FINAL REPORT

NYE METALS, INC.

MOLYBDENUM EXPLORATION PROJECT

Gilpin County, Colorado

Docket No. 6231
Contract No. 2149

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March 14, 1966

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INTRODUCTION

This report is a summary and discussion of all exploration work completed by Nye Metals, Inc. under the OME exploration contract during the period of June 19, 1962 through July 31, 1964. Complete maps and drill logs accompanying this report show all assay data.

SUMMARY OF COMPLETED EXPLORATION

Mine Area

Considerable cross-cutting and drifting were previously completed with company funds. The following work was under the OME contract.

Drifting	2708	feet
Cross-cutting - Exploration & drill	313.5	feet
Core drilling - 12 holes (all underground)	4950	feet
Timbering	1670.5	feet

Of the drifting total, 1642 feet is on the Indianapolis vein and 1066 feet on the Indiana vein. Exploration was divided between the quartz-molybdenite veins and the disseminated low-grade mineralization.

The list of holes is as follows:

Hole No.	Angle	Depth
I-1	+3°	202'
I-2	+3°	191'
I-3	+3°	200'
I-4	+3°	200'
I-5	+3°	200'
II-2	-60°	292'

Hole No.	Angle	Depth
II-3	-45°	600'
II-4	-20°	694'
II-5	-40°	900'
II-10	-20°	1106'
II-13	-40°	265'
II-15	+3°	100'
	Total	4950'

Locations of these are shown on the 200 scale map - Underground Geologic Map - 10,300' level. All significant mineralization was sampled, and assay data are shown on plan assay maps or on drill log cross-sections.

Mountain Chief Area

Exploration in this area has been directed toward the disseminated molybdenum mineralization and has consisted of detailed surface mapping, geochemical sampling, magnetic survey, bulldozer cuts, and surface drilling. The breakdown on surface drilling is as follows:

Hole No.	Angle	Depth
II-S1	-35°	930'
II-S2	-45°	842'
II-S3	-45°	675'
II-S4	-45°	691'
II-S5	-55°	348'
II-S6	-45°	577'
II-S7	-45°	601'
II-S8	-50°	570'
II-S9	-45°	944'
	Total	6178'

Locations and bearings of each hole are shown on the 100 scale Surface Geologic Map - Mountain Chief Area. Each hole total may not correspond with that authorized since some holes were continued at the Operator's expense.

PRESENT STATUS OF LOAN

About 61% of the total allowable costs have been used, and present status is as follows:

Total Allowable Costs	$276,230.00
Government Share	$138,115.00

Total Costs to date	$169,968.75
Balance remaining (39%)	$106,261.25

In addition, a considerable amount was paid by the Operator for various drilling costs not allowed in the contract, particularly casing and cementing time, which was grossly underestimated.

Also, a considerable saving to the government and the Operator was effected by getting various major mining companies to complete the assays at no cost. Only $636.00 for analytical work was billed under the entire program.

ORE RESERVES

The original ore reserve estimates consisted of two blocks, one on each vein and one marginal block on the Indianapolis vein. Since assays on these blocks were only from one drift through each, reserves could only be classified as probable and possible. However, mining has now been carried to from 100-200 feet above the tunnel level. Total tonnage mined has been about 9,108 tons averaging 1.1% MoS_2, with the bulk of this from the Indianapolis vein. This mining has confirmed the probable reserves on the Indianapolis vein, and, since similar ore is still present in the stope backs, a like tonnage can be projected between the stopes and surface. Mining has not progressed far enough on the Indiana vein to make the same conclusion, and these reserves are reduced somewhat.

Ore reserves are as follows:

Indianapolis Vein System:	Probable Ore	9,800 tons
	Possible Ore	14,700 tons
	Total	24,500 Tons
	Grade	1.26% MoS_2
Indiana Vein System:	Probable Ore	6,650 tons
	Possible Ore	10,680 tons
	Total	17,330 Tons
	Grade	1.11% MoS_2
	GRAND TOTAL	41,830 Tons
		1.21% MoS_2

The south marginal block on the Indianapolis vein contains 27,248 tons averaging .61% MoS_2.

An additional small ore shoot has been drifted on in the north Indiana drift and is termed the North orebody. Tonnage calculations are not complete for this block, but it could add another 2500 tons of probable ore.

No ore reserves can be calculated for the Mountain Chief area, although many hole intersections are approaching ore grade and widths.

GEOLOGY

Rock Types

Quartz Monzonite - This rock type comprises what is known as the Apex stock, an intrusive body extending from Michigan Hill on the south nearly to Boulder Creek on the north, a distance of 3 1/2 miles. The Nye mine is approximately in the center where the intrusive is its narrowest (about 1000 feet). The Mountain Chief area lies 1/2 - 3/4 mile northeast, where the intrusive is 1/2 mile wide.

Its composition varies markedly from one portion to another, but a very detailed petrographic study would be necessary to properly subdivide every type. Some petrographic work has been done which shows that, at least in the mine area, the rock was originally a diorite but a flooding of quartz and microperthite has changed the composition to a quartz monzonite, a granodiorite, or even to a granite in places. From the top of Oregon Hill southward, the rock is a diorite, but from Oregon Hill north to North Dakota Hill, it is either a quartz monzonite or a granodiorite. No sharp contacts have been seen, indicating that this change is due to the later quartz and feldspar alteration effects rather than separate intrusives. This factor is regarded as important since it is an alteration phase, which is very intense and which is related to the mineralization sequence in age. Wallrock alteration is discussed under a later section.

Dacite Porphyry - This intrusive type is one distinct subdivision of the Apex stock which can be made, as contacts are sharp. It occurs as dikes and as small stocks, the two known stocks located at the Mountain Chief mine and on Oregon Hill. The true dacite porphyry is very distinctive with laths of plagioclase and minor hornblende in a fine-grained light gray groundmass of microcrystalline feldspars. The laths are usually about 1/4" long, but occasional much longer ones can be seen. Gradational with this rock is one with similar phenocrysts but a coarser-grained ground-mass,

termed a quartz monzonite porphyry. Quartz is present to some extent in both, but possible greater amounts in the latter. Another variation has now been drilled in the present Hole II-S11, which appears to be a very fine-grained equivalent of the dacite porphyry. Feldspar phenocrysts are very small but the groundmass is similar. Since this is at a depth of about 1000 feet, it is suggested as being the chilled margin of the main dacite porphyry intrusive.

Pre-Cambrian Gneiss and Schist - The pre-Cambrian metamorphic rocks show the normal wide variation in composition in the Apex district, but the main type is a quartz-biotite gneiss with minor pegmatitic zones and biotite schist zones. Composition is sometimes at least 75% biotite.

Pre-Cambrian Alaskite - This pre-Cambrian intrusive is composed largely of moderately coarse-grained quartz and orthoclase or microcline, often with a perthitic texture. Biotite is found in small amounts. The main locality is north of the Mountain Chief mine where it is an important host rock for disseminated molybdenite. The alaskite is clearly later in age than the gneiss.

Hydrothermal Alteration - Based on preliminary petrographic studies by Union Carbide, the following alteration effects have been observed to accompany molybdenum mineralization:

1) Recrystallization and increased crystal size of feldspar and quartz.
2) K-feldspathization, i.e., alteration of plagioclase to orthoclase.
3) Biotitization, i.e., replacement of hornblende by secondary biotite.
4) Sillicification, i.e., introduction of silica in the form of quartz.

However, since this preliminary study was made, weak to moderate argillic alteration has been found throughout the Mountain Chief area and moderate to intense sericitic alteration has also been found at depth in the Mountain Chief drilling, Hole II-S9. Chloritization varies considerably from weak to strong with the disseminated mineralization, but along the veins it is usually very strong. Development of strong sericite alteration is very important in view of little or none at surface.

Structure:

The structural setting is quite complex and hence very

favorable. The northeast system, represented by the Dakota, Smith Gulch, and Paton faults, strikes from E-W to N50° E. At least the Dakota fault, since it is exposed in the mine workings, is a reverse fault with horizontal and vertical displacement of 240 and 100 feet, respectively. Its known strike length is 5000 feet and the main fault zone is 10-20 feet wide with additional fracturing beyond. Movement has been both pre- and post-mineral. The northwest fault system is represented by the Oregon fault, the Mountain Chief fault and another northwest of Dakota Hill. The Mountain Chief fault represents the southwest end of a major mineralized fault zone extending through the Perigo area for 2 1/2 miles northeast. A third system is represented by the north-south Apex fault along which the Pine Creek drainage has been cut for 2 miles. In addition to these, numerous faults of lesser importance were mapped underground and on surface.

Throughout the intrusive, and especially near the important veins, are sheeted zones or zones of close parallel fractures, from 1/2" to 2" apart. These usually dip from 60° to vertical and are striking at various directions. These sheeted zones are particularly important with respect to presence of large tonnages of low-grade ore as they contain the quartz-molybdenite veinlets. Most of the quartz-molybdenite veins are emplaced along faults and there has also been post-mineral movement, but these will be discussed under Mineralization and Ore Deposits. Fracture zones in the monzonite are well developed near the Indianapolis vein system, on the north slope of Oregon Hill, in the North Dakota Hill area, and south of Utah Hill. Brecciation in the Mountain Chief area occurs over a wide oval-shaped area, which might be termed a breccia pipe, although the margins are not well-defined. An early period of brecciation has caused a chaotic assemblage of gneiss, quartz monzonite, and dacite porphyry blocks which have been healed. Later brecciation has caused the openings for mineralizing solutions. A feature that appears to be a breccia pipe is developed on the north side of Smith Gulch. Completely fractured gneiss has been cemented with quartz. Fracturing associated with the Apex fault has very likely influenced the deposition of sulphides at the Evergreen mine, even though previous writers give the deposit a magmatic origin.

Mineralization and Ore Deposits:

Vein-Deposits - The veins become the widest in the quartz monzonite, compared to the gneiss, but structural control

is also important within the intrusive, as evidenced by the pinching of the north Indianapolis vein where the strike swung 10°-15° NE. Each vein is a system composed of 2 or more splits which join or branch off at various places. These splits may be as much as 50 feet apart. Widths vary from 2 inches to 5 feet, but 550 feet of the Indianapolis vein and 330 feet of the Indiana are 1.5 feet or more in width and generally carrying values near 1% MoS_2 or more. Additional substantial values are often present in the walls for at least the width of the drift. Oblique highly mineralized fractures are well-developed along the Indianapolis vein and contribute greatly to wall-rock grade. Correlation of the surface and underground mapping now proves a 400-foot vertical vein continuity on the Indianapolis and 200 feet on the Indiana vein. The conclusion is now indisputable that grade has increased from the surface to tunnel level.

Mineralogy is very simple, consisting of molybdenite and pyrite in quartz veins. Minor chalcopyrite, specularite, and galena may occasionally be seen. As a feature of alteration, intense chloritization of the quartz monzonite has nearly always occurred near the veins. On the other hand, only occasional blanket silicification has occurred in the walls but quartz veining is usually strong.

The 500 scale property-geologic map shows the veins now known and many others are undoubtedly present. Three types are evident:

1. The NE system, represented by the Indiana and most of the veins on Oregon Hill.

2. The N-S Indianapolis vein system.

3. A series of scattered N-W veins of probable lesser importance.

<u>Disseminated Deposits</u>:

<u>Nye Mine</u> - In the Nye crosscut adit, nearly every fracture in the 900 feet of quartz monzonite shows at least a film of molybdenite. The walls of the veins, as far as visible in the drifts, contain appreciable values. Grade is pretty well related to fracture intensity. Zones of quartz veining on surface with little or no visible molybdenite show increased molybdenite content at tunnel level, thereby showing the increased grade with 200'-400' of depth. The sparsity of molybdenite at the surface is believed by the writer to be due to a temperature gradient effect rather

than to oxidation leaching, as very little molybdenum oxides can be seen. Based on the above favorable observations, downholes II-3, II-4, and II-5 were drilled below the adit level to test the disseminated mineralization. These holes found definitely stronger silicification, quartz veining, and secondary orthoclase, but molybdenite content increased only slightly. A zone 200'-300' wide was the most interesting but its grade would not exceed .05% MoS_2.

Mountain Chief Area: Exploration for disseminated molybdenite deposits has been concentrated in the Mountain Chief area where the geology differs considerably from that of the Nye mine area. Mineralization is not found in quartz veins but rather in brecciated zones or breccia pipes in or near the dacite porphyry intrusive. The highest concentrations of molybdenite (.1% MoS_2 or more) are localized in or near major fault zones, such as the S-4 and Paton faults in Hole II-S4 and S9, but mineralization can be seen for hundreds of feet in small fractures and cavities associated with the breccia zone or breccia pipe. This is particularly evident in Hole II-S1. The best hole, II-S9, has cut 70 feet (50 feet true width) averaging .208% MoS_2 in the major northeast Paton fault. Associated alteration is particularly favorable, since this was the first hole to find strong sericitic alteration, and the 750-foot depth was the greatest explored to that time. Other alteration types of importance with the molybdenum mineralization are strong quartz veining, secondary orthoclase as irregular replacements, and chloritization. Blanket silicification is nearly absent with the ore but is present in local areas. These altered areas are also in appreciable magnetic lows of about 700 gammas, indicating a substantial destruction of magnetite in the intrusiverocks. All of the best mineralized zones drilled to date have been localized directly below high molybdenum soil geochemical anomalies of 200 - +1000 ppm Mo. Best mineralization is found in the dacite porphyry and secondly in rocks next to the dacite, particularly the quartz monzonite and the pre-Cambrian alaskite. The quartz-biotite gneiss, while mineralized, is always only weakly so.

Since completion of Hole II-S9, later Holes S12 and S13 at the Operator's expense have now pretty well confirmed the presence of a breccia pipe with dimensions at least 350 feet N-S by 500 feet E-W. Boundaries of the intensely altered and brecciated mass are fairly sharp, but lesser altered brecciated, and mineralized rock extends beyond the pipe and throughout the entire Mt.Chief Area, as has been determined from all previous drillholes.

Mineralogy consists of primarily molybdenite with often substantial amounts of specularite. Chalcopyrite is occasionally seen, especially in Hole II-S1, where wide zones averaged near 0.1% Cu, and in Hole S13, where 65 feet assayed .113% Cu. Appreciable gold is also present in Hole II-S1 and varies from a trace to $1.05/ton. Pyrite is disseminated in all of the holes, but its content is not proportional to the molybdenite content. In fact, wide zones in Hole II-S2 contained 5-15% pyrite, but Mo content was very low, whereas the best zone in Hole II-S9 contained only minor pyrite. Minor fluorite and sphalerite are also present. Ferri-molybdite can be identified in some near-surface oxidized zones, and it is often intimately mixed with yellow-brown jarosite.

GEOCHEMICAL SURVEYS

Geochemical sampling has been carried on at various times by Nye Metals, Bear Creek Mining Company, and Union Carbide Nuclear Corporation. Both rock and soil sampling have been done. Spil sampling by both Nye Metals and Bear Creek have shown Mo values to be more highly concentrated in the red-brown soil zone near bedrock and to be more indicative of bedrock mineralization. This is believed due to a fair amount of typical high-altitude soil slumping and land-sliding. Therefore, all later soil samples by Nye Metals have been taken only of this soil layer in bulldozer cuts, and they have proven to be excellent indicators of mineralization at depth, even though the near-surface rock was not highly mineralized.

Generally speaking, soil and rock sampling by Bear Creek Mining Company outlined an anomalous area about one mile in diameter which extended from Oregon fault on the south to the Mountain Chief fault on the north. Sampling by Union Carbide was more limited but outlined the Nye mine and Mountain Chief areas as distinctly anomalous.

MAGNETIC SURVEY INTERPRETATION

In general, the magnetics showed striking correlations with known geology from drilling and surface mapping and was an extremely useful tool.

Lithologic Interpretation

The gneiss-quartz monzonite contact was usually easily located by magnetics, since the gneiss contains abundant

grains and masses of magnetite. This can readily be seen at the west and east contacts, where contrasts of over 2000 and 500 gammas were present. Another large gneiss body east of Holes II-S2 and II-S6 was delineated. Little or no contrast can be seen between the quartz monzonite and dacite porphyry.

The alaskite appears to be nearly non-magnetic and contributes to the broad low north of the Mountain Chief mine. The bread low in Jenny Lind Gulch appears related to a lithologic change but this is rather uncertain.

Faults

Based on the few known faults, the various major faults are indicated remarkably well by linear magnetic lows with substantial magnetic highs in the hanging-wall. The linear lows are due to hydrothermal alteration along the fault zones, a feature readily seen on surface and in drill holes. In some places the fault anomaly is masked by other lows and the extent is dashed in from surface geological control such as in the large SW anomaly. The pronounced highs are somewhat difficult to explain except that they possibly represent an introduction of hydrothermal magnetite near the faults or inclusions of pre-Cambrian gneiss. The abundant specularite may be an alteration product of magnetite. The main Mountain Chief fault is shown as well as numerous others, all indicated on the magnetic map.

Magnetic Low Alteration Anomalies

Outside of the normal linear lows along faults, some more extensive magnetic lows can be seen which indicate large intense alteration zones. It should be emphasized that the numerical comparisons of gammas from widely scattered anomalies are not always valid but rather comparisons in the immediate vicinity. The boundary of the Mountain Chief alteration zone is indicated with the heavy orange line. For instance, the pronounced high to the south is still within the quartz monzonite and indicates the higher values away from the blanket alteration zone.

POTENTIAL EXPLORATION TARGETS
MOUNTAIN CHIEF AREA

Please refer to the magnetic and geologic maps (100) scale of the Mountain Chief area for location and features of these target areas.

Paton-S4 Breccia Pipe Area

Three holes, II-S4, S7, and S9 have been drilled to an appreciable depth, and all have found wide mineralized intervals assaying 0.1 - 0.2% MoS_2. Hole II-S5 was a shallow hole designed primarily to test the Indiana vein at its NE projection from the Nye mine.

These intervals are listed in the following table:

Hole No.	Depth	True Width	%MoS_2
II-S4	465' - 640'	123'	.108
	463' - 565'	70'	.152
	500' - 560'	42'	.197
II-S7	190' - 210'	14'	.146
II-S9	210' - 235'	18'	.104
	270' - 290'	14'	.122
	750' - 820'	50'	.208

An important facor in evaluating the potential for a large tonnage low-grade deposit is that the favorable breccia pipe is 350 feet by 500 feet in size, all containing visible and important amounts of molybdenite. The magnetic alteration low, which is now known to closely correlate with the best mineralized zones, indicates a potential target 1200 feet NW-SE by 1000 feet NE-SW. Every hole has found widespread visible disseminated molybdenite. The dacite porphyry intrusive in this area is essentially a system of dikes varying from 100-250 feet wide. Finding of the main dacite or monzonite porphyry intrusive mass at a shallow depth below is believed to be a key factor in further exploration of the property. No outcrops exist over the area due to 15-30 feet of overburden and landslide material, which has made interpretation of results very difficult.

Mountain Chief Mine

Only Holes II-S1 and S3 have been drilled. About 500 feet of visible disseminated molybdenite can be seen in II-S1, although no wide zones of +.1% MoS_2 material were found. Two 125-foot sections averaging .08% MoS_2 were drilled, and some shorter sections assayed over .1%, specifically between 435' and 555' and between 670' and 755'. The mineralized zone coincided with a broad magnetic low. Gold and copper are also present in appreciable amounts. II-S1 is at -35°, so the depth is only from 300 to 550 feet. Hole II-S3 was a shallow hole along the Mountain Chief fault to the west, and results were disappointing. Magnetics have

since shown this hole to be out of the intense alteration zone. Another very pronounced magnetic low is located along and south of the Mountain Chief fault. Both rock and soil geochemical samples are high over the entire area and visible molybdenite can be seen on many of the dumps. Grab sampling of these dumps showed values generally less than .1%, but one dump ran .5% MoS_2.

An extension of this area along the fault to the southwest might also be included. Hole II-S2 found a 105-foot section averaging .111 MoS_2, but Holes II-S6, further southwest, and Hole II-S8, below II-S2, failed to show better mineralization, and it would be difficult to justify further work unless new favorable data is obtained.

Northwest Anomaly

Although few outcrops are present, one long bulldozer cut has indicated strong altered dacite porphyry and gneiss, and geochemical sampling disclosed a 600-foot wide anamalous zone. Sparse molybdenite can be seen as well as considerable specularite. The magnetic survey has shown an E-W low to be present between two E-W faults. No drilling has been done.

CONCLUSIONS AND RECOMMENDATIONS

General Economics

In considering the necessary grade for an economic large tonnage deposit at the Nye property, a comparison of gross values is quite illuminating. With porphyry copper exploration today, 0.7% Cu is considered ore, assuming production can be at least 10,000 tpd. This gross value is compared with that grade reasonably expected at the Nye property. Prices used are the present ones quoted of $1.55/lb Mo and 36¢/lb Cu.

	Gross Value Per Ton
0.7% Copper Ore	$5.04
0.20% MoS_2 Ore	$3.72
0.20% MoS_2 + 0.1% Cu Ore	$4.44

If the molybdenum price should advance to $2.00/lb, the gross value would be as follows:

	Gross Value Per Ton
0.20% MoS_2 ore	$4.80
0.20% MoS_2 + 0.1% Cu ore	$5.52

Considerable new molybdenum production is expected in the world during the next two years, but the rapidly increasing consumption should take care of most of this. It is apparent that mineralization grade being found in drilling at the Nye property is near economic grade, assuming, of course, that sufficient tonnages are delineated with further drilling. Assuming the approximate grades previously cited, a 40-50,000,000 ton reserve should be assured.

Nye Mine Area

1. Exploration to date in the crosscut adit and by drilling has illustrated that the entire 900-foot wide quartz monzonite intrusive contains molybdenite mineralization, but it is confined mainly to fractures and joints with only minor amounts disseminated between the fractures. Since deeper drilling 300 to 600 feet below the adit failed to show any marked change in this condition, the chances of a shallow economic deposit are remote, and no further drilling is recommended.

2. Mining of the vein ore is confirming the sampled grade of +1.0% MoS_2 for the Indianapolis blocks, and it is likely that the probable and possible vein reserves will be proven, and other similar reserves can probably be found. The present high Mo prices are making ore out of previous marginal material.

Mountain Chief Area

1. Four locations within this area are quite promising and justify continued exploration. Each has the potential for a large orebody.

a) S-4 Paton Breccia Pipe - Most drilling to date has been completed in this breccia pipe, and, since results are the most encouraging thus far, deeper drilling is recommended at least to a depth of 2000 feet. High geochemical values from old prospect pits 500 - 600 feet northwest of the pipe indicate a substantial extension and should be investigated.

b) Hole II-S4 Location - The mineralized breccia pipe found in this hole (70 feet assaying .152% MoS_2) appears to be separate from the previously mentioned pipe. This is the only hole at this location, and, since it was intersected only 350 feet below surface, deeper drilling and offset drilling are certainly necessary.

c) Mountain Chief Mine - At least two deeper holes are recommended to explore the highly altered and mineralized

zone found in the relatively shallow Hole II-S1.

The presence of appreciable copper and gold values enhances the potential at this location. Width of the favorable dacite porphyry at surface is over 1000 feet in an E-W direction.

d) Northwest Anomaly - A coincident magnetic and geochemical anomaly makes this area attractive for further exploration. One bulldozer cut found intensely altered gneiss with abundant specularite and some molybdenite. No drilling has been done.

Oregon Hill Area

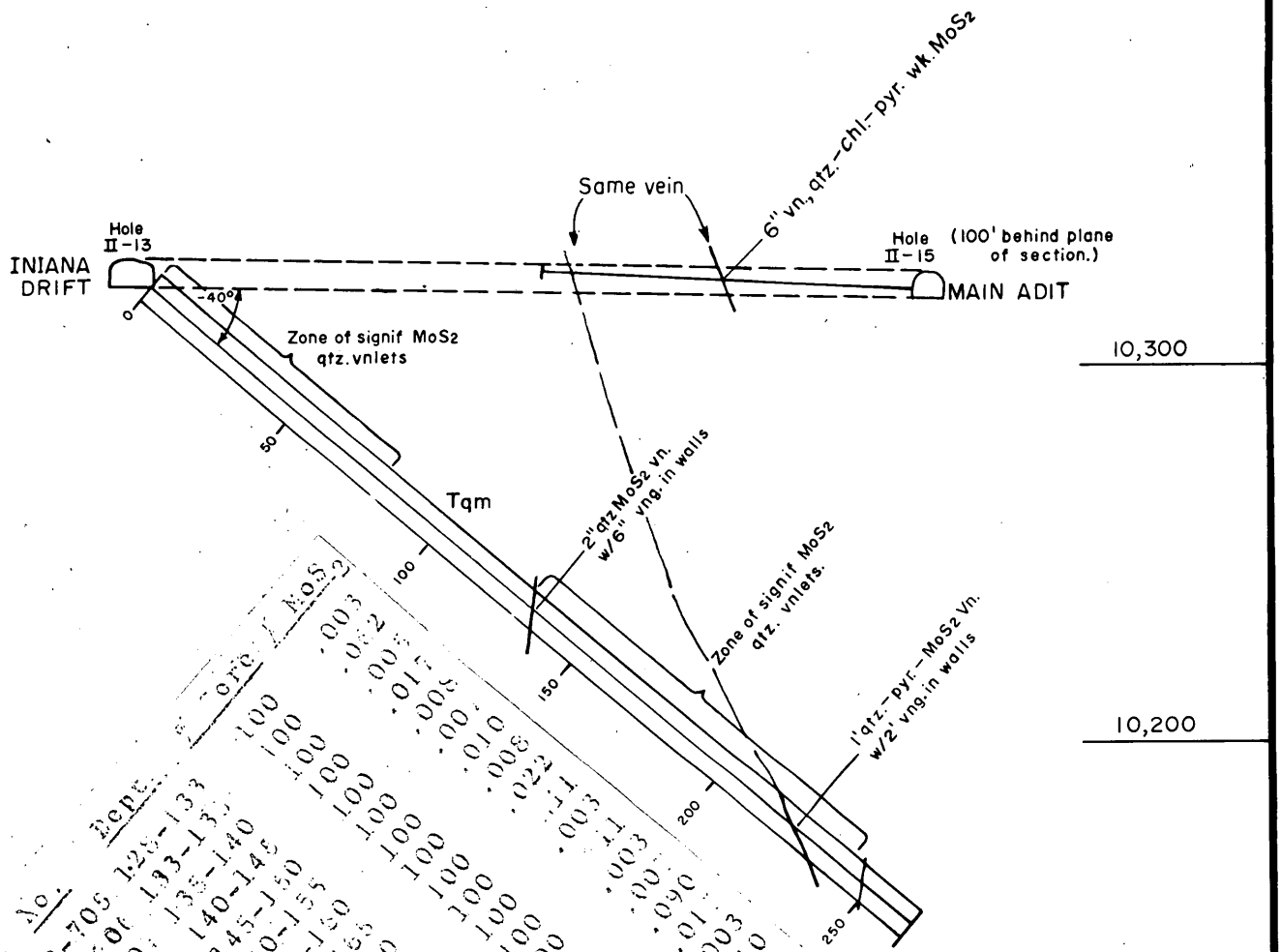
The presence of a dacite porphyry plug, strong quartz veining, and a number of NE quartz-molybdenite veins all ascribe some favorability to this area. However, the Bear Creek Mining Co. geochemical sampling showed a drop-off of values south of Oregon hill. More detailed geological mapping and geochemical sampling are recommended.

Respectfully submitted,

Charles E. Melbye

Charles E. Melbye
Geological Engineer
Consultant to Nye Metals, Inc.

March 14, 1966



NYE METALS INC.

GEOLOGIC ASSAY LOG

HOLES II-13 & II-15

Section looking N75°E

Scale: 1"=50' August, 1964

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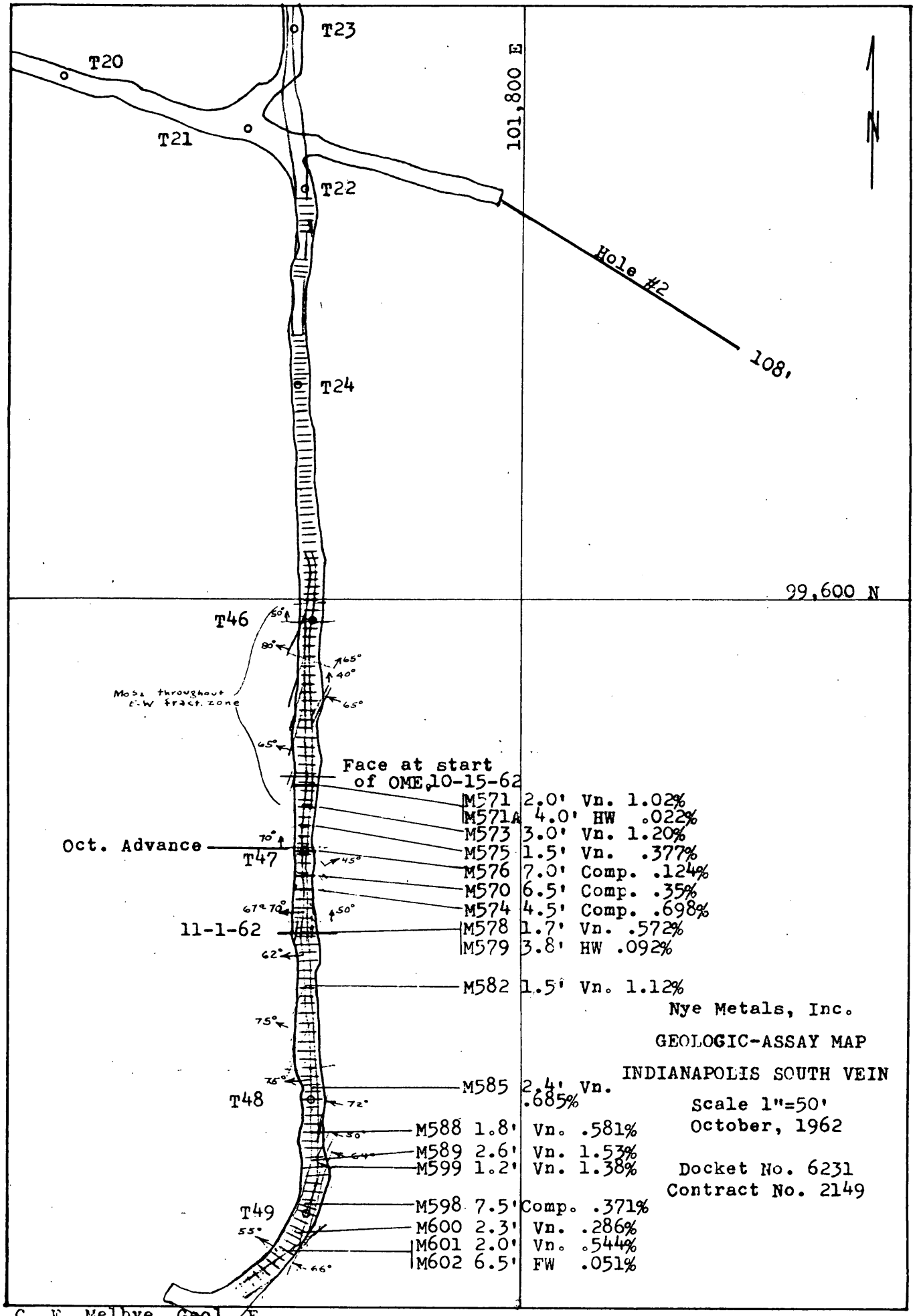

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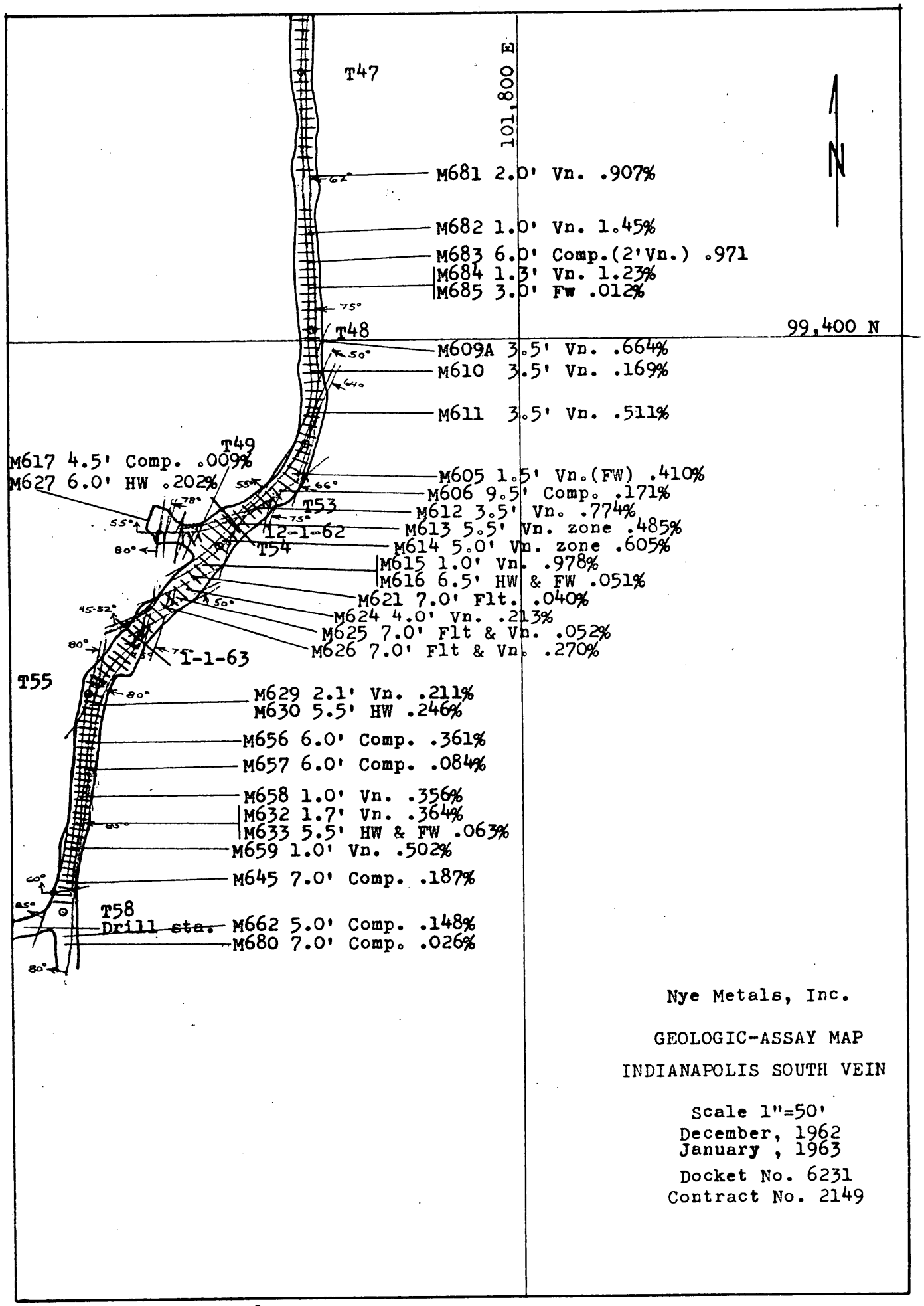

Nye Metals, Inc.

GEOLOGIC-ASSAY MAP

INDIANAPOLIS SOUTH VEIN

Scale 1"=50'
December, 1962
January , 1963

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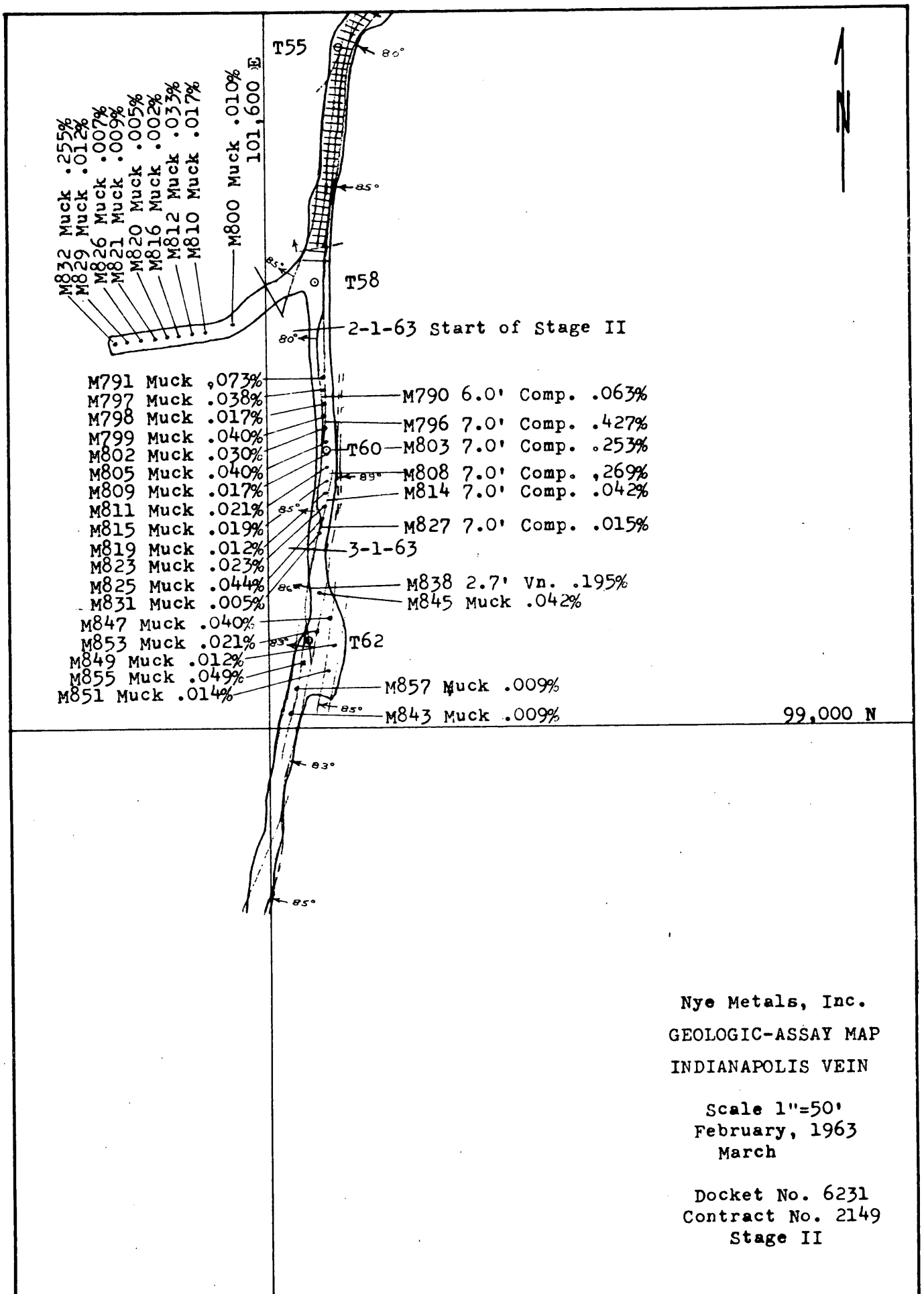

Nye Metals, Inc.

GEOLOGIC-ASSAY MAP

INDIANAPOLIS VEIN

Scale 1"=50'
February, 1963
March

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Stage II

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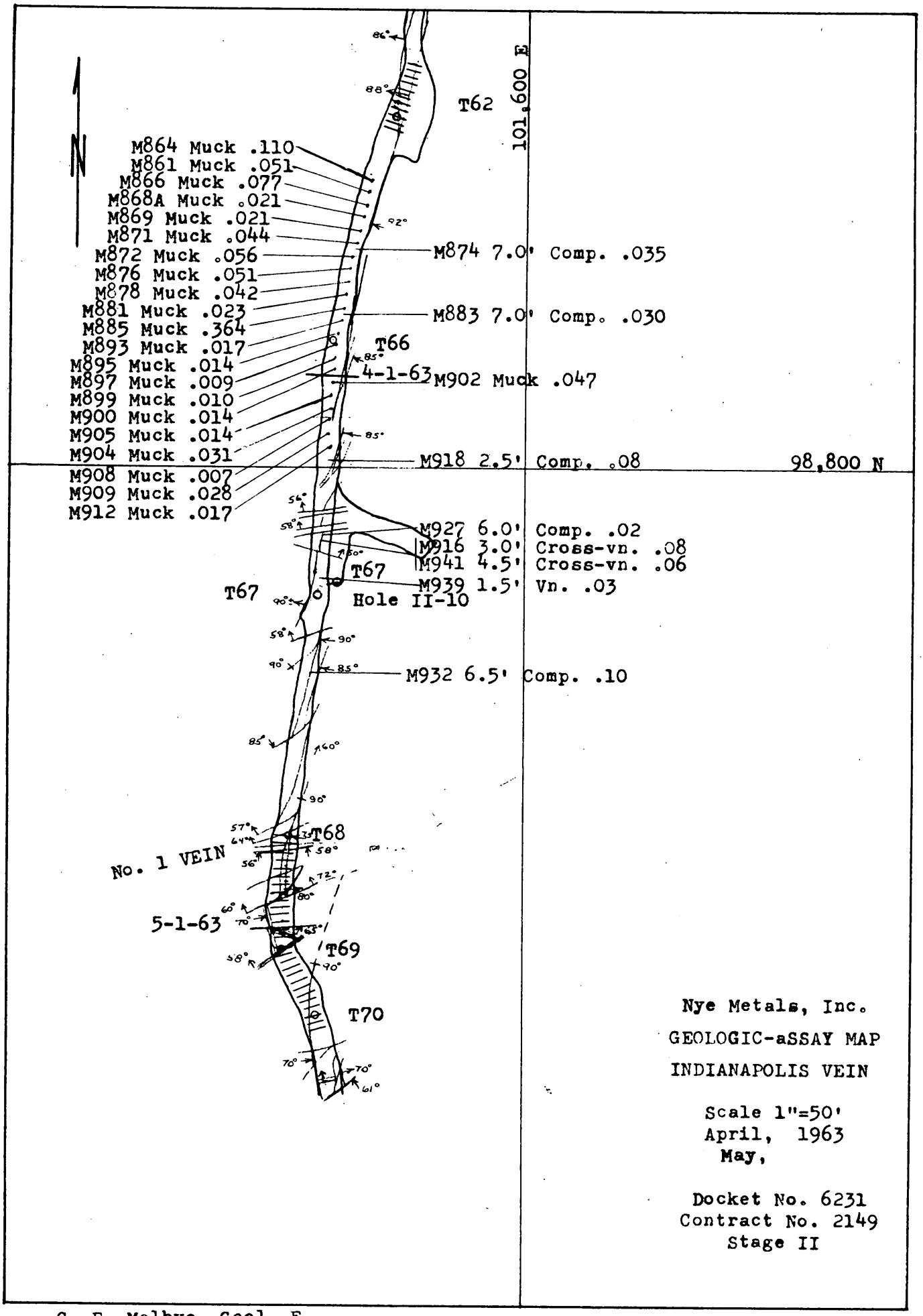

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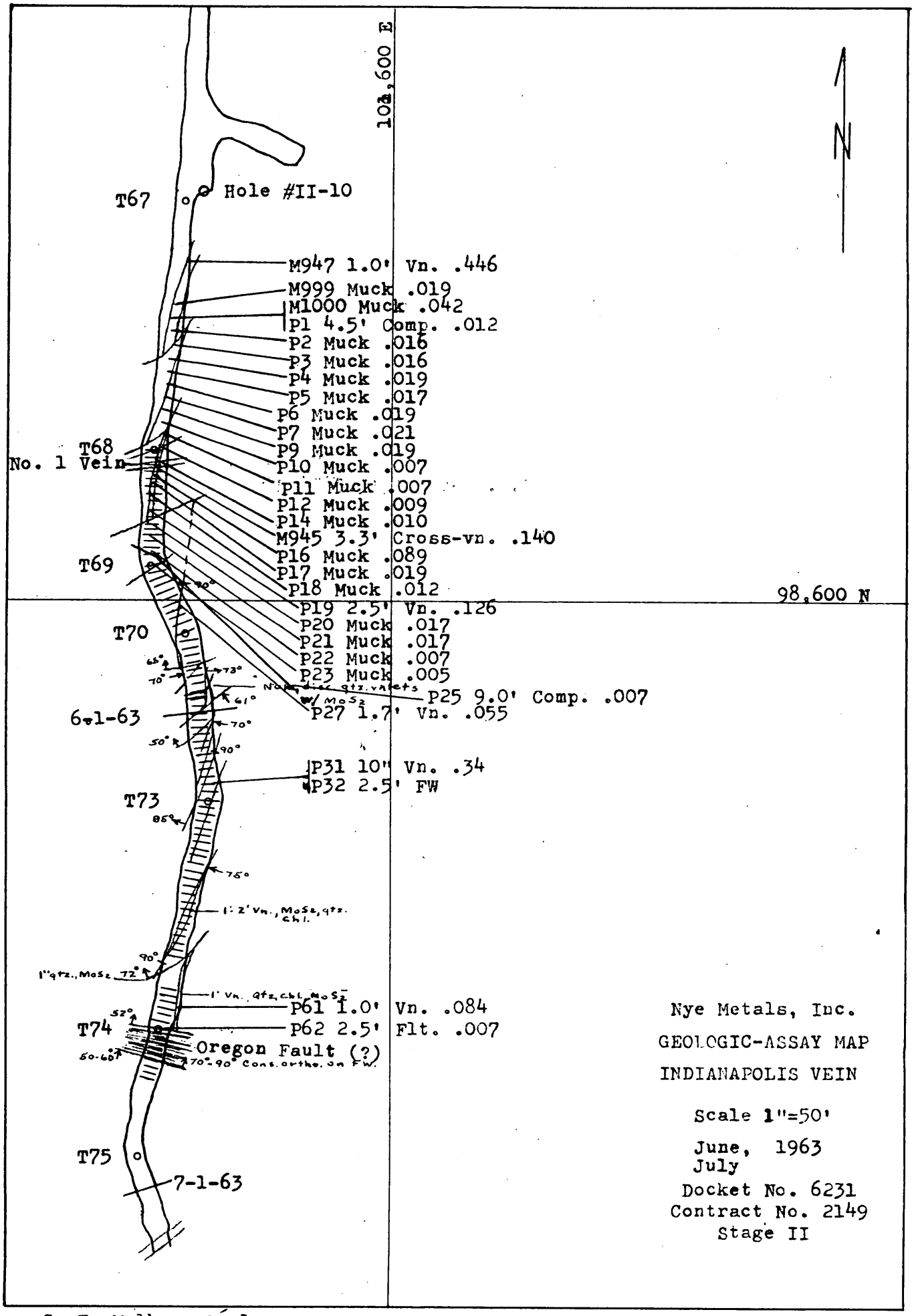

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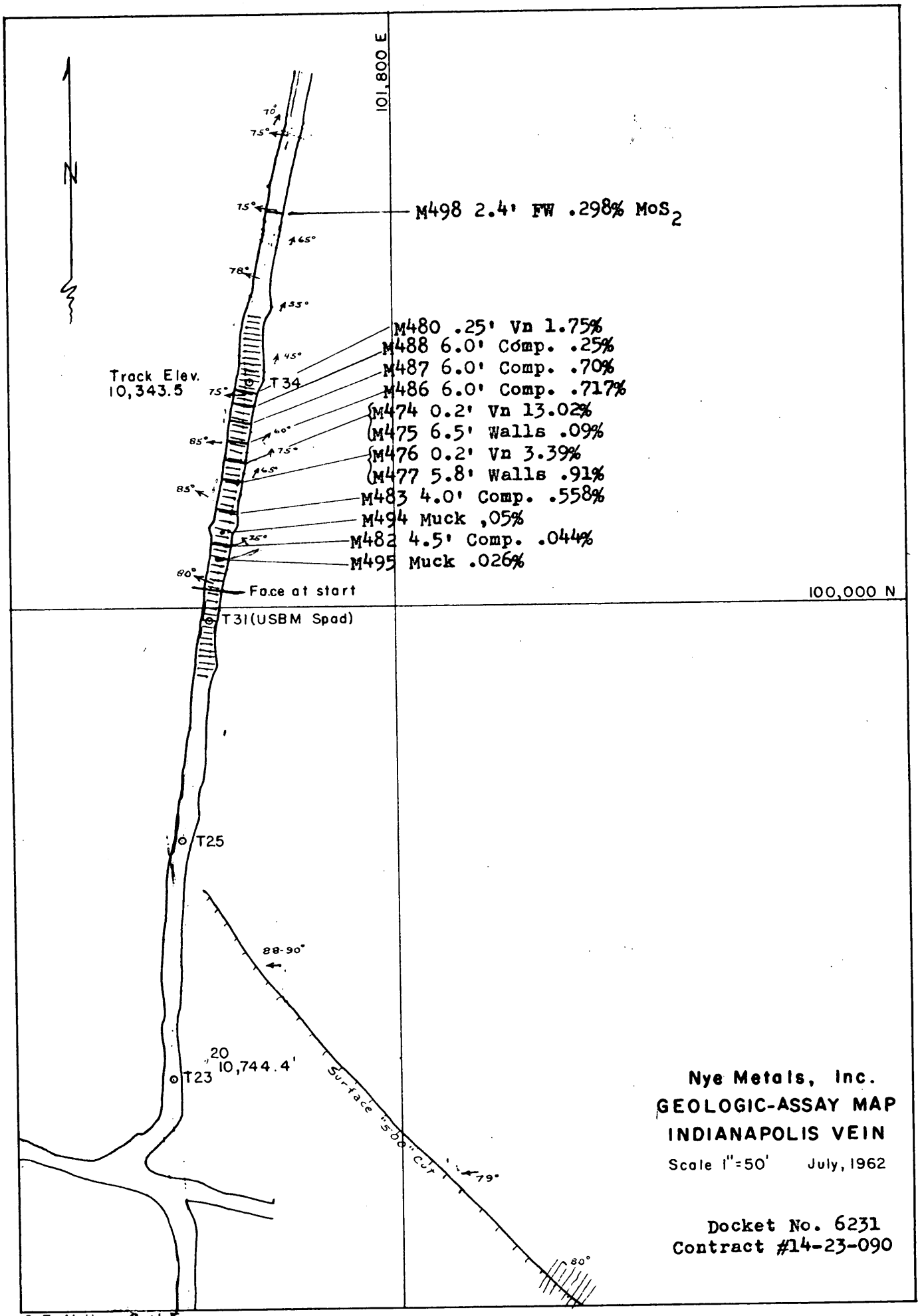
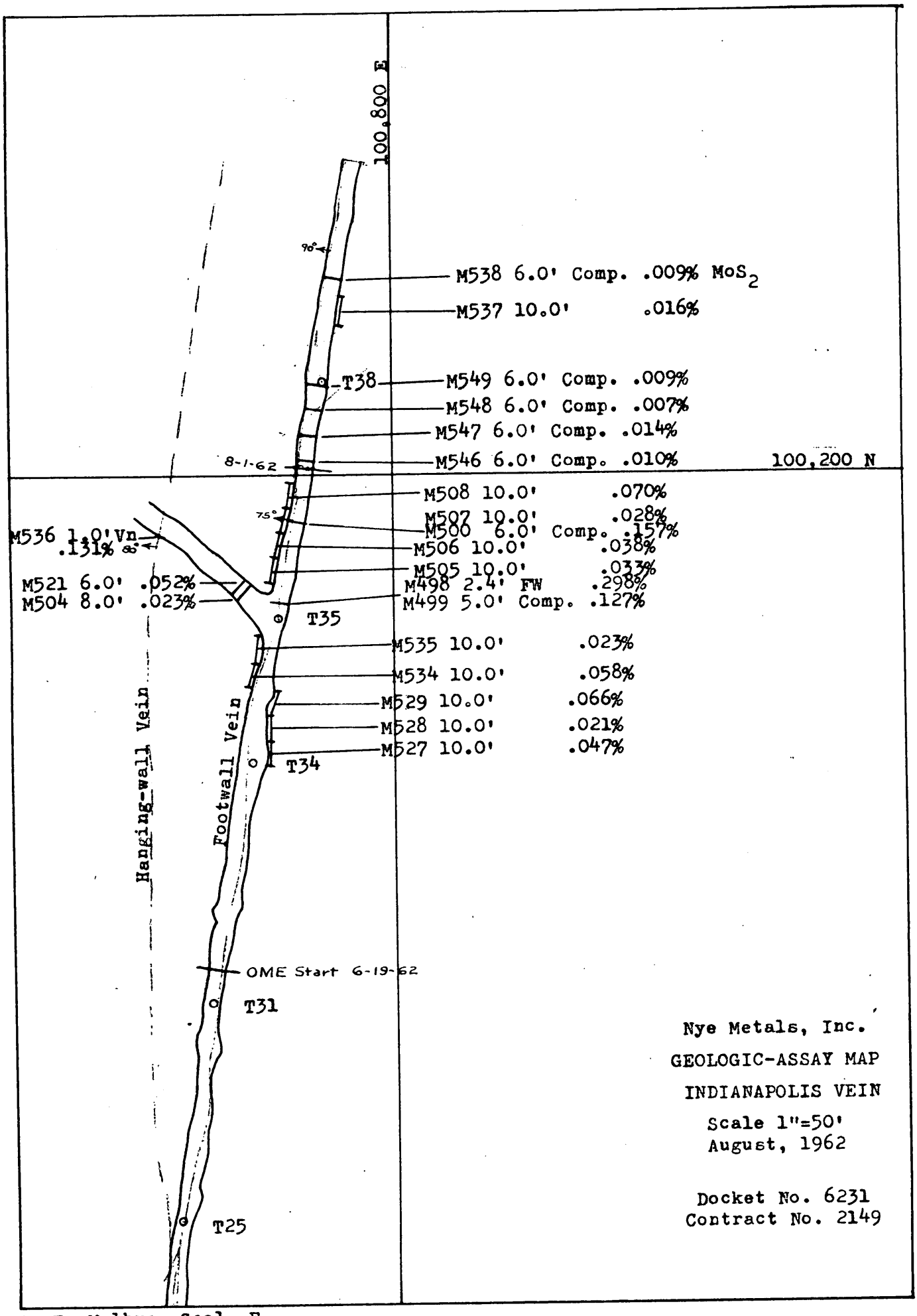


C. E. Melbye, Geol. E.



Nye Metals, Inc.

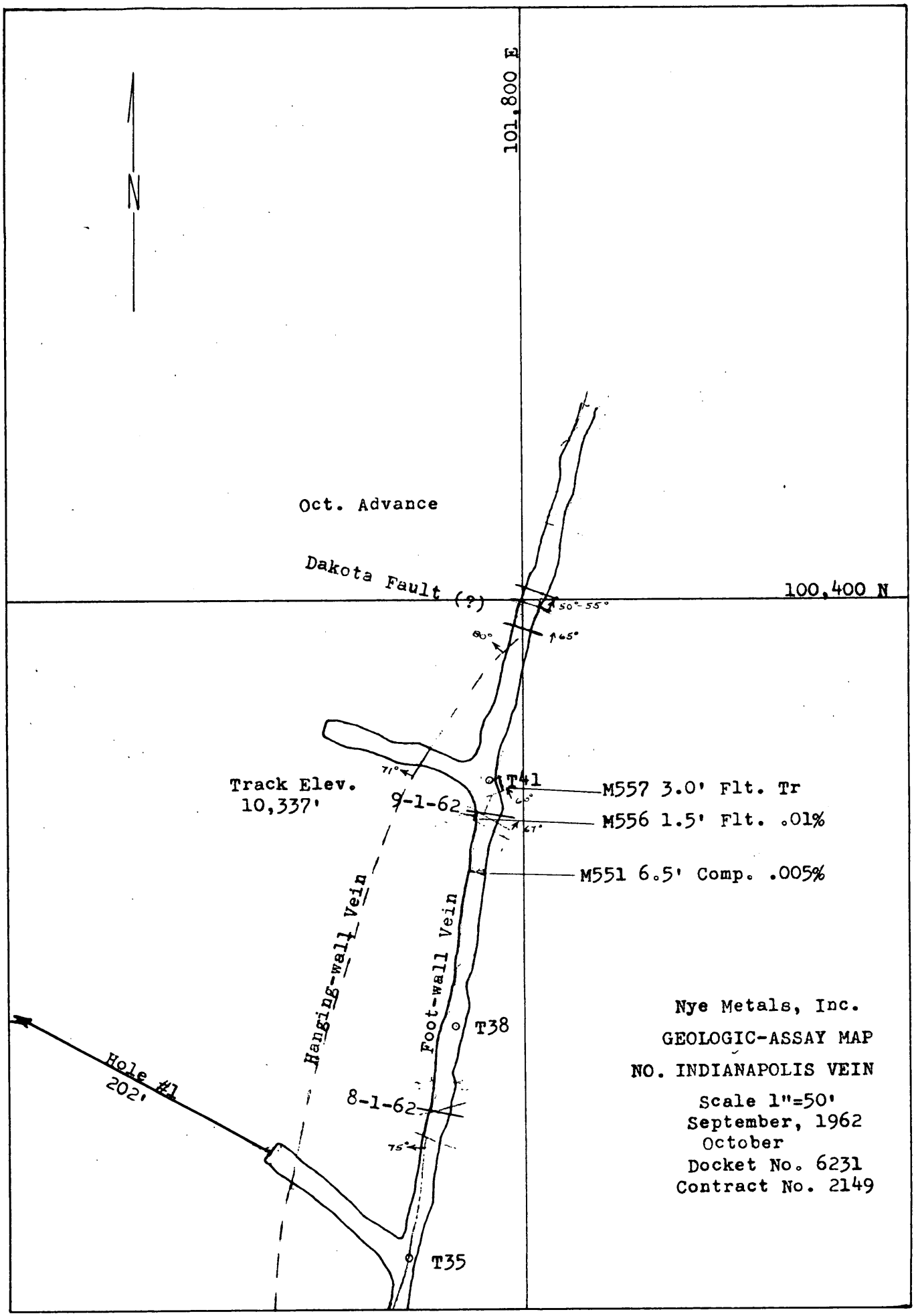
GEOLOGIC-ASSAY MAP

INDIANAPOLIS VEIN

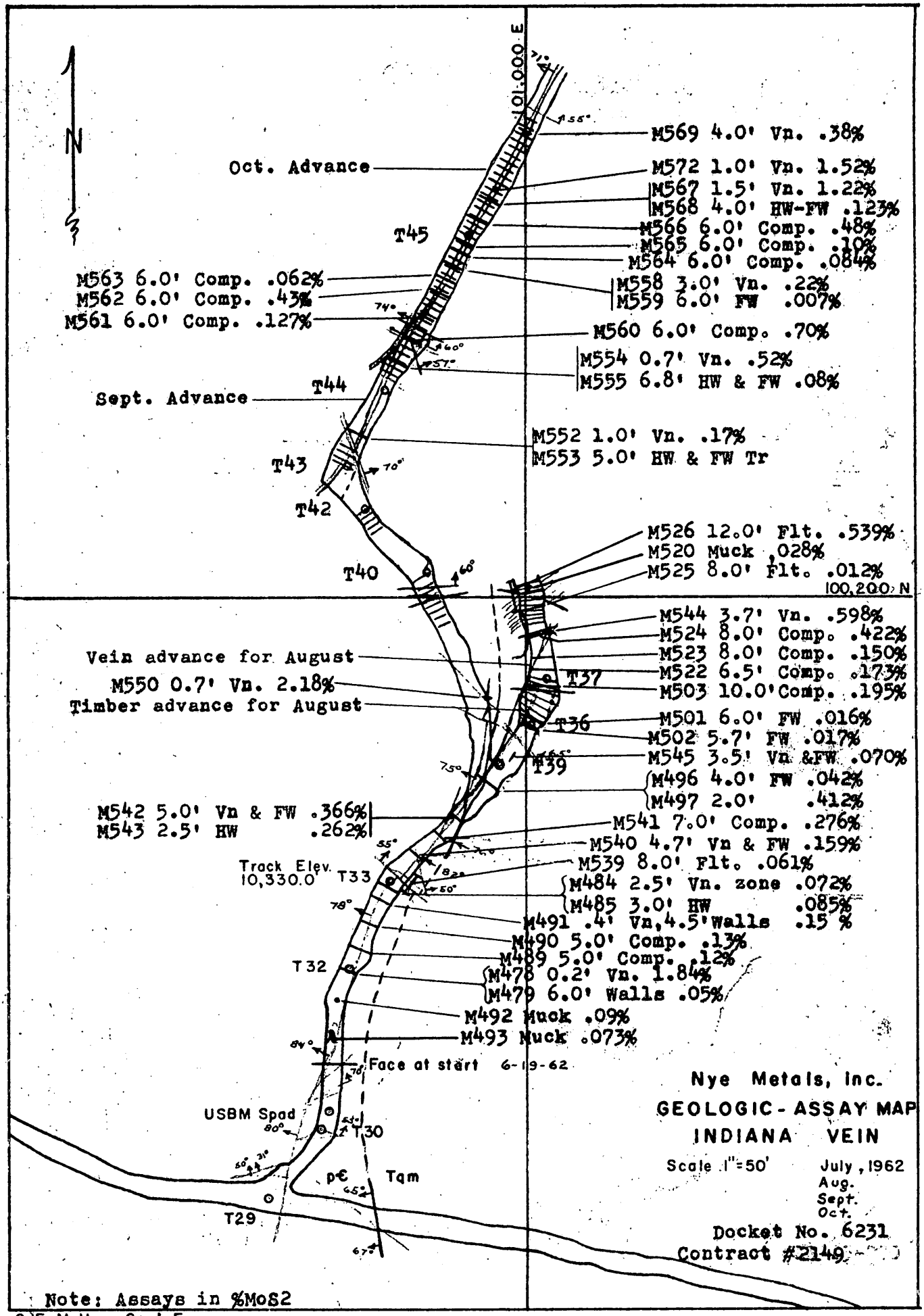
Scale 1"=50'
August, 1962

Docket No. 6231
Contract No. 2149

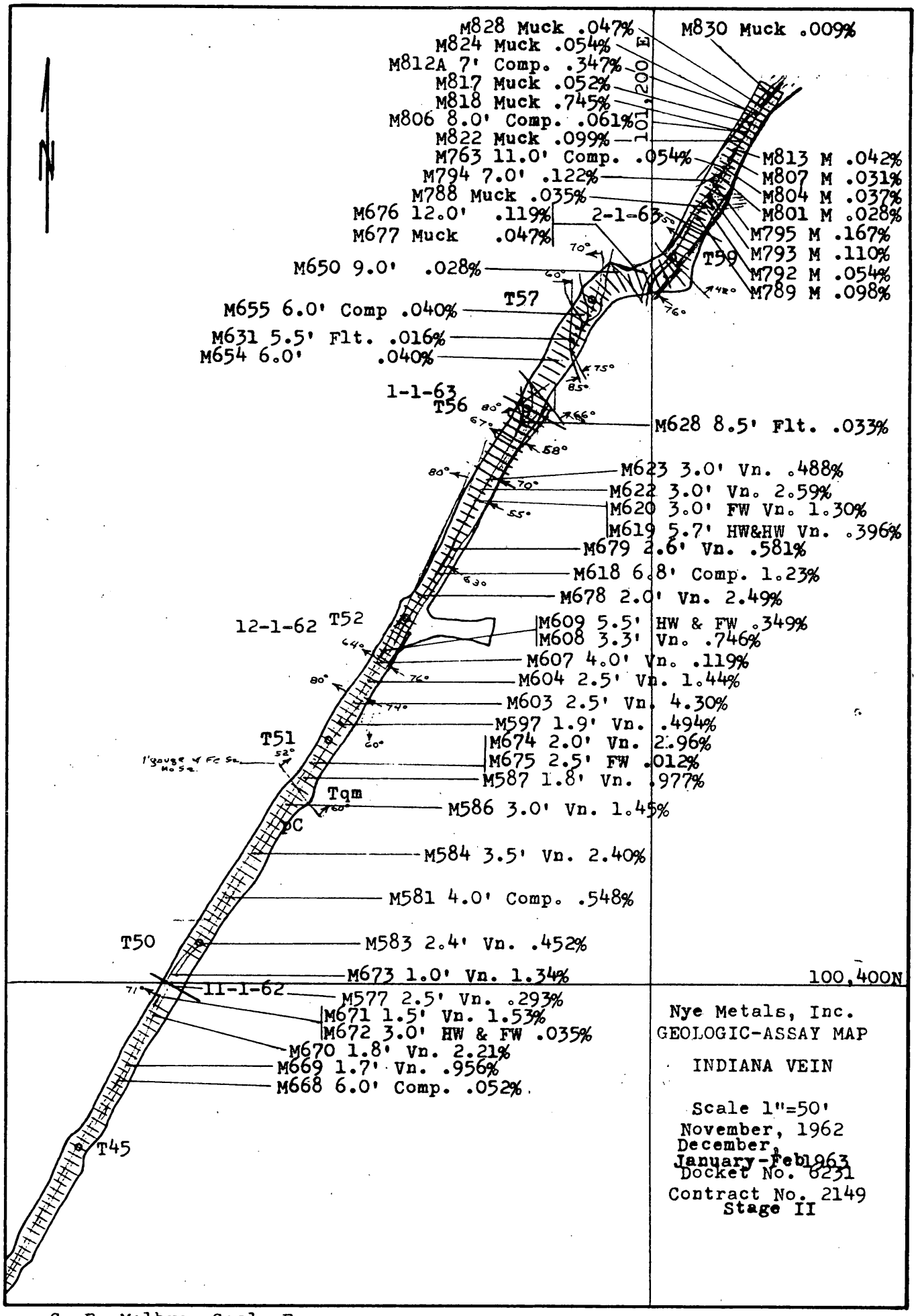
C. E. Melbye, Geol. E.



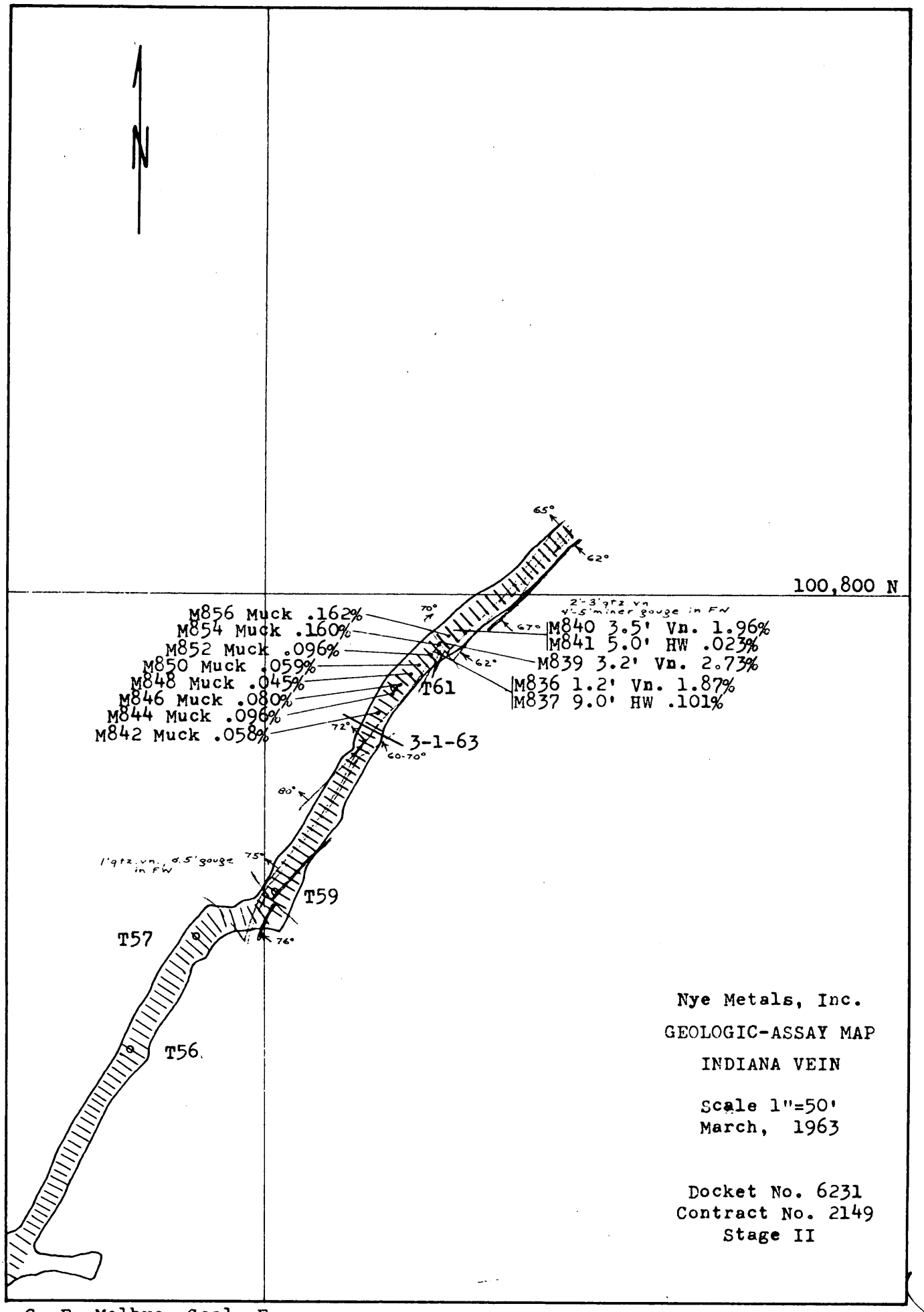
C. E. Melbye, Geol. E.



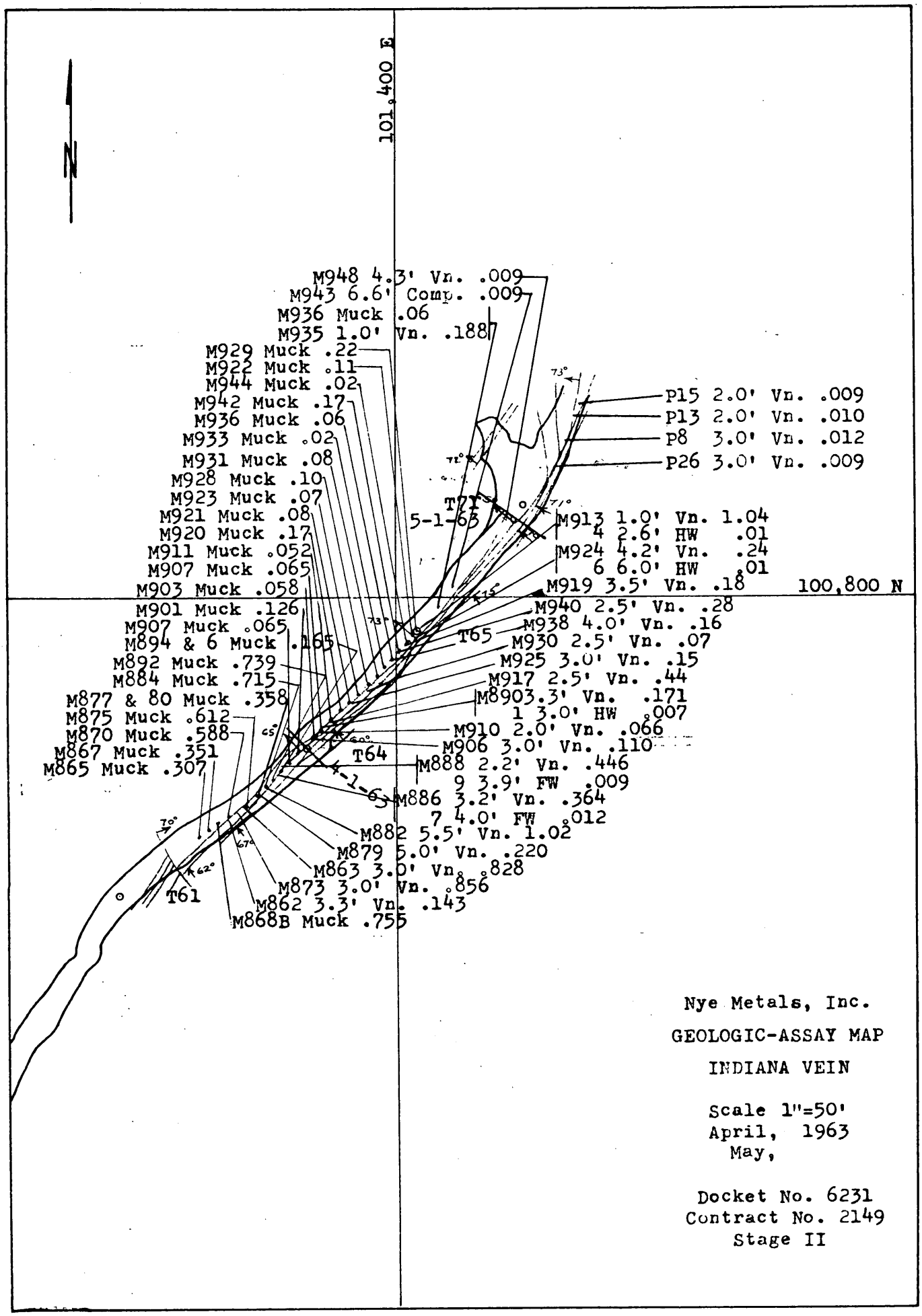
C. E. Melbye, Geol. E.



C. E. Melbye, Geol. E.



C. E. Melbye, Geol. E.



Nye Metals, Inc.

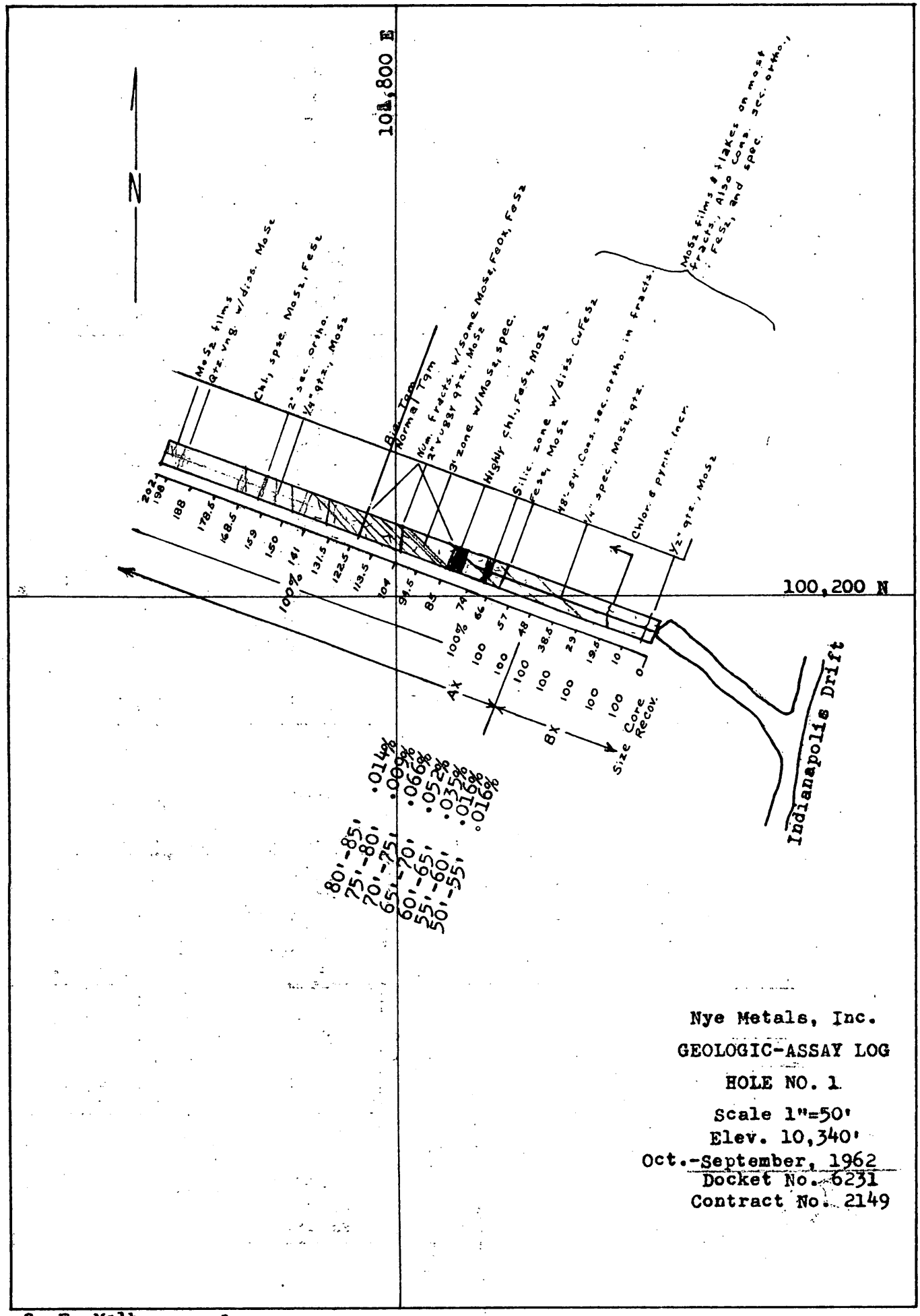
GEOLOGIC-ASSAY MAP

INDIANA VEIN

Scale 1"=50'
April, 1963
May,

Docket No. 6231
Contract No. 2149
Stage II

C. E. Melbye, Geol. E.



Nye Metals, Inc.

GEOLOGIC-ASSAY LOG

HOLE NO. 1

Scale 1"=50'

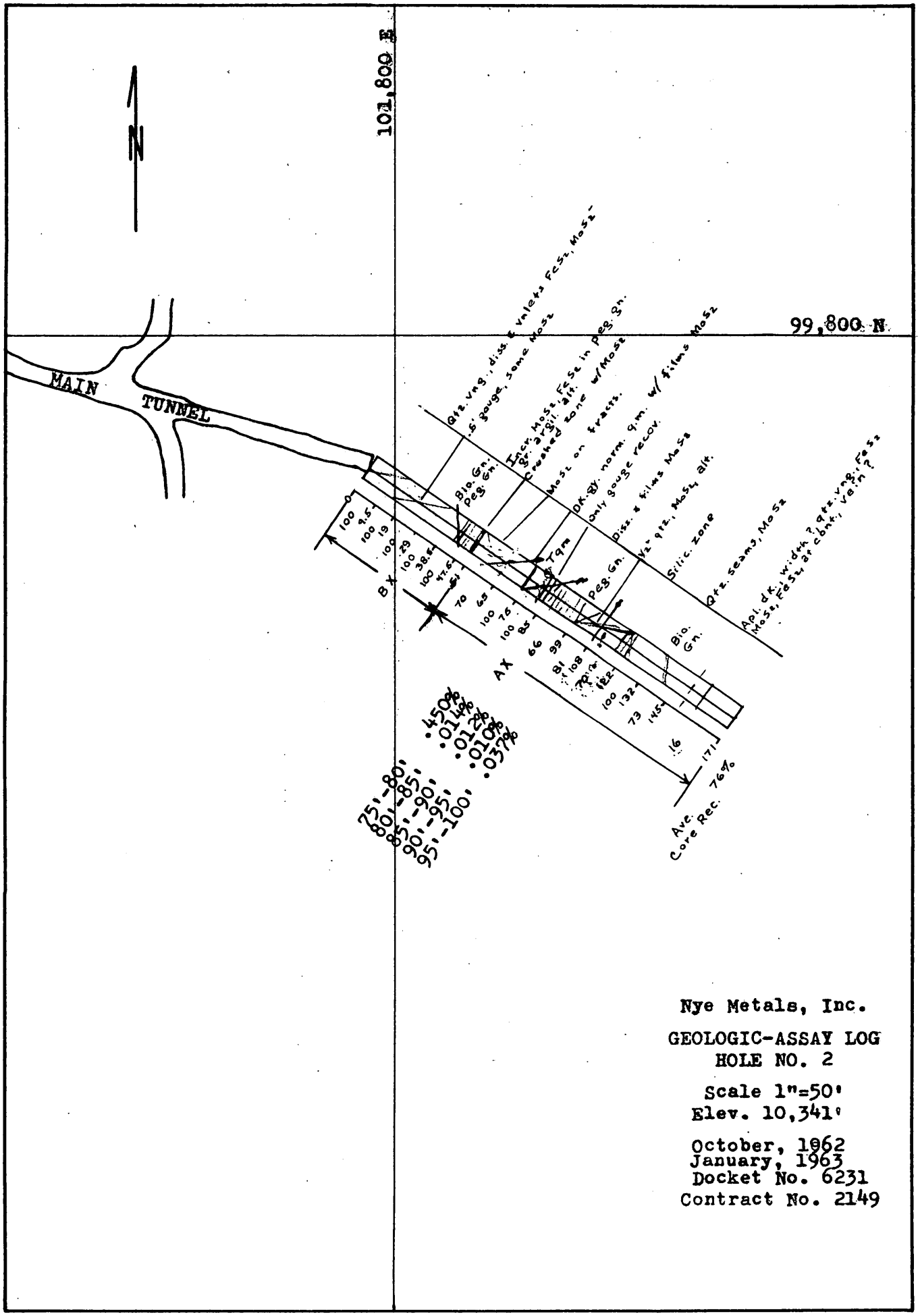
Elev. 10,340'

Oct.-September, 1962

Docket No. 6231

Contract No. 2149

C. E. Melbye, Geol. E.



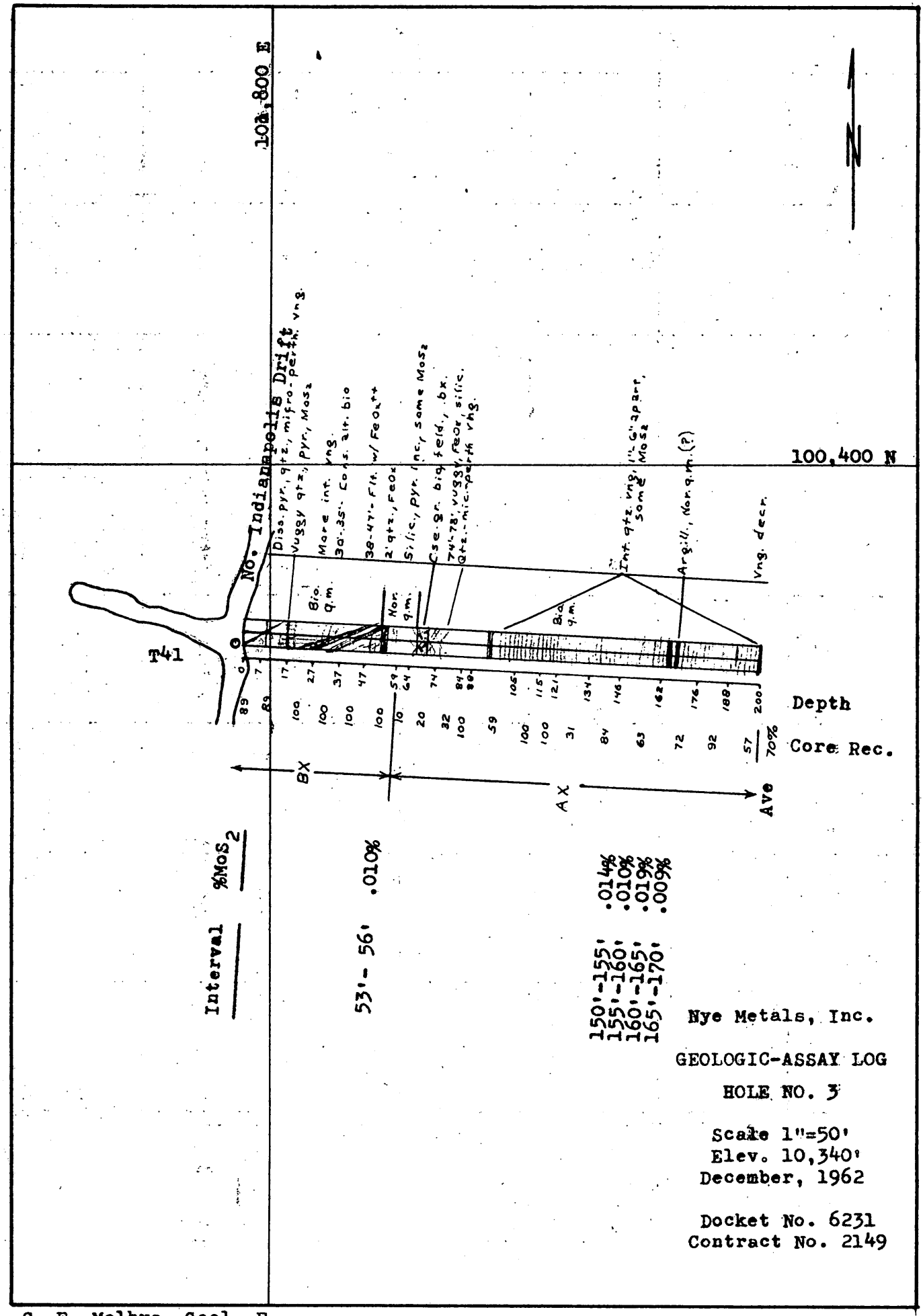
Nye Metals, Inc.

GEOLOGIC-ASSAY LOG
HOLE NO. 2

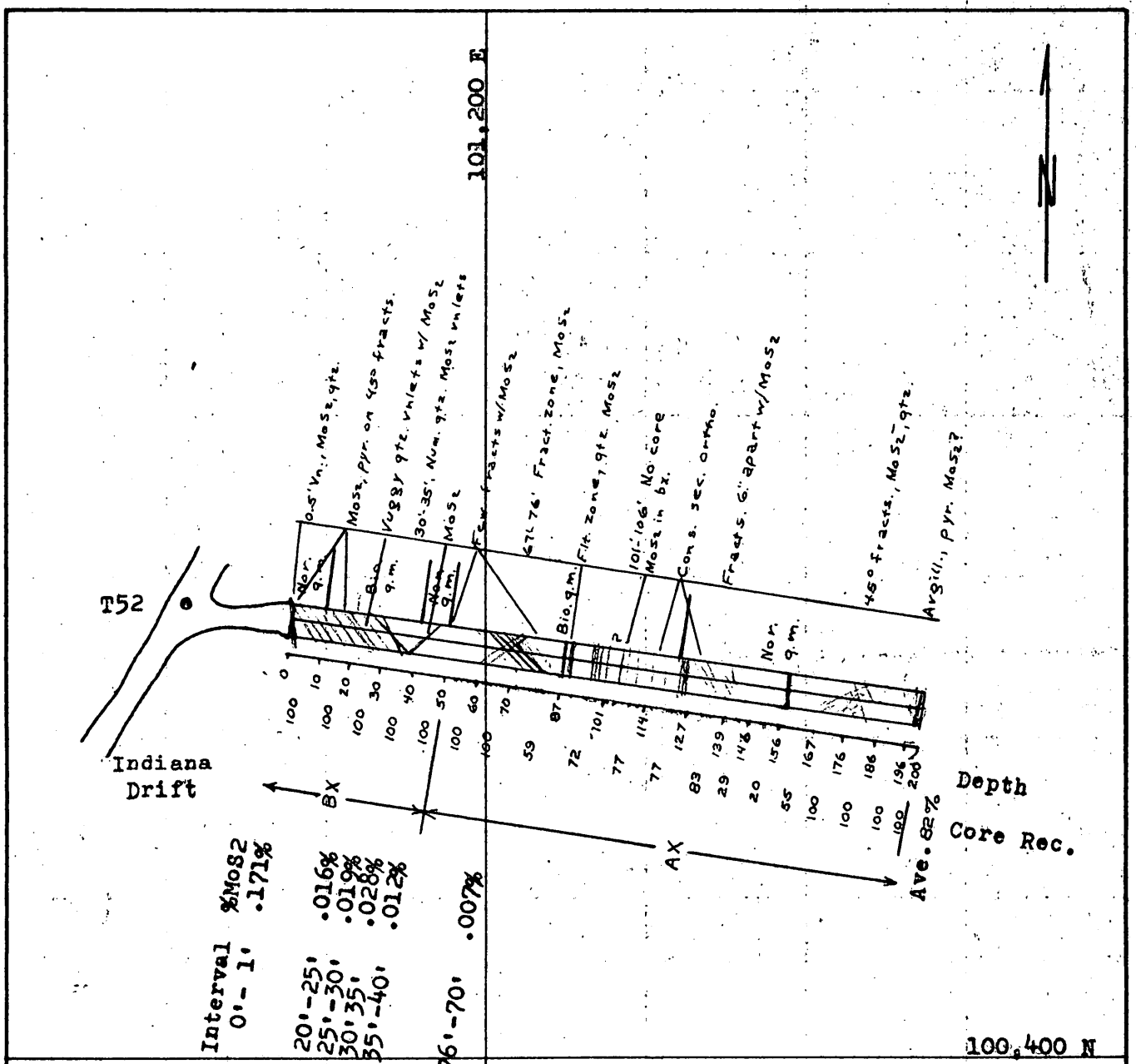
Scale 1"=50'
Elev. 10,341'

October, 1962
January, 1963
Docket No. 6231
Contract No. 2149

C. E. Melbye, Geol. E.



C. E. Melbye, Geol. E.



Nye Metals, Inc.

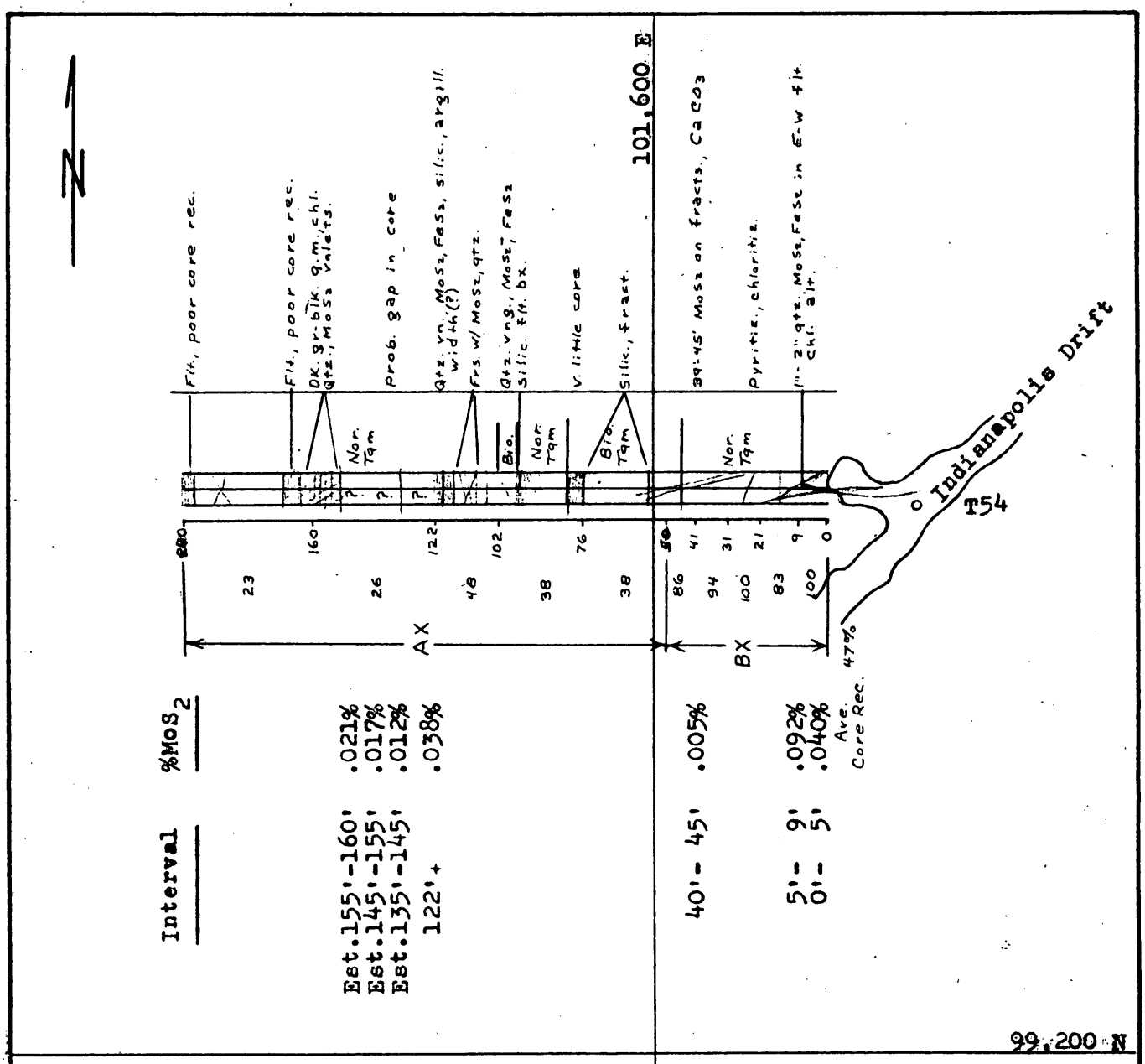
GEOLOGIC-ASSAY LOG

HOLE NO. 4

Scale 1"=50'
Elev. 10,328'
December, 1962

Docket No. 6231
Contract No. 2149

C. E. Melbye, Geol. E.



Nye Metals, Inc.

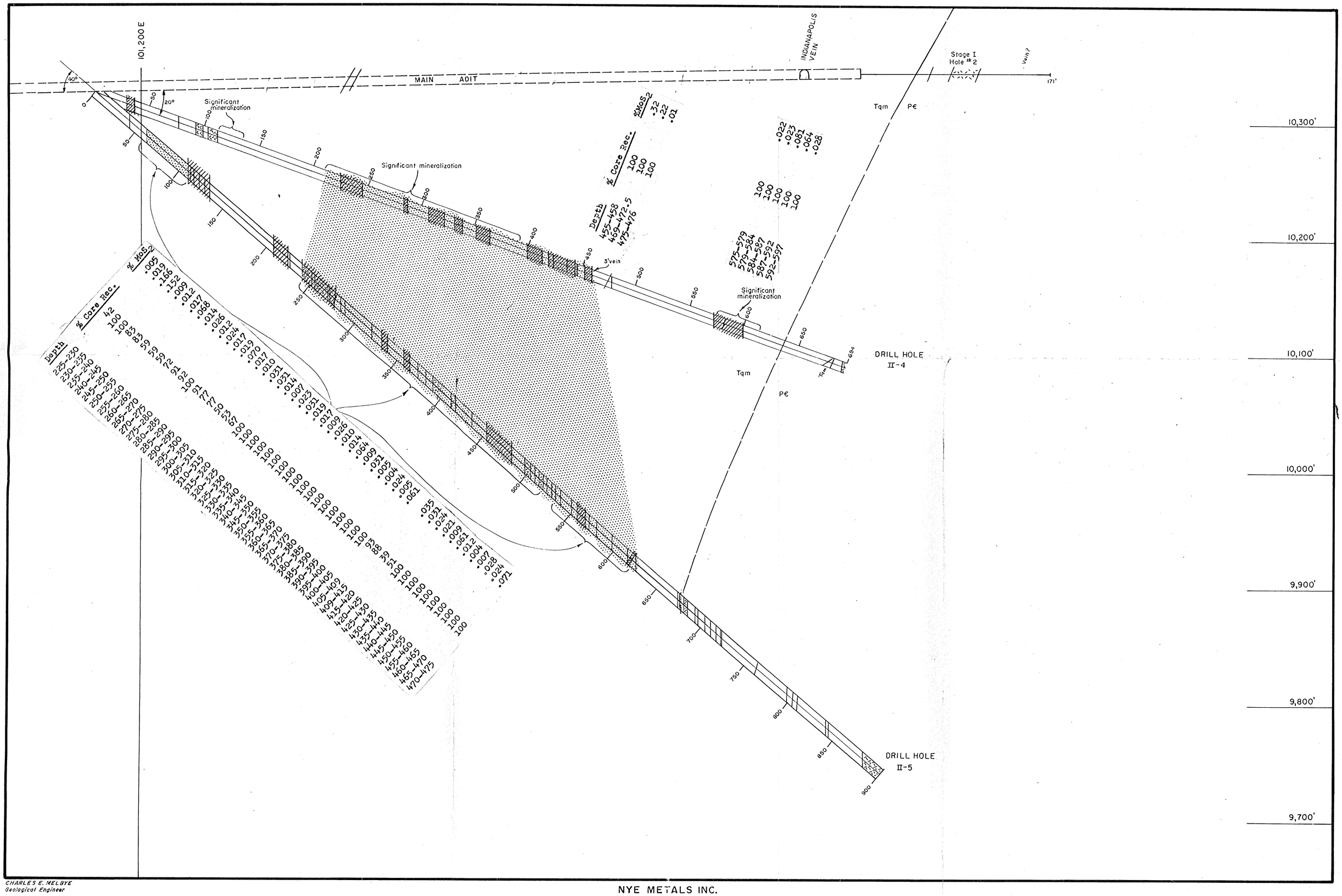
GEOLOGIC-ASSAY LOG

HOLE NO. 5

Scale 1"=50'
Elev. 10,337'
January, 1963

Docket No. 6231
Contract No. 2149

C. E. Melbye, Geol. E.



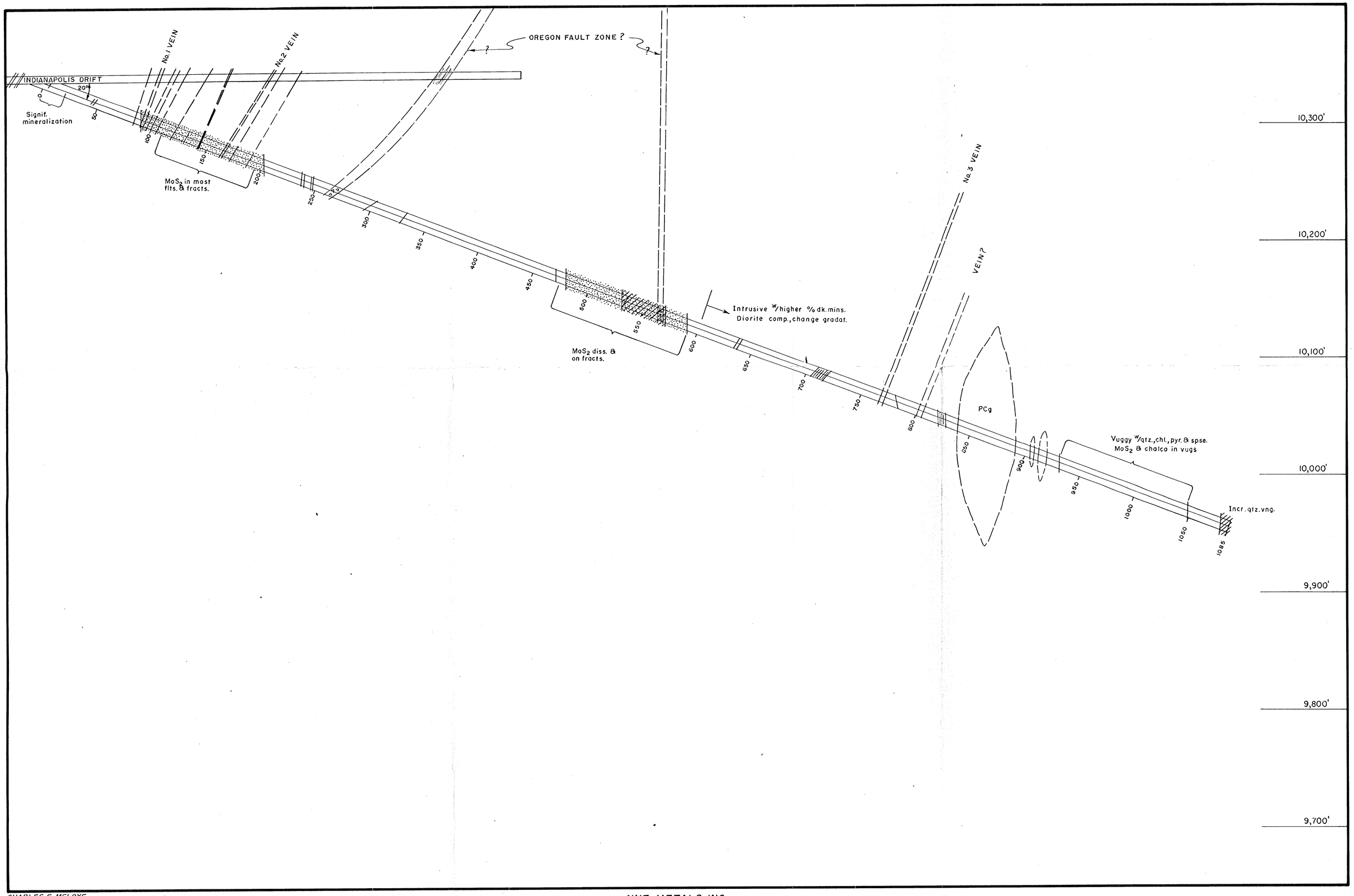
CHARLES E. MELBYE
Geological Engineer

NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECTION
DRILL HOLE II-4
AND
DRILL. HOLE II-5

Scale 1"=50' Elev. 10,325'
Section Looking North
March 1963

Docket No. 6231
Contract No. 2149



CHARLES E. MELBYE
Geological Engineer

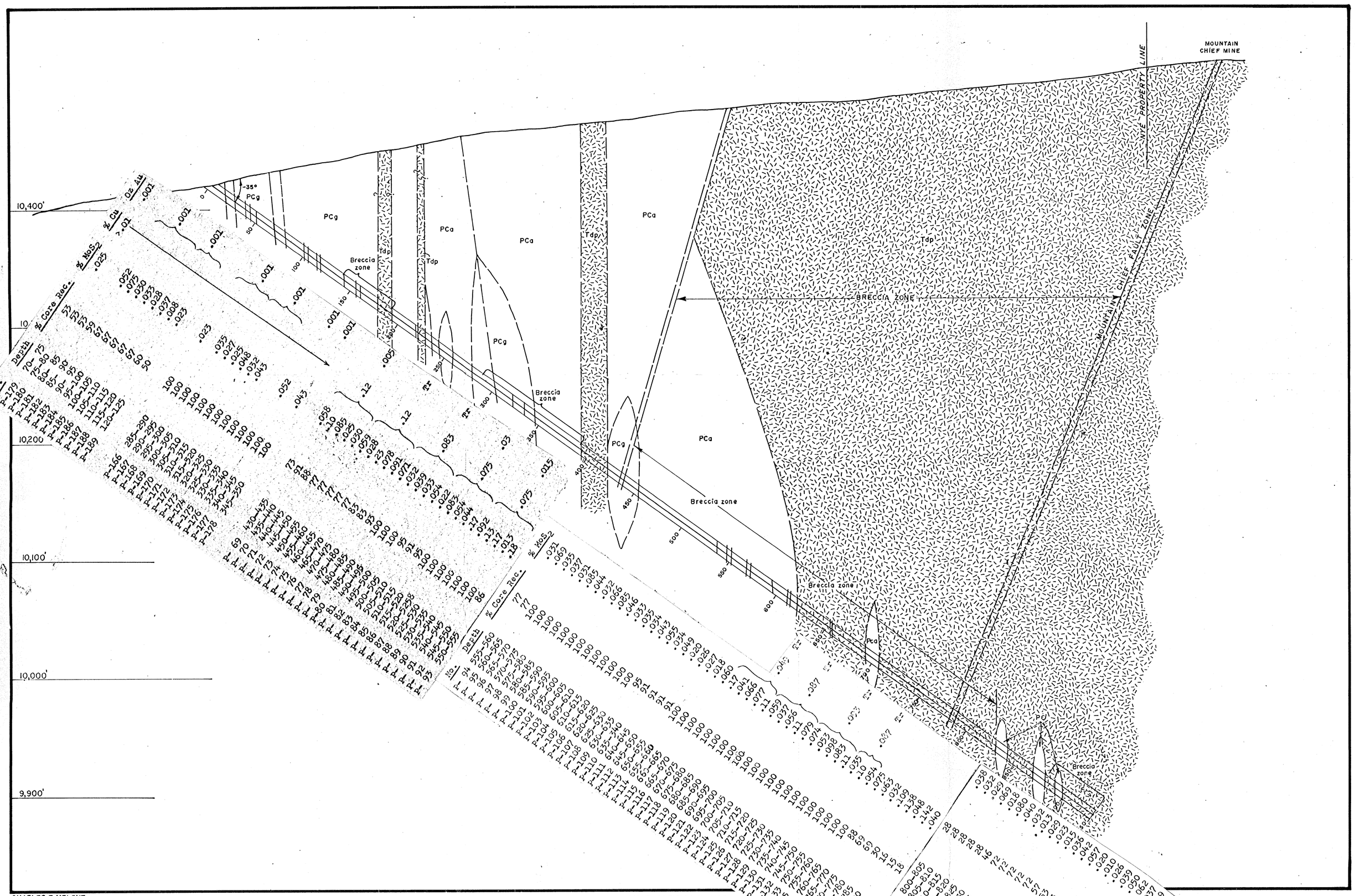
NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECTION

DRILL HOLE II-10

Scale 1" = 50' Elev. 10,337'
Section Looking East
June 1963

Docket No. 6231
Contract No. 2149



CHARLES E. MELBYE
Geological Engineer

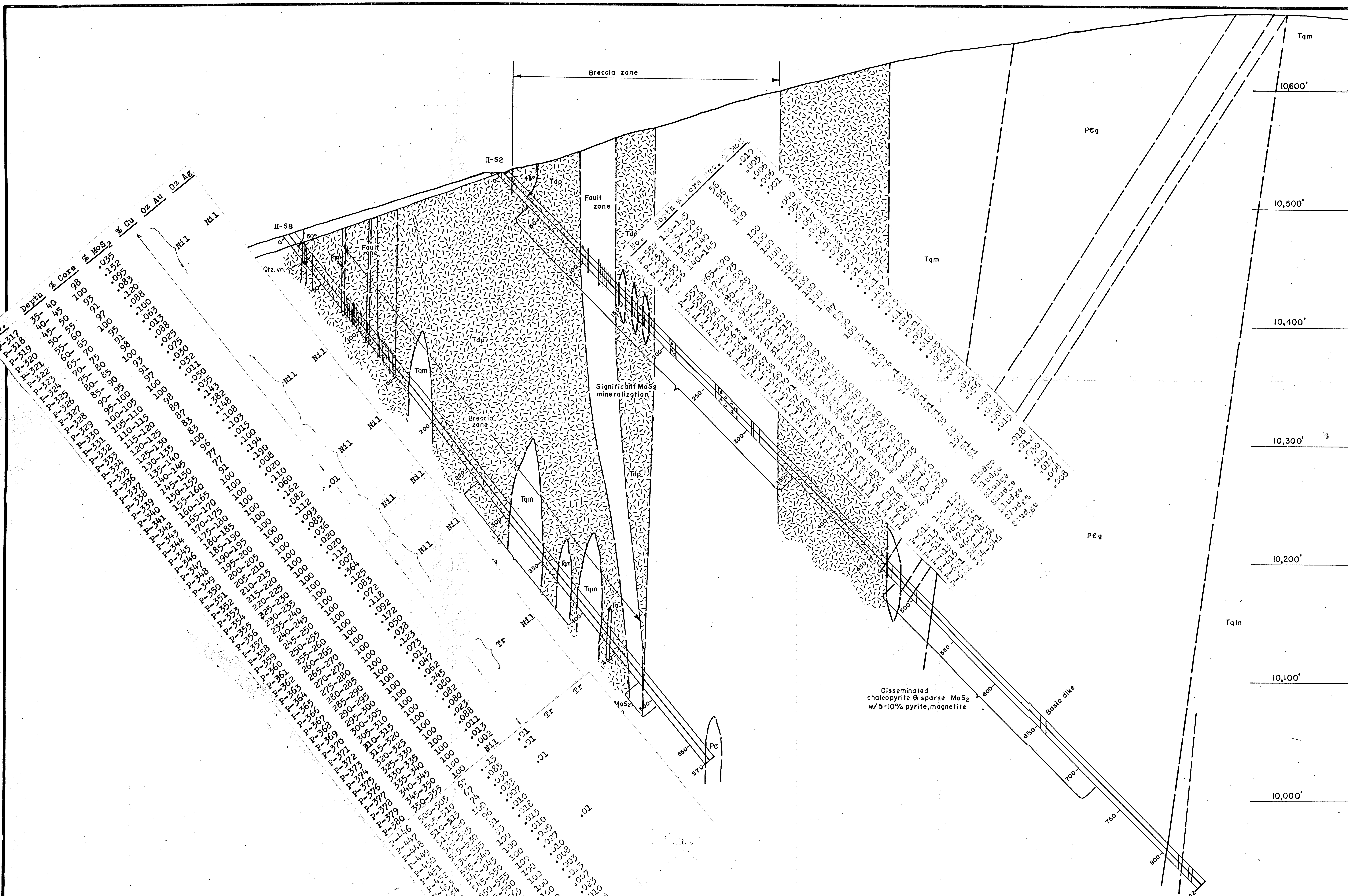
NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECT.

DRILL HOLE II-SI

Scale 1"=50' Elev. 10,420'
Section Looking East
July 1963

Docket No. 6231
Contract No. 2149



No.	Depth	% Core	% MoS_2	% Cu	Oz Au	Oz Ag
P-317	35- 40	98	.035		Nil	Nil
P-318	40- 45	100	.152			
P-319	45- 50	93	.095			
P-320	50- 55	91	.083			
P-321	55- 60	97	.120			
P-322	60- 65	100	.088			
P-323	65- 70	95	.100			
P-324	70- 75	91	.063			
P-325	75- 80	98	.013			
P-326	80- 85	100	.088			
P-327	85- 90	93	.025			
P-328	90- 95	91	.075			
P-329	95-100	97	.030			
P-330	100-105	100	.032			
P-331	105-110	100	.011			
P-332	110-115	98	.050			
P-333	115-120	89	.035			
P-334	120-125	87	.143			
P-335	125-130	83	.382			
P-336	130-135	83	.148			
P-337	135-140	100	.108			
P-338	140-145	96	.103			
P-339	145-150	77	.015	Nil	Nil	
P-340	150-155	77	.100			
P-341	155-160	91	.194			
P-342	160-165	100	.190			
P-343	165-170	100	.008			
P-344	170-175	100	.020			
P-345	175-180	100	.110			
P-346	180-185	100	.060			
P-347	185-190	100	.162			
P-348	190-195	100	.082	Nil	Nil	
P-349	195-200	100	.112	.01		
P-350	200-205	100	.093			
P-351	205-210	100	.085			
P-352	210-215	100	.036			
P-353	215-220	100	.020			
P-354	220-225	100	.020	Nil	Nil	
P-355	225-230	100	.115			
P-356	230-235	100	.007			
P-357	235-240	100	.364			
P-358	240-245	100	.125			
P-359	245-250	100	.083			
P-360	250-255	100	.072	Nil	Nil	
P-361	255-260	100	.118			
P-362	260-265	100	.092			
P-363	265-270	100	.172			
P-364	270-275	100	.050		Nil	
P-365	275-280	100	.038	Tr		
P-366	280-285	100	.123			
P-367	285-290	100	.073			
P-368	290-295	100	.013			
P-369	295-300	100	.047			
P-370	300-305	100	.062			
P-371	305-310	100	.245			
P-372	310-315	100	.080			
P-373	315-320	100	.082			Tr
P-374	320-325	100	.080			
P-375	325-330	100	.023		Tr	
P-376	330-335	100	.088			
P-377	335-340	100	.011			
P-378	340-345	100	.013	.01		
P-379	345-350	100	.002	.01		
P-380	350-355	100	Nil		.01	
P-446	500-505	67	.15			
P-447	505-510	67	.085			
P-448	510-515	74	.030			
P-449	515-520	100	.033			
P-450	520-525	96	.007			
P-451	525-530	91	.010		.01	
P-452	530-535	93	.018			
P-453	535-540	100	.015			
P-454	540-545	100	.010			
P-455	545-550	100	.005			
P-456	550-555	100	.027			
P-457	555-560	100	.010			
P-458	560-565	100	.008			
P-459	565-570	100	.003			
P-460	570-575	100	.023			
P-461	575-580	100	.007			
P-462	580-585	100	.023			
P-463	585-590	100	.010			
P-464	590-595	100	.023			
P-465	595-600	100	.013			

No.	Depth	% Core Rec.	% MoS_2
P-552	120-125	56	.010
P-553	125-130	56	.005
P-554	130-135	56	.006
P-555	135-140	91	.006
P-556	140-145	100	.001
P-557	265-270	100	.040
P-558	270-275	100	.052
P-559	275-280	100	.071
P-560	280-285	100	.097
P-561	285-290	100	[illegible]
P-562	290-295	100	.068
P-563	295-300	100	[illegible]
P-564	300-305	100	.038
P-565	305-310	100	.050
P-566	310-315	100	[illegible]
P-567	315-320	100	.012
P-568	320-325	87	.025
P-569	325-330	83	.021
P-570	330-335	90	.020
P-571	335-340	100	.020
P-572	340-345	[illegible]	.025
P-573	345-350	[illegible]	[illegible]
P-574	350-355	[illegible]	.016
P-575	355-360	[illegible]	.031
P-576	360-365	[illegible]	.055
P-577	365-370	[illegible]	.016
P-578	370-375	[illegible]	.035
P-579	375-380	[illegible]	.025
P-580	380-385	[illegible]	.048
P-581	385-390	[illegible]	.045
P-582	390-395	[illegible]	.030
P-583	395-400	[illegible]	.030
P-584	400-405	[illegible]	.056
P-617	480-485	80	.008
P-618	485-490	100	[illegible]
P-619	490-495	91	.008
P-620	495-500	91	.015

No.	Depth	% Core Rec.	% MoS_2
P-612	120-120	Sludge	.018
P-613	322-332	Sludge	[illegible]
P-614	465-472	Sludge	.030
P-615	472-481	Sludge	[illegible]
P-616	460-489	Sludge	.017
P-621	524-534	Sludge	.008
P-622	534-545	Sludge	.008

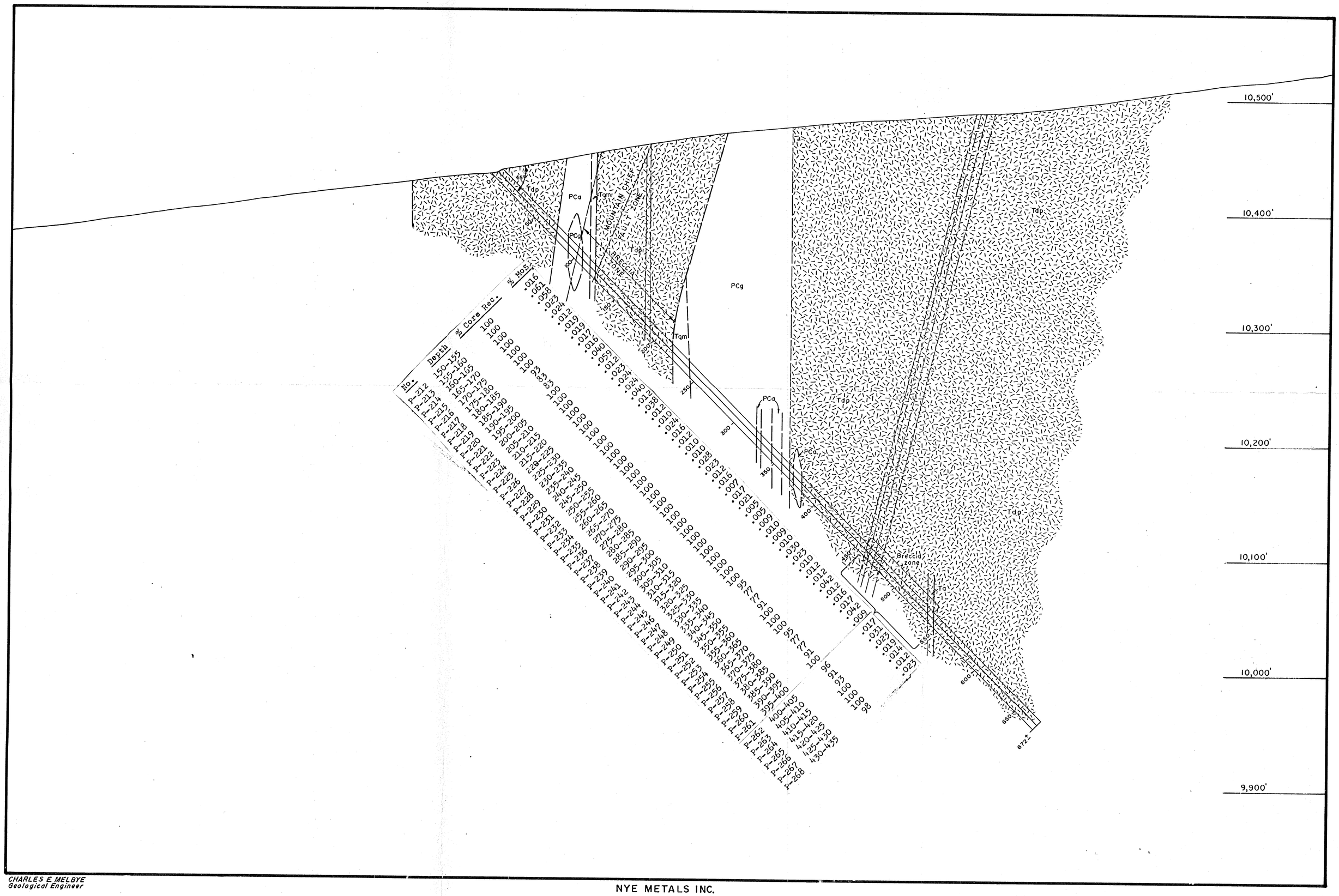
CHARLES E. MELBYE
Geological Engineer

NYE METALS INC.

...LOGIC-ASSAY CROSS-SECTION
DRILL HOLE NO. II-S2 & II-S8

Scale 1"=50'   Elev. 10,527'
E-W Section Looking North
September   1963

Docket No. 6231
Contract No. 2149



CHARLES E MELBYE
Geological Engineer

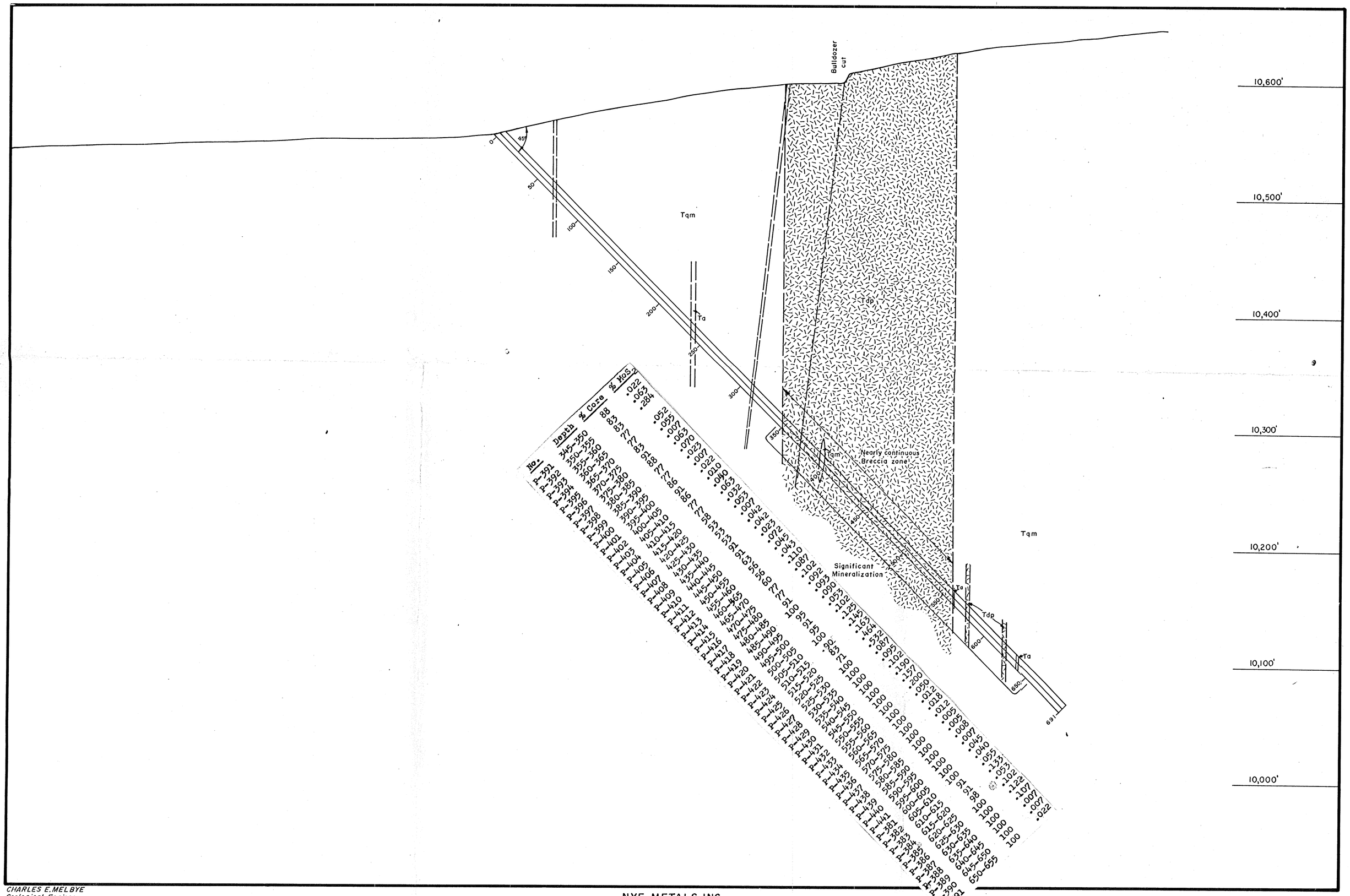
NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECTION

DRILL HOLE II-S3

Scale 1"=50' Elev. 10,435'
N-S Section Looking East
October 1963

Docket No. 6231
Contract No. 2149



No.	Depth	% Core	% MoS_2
P-391	345-350	88	.022
P-392	350-355	83	.063
P-393	355-360	83	.284
P-394	360-365	77	
P-395	365-370	77	.052
P-396	370-375	83	.055
P-397	375-380	91	.007
P-398	380-385	88	.063
P-399	385-390	77	.070
P-400	390-395	77	.023
P-401	395-400	86	.007
P-402	400-405	91	.022
P-403	405-410	86	.010
P-404	410-415	77	.040
P-405	415-420	77	.063
P-406	420-425	58	.032
P-407	425-430	53	.053
P-408	430-435	53	.007
P-409	435-440	53	.042
P-410	440-445	91	.042
P-411	445-450	63	.023
P-412	450-455	56	.072
P-413	455-460	56	.045
P-414	460-465	69	.043
P-415	465-470	77	.110
P-416	470-475	77	.087
P-417	475-480	91	.102
P-418	480-485	100	.092
P-419	485-490	95	.093
P-420	490-495	91	.090
P-421	495-500	95	.053
P-422	500-505	100	.102
P-423	505-510	.90	.125
P-424	510-515	83	.145
P-425	515-520	71	.163
P-426	520-525	100	.464
P-427	525-530	100	.533
P-428	530-535	100	.087
P-429	535-540	100	.095
P-430	540-545	100	.102
P-431	545-550	100	.190
P-432	550-555	100	.157
P-433	555-560	100	.200
P-434	560-565	100	.050
P-435	565-570	100	.012
P-436	570-575	100	.018
P-437	575-580	100	.012
P-438	580-585	100	.009
P-439	585-590	100	.009
P-440	590-595	100	.008
P-441	595-600	100	.007
P-381	600-605	100	.045
P-382	605-610	100	.040
P-383	610-615	100	.053
P-384	615-620	100	.133
P-385	620-625	100	.053
P-386	625-630	100	.102
P-387	630-635	91	.122
P-388	635-640	91	.107
P-389	640-645	98	.007
P-390	645-650	100	.007
P-391	650-655	100	.022

CHARLES E. MELBYE
Geological Engineer

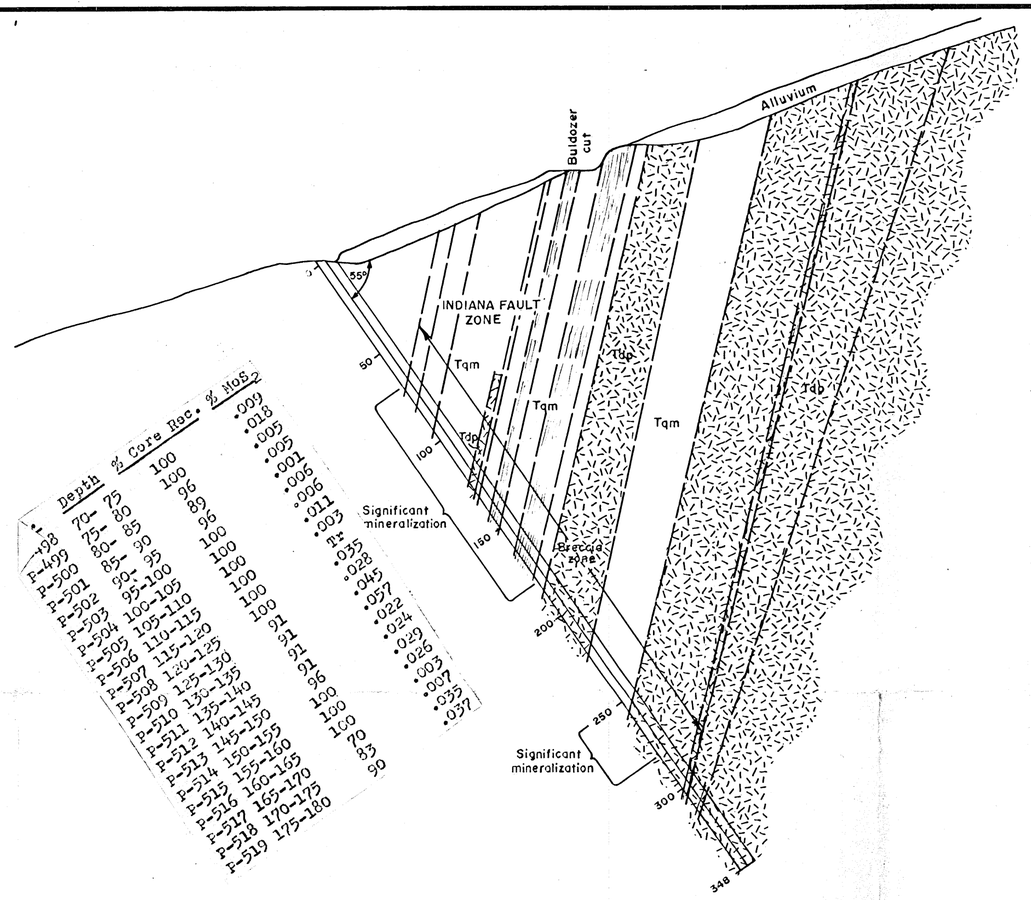
NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECTION

DRILL HOLE II-S4

Scale: 1" = 50' Elev. 10,555'
S 22° W Section Looking West
September 1963

Docket No 6231
Contract No. 2149



	Depth	% Core Rec.	% Mos.
P-498	70- 75	100	.009
P-499	75- 80	100	.018
P-500	80- 85	96	.005
P-501	85- 90	89	.005
P-502	90- 95	96	.001
P-503	95-100	100	.006
P-504	100-105	100	.006
P-505	105-110	100	.011
P-506	110-115	100	.003
P-507	115-120	91	n=
P-508	120-125	91	.035
P-509	125-130	91	.028
P-510	130-135	96	.045
P-511	135-140	100	.057
P-512	140-145	100	.022
P-513	145-150	100	.024
P-514	150-155	70	.029
P-515	155-160	83	.026
P-516	160-165	90	.003
P-517	165-170		.007
P-518	170-175		.035
P-519	175-180		.057

10,600
10,500
10,400
10,300
10,200
10,100
10,000

CHARLES E. MELBYE
Geological Engineer

NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECTION

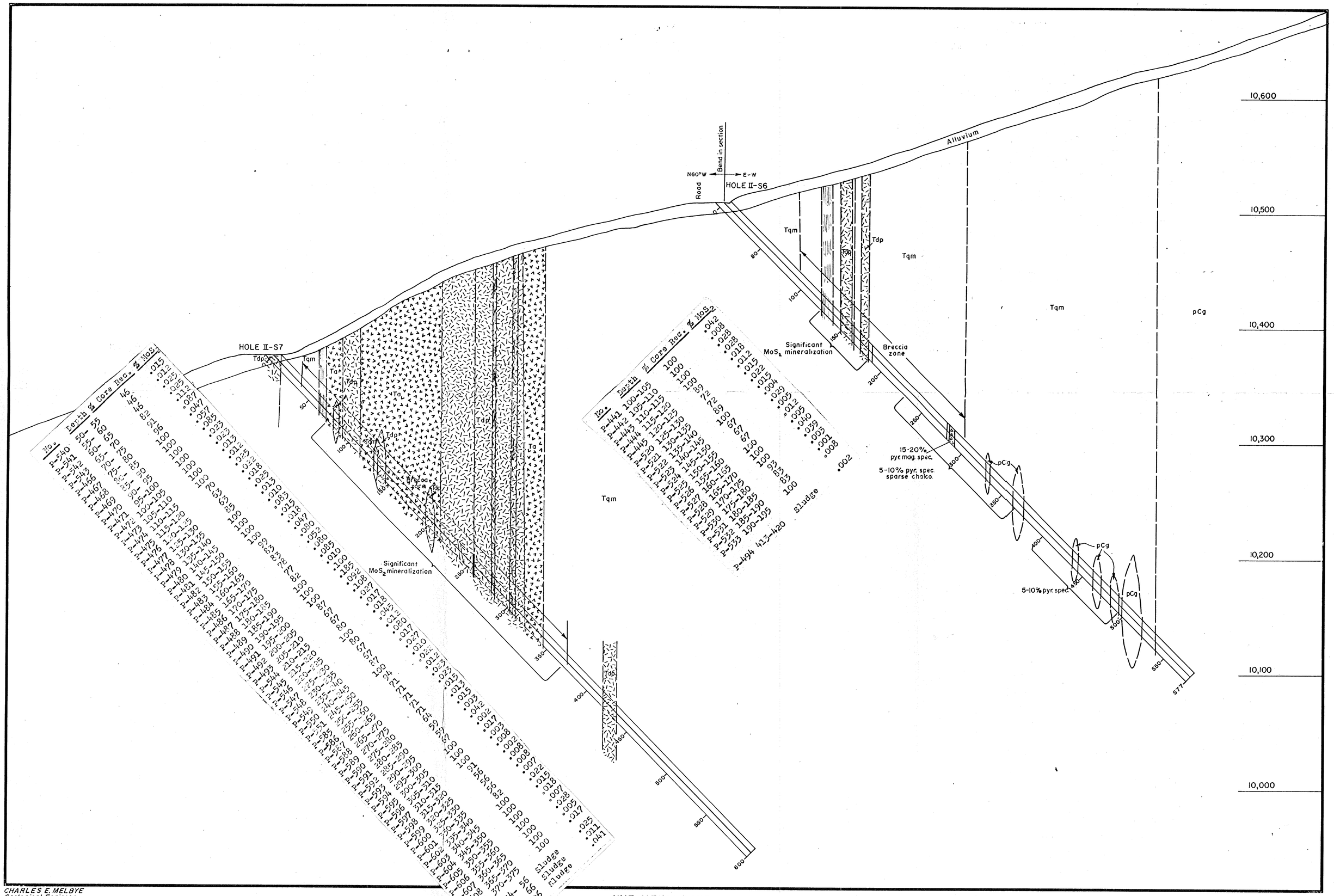
DRILL HOLE NO. II-S5

Scale 1"=50' Elev. 10,508'

N 7°W Section Looking North

October 1963

Docket No. 6231
Contract No. 2149



CHARLES E. MELBYE
Geological Engineer

NYE METALS INC.

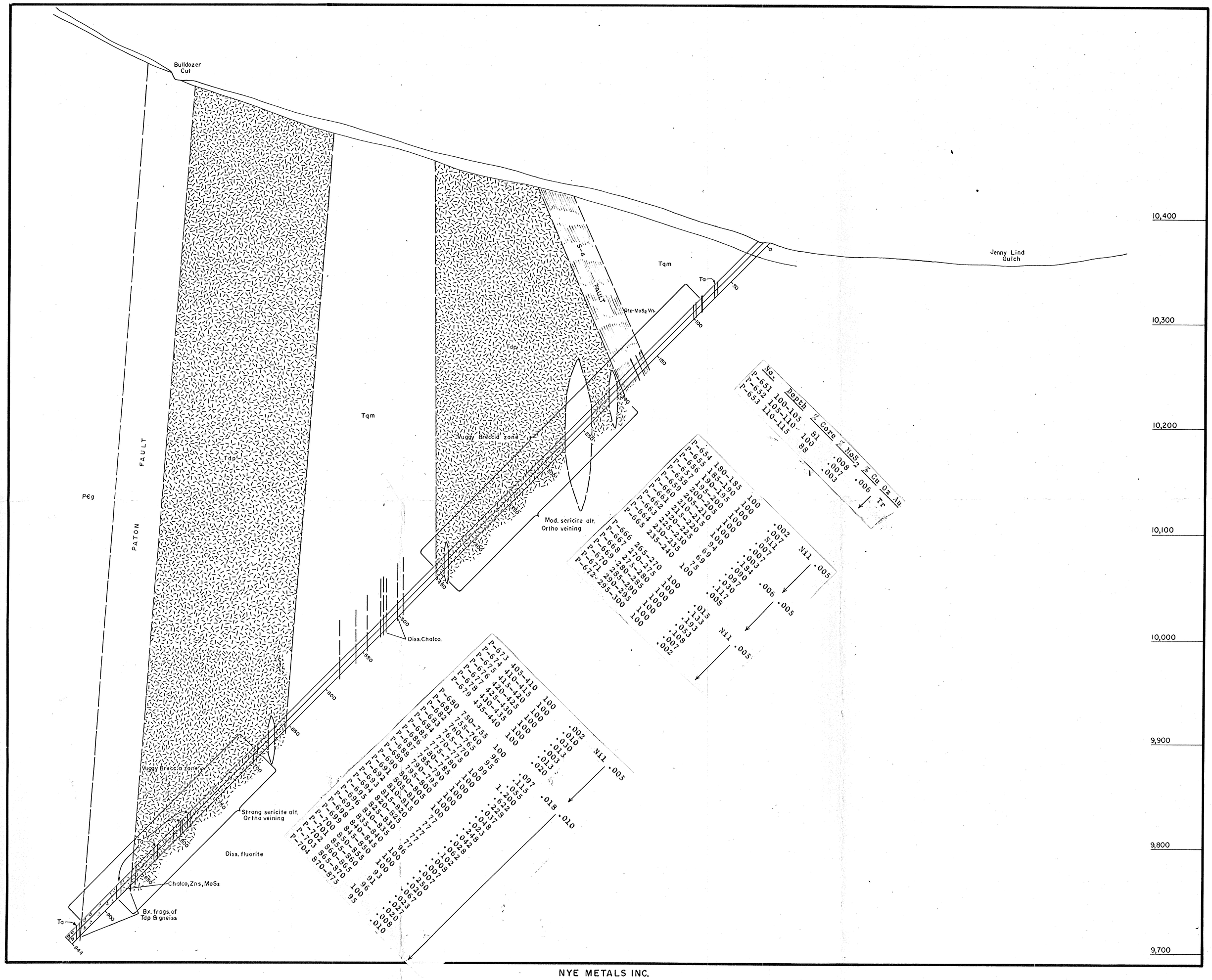
GEOLOGIC-ASSAY CROSS-SECTION
DRILL HOLE NO. II-S6 & II-S7

Scale 1" = 50' Elev. 10,508' & 10,376'

E-W Section Looking North

November 1963

Docket No. 6231
Contract No. 2149



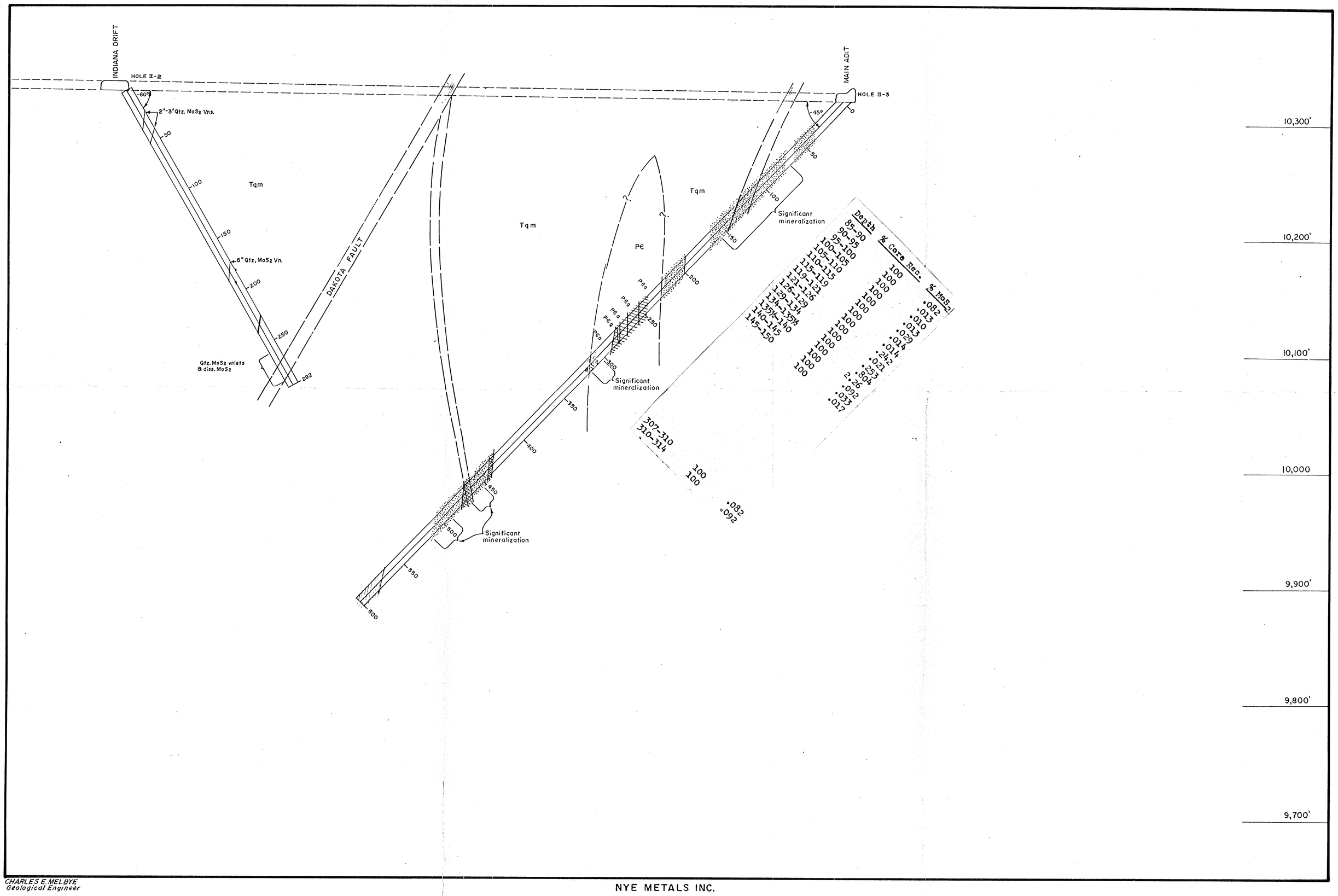
NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECTION

DRILL HOLE II-59

Scale: 1" = 50' Elev. 10,380'
N40°E Section Looking N. W
June 1964

Docket No. 6231
Contract No. 2149



CHARLES E. MELBYE
Geological Engineer

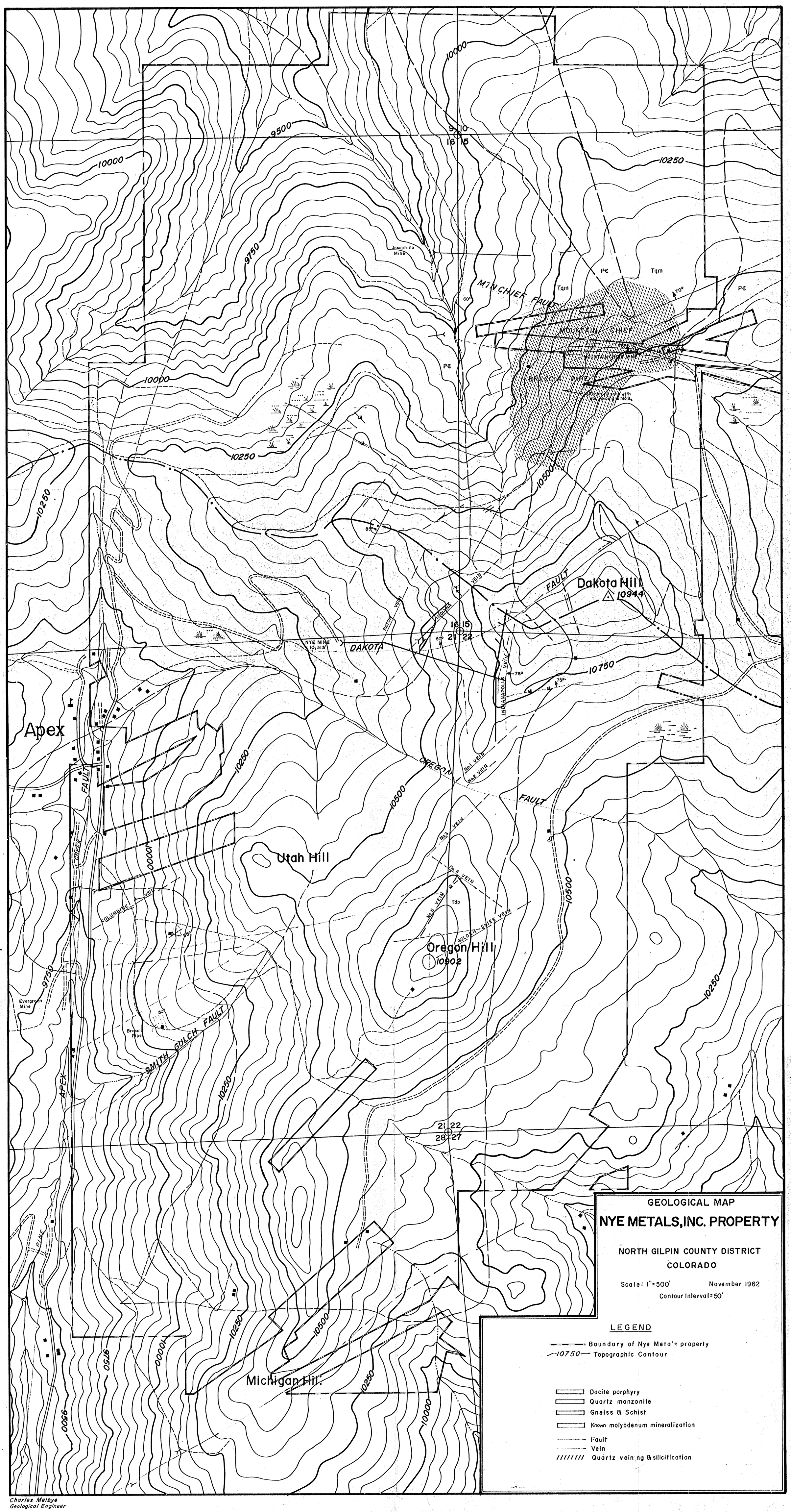
NYE METALS INC.

GEOLOGIC-ASSAY CROSS-SECTION

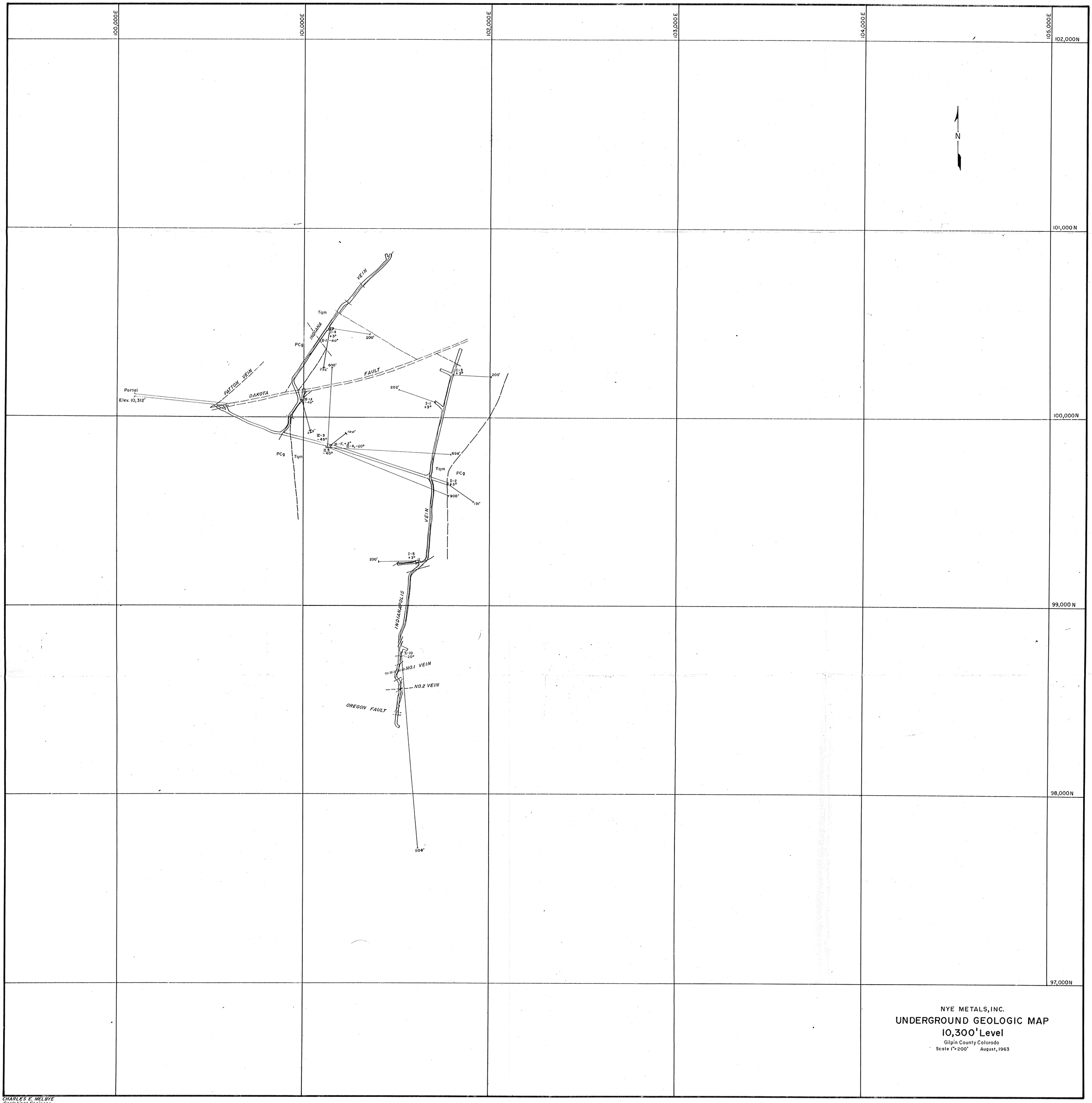
DRILL HOLE II-3 & II-2

Scale 1" = 50' Elev. 10,326'
Section Looking East
May 1963 Aug. 1964

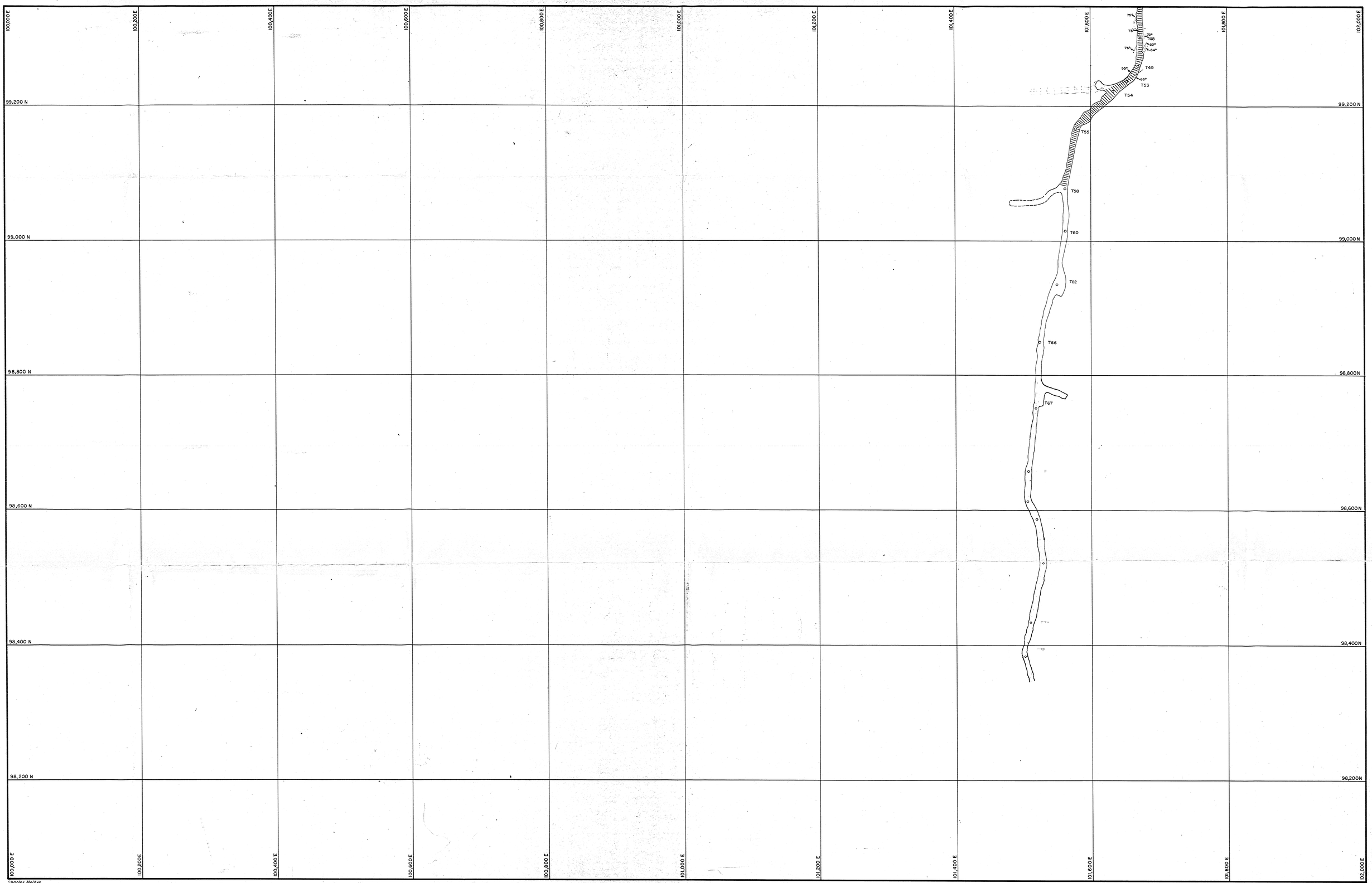
Docket No. 6231
Contract No. 2149



Charles Melbye
Geological Engineer



CHARLES E. MELBYE
Geological Engineer



Charles Melbye
Geological Engineer

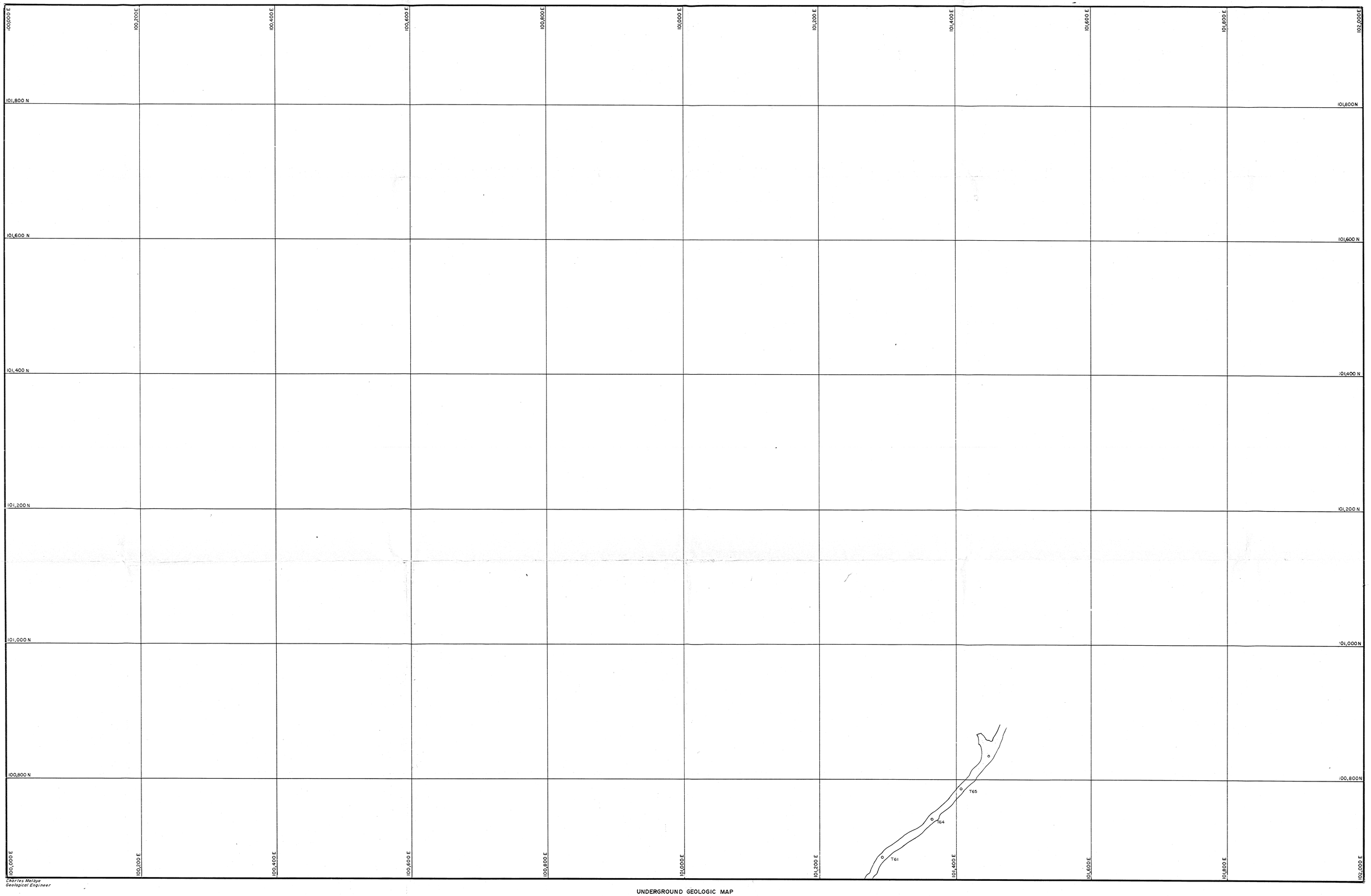
UNDERGROUND GEOLOGIC MAP

NYE MINE

NORTH GILPIN COUNTY DISTRICT

COLORADO

Scale: 1"=50' January, 1963



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COLORADO

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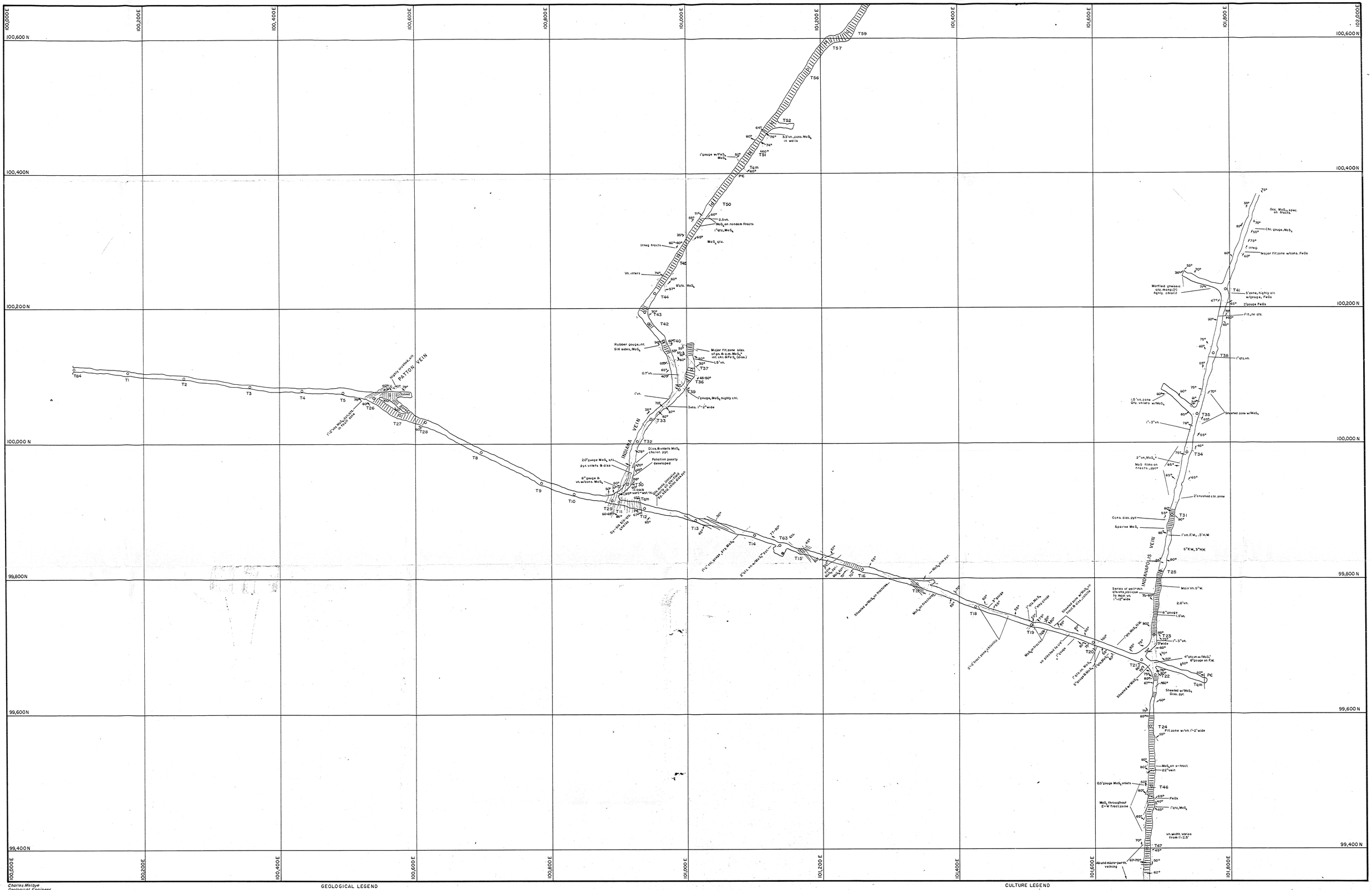

Charles Melbye
Geological Engineer

GEOLOGICAL LEGEND

- Tertiary Dacite porphyry
- Tertiary Aplite
- Tertiary Quartz Monzonite
- Pre-Cambrian Alaskite
- Pre-Cambrian Quartz-biotite gneiss
- Molybdenum mineralization
- Fault
- Contact
- Dip and strike (faults and veins)
- Dip and strike (gneiss foliation and joints)
- Quartz Vein

UNDERGROUND GEOLOGIC MAP

NYE MINE

NORTH GILPIN COUNTY DISTRICT

COLORADO

Scale: 1" = 50' REV. March, 1962

Dec. 1962 Apr. 1963

CULTURE LEGEND

- Topographic contour
- Survey station
- Shaft
- Tunnel or adit
- Timbered and lagged drift