notes in his report there is practically no chance that there is a significant body of material outcropping in the area that could be considered ore under present conditions. Also, he could see no particular reason why the siliceous country rock should be more favorable for the occurrence of higher-grade molydenite in depth than it is at the presently exposed surface.

Because of the extensive zone of alteration, Gross thinks the monzonite intrusive body increases in size with depth. He states that low-grade mineralization occurs from place to place within this intrusive and that molybdenite concentration might occur at the top of an intrusive apophyse which is covered so that the deposit, although lower topographically, would be "high" geologically. The proposed drill holes are designed to test this possibility.

Bull. 947-B, pages 14-15, the second paragraph under "Stockwork," notes that the mineralized (molybdenum) aureole does not extend inward into the intrusive monzonite core or its silicified outer parts. This is repeated in R.I. 4421 on page 4. There is no geologic evidence in the reports submitted, including the Gross report, that the quartz monzonite porphyry intrusive might contain a concentration of molybdenite at depth. This is pure speculation probably based on the fact that quartz monzonite porphyry is a favorable formation for a number of known molybdenum occurrences.

Since the proposed work is essentially prospecting, it is not eligible for OME aid; hence, it is recommended that the application be denied.

/s/ Fred M. Murphy

Fred M. Murphy

FMMurphy/gla (9-1-65)
cc to: Director's Reading File
Division File
Economic Geology File
OME File
OME Reading File

September 1, 1965

Memorandum

To: The File

From: F. M. Murphy, Mining Engineer

Subject: OME-6492 (Molybdenum)
Keevil Mining Group Limited
Nuna Claims
Glacier Bay Mining District, Alaska

JUSTIFICATION FOR DENIAL OF APPLICATION

The Applicant requests aid in core drilling seven holes a total of 5,000 feet to explore for molybdenum. The project is estimated to cost $121,500.00.

The property consists of 35 unpatented claims located by James Walper and held by the Applicant under an option dated March 31, 1965. The claims are on a small mountain on the east side and near the head of Muir Inlet on Glacier Bay. Until about 1936 the claim area was covered by the Muir Glacier, which later receded in this area. The area can be reached by motor launch from Juneau about 120 miles by water to the southeast.

Molybdenum was noted in the area in 1941. In 1942-43, W. S. Twenhofel mapped and reported on the area (U.S.G.S. Bull. 947-B). The U.S.B.M. in R.I. 4421, March 1949, by R. S. Sanford, G. A. Apell, and F. A. Rutledge, covers some drilling and trenching in the area. The application states the property has been staked intermittently for many years and examined by various companies.

The bedrocks of the area include a metamorphosed sedimentary sequence of tightly folded Paleaozoic hornfels with some shale and limestone. The earliest intrusions are a group of dark altered dikes and sills. The hornfels were later intruded by a small body of quartz monzonite porphyry probably in early Cretaceous time after the folding of the bedded rocks.

The oldest bedded rock unit in the area consists of thin-bedded limestone and a few shale beds. Conformably overlying the limestone is a thick section of hornfels which can be differentiated into three units. All three units are fine-grained, hard, and dense, and they closely resemble chert. The lower unit is thin-bedded and has a few limy beds. The middle unit is thin-bedded and contains many beds of coarse grained clinozoisite. The upper hornfels unit is thick-bedded.

The molybdenite occurs in a contact aureole in the upper hornfel unit surrounding the intrusive monzonite mass. The deposits are of two types--a fault type and a stockwork type. The latter is by far the largest deposit; however, the fault types which are all within the stockwork have a higher molydenum grade. Molybdenite is the most conspicuous metallic mineral in the deposits, because much of it occurs as films and thin plates along the margin of the quartz veinlets.

The U.S.B.M. core drilled two holes in the stockwork type deposits. Hole No. 2, 238.1 feet in length, reached a vertical depth of 169 feet below the surface. Hole No. 1, 46.7 feet in length averaged 0.042 percent and Hole No. 2 0.072 percent molybdenum. A total of 203 channel samples in the stockwork averaged 0.07 percent molybdenum. Twelve channel samples taken of the fault type deposits averaged 0.10 percent molybdenum.

The deposits are believed to be genetically related to the intrusive quartz monzonite porphyry. Twenhofel notes the fact that the siliceous outer parts of the intrusive mass grade inward into quartz veinlets penetrating the intrusive rock and outward into the hornfels to form the stockwork deposits, which indicates the outer parts of the intrusive body may have contained the channels through which the silica and molybdenum-bearing solutions moved upward from depth.

The area contains an estimated 100,000,000 tons (to 500-foot depth) of molybdenite-bearing material. However, with an average grade of 0.07 percent molybdenum it could not be profitably exploited.

Mr. W. H. Gross, the Applicant's consulting geologist, notes in his report there is practically no chance that there is a significant body of material outcropping in the area that could be considered ore under present conditions. Also, he could see no particular reason why the siliceous country rock should be more favorable for the occurrence of higher-grade molydenite in depth than it is at the presently exposed surface.

Because of the extensive zone of alteration, Gross thinks the monzonite intrusive body increases in size with depth. He states that low-grade mineralization occurs from place to place within this intrusive and that molybdenite concentration might occur at the top of an intrusive apophyse which is covered so that the deposit, although lower topographically, would be "high" geologically. The proposed drill holes are designed to test this possibility.

Bull. 947-B, pages 14-15, the second paragraph under "Stockwork," notes that the mineralized (molybdenum) aureole does not extend inward into the intrusive monzonite core or its silicified outer parts. This is repeated in R.I. 4421 on page 4. There is no geologic evidence in the reports submitted, including the Gross report, that the quartz monzonite porphyry intrusive might contain a concentration of molybdenite at depth. This is pure speculation probably based on the fact that quartz monzonite porphyry is a favorable formation for a number of known molybdenum occurrences.

Since the proposed work is essentially prospecting, it is not eligible for OME aid; hence, it is recommended that the application be denied.

/s/ Fred M. Murphy

Fred M. Murphy

FMMurphy/gla (9-1-65)
cc to: Director's Reading File
Division File
Economic Geology File
OME File
OME Reading File

September 1, 1965

Memorandum

To: The File

From: F. M. Murphy, Mining Engineer

Subject: OME-6492 (Molybdenum)
Keevil Mining Group Limited
Nuna Claims
Glacier Bay Mining District, Alaska

JUSTIFICATION FOR DENIAL OF APPLICATION

The Applicant requests aid in core drilling seven holes a total of 5,000 feet to explore for molybdenum. The project is estimated to cost $121,500.00.

The property consists of 35 unpatented claims located by James Walper and held by the Applicant under an option dated March 31, 1965. The claims are on a small mountain on the east side and near the head of Muir Inlet on Glacier Bay. Until about 1936 the claim area was covered by the Muir Glacier, which later receded in this area. The area can be reached by motor launch from Juneau about 120 miles by water to the southeast.

Molybdenum was noted in the area in 1941. In 1942-43, W. S. Twenhofel mapped and reported on the area (U.S.G.S. Bull. 947-B). The U.S.B.M. in R.I. 4421, March 1949, by R. S. Sanford, G. A. Apell, and F. A. Rutledge, covers some drilling and trenching in the area. The application states the property has been staked intermittently for many years and examined by various companies.

The bedrocks of the area include a metamorphosed sedimentary sequence of tightly folded Paleaozoic hornfels with some shale and limestone. The earliest intrusions are a group of dark altered dikes and sills. The hornfels were later intruded by a small body of quartz monzonite porphyry probably in early Cretaceous time after the folding of the bedded rocks.

The oldest bedded rock unit in the area consists of thin-bedded limestone and a few shale beds. Conformably overlying the limestone is a thick section of hornfels which can be differentiated into three units. All three units are fine-grained, hard, and dense, and they closely resemble chert. The lower unit is thin-bedded and has a few limy beds. The middle unit is thin-bedded and contains many beds of coarse grained clinozoisite. The upper hornfels unit is thick-bedded.

The molybdenite occurs in a contact aureole in the upper hornfel unit surrounding the intrusive monzonite mass. The deposits are of two types--a fault type and a stockwork type. The latter is by far the largest deposit; however, the fault types which are all within the stockwork have a higher molydenum grade. Molybdenite is the most conspicuous metallic mineral in the deposits, because much of it occurs as films and thin plates along the margin of the quartz veinlets.

The U.S.B.M. core drilled two holes in the stockwork type deposits. Hole No. 2, 238.1 feet in length, reached a vertical depth of 169 feet below the surface. Hole No. 1, 46.7 feet in length averaged 0.042 percent and Hole No. 2 0.072 percent molybdenum. A total of 203 channel samples in the stockwork averaged 0.07 percent molybdenum. Twelve channel samples taken of the fault type deposits averaged 0.10 percent molybdenum.

The deposits are believed to be genetically related to the intrusive quartz monzonite porphyry. Twenhofel notes the fact that the siliceous outer parts of the intrusive mass grade inward into quartz veinlets penetrating the intrusive rock and outward into the hornfels to form the stockwork deposits, which indicates the outer parts of the intrusive body may have contained the channels through which the silica and molybdenum-bearing solutions moved upward from depth.

The area contains an estimated 100,000,000 tons (to 500-foot depth) of molybdenite-bearing material. However, with an average grade of 0.07 percent molybdenum it could not be profitably exploited.

Mr. W. H. Gross, the Applicant's consulting geologist, notes in his report there is practically no chance that there is a significant body of material outcropping in the area that could be considered ore under present conditions. Also, he could see no particular reason why the siliceous country rock should be more favorable for the occurrence of higher-grade molydenite in depth than it is at the presently exposed surface.

Because of the extensive zone of alteration, Gross thinks the monzonite intrusive body increases in size with depth. He states that low-grade mineralization occurs from place to place within this intrusive and that molybdenite concentration might occur at the top of an intrusive apophyse which is covered so that the deposit, although lower topographically, would be "high" geologically. The proposed drill holes are designed to test this possibility.

Bull. 947-B, pages 14-15, the second paragraph under "Stockwork," notes that the mineralized (molybdenum) aureole does not extend inward into the intrusive monzonite core or its silicified outer parts. This is repeated in R.I. 4421 on page 4. There is no geologic evidence in the reports submitted, including the Gross report, that the quartz monzonite porphyry intrusive might contain a concentration of molybdenite at depth. This is pure speculation probably based on the fact that quartz monzonite porphyry is a favorable formation for a number of known molybdenum occurrences.

Since the proposed work is essentially prospecting, it is not eligible for OME aid; hence, it is recommended that the application be denied.

/s/ Fred M. Murphy

Fred M. Murphy

FMMurphy/gla (9-1-65)
cc to: Director's Reading File
Division File
Economic Geology File
OME File
OME Reading File

September 1, 1965

Memorandum

To: The File

From: F. M. Murphy, Mining Engineer

Subject: OME-6492 (Molybdenum)
Keevil Mining Group Limited
Muna Claims
Glacier Bay Mining District, Alaska

JUSTIFICATION FOR DENIAL OF APPLICATION

The Applicant requests aid in core drilling seven holes a total of 5,000 feet to explore for molybdenum. The project is estimated to cost $121,500.00.

The property consists of 35 unpatented claims located by James Walper and held by the Applicant under an option dated March 31, 1965. The claims are on a small mountain on the east side and near the head of Muir Inlet on Glacier Bay. Until about 1936 the claim area was covered by the Muir Glacier, which later receded in this area. The area can be reached by motor launch from Juneau about 120 miles by water to the southeast.

Molybdenum was noted in the area in 1941. In 1942-43, W. S. Twenhofel mapped and reported on the area (U.S.G.S. Bull. 947-B). The U.S.B.M. in R.I. 4421, March 1949, by R. S. Sanford, G. A. Apell, and F. A. Rutledge, covers some drilling and trenching in the area. The application states the property has been staked intermittently for many years and examined by various companies.

The bedrocks of the area include a metamorphosed sedimentary sequence of tightly folded Paleozoic hornfels with some shale and limestone. The earliest intrusions are a group of dark altered dikes and sills. The hornfels were later intruded by a small body of quartz monzonite porphyry probably in early Cretaceous time after the folding of the bedded rocks.

The oldest bedded rock unit in the area consists of thin-bedded limestone and a few shale beds. Conformably overlying the limestone is a thick section of hornfels which can be differentiated into three units. All three units are fine-grained, hard, and dense, and they closely resemble chert. The lower unit is thin-bedded and has a few limy beds. The middle unit is thin-bedded and contains many beds of coarse grained clinozoisite. The upper hornfels unit is thick-bedded.

The molybdenite occurs in a contact aureole in the upper hornfel unit surrounding the intrusive monzonite mass. The deposits are of two types--a fault type and a stockwork type. The latter is by far the largest deposit; however, the fault types which are all within the stockwork have a higher molydenum grade. Molybdenite is the most conspicuous metallic mineral in the deposits, because much of it occurs as films and thin plates along the margin of the quartz veinlets.

The U.S.B.M. core drilled two holes in the stockwork type deposits. Hole No. 2, 238.1 feet in length, reached a vertical depth of 169 feet below the surface. Hole No. 1, 46.7 feet in length averaged 0.042 percent and Hole No. 2 0.072 percent molybdenum. A total of 203 channel samples in the stockwork averaged 0.07 percent molybdenum. Twelve channel samples taken of the fault type deposits averaged 0.10 percent molybdenum.

The deposits are believed to be genetically related to the intrusive quartz monzonite porphyry. Twenhofel notes the fact that the siliceous outer parts of the intrusive mass grade inward into quartz veinlets penetrating the intrusive rock and outward into the hornfels to form the stockwork deposits, which indicates the outer parts of the intrusive body may have contained the channels through which the silica and molybdenum-bearing solutions moved upward from depth.

The area contains an estimated 100,000,000 tons (to 500-foot depth) of molybdenite-bearing material. However, with an average grade of 0.07 percent molybdenum it could not be profitably exploited.

Mr. W. H. Gross, the Applicant's consulting geologist, notes in his report there is practically no chance that there is a significant body of material outcropping in the area that could be considered ore under present conditions. Also, he could see no particular reason why the siliceous country rock should be more favorable for the occurrence of higher-grade molydenite in depth than it is at the presently exposed surface.

Because of the extensive zone of alteration, Gross thinks the monzonite intrusive body increases in size with depth. He states that low-grade mineralization occurs from place to place within this intrusive and that molybdenite concentration might occur at the top of an intrusive apophyse which is covered so that the deposit, although lower topographically, would be "high" geologically. The proposed drill holes are designed to test this possibility.

Bull. 947-B, pages 14-15, the second paragraph under "Stockwork," notes that the mineralized (molybdenum) aureole does not extend inward into the intrusive monzonite core or its silicified outer parts. This is repeated in R.I. 4421 on page 4. There is no geologic evidence in the reports submitted, including the Gross report, that the quartz monzonite porphyry intrusive might contain a concentration of molybdenite at depth. This is pure speculation probably based on the fact that quartz monzonite porphyry is a favorable formation for a number of known molybdenum occurrences.

Since the proposed work is essentially prospecting, it is not eligible for OME aid; hence, it is recommended that the application be denied.

/s/ Fred M. Murphy

Fred M. Murphy

FMMurphy/gla (9-1-65)
cc to: Director's Reading File
Division File
Economic Geology File
OME File
OME Reading File

KEEVIL MINING GROUP LIMITED
SUITE 1000,
11 ADELAIDE STREET WEST,
TORONTO 1, ONT.
CANADA

REPORT ON THE

NUNATAK MOLYBDENITE DEPOSIT

MUIR INLET, SOUTHEASTERN ALASKA

OFFICIAL
COPY
O. M. E.
RECEIVED
AUG 26 1965
INITIALS/CODE

June 14, 1965

W.H. Gross

REPORT ON THE

NUNATAK MOLYBDENITE DEPOSIT

MUIR INLET, SOUTHEASTERN ALASKA

June 14, 1965

W.H. Gross

REPORT ON THE

NUNATAK MOLYBDENITE DEPOSIT

MUIR INLET, SOUTHEASTERN ALASKA

RECOMMENDATIONS

There is a lot of "smoke" on this property and I think it deserves a depth testing programme. Therefore I recommend, as a start, seven diamond drill holes totalling 5,000 feet, to test the ore-making possibilities of the monzonite through the skin of silicified country rock. As we are probably looking for a large low-grade deposit, the holes can be widely spaced and in fact are so placed as to intersect the monzonite at about 500 foot intervals. Furthermore, as molybdenite orebodies in intrusives of this type often have relatively small vertical dimensions, and as the drill hole collars have been placed, for convenience, on the flatter ground at the base of the Nunatak, it is recommended in spite of higher costs, that the holes be drilled at not more than -20°. ?

The estimated cost of the programme is $125,000.00 U.S. ? - 5000 ft. @ $25/ft.

GENERAL

The Nunatak molybdenite deposit was discovered in 1941. Since that time a number of government and company geologists have visited the area.

The deposits are located on Muir Inlet, on the west coast of the Alaska panhandle about 80 miles northwest of Juneau.

The property totals 35 claims (about 700 acres) which adequately cover the area where molybdenite occurs. The law of extra-lateral rights applies here.

At present Keevil Mining Group Limited has an option to acquire the property from James Walper of Toronto. I spent five days, from June 8th to June 12th, making an examination of the property for Keevil Mining Group Limited.

During my examination a geological map was made and seven drill hole locations spotted.

SERVICES

A mine in this area, being on tidewater, would have the advantage of being serviced by ocean-going vessels. There are good harbour locations. Personnel could be brought from Juneau by boat, or, as there is sufficient flat country to build a landing strip on in the area, by land or sea plane.

There is ample fresh water to supply a mine and townsite. There are good townsite locations near harbour.

No power is available in the region. Nothing is known about the hydroelectric possibilities in the area.

GENERAL GEOLOGY

The geology of the area is shown on the enclosed map.

The mineralized area is underlain by limey argillites. These rocks have been tightly folded so that now they strike generally NE-SW with steep dips both to the east and west.

The sediments have been cut by steep-dipping, tabular intrusives which are of different ages and have a wide range in composition. These intrusives are usually less than 20 feet thick. Occasionally they cut across the bedding and are truly dike-like, normally they are roughly parallel to the bedding and so are sill-like in nature.

At an elevation of about 700 feet above sea level, an elongated stock of monzonite outcrops for a length of about 1,000 feet with an average width of about 300 feet. At lower elevations, in the vicinity of the main stock, smaller bodies of monzonite occur which are believed to be offshoots of the main intrusive. The trend of the long axis of the stock and its apophyses is west of north and therefore it cuts across the trend of the bedding and sills of the country rock.

The monzonite stock and its satellites are believed to represent the top of a much larger intrusive in depth. The reason for believing this is that the limey argillites of the country rock have been extensively altered for distances of from 1,000 to upwards of 2,000 feet from the outcrop of the stock. Although it is true that limey argillites are easily metamorphosed, nevertheless, this is an extensive alteration zone for such a small

exposure of intrusive and strongly suggests the presence of more intrusive at depth. The trend of this zone of alteration, like the axis of the intrusive itself, is across the strike of the bedding. In this way the limey argillites that outcrop in the southwestern part of the property can be followed along strike until they loose their identity as they approach the intrusive and develop into a "skarn-like" assemblage of minerals.

The alteration of the sediments is progressively more intense and siliceous as the monzonite is approached. The siliceous alteration forms an envelope, upwards of 500 feet thick, surrounding the intrusive. This siliceous envelope is laced with quartz stringers which are generally less than four inches thick and which might average from five to ten percent of the rock. The siliceous zone is, of course, hard and tough; it weathers high and undoubtedly accounts for the so-called Nunatak mountain being preserved as an erosion remnant.

The silicification was accompanied by pyrite and perhaps some other sulphides so that much of the Nunatak is weathered to a rusty color. The quartz veining was accompanied by molybdenite and possibly to a minor extent by chalcopyrite mineralization.

ECONOMIC GEOLOGY

Sampling of certain restricted areas by the U.S. Bureau of Mines and subsequently by geologists representing three different companies, the results of which were available to me, suggests that the zone of siliceous alteration might average in the order of 0.1% MoS_2. These assay results, coupled with a detailed visual examination, indicate that

there is practically no chance that there is a significant body of material outcropping on the Nunatak that could be considered ore under present conditions. Therefore, no further surface sampling is warranted.

The question is whether or not ore grade material might exist below the present surface. The possibilities for the two mineralized rock types are discussed below.

The Siliceous Country Rock

I can see no particular reason why the siliceous country rock should be more favourable for the occurrence of higher-grade molybdenite in depth than it is at the presently exposed surface. There is no evidence, for example, that a particular sedimentary horizon, as it approaches the silicified zone, was more extensively fractured and mineralized than the surrounding rocks. Furthermore, there is no evidence for the development of the so-called contact metamorphic deposits in the 4,000 foot section of limey argillites that can be followed from the relatively unaltered state along strike into the altered zone. Therefore, covered deposits of this type are unlikely to occur, at least within the sequence of sediments exposed on the property. On the other hand the best mineralized country rock zone is not at the top of the Nunatak (1,100 feet approximately) but is at an elevation of less than 250 feet above sea level. This might mean that topographically, the tenor of molybdenite does increase with depth or it might mean that a more potent source of molybdenite underlies this area of "better than average" mineralization. Drill holes have been designed to test this as well as other possibilities for the occurrence of molybdenite concentrations on the property.

The Monzonite

There is little doubt in my mind that the extensive zone of alteration, silicification, and quartz-sulphide mineralization is related to the monzonite intrusive. I have already mentioned why I think this intrusive increases in size with depth. Low-grade molybdenite occurs from place to place within this intrusive and the problem remains to find out whether larger and richer deposits occur within the intrusive at greater (topographic) depth. The molybdenite concentration might occur at the top of an intrusive apophyse that is covered so that the deposit, although lower topographically, would be "high" geologically. It seems to me that it is the occurrence of molybdenite within the monzonite itself that could be the large tonnage maker. Therefore, drill holes have been designed to test this possibility.

DRILLING PROGRAMME

Hole Locations

The drill locations have been staked out on the ground and are shown on the enclosed map. The locations have been chosen where talus is light, where there is a relatively flat place for setting up, and, with a possible exception of site 3, where they can be reached with a minimum of road building.

Hole Directions

In general, the quartz stringers might be said to make a stockwork of veinlets. Actually the larger proportion of the veins strike northeast and have steep dips.

Theoretically, it might be better to drill at right angles to the greatest vein development. Practically, this is difficult to do and in fact, in this preliminary testing of the deposit, it is doubtful whether the direction the holes are drilled will materially effect the outcome.

Core Size

It is recommended that the holes start off as Nx in order to get the highest core recovery possible.

Assays

Before splitting the core in the skarn zone, it should be lamped for scheelite. The core should be split and assayed in ten or twenty foot sections, There is little point at this stage in assaying for anything other than molybdenite unless there is an obvious quantity of copper in the core. To assay each sample for copper, silver and tungsten as has been suggested by others, might be done at a later date if the drilling is successful.

Timing

If drilling is to be done in 1965 it should start not much later than the first of August.

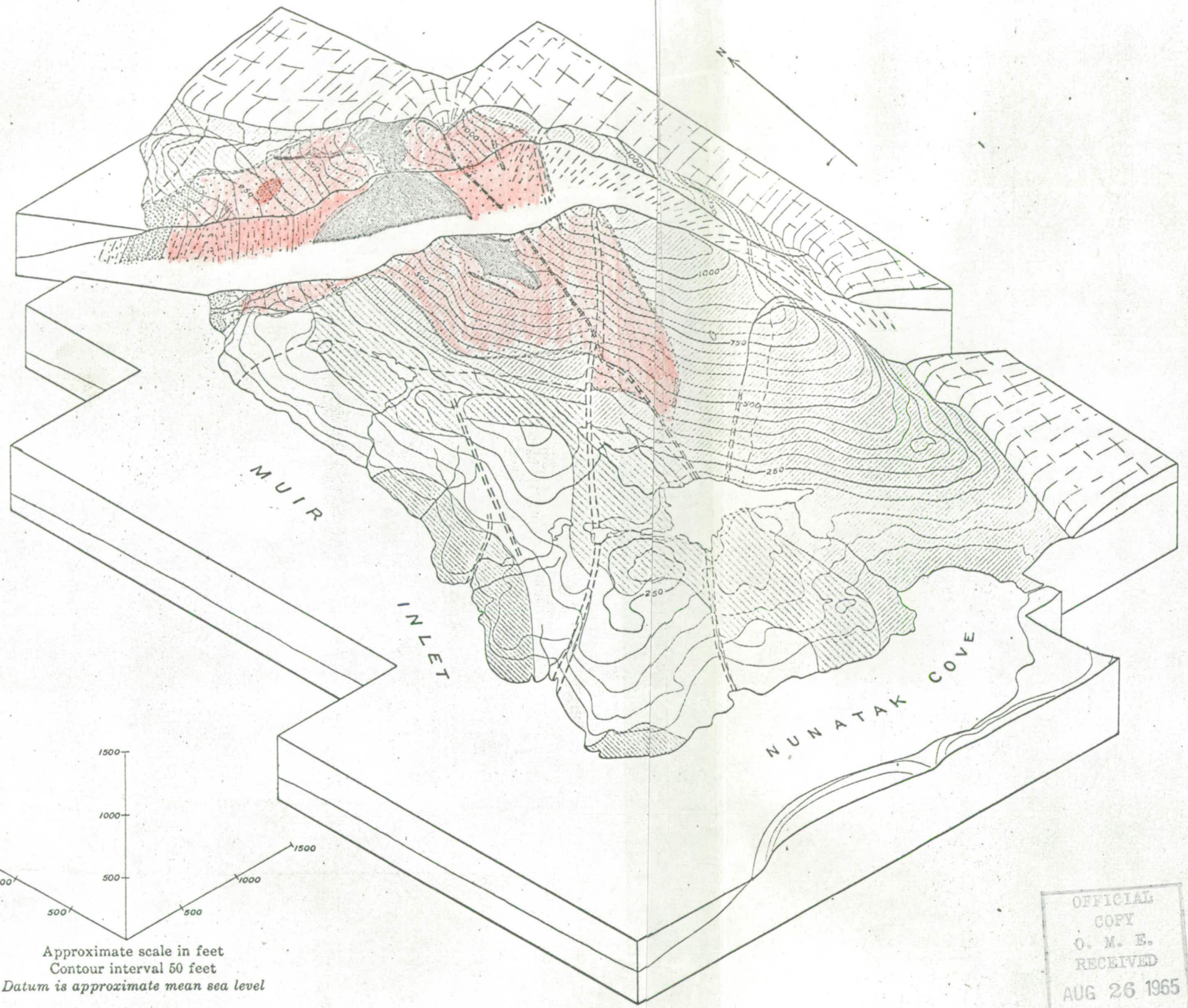
Costs

Drilling - 5,000 feet NX @ $15.00/foot includes moving, mobilization, cementing, etc.	$ 75,000.00
Road and site preparation	3,500.00 ?
Transportation, boat and fixed wing aircraft	10,000.00
Geological supervision	8,000.00
Food, fuel and cook	10,000.00
Assays and freight	3,500.00
Contingencies @ 15%	15,000.00
Total	$125,000.00 U.S.

Respectfully submitted,

W.H. Gross,
P. Eng.

Juneau, Alaska
June 14, 1965



Approximate scale in feet
Contour interval 50 feet
Datum is approximate mean sea level

EXPLANATION

SEDIMENTARY AND METAMORPHIC ROCKS

DEVONIAN (?)

Upper hornfels — Mos

Middle hornfels — No Moly

Lower hornfels — No Moly
(Includes some limestone)

Limestone
(Includes some shale)

IGNEOUS ROCKS

CRETACEOUS (?)

Quartz monzonite porphyry

MINERALIZED AREA

Siliceous envelope

Material bearing conspicuous molybdenite

Material bearing inconspicuous molybdenite

Outer limit of quartz veinlets

Shear zone

Fault

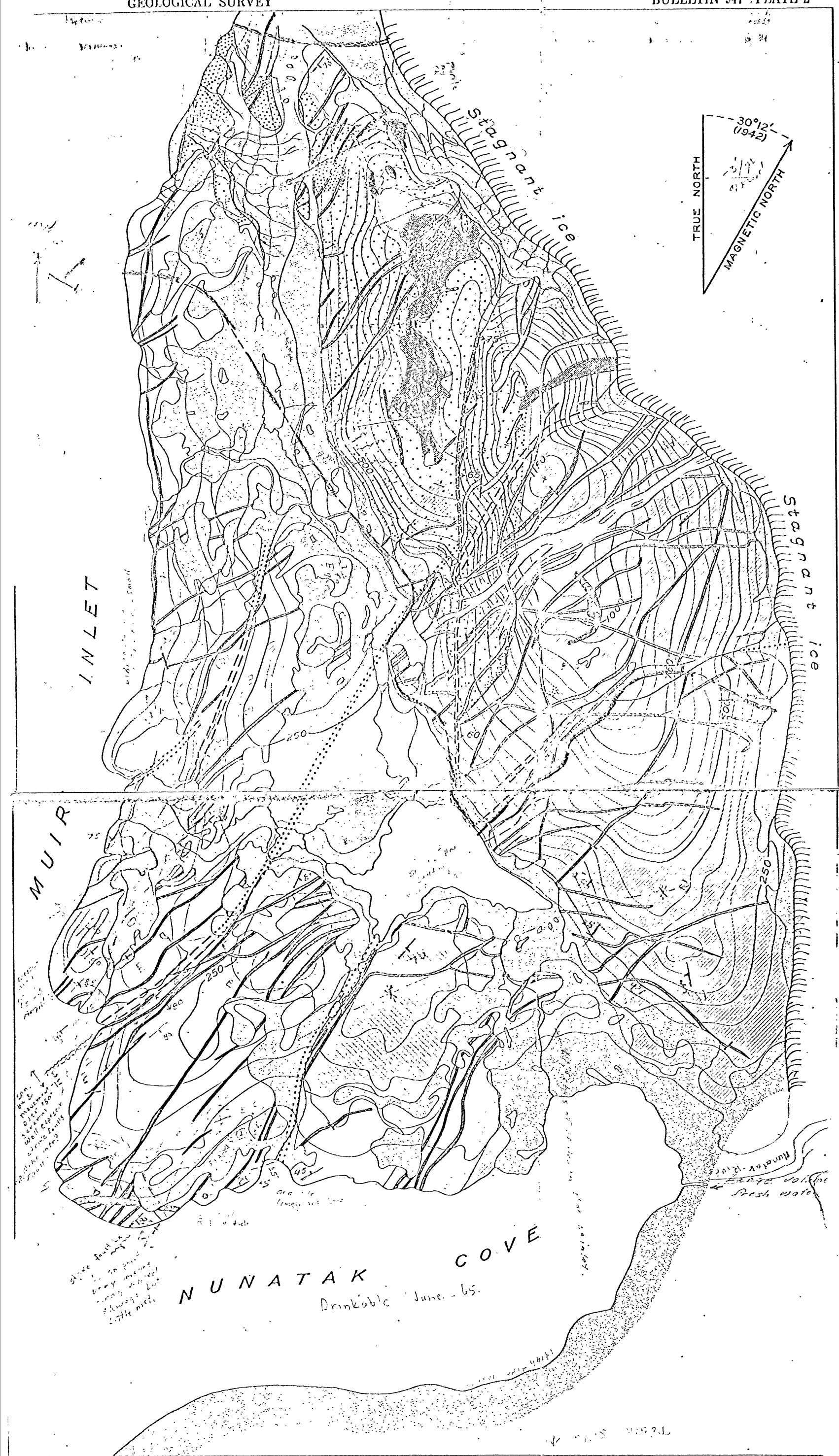
Gradational boundary

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 26 1965
INITIALS | CODE

GEOLOGIC ISOMETRIC BLOCK DIAGRAM OF NUNATAK AREA, MUIR INLET, GLACIER BAY, SOUTHEASTERN ALASKA

KEEVIL MINING GROUP LIMITED

SUITE 1000,
11 ADELAIDE STREET WEST,
TORONTO 1, ONT,
CANADA



EXPLANATION

SEDIMENTARY AND METAMORPHIC ROCKS

Recent — QUATERNARY
- Moraine and talus

DEVONIAN (?)
- Upper hornfels
- Middle hornfels
- Lower hornfels *(Includes some limestone)*
- Limestone *(Includes some shale)*

IGNEOUS ROCKS

CRETACEOUS (?)
- *Early Cretaceous (?) or younger* — Post-mineral intrusives *(Dikes and plug-like masses)*
- *Early Cretaceous (?)* — Quartz monzonite porphyry

MINERALIZED AREA
- Siliceous envelope
- Material bearing conspicuous molybdenite *(Stockwork)*
- Material bearing inconspicuous molybdenite *(Stockwork)*

Outer limit of quartz veinlets

60 Shear zone, showing dip

Fault

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 26 1965
INITIALS | CODE

Topography by W. S. Twenhofel and R. M. Mielke
Surveyed in 1942

Geology by W. S. Twenhofel and D. M. Hopkins

500 0 1,000 Feet

Contour interval 50 feet
Datum is approximate mean sea level

GEOLOGIC MAP OF NUNATAK AREA, MUIR INLET, GLACIER BAY, SOUTHEASTERN ALASKA