Longyear
E. J. LONGYEAR COMPANY
General Offices, 76 South 8th St.
Minneapolis 2, Minnesota, U. S. A.
TELEPHONE: FEDERAL 9-7631 • CABLE LONGCO

March 20, 1964

OME
DEPARTMENT OF THE INTERIOR
APR 1 1964
REGION III
DENVER, COLORADO

United Park City Mines Company
926 Kearns Building
Salt Lake City 1, Utah

Attention Mr. S. K. Kroubay
Vice President & General Manager

PROPOSED UNDERGROUND DIAMOND DRILLING PROGRAM - PARK CITY, UTAH

Gentlemen:

1. In response to your recent request, we are pleased to submit below for your consideration our proposal for your contemplated underground diamond core drilling project to be carried out at Park City, Utah.

2. We understand that the work as now planned will consist of diamond drilling from a minimum of two drill stations with a minimum of four holes; that a minimum of 7200 feet will be drilled in holes ranging from vertical to 70° downward, as measured from the horizontal; that the size of core required is a minimum of 1-1/16" diameter; and that the formations to be drilled consist mainly of limestone and Weber quartzite, and it is anticipated that cherty or silicious limestone may be encountered.

3. For this work we propose to furnish one Longyear air-powered diamond drill, together with the necessary accessory equipment, required to complete the work as now planned. We further propose to operate the drill three 8-hour shifts per day, a minimum of five days per week.

It is further understood and agreed that you will provide at no expense to the Longyear Company, the following items:

a) Compressed air and water in sufficient volume and at sufficient pressure to permit the drilling operations to be carried out in an efficient and workmanlike manner;
b) Facilities for moving equipment from the collar of the shaft to the first drill hole location, from one drill hole location to another, and return to the collar of the shaft upon completion of the work.
c) Drill stations of sufficient size to permit the efficient handling of the drill rods - 20' as stated in your Specifications.
d) Proper lighting, ventilation and air conditioning as necessary at each drill station.

4. We will carry public liability insurance covering personal injury and property damage, and Workmen's Compensation insurance, and also all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, landslides and other similar hazards. Certificates showing the coverage referred to will be furnished upon request.

5. Based upon the conditions as outlined above, we are pleased to quote as follows:

a) Mobilization and demobilization of personnel and equipment.....$750.00 Lump Sum

b) Diamond core drilling -

	NX Wire Line	BX Wire Line	AX Wire Line
(1) In non-silicious limestone			
0 to 500 feet in length.....	$ 6.85/foot	$ 6.55/ft.	$ 6.30/ft.
500 to 1000 ft. in length...	$ 7.60/ft.	$ 7.30/ft.	$ 7.05/ft.
1000 to 1500' in length.....	$ 8.60/ft.	$ 8.30/ft.	$ 8.05/ft.
1500 to 2000' in length.....	$ —	$ 9.55/ft.	$ 9.30/ft.
(2) In Weber quartzite and other silicious rock types -			
0 to 500 feet in length.....	$10.50/ft.	$10.20/ft.	$ 9.95/ft.
500 to 1000 ft. in length...	$11.25/ft.	$10.95/ft.	$10.70/ft.
1000 to 1500' in length.....	$12.50/ft.	$12.00/ft.	$11.75/ft.
1500 to 2000' in length.....	—	$13.50/ft.	$13.00/ft.

c) Reaming for casing, if and when required --

	NX - NX casing	BX - BX Casing
0 to 500 ft. in length.....	$ 3.50/ft.	$ 3.25/ft.*
500 to 1000 ft. in length.....	$ 3.75/ft.	$ 3.50/ft.*
1000 to 1500 ft. in length.....	$ 4.25/ft.	$ 4.00/ft.*

* plus cost of casing lost or left in holes at our listed invoice price, f.o.b. jobsite.

d) Cementing, waiting for cement to set, and drilling out cement.....$11.00 per hour, plus cost of materials used.

e) Delays for your convenience or for which you are responsible.....$ 9.25 per hour

f) Moving allowance - this charge to apply for all time spent in excess of 32 man hours in moving the equipment to the first drill station, thereafter from one drill station to another, and back to the collar of the shaft on completion of the work - $5.25 per man hour.

g) Olinometer tests.....$10.50 per hour, with 2-man crew.

6. Statements covering the work performed will be prepared as promptly as possible after the first of each month, and payment will be due within 20 days.

7. We appreciate the opportunity to consider this work, and hope that our proposal will be acceptable. If awarded the contract, we would be prepared to commence the work within a maximum of two weeks after receipt of official notice to proceed.

ACCEPTED:
UNITED PARK CITY MINES CO.

By: _____

Sincerely,
E. J. LONGYEAR COMPANY

Vice President - Contract Drilling

E.J.Gleason:AFW:bal

OME
DEPARTMENT OF THE INTERIOR
APR 3 1964
REGION III
DENVER, COLORADO

March 23, 1964

United Park City Mines Company
926 Kearns Building
Salt Lake City, Utah 84101

Subject: OME-6346

Gentlemen:

Your application for exploration assistance, dated March 16, 1964 submitted in person to our office at Washington, D. C. has been assigned Docket Number OME - 6346.

Please identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Allen S. Dakan, Chief
Division of Administrative
Management

Copy to Region III with
copy of application

UNITED PARK CITY MINES COMPANY

GENERAL OFFICE

March 30, 1964

HEBER, UTAH

OME
DEPARTMENT OF THE INTERIOR
APR 1 1964
REGION III
DENVER, COLORADO

Mr. Frank Johnson
Acting Director
Office of Minerals Exploration
U. S. Department of the Interior
Washington 25, D. C.

Re: Docket No. OME-6346
United Park City Mines Company

Dear Mr. Johnson:

Enclosed herewith is a copy of Longyear Company's bid for doing the diamond drilling for the proposed project submitted under the above docket number. This bid had not been received by us at the time the application was presented in Washington.

Upon reviewing a possible development and drilling schedule for carrying out the proposed work it was found that one item was over-looked in the estimated cost of the project. The four-inch air line now servicing the area to the South-West of the Daly West Shaft is inadequate to provide sufficient air volume to meet the anticipated demand. This is mainly due to the large size of the drill rig required for the deep drilling along with other attendent air power requirements.

It is requested that should the project be approved that the Government participate in the expense of purchasing and installing a new four-inch air line necessary for performing the work with estimated costs as follows:

5,800 feet 4" Nylor spiral weld pipe 14 guage, 4.2#/ft. 20' Lengths $100.00 per 100 feet	$5,800.00
116 Victolic Couplings @ $2.08 each	241.28
	$6,041.28
Installation Costs: 60 Man Shifts @ $23.00*/Man Shift	1,380.00
Total Cost	$7,421.28

*includes fringe benefits

Thank you for your consideration of this matter and for the very hospitable reception granted me on my visit to your office.

Sincerely

Marvin P. Barnes

Marvin P. Barnes
Assistant Mine Superintendent

cc: Mr. Hugh Connors

MPB

Amc

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
WASHINGTON 25, D. C.

OME
DEPARTMENT OF THE INTERIOR
APR 3 1964
REGION III
DENVER, COLORADO

United Park City Mines Company
926 Kearns Building
Salt Lake City, Utah, 84101

MAR 3 1 1964

Re: OME-6346 (Silver)
United Park City Mines Company
Judge Project
Wasatch County, Utah

Gentlemen:

After a thorough review of your application for financial assistance in further exploration of your property, we have concluded that the Government would not be justified in participating in the cost of the proposed Judge project.

Based upon presently available information, the proposed exploration would be a search for ores having their predominant value in lead and zinc, neither of which is currently eligible for exploration assistance. Also, the geological evidence does not lead us to believe that ore bodies of sufficient size and grade would be found by the proposed work to warrant further Government participation. Consequently, we regret to advise that your application is denied.

Should further work be done, such as drilling or drifting, to explore the Middle vein, and information be obtained which might alter our position, we shall be glad to reopen the subject for further consideration.

Sincerely yours,

George Turnich, Jr.

Acting Director

MRE
FEJohnson/bih/mm
3/27/64
cc: Director's Reading File
✓Region III
Review Committee
Docket
Code 500

United
Park City Mines
Company

[illegible]

November 3, 1967

[illegible] Jr.
[illegible], Director
Office of Mineral Exploration
[illegible] Department of Interior
Washington, D. C. [illegible]

Denied
(contract 2110)

Re: OME-6346 (Silver) OME-6974 (Lead-Zinc)

Dear [illegible]:

As you know, our company in the past has made a number of applications for assistance under both DMEA and OME and some of them have been approved and carried out. With these applications we submitted [illegible] which we consider confidential information, since they show exact positions of our property lines, section corners, our co-ordinate system, and many other things which we are very much concerned about getting into the hands of the public.

Last week I was very much surprised when Mr. Calvin Bromfield, from the Geological Survey, Branch of Base Metals in Denver, sent us a copy of our own map with all this confidential material on it, requesting permission to use the map for publication of an article outlining the results of an extensive study of our district. He obtained it from OME files in Denver. The survey has been furnished 1000 scale topographical maps of our district and given other material to work with; however, we are very much concerned over property line boundaries and other information that would tend to throw our property open to speculators.

We will cooperate in any way we can with the Geological Survey in their making a comprehensive report on our area; however, we do feel that the office of Mineral Exploration should obtain our permission before turning over any maps from these files to other departments of government.

November 3, 1965

It is only in the spirit of protecting our own interests that I make this request and not because, in any way, wish to criticize either your people, or the Geological Survey because they are doing a very good job and rendering us a fine service.

Best personal regards.

Sincerely yours,

S. K. Droubay
Vice President & General Manager

SKD:tm
cc: Mr. C. S. Bromfield
Mr. Hugh M. Connors
Mr. James Ivers, Jr.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
WASHINGTON 25, D. C.

[illegible]

[illegible]

[illegible] of November 3, 1[illegible], [illegible] to Mr. James Ivers, Jr., [illegible] from Mr. Calvin S. Brosfield, [illegible], Geological Survey, Denver, Colorado.

[illegible] concern regard[illegible] [illegible] for exploration was stated. The GSA, [illegible] GSA, [illegible] respected this confidence and [illegible]. On [illegible], the GSA was transferred to [illegible] consideration. Material submitted [illegible] [illegible]. The Geological Survey follows the same [illegible]

[illegible] with the Geological Survey and [illegible] information submitted by you in confidence [illegible] not made public without your [illegible]

Sincerely yours,

[illegible]

Frank E. Johnson
Chief, Office of
Minerals Exploration

[illegible] (Geology)
[illegible] Reading File
Division File
[illegible] Geology File
[illegible]
[illegible]
[illegible] File
[illegible] Section III

United Park City Mines Company

Application for OME Aid

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	Pocket	Scale
Plate 1	Plan Map - Proposed Workings	1" - 100'
Plate 2	Geologic Section X	1" - 200'
Plate 3	Geologic Section IX	1" - 200'
Plate 4	Geologic Columnar Section	1" - 200'

MME Form 40
July 1962

EXTRA COPY
O. M. E
RECEIVED MAR
DATE | INITIALS | CODE

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Budget Bureau No. 42–R1368
Approval expires Dec. 31, 1963

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85–701 (72 Stat. 700; 30 U.S.C. 641)

NAME OF APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*

UNITED PARK CITY MINES COMPANY

926 Kearns Building

Salt Lake City, Utah 84101

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6346

DATE RECEIVED: 3-23-64

REGION: III

DIVISION CODE:

BUSINESS ORGANIZATION *(Check one)*

- INDIVIDUAL [ ]
- CORPORATION [X]
- PARTNERSHIP [ ]
- OTHER *(Specify)* [ ]

STATE IN WHICH FIRM IS ORGANIZED: **Delaware**

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
John M. Wallace	926 Kearns Building Salt Lake City, Utah	President
S. K. Droubay	Do.	Vice President
E. L. Osika	Do.	Secretary-Treasurer

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: **Silver**

ESTIMATED COST OF PROJECT: $ $141,776.00

PROPERTY NAME	LOCATION COUNTY	STATE
Judge Project	Wasatch	Utah

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. III). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit two copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Office of Minerals Exploration, Department of the Interior, Washington 25, D. C., or with the nearest OME Field Office.*

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

March 16, 1964
DATED

S. K. Droubay
S. K. Droubay BY *(Signature)*

Vice President & General Manager
TITLE

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include true copies of correspondence which show: (1) date of loan request, (2) amount and terms requested, (3) proposed use of loan funds, and (4) the replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

(b) List names and addresses of affiliated, parent, or controlling companies or organizations and state extent and nature of their interest.

(c) State how you propose to furnish your share of the cost of the exploration work.

2. Applicant's Rights in Land:

(a) State your interest in the land and mineral rights, whether owner, lessee, purchaser under contract, or other. If you are not the owner, submit one true copy of the lease, contract, or other document (with address of owner) under which you control the property. Describe all liens, mortgages, or other encumbrances on the land and state book and page number and official place where recorded.

(b) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all adjacent land which you own or control. Describe any part of the land or workings which should not be subject to Government royalty and liens. If the land consists of unpatented claims, state book and page number for each recorded location notice, including amended locations, and official place where recorded. State all the names by which you know the property.

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements on MME Form 52. If the agreements cannot be obtained, state reasons and provide copies of letters of refusal.

3. Physical Description:

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the land. Include existing mine workings and all production facilities.

(b) State your interest, if any, in operations described in (a).

(c) State, if you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves, giving quantities and grades and sampling methods used. Support your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you have, indicating whether you require their return.

4. Accessibility of Property:

(a) To aid the OME representative who may examine the property, state name and address of person who will meet him; give directions for reaching the property; and describe accessibility of property and of any mine workings.

(b) Name the shipping and supply points and state the distances to the property.

5. Exploration Work:

(a) Describe fully the proposed exploration work giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and sections as necessary. Show location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *land boundaries* or to the closest identifiable corner.

(b) If an access road must be built, show the proposed location on the property map and state the length, type and construction methods proposed.

(c) If an OME contract is executed, state how soon thereafter work would be started and finished. State your anticipated average daily or monthly rate of progress for each type of work.

6. Experience:

State your operating experience and background to conduct this exploration work and also that of the person who will supervise the work.

7. Estimate of Costs:

Furnish detailed estimates of the necessary costs *for each item of the work proposed in 5(a)* under the headings listed below with a total for each heading and the estimated total cost of the work. Costs for any work to be performed by an independent contractor should be listed separately under category (a) below. Costs for any work that is not to be performed by an independent contractor should be listed under categories (b) through (g).

(a) Independent contracts. State the total cost of any proposed independent contract for all or any part of the work, and the number of units and the unit cost for each type of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, or per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. (*Note*—If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. The cost of supervision, engineering and geological services, outside consultants, and labor should be itemized by numbers and classes of employees; rates of wages, salaries or fees; and periods of employment. State whether these services are available.

(c) Operating materials and supplies. List items of material and supplies giving quantity and cost of each. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of equipment and tools costing $50 or more per unit. Give specifications and indicate how each item is to be acquired—i.e., rented, purchased or provided by the applicant. If rented or purchased, state the estimated rental or purchase price. If furnished by the applicant, state condition and present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant which will be used in the exploration work.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration work, stating specifications and cost including labor, materials, and supervision.

(g) Miscellaneous. Describe the type and estimate the cost of repairs and maintenance of the operating equipment listed in 7(d). Do not repeat initial repairs listed in 7(e). Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories. [*Note*—The Government will not contribute to costs incurred before the date of the contract, or to costs of or incident to: (1) acquiring, using, or possessing land and any existing improvements, facilities, buildings, installations, and appurtenances, or the depreciation and depletion thereof; (2) general overhead, corporate management, interest and taxes (other than payroll and sales taxes); (3) insurance (other than employees' liability insurance); and (4) damages to persons or property (other than authorized repair to or replacement of equipment or other property used in the work).]

INT.-DUP. SEC., WASH., D.C.11879

UNITED PARK CITY MINES COMPANY

APPLICATION FOR OME AID

This application is in essence a request for reconsideration by the government to assist the operator financially in performing the work listed previously as Stage IV under Contract Number 2110, Docker Number OME-6074 (Lead-Zinc). The work under Stage IV was disallowed by the government for reasons stated by a letter from Mr. Romslo dated May 9, 1963, afterwhich this company requested that the contract be terminated.

All information required under paragraphs 1, 2, 3, 4, and 6 of MME Form 40 (Application for Financial Assistance in Minerals Exploration) is completely filed with your office under the forementioned contract application. Information required under paragraphs 5 and 7 as pertaining to the nature of the exploration work and estimate of costs follows hereafter.

In view of the fact that this application requests assistance to perform exploration work that has been previously denied under a former contract it is now necessary to set forth as clearly as possible our reasons for asking that the project be reconsidered. It should be emphasized here that the major objective for the proposed work is the drilling of deep diamond drill holes into the Humbug Formation. Three such holes were stipulated under Stage III of the former contract and the operator*s inability to complete them was a major factor in the government denying Stage IV.

It is still felt that the drilling of such holes from the most advantageous locations to successfully intercept the favorable horizons of the Humbug Formation is the key to the future of the Park City District and must be done as a first step to successfully explore this vast potential area.

The great change that has occurred in the last year in the economic climate surrounding the Silver, Lead and Zinc industry is a major factor in

the reconsideration of this project. Silver has now become the principle value of these potential ores and shows great strength for future demand. This, coupled with increased prices for lead and zinc in a steady and strengthening market has made it possible for this company again to look to some long range development work with confidence of financial backing being made available for shaft sinking and deep level exploration work should this preliminary drilling prove successful. To illustrate the potential of the ores from the Daly West and Judge mines, compare them with the average grade of over 4 million tons of ore that they have produced in the past as follows: Gold-0.02 oz., Silver 12.0 oz., Lead 8.7%, and 4.7% Zinc.

One of the most discouraging aspects of the deep drilling done under the previous contract was the apparent extreme thickening of the Doughnut formation in this area which places the Humbug Formation much deeper than was anticipated. Under the distressed financial conditions of a year ago further attempts to penetrate the difficult Doughnut formation seemed pointless in the face of high drilling costs (only about one-fourth of which was compensated for through government participation), and in light of the company's inability to find means of exploiting the Humbug Formation even though ore might have been found through drilling.

Much further geologic study has been given to finding the solution to the apparent thickening of the Doughnut formation and it is felt that a satisfactory answer to the problem has been arrived at. The answer lies in a major thrust zone extending through the Doughnut formation probably as two planes in the drilling area. These thrust planes can be correlated with a strong thrust which places about 300 feet of the Morgan formation over nearly 400 feet of Weber quartzite just South of the Daly West shaft. This section

of the Morgan formation was formerly interpreted as the 2136 limestone series in the Weber quartzite, but subsequent drilling has refuted this idea. This same thrust can tentatively be correlated with the Frog Valley thrust exposed on the surface and mapped by John M. Boutwell in Professional Paper 77. This theory provides the only logical answer to the geologic facts observed throughout the mine and is definitely an encouraging factor in extending the geological picture of the area of interest.

To briefly summarize the reasons for resubmitting this project for approval under a new contract the following can be said: 1. A greatly improved economic climate due to increased price of silver along with both lead and zinc; 2. general optimism in the industry concerning future ore values and subsequent willingness to invest in long range development; and 3. additional geologic information from further interpretation of existing data which make the target area all the more attractive from a structural standpoint.

Application Information

Paragraph 5 Exploration Work

(A) The exploration project includes a total of 1200 feet of drifting and crosscutting, 7200 feet of diamond drilling from two drill stations and 1,000 feet of long hole percussion drilling.

The proposed exploration program is tentatively outlined on Plate 1, but it should be emphasized that after completion of the 550 foot crosscut through the Middle Vein zone, that the drifting will be done along the most favorable mineralized structure with priority given to the areas of strongest mineralization. Short crosscuts near the ends of the drifts supplemented by long-hole drilling into both walls of the drift will provide the additional information needed to find ore on the level and help determine the most advantageous location for deep drilling.

Four deep drill holes will be drilled from two drill stations to a maximum depth of 1800 feet, each to completely penetrate the Humbug formation. It has been determined from previous experience that deep drilling in this area is both difficult and costly. Therefore, a minimum number of holes are proposed which must be completed through the Humbug formation in the most favorable zones that can possibly be ascertained. The reasons for desiring to do this drilling from the vicinity of the Middle Vein zone rather than the Back Vein has been clearly set forth in earlier correspondence under contract 2110 and are still valid. For convenience sake, one paragraph of this Company's letter dated January 2, 1962, concerning the objective of the Middle Vein work is requoted here.

..."There were approximately three million tons of ore mined from bedding associated with the Middle Vein zone in the Park City formation. The ore was much stronger and far more continuous than that mined along the Back Vein, but does not show any evidence of an ore shoot or possible vein type feeder. There is no question but that this large ore body had its roots somewhere in the proximity of the zone cut by drilling or that will be prospected by the proposed workings. If such a possible ore body follows the same pattern as that indicated in the two ore beds above (see Plate 8, original application) then it will be necessary to find the most favorable horizon in the 2136 limestone series without successfully finding ore before the possibility can be eliminated. To do this, it will be necessary to crosscut the entire dike and fault system as illustrated on the plan map and find the most promising fissure or mineralized zone to follow, mostly Westerly but also Easterly, in the hope of picking up a definite ore shoot or feeder, and to also be in a position to drill across the beds up and down parallel to the fissure in the hope of finding bedded ore at some favorable horizons."...

(B) No access roads needed....

(C) If an OME contract is executed, the work can be started immediately. It is estimated that the drifting and crosscutting can be advanced from 180 to 200 feet per month; working two shifts per day on a five-day week basis. The cutting of drill stations which includes 22 feet of raising, plus widening of station to 12' x 12' size, will take about one week each working double shifts. The diamond drilling will be done on a daily three shift basis at least 6 days per week until the project is finished. Assuming an average drilling rate of only 10 feet per shift because of difficult ground, each 1800 foot hole would take 60 working days for completion or a total of 240 drilling days for 7200 feet. It is anticipated that the first diamond drilling could not be started until at least 800 feet of crosscutting and drifting have been completed, plus the cutting of one drill station. Percussion drilling can be done simaltaneously with drifting and diamond drilling.

Total time for the project would then involve 4 1/2 to 5 months for crosscutting, drifting, and station cutting before diamond drilling could begin, plus nearly ten months for diamond drilling if only one drill rig is used. If two drill rigs are employed, the total drilling time could be reduced to about 7 1/2 months, due to additional time needed in drifting and crosscutting before reaching the second station. It is requested that a minimum of sixteen months be allowed for completing the project if a contract is executed.

Paragraph 7 Estimate of Costs:

(A) Independent Contracts

All diamond drilling under the proposed contract will be done by independent contractors. With the experience gained through earlier drilling

in the area, it has been determined that to reach the objective, a larger drill rig is necessary and costs are substantially higher than originally allowed. Included herewith are two bids from drilling firms upon which the actual cost figures can be based.

It is estimated, again from previous experience, that approximately 1,000 feet of reaming and casing will probably be necessary; and up to 1,500 feet of cementing and redrilling to complete the total of 7,200 feet of drilling.

(B) through (G)

In lieu of detailed cost estimates being submitted with this application, it is suggested that the fixed unit costs granted under contract 2110 be used as a basis for the fixed cost allowance under a new contract taking into consideration the change in wage rates and material costs since the time that application was submitted, being February 3, 1960.

It is proposed that labor costs be based on the miner's rate of pay, assuming all other involved personnel rates have changed proportionally; and that materials costs be based upon the percentage increase in costs of major items from 1959 to the present. The following is a table showing comparative rates and percentage increase for labor and supplies:

	Cost in 1959	Cost in 1964	Per Cent Increase
Labor (Miner)	$16.02/shift	$19.69/shift*	22.9%
Supplies:	(Examples of price increases in some principle items)		
Powder	$22.76 cwt	$25.02 cwt	10.0%
Timber	$67.50 m	$72.45 m	7.3%
Drill Steel	$20.35/8' steel	$22.50/8' steel	10.6%
Drill Parts	(Average of various items)		22.0%
Mine Rail	8.225/100#	8.875/100#	7.9%
	Approximate Wt'd Average Increase		10.0%

*Anticipated total wage after April 30, 1964

The following is a percentage break down of the total mine expenses for United Park City Mines Company for the year 1963.

	% of Total Expense
Labor Includes direct, Payroll taxes, Workman's Compensation and Welfare Insurance	66.2
Supplies and Materials Includes electric power	25.4
General Expense Includes Insurance, Taxes, Legal and other miscellaneous expenses	8.4
	100.0%

In arriving at a fixed unit cost for work to be performed, taking into consideration only labor and supply costs as may pertain to the contract, it is found that on the average 72% of the total unit cost per foot is labor, and the remaining 28% is materials. This average ratio holds true for nearly all of our underground work including development and production.

With the fixed unit costs agreed upon under contract 2110 (using 1959 cost figures) as a base and breaking them down into average labor and material component costs, we can then add the proper percentage increase for each component and come up with a realistic fixed unit cost for each item of work under present prices as follows:

Work Unit	Fixed Unit Cost 1959	72% 1959 Labor Component	28% 1959 Supplies
Drifting & Crosscutting	$39.00/ft	$28.08	$10.92
Timbering	8.00/ft	5.76	2.24
Long Hole Drilling	1.00/ft	0.72	0.28
Incidental DD Allowance	0.75/ft	0.54	0.21
Percentage Increase	1959-1964	23%	Approx 10%
Work Unit	(1964) Fixed Unit Cost	(1964) Labor Component	(1964) Supplies Component
Drifting & Crosscutting	$44.55/ft	$34.54	$12.01
Timbering	9.54/ft	7.08	2.46
Long Hole Drilling	1.20/ft	0.89	0.31
Incidental DD Allowance	0.89/ft	0.66	0.23

Due to the necessity of increased size of the diamond drill stations needed to accomodate the larger drill rigs which must be used, the following cost schedule is submitted:

Diamond Drill Station — Area= 12' wide by 12' long
Height= 30' above track

First 6'x8'x12' paid as crosscut under drifting and crosscutting
Widen to 12'x8'x12' paid same as crosscut 12' @ 44.50/ft= 534.00
Two compartment timbered raise: 22' @ 50.00/ft=1100.00

Cost per Station=1634.00

Summary of Cost Estimates

Actual Costs: Category (1) Independent Contracts

Diamond Drilling
7,200 feet at 8.00 /ft $ 57,600.00

Reaming and Casing
1,000 feet at 4.00 /ft 4,000.00

~~Cement and~~ Redrilling
1,500 feet at 4.00 /ft 6,000.00
Cementing 300 hrs @ 11.00/hr 3,300.00
Tro-pari drill hole survey
50 hours at 9.25 /hr 500.00 $ 72,150.00
Modalization 750.00

Fixed Unit Costs:

1,200 feet crosscutting and drifting at $44.50/ft	$53,400.00	
500 linear feet timbering at $ 9.50/ft	4,750.00	
1,000 feet long-hole drilling at $ 1.20/ft	1,200.00	
Assaying, 600 determinations at $ 1.00 each	600.00	
Two diamond drill stations at $1,634.00/station	3,268.00	
Incidental allowance for each foot of diamond drilling completed at $0.89/ft	6,408.00	$69,626.00

Estimated Total Cost $ 141,776.00

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
GROUTING
FOUNDATION TESTING
MINING
QUARRYING
SHAFT SINKING
TUNNEL DRIVING
MINE PLANT DESIGN
AND FABRICATION

Boyles Bros.
DRILLING COMPANY

CONTRACTORS-ENGINEERS-GEOLOGISTS
General Offices and Plant
1624 Pioneer Road P. O. Box 58 HUnter 7-7595
SALT LAKE CITY 10, UTAH

BRANCH OFFICES
PHOENIX
RENO
SPOKANE
DENVER
SACRAMENTO
ST. LOUIS

March 16, 1964

Reply to:

United Park City Mines
Heber, Utah

Attn: Mr. Marvin Barnes

Gentlemen:

We would like to offer the following proposal, for your consideration: drill 4 holes, 1800 ft. deep from the 2100 ft. level of Daily West Mine.

4" collar pipe with triocne bit		$ 10.20 per ft.
NC	0 - 250	9.30 per ft.
All sizes	250 - 500	10.00 per ft.
All sizes	500 - 750	11.20 per ft.
All sizes	750 - 1000	12.20 per ft.
All sizes	1000 - 1250	13.20 per ft.
All sizes	1250 - 1500	14.20 per ft.
All sizes	1500 - 1750	15.20 per ft.
	1750 - 2000	16.20 per ft.
Reaming all sizes		5.50 per ft.
Cementing & redrilling		6.80 per ft.
Casing hole		.75 per ft.
Grouting hole		4.75 per sack
Drilling grout		3.50 per ft.
Survey time		14.00 per hr.
Delay time caused by or asked for by Mng. Co.		14.00 per hr.
Mud, if practical to use, will increase the ft. price 60¢ per ft. when used.		
Mobilization & demob. + 1st set up		$600.00

We plan to carry hole as large as possible as far as we are able to carry it. We will use NC size and try to get it past known bad areas to case it off. If we can grout out water we would use mud to seal out cave area. Mud sumps would be required for storage and settling ponds. These would be provided with no charge to the Contractor. We would require more air than was available before. Stations of adequate room would be provided. We would like to work a six day week so that we could keep good drillers on the job, and work 2 shifts per day.

BOYLES BROS. DRILLING CO.

United Park City Mines
Attn: Mr. Marvin Barnes

March 16, 1964
Page 2.

Hope the foregoing meets with your approval. We would like as much advance notice as possible if you can use our services.

Thank you for considering us on this work. If any questions arise please feel free to call us.

Very truly yours,

J. F. Brennan
Field Superintendent

JFB:gh

E. J. Longyear Company

Bid taken over phone 3/19/64

Feet	Quartzite NX	Quartzite BX	Quartzite AX	Limestone NX	Limestone BX	Limestone AX
0'-500'	10.50	10.20	9.95	6.85	6.55	6.30
500'-1000'	11.25	10.95	10.70	7.60	7.30	7.05
1000'-1500'	12.50	12.00	11.75	8.60	8.30	8.05
1500'-2000'		13.50	13.00		9.55	9.30

Reaming	AX to NX	3.50	0- 500'
	BX to NX	3.25	
	"	3.75	500'-1000'
		3.50	
	"	4.25	+1000'
		4.00	

Cementing @ 11.00 per hour - plus materials

Shutdown (surveying etc) @ 9.25 per hour

GEOLOGIC COLUMN

STRATIGRAPHY OF FORMATIONS IN PARK CITY DIST.
Compiled from Surface, Underground, and DDH Mapping
by personel of United Park City Mines Co. 1" = 200'
MPB 1963

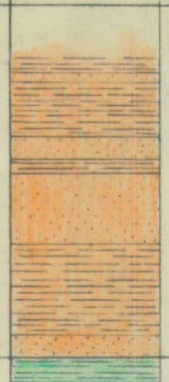
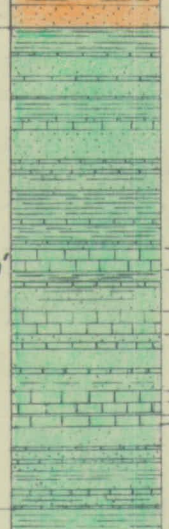
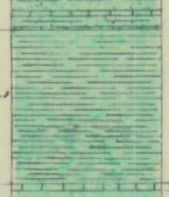
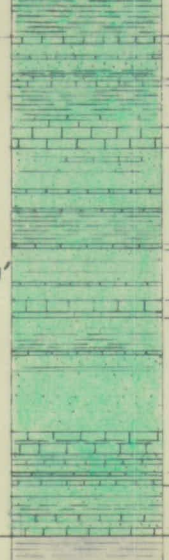
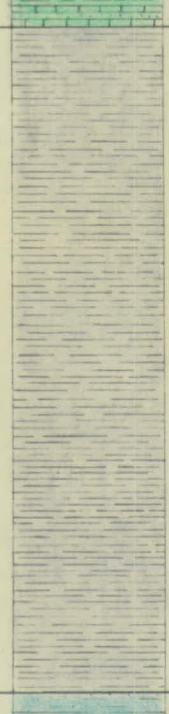
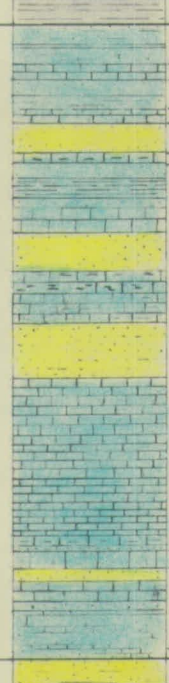
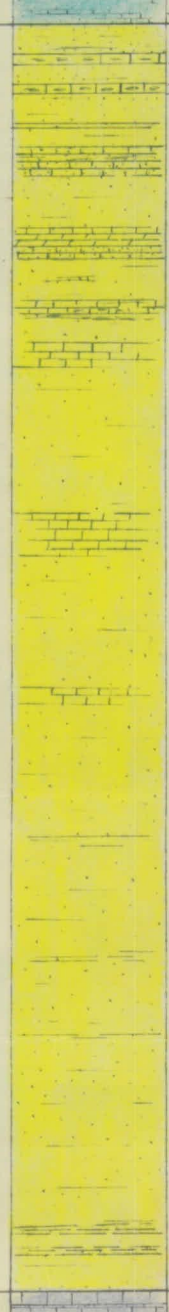
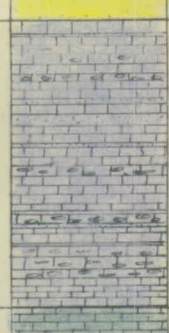
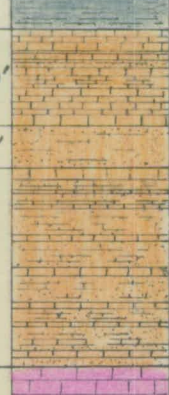
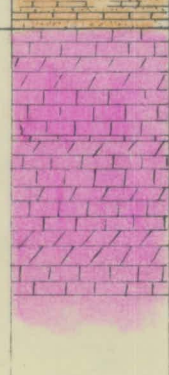
FM	THICKNESS Total	THICKNESS Unit	GRAPHIC	ORE BEDS	DESCRIPTION
ANKAREH FM					Maroon, red, yellow, and tan shales with interbedded fine grained sandstones. Massive, fine grained sandstone. $\bar{K}a$
THAYNES FORMATION	1145'	490'			$\bar{K}t$ Alternating beds of gray green shale, impure gray limestone with shaly and sandy seams, and buff to gray sandstones with thin calcareous lenses. Several favorable limestone beds.
		155'			Mid Red shale
		500'			Lower Thaynes formation Greater proportion of gray sandstone and shales with thin gray limestone more widely interspersed throughout. $\bar{K}t$
WOODSIDE SHALE	± 680'				$\bar{K}w$ Maroon, green, tan, and red thin bedded shales. $\bar{K}w$
PARK CITY FM	± 650'				C_{pc} Interbedded series of dense, cherty limestones and light gray fine sandstone and dark shales including the black phosphatic shale and massive sandstone. Black, shaly limestone. (Upper Black) Impure cherty limestone and good quartzite, gradational limestone and quartzite. C_{pc}
WEBER QUARTZITE	1230' to 1350'				C_w Light buff gray quartzite with some interbedded, dense, impure to sandy and cherty limestones and few thin calcareous shales. Light buff gray, glassy, fine grained quartzite. C_w
MORGAN FM	± 290'				C_M Light to dark gray, massive, medium to coarsely crystalline limestone with few thin light gray quartzites and some gray to purple cherts. C_M
DOUGHNUT FM	± 400'				C_{do} Dark gray, finely crystalline, muddy limestones with some light gray medium crystalline limestone and few thin shales. Some thin fossiliforous beds.
	± 170'				Light to medium grayish tan, hard, dense argillite. Usually highly fractured. C_{do}
HUMBUG FM	350'	100' 40'			C_h Light to dark gray, thin bedded, impure limestone with muddy lenses. Light gray to buff interculated quartzites, thin crystalline limestones, and calcareous sandstones. C_h
DESERET FM	OVER 300'				C_d White, massive, coarsely crystalline limestone and dolomite. Often highly triboluminescent.

PLATE NO. 4

COLUMNAR STRATIGRAPHIC SECTION

1" = 200'

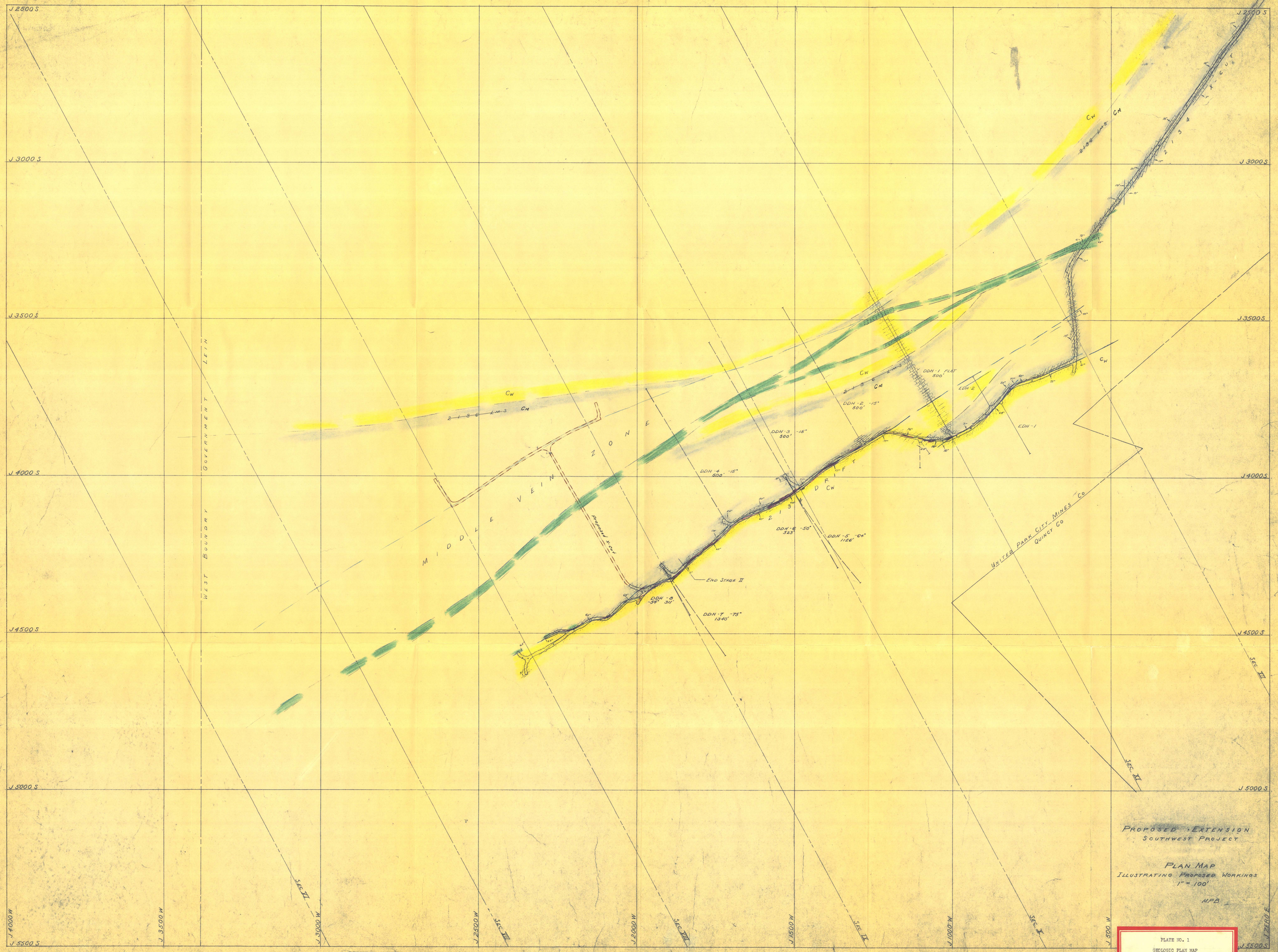


PLATE NO. 1
GEOLOGIC PLAN MAP
1" = 100'

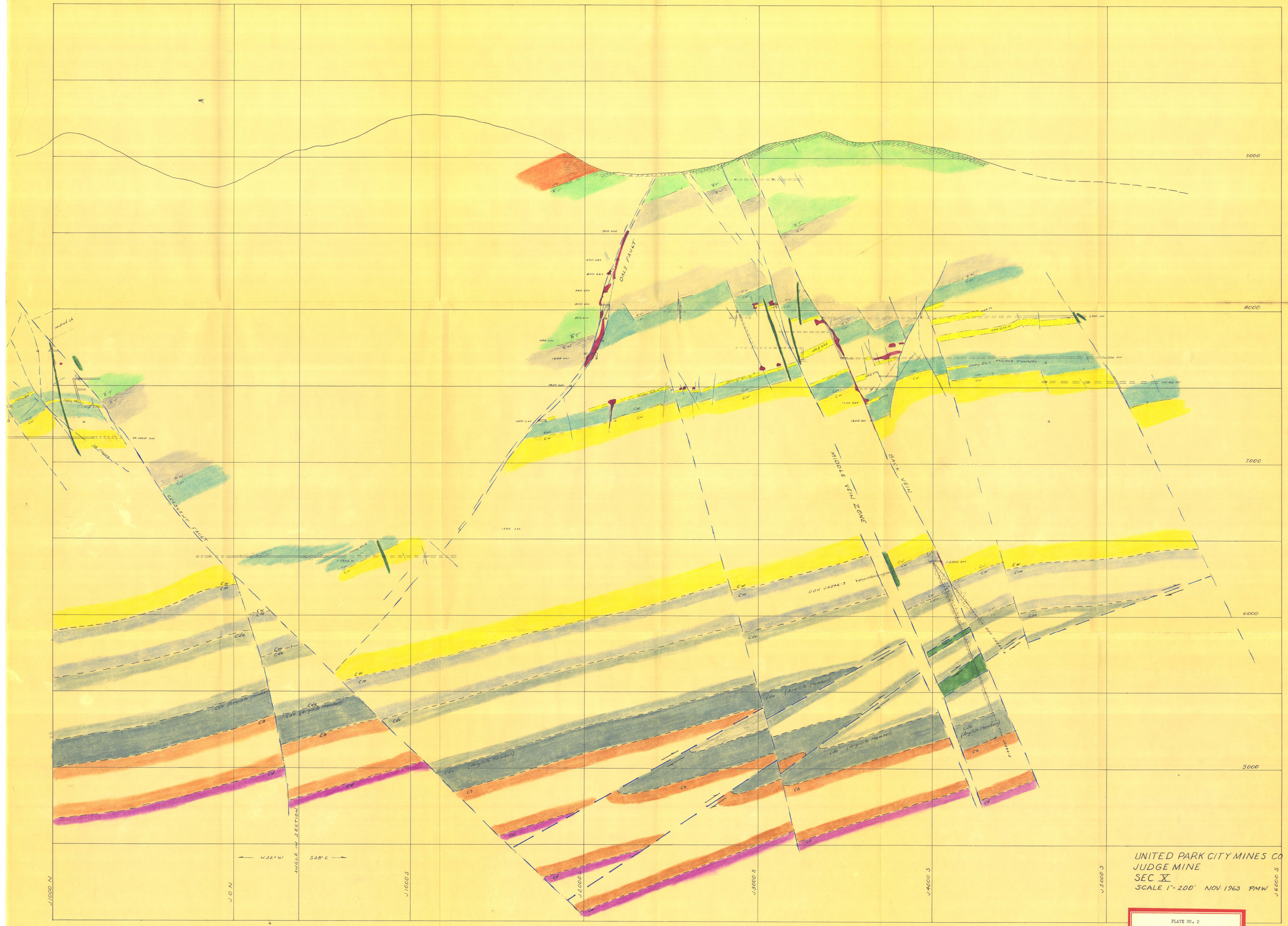
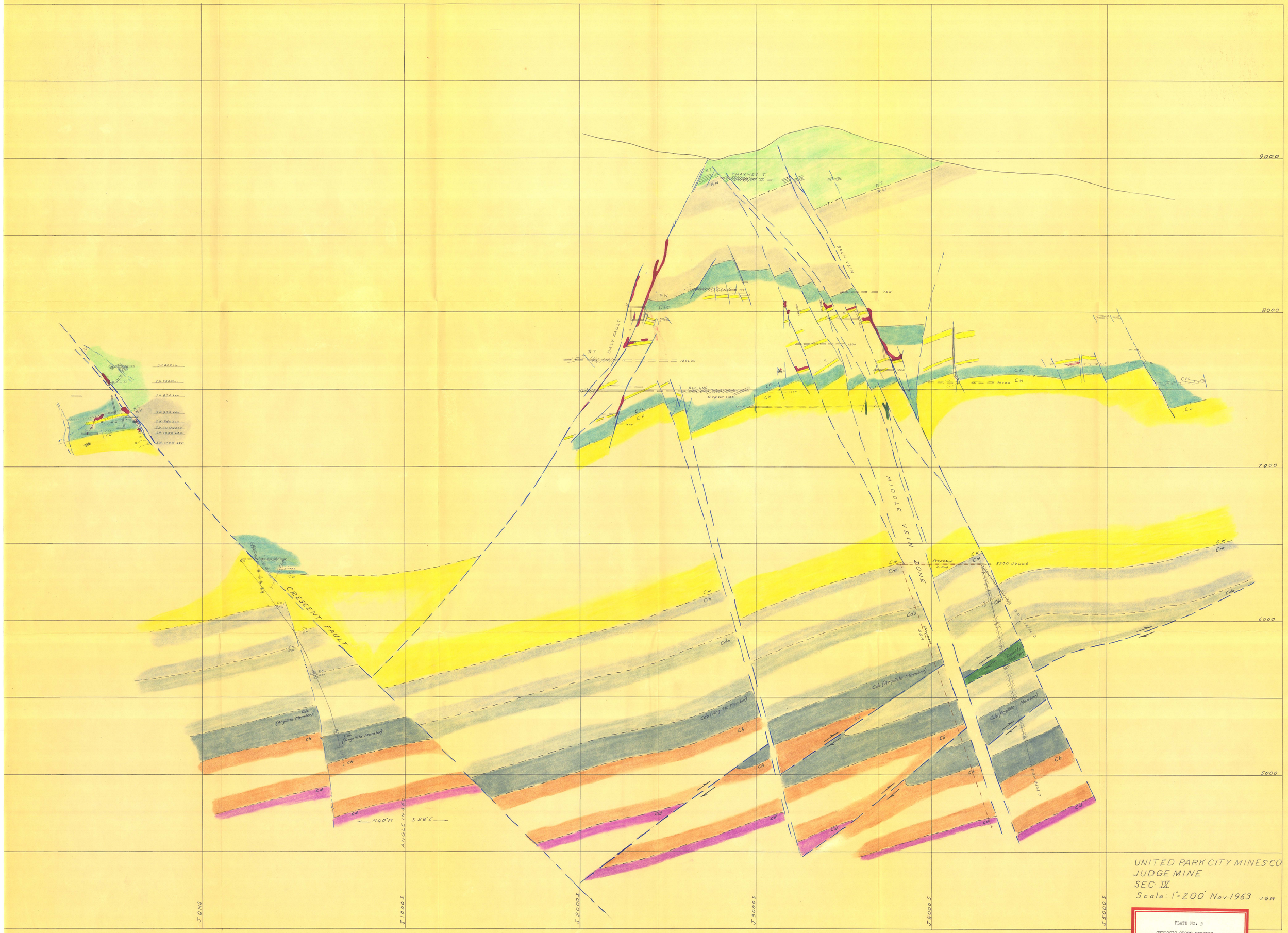


PLATE NO. 2

GEOLOGIC CROSS SECTION

1" = 200'



UNITED PARK CITY MINES CO
JUDGE MINE
SEC. IX
Scale: 1" = 200' Nov. 1963 JGW

PLATE NO. 5
GEOLOGIC CROSS SECTION
1" = 200'