Sch. 859

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of June, 1960 Docket No. DMEA 4580 Contract No. Idm E 1088

Operator's Name B. H. Putnam Minerals Zinc

Address 512 Third Street, Marietta, Ohio

Contract Amount, $ Government Participation: % Amount, $ 83,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$348.25	134,271.00	142,619.25			
Bulldozing						
Crosscutting						
Drifting						
Reaming	20.00	2,512.00	2,532.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Tracks						
Core Boxes	-	290.25	290.25	-		
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	-	393.75	393.75	-		
Payroll Taxes						
Liability Insurance Paid. Allow. @ $0.15/Ft.	522.90	8,087.94	8,610.84			
(8) Contingencies (specify):						
TOTALS	$891.15	145,444.94	154,346.09	8913.90	145,432.19	154,346.09

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 7-19-60 *Payee B. H. Putnam

Per L. L. Fischer Title agent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 4456.96

Signature (Authorized Certifying Officer)

Date 12/20/60 Vou. No. 2594

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date JUL 26 1960

APPROVAL BY ~~DMEA EXECUTIVE OFFICER OR ALTERNATE:~~

Signature George C. Selfridge Title George C. Selfridge, Chief Division of Field Operations Date Dec. 16, 1960.

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of June 195 60 Docket No. DMEA 4580 Contract No. Idm S 1068

Operator's Name B. H. Putnam Minerals

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft.	8348.25	2,905	142,619.25	47,838	2,981	50,000	3.00
Churn Reaming	"	20.00	10	2,532.00	1,266	2.00	5,000	2.00
Auger Samples	Ea.	-	-	293.75	237	1.239	500	1.25
Core Boxes	"	-	-	290.25	150	1.935	150	2.00
Stripping								
Trenching								
Test Pits								
Roads and Trails Incid. Allow.@ $0.18/Ft.	Ft.	522.90	2,905	8,610.84	47,838	0.18	50,000	0.18
TOTAL DISTRIBUTED COSTS		8891.15		154,346.09				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		8891.15		154,346.09				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date 7-19-60 Operator B. H. Putnam

Per R. L. Fischer Title agent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS: A-13
BR-1
BR-2
A-14
M3-6
A-15
A-16

(Instructions on reverse)

(For Government use only)

V. J. Lynch
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT

GRAINGER COUNTY, TENNESSEE

June, 1960

Docket No. 4580
Contract No. Idm-E-1088

During the month of June seven (7) holes were drilled on the Puncheon Camp Creek Project. A total of 2,905 feet of hole was drilled. Four of these holes were drilled on the Elvin Jackson farm, two on the S. S. Breeding farm and one on the J. C. McGinnis farm.

According to the terms of Amendment No. 5, the subject contract expired on June 30, 1960, and the drilling under this contract is terminated.

Hole JA-13 was drilled at a location 100 feet west of JA-4 on the strike fence in order to explore for the possibility of mineralization trending in this direction from JA-7. Hole JA-13 collared in the Kingsport formation and was drilled to a depth of 481 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 88	Overburden	-	-	-
88-386	Kingsport	"R" @ 279 "S" @ 347 "T" @ 386	Shine @ 186,258, 399	Dolomite and recrystalline; abundant pyrite
386-481	Longview	"U" @ 396	-	Dolomite & recrystalline

Hole BR-1 was drilled 400 feet east of CO-6 in an attempt to intersect an alternate possible trend of mineralization from the Elvin Jackson geochemical anomaly. This hole collared in the Kingsport formation and was drilled to a depth of 325 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 49	Overburden	-	-	-
49-294	Kingsport	"R" @ 184 "S" @ 247 "T" @ 294	-	Dolomite and recrystalline, some breccia
294-325	Longview	"U" @ 308	-	Dolomite

Hole BR-2 was drilled at a location approximately 200 feet east of BR-1 in a further attempt to intersect an alternate possible trend of mineralization. This hole collared in the Kingsport formation and was drilled to a depth of 400 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 69	Overburden	-	-	-
69-372	Kingsport	"R" @ 279? "S" @ 330? "T" @ 372	-	Dolomite and recrystalline; some breccia
372-400	Longview	"U" @ 383	-	Dolomite & recrystalline

Hole JA-14 was drilled 200 feet west of JA-3 in an attempt to intersect mineralization trending in this direction from hole JA-7. Hole JA-14 collared in the Nascot formation and was drilled to a depth of 560 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 55	Overburden	-	-	-
55-264	Nascot	CHes @ 264	-	Dolomite
264-526	Kingsport	"R" @ 436 "S" @ 493? "T" @ 526	-	Dolomite and recrystalline; breccia & very abundant pyrite
526-560	Longview	"U" @ 536	-	Dolomite, recrystalline and some limestone

Hole MG-6 was drilled 200 feet east of BR-2 to further explore the area between CO-6 and MG-3 east of the Elvin Jackson anomaly. MG-6 collared in the Kingsport formation and was drilled to a depth of 350 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 40	Overburden	-	-	-
40-323	Kingsport	"R" @ 229 "S" @ 275? "T" @ 323	-	Dolomite, recrystalline and some limestone. Little breccia
323-350	Longview	"U" @ 333	-	Dolomite and recrystalline

Hole JA-15 was drilled at a location 100 feet downdip from JA-5 to explore for mineralization in that area east of JA-7. JA-15 collared in the Mascot formation and was drilled to a depth of 450 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 46	Overburden	-	-	-
46-151	Mascot	Chas @ 151	-	Dolomite
151-436?	Kingsport	"R" @ 338 "S" @ 394 "T" @ 436?	Shine @ 205, 290½ & 368	Dolomite & recrystalline. Some breccia
436?-450	Longview	-	-	Dolomite & recrystalline

Hole JA-16 was drilled at a location 200 feet east of JA-5 to explore for mineralization downdip from the geochemical anomaly. This hole collared in the Mascot formation and was drilled to a depth of 339 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 62	Overburden	-	-	-
62- 92?	Mascot	Chas @ 92?	-	Dolomite
92-339	Kingsport	"R" @ 270 "S" @ 315?	293-294, Est.	Dolomite, recrystalline and chert. Little bre

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

JUN 30 1960
O.M.E.

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of [illegible], 1960 Docket No. DMEA [illegible] Contract No. [illegible]
Operator's Name [illegible] Minerals [illegible]
Address [illegible]
Contract Amount, $[illegible] Government Participation: [illegible] % Amount, $[illegible]

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	[illegible]	[illegible]	[illegible]	8545.95	125.702.30	134,248.25
Bulldozing						
Crosscutting						
Drifting [illegible]	-	[illegible]	[illegible]	-	2512.00	2512.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Tracks [illegible]	-	[illegible]	[illegible]		290.25	290.25
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	10.00	283.75	[illegible]	10.00	283.75	293.75
Sampling and Analysis						
Payroll Taxes [illegible]						
[illegible] Insurance [illegible]	[illegible]	7,553.16	[illegible]	534.78	7553.16	8087.94
(8) Contingencies (specify):						
	[illegible]	[illegible]	[illegible]			
TOTALS	[illegible]	[illegible]	[illegible]	9090.73	136,341.46	145,432.19

I certif[illegible] above bill is correct [illegible] and [illegible]ment therefor has not been received.

Date ..... *Payee .....

Per [illegible] Title [illegible]

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 4545.37

Signature ..... OR
(Authorized Certifying Officer)

Date 6/27/60 Vou. No. 5400

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. J. Lynnet Title U. S. BUREAU OF MINES MINING ENGINEER Date JUN 22 1960

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Lawrence G. Houck Title ACTING FIELD OFFICER, REGION IV OFFICE OF MINERALS EXPLORATION Date 6/24/60

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

JUN 30 1960
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of [redacted] 195[redacted] Docket No. DMEA [redacted] Contract No. [redacted]
Operator's Name [redacted] Minerals [redacted]
Address [redacted]

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Chu[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Aug[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Stripping [redacted]	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Trenching								
Test Pits								
Roads and Trails [redacted]								
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total Distributed Costs		[redacted]		[redacted]				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		[redacted]		[redacted]				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date [redacted] Operator [redacted]

Per [redacted] Title [redacted]

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

Remarks: [redacted]

(Instructions on reverse)

(For Government use only)

GEOLOGIST, U. S. G. S.

JUN 21 1960

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

INT.-DUP., D.C.-62307-59

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT

GRAINGER COUNTY, TENNESSEE

May 1960

Docket No. 4380
Contract No. Idm-E-1088

During the month of April six (6) holes were drilled on the Puncheon Camp Creek Project. A total of 2,971 feet of hole was drilled.

Four of these holes were drilled on the Elvin Jackson farm, one on the Pryor Acuff farm and one on the Austin Johnson farm.

Hole JA-9 was drilled at a location 100 feet south of hole JA-7 on the dip fence in order to gain better knowledge concerning the extent of the mineralization in this direction. This hole collared in the Mascot formation and was drilled to a depth of 500 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 92	Overburden	-	-	-
92-201	Mascot	CM @ 201	Shine @ 183	Dolomite
201-300	Kingsport & Longview	"R" @ 380 "S" @ 444 ±	Shine @ 210	Dolomite and recrystalline. Abundant pyrite from 257 to bottom in breccia; Fault gouge 462-300

Hole AC-1 was located 400 feet south of hole JA-5. This hole collared in the Mascot formation and was drilled to a depth of 626 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 53	Overburden	-	-	-
53-330	Mascot	CM @ 330	-	Dolomite
330-596	Kingsport	"R" @ 500 "S" @ 544 "T" @ 596	464-465,2% Est. 482-483½,2% "	Dolomite and recrystalline; some "rock-matrix" breccia. Chert from 366-596
596-626	Longview	-	-	Dolomite & recrystalline

Hole AJ-1 was drilled at a location 400 feet west of JA-4. The hole collared in the Kingsport formation and was drilled to a depth of 350 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 90	Overburden	-	-	-
90-243	Kingsport	"R" @ 243 "S" @ 262 "T" @ 347	-	Dolomite and Recrystalline; some breccia
347-350	Longview	-	-	Dolomite

Hole JA-10 was drilled 200 feet east of JA-4 on the strike fence in an attempt to intersect mineralization between hole JA-7 and the geochemical anomaly. This hole collared in the Kingsport formation and was drilled to a depth of 452 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-118	Overburden	-	-	-
118-399	Kingsport	"R" @ 306 "S" @ 355 "T" @ 399	-	Dolomite and recrystalline; little breccia;Abundant pyrite 306-393
399-452	Longview	"U" @ 410	-	Dolomite & recrystalline

Hole JA-11 was drilled 400 feet downdip from hole AJ-1 in an attempt to intersect mineralization trending from hole JA-7 and the geochemical anomaly. This hole collared in the Mascot formation and was drilled to a depth of 630 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 48	Overburden	-	-	-
48-309	Mascot	[illegible]	Trace @ 89	Dolomite
309-567	Kingsport	"R" @ 463 "S" @ 528 "T" @ 567	-	Dolomite & recrystalline; "Crackle" breccia; Very strong pyrite 247-530
567-630	Longview	"U" @ 578	-	Dolomite & recrystalline

Hole JA-13 was drilled 100 feet east of JA-4 on the strike fence in a further attempt to intersect mineralization trending between hole JA-7 and the geochemical anomaly. This hole collared in the Kingsport formation and was drilled to a depth of 413 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-103	Overburden	-	-	-
103-373	Kingsport	"R" @ 259 "S" @ 323 "T" @ 373	Strong shines @ 188,189-91 195,199,204 & 205; 208-209, 3% Est; Shine @ 217, Trace 284	Dolomite & recrystalline; some breccia. Very strong pyrite 231-413
373-413	Longview	"U" @ 385	-	Dolomite & recrystalline

Form MF-104 (Rev.)
(April 1952)

Sch 1813

Budget Bureau No. 42-R1036,5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

MAY 27 1960 O.M.E.

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of April, 1960 Docket No. DMEA 4580 Contract No. Idm E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:				7670.30		
Drilling	$7693.05	118,032.00	125,$25.05		118,032.00	125,702.30
Bulldozing						
Crosscutting						
Drifting						
Reaming	-	2,502.00	2,502.00		2512.00	2512.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	-	290.25	290.25		290.25	290.25
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis		283.75	283.75		283.75	283.75
Payroll Taxes						
Liability Insurance						
Incidental Allowance @ $0.18/Ft.	471.24			471.24	7081.92	7553.16
(8) Contingencies (specify):						
				8141.54		
TOTALS	$8164.29	136,354.21	128,189.92		128,199.92	136,344.46

I certify that the above bill is correct and just and that payment therefor has not been received.

Date May 9, 1960 Payee B. H. Putnam

Per B. H. Putnam Title Drilling Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 4,070.77

Signature (Authorized Certifying Officer)

Date 5/27/60 Vou. No. 4907

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date MAY 19 1960

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Lawrence G. Hoch Title ACTING FIELD OFFICER, REGION IV OFFICE OF DEFENSE MINERALS EXPLORATION Date 5-23-60

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

MAY 27 1960 O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of April 1960 Docket No. DMEA 4580 Contract No. Idm F 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft.	$7693.05	2,618	125,725.05	41,962	2.996	50,000	3.00
Churn Reaming	"	-	-	2,502.00	1,256	2.00	5,000	2.00
Auger Samples	Ea.	-	-	283.75	227	1.25	500	1.25
Stripping Core Boxes	"	-	-	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Roads and Trails Incid. Allow.@ $0.18/Ft.	Ft.	471.24	2,618	7,553.16	41,962	0.18	50,000	0.18
Total Distributed Costs		$8164.29		$136,354.21				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		$8164.29		$136,354.21				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date May 9, 1960 Operator B. H. Putnam

Per [signature] Title Oper. Superintendent

Remarks: $19.50 deducted from drilling costs. There is no provision for payment for capping holes etc.

NOTE. See suspension attached for the amount of 22.75

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.

MAY 18 1960

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of the Secretary
Accounting Unit
Washington

ADMINISTRATIVE SUSPENSION STATEMENT

Name and Address of Payee: B. H. Putnam
512 Third Street, Marietta, Ohio

Amount Claimed:	Differences (Explained Below)	Amount Approved
8,164.29	22.75	8,141.54 Govt. Part. 50% 4,070.77
Bu. Voucher No.	Payee's Invoice No. Contract No. Idm 8 1088	Period April 1960

EXPLANATION

Disallowed:

Haul core on invoice No. 46030 from E. J. Longwear Co.	6.50
Capping hole on " " " " " " "	3.25
Haul core on invoice No. 46029 from E. J. Longwear Co.	9.75
Capping hole on invoice No. " " " " " "	3.25
	22.75

Not authorized by contract

Any reclaim for items deducted must be supported by the original of this statement and submitted to the office shown above.

Suspension made by:

Opal M. [illegible]
Signature

Assistant Chief, Accounting Unit
Title

74165

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT

GRAINGER COUNTY, TENNESSEE

April 1960

Docket Nc. 4580
Contract No. Idm-E-1088

During the month of April six (6) holes were drilled on the Puncheon Camp Creek Project. On April 12th, an additional diamond drill was moved onto the property. We now have two contract machines on the project, one of E. J. Longyear Company in addition to Putnam Drilling Company's rig.

All of the holes were drilled on the Elvin Jackson farm.

Hole JA-3 was drilled 300 feet north of JA-2 on the dip fence. This hole collared in the Mascot dolomite and was drilled to a depth of 600 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 73	Overburden	-	-	-
73-252	Mascot	CM @ 252	-	Dolomite, scattered pyrite mineralization
252-600	Kingsport & Longview	"R" @ 413	Shine ZnS @ 427; 449-50, Est. 4½%	Dolomite and recrystalline. Vertical fault from 450-577. 431-72, 41' @ 2½% FeS_2

Hole JA-4 was drilled 300 feet updip from JA-3. This hole collared in the Mascot dolomite and was drilled to a depth of 475 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 98	Overburden	-	-	-
98-102	Mascot	CM @ 102	-	Dolomite
102-397	Kingsport	"R" @ 297 "S" @ 355 "T" @ 397	195-196,Est.3%; 205-206,Est. 3½%; 211-212, Est.1%; 219-220, Est.3/4%; Shines @ 226,231½,232½, 236;274-275½, Est.3%; Shines @ 290,295,297 & 315	Dolomite and recrystalline; some breccia
397-475	Longview	"U" @ 405	-	Dolomite and recrystalline some breccia

Hole JA-5 was located 400 feet east of JA-3. The hole collared in the Kingsport formation and was drilled to a depth of 400 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 44	Overburden	-	-	-
44-400	Kingsport	"R" @ 278 "S" @ 350±	238-250, Est. ½% Shines @ 286, 303, 307, 310	Dolomite and recrystalline; and "rock-matrix" breccia

Hole JA-6 was drilled on the dip fence at a location 200 feet north of JA-4. The hole collared in the Kingsport formation and was bottomed at 309 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 90	Overburden	-	-	-
90-296	Kingsport	"R" @ 193' "S" @ 241 ± "T" @ 296'	Shine @ 165'	Dolomite and recrystalline; Shine PbS @ 154; some breccia
296-309	Longview	-	-	Dolomite, some recrystalline

Hole JA-7 was located 100 feet south of JA-4 on the dip fence. The hole collared in the Mascot dolomite and was drilled to a depth of 450 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 50	Overburden	-	-	-
50-168½	Mascot	CM @ 168½'	-	-
168½-409	Kingsport	"R" @ 320' "S" @ 385 ±	Shine @ 158; 241-257, 16' @ 5% Zn, Est. Shine @ 260; 276-284½, 8½' @ 1½% Est; 292-300, 8' @ ½% Est; 309½-319, 9½' @ 1½% Est; 321-322, Est. 1%; 327-335, 8' @ 2½% Est.	Dolomite and recrystalline; some breccia
409-450	Longview	"U" @ 418'	-	Dolomite and recrystalline

Hole JA-8 was drilled 400 feet east of JA-5. This hole collared in the Kingsport formation and was drilled to a depth of 384 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0- 70	Overburden	-	-	-
70-384	Kingsport	"R" @ 259' "S" @ 313 ±	-	Vertical Fault 70-119; Dolomite, recrystalline and limestone

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

Sch 1813

MAY 27 1960 O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of March 195 60 Docket No. DMEA 4580 Contract No. Idm 2 1088

Operator's Name B. H. Putnam Minerals Inc

Address 912 Third Street, Marietta, Ohio

Contract Amount, $ 170,125.00 Government Participation 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$1,350.00	116,682.00	110,032.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	56.00	2,456.00	2,512.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	-	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	-	283.75	283.75			
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
Incidental Allowance @ 0.~~19~~ 18/ft.	81.00	7,000.92	7,081.92			
(8) Contingencies (specify):						
TOTALS	$1,487.00	126,712.92	128,199.92	1487.00	126,712.92	128,199.92

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 5/16/60 *Payee B. H. Putnam

Per A. P. Eddy Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

743.50

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 743.50

Signature
(Authorized Certifying Officer)

Date 5/27/60 Vou. No. 4907

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature V. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date APR 22 1960

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Lawrence G. Hoch Title Acting Fuel Officer Date 4/28/60

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

MAY 27 1960
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of March 195 9 Docket No. DMEA 4500 Contract No. Jda 2 1088
Operator's Name D. H. Putnam Minerals Zinc
Address 312 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Feet	$1,250.00	650	$19,032.00	39,344	3.00	50,000	3.00
Churning	Foot	56.00	28	2,502.00	1,228	2.00	5,000	2.00
Augering	Samples Each	-	-	283.75	227	1.25	500	1.25
Stripping	Core Boxes Each	-	-	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Roads and Trails								
Allow @ $0.18/ft	Foot	81.00	450	7,081.92	39,344	0.18	50,000	0.18
TOTAL DISTRIBUTED COSTS		$1,487.00		$128,199.92				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		1,487.00		$128,199.92				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date 4/1/60 Operator D. H. Putnam

Per C. E. Eddy Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

Meadow

GEOLOGIST, U. S. G. S.

APR 21 1960

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek
Project, Grainger County, Tennessee

March, 1960

Docket No. 4580
Contract No. Idm E-1088

During the month of March one (1) hole was drilled on the Puncheon Camp Creek Project. Hole DJ-4 was drilled 200 feet south of DJ-3 on the dip fence. This hole collared in the Mascot formation and was drilled to a depth of 450 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-77	Overburden	———	———	———
77-174	Mascot	———	———	Openings 78½-95' dolomite
174-444	Kingsport	"R" @ 355' "S" @ 405' E "T" @ 444'	———	Recrystalline and dolomite; light crackle
444-450	Longview	———	———	Dolomite

Invoice

Marietta, Ohio

March 1960

B. H. Putnam
512 Third Street
Marietta, Ohio

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. Idm-E-1088, Docket No. 4580 - March 1960

Core Hole No. DJ-4

Footage drilled 450' @ 3.00/ft.		$1,350.00
Footage reamed 28' @ 2.00/ft.		56.00
Total for DJ-4		$1,406.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

REGION IV
Room 11, Post Office Building
Knoxville 2, Tennessee

MAY 25 1960

Mr. Ray E. Roach
Chief Accountant
Benjamin W. Putnam, Assignee
P. O. Box 447
Marietta, Ohio

Re: DMSA-4580 (Zinc)
Benjamin W. Putnam, Assignee
Punchson Camp Creek Prospect
Grainger County, Tennessee
Contract Idx-E1068

Dear Mr. Roach:

Your letter of May 21 was referred to me by Robert A. Lawrence on May 23.

The March voucher of DMSA-4580, Punchson Camp Creek Prospect, was delayed pending receipt of the Operator's final reports on DMSA-4422, Thorn Hill Area, and DMSA-3026, Lattrall Prospect. These reports received on April 15 have been accepted and the March voucher has been approved for immediate payment.

Sincerely yours,

Lawrence G. Houk
Acting Field Officer

LGHouk/fw-5/25/60
cc: CARA Div.
Reg. IV (2)
Mr. Selfridge
Chron (Mr. Houk)

MAR 18 1960

Memorandum

To: Executive Officer, OME Field Team, Region V

From: Chairman, Operating Committee, OME

Subject: Docket No. DMEA-4422 (Zinc)
Benjamin H. Putnam, Assignee
Thorn Hill Area
Grainger County, Tennessee
Contract No. Idm-E1022
and
Docket No. DMEA-5026 (Zinc)
Benjamin H. Putnam
Lattrell Prospect
Union County, Tennessee
Contract No. Idm-E1215
and
Docket No. DMEA-4580 (Zinc)
Benjamin H. Putnam, Assignee
Punchson Camp Creek Prospect
Grainger County, Tennessee
Contract No. Idm-E1046

A Termination Agreement on the first listed of the subject contracts was executed on February 3, 1959. The last project work was performed during September 1957. No funds have been withheld to insure the submission of the Operator's final report and, to date, it has not been received.

The second listed of the subject contracts was terminated under the terms of Amendment No. 2 for failure to resume work by March 1, 1959. The last project work was performed during August 1958. No funds have been withheld (in fact, a preliminary audit review indicates an overpayment of $3.90), and the Operator's final report has not been received.

The last listed of the subject contracts is in an active status with work only about three-fourths completed; however, under the provisions of Amendment No. 5, it will be terminated effective June 30, 1960.

Considering all of the above facts, it appears appropriate to withhold further payments to the Operator under the last listed contract until the Operator's final reports on the other two projects are received. Please advise the Operator accordingly.

George C. Selfridge

APPROVED:

P. F. Yopes

Member, Bureau of Mines

W. P. Williams

Member, Geological Survey

EDTalbert/ama
March 17, 1960

Copy to: Docket
Director's Reading File
CA & A Division - E1215
Operating Committee
Mr. Bishop, USBM
Mr. Kirkemo, USGS
Mr. Rothrock, Room 7354, Interior

Sch 1393

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

MAR 17 1960

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of February 1960 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$3,498.00	$113,184.00	$116,682.00			116,682.00
Bulldozing						
Crosscutting						
Drifting						
Reaming	20.00	2,436.00	2,456.00			2,456.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	----	290.25	290.25			290.25
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	20.00	263.75	283.75			283.75
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incidental Allowance @ $0.18/foot	209.88	6,791.04	7,000.92			7,000.92
TOTALS $	3,747.88	$122,965.04	$126,712.92	3747.88	122,965.04	126,712.92

I certify that the above bill is correct and just and that payment therefor has not been received.

Date February 1960 *Payee B. H. Putnam

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1873.94

Signature [signature]
(Authorized Certifying Officer)

Date 3/16/60 Vou. No. 3711

(See other side)

1873.94

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature T. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date MAR 7 1960

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date MAR 7 1960

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

MAR 17 1960
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of February 1960 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$3,498.00	1166	$116,682.00	38,894	$ 3.00	50,000	$ 3.00
~~Churn~~ Reaming	Foot	20.00	10	2,456.00	1,228	2.00	5,000	2.00
~~Auger~~ Samples	Each	20.00	16	283.75	227	1.25	500	1.25
Core Boxes	Each	-----	----	290.25	150	1.935	150	2.00
Stripping								
Trenching								
Test Pits								
~~Roads and Trans.~~ Incident. Allow. @ $0.18/foot	Foot	209.88	1166	7,000.92	38,894	0.18	50,000	0.18
TOTAL DISTRIBUTED COSTS		$3,747.88		$126,712.92				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$3,747.88		$126,712.92				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date February, 1960 Operator B. H. Putnam

Per Frederick J. Fische Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

V. J. Lypnick
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc.". The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek Project, Grainger County, Tennessee

February 1960
by: F. T. Fischer

Docket No. 4580
Contract No. Idm-E-1088

During the month of February four (4) holes were drilled on the Puncheon Camp Creek Project; Hole ST-19 was drilled 100 feet southwest of ST-18 on the strike fence. This hole collared in the Kingsport formation and was drilled to a depth of 315 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-30	Overburden	———	———	———
30-293½	Kingsport	"R" @ 196'	Shines from 95-95½	Opening from 40-79'; Dolomite
		"S" @ 254½'	———	Dolomite and recrystalline; some breccia and "dry breccia"
		"T" @ 293½'	———	Recrystalling and some dolomite; some breccia and "dry breccia"
293½-315	Longview	"U" @ 306½	———	Dolomite

Hole DJ-1 was drilled 100 feet northeast of ST-18 on the strike fence. The hole collared in the Kingsport formation and bottomed at a depth of 300 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-35	Overburden	———	———	———
35-245	Kingsport	"R" @ 153'	ZnS trace @ 61'; ZnS shines 65-67½, 2.41%; 67½-68, 2.04%; ZnS shine @ 86'; Traces of ZnS @ 89½ and 90'; Trace ZnS @ 93'; ZnS shines @ 95½'; ZnS shines 101 - 102, 0.22%; Trace ZnS @ 103½; ZnS 106½-108½, 2.35%; 112½-113½, 3.34%; 117½-118, est ½%; 125½-127, 4.08%; Trace ZnS @ 128½; ZnS 129¼-129½, est. 6%,	Dolomite, partly brecciated
		"S" @ 215'	———	Recryatalline and some dolomite; some breccia

		"T" @ 245	———	Recrystalline, limestone and little dolomite
245-300	Longview	"U" @ 258'	———	Dolomite
		"L-3" @ 269'	Trace ZnS @ 278 3/4'	Recrystalline and dolomite Fault zone @ 276-76½

Hole DJ-2 was drilled 100 northwest of DJ-1 on the strike fense. The hole collared in the Kingsport formation and bottomed at a depth of 220 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-93	Overburden	———	———	———
93-190	Kingsport	"R" @ 103'	———	Dolomite
		"S" @ 159'	———	Dolomite and recrystalline; partly brecciated
		"T" @ 190'	———	Recrystalline, dolomite and limestone
190-220	Longview	"U" @ 200'	———	Dolomite
		"L-3" @ 217'	———	Recrystalline

Hole DJ-3 was drilled N 87° E, 275 feet from DJ-1 on the next dip fence to the northeast. The hole collared in the Kingsport formation and was drilled to a depth of 331 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-85	Overburden	———	———	———
85-313	Kingsport	"R" @ 216½'	ZnS shines 151½-153, est. 2%; shine @ 154½; Trace @ 155	Dolomite
		"S" @ 274'	———	Dolomite and recrystalline
		"T" @ 313'	———	Limestone, recrystalline & Dolomite
313-331	Longview	"U" @ 329'	———	Dolomite

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

February 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. IDm-E-1088, Docket No. 4580 - February 1960

Core Hole No. ST-19

Footage drilled 315' @ $ 3.00/ft. $ 945.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

February 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Purcheon Camp Creek Project DMEA Contract No. Idm - E-1088, Docket No. 4580 - February 1960

Core Hole No. DJ-1

Footage drilled 300' @ $ 3.00/ft.		$ 900.00
Footage reamed 10' @ 2.00/ft.		20.00
Total for DJ-1		$ 920.00

I hereby certify that to the best of my knowledge and belief the aobve invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

FEBRUARY 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Punnheon Camp Creek Project DMEA Contract No. Idm - E-1088, Docket No. 4580 - February 1960

Core Hole No. DJ - 2

Footage drilled 220' @ $ 3.00/ft. $ 660.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

February 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. Idm - E - 1088, Docket No. 4580 - February 1960

Core Hole No. DJ-3

Footage drilled 331' @ $ 3.00/ft. $ 993.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B.H .Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

ENGINEERING
FOUNDATIONS
INSPECTIONS
ANALYSES
SAMPLING
CONSULTING
RESEARCH

The Bruce Williams Laboratories

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN STREET TELEPHONE MAYFAIR 3-1556

ESTABLISHED 1898

Joplin, Missouri

D. K. Putnam
P. O. Box 65
Thorn Hill, Tennessee

2-3-60

				ZINC Zn		
310353	ST #18	Sample #1	(102-03')	0.64		
354		2	106-108	0.98	8'@ 1.37%	12'@ 1.1%
355		3	108-109	5.70		
356		4	110-112	1.64		
357		5	112-113	0.54		
358		6	116½-118½	1.14		
359		7	125-125½	0.78		
360		8	131-132	0.28		
361		9	135½-137½	0.18		
362		10	87-88½	1.60		

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES 72-305

Bruce Williams

The Bruce Williams Laboratories

ENGINEERING
FOUNDATIONS
INSPECTIONS
ANALYSES
SAMPLING
CONSULTING
RESEARCH

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN STREET TELEPHONE MAYFAIR 3-1556

ESTABLISHED 1898

Joplin, Missouri

B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

2-13-60

				ZINC Zn		
818747	DJ - #1	Sample #1	65½ - 67½	2.41		
748		2	67½ - 68	2.04		
749		3	101 - 102	0.22		26' @ .55%
750		4	106½ - 108½	2.35	8' @ 1.01%	
751		5	112½ - 113½	3.34		
752		6	125½ - 127	4.08		
753	ST-18	(106 - 108')	return 7	0.96		

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES 72-394 Bruce Williams

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

FEB 11 1960 DATE

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 26

Month of January, 1960 Docket No. DMEA 4580 Contract No. Idm -E- 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$4,590.00	$108,594.00	$113,184.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	120.00	2,316.00	2,436.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	—	263.75	263.75			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incidental Allowance C. $0.18/foot	275.40	6,515.64	6,791.04			
TOTALS	$4,985.40	$117,979.64	$122,965.04	4985.40	117,979.64	122,965.04

I certify that the above bill is correct and just and that payment therefor has not been received.

Date ..... *Payee B. H. Putnam

Per Frederick L. Fischer Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 2492.70

Signature Helen R. Miller (Authorized Certifying Officer)

Date FEB 9 1960 Vou. No. 39
(See other side)

2492.70

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date FEB 8 1960

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date FEB 8 1960

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

FEB 11 1960
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of January 1960 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$4,590.00	1,530	$113,184.00	37,728	$3.00	50,000	$3.00
~~Churn~~ Reaming	Foot	120.00	60	2,436.00	1,218	2.00	5,000	2.00
~~Auger~~ Samples	Each	—	—	263.75	211	1.25	500	1.25
~~Stripping~~ Core Boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
~~Roads and Trails~~ Incident.	Foot							
Allow @ $.18/foot		275.40	1,530	6,791.04		0.18	50,000	0.18
TOTAL DISTRIBUTED COSTS		$4,985.40		$122,965.04				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$4,985.40		$122,965.04				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date February 2, 1960 Operator B. H. Putnam

Per [signature] Title Superintendent

REMARKS:

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.
FEB - 8 1960

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek Project, Grainger County, Tennessee

January, 1960
by: F. T. Fischer

Docket No. 4580
Contract No. Idm-E-1088

During the month of January five (5) holes were drilled on the Puncheon Camp Creek Project. Hole ST-14 was drilled 100 feet southwest of ST-13 on the strike fence. The hole collared in the Mascot formation and was drilled to a depth of 343 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-25	Overburden	___	___	___
25-51½	Mascot	CM @ 51½	___	Dolomite
51½-336½	Kingsport	"R" @ 215½	___	Dolomite & recrystalline; some breccia
		"S" @ 282	___	Recrystalline with little dolomite. Dry Breccia
		"T" @ 336½	___	Heavy Pyrite
336½-343	Longview	___	___	Dolomite

Hole ST-15 was drilled 200 feet south of ST-13 on the dip fence. The hole wallared in the Mascot formation and was drilled to a depth of 440 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-27	Overburden	___	___	___
27-141	Mascot	CM @ 141'	___	Dolomite
141-399	Kingsport	___	___	Dolomite, heavy pyrite upper part
		"R" @ 305'	___	Dolomite & recrystalline
		"S" @ 367½'	___	Recrystalline, little dolomite some breccia & heavy pyrite
		"T" @ 399	___	
399-440	Longview	"U" @ 411	___	Dolomite & recrystalline some breccia lower part

Hole ST-16 was drilled 260 feet north of ST-14 on the offset dip fence. The hole collared in the Kingsport formation and was drilled to a depth of 190 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-14	Overburden	———	———	———
14-161	Kingsport	"R" @ 67	Traces of ZnS @ 17'; ZnS shines 21½-22½, est ½% Zinc carbonate (?) @ 32'; ZnS shines 43-45, est 1%	Dolomite, partly brecciated
		"S" @ 120	———	Recrystalline & dolomite with very thin limestone
		"T" @ 161	———	Limestone and recrystalline
161-190	Longview	"U" @ 175	———	Dolomite & some recrystalline
		"L-3" @ 186	———	

Hole ST-17 was drilled 100 feet south of ST-16 on the offset dip fence. The hole collared in the Kingsport formation and was drilled to a depth of 245 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-55	Overburden	———	———	———
55-213	Kingsport	"R" @ 116	———	Dolomite & recrystalline
		"S" @ 178	———	Recrystalline & little dolomite
		"T" @ 213	———	
213-245	Longview	"U" @ 233	———	Dolomite; faulting in "T" bed

Hole ST-18 was drilled 200 feet northwest of ST-13 on the dip fence. The hole collared in the Kingsport formation and was drilled to a depth of 312 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-31	Overburden	———	———	———

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
31-266½	Kingsport		ZnS shines 37-37½, est 1%; 86-86½, est 2%; 87½-88½ est 4%; 102-103, est 1%; shine @ 107; 108-109½; est 4%; 110-111, est 3%; 111-113 est 2½%; 116½-118, est 1½%; shines 124¼-124½; 125-125¼, est 5%; shine @ 126 & 126½; 130½-133, est ¼%; 135¼-137½, est ½_; shine @ 142	Dolomite, strongly brecciated
		"R" @ 187½	_____	Dolomite & recrystalline
		"S" @ 234	_____	Recrystalline & little dolomite
		"T" @ 226½	_____	
266½-312	Longview	"U" @ 296	_____	Dolomite; brecciated in lower part with heavy pyrite

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

January 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - January 1960

Core Hole No. ST-14

Footage drilled 343' @ $3.00/ft. $1029.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy

A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

January 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - January 1960

Core Hole No. ST-15

Footage drilled 440' @ $3.00/ft. $1320.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy

A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

January 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - January 1960

Core Hole No. ST-16

Footage drilled 190' @ $3.00/ft. $570.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy

A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

January 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - January 1960

Core Hole No. ST-17

Footage drilled	245' @	$3.00/ft.	$735.00
Footage reamed	60' @	2.00/ft.	120.00
		Total	$855.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy

A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

January 1960

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - January 1960

Core Hole No. ST-18

Footage drilled 312' @ $3.00/ft. $ 936.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company
B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K JAN 18 1960 O.M.E.

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of December, 1959 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$1,008.00	$107,586.00	$108,594.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	----	2,316.00	2,316.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	----	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	6.25	257.50	263.75			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incidental Allowance @ $ 0.18/ Foot	60.48	6,455.16	6,515.64			
TOTALS	$1,074.73	$116,904.91	$117,979.64	1074.73	116,904.91	117,979.64

I certify that the above bill is correct and just and that payment therefor has not been received.

Date January, 1960 *Payee B. H. Putnam

Per Frederick L. Fischer Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 537.37

Signature Helen R. Miller
(Authorized Certifying Officer)

Date JAN 15 1960 Vou. No. 35

(See other side)

537.36

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [illegible] Title MINING ENGINEER U. S. BUREAU OF MINES Date JAN 14 1960

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date JAN 14 1960

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MR-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of December 1959 Docket No. DMEA 4580 Contract No. Idm - E - 1088

Operator's Name B. H. Putnam Minerals Zinc

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$1,008.00	336	$108,594.00	36,198	$ 3.00	50,000	$ 3.00
Churn Reaming	Foot	----	----	2,316.00	1,158	2.00	5,000	2.00
Auger Samples	Each	6.25	5	263.75	211	1.25	500	1.25
Core Boxes	Each	----	----	290.25	150	1.935	150	2.00
Stripping								
Trenching								
Test Pits								
Roads and Trails								
Incident. Allow. @ $.18/foot		60.48	336	6,515.64	36,198	0.18	50,000	0.18
TOTAL DISTRIBUTED COSTS		$ 1,074.73		$117,979.64				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$ 1,074.73		$117,979.64				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date January, 1960 Operator B. H. Putnam

Per Frederick A. Fischer Title Superintendent

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

JAN 18 1960
O.M.E.

O. J. Lynch
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek
Project, Grainger County, Tennessee

December 1959
by: F. T. Fischer

Docket No. 4580
Contract No. Idm - E - 1088

During the month of December one (1) hole was drilled on the Puncheon Camp Creek Project. Hole ST-13 was drilled 600 feet north of hole ST-1 on the dip fence. This hole collared in the Mascot formation and was drilled to a depth of 336 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-36	Overburden	----	----	----
36-37	Mascot	----	----	Dolomite; cavity below CM estimated @ 40'
43-322½	Kingsport	"R" @ 212½ "S" @ 279 "T" @ 322½	Trace ZnS @ 270½ Trace ZnS @ 287-3/4'	Dolomite & recrystalline Recrystalline & dolomite some breccia
322½-336	Longview	"U" @ 334½	----	Dolomite & recrystalline

ENGINEERING
FOUNDATIONS
INSPECTIONS
ANALYSES
SAMPLING
CONSULTING
RESEARCH

The Bruce Williams Laboratories

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN STREET TELEPHONE MAYFAIR 3-1596

ESTABLISHED 1898

Joplin, Missouri

P. O. Box [illegible]
Thorn Hill, Tenn.

11-7-59

			ZINC CN
[illegible]	[illegible]	#1 210½ - 212½	0.5[illegible]
[illegible]	[illegible]	#2 214½ - 215½	0.[illegible]
[illegible]	[illegible]	#3 217½ - 218½	[illegible]
[illegible]	[illegible]	[illegible] - 223½	1.30%
[illegible]	[illegible]	[illegible] - 224½	1.1[illegible]

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES

Bruce Williams

Invoice

Marietta, Ohio

December 1959

B. H. Putnam
512 Third Street
Marietta, Ohio

In Account With
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - December 1959

Core Hole No. ST-13

Footage drilled 336' @ $3.00/ft. $ 1008.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. H. Putnam DDH-ST-13

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm - E 1088

Hole No.	ST - 13	Collared:	12-23-59
Farm:	W. D. Stapleton	Bottomed:	12-31-59
Location:	N 50,992.28	Depth:	336'
	E 48,273.26	Casing:	BX - 36'; AX - 61'
Elevation:	1,445.22'	Reaming:	None
Drilled by:	Putnam Drilling Co.	Cement:	None
Logged by:	F. T. Fischer		

Top Kingsport	40' est.
Top "R" bed	212½
Top "S" bed	279
Base Kingsport	322½

0-36	Overburden
-37	Dol, med gray
-42	Cavity
-46	Dol, lt-med gray
-48½	Dol, med gray, lt mott, some oxid
-49	Dol, buff, oxid
-51	Dol, lt-med gray, w/tan mott T Gray S @ base
-51½	Dol, med gray,
-52	Dol, med gray & heavy ss, brecciated & sealed w/wh gangue & semi-re-xl
-53	Dol, med gray, lt banded 41° dip @ 53'
-53½	Dol, lt-med gray, brecciated and sealed w/wh gangue
-54	Dol, med gray, mott, lt scatt ss grains over TBS @ base
-55	Dol, lt-med gray
-58	Dol, med gray, lt mott toward base TBS @ base
-60	Dol, med-dk gray, lt mott @ top, scatt wh shears 59 to base; brecc @ base & sealed w/wh gangue Tr FeS_2 @ base
-62	Dol, med-dk gray, w/vug wh gangue in "crackle" in upper 1', mott to banded below ch nod @ base
-66	Dol, med gray, banded, scatt wh shears normal to bedding; ch nod @ 64; some wh gangue-filled shears.
-68½	Dol, med gray, mott, gray ch @ 67; oxid fract w/wh gangue to base
-69	Dol, med-dk gray; gray ch @ base
-72	Dol, med gray; strong banding; TGS @ 70½
-73	Dol, med gray; v sdy throughout; T Gray S @ base
-74½	Dol, lt-med gray; lt banded, CM ss @ 74; heavy ss @ base
-81	Dol, lt-med gray, lt mott w/tan (oxid); "crackle" w/wh gangue @ base 25% core loss 72-84'
-82	Dol, med-gray; siliceous & oxid
-84	Dol, lt gray, oxid
-85	Dol, lt-med gray; mott
-85½	Chert, brown & gray; brown w/ss grains; brecciated & sealed w/chert & wh gangue dol,
-87½	Dol, lt-med brown; ss @ top CM ss @ base over ch over thin CM ss
-93	Dol, lt-med gray; mott 87½-89'; opening @ 89'; T Gray @ 90' mott @ base over TGS
-95½	Dol, lt-med tan-gray, mott w lt tan
-98	Dol, med gray, mott, wh gangue eyelets; lighter toward base; TGS @ base; oxid below 50% core loss 96-111'
-111	Dol, lt tan-gray; oxid
-116½	Dol, lt-med gray; strong banding throughout; ss from 115½ to Cm ss @ base over TGS 39° dip @ 114'
-120	Dol, med tan-brown mott; scatt oxid opening; dk @ base w/oxid opening; 1" GS over thin chert at base
-122	Dol, lt-med tan; lt "crackle" w/wh gangue
-130	Dol, lt gray; ch nod @ 123, 128 and blue chert @ base over ½" GS 50% core loss 122-1
-131	Dol, lt-med green -gray, mott upper pt, banded lower TGS @ base
-137	Dol, lt-med tan, scatt open fractures; blue chert @ 135 and 136 lt shears at base
-138	Dol, lt-med tan-gray, blotchy w/wh silica
-140	Dol, lt tan weathered; open fract & wh gangue frach normal to bedding
-146	Dol, lt tan-gray, lt banded, wh high angle shears w/ gangue @ 144½; ch nod @ base
-148	Dol, med green-gray, banded; T Gray S @ 146½, 147½ and @ base
-153½	Dol, lt-med tan-gray, banded to mott; 4" chert @ base
-155	Dol, med tan-gray; ch over TGS @ base

ST-13 (Cont'd)

-156	Dol, med gray, brecc w/wh gangue	
-158½	Dol, lt-med gray, lt banded	
-159½	Dol, lt gray; wh ch @ base	
-160½	Dol, tan & brown mott	
-167	Dol, lt gray, banded to strong-banded; GS @ 166	
-168	Dol, med gray, lt "crackle"	
-171	Dol, lt-med gray, lt banded; scatt ss 170 to base; 1" GS @ base	25% core loss 161-170
-173	Dol, med gray; blue ch @ 172	50% core loss 170-175
-177	Dol, lt-med, green-gray; lt mott	
-189	Dol, lt-med tan-gray, scatt mott; siliceous 178-179; lt band 180-186; scatt open fract & some lt "crackle" 186 to base; gray ch @ base	37° dip @ 186'
-198	Dol, lt-med green-gray, scatt weak "crackle"; mott & vugular wh eyelets bottom 2 feet	
-200	Dol, med tan-gray, banded; some wh gangue fract TGS @ base	
-201	Semi-re-xl; med gray, mott; 1" GS @ base	
-202	Semi-re-xl; med gray-green, brecc w/ wh gangue	
-206	Dol, lt-med gray, sacchroidal, mott; brecc from 204 to base TGS @ base	
-208½	Dol, med gray-green, band to mott	
-211	Dol, lt-med gray, sacchroidal, wk brecc w/wh gangue; scatt shearing low angle	
-212½	Dol, lt green-gray, banded, lt high angle fract; oxid @ base	
-214	Dol, lt-med to med gray, brecc & sealed w/green shale, blue sh some chert; dry breccia oxid @ base	
-215	Re-xl, med gray, mott to banded, TGS @ base	
-217½	Re-xl, lt-med gray, mott w/ green sh	
-218½	Semi-re-xl, lt tan-gray	
-219	Re-xl, dk brown, lt "crackle"	
-220	Dol, lt gray; brecc & sealed w/ wh gangue & rexl BS & TGS @ base sh oxid	
-223	Re-xl, brown, "crackle" w/vug gangue	
-224	Re-xl, green-gray, fine mott	
-225	Dol, med to lt-med gray, lt banded	
-234	Re-xl, gray & tan mott, scatt wh gangue fract; some vug gangue	
-234½	Semi-re-xl, tan, blue ch @ base	
-238	Dol, med, tan-gray, sh @ 237	
-239½	Re-xl, tan-brown, "blotchy" w/lt gray, siliceous mottling	
-243	Re-xl, brown, gray mott, vugular	
-249	Semi-re-xl, lt-med gray, green	
-250	Re-xl, brown, vugular & mott; 1" GS @ base	
-255½	Dol, green-gray, lt "crackle" @ top; oxid 251½-252½	FeS_2 shines @ 255½
-256½	Dol, med-gray, brecc w/wh gangue	FeS_2 shines in gangue @ 256-6½
-259½	Dol, lt-med gray, scatt lt "crackle" w/ FeS_2	FeS_2 shines
-260½	Dol, med gray	
-261	Dol, v dk gray; mott	
-263	Dol, med-dk gray, gray ch @ base	
-265	Re-xl, dk gray; oxid	FeS_2 shines @ 265'
-269	Dol, dk gray, mott oxid at top; wh gangue w/ FeS_2	40% core loss 263-271'
-271	Dol, med-dk gray, mott; T Gray S @ base	Tr ZnS @ 270½
-272½	Re-xl, tan & white, mott	
-274	Re-xl, dk brown, siliceous, weathered @ 273½; "crackle" toward base; 4" wh chert @ base ofer TGS	
-276	Dol, lt-med gray, lt "crackle", ch @ 275, vug wh gangue eyelets, ch @ base	
-279	Dol, lt-med green-gray, banded upper 1'; TGS @ base	
-281	Re-xl, tan & wh mott; siliceous upper 6"	FeS_2 shines 280½-81
-282	Re-xl, & chert tan	

ST-13 (Cont'd)

-283	Dol, med gray, cherty, TBS @ base	
-286	Chert & green sh fragments, sealed w/ blk & wh mott re-xl; TGS @ 285'	
-287	Ls, lt gray & re-xl, lt tan mott	
-287½	Re-xl, lt tan, mott	
-288	Blue-gray chert, brecc & sealed w/ re-xl	
-291½	Re-xl, tan, w/"crackle" & wh/ gangue; TGS @ base	
-292	Re-xl, lt gray, brecciated & sealed w/wh gangue	
-298	Re-xl, tan; ptly siliceous brecc, w/wh gangue from 293-94; gangue vugular & ptly wh silica; finely brecciated from 295-98, w/wh gangue vugular, FeS_2 shines 295 and 296-96½, and @ 297½	
-299	Dol, med gray, scatt lt shears upper ½'; thin FeS_2 layer 294½; scatt thin layers re-xl	
-300	Re-xl, tan-gray, mott; oxid @ base	
-301	Re-xl, chert & blk sh; FeS_2 layer @ base	
-304½	Re-xl, lt gray, scatt "crackle", blk sh @ base	
-305	Re-xl, gray, mott; gray sh @ base	
-305½	Sandstone, lt-green-gray, CM	
-306	Chert, blue-gray, brecc & sealed w/re-xl	
-309	Re-xl, tan-gray, mott, TBS @ base	
-310	Re-xl, brownish, mott, blue ch @ base	
-311	Re-xl, w/blk siliceous sh	
-313½	Re-xl, lt-med gray, mott w/wh gangue	FeS_2 shines @ 311-311½
-321	Re-xl, tan, mott, TGS @ 319 & @ base	30% core loss 305-316
-322½	Semi-re-xl, med gray, mott w/ scatt wk "crackle"	
-326	Dol, med gray; 1" GS @ base	
-333½	Dol, med gray; lt fract; shearing 330½-331	
-334½	Dol, dk gray	
-335½	Re-xl, tan mott	
-336	Blue chert, brecciated & sealed w/ re-xl & wh gangue	

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

PAID OF VOUCHER & SCHEDULE OF PAYMENTS K- 21

JAN 14 1960 O.M.C.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of November, 1959 Docket No. DMEA 4580 Contract No. Idm -E- 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,215.00 Government Participation: 50 % Amount, $85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$2310.00	$105,276.00	$107,586.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	30.00	2,286.00	2,316.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	3.75	253.75	257.50			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. Allow. @ $.18/Foot	138.60	6,316.56	6,455.16			
TOTALS	$2482.35	$114,422.56	$116,904.91	2482.35	114,422.56	116,904.91

I certify that the above bill is correct and just and that payment therefor has not been received.

Date November, 1959 Payee B. H. Putnam

Per Frederick A. Kinsler Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1241.17

Signature Helen R. Miller
(Authorized Certifying Officer)

Date JAN 12 1960 Vou. No. 33

(See other side)

24

1241.18

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature H. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date DEC 3 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Laurence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date DEC 3 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1962)

Budget Bureau No. 42-R1151.2

JAN 14 1960
D.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of November 1959 Docket No. DMEA 4580 Contract No. Idm - E - 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$2,310.00	770	$107,586.00	35,862	$3.00	50,000	$3.00
~~Churn~~ Reaming	Foot	30.00	15	2,316.00	1,158	2.00	5,000	2.00
~~Auger~~ Samples	Each	3.75	3	257.50	206	1.25	500	1.25
~~Stripping~~ Core Boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
~~Roads and Trails~~ Incid. Allow. @ $.18 ft.		138.60	770	6,455.16	35,862	.18	50,000	0.18
Total Distributed Costs		$2,482.35		$116,904.91				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		$2,482.35		$116,904.00				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date November, 1959 Operator B. H. Putnam

Per [signature] Title Superintendent

Remarks:

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.
DEC - 1 1959

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek
Project, Grainger County, Tennessee

November 1959
by: F. T. Fischer

Docket No. 4580
Contract No. Idm-E-1088

During the month of November two (2) holes were drilled on the Puncheon Camp Creek Project. Hole ST-11 was drilled half-way between holes GD-13 and ST-6 on a strike fence. The hole collared in the Kingsport formation and was drilled to a depth of 385 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-80	Overburden	—	—	—
80-354	Kingsport	"R" @ 244 "S" @ 314½ "T" @ 354	185-185½, est. 2% trace ZnS @ 205 & 208; 210½-211, est ½%; 214½-215, est ¼% 215½-216, est ½%; trace @ 218; 221½-223½, est 1¼% Zinc shine @ 286½ Traces of ZnS @ 331 and 331½; 341-342, est 1½%	Dolomite & recrystalline; some breccia
354-385	Longview	"U" @ 364	—	Dolomite & recrystalline

Hole ST-12 was drilled halfway between holes GD-13 and ST-11 on the strike fence. This hole collared in the Kingsport formation and was drilled to a depth of 385 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-93	Overburden	—	—	—
93-369	Kingsport	"R" @ 245 "S" @ 319½ "T" @ 369	Zinc shines @ 307½, 309½ and 319½	Dolomite, limestone and recrystalline; little breccia
369-385	Longview	"U" @ 379	—	Dolomite

The Bruce Williams Laboratories

ENGINEERING
FOUNDATIONS
INSPECTIONS
ANALYSES
SAMPLING
CONSULTING
RESEARCH

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN STREET TELEPHONE MAYFAIR 3-1856

ESTABLISHED 1898

Joplin, Missouri

[illegible]

10-29-59

[illegible]	[illegible]	Sample 1 (236½ - 237½')	1.16
[illegible]		2 (327½ - 329½')	1.56
[illegible]		3 (332½ - 333')	0.68

20/35

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES [illegible] Bruce Williams

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

November 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp creek Project DMEA Contract No. 4580 - November 1959

Core Hole No. ST-11

Footage drilled 385' @ $3.00/ft. $1155.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy

A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

November 1959

B. H. Putnam
512 Third Street
Marietta, Ohio

In Account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - November 1959

Core Hole No. ST-12

Footage drilled	385' @ $3.00/ft.	$ 1155.00
Footage reamed	15' @ $2.00/ft.	30.00
	Total for ST-12	$ 1185.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

NOV 19 1959

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of October, 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,215.00 Government Participation: 50 % Amount, $85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$3768.00	$101,508.00	$105,276.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	144.00	2,142.00	2,286.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	—	253.75	253.75			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. allow. @ .18/ Foot	226.08	6,090.48	6,316.56			
TOTALS	$4,138.08	$110,284.48	$114,422.56	4138.08	110,284.48	114,422.56

I certify that the above bill is correct and just and that payment therefor has not been received.

Date October 1959 *Payee B. H. Putnam

Per Frederick A. Fischer Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 2069.04

Signature Helen R. Miller (Authorized Certifying Officer)

Date NOV 17 1959 Vou. No. 25

(See other side)

23rd

2069.04

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [signature] Title MINING ENGINEER U. S. BUREAU OF MINES Date NOV 12 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date NOV 12 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

NOV 19 1959
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$3768.00	1256	$105,276.00	35,092	$3.00	50,000	$3.00
XXXX Reaming	Foot	144.00	72	2,286.00	1,143	$2.00	5,000	2.00
XXXX Samples	Each	—	—	253.75	203	$1.25	500	1.25
XXXXXX Core Boxes	Each	—	—	290.25	150	$1.935	150	2.00
Trenching								
Test Pits								
XXXXXXXXXXXX Incid. allow. @ .18/Ft		226.08	1256	6,316.56	35,092	$0.18	50,000	0.18
TOTAL DISTRIBUTED COSTS		$4138.10 08		$114,422.56				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$4138.00 08		$110,284.48				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date October, 1959 Operator B. H. Putnam

Per Frederick L. Fischer Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

REMARKS:

(For Government use only)

GEOLOGIST, U. S. G. S.
NOV - 6 1959

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek
Project, Grainger County, Tennessee

October, 1959
by: F. T. Fischer

Docket No. 4580
Contract No. Ibm-E-1088

During the month of October three (3) holes were drilled on the Puncheon Camp Creek Project. Hole ST-8 was drilled 750 feet east of GD-25 on a strike fence. The hole collared in the Mascot formation and was drilled to a depth of 433 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-31	Overburden	—	—	—
31-164	Mascot	CM @ 164	—	Dolomite
164-426	Kingsport	"R" @ 315 "S" @ 385½ "T" @ 426	Trace ZnS @ 180 ZnS shines 387-387½ Trace ZnS @ 401½	Dolomite, limestone & recrystalline; some breccia
426-433	Longview	—	—	Dolomite

Hole No. ST-9 was drilled 100 feet east of ST-8 on the strike fence. This hole collored in the Mascot formation and was drilled to a depth of 392 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-24	Overburden	—	—	—
24-114½	Mascot	CM @ 114½	—	Dolomite
114½-375	Kingsport	"R" @ 268 "S" @ 336½ "T" @ 375	237-237½, est. 1½% Trace ZnS @ 292;294½-95 & est. ½%; shine @ 299½; shines @ 303,304½ & 305½; 327½-329½ est. 1¼%; shines @ 332½ & 334½ shine @ 339 —	Dolomite, recrystalline limestone; some breccia
375-392	Longview	—	—	Dolomite & recrystalline

Hole ST-10 was drilled 100 feet south of ST-5 on a dip fence. The hole was collared in the Mascot formation and was drilled to a depth of 431 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-50	Overburden	—	—	—
50-142	Mascot	—	—	Dolomite
142-423	Kingsport	"R" @ 312½ "S" @ 380 "T" @ 423	— — —	Dolomite, recrystalline & some limestone; some breccia & "dry" breccia
423-431	Longview	—	—	Dolomite

B. H. Putnam DD-ST-8

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.:	ST-8	Collared:	10/7/59
Farm:	W. D. Stapleton	Bottomed:	10/16/59
Location:	N 50,274.10'	Depth:	433'
	E 47,349.83'	Casing:	BX-30'; AX-120'
Elevation:	1,407.23'	Reaming:	72'
Drilled by:	Putnam Drilling Co.	Cement:	None
Logged by:	F. T. Fischer		

Top Kingsport	164'
Top "R" Bed	315'
Top "S" Bed	385½'
Base Kingsport	426'

ST - 8

0-31	Overburden	
-32	Dol, med-dk gray, fractures, some open shears	
-34?	Dol, lt gray, mott	(60% core loss 31-37')
-37 D	Dol, med gray, mott, eyelets @ 35-36'	(66% core loss 37-40')
-40	Dol, med gray, scatt wh eyelets, lt shears	
-42½	Dol, lt-med gray, strong shearing 40-40½, scatt shears to base, ch nod@ 42, blotchy ch to base, T G S @ base	(50% core loss 49-54')
-43½	Dol, lt-med gray, siliceous strong mott, wh silica is blotchy	(85 % core loss 54-60')
-44	Dol, lt gray, mott. T G S @ base	(70% core loss 60-66½')
-45	Dol, lt-med gray, lt mott	(60% core loss 66½-69')
-46½	Dol, med gray, mott, T G S @ base	(50% core loss 70-72')
-49	Dol, lt-med gray, scatt shears, ch @ base (39°dip @ 38')	
-52	Dol, lt med gray, mott	
-66½	Dol, med-gray, scatt ss @ 54' ch nod @ 59½; strong shears 60-61½ 66	
-72	Dol. lt- med gray, lt banding, few scatt ss grain @ 71-72	
-76½	Dol, lt-med gray; ch @ top, eyelets @ 74' lt banding 74-base	
-79½	Dol, med-dk gray, lt mott, scatt ss grains basal 1'	
-83½	Dol, lt-med gray, shearing @ 81½' normal to bedding mott basal 1'	
-84	Dol, med-dk gray, mott wh gangue blotches	
-85½	Dol, med gray, strong mott basal ½'TGS @ base	
-100	Dol, lt-med gray, heavy ss @ top; mott 86-88; strong shears 86½' sed breccia @ 89' over TGS; scatt open oxid shears 90-93 lt blotches 96½-98, open shear to 100	
-		(30% core loss 87-90')
-102	Dol, lt-med gray, fault breccia; open	(40% core loss 95-102')
-102½	Dol, dk gray, strong shearing throughout	
-103	chert, wh; vugular	
-119	Dol, med-dk gray, vugular mott oxid	(cavity 103-118')
-119½	Dol, dk gray, siliceous to dk gray chert	
-121½	Dol, med dk gray, high angle shearing	(50% core loss 119½-121½)
-122	chert, oolitic	
-122½	sand, CM, blue ch @ base	
-123½	chert, banded, porous	
-128	Dol, lt gray, open shears, oxid, vug @ base	(70% core loss 123½
-130	Dol, med gray, tan mott, med-dk 129-base; vug over TBS @ base	-128)
-138	Dol, lt-med gray, banded, ss @ 132 & 132½; tan 132-133; siliceous & mott @ 132½-133½ scatt ss & vug @ 136 over TBS; scatt ss 136½ to 137½; at 137½ TBS over ss over TBS	
-140	Dol, med gray, lt banded, TBS @ base	
-144	Dol, med-dk gray, banded; FeS_2 shines oxid @ base over 1" Gray S over FeS_2	
-145½	Dol, dk gray, mott.	
-146½	Dol, ltmed gray, open shears light	
-147	Dol, lt-med tan gray, w orange mott siliceous @ top	
-148	Dol, lt gray, lt banded some oxid bands	
-153	Dol, med gray, banded @ top, TBS @ 150 & 150½; lt mott 150½ base	
-154	Dol, brown, strong banded h mott, oxid	
-160	Dol, med-dk gray, lt mott. oxid 167- 168 and eyelets; asphaltic 158-base	
-161½	Dol, dk gray, mott, asphaltic	
-164	Dol, med gray, banded, heavy ss @ base	
-168	Dol, lt-med gray, mott over BS @ base	
-170	Dol, med to med-dk gray, mott to strong mott BS @ base	
-173½	Dol, lt gray, open fracture @ 172, 172½, lt mott @ base	
-176½	Dol, med gray, lt mott T Gray S @ 175½, 176½	
-180	Dol, lt-med gray, mott TBS @ base	

ST-8 (Cont'd)

-181 Dol, med- dk gray, banded, TBS @ 180½ and @ base ZnS shine @ 180'
-185 Dol, med gray, ss @ 181½ darker @ base
-190 Dol, lt gray, scatt small eyelets TGray S @ 187, lt mott to base
- 192 Dol, med-dk gray, banded
-195 Dol, lt-med gray, lt banded, CM type ss @ 193½; scatt ss @ base
-196½ Dol, med-dk gray, strong mott
-198½ Dol, lt-med gray, wh gangue eyelet @ 197 (vugular)
-200 Dol, med-dk gray, banded
-205 Dol, med-dk gray, lt mott, BS @ 200½, blk ch nod @ 204, congl ch @ base
-206 Dol, lt-med gray
-206½ Dol, lt gray
-211 Dol, lt-med gray, CM @ 208, ch @ 208½, banded to 210; CM ss w/ch nod @ 210
-219½ dd, med gray, mott 215-220, T Gray S @ 216 & 218
-221½ Dol, med-dk gray
-229 Dol, lt gray, mott to 226, ch @ 222½; GS @ 226; ch @ 228 FeS_2 @ base
-233½ Dol, med gray, ch nod w/FeS_2 @ 229½, Gray S & FeS_2 @2293/4; FeS_2 shines 230½ & 231 Dolomite banded, lt mott @ base
-237 Dol, lt-med gray, banded, scatt ss 235½ & 236-237
-238½ Dol, med-dk gray, crackle breccia to semi-rexl @ base
-242 Dol, lt gray, mott ch over 1" GS @ base
-244 Dol, med gray, strong mott
-248 Dol, lt gray, lt mott & banded from 245-247; ch nod @ 248' weathered blue ch @ base
-251 Dol, lt-med tan-gray, banded scatt ss over TBS @ base
-255 Dol, lt-med gray, ch nod @ 252, 254&255
-258 Dol, lt-med tan gray, dense; ch nod @ 255½,256½& oolitic ch @ 257, wh gangue fill below oolite Frag ch bed from 257½-258; 1" BS @ base
-259 Dol, dk gray, mott, TBS @ base
-271 Dol, lt gray, eyelets @ top, upper 1½ blotchy; sdy ch @ 262; wh ch @ 264; banded 265-266, lt mott below; banded to base; blue ch over TGS @ base
-285½ Dol, lt-med gray, lge wh eyelet @ 271½; banded over blue ch @ 272½; banded to 276, sugary mottled 276 to 279; banded to base TGS @ base
-290 Dol, lt-med gray, lt banding 287 to 289; 1" GS over dk ch @ base
-292½ Dol, lt gray, lt band
-299 Dol, lt-med gray, disseminated specks of FeS_2; mottled, scatt eyelets stronger mott & dker @ base FeS_2 shines @ base over blue ch
-315 Dol, med gray, lt band; ch nod @ 300' & 301½, lighter color 302 to 308½, TGS @ 308½, Lt mott w/ vugular wh eyelets
-316½ Green shale, w blk & wh rexl & pyrite shines in sh
-321 Semi-rexl, med-dk gray, w gray mott, TGS @ 317
-322 Dol, med-dk, sugary, brecciated sealed w wh gangue
-323 rexl, lt gray-green w 6" GS over TBS w/ pyrite @ base
-325 rexl, med gray-green brecciated 323½, mott below
-328 rexl, med brown-gray brecciated w/ open wh gangue fractures TGS @ 326; ch nod @ 327; brecc. dol, to base
-329 rexl, siliceous, lt-med tan-gray, dk ch @ base over CM ss
-333½ rexl, lt greenish-gray, w/ TGS scatt & wh gangue filled fractures Brecc. basal foot
-334 rexl, med to dk brown-gray, brecciated
-334½ chert, blue to wh, brecciated sealed w/ gexl
-337 rexl, dk brown-gray, highly siliceous, GS @ 335; ch @ base
-341 rexl, lt-med tan gray, mott upper foot siliceous crackle @ base

ST-8 (cont'd)

-345½ re-xl, to semi-re-xl, brecciated w/ opening in wh gangue FeS_2 over blue ch @ base
-347 Dol, med gray, B&W re-xl over TGS @ base
-351 re-xl, lt green-tan-gray, crackle 348-50'
-352½ re-xl, med tan & brown mott, opening in gangue fractures TGS @ base
-359 Dol, lt-med gray-green, scatt fractures w/wh gangue brecc 356-358 Mott @ base
-362 Dol, med-dk brown-gray, brecciated & scaled w/wh gangue 1" GS @ base
-363 Ls, lt-tan w/dk sh partings
-366 Dol, med-dk gray, brecciated
-367 re-xl, lt gray-green, crackle
-369 chert, brecciated
-371 chert, wh weathered, porous
-372 re-xl, med tan gray, crackle
-374 Ls, lt tan gray, siliceous
-375 re-xl, med tan gray, brecc wh/gangue ch @ base
-385½ Ls, tan gray, brecc 375½ & 376½ Sed brecc @ 377½, blk ch @ 378 scatt fractures w/ re-xl; ch nod blk @ 382, blk ch over TBS @ 383 (26' dip @ 383')
-388 re-xl, med-tan-gray, crackle to 388, ch @ base ZnS shines 382-382½
-389 re-xl, med-dk brown gray, siliceous TGS @ base
-393 Ls, tan-gray
-393½ re-xl, med tan-gray, brecc scaled w/ wh gangue
-394 Dol, med gray, crackle, TBS @ base
-400 Ls, lt tan-gray w sh partings, fractures w coarse wh gangue
-403½ re-xl, tan-gray, brecciated @ base w ch ZnS shines 401½
-406 Ls, lt tan-gray TGS @ 404 & 405; many sh parting from 405½- base
-407 re-xl, tan-gray
-408½ Ls, lt tan-gray, dolmitic @ base
-411 re-xl, tan-gray
-413 re-xl, lt tan-gray, strong mott from 411-411½; crackle w wh gangue; 1" GS @ 411½
-419½ Ls, lt tan-gray, dolomitic to 416½, GS partings 417½ - base
-424½ re-xl, tan-gray, mott, wh gangue fractures
-426 semi-re-xl, lt-med gray, wh gangue fractures
-433 Dol, med gray, Gray S & TGS @ 428 over ch, lt fractures upper 2' GS @ 431'

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

October 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - October 1959

Core Hole No. ST-8

Footage drilled	433' @ $3.00/ft.	$1299.00
Footage reamed	72' @ $2.00/ft.	$ 144.00
	Total for ST-8	$1443.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. H. Putnam DDH-ST-9

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.:	ST-9	Collared:	10/19/59
Farm:	W. D. Stapleton	Bottomed:	10/23/59
Location:	N 50,366.35'	Depth:	392'
	E 47,401.97'	Casing:	BX -23'; AX-40'
Elevation:	1391.24'	Reaming:	None
Drilled by:	Putnam Drilling Co.	Cement:	None
Logged by:	F. T. Fischer		

Top Kingsport	114½'
Top "R" Bed	268
Top "S" Bed	336½
Base Kingsport	375

ST - 9

0-24	Overburden
-28	Dol, lt-med gry, mott 26-28, open fracture @ base
-30½	Dol, med tan-gray, mott w/wh eyelets Greenish ss @ base
-31	Dol, lt-med gray, lt mott w/scatt ss @ top
-31½	Dol, lt gray, w/dk mott & eyelets @ top scatt lt shears @ base
-32	Dol, lt-med gray, siliceous (20%) blotchy Oxid parting @ base
-40	Dol, lt-med gray, scatt lt shears from 32-33; open sh @ 33½; lt shears @ 34½ & 35; lt banding 36-38 oxid parting @ 38 lt high angle shears @ 38 (Dip 35° @ 37)
-45	Dol, med gray, oxid parting mott to blotchy; scatt lt shears (open)
-47	Dol, med-dk gray, scatt wh eyelets
-47½	Dol, lt gray, porous chert @ base
-48	Dol, med-dk gray, ss @ 48 (50% core loss 40-58)
-61	Dol, lt-med gray, ss @ 56% oxid scattered eyelets lt mott; oxid parting @ 60½ TGS @ base
-65	Dol, med gray, scatt eyelets & blotches; oxid @ 63
-66½	Dol, dk gray, few scatt wh eyelets; intense shearing @ base (bedding plane)
-67½	Dol, med gray, blotchy; TBS @ base
-68	Dol, med-dk gray, mott to banded
-69	Dol, med tan-gray
-69½	Chert, blue-wh, oolitic w/scatt ss grains, & tan ch below
-72	Dol, lt-med tan-gray, siliceous, oxid & mott lt high angle shears & low angle shears & bedding plane shears
-73½	Dol, med brown; mott to orange, oxid open @ 73
-79	Dol, med gray, lt mott
-80	Dol, med-dk gray, ch @ base, wh open @ 81
-82½	Dol, lt-med gray, scatt ss @ 82; CM ss @ 82½; weathered lt shrs below to base
-83	Dol, dk gray, oxid, strong mott brecciated dk ch @ base
-84	Dol, lt-med gray, siliceous, blotchy
-88	Dol, lt gray, lt banded; scatt ss 87-88
-93	Dol, med gray, lt bnaded, TBS @ 89½
-93½	Gray sh & med dol
-98	Dol, lt-med tan-gray, mott @ top, banded @ base
-102	Dol, lt-med gray, lt banded
-104½	Dol, med gray, lt mott @ base
-106	Dol, med-dk gray, 2" Gray S @ 105
-109½	Dol, med gray, T Gray S @ 108; scatt high angle shears 108 to base
-110½	Dol, dk gray, mott, open shrs @ 110½
-111½	Dol, med gray, few scatt wh eyelets
-112	Dol, dk gray, asphattic, w dk ch nod in middle
-114½	Dol, lt tan-gray, banded, scattered ss over heavy ss over CM ss @ base (38° dip @ 114
-116½	Dol, lt tan-gray, scattered filled fractures
-117	Dol, med- dk gray
-119	Dol, med gray, Blk sh @ base
-121	Dol, med brown-gray, strong mott, oxid
-123	Dol, lt tan, weathered
-124½	Dol, lt-med gray
-126	Dol, med gray, mott
-127½	Dol, dk gray, mott, 1" BS @ base
-131	Dol, lt-med gray, mott TBS @ base
-132½	Dol, med gray, banded, heavy oxid. @ base
-135	Dol, med gray, scatt ss over TBS @ 133, few scatt high angle shears 133½ to base
-142½	Dol, med-dk gray, lt banding to mott; strong mott 138½-140½, heavy banding to base, ch nod @ 142

-144 Dol, lt-med gray, lt banding, ch nod @ 143; open fractures below
-146 Dol, dk gray
-150 Dol, med-dk to med gray, heavy banding; scatt ss @ 148½ & 149½; heavy ss @ 150 T Gray S @ base
-150½ Dol, lt-med tan-gray, oxid
-151½ Dol, med gray, lt mott, T Gray S @ 151½
-155 Dol, lt-med gray, lt mott; TBS @ base
-162 Dol, lt gray, lt mott @ top, heavy ss @ 159 CM ss @ 160½
-165½ Dol, med-dk gray
-171 Dol, med gray, lt mott, T Gray S @ 168 & 170 & @ base
-173 Dol, lt-med gray, lt mott Gray S @ base
-183 Dol, lt gray, lt mott to 177; T Gray S @ 177; ch nod @ 180,181,181½, 182½ and @ base
-188 Dol, lt-med gray, banded T Gray S @ 183½ & 185; scatt ss 187 to base TGS over wh mott blue ch @ base
-190 Semi-re-xl, med tan-gray, mott to banded; wh ch over TGS @ base
-206½ Dol, lt-gray, wh ch nod over TGS @ 193½; porous wh ch @ 197½; T Gray S @ 198½; lt banding 198½ to 201½; T Gray S @ 201½; lt gray to wh ch 203½ & 204, blue-gray ch nod @ 204½, 205½ & @ base
-207 Dol, lt-med gray, sacchroidal, TGS @ base
-219 Dol, lt gray, lt banded; strong healed shears normal to bedding @ 210½; lt gray ch nod @ 212; Fault breccia @ 218, stronger banding to base; blue ch brecc sealed w/green sh @ base
-221½ Dol, lt-med gray, brecciated & sealed w/wh gangue
-222 Dol, lt-med gray, brecc & sealed w/wh gangue & ch TGS @ base (36° dip @ 227)
-228½ Dol, lt gray, ss & sed congl @ 224; wh ch @ 224½; scatt fractures; lt blotches 227-228
-229 Dol, lt-med gray, dk ch @ base
-230½ Dol, lt-med blue-gray, mott
-231½ Dol, lt-med gray, crackle w/wh gangue-ptly open
-236 Dol, lt-med gray, banded, scatt crackle, lt shearing w/ breccie @ 235½, ss over TGS @ base
-239 Dol, lt-med gray, brecciat sealed w/wh gangue <u>ZnS - 237-237½ Est 1½%</u>
-241 Dol, lt-med gray, lt banded @ top; scatt ss 240½ to base
-242 Dol, med gray, brecciated, sealed w/wh gangue
-250 Dol, lt-med gray, scatt open fractures to 234 TBS @ base
-253 Dol, med gray, lt fractures @ 251-252 thin blue ch @ base
-268 Dol, lt-med gray; crackle and open fractures to 255½; lt crackle 265-base
-268½ Green sh
-269½ Dol, lt-med gray, & blk ch; brecciated & sealed w/ green sh, re-xl, chert & some wh gangue
-270 Green sh
-274½ Semi-re-xl, med tan-gray, mott; 1" GS @ 272
-276 Semi-re-xl, med greenish gray, mott; crackle
-280½ Re-xl, brown-gray, brecciated & sealed w/wh gangue GS @ base
-284 Semi-re-xl, med green-graym crackle from 282 to base
-286 Re-xl, brown-gray, crackle; vertical open fractures, vugs; ch nod @ base
-287 Dol, lt-med gray, brecciated & sealed w/wh gangue @ base
-288 Chert, blue-gray, brecciated sealed w re-xl, chert ss @ 287½
-288½ Re-xl, lt green-gray, mott
-290½ Dol, med blue-gray, sacchroidal, crackle; FeS_2 in gangue <u>FeS_2 shines 289½-290 Est 2%</u>
-292½ Dol, lt-med gray, brecciated, FeS_2 in wh gangue @ 291, ZnS in gangue <u>ZnS shines @ 292</u>
-294 Re-xl, brown, brecciated to crackle; vug in gangue @ 293

ST-9 (Cont'd)

-295 Re-xl, lt brown-gray, brecciated, scatt vugs; sealed w/wh gangue, re-xl & chert
ZnS 294½-295 Est ½%
-296 Chert, black, brecc, sealed w/gangue, re-xl chert & green shale Gray S @ base
FeS2 @ 295¼
-296½ Re-xl, lt brown
-297½ Dol, lt-med gray, crackle
-301 Re-xl, tan-gray, lt crackle to strong
ZnS @ 299½
-305½ Dol, lt-med gray, sacchroidal, brecc w/wh gangue, lt open fractures, brecciated ch @ base
ZnS @ 303, 304½ & 305½
-306½ Dol, med gray, lt banded GS @ base
-312½ Re-xl, lt brown, w/green sh mottling, vugs 311 to base Tr FeS_2 @ 309½
-313 Dol, lt-green-gray TGS @ base
-314 Re-xl, med-dk green-gray
FeS_2 @ 313-313½ Est ½%
-316 Dol, lt-med gray, scatt open fractures
-318 Dol, med green-gray, brecc
-319 Re-xl, brown-gray, strong mott
-322½ Dol, dk gray, brecc w/wh gangue from 320 to base, vugs in gangue FeS_2 shine @ 321
-323 Brecciated dol, sealed w/re-xl & green shale
-326 Ls, lt tan-gray, T Gray S @ 324, TGS @ 325, 325½ and @ base
-330 Dol, dk gray, brecciated
ZnS 327½-329½ Est 1½%
-331 Re-xl, lt green-gray, mott
FeS shine @ 328½
-332½ Re-xl, lt tanggray, brecc, w/wh gangue, brecc ch sealed w/wh gangue @ base
ZnS shine @ 332½
-335 Dol, lt-med gray, brecc vugs in gangue
ZnS shine @ 334½
-336½ Dol, lt-med gray, TGS @ base
-339 Re-xl, lt tan-gray, strong mott; siliceous to base ch @ base ZnS shine @ 339
-340 Re-xl, tan-gray, ch @ base
-340½ Dol, lt-med gray, crackle TGS @ 340½ and @ base
-341 Dol, med-gray, re-xl & chert; brecciated sealed w re-xl, blk and green sh Dry Breccia
-342 Dol, lt-med gray, ch nod over G S @ base
-343 Ls, brecciated (sed breccie?) Green sh @ base
-344 Ls, lt-tan-gray, mott
-344½ Chert, black thin banded
-345½ Chert, ltblue-gray, in pt brecc & sealed w tan silica
-349½ Re-xl, lt tan-gray, upper 1½' highly siliceous
-352½ Re-xl, lt brown-gray, scatt open fractures; GS over dk blue to blk ch @ base
-353 Re-xl, lt-tan-gray, strong mott
-355 Dol, med gray, crackle TGS @ base
-357 Dol, med brown w green shale mott, brecc at base sealed w/ GS
-360½ Re-xl tan-gray, mott vugular, blue ch @ base
-365 Re-xl, lt-tan, crackle TGS @ 361½, 361½-362, & @ 363½
-370 Re-xl, green-gray, darker @ base
-372½ Re-xl, v lt gray, mott, siliceous
-375 Re-xl, lt-tan-gray, mott
-380 Dol, med gray, gangue-filled fractures 375-76 & 378-80½; TGS @ base
-385 Dol, med-dk gray, TGS @ 381; gangue-filled fractures 381-83
-387 Semi-re-xl, brown-gray, gangue-filled fractures and few open fractures blue ch nod @ base
-388 Re-xl, lt-brown-gray, w/wh gangue wh ghert @ base
-392 Dol, lt-med green-gray, mott scatt fractures

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

October 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: Fr 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - October 1959

Core Hole No. ST-9

Footage drilled 392' @ $3.00/ft. $1176.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. H. Putnam DD-ST-10

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm - E 1088

Hole No.:	ST-10	Collared:	10-26-59
Farm:	W. D. Stapleton	Bottomed:	10-30-59
Location:	N 50,164.18	Depth:	431'
	E 47,048.43	Casing:	BX - 50'; AX - 112'
Elevation:	1428.84'	Reaming:	None
Drilled by:	Putnam Drilling Co.	Cement:	None
Logged by:	F. T. Fischer		

Top Kingsport	142
Top "R" Bed	312½
Top "S" Bed	380
Base Kingsport	423

0-50 Overburden
-55 Dol, lt-med tan-gray, scatt lt shears, some oxid, wh gangue eyelets (60% core loss 50-53)
-65? Dol, lt gray, shears oxid (83% core loss 53-62) (95% core loss 62-94)
93-94 Dol, lt-med gray, lt open shears
-96½ Dol, med gray, mott; vugs & wh eyelets
-97½ Dol, med-dk gray; mott; wh eyelets
-99 Dol, dl gray, mott; wh eyelets (25% core loss 94-102)
-102 Dol, lt gray, ss @ 102'? Opening @ 102½; siliceous below
-109 Dol, med gray, lt banded (75% core loss 102-108)
-111 Dol, lt gray, ss @ 110' approx. oxid
-118 Dol, med gray, scatt ss @ 118'
-130 Cavity
-132 Dol, lt gray; scatt ss 130½-131; ch nod @ 131; lt open shears; CM ss @ base oxid (39° dip @ 132)
-133 Dol, dk gray, asphaltic
-142 Dol, med-dk gray, mott scatt open shears; some oxid; few scatt eyelets @ base over little congl
-146 Dol, lt gray, to tan, scatt open fract; shear zone @ 144½, low angle T Gmy S @ 145
-147½ Dol, med gray, TBS @ base
-150 Dol, med-dk gray, mott, oxid to brown 149½-150 Shale @ base
-153 Dol, lt-med gray, TBS @ base
-155 Dol, med-dk gray, lt banding; lt shears normal to bedding T Gray S @ base
-160 Dol, med gray, TBS @ 158½ mott to base
-164 Dol, med-dk gray, mott, siliceous to base brown ch @ base
-165 Dol, med-dk gray, banded & blotchy siliceous ch @ 165
-169 Dol, lt-med gray, banded, ch @ 166, eyelets @ 167½
-177 Dol, med gray, banded T Gray S @ 172½, ss @ 175,175½ & over T Gray S @ base (20% core loss 175-184)
-184 Dol, med gray, GS @ 180 mott from 180-183½
-188½ Dol, lt gray, ch nod @ 185½, banded from 187-188 Heavy ss & congl over ch @ 188½
-190 Dol, lt tan-gray, ch nod @ 189 w/scatt ss grains; ss over ch @ base
-198 Dol, med-gray, T Gray S @ 193; TGS @ 196½ & @ base
-200 Dol, lt-med gray, mott TGS @ 199½
-203 Dol, med gray, TGS @ 201 & @ base
-204½ Dol, lt-med gray, mott TBS @ base
-212½ Dol, lt gray, lt mott upper part ch @ 209, 1" GS @ 209½; ch @ 212 & @ base
-224 Dol, med gray, lt crackle; ch @ 213½, 214 & 214½; lt banded below; ch @ 216½ & 217; banded to base, ss @ scatt ss to 224, heavy ss @ 224
-227½ Dol, lt gray, ch nod @ 226½, crackle @ base over blue ch nod
-232 Dol, lt-med gray, lt crackle, @ top scatt shears weak; TGS @ base
-234 Dol, lt gray, mott
-238½ Dol, lt-med gray, lt crackle @ top; ch nod 234½, 235½, & 236; lt banded to mott ss over TGS @ base (36° dip @ 236)
-245½ Dol, med tan-gray, ch nod @ 239½, 240½, 244 & 245; scatt ss @ 245; highly siliceous 245 to base TGS @ base
-246½ Dol, med gray, mott, T Gray S @ base
-257 Dol, lt-med gray, scatt wh eyelets upper 1', lt banding to base, ch nod @ base (40% core loss 252-257)
-259½ Dol, lt-med gray, strong banding, scatt ss, over ch @ base (30% core loss 257-260)
-262½ Dol, lt-med gray, vuggy wh eyelets; upper part blue ch @ 260 wh ch @ 262

-263½ Dol, lt-med gray, highly siliceous w ch, mott
-265 Dol, lt gray, lt banding, scatt fract normal to bedding ss over T Gray S @ base
-267½ Dol, lt gray, banded
-270 Dol, lt-med gray, mott, TGS @ base
-271 Dol, med blue-gray, mott
-276 Dol, lt-med gray, banded w vugular eyelets in upper 1½', TGS @ base
-281 Dol, med to lt-med gray, banded 278-280, few scatt fractures normal to bedding; scatt ss over 1" GS @ base; chert & little med-gray, re-xl beneath shale
-283 Dol, lt-med gray, scatt fractures, brecciated 282-82½ and scaled w/green dol
-286½ Dol, med gray, crackle w/wh gangue & blk jasperoid @ base scaled w/re-xl & blk jasperoid
-288 Dol, med green-gray, mott
-291 Dol, med gray, occasional crackle w/gangue & re-xl & little jasperoid; ch @ base
-295 Dol, med tan-gray, few wh wyelets, blue ch nod, @ 293, crackle w/wh gangue & blk jasperoid beneath; ch @ base
-299 Semi-re-xl, lt-med gray, highly siliceous 298½-299
-305 Dol, lt-med tan-gray, sacchroidal, lt banding; few high angle chears scatt; ss over TGS @ base
-310 Dol, med gray-green, lt mott; scatt lt crackle, vuggy wh eyelets 308½ to base
-312½ Dol, lt-med gray, lt mott to lt banded 3" GS @ base
-314 Re-xl, brown, mott @ top w/wh gangue & @ lower part w blk jasperoid; 1" GS @ base
-315 Dol, med gray-green
-316½ Dol, med tan-gray, mott; scatt tiny vugs
-321 Re-xl, lt gray-green, mott to banded w/green ch
-325 Semi-re-xl, med gray, mott
-325½ Re-xl, brown, mott
-326 Dol, brown, v lt crackle; 2" GS @ base
-332 Re-xl, tan, mott w/green sh; crackle @ 328½ & 330½-331½ sealed w/ wh gangue & blk jasperoid;
-333 Re-xl, brown, crackle w/wh gangue
-333½ Re-xl, tan-gray, brecciated, sealed w/wh gangue, blk jasperoid, green dol
-334 Semi-re-xl, lt green-gray, lt crackle, scatt ss grains over black jasperoid over thin dry breccia @ base
-336 Re-xl, lt tan-gray, brecciated, sealed w/green sh & blk jasperoid, Dry Breccia, ch @ 335½
-339½ Semi-re-xl, lt-med gray, 2" black jasperoid @ 337'
-340½ Re-xl, brown, mott, lt crackle
-341½ Dol, tan-gray; 3" blk jasperoid @ base, brecciated & filled w FeS_2 & wh gangue Some grn jasp crackle filled w/wh gangue
-342 Chert, brecciated scaled w grn shale, re-xl, scatt ss in matrix
-345½ Re-xl, brown, brecciated & sealed w/re-xl, green shale and chert 2" GS @ base
-351 Re-xl, brown-gray, lt mott, crackle 349 to base, lt blue ch @ base
-354½ Re-xl, lt tan-gray, brecc & sealed w/re-xl, green shale wh gangue & black jasperoid dry breccia 1' GS @ base
-360½ Dol, lt-med gray, crackle 356½-57
-361½ Semi-re-xl, med-gray, brecciat w/wh gangue Tr FeS_2
-362 Re-xl, tan-gray, strong mott
-364½ Dol, dk gray, crackle w/wh gangue TGS @ base
-365 Dol, dk brown-gray, brecc sealed w/green dol, re-xl & green shale
-367½ Dol, dk brown-gray, asphaltic odor, wh gangue eyelets, vugalar banded lt chert @ 366½, TGS @ base

-368½	Re-xl, gray, mott; ch over ⅜" GS @ base
-371	Ls, lt tan-gray, TGS @ 370,370½ & @ base
-376½	Dol, dk gray (25% core loss 361-377)
-377½	Dol, med gray, and chert, brecciated w/wh gangue
-378	re-xl, tan gray, brecciated w/chert & re-xl
-380	Dol, lt-med gray, lt banded, TGS @ base
-385	Re-xl, lt brown-gray, strong wh mott ch @ 382,282½ & 384
-388	Re-xl, brown-gray, mott TGS @ 387; TGS over ch @ 388
-388½	Re-xl, brown, ch @ base
-389	Dol, med gray
-390	Green shale, w/ch nods
-391½	Re-xl, lt tan-gray, & ch, brecciated and sealed w/re-xl & green shale
-392	Ls, lt gray, brecciated & sealed w ch & green sh TBS @ base
-392½	Ls, brown w/grn sh blue ch over TGS @ base
-392½	Ls, lt gray
-396½	Re-xl, lt brown, mott, ch @ 393½ and 396
-397	Blue ch, & re-xl, brecciated sealded w/re-xl, ch green sh, Dry Breccia
-400	Dol, med-gray, lower 1½' crackle w/wh gangue TGS @ base
-402	Dol, med-gray, & re-xl, lt tan mott, brecciated & sealed w/wh gangue re-xl green sh
-406	Re-xl, lt gray-tan, stron mott, GS @ 402½ and 403, vuggy sh gangue eyelet @ 404½; wh gangue crackle 404½-406
-409½	Re-xl, brown
-411½	Re-xl, brecc w/wh gangue & green sh
-418	Re-xl, green-gray, mott
-423	Re-xl, gray-brown
-431	Dol, med gray, scatt high-angle fractures; ptly siliceous 427,428 approx (6' core loss 424-431)

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

October 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - October 1959

Core Hole No. ST-10

Footage drilled 431' @ $3.00/ft. $1293.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of September, 1959 Docket No. DMEA 2580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$2712.00	$ 98,796.00	$101,508.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	---	2,142.00	2,142.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	---	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	---	253.75	253.75			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incid. allow. @ .18/ft.	162.72	5,927.76	6,090.48			
TOTALS	$2874.72	$107,409.76	$110,284.48	2874.72	107,409.76	110,284.48

I certify that the above bill is correct and just and that payment therefor has not been received.

Date September 1959 *Payee B. H. Putnam

Per W. T. Kiff Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1437.36

Signature Helen R. Meier
(Authorized Certifying Officer)

Date OCT 23 1959 Vou. No. 20

(See other side)

1437.36

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [signature] Title U. S. BUREAU OF MINES EXECUTIVE OFFICER MINING ENGINEER REGION V Date OCT 22 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title REGION V EXECUTIVE OFFICER DME FIELD TEAM Date OCT 22 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OCT 26 1959
O.M.E.

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of September 1959 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$2712.00	904	$101,508.00	33,836	$3.00	50,000	$3.00
~~Short~~ Reaming	Foot	—	—	2,142.00	1,071	2.00	5,000	2.00
~~Assay~~ Samples	Each	—	—	253.75	203	1.25	500	1.50
~~Stainless~~ Core boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
~~Road and Trail~~ Incid. allow. @ .18/ft.		162.72	904	6,090.48	33,836	0.18	50,000	0.18
TOTAL DISTRIBUTED COSTS		$2874.72		$110,284.48				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$2874.72		$110,284.48				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date September 1959 Operator B. H. Putnam

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.
OCT 22 1959

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek Project, Grainger County, Tennessee

September 1959
by W. T. Hill

Docket No. 4580
Contract No. Idm-E-1088

During the month of September one hole was drilled on the Puncheon Camp Creek Project. Hole GD-35 was drilled 200 feet east of GD-29 on a strike fence. The hole collared in the Mascot formation and was drilled to a depth of 904 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-12	Overburden	---	----	--
12-625	Mascot	CM @ 625	----	Dolomite
625-887	Kingsport	"R" @ 778½ "S" @ 842 "T" @ 887	---- Trace ZnS @ 853½ Trace ZnS @ 866	Dolomite, limestone & recrystalline; some breccia & "dry" breccia
887-904	Longview			Dolomite

RECEIVED
OCT 19 1959

B. H. Putnam DD-GD-35

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.: GD-35 Collared: 9/17/59

Farm: Green-Dalton Bottomed: 10/5/59

Location: N 49,402.45 Depth: 904'

E 47,317.99 Casing: BX-5'; AX-22'

Elevation: ~~1317.30~~ 1311.01' Reaming: None

Drilled by: Putnam Drilling Co. Cement: None

Logged by: F. T. Fischer

Top Kingsport	625
Top "R" Bed	778½
Top "S" Bed	842
Base Kingsport	887

0-11½	Overburden
-12	Dol, lt grey, oxid
-15	Dol, med grey, mud filled solution parting @ 13; solution cavity @ 14 & 14½
-16	Dol, lt grey to yellowish-grey; highly siliceous, wavy banding
-17	Dol, dk grey
-22	Dol, med grey, strong mott @ top, weathered (oxid) shears 20-22, pinkish doloration throughout (1' core loss 20-22); vug @ base
-23	Chert, med grey, oxid
-26½	Dol, lt-med grey, oxid
-27½	Dol, dk grey, oxid @ base
-30½	Dol, lt-tan grey, mott to lt band, (1' core loss 27-33½), weathered
-32	Dol, dk grey, lt band to mott
-33	Dol, med tan grey, mott
-34½	Dol, med tan grey, strong band, eyelets @33½
-35½	Dol, dk grey
-43	Dol, lt-med grey, lt oxid @ top & base
-44	Dol, med grey, banded (1' core loss 40-46)
-50	Dol, lt-med grey, chert & oxid @ base (1' core loss 46-49)
-65	Dol, dk grey to blk, lt band to 59, scatt sh 53-54, fault breccia @ 54, intense sh 56-57, fault breccia @ 57 (fault plane 41), oxid shrs @ 54, 60-61½, 63½, 38° dip @ 58
-74	Dol, med-dk grey, mott @ top, lt oxid shrs @ 67
-78	Dol, dk grey, reddish fracts @ 75½
-82½	Dol, med-dk grey, banded, scatt ss @ base (50% core loss 75-83)
-90	Dol, lt-med tan grey, sed breccia to 85 w. ch 82½-84, lt banding 85½-88, ch nod 88 & 88½, wavy banding to base, ch wh @ base (40% core loss 89-94)
-100½	Dol, med grey, blotchy @ 98½, sed congl 99½-100 (30% core loss 94-100)
-104½	Dol, lt-med grey
-109½	Dol, med grey, lt pinkish mott, TGS @ base
-121	Dol, lt-med grey, pink mott @ top & from 113½-base, reddish banding 112-113
-125½	Dol, med grey, lt oxid shears @ 125
-127	Dol, med-dk grey, lt mott (50% core loss 126-30)
-137	Dol, med grey, mott, TBS @ 131 & 133, pinkish color lower half, eyelets @ 132½
-138½	Dol, lt-med grey, mott, TBS @ base
-141½	Dol, med grey, band @ base
-143½	Dol, med-dk grey, lt mott
-151½	Dol, med grey, ch nod @ 144½, scatt ss @ 145, ch beneath, ch nod @ 148, scatt ss beneath, thin ch nod @ base
-153	Dol, med grey, strong mott
-159	Dol, lt grey, lt banding, open fract @ 157½, (20% core loss 149-159)
-162	Dol, med grey, eyelets 160½, strong mott 160½-162
-165	Dol, dk grey, mott
-168	Dol, med-dk grey, eyelets & vugs @ 166, 167-68
-175	Dol, dk grey, mott, wh gangue fract 171-172, sed breccia @ base over blue ch over ss, some CM
-176	Chert, wh, some green sh
-184½	Dol, med grey, lt mott 181-182½, few scatt grains 183½, scatt ss 184, lge eyelets 184-185
-188	Dol, med-dk grey, banded, asphaltic, blk sh @ 186
-190½	Dol, dk grey, mott. asphaltic
-193	Dol, med-dk grey, mott, blotchy 192-193
-194½	Dol, med grey, mott, silkeous @ base, eyelet @ 194
-195	Dol, v. dk grey, asphaltic

-197 Dol, med-dk grey, v. strong mott @ base, blk sh @ 196½ & base
-199 Dol, med grey, mott
-202 Dol, lt-med grey, banded @ base, ch @ 200, 200½ & 201, TBS @ base
-205 Dol, med grey, TBS @ base
-208 Dol, med grey, mott to strong mott
-216½ Dol, med grey, banded to mott 214-base, hvy ss @ 215, TBS @ base
-218½ Dol, med grey, v. strong mott 216½-217 and 217½-218½
-220 Dol, lt-med grey, banded
-222½ Dol, dk grey, asphaltic, TBS @ 221½
-226 Dol, med grey, strong mott, scatt eyelets
-230½ Dol, med grey, partially gangue-filled vug @ 228, blk sh @ base
-235½ Dol, med-dk grey, TGS @ base
-242 Dol, med grey, ss @ 237 over TGS, lt mott beneath for 1'
-245 Dol, lt-med grey, scatt ss @ 244, v. lge eyelet beneath ss, 40° dip @ 243
-250½ Dol, med grey, shearing 248, strong shearing 248½-249 (little fault breccia) high angle, hvy ss over blk sh @ 249½, small v. low angle fault @ 250 (breccia) mott @ base
-252½ Dol, dk grey, blk sh @ 251, eyelets @ 252, TBS over ss @ base
-256½ Dol, med grey, TBS @ base
-258 Dol, dk grey, TBS over blk ch over TGS @ base
-262½ Dol, med-dk grey, TGS @ 260½, CMSS @ 261, banded dol over blk dol @ base
-263½ Dol, med grey, strong mott, tan mott ch over TBS @ top
-265½ Dol, lt-med grey, lt banding, 40° dip @ 265
-267 Dol, med-dk grey, TBS @ base
-269 Dol, med-grey, banded, ss @ 267½, hvy ss 268-268½, ss & congl over 1-inch blk sh @ base
-270 Dol, blk, asphaltic
-272 Dol, med grey to tan grey, mott
-276½ Dol, dk grey, mott to 274½, wh ch over TGS @ base
-277½ Ch, wh banded
-279 Dol, lt grey, lt banded
-280 Dol, med-dk grey, mott TGS @ base
-282 Dol, lt-med grey, mott to banded, 1" gry sh @ base
-289 Dol, med-dk grey, mott to 286½, banded to base, ss @ base, trace FeS_2 @ 284½
-292½ Dol, v. lt tan-grey, thin ss over TGS @ base
-295 Dol, med grey, lt mott, TGS @ base, FeS_2 traces @ 294½
-303½ Dol, lt-med grey, scatt wh gangue fract @ 299, mott 300-302, TGS @ base
-305 Ch, wh & brn, strong mott
-310½ Dol, med grey, TGS @ base, ch @ 307½
-315½ Dol, med grey, strong mott, FeS_2 shine @ base
-322½ Dol, lt-med grey, banded, vug @ 317, scatt ss @ 319 & 322½
-325 Dol, med grey, mott
-332 Dol, med-dk grey, lt mott, scatt ss over ch over TGS @ base
-332½ Dol, lt-med grey, sacchroidal
-339 Dol, med grey, lt banded, blue ch nod @ base
-345½ Dol, med tan grey, mott to 340½
-350 Dol, med-dk grey, scatt ss over ch @ base
-353 Dol, lt-med grey, banded lower half
-354½ Chert, wh, upper and lower third brecciated & sealed with wh gangue, small vug in breccia, FeS_2 shine @ 353½ & 354½, TGS @ base
-357 Dol, lt-med grey, wk sh @ top, ch nod @ 356, scatt ss over TGS @ base
-361½ Dol, med tan-grey, strong mott, hvy ss @ base over TGS, eyelets @ 361
-364 Dol, lt-med tan-grey, banded to mott, strong fine mott @ base
-367½ Dol, med grey, TGS @ 365½, scatt ss 366-367, TGS @ 367, TGS @ base
-370 Dol, med-dk grey, lt mott

-376½ Dol, dk tan-grey, mott, sdy ch over TGS @ base
-382 Dol, lt grey, lt band
-386 Dol, med grey, brn ch @ 383, strong mott 384-385½
-391½ Dol, lt-med grey, small vug @ 391
-394 Dol, med grey, mott, slightly blotchy, ss over TGS @ base
-401 Dol, med grey, lt mott to 396½, blotchy to 398½, ss over TGS over ch @ base
-403 Dol, med grey, mott
-406 Dol, lt-med grey, ½" GS @ base
-409 Dol, med-dk grey, eyelets scatt, 41° dip @ 407
-415 Dol, dk grey, mott, prominent wh gangue eyelets 412-base, scatt FeS_2 shines
-427 Dol, med grey, mott @ top, eyelets @ top & 417-418, ss @ 416, TGS @ 418, eyelets 419-423
-429½ Dol, med grey, lt banded
-430½ Dol, lt grey, banded, CMSS over ch @ base
-438 Dol, lt-med grey, banded @ top, lt shears @ 433, 436 & 436½
-442½ Dol, lt grey, lt banded, scatt ss 441-base, CMSS over wh ch @ base
-449 Dol, med grey, wh ch @ base
-451 Dol, lt-med grey, v. siliceous and blotchy, scatt ss @ 449½-450½, TGS @ base
-452 Dol, med grey, sed congl over blue grey oolitic ch over CMSS @ base
-455 Dol, med-dk grey, siliceous, mott basal 1-foot nearly all ch
-459 Dol, med grey
-461 Dol, med-dk grey, sacchroidal, mott to banded, eyelets @ 460½
-463 Dol, med grey, ss @ 462-462½
-469 Dol, lt-med grey, mott, small vugs 465-66, ss @ 466-67
-471 Dol, med grey, st mott, sed congl @ 471, 10% silica
-482 Dol, med-dk grey, lt mott to 472
-483 Fault, low angle (bedding plane), extremely intense shearing, dol, med grey
-488½ Dol, med grey, dk from 483½-484½, mott 486-88, ch nod @ base, FeS_2 shines below ch in eyelets
-493 Dol, lt-med grey, lt mott scatt ss to hvy ss @ base
-497 Dol, med grey, mott, few scatt eyelets
-502½ Dol, med-dk grey, mott @ top, scatt eyelets
-508 Dol, med grey, blotchy 503½-504½, ch @ 503, 505, mott lower half, blue ch @ base
-513 Dol, lt grey, lt banded, scatt ss @ 512, fine wh ch frag @ 512, cherty to 513, 42° dip @ 509
-514 Dol, med grey
-515 Dol, lt-med grey, ch nod @ 514½
-519 Dol, med grey, mott
-521 Dol, med-dk grey, mott, blue ch @ base
-524 Dol, med tan grey, ch @ base
-529½ Dol, med grey, ch nod @ 527, ch over ss over ch @ base
-530 Dol, lt-med grey, blotchy
-531 Chert, blue-grey with fine wh "specks"
-536 Dol, lt-med tan grey, lt banding, eyelets & ch @ 534½
-541 Dol, med grey, mott, TGS @ 537½, slightly darker basal 2', TGS @ base
-544 Dol, med grey, lt mott @ top
-546½ Dol, med grey, mott, scatt eyelets
-549 Dol, med-dk grey, strong mott scatt ss @ base
-551 Dol, med grey, mott, scatt small vugs, cherty @ base
-557½ Dol, lt-med grey, wk FeS_2 shines @ 551½ in dol, ch nod @ 553, 40° dip @ 556
-568½ Dol, med grey, TGS @ 558½, lt mott 563-564½, 1" gr sh @ base
-574½ Dol, lt-med grey, ch @ 572½, siliceous 573-base, sdy congl @ base
-577 Dol, med grey, scatt eyelets, TGS @ base
-579½ Dol, med-dk grey, TGS @ 579½

-586	Dol, med grey, scatt eyelets, few blotches, TGS @ 585½
-588	Dol, med-dk grey, ch @ 586½, scatt ss @ 587, hvy ss @ 587½, scatt ss below to ch over 4" gr sh @ base
-592	Dol, med grey
-594	Dol, med-dk grey
-595	Dol, dk grey
-598½	Dol, med grey, ss @ base over blue-grey sh
-605	Dol, lt-med grey, scatt ss @ 601-601½, ss over TBS @ 602½, TBS @ base
-608	Dol, med grey, 1" GS @ base
-609	Dol, med-dk grey, mott, TBS @ base
-611	Dol, lt-med grey, congl ch @ 609½, lt banded
-622	Dol, med-dk grey, TBS @ 611½ & 614, mott 615-620, GS @ 616½, TBS over dk asphaltic dol over TBS @ base
-640	Dol, lt-med grey, scatt ss over CMSS @ 625, sdy ch @ 626, eyelets @ 628, TGS @ 628½, 629½ & 630, ch 630-630½, mott 630-632, TGS @ 638½ & @ base
-643	Dol, lt grey, mott, TGS @ base
-644	Dol, lt-med grey, TGS @ base
-648	Dol, lt grey, ss @ 644½, TGS @ base
-653	Dol, med grey, grey s @ 649½, mott lower half, eyelets @ 652½
-660	Dol, lt-med grey, blue ch nod @ 654, lt banding, ch over wh gangue eyelet @ 656½, ch nod @ 659½, 660, TGS @ base
-669½	Dol, med grey, scatt ss @ 663½, 664, 40% core loss 659-664, 44° dip @ 662 TGS @ 665, lt mott 665-base, thin congl over TGS over ch over ss @ base
-670½	Dol, med tan grey, siliceous sh @ top, crackle @ base over ss
-672	Chert, lt grey to wh, scatt ss grains
-673	Conglomerate, sdy dol & ch
-674	Dol, med tan grey, scatt ss @ top, ss over ch over ss @ base
-686½	Dol, med grey, TGS @ 676, blue oolitic ch @ 679, mott 679-680, lt mott 684-base
-698	Dol, lt grey, lt mott, ch nod @ 689½ & 691½, TGS @ 691, ch nod 694, 695, 696, banded 696-base, ch nod @ base
-704	Dol, med grey, banded, 1" gr sh @ 699½, TGS @ 702½, TGS @ 703, hvy ss 703 to 1" GS over ch nod @ base
-712	Dol, lt grey, ch @ 705½, lt shrs 710 open, ch @ 711, 30% core loss 704-709, ch over TGS @ base
-717	Dol, lt-med, siliceous, wh ch flecks
-742	Dol, lt-med, ch @ 722, vugs below, 2" GS @ 722½, lt banding 724½-729, TGS @ 728 & 728½, banding 732-735, scatt ss @ 735, ch @ 735½, 736½, 737, ss @ 737 below ch, lt band 737-739, lt blotches lower 1', TGS @ base
-748	Dol, lt-med, lt bands 744-747½, TGS @ base
-752	Dol, med grey, lt banding 749½-752, ch @ 749½, scatt ss @ base
-756	Dol, med grey, lt mott upper pt, 40° dip @ 756
-761	Dol, lt-med grey, TGS @ 758, eyelets 759-760½, ch @ base
-765½	Dol, med grey, eyelets upper pt, high angle shear zone @ 763
-768	Chert, wh, brecciated @ base
-772½	Dol, med grey, brecciated @ top, shear zone, TGS @ base
-776	Dol, lt-med grey, lt mott
-777½	Dol, med grey
-778½	Green sh w. some included re-xl
-785	Dol, med grey, sacchroidal, lt mott
-787½	Dol, lt-med tan grey, crackle, 1" grey & gr sh @ base
-791	Semi-re-xl, med tan grey, mott, ch @ base
-796	Semi-re-xl, mott, ch @ 792
-797½	Dol, med grey, crackle @ base
-799½	Semi-re-xl, brecciated (dry)
-801	Dol, med tan-grey, brecciated, sealed w. grn sh, re-xl, etc., dry breccia

-806	Re-xl, med brn, GS @ 802, brecciated w/wh gangue 804-805, semi-re-xl to base
-810½	Dol, med grey, mott, crackle @ 807, ch @ 810, thin gangue-filled fracture @ 809 w. FeS_2 shines, brecciated @ base, brn & gr sh @ base
-819	Re-xl, lt tan greenish (shaly?) crackle 811½-818
-823½	Dol, lt-med grey, open shrs @ 819½, shears @ 820½, eyelets @ 823
-825	Dol, med-dk grey, brecciated sealed w. lt grey dol
-828½	Dol, dk grey, "crackle", vugs & eyelets, fault gorge @ 827 & 828
-829½	Dol, lt-med grey, TGS @ base
-834	Ls, lt grey, fragmental w. numerous gry sh partings, grey sh @ base
-836½	Ls, med grey, fragmental (fossil fragments), ls & grn sh @ base
-838	Dol, med-dk grey, "crackle"
-842	Dol, lt-med grey, gangue-filled fracts, TGS @ base
-847½	Re-xl, lt-med tan-grey, ch @ 846 & base
-849½	Ls, lt-grey, fragmental @ base, TGS @ base
-853	Dol, med grey, brecciated sealed w/wh gangue, FeS_2 shine in gangue, open @ 852½
-857	Dol, lt-med grey, brecciated sealed w. gangue, re-xl, sh, ch (<u>trace ZnS @ 853½</u>) "dry breccia"
-859½	Ls, lt grey, fragmental, TGS @ base, "dry breccia" 859-859½
-865	Re-xl, lt-tan grey, lighter from 863½-base
-866	Dol, lt-med grey, brecciated, sealed w/wh gangue and lt dol
-867½	Dol, med grey, brecciated, sealed w/re-xl, ch, sh & wh gangue, ch @ base
-868	Re-xl, lt-med grey, brecciated, <u>trace ZnS @ 866</u>
-870	Dol, lt-med grey, brecciated sealed w/re-xl & wh gangue, 1" GS @ base
-872½	Re-xl, med tan-grey, brecciated sealed w/sh, ch, re-xl, 871-871½
-874	Dol, lt-med grey, brecc, dry breccia, TGS @ base
-887	Re-xl, lt tan-grey, strong shearing 879½-880, high angle, highly siliceous, (2' core loss 877-887) 886-887
-890	Dol, med grey, brecc, sealed w/wh gangue, ch @ base (66% core loss 887-890)
-892½	Re-xl, med tan-grey, highly siliceous (50% plus) from 891-891½, ch wh @ base
-898	Dol, med-dk grey, basal 1' highly siliceous w. vugs & ch, 34°dip @ 900
-904	Dol, med grey, mott TD 904

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

September 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - September 1959

Core Hole No. GD-35

Footage drilled 904' @ $3.00/ft. $2172.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

SEP 1959 O.M.E.

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of August, 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$5658.00	$ 93,138.00	$ 98,796.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	40.00	2,102.00	2,142.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	6.25	247.50	253.75			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incid. allow. @ .18/ft.	339.48	5,588.28	5,927.76			
TOTALS	$6,043.73	$101,366.03	$107,409.76	6043.73	101,366.03	107,409.76

I certify that the above bill is correct and just and that payment therefor has not been received.

Date August 1959 *Payee B. H. Putnam

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 3021.87

Signature Helen R. Miller
(Authorized Certifying Officer)

Date SEP 22 1959 Vou. No. 16

(See other side)

3021.86

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date SEP 21 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature ..... Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date SEP 21 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

SEP 24 1959
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of August 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafting								
Winzes								
Drilling: Core	Foot	$5658.00	1886	$98,796.00	32,932	$3.00	50,000	$3.00
Reaming	Foot	40.00	20	2,142.00	1,071	2.00	5,000	2.00
Sampling	Each	6.25	5	253.75	203	1.25	500	1.50
Core boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Incid. allow. @ .18/ft.	Foot	339.48	1886	5,927.76	32,932	0.18	50,000	0.18
Total Distributed Costs		$6043.73		$107,409.76				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		$6043.73		$107,409.76				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date August 1959 Operator B. H. Putnam

Per W. T. [illegible] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

Remarks:

(Instructions on reverse)

(For Government use only)

[illegible]
GEOLOGIST, U. S. G. S.
SEP 18 '59

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

The Bruce Williams Laboratories

ENGINEERING
FOUNDATIONS
INSPECTIONS
ANALYSES
SAMPLING
CONSULTING
RESEARCH

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN STREET TELEPHONE MAYFAIR 3-1556

ESTABLISHED 1898

Joplin, Missouri

B. M. Putnam
Box 65
Thorn Hill, Tennessee

8-17-59

		ZINC	
811859	Sample #GD-32-1 1011 - 1013	3.66	12½' @ 1.8% ZN.
860	#GD-32-2 1013 - 1015	0.54	
861	#GD-32-3 1015 - 1019	1.64	
862	#GD-32-4 1019 - 1023½	1.70	$6.75
863	#GD-32-5 1034 - 1037	1.70	

fc/jf 70-736

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES

Bruce Williams

Invoice

Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

August 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - August 1959

Core Hole No. GD-34

Footage drilled 1022' @ $3.00/ft. $3066.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam
512 Third Street
Marietta, Ohio

August 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - August 1959

Core Hole No. GD-33

Footage drilled	864' @ $3.00/ft.	$2,592.00
Footage reamed	20' @ $2.00/ft.	40.00
		$2,632.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

A Progress Report on the Puncheon Camp
Creek Project, Grainger County, Tennessee

August 1959
by W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of August two holes were drilled on the Puncheon Camp Creek Project. Hole GD-33 was drilled 400 feet south of GD-17 on a dip fence. The hole collared in the Mascot formation and was drilled to a depth of 864 feet.

Depth	Formation	Key Marison	Zinc Mineralization	Remarks
0-16	Overburden	---	---	--
16-561½	Mascot	GM @ 561½	---	Dolomite
561½-831	Kingsport	"R" @ 730 "S" @ 787 "T" @ 831	---	Dolomite & recrystalline; some "dry" breccia
831-864	Longview	"U" @ 843	---	Dolomite & recrystalline

Hole GD-34 was drilled on the dip fence 300 feet south of GD-33. The hole collared in the Mascot formation and was drilled to a depth of 1022 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-11	Overburden	——	——	—
11-717	Mascot	CM @ 717	——	Dolomite
717-987	Kingsport	"R" @ 880 "S" @ 936 "T" @ 987	——	Dolomite, re-crystalline & limestone
987-1022	Longview	"U" @ 999	——	Dolomite, re-crystalline & limestone

B. H. Putnam DD-OD-33

Copper Ridge Project - Pumcheon Camp Creek

DMEA Idm-E 1088

Hole No.: OD-33 Collared: 8/10/59

Farm: Green-Dalton Bottomed: 8/26/59

Location: N 49,131.70 Depth: 864'

E 46,442.49 Casing: BX-10'; AX-70'

Elevation: 1412.65 Reaming: 20'

Drilled by: Putnam Drilling Co. Cement: None

Logged by: W. T. Hill

Top Kingsport	561½
Top "R" bed	730
Top "S" bed	787
Base Kingsport	831

0-16	Overburden
-17	Dol, lt grey, mott, blotchy
-19	Dol, dk grey, conglomeratic
-21	Dol, med grey
-37	Dol, lt grey, pink mott., some oxidation
-42	Dol, med grey, lt pink bands, ch nod @ 38, 40½
-50	Dol, lt-med grey, oxidised, broken core, silic near base
-51	Dol, med grey, sed congl with ss (2" core recovery 50-57)
-57	Dol, lt-med grey
-59	Dol, med-dk grey, ch nod @ 58½, few oxid fracts
-76	Dol, lt grey, mott (1' core loss 71-76)
-77	Dol, med-dk grey
-78½	Dol, med grey, hvy mott
-84	Dol, med-dk grey
-86	Dol, med grey, mott
-92	Dol, dk grey, hvy mott, grn sh @ base
-93	Chert, white
-103	Dol, med-dk grey, v. lite crackle with grn shale fillings
-106½	Dol, lt-med grey, oxidised, ch @ 108½
-118	Dol, med-dk grey, broken, lt mott, blotchy
-124	Dol, lt grey, banded, lt ss @ 120
-127½	Dol, lt-med grey, banded & mott
-129	Dol, med grey
-130	Dol, med grey, banded, scatt ss (1' core loss 129-135)
-135½	Dol, lt-med grey, lt ss @ 133½, TGS @ 134
-136	Chert, thin blue band
-139	Dol, lt-med grey, lt bands
-142	Dol, dk grey, thin vert. shear
-159	Dol, lt grey, mott 142-144, TGS @ 144, v. lite bands 144-base, some pink lt ss @ 150½, 150, TGS @ base
-160	Dol, med grey
-162	Dol, lt grey, mott
-164	Dol, med-dk grey, blotchy
-166½	Dol, lt-med grey, banded, hvy ss plus ch @ 166
-168½	Dol, med grey, shaly, brn ch nod @ 167
-169½	Dol, dk grey
-179	Dol, alternate lt & med grey, scatt ss 169½-170, hvy ss plus TGS @ 170, oxid shale @ base, some banding
-182½	Dol, lt grey, v. lite bands, thin ch plus lt ss @ base
-185½	Dol, lt grey, hvy bands, scatt ss, GMSS @ base
-188	Dol, med grey, mott, oxid, few chert filled fracts
-194	Dol, med-dk grey, sugary, calcarenite 192, TGS @ base
-196	Dol, lt grey, sed congl @ base, lt fracts
-202½	Dol, dk grey, asphaltic, TBS @ base
-204½	Dol, med-dk grey, TGS @ base
-209	Dol, lt grey, hvy ss @ 205½, hvy grn sh @ base
-213	Dol, med grey, lt mott, TBS @ base
-214	Dol, dk grey, hvy mott
-220	Dol, med-dk grey, mott & banded, TGS @ 215½, ch @ 218, v. lite ss @ base
-221	Chert, white
-228	Dol, med grey, ch @ 226½
-231	Dol, med-dk grey, hvy mott, calcarenite
-239½	Dol, lt-med grey, banded, lt ss 233-234

-245½	Dol, dk grey, hvy mott, porous
-246½	Chert, white
-251½	Dol, lt grey, banded, ch nod @ 247½
-254	Dol, med grey, hvy mott, siliceous
-270	Dol, med grey, very vuggy, steep angle, shears throughout, core badly broken, some core loss
-272	Chert, white (272-276, 3' core loss)
-276	Dol, lt grey, ch nod plus ss @ base
-279½	Dol, lt grey, mott, v. lite ss plus TGS @ base
-280	Re-xl, mott, TGS @ base
-282½	Dol, lt grey, banded, scatt ss 281-282½, TGS @ base
-286½	Dol, lt-med grey, mott, spotted, TGS @ base, thin shear @ 286
-293½	Dol, med-dk grey, mott, v. lite ss plus ch @ base
-294	Re-xl, med grey, hvy mott, <u>trace ZNS</u>
-300	Dol, lt grey, mott, few eyelets
-303	Dol, med grey, hvy mott, lt ss @ base
-318	Dol, med grey, mott 312-316, v. lite ss @ base
-321	Re-xl, brn, very siliceous
-326	Dol, lt grey, lt BP gangue fracts, TGS @ base
-346	Dol, med-dk grey, lt shear 329½, hvy mott 331-335, blotchy 335-346, spotted 341-346, lt shear @ base, ch nod @ base
-358½	Dol, lt grey, lt bands
-362	Dol, v. lt grey, banded, ss 358½, 359½ (some CM)
-367½	Dol, med grey, steep angle shear @ 362½, scatt ss @ base
-370	Dol, lt-med grey, semi-xl, silic, oolite @ top, lite ss throughout, hvy grn sh @ base
-379½	Dol, med grey, mott, vuggy 375½
-382½	Dol, lt grey, mott, ss 379½-381½, spotted
-394½	Dol, dk grey, lt mott
-401	Dol, med-dk grey, mott, hvy BP fault @ 394½, shears 394½-397, v. lite ss @ base
-417½	Dol, med-dk grey, mott, spotted, ss @ 403, lt shears @ base
-424½	Dol, med grey, mott, lt ss 418½, silic 422½-424½
-425½	Dol, med-dk grey, sugary, sandy
-430	Dol, lt grey, banded, lt ss @ base, scatt shears throughout
-430½	Chert, white
-432	Dol, lt grey, very siliceous, shear @ base
-435	Dol, med grey, mott, 1/2 silica 432-433, blue ch @ base
-438½	Dol, lt grey, very fine-grained, shaly, sheared @ 436, blue ch @ base
-443	Dol, med grey, steep angle fault 439
-444	Chert, dolomitic, blue lite ss
-446½	Dol, med grey, mott, lt fracts with grn shale filling
-453	Dol, lt grey, banded, lt ss @ base over grn sh & brn ch nod
-457½	Dol, med grey, mott
-459½	Dol, dk grey, mott
-465	Dol, lt-med grey, hvy blue mott, steep angle shears 463-465
-466½	Dol, med grey, banded, scatt ss @ base
-469	Dol, med grey, hvy mott, ss 466½-467½, lt ss @ base
-478½	Dol, lt-med grey, shear @ 471½, ch nod @ 473½
-486½	Dol, med grey, mott, blotchy
-489½	Dol, med grey, banded, lt ss @ base
-492½	Dol, lt grey, mott, ch nod (sheared) @ 490, silic 492-492½
-499	Dol, med grey, lt mott, spotted, lt ss plus congl @ 494
-508	Dol, dk grey, spotted, mott 506-508, ch @ 507

-509 Chert, oolite, brecciated, sandy
-511 Dol, lt-med grey, mott, sed breccia with grn sh & ss
-513 Dol, med grey, hvy mott
-519 Dol, med grey, darker toward base, TGS @ base
-522 Dol, lt-med grey, grn sh plus hvy ss @ base
-536½ Dol, med grey, few spots, scatt ss 524-525½, hvy ss @ 525½, mott 534-536, ch oolite @ base
-551 Dol, med grey, ch nods 537½, mott 544-545½, spotted 545½-base
-552 Dol, dk grey, mott, ch nod @ 551½, 552
-558 Dol, med grey, hvy grn sh @ 553, darker toward base
-559 Dol, dk grey, brecciated
-560½ Dol, med grey, banded, lt crackle (dry), TBS @ base
-567 Dol, med grey, hvy ss in dol breccia @ top, lt ss 563-564½, dry breccia 564½-565½, sed congl @ base
-568 Dol, v. lt grey, hvy mott, siliceous
-571½ Dol, lt grey, lt bands, ss @ 569
-589 Dol, med grey, dry breccia 577-584, ss @ 583, 586, TGS @ base
-594½ Dol, med-dk grey, spotted, ch @ base
-610 Dol, med grey, mott 594½-596, banded 599-603½, mott 606-610, scatt ss 603-604, ss plus TGS @ base
-617 Dol, lt grey, banded, sed congl plus ss 615-616, darker 616-617
-622 Dol, dk grey, ss @ 617½
-628 Dol, med grey
-632½ Dol, dk grey, spotted, ss @ base
-642 Dol, lt grey, mott 632½-636½, hvy grn sh 636½, ch @ 636, lt bands 636½-base, ch @ 641½, base
-650 Dol, lt-med grey, well banded, hvy ss 647-650, TGS @ 650
-650½ Chert, blue
-654 Dol, med grey, silic @ top, lt ss, ch plus TGS @ base
-655½ Dol, med grey, mott
-661 Dol, lt grey, mott, ch @ 658½, 661, lt ss 661
-669 Dol, med grey, ch @ 687, 667½, 668, sil 668-669, hvy grn sh @ base, crackle (dry) @ 666
-677 Dol, lt grey, lt bands, ch nod @ base
-683 Dol, med grey, lt bands, lt ss @ base
-683½ Chert, blue
-691½ Dol, lt-med grey, ch nods @ 685, 685½, 686½, v. lt ss @ 687½
-693 Dol, med-dk grey, hvy mott, cherty @ top & base
-698 Dol, lt grey, banded, scatt ss 697½-698, grn sh @ base
-702½ Dol, med grey, lt mott, scatt ss 702-702½, hvy grn sh @ base
-706½ Dol, med grey, banded & mott, few spots, ch nod @ 699
-709½ Dol, med grey, hvy mott, ch nod @ base
-714½ Dol, med-dk grey, few spots, ch band 710½
-730 Dol, med grey, mott, dry breccia 719, 722-724, 728½-730
-737 Dol, med grey, v. hvy mott, dry breccia 730-731½
-738 Dol, v. lt grey, banded, v. lt ss plus grn sh @ base
-740 Re-xl, dk grn'ish brn, shaly
-741 Dol, lt grey, banded, lt ss @ base
-746½ Re-xl, grn'sh, dk brn, hvy mott, silic 741-741½ plus ss, vuggy near base
-749½ Dol, lt grey, banded, hvy grn sh 748 plus lt ss
-755½ Re-xl, dk brn, hvy mott, hvy grn sh plus ss @ 755-755½
-756½ Dol, lt grey, banded, lt ss @ base
-758½ Re-xl, dk brn, hvy mott
-760 Dol, lt grey, mott, ch nod @ 760
-767 Re-xl, greenish brn, hvy mott

-772	Dol, med grey, hvy mott, few spots, v. lt crackle
-782½	Dol, dk grey, spotted, some crackle, hvy grn sh & frag ch @ 779-779½, dry breccia 780-782½
-786½	Dol, med-dk grey, thin re-xl @ top, hvy mott, dry breccia @ base
-788½	Ls, brn, brecciated
-800	Dol, med grey, 788½-789½ dry breccia, 790½-791½, 798-800, banded @ 800
-801	Re-xl, dk brn, silic, thin lt grey dol @ base
-802	Chert, blue
-807½	Dol, med grey, mott, ~~dryxxxxxx~~ ch @ 803, 804, 806½-807
-812½	Dol, med grey, mott, dry breccia
-814	Re-xl, black, med-grained
-815½	Re-xl, brn, mott, hvy grn sh @ base
-818	Dol, lt grey, brecc (dry)
-831	Re-xl, black, med-grained, scatt ss, some reddish coloring @ top plus some ch nods
-834	Dol, med grey, mott
-843	Dol, med grey, lt brecc near base, ch nods 839
-843½	Chert, oolitic, brn, thin re-xl @ base
-850	Dol, med grey, hvy mott
-851	Limestone, shaly, hvy grn sh @ base
-862	Dol, med grey, ch nod @ 853, 859 (green), thin re-xl @ 859, hvy mott, v. hvy ss @ base plus grn sh
-864	Re-xl, banded, brown, ch @ 862, 862½

B. H. Putnam DD-GD-34

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.: GD-34 Collared: 8/28/59

Farm: Green-Dalton Bottomed: 9/15/59

Location: N 48,879.20 Depth: 1022'

E 46,585.64 Casing: BX-10'; AX-20'

Elevation: 1331.38 Grnd Reaming: None

Drilled by: Putnam Drilling Co. Cement: None

Logged by: W. T. Hill & F. Fischer

Top Kingsport	717
Top "R" bed	880
Top "S" bed	936
Base Kingsport	987

0-11	Overburden
-24	Dol, med grey, mott, ch @ 24
-33½	Dol, med grey, banded, oxid @ 30
-35	Dol, med-dk grey
-35½	Chert, white
-37½	Dol, med grey, (brecc (sed) sealed with sand & grn sh
-41	Dol, med grey, hvy bands, brecc from 40-41 sealed with blue chert
-50	Dol, dk grey, mott & spotted, asphaltic
-55	Silica, black (calcarenite?), porous, 90% SiO_2
-60	Dol, med-dk grey, hvy mott, spotted
-69	Silica, arenite, med grey, in part bleached
-78	Dol, med grey, mott
-92	Dol, med grey, darker toward base, v. lt bands, ch @ base
-96	Dol, med grey, banded, cherts @ 93, 94
-103	Dol, med grey, mott, TGS @ 99, 101, 102
-105	Dol, med-dk grey
-113½	Dol, med grey, pink mott
-119	Dol, med grey, mott
-124	Dol, lt grey, dry brecc 120-121, lt scatt shears throughout
-130	Dol, dk grey, banded, lt scatt shears
-138	Dol, med grey, spotted 135½-138
-152½	Dol, med grey, mott 142½, some pink coloring, banded 150-base, TGS @ base
-161	Dol, lt grey, lt bands, ch @ 153, 153½, 158
-167	Dol, med grey, ch @ 161½, TGS @ 165½
-171	Semi-xl, hvy mott
-180	Dol, med grey, TGS @ 171½
-183½	Dol, lt grey, banded, spotted
-186	Dol, med grey, banded, lt ss @ 184½
-192	Dol, med grey, mott, pink coloring, hvy grn sh @ base
-192½	Chert, blue
-198	Dol, lt-med grey, crackle, few lite shears
-208	Dol, med-dk grey, rubble brecc @ 198½, mott
-209½	Dol, lt-med grey, calcarenite, sandy
-216	Dol, med grey
-220	Dol, med-dk grey, mott, lt ss 219-220, ch @ 219½
-226	Dol, med grey
-235	Dol, lt-med grey, mott, ch @ 228½, 229½, 232
-237½	Dol, med grey, hvy mott, sugary
-245	Dol, dk grey, v. lite bands @ top
-250	Dol, black, hvy mott 245-247, lt mott base
-252	Silica, porous, some grn sh, ss @ base
-259	Dol, med grey, few spots, lt bands, ch @ 256, 257
-259½	Dol, med grey, hvy mott, ch @ base
-265	Dol, med grey, banded, v. lite ss @ 261½, TGS @ base
-277½	Dol, dk grey, mott, blotchy, ch band @ base
-278½	Dol, med grey, mott
-279½	Dol, lt grey, banded, ss over chert oolite @ base
-284	Dol, med grey, few spots, TGS @ base
-289½	Dol, med grey, banded
-290½	Dol, lt-med, hvy bands, scatt ss throughout
-295½	Dol, med grey, blue mott, lt bands, hvy grn sh @ 293 under ss
-299	Dol, med grey, hvy mott
-304	Dol, lt grey, banded, ch nod @ 300

-309 Dol, med grey, hvy mott, TGS @ base, spotted
-318½ Dol, med grey, banded, ss @ 313, hvy ss @ base
-329½ Dol, med-dk grey, mott 318½-325, banded 325-base, ss plus TGS @ base
-331 Dol, lt-med grey, hvy mott
-345½ Dol, med grey, ch nod plus TGS @ 340, hvy ch band @ base
-346½ Dol, dk grey, hvy mott
-353 Dol, med grey, lt bands, hvy bands 351-353, hvy ss plus sed congl @ base
-362 Dol, dk grey (1½' core recovery 354-358), ss over chert @ base
-365 Dol, med grey, oxid @ base, mott
-370 Dol, med-dk grey
-371 Dol, med grey, mott, conglomeratic
-373 Dol, med grey, banded, hvy ss @ 372, 372½-373, scatt ss, TGS @ base, scatt shears 371½-372½
-377½ Dol, lt grey, TGS @ base, lt shears @ 376, scatt open fracts 376-base
-386 Dol, med grey, mott, lt scatt ss @ 384 over TGS
-388½ Dol, med-dk grey, spott, mott
-389 Chert, in part white
-394½ Dol, med grey, lt bands, thin wh ch band @ 389½
-400 Dol, med grey, hvy mott, sugary, from 398 to base very siliceous
-406½ Dol, lt grey, banded, ss @ 402½
-417½ Dol, med grey, darker from 412½-base, mott 412½-base, vugs 414½-416
-418 Chert, white
-420 Dol, lt-med, TGS @ base
-426 Dol, med grey (30% core loss 420-423), banded 420-421, mott 421-426 ch nod @ 421½, lt shears 425-426
-435 Dol, med grey, ch @ 435
-437½ Dol, lt-med grey
-438 Chert, white (437½-440½, 2' core loss)
-448 Dol, med grey, mott 442-base, scatt ss @ 445, 1" grn sh @ base, ch nod under sh
-451½ Dol, lt-med grey, banded, scatt ss @ 449, 449½-450
-455 Dol, med grey, eyelets
-461½ Dol, dk grey, mott 456-458, lt banding 458-460, mott 461
-462 Dol, med grey, hvy mott, ch @ base
-467 Dol, lt grey, mott, eyelets
-470 Dol, med grey, mott 468, TGS @ 468, stronger mott 468-base
-475½ Dol, lt-med grey, mott 473
-481 Dol, med grey, mott, eyelets 477-478½
-485 Dol, med-dk grey, eyelets 483, weak shears 481-482, intense shearing 484-485½, ss @ 485½
-487½ Dol, med grey, mott, ch nod @ 486
-493 Dol, med grey, lt bands 495½-496, lt mott 497-497½, TBS @ base
-501 Dol, dk grey, mott, scatt ss 500½-base, hvy @ base
-511½ Dol, med-dk grey, mott, blotchy, scatt eyelets, ch @ base
-526½ Dol, lt-med grey, CMSS @ 514½, 515, ch @ 515, mott 519½-520, scatt ss 520-520½, 521, sed congl @ 522, scatt ss @ 525½-base, ch over CMSS over TGS @ base
-533 Dol, med grey, ch nod @ 528½, large eyelets @ 538, ch nod @ 538½, lt scatt ss @ base
-535 Dol, lt-med grey, mott (strong), hvy ss @ 533½, scatt ss 533½-base, 10% SiO_2
-536 Chert, white, blue-grey ch @ base
-542 Dol, med grey, bands @ top, mott throughout, TGS @ base
-547½ Dol, med-dk grey, mott 545, eyelets 545, blotchy 545-545½, banded base, scatt ss @ 546-547½
-550 Dol, lt grey, mott, hvy ss 548, scatt ss-base
-555 Dol, med grey, mott
-570 Dol, med-dk grey, vug @ 555½, lt shears @ 565, mott 565-base
-572 Dol, med grey, mott

-575½ Dol, lt-med grey, mott, scatt ss 574½-575, hvy ss @ base
-585 Dol, med-dk grey, mott, ch @ base
-586½ Dol, lt grey, highly siliceous
-590 Dol, med grey, mott
-591 Chert, white
-594½ Dol, lt grey, banded, scatt ss 593½-base
-595½ Chert, white
-598 Dol, med grey, ch @ 596, mott 597½-base, TBS @ base
-601½ Dol, med-dk grey, mott, ch 600½-601
-609 Dol, lt grey, banded
-609½ Chert, white
-618 Dol, med-lt grey, mott, lower 3' banded, TGS @ base
-624½ Dol, med grey, mott
-627 Dol, med-lt grey
-630 Dol, lt-med grey, mott, scatt ss @ base
-648½ Dol, lt-med grey, scatt ss @ top, 631, 633½, silic 633½, mott 630-638½, 642-base
-652 Dol, med-dk grey
-653 Dol, med grey, scatt ss @ top, scatt ss over ch @ base, intense shearing at base
-655 Dol, lt grey
-660 Dol, med grey, hh 657-657½ (white), scatt ss 656½-657½, 658
-671 Dol, med-dk grey, TGS @ 663½, spotted, ch @ 670
-679 Dol, lt-med grey, spotted @ top, ss @ 671½-672, banded 673-675
-684 Dol, med-dk grey, ch @ base
-686 Dol, med grey, spotted 685-base, hvy ss @ 685
-695½ Dol, lt-med grey, lt bands, ch @ 696, scatt ss @ 697-697½
-699 Dol, med grey, mott, ch @ base
-707 Dol, med grey
-713 Dol, med-dk grey, mott 707-709
-714 Dol, dk grey, mott, ch @ base
-717 Dol, lt-med grey, lt banded, ss @ 716½, CMSS @ base
-729 Dol, med grey, mott 721-722, scatt ss @ top, ch nod @ 719, banded 721-721½, TBS @ 722, mott @ base
-743 Dol, lt-med grey
-746 Dol, med grey, mott throughout, ch @ base
-753 Dol, lt-med grey, lt band, intense shearing fault 749-751, ch nod 751, 751½, base
-764 Dol, med grey, banded top to 755, shears 754, 755½-756½, scatt ss @ 755½-756, 756½, 757, Dip 36° @ 753½, (25% core loss 755-765)
-770 Dol, lt-med grey, lt banded, ch @ 767, ss & cong @ 767½, ss over ch over ss @ base
-785 Dol, med grey, TGS over scatt ss over TGS @ base
-796 Dol, lt-med grey, shears @ 787, 789, 790, blue ch @ base
-802 Dol, lt-med grey, banded, scatt ss @ 800½ & 801-802, ch nod @ base
-806 Dol, lt-med grey, mott @ top, ch @ 805½, 2" GS @ base
-810 Dol, lt-med grey, mott throughout, ch nod @ 809
-811 Chert, siliceous gr sh @ top, ch nod w. ch matrix, mm scatt ss
-816 Dol, lt-med grey, mott @ top, ch nod @ base
-819 Dol, med-dk grey, ch nod @ 817½
-820 Dol, med grey, wh ch frags (sed breccia), TGS @ base
-821 Dol, med-dk grey, mott TGS @ base (1/2")
-824 Dol, lt grey
-825½ Dol, med grey
-831½ Dol, lt grey, TGS @ 828, ch @ base

-835 Dol, lt-med grey, banded, scatt ss @ 832½, blue ch 833-834
-841 Dol, lt-med grey, ch @ 836½ & 838, scatt ss @ 838½
-845 Dol, med grey, mott 843-base (37° dip @ 845)
-850 Dol, lt-med grey, banded, scatt ss 849½-850, TGS @ base
-855 Dol, lt-med grey, lt banding 851½-853½, scatt ss 854, 2" GS over ch @ base
-862 Dol, lt-med grey, mott 858-860, eyelets 861-862
-880 Dol, med grey, ch @ 862, TGS @ 862½, scatt ss @ 873½, TGS @ below ss, lt mott 874-base, eyelets @ 876
-880½ Sh, red and green over green
-881½ Dol, dk grey, mott
-883½ Dol, lt-med grey, mott @ top
-888 Dol, med grey, mott red & green, 1" GS @ base
-891 Semi re-xl, med-dk grey, mott
-892½ Re-xl, lt-med grey, re-xl mott
-894½ Dol, med grey, GS & ch nod @ base (ch brecc sealed w. ls)
-894½ Ls, white
-899 Re-xl, sealed w. gr sh, ch, etc. "dry brecc", brecciated ls sealed w. red and green sh @ base
-904½ Ls, lt grey, red & ochre sh @ 902
-905½ Dol, dk grey to reddish, banded @ base
-911 Ls, lt grey, some red coloring
-913½ Re-xl, lt-med grey, TGS @ 912½
-917½ Dol, lt-med grey, mott
-921 Dol, med-dk grey, brecciated, sealed w. white gangue and gr sh
-927 Ls, lt-med grey, TGS @ 921½, 922½, 923½ & base
-929 Dol, med-dk grey
-932 Dol, lt-med grey, mott, brecciated "dry breccia"
-933½ Ch, brecciated
-936 Dol, lt-med grey, brecciated, FeS_2 shines, vug @ 935½
-941½ Re-xl, lt-med grey, brecc (10% core loss 923½-941½)
-951½ Ls, lt grey, ch @ 943½, 950½
-953½ Re-xl, med grey, mott
-954½ Re-xl, lt-med grey
-956 Re-xl, med grey, mott
-959 Re-xl, lt-med grey, mott
-962 Dol, lt-med grey, mott, brecc 960-961, ch @ 961½, ls, lt grey, TBS @ 962½, re-xl 972½-973½, TBS @ 974½
-979 Red coloration to partly re-xl to 976
-980 Re-xl, med grey
-984 Ls, lt grey
-987 Re-xl, med grey, TGS @ 986½
-988 Dol, lt-med grey, blue ch @ base
-1004 Dol, med grey, brecciated, brecciated ch @ 989, red color @ 992½-994, 999, and 1001, vug @ 999½, mott 1000-1004
-1007½ Chert, some re-xl
-1010 Ls, lt grey
-1011 Chert
-1013 Ls, lt grey (30% core loss 1011-1014) Dip 37° @ 1012
-1014 Re-xl, med grey
-1017 Dol, med grey, brecc, sh @ 1014½, GS @ base
-1018½ Re-xl, med grey
-1019 Dol, med grey
-1020½ Re-xl, med grey, mott, sh @ base
-1022 Dol, lt-med grey, ch @ 1021, hvy CMSS over ch @ base

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of July, 1959 Docket No. DMEA-4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$3375.00	$89,763.00	$93,138.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	—	2,102.00	2,102.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	—	247.50	247.50			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. allow. @ .18/ft.	202.50	5,385.78	5,588.28			
TOTALS	$3577.50	$94,788.53	$98,366.03	3577.50	97,788.53	101,366.03

I certify that the above bill is correct and just and that payment therefor has not been received.

Date July 1959 *Payee B. H. Putnam

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1788.75

Signature Helen R. Miller
(Authorized Certifying Officer)

Date AUG 24 1959 Vou. No. 9
(See other side)

1788.75

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [signature] Title MINING ENGINEER BUREAU OF MINES Date AUG 20 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date AUG 20 1959

MONTHLY REPORT OF OPERATOR.

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1962)

Budget Bureau No. 42-R1151.2

AUG 26 1959
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of July 1959 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$3375.00	1125	$93,138.00	31,046	3.00	50,000	3.00
Reaming	Foot	—	—	2,102.00	1,051	2.00	5,000	2.00
Sampling	Each	—	—	247.50	198	1.25	500	1.50
Core boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Incid. allow. @ .18/ft.	Foot	202.50	1125	5,588.28	31,046	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		$3577.50		$98,366.03				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$3577.50		$98,366.03				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date July 1959 Operator B. H. Putnam

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.
AUG 20 '59

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp
Creek Project, Grainger County, Tennessee

July 1959
by W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of July one hole was drilled on the Puncheon Camp Creek Project. Hole GD-32 was drilled on a strike fence 100 feet southwest of GD-31. The hole collared in the Mascot formation and was drilled to a depth of 1125 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-10	Overburden	----	----	--
10-763	Mascot	CM @ 763	----	Dolomite
763-1039	Kingsport	"R" @ 935 "S" @ 994 "T" @ 1039	1011-1023½, Est. 1½% ZN; 1034½-1037, Est. 2½% ZN	Dolomite & re-xl; some brecciation
1039-1125	Longview	"U" @ 1051 "V" @ 1070	----	Dolomite, re-xl, limestone; 1104-1113, Est. 2½% FeS

Drilling is now underway at site GD-33, located on a dip fence 400 feet south of GD-16.

OFFICIAL FILE COPY
O. M. E.
RECEIVED AUG 26 1959

DATE	INITIALS	CODE

B. H. Putnam DD-GD-32

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.: GD-32 Collared: 7/3/59

Farm: Green-Dalton Bottomed: 8/7/59

Location: N 48,960.21 Depth 1125'

E 47,062.08 Casing: BX-10'; AX-30'

Elevation: 1242.33 Reaming: None

Drilled by: Putnam Drlg. Co. Cement: None

Logged by: W. T. Hill

Top Kingsport	764
Top "R" Bed	935
Top "S" Bed	982
Base Kingsport	1039

0-10	Overburden
-27½	Ls, Mosheim, some greenish color, good chert and dol congl @ base
-44	Dol, med grey, mott 27½-29, ch nod 42, 42½, 43½
-47½	Dol, dk grey, mott, vuggy, hvy ch band @ base
-49½	Dol, med-dk grey
-53½	Dol, med grey, greenish mott, grn sh @ 52
-58	Dol, lt-med grey, lt bands, oxid @ 54½, ch @ 55½, BP fault @ base
-59½	Dol, med grey, banded, ch band @ 58½
-61	Dol, lt & dk grey, conglomeratic
-63½	Dol, lt grey, mott
-66	Dol, dk grey, mott, bands @ base
-69	Dol, med grey, lt bands, vuggy, TGS @ base
-71	Dol, med grey, ch nod @ 70, TGS plus ch @ base
-73	Dol, med grey, hvy mott, TGS @ base
-79	Dol, lt-med grey, dk toward base, banded, sed brecc @ top
-81	Dol, med grey
-82½	Dol, black
-85½	Dol, med grey, spotted (2' core loss 82-88), ch Nods @ base
-86	Chert, grey & white
-92	Dol, med grey, ch nods 87, broken core
-99	Dol, dk grey, mott, and spotted
-105	Dol, black, asphaltic, hvy mott & vuggy 99-102, mott - base
-111½	Dol, dk grey mott, asphaltic
-114	Chert, med-dk grey, looks like calcarenite
-115½	Dol, med grey, calcarenite
-119½	Chert, some dol, med grey, looks like calcarenite, some asphalt, porous
-121	Dol, med grey, calcarenite, porous, conglomeratic near base
-125½	Dol, dk grey, mott
-131	Dol, med grey, spotted, TGS @ base
-134	Dol, lt grey, lt bands
-138	Dol, med grey, blue mott, TGS @ 136, 136½, 138
-139½	Dol, lt grey, cream colored, red breccia @ base
-144	Dol, med grey, banded, ch nod @ 140, hvy ch band @ base
-149	Dol, med grey, hvy bands, ch nod @ 146
-153	Dol, med-dk grey, lite mott
-154	Chert, grey
-155	Dol, lt-med grey
-164	Dol, med grey, mott, hvy grn sh @ base, dip - 35°
-168½	Dol, med-dk grey, banded, TGS under brown ch congl @ base
-169½	Dol, dk grey
-171	Shale, green, dolomitic
-175	Dol, lt grey, cream colored, siliceous @ top
-178	Dol, lt-med grey, TGS under ch @ base, shears @ 176½
-186	Dol, dk grey, banded, few calcite eyes, scatt shears 184-185
-194	Dol, med-dk grey, congl @ base
-207	Dol, med-dk grey, pinkish mott 195-197, 202-base, v. lite ss @ base
-211	Dol, med grey, banded, hvy grn sh plus v. lite ss @ base
-217	Dol, lt grey, banded 211-213, ch nods @ 211, 212, 213, 213½, very cherty 215-216½, ch nod @ base
-223½	Dol, med-dk grey, TGS @ 220½, 221½, 222½
-224½	Dol, med grey, hvy mott
-234	Dol, med grey, lt bands, thin ch band 228½, TGS @ 230, hvy blk sh @ base
-238	Dol, dk grey, TGS @ base
-240½	Dol, lt-med grey, banded, TGS @ base

-242 Dol, lt-med grey, hvy bands, spotted, lt scatt ss plus TGS @ base
-246 Dol, lt-med grey, lt mott, grn sh @ base
-255 Dol, med grey, banded, ch nod @ 249, 255, grn sh @ 250½
-265½ Dol, med grey, mott, dk from 255-256
-266½ Dol, med grey, sed congl with lt ss
-271½ Dol, med grey, lt mott, TGS @ 269
-273½ Dol, dk grey, lt mott
-275½ Dol, med grey, banded, v. lite crackle with some grn sh, TBS @ base
-277½ Dol, dk grey, lt ss plus ch @ base
-281½ Dol, med grey, lt bands, ch nod @ base
-284 Dol, lt-med grey, silic @ top, ch nod @ 284
-295 Dol, lt-med grey, mott 281½-287, hvy mott 287-base, porous
-299 Dol, dk grey, spotted, v. lt bands
-306 Dol, dk grey, hvy mott, grn sh in joints 302½, 303½
-306½ Chert, white
-318 Dol, lt-med grey, ~~[illegible]~~ lt bands - 315
-329 Dol, med-dk grey, hvy mott, blotchy
-332½ Dol, lt grey, hvy bands, siliceous @ 329-330, ch nod @ 331½, lt ss @ 332½
-336 Dol, med grey, mott - 336
-337 Dol, med grey, shaly & mott
-346 Dol, med grey, mott
-347 Dol, lt-med grey, lt bands, lt ss @ 340½, dk 339-340, lt ss @ 344, TGS @ base
-349 Dol, med grey, mott, sugary @ base
-354 Dol, lt grey, banded, TGS plus ch @ base
-359 Dol, lt-med grey, lt mott, spotted, TGS plus lt ss @ base
-362 Dol, lt grey, banded, few eyelets
-368½ Dol, med grey, banded, v. lite ss @ 363, TGS @ base
-372½ Dol, med grey, mott, lt ss @ 369
-374½ Dol, lt grey, banded, TGS @ base
-377 Dol, lt grey, TGS @ base
-380 Dol, med grey, darker toward base, lt bands, lt ss 378½-379
-381½ Dol, med grey, hvy mott
-383 Dol, dk grey, mott, lt ss @ base
-388½ Dol, med grey, darker toward base, TGS @ base
-393 Dol, med grey, hvy grn sh under lt ss @ base
-393½ Chert, blue, TGS @ base
-398 Dol, med grey, lt bands, TGS @ base
-399½ Dol, lt grey, hvy bands, hvy ss throughout
-404½ Dol, med-dk grey, mott 401½-404½
-405½ Dol, dk grey, hvy mott
-409½ Dol, med grey, ch nod @ base
-411 Dol, lt grey, lt bands
-418 Dol, dk grey 411-415, med 415-base, hvy mott 411-413, lt bands 413-base
thin shear 417½
-422 Dol, lt-med grey, banded, TGS @ base
-425½ Dol, v. lite grey, hvy grn sh & v. lite ss @ base
-437 Dol, med grey, hvy mott, ss @ 433
-438½ Chert, white
-444 Dol, med grey, dk brown 440½-base, lt bands
-447½ Dol, med-dk grey, hvy mott, sugary, grn sh @ base
-454½ Dol, med grey, eyelets, bands, TGS @ base, lt ss @ 451
-461 Dol, med-dk grey, mott, few spots
-461½ Chert, white
-469 Dol, med grey, lt bands, ch @ base
-470½ Dol, lt-med grey, very cherty
-477½ Dol, med-dk grey, mott, spotted
-485½ Dol, med grey, siliceous @ base

-488 Dol, lt grey, banded
-489 Chert, white
-491 Dol, med grey, lt ss @ base
-491½ Dol, med grey, hvy mott
-495 Dol, lt grey, mott, hvy ss plus TGS @ base
-497 Dol, med grey, hvy mott
-501½ Dol, lt grey, mott, ss 499½-500½, TGS & ch @ 500½, TGS @ base
-505½ Dol, med grey, lt mott, spotted, TBS @ base
-509½ Dol, dk grey, hvy mott
-516 Dol, med grey, mott, spotted, TGS over ch congl @ base
-518 Dol, med grey, hvy mott
-521 Dol, lt grey, broken & ground
-533½ Dol, med-dk grey, lt mott, TGS plus lt ss @ base
-539 Dol, med-dk grey, hvy mott, sugary ch @ 537½, 539
-544½ Dol, med grey, ch @ 539½, 540, 540½, banded 539½-base, lt ss 543½
-547 Dol, black, mott, spotted
-549½ Dol, med-dk grey, hvy mott, ss @ base
-556 Dol, med grey, mott, blotchy, siliceous
-561 Dol, dk grey, mott, spotted, TBS @ base
-564½ Dol, lt grey, banded, hvy ss (some CM) @ 564½, TGS @ base
-567½ Dol, med grey, TBS @ base, ch nod @ 565½
-568½ Dol, med grey, banded, hvy ss over TGS @ base
-573½ Dol, lt grey, banded, ss 572-573½, hvy CM @ 573½
-581 Dol, med grey, lt ss @ base, ch nod @ 576, 576½
-583 Dol, lt grey, sed breccia with ss, siliceous
-584½ Chert, white
-586 Dol, lt-med grey, banded, ch oolite @ 585
-594 Dol, med-dk grey, mott, lt ss @ base, darker toward base
-597½ Dol, lt-med grey, hvy mott, conglomeratic, porous, ss @ 595½
-599½ Dol, med grey, hvy mott
-612½ Dol, dk grey, hvy mott 599½-601½, spotted, 6" BP fault @ base
-619 Dol, dk grey, mott
-620 Dol, med grey, hvy mott, lt ss @ top
-623 Dol, lt grey, mott, hvy ss plus TGS @ base
-632 Dol, med-dk grey, mott, spotted
-633½ Dol, lt grey, very siliceous, lt ss @ 632½
-636 Dol, med grey, mott, sugary
-637 Dol, dk grey
-637½ Chert, white & blue
-641 Dol, lt grey, banded, lt ss @ 640, chert @ 640
-641½ Chert, white
-647 Dol, lt-med grey, blue mott, sugary toward base, lt ss @ base
-647½ Chert, blue
-651½ Dol, lt grey, banded, ch nod @ 650, 650½, 651½
-655½ Dol, med grey, ch nod @ 653
-656 Chert, smoky
-664 Dol, lt grey, banded, v. lite scatt ss 660-662
-665 Dol, lt grey, mott
-670 Dol, med grey, mott, TGS plus lite ss @ base
-675½ Dol, med grey, hvy mott, TGS plus lite ss @ base
-679 Dol, lt-med grey, hvy mott, lt ss 675½-676, grn sh seen 676-677, lt ss 679
-687½ Dol, med grey, ch @ 680½, 681½, 682
-692½ Dol, med grey, hvy mott
-699½ Dol, med-dkgrey, lt bands, hvy grn sh under hvy ss @ base
-705½ Dol, lt grey, hvy mott, ch oolite @ 705
-709 Dol, lt-med grey, lite mott, spotted, TGS @ base

	l, dk grey, spotted, TGS @ base
	l, dk grey, hvy mott, hvy ss plus oolitic ch plus hvy grn sh @ base
	ol, dk grey, CMSS @ base
	ol, med grey, hvy grn sh & ss @ base
	Dol, med grey, mott, vuggy 731-732, hvy grn sh plus ss @ base
	Dol, med grey, lt bands, crackle 740-741½, hvy grn sh @ 742
	Dol, dk grey, mott, ch congl plus TGS @ base
	Dol, lt grey, banded, ch nod @ 744
	Dol, med grey, lt mott, grn sh @ base
	Dol, dk grey, spotted, TBS @ base
	Dol, dk grey, hvy mott
	Dol, med grey, v. lite bands, hvy ss @ base under TBS
-768	Dol, med grey, spotted, hvy ss 763½-764, shaly @ base
-769½	Dol, med grey, hvy mott, TGS @ base
-788	Dol, med grey, spotted, lt ss @ 783
-793½	Dol, dk grey, mott, ch nods @ 791½
-799	Dol, lt-med grey, banded, ch nod @ 794, 796, 797
-805	Dol, med grey, banded, ss @ 803½, 805, TGS @ 805
-809	Dol, med grey, mott, TGS @ base
-812	Dol, v. lite grey, lt open shears 809-810½
-814	Dol, med grey, banded, hvy ss over chert oolite @ base
-815	Dol, lt grey, banded, hvy ss @ base
-830½	Dol, med grey, spotted 815-817, mott 817-827½, spotted 827½-base ch nod @ 820½(oolite), TGS @ base
-835½	Dol, lt grey, mott, hvy grn sh @ base, ch nod @ 834½
-841	Dol, lt-med grey, darker toward base, ch nod @ 840
-847	Dol, med grey, banded, ss 846½-847, hvy grn sh @ base
-852	Dol, lt grey, lt banding, 6" ch @ 847½, hvy grn sh @ base
-857	Dol, med grey, mott
-858½	Dol, lt grey, hvy ss plus blue ch @ base, ch nod @ 858
-859	Chert, white, banded
-868½	Dol, med grey, ch nod @ 861½, 862, 867½, ch ss @ base, TGS @ base
-875	Dol, lt-med grey, v. lite bands, ch nod @ 874
-876½	Dol, med grey, hvy mott
-880	Dol, med grey, few lite gangue fracts
-882	Dol, lt-med grey, hvy bands, ss @ base
-882½	Chert, blue
-892½	Dol, lt grey, v. lite bands, ch nods @ 884½, 885½, 886½, 887½, lt shears 885½-887½
-896	Dol, med grey, hvy mott, blue ch 892½-893, blue ch @ base
-900½	Dol, lt grey, banded, spotted, ch nod @ 896½, TGS plus lt ss @ base
-901	Dol, med grey
-906	Dol, lt-med grey, banded, v. lt ss 905-906, hvy grn sh @ base
-908	Dol, lt grey, v. lite bands
-927	Dol, med grey, hvy mott 908-910, 6" wh ch @ 919, ch nod @ 916, grn sh plus ss @ base
-935	Dol, lt-med grey, hvy mott, v. lite ss @ base
-936½	Shale, dk grn, thin xl @ base
-941	Dol, med grey, banded & mott, sugary
-943½	Dol, med grey, rubble, sealed with hvy grn sh, thin re-xl @ base
-945½	Dol, lt grey, banded
-948½	Re-xl, dk, hvy ss plus ch frags @ top, mott
-950	Dol, lt-med, mott, sugary
-952	Re-xl, dk, mott, grn sh @ base

-957	Dol, med grey, banded, rubble 952-954½ with grn sh filling, ~~xx~~ @ 953
-959½	Re-xl, brn
-965½	Semi-xl, lt-med grey, mott
-966	Re-xl, brn
-969	Dol, lt-med, banded & mott, sugary
-971½	Re-xl, dk, greenish
-972	Shale, grn
-977	Dol, lt-med grey, lt mott, lt shears 974-977
-982	Dol, dk grey, mott, rubble
-986	Re-xl, very coarse grained, black & white, hvy jasperoid, dol & ch, breccia blocks throughout
-988½	Silic, fault zone, steep L., some re-xl
-994½	Dol, lt-med, lt bands, brecc with gangue & re-xl
-1001	Re-xl, brn, blk & white @ base
-1011	Dol, med grey, lt bands, crackle, some gangue & re-xl, ch nod @ 1004½, 1009, 1010½, lt crackle 1006-1008
-1020	Re-xl, brn, coarse, siliceous @ top, rubble 1014-1017, <u>1011-1020 Est. 1½% ZN</u>
-1021½	Dol, med grey, banded, crackle, ss @ base
-1022½	Jasperoid, black, thin ls @ base
-1039	Re-xl, brn, mott, silic @ top (jasperoid), lt crackle throughout, <u>1022½-1023½, Est. 3% ZN</u>, lt dol block @ 1028½ plus lt ss, <u>1034½-1037, Est. 2½% ZN</u>
-1051	Dol, med-dk grey, few spots, ch nods @ 1041½, 1045, 1046, thin re-xl @ 1049½, chert oolite @ base
-1058	Dol, med grey, hvy mott, v. lt ss @ base
-1061	Re-xl, dk brn, limy, thin ss @ base
-1070	Limestone, brn
-1071½	Dol, med-dk grey, eyelets, lt ss plus hvy grn sh @ base
-1072	Re-xl, brn
-1089	Dol, med grey, lt bands, spotted, ch @ 1074½, 1076, 1080, 1081, hvy ss @ 1076½, thin sh plus lt ss @ 1087, mott 1087-base
-1090	Re-xl, brn, hvy mott, scatt ss @ base
-1095	Limestone, brn, shaly, ch plus ss plus sh @ 1094
-1096	Re-xl, brn, coarse, wh ch @ base
-1097	Dol, lt grey, ch @ 1096½
-1099	Re-xl, brn
-1101	Dol, lt grey, lite ss plus sh @ base
-1102½	Re-xl, brn, coarse, mott
-1104	Semi-xl, med grey, mott, lt crackle
-1114	Dol, lt-med grey, rubble, est. 2% FeS 1104-1113, lt ss @ base
-1114½	Re-xl, brn, siliceous
-1115½	Chert, blue & white
-1118	Re-xl, brn, vuggy, ch nod @ 1117
-1119	Dol, banded, shaly, lt ss 1118½-1119
-1121½	Re-xl, dk brn, silic 1119-1120, ch nod @ base
-1123½	Dol, med grey, crackle
-1125	Dol, lt-med grey, 1123½-1124½, shale breccia plus hvy ss

Invoice

Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

July 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - July 1959

Core Hole No. GD-32

Footage drilled	1125' @ $3.00/ft.	$3375.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

by: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-
JUL 31 1959
QMF

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of June, 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent / Short Form Contracts:						
Drilling	$3201.00	$86,562.00	$89,763.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	—	2,102.00	2,102.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	21.25	226.25	247.50			
Payroll Taxes						
Liability Insurance						
Incid. allow. @ .18/ft.	192.06	5,193.72	5,385.78			
(8) Contingencies (specify):						
TOTALS	$3414.31	$94,374.22	$97,788.53	3414.31	94,374.22	97,788.53

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 6/30/59 *Payee B. H. Putnam

Per W T Kline Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1707.15

Signature Helen R. Miller
(Authorized Certifying Officer)

Date JUL 29 1959 Vou. No. 6

(See other side)

1707.16

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature V. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date JUL 27 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date JUL 27 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

JUL 31 1959
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of June 1959 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$3201.00	1067	$89,763.00	29,921	3.00	50,000	3.00
~~Churn~~ Reaming	Foot	—	—	2,102.00	1,051	2.00	5,000	2.00
~~Auger~~ Sampling	Each	21.25	17	247.50	198	1.25	500	1.50
~~Sampling~~ Core boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
~~Roads and Trails~~ Incid. allow. @ .18/ft	Foot	192.06	1067	5,385.78	29,921	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		$3414.31		$97,788.53				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$3414.31		$97,788.53				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date 6/30/59 Operator B. H. Putnam

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.
JUL 24 '59

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp
Creek Project, Grainger County, Tennessee

June 1959
by W. T. Hill

Docket No. 4580
Contract No. Idm-F 1088

During the month of June one hole was drilled on the Puncheon Camp Creek Project. Hole GD-31 was drilled on a strike fence 100 feet southwest of GD-30. The hole collared in the Mascot formation and was drilled to a depth of 1067 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-10	Overburden	——	——	—
10-730	Mascot	CM @ 730	——	Dolomite
730-1006	Kingsport	"R" @ 893 "S" @ 958 "T" @ 1006	956½-969½, 13½-1.51% 985½-1005½, 20'-0.9%	Dolomite & re-xl in part brecciated
1006-1067	Longview	"U" @ 1019 "V" @ 1033	1024-1031, 7'-3.08% 1049-1050, 1'-1.68%	Dolomite & re-xl, in part brecciated

Drilling is now underway @ GD-32 100 feet southwest of GD-31.

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DATE | INITIALS | CODE

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1898

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1956

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

B. M. Putnam
P. O. Box 65
Thornhill, Tennessee

4-30-59

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DATE	INITIALS	CODE

806798 Sample GD-27-1

Zinc 706'-707½ Zn 3.20

$1.25

cf/nls 69-568

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

ENGINEERS
INSPECTIONS and TESTS

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CHEMISTS
INDUSTRIAL and ANALYTICAL

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MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST LOUIS, MISSOURI PICHER, OKLAHOMA

B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

6-20-59

			ZINC Zn		
809550	#1	GD-29	14.42		
551	#1	GD-30 919-920	20.20	15'e 6.88%	19'e 5.88%
552	#2	GD-30 920-926	1.52		
553	#3	GD-30 926-934	9.24		
554	#4	GD-30 934-938	2.10		
555	#5	GD-30 968-970	2.50		

7.50

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES 70-143
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1898
MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST TELEPHONE MAYFAIR 3-1556
JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

B. H. Putnam
P.O. Box 65
Thorn Hill, Tennessee

7-8-59

			Zinc Zn		
810301	GD-31-1	956½ - 959½	4.16	13½'-1.51%	
302	2	959½ - 966	0.24		
303	3	966 - 969½	1.80		
304	4	985½ - 990½	0.74	10½'-0.66%	20'-0.89%
305	5	990½ - 992½	0.44		
306	6	992½ - 996	0.68		
307	7	996 - 1001	1.10	9½'-1.14%	
308	8	1001 - 1005½	1.20		
309	9	1024 - 1031	3.08	7'-3.08%	
310	10	1049 - 1050	1.68	1'-1.68%	

$12.50

70-317 FC/msd

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

Invoice

Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

June 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - June 1959

Core Hole No. CH-31

Footage drilled	1067' @ $3.00/ft.	$3201.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Oper.

By: A. R. Eddy
A. R. Eddy
Drilling Supt.

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DATE	INITIALS	CODE

H. H. Putnam DD-GD-31

Copper Ridge Project - Punkeon Camp Creek

DMA Idn-E 1088

Hole No.: GD-31 Collared: 6/12/59

Farm: Green-Dalton Bottomed: 7/2/59

Location: N 49,826.21 Depth: 1067'

E 47,125.46 Casing: BX-10', AX-30'

Elevation: 1,233.87 Reaming: None

Drilled by: Putnam Drilling Company Cement: 2 bags

Logged by: W. T. Hill

Top Kingsport	730
Top "R" bed	893
Top "S" bed	958
Top "T" bed	1006
Top "U" bed	1019
Top "V" bed	1033

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0-10 Overburden
-17 Dol, med grey, banded, white ch nods @ 15, TGS @ base
-22½ Dol, med-dk grey, hvy mott, vuggy
-34 Dol, med grey, lt mott, some red coloring
-36 Dol, lt & dk grey, hvy mott
-40 Dol, med grey, mott, lt shear @ 39
-45 Dol, med grey, v. lite banding, few spots
-50 Dol, lt-med grey, mott @ top, lt shear @ 49
-55 Dol, dk grey
-57 Dol, med grey, ch nod @ base
-58 Dol, dk grey, mott
-63 Dol, med grey, banded, shear @ 59, TGS @ base
-63½ Chert, green
-87 Dol, dk grey, vuggy, blotchy, mott
-92 Chert, black, fragmental, asphaltic
-94½ Dol, med grey, spotted, mott
-96½ Dol, black, mott
-99 Dol, med-dk grey, few spots
-100 Dol, med grey, grn mott
-104 Dol, lt-med grey, TGS @ base
-105½ Dol, med grey, grn mott
-111 Dol, lt grey, thin ss @ base
-115 Dol, med-dk grey, ch nod plus grn sh @ base
-118 Dol, med-dk grey, crackle with grn sh filling
-118½ Chert, white
-124 Dol, med grey, mott
-124½ Chert, white
-130½ Dol, dk grey
-134 Dol, med grey, v. lite mott
-140 Dol, med-dk grey, mott
-141½ Dol, dk grey
-145 Dol, med grey, TGS @ base
-146 Dol, lt grey, lt mott
-147 Dol, lt grey, banded
-148½ Dol, lt-med grey, chert @ base
-150 Dol, med grey, fault gorge, low angle
-165½ Dol, dk grey, few spots, v. lite bands
-167 Dol, dk grey, mott
-169 Dol, med-dk grey
-174½ Dol, dk grey, grn sh @ 174½, lt ss plus TGS @ base
-180 Dol, med-dk grey, banded
-185½ Dol, lt grey, ch nods @ 181, 181½, 182 (smoky mods), 183½, 184, 184½, 185½, white ch band @ 185½
-188½ Dol, med grey, mott, liter toward base (black bands), ch @ 188, 188½, TGS @ 188½
-195 Dol, med grey, v. lite banding, spotted 193-193½, TGS @ 194, 195
-198 Dol, med-dk grey, hvy mott, spotted, fragmental
-201 Dol, med grey, lt mott, v. lite bands, TGS @ base
-203 Dol, lt-med grey, TGS @ base
-209 Dol, med grey, pink mott 206½-209, TGS @ 205, 209
-210 Dol, med grey, hvy mott
-213½ Dol, lt-med grey, banded, pink bands 212½-213
-220½ Dol, lt grey, lt-med grey 217-base, mott, 4" band white chert @ base (in part oolitic)

-223½ Dol, med grey, mott, ch @ 222½
-226½ Dol, black, mott
-229½ Dol, lt-med grey, banded
-233 Dol, lt-med grey, mott, TGS @ base
-235 Dol, med grey, hvy mott, TGS @ base
-236 Chert, med grey, mott (on 1st inspection, appears to be dol)
-237 Dol, med grey, med congl plus scatt ss
-241½ Dol, med grey, darker toward base, TGS @ base
-246 Dol, dk grey, 241½-244, med 244-base, hvy grn sh @ base
-253½ Dol, med grey, spotted, TGS @ base
-260½ Dol, lt grey, mott
-263 Dol, med-dk grey, hvy mott
-269 Dol, med grey, lt blotches, ch @ 267, TBS @ base
-275½ Dol, dk grey, hvy mott to 273, lt 273-base, spotted
-277 Chert, white, upper part fragment, traces chalcopyrite & malachite
-289 Dol, med grey, v. lite bands, TGS @ 283, 286, 287, 289, ch nod @ 282-base
-297½ Dol, med-dk grey, hvy mott, blotchy, silic
-303 Dol, med-dk grey, mott @ 299-300, banded 301-303, ch nods @ 302 ss @ 300
-306½ Dol, med grey, spotted
-307 Dol, med-dk grey, shaly
-309 Dol, lt-med grey, mott
-311½ Dol, lt-med grey, banded, TGS @ 311, lt ss 311-311½
-313 Dol, lt-med grey, TBS @ 313
-314½ Dol, med grey, mott
-318 Dol, med grey, banded, ss 314½-315½ (hvy @ 315½)
-319½ Dol, med grey, mott
-327 Dol, lt grey, lt bands 319½-322, mott 325-327
-329 Dol, med grey, hvy mott, TGS @ 328½, 329, spotted
-332 Dol, lt grey, mott
-338 Dol, lt grey, banded, lt ss @ 334, hvy grn sh @ base
-340½ Dol, lt-med grey, hvy ss over hvy grn sh @ base
-343½ Dol, med grey, mott, TGS @ base
-345½ Dol, lt grey, banded, v. lite ss @ base
-348½ Dol, med grey, banded, hvy ss plus TGS @ base
-351 Dol, med-dk grey, mott, TGS @ base
-358½ Dol, med grey, blk sh @ 351½, 353, v. lite ss @ 353½, thin ch band between grn sh @ base
-363½ Dol, med grey, banding 361-363½, lite ss plus TGS plus ch band @ base
-369½ Dol, lt grey, mott 363½-365½, banding 367-369½, ss 368½-369½, hvy @ base, TGS @ base
-375½ Dol, med-dk grey, mott 370½-base, vuggy @ 370½
-378½ Dol, lt-med grey, lt mott, dk toward base, TGS plus ch @ base
-381½ Dol, lt grey, lt bands
-382½ Dol, med grey, mott & shaly
-387½ Dol, dk grey, lt bands, TGS @ base
-391 Dol, lt grey, lt bands, v. lite ss 389-390, TGS @ 389, base
-395 Dol, v. lite grey, TGS plus lite ss @ base
-396½ Dol, med grey, blue mott, hvy grn sh @ base
-400 Dol, lt-med grey, lt mott, TGS @ base
-402 Dol, lt-med grey, blue mott, ss @ 401
-406 Dol, med grey, mott & banded, lt ss near base
-407 Chert, white
-412 Dol, med-dk grey, banded 407-409, TGS @ 409

, med-dk grey, hvy mott, sugary
, lt-med grey, banded, spotted 416-419, TGS plus ss @ 419, lt ss
-421 421½, TGS @ 422
Dol, med-dk grey, mott, dk toward base, lt ss @ base, hvy bands FeS
@ 426
Chert, white, oolitic
Dol, med grey, banded, TGS @ base
Dol, med grey, hvy mott, vuggy & silic. 437-438½, TGS @ base
Dol, med-dk grey, mott
Dol, med grey, mott & banded, TGS plus hvy ss @ base
Dol, med grey
½ Chert, white
0 Dol, med grey, TGS plus ss @ base, thin wh ch band @ base
4½ Dol, med grey, hvy mott, TGS @ base
-465½ Ss-xl, lt greenish-brn
-469 Dol, lt grey, banded, hvy ss 468½-469, CM @ 468, TGS @ 469
-473½ Dol, med grey, spotted, mott, TGS @ base
-479 Dol, med-dk grey, hvy mott, ch nod @ 474, base, ch congl @ base
-483½ Dol, lt grey, mott, spotted, TGS @ base
-486 Dol, med-dk grey, hvy mott, brn ch band @ 484½
-495 Dol, med grey, mott, congl 493½-495, ss 494-495 plus TGS @ base
-500½ Dol, med grey, mott 495-498, banded 498-base
-501 Chert, white
-503 Dol, med-dk grey, mott
-506½ Dol, med grey, TGS @ base, grn ch @ 506
-518 Dol, dk grey, hvy mott, hvy ss @ base
-525 Dol, med-dk grey, mott, blotchy, vuggy
-529½ Dol, med grey, ss plus TGS @ base
-531½ Dol, lt grey, banded, ch @ base
-537 Dol, med grey
-542½ Dol, lt grey, banded, med congl 538-539, ss 541-542½, CM @ 542,
542½
-550½ Dol, med grey, lt bands, TGS @ 543, 550½
-551½ Dol, lt grey, mott, siliceous, scatt ss throughout, ch oolite @ 551
-553 Chert, dol 551½-552, white 552-553
-557 Dol, med grey, mott, sugary, ch oolite @ 555
-563 Dol, med-dk grey, banded 557-558, mott 558-base
-567½ Dol, lt-med grey, vuggy, mott, scatt ss 564-566½
-577 Dol, med-dk grey, mott 567½-572½
-585½ Dol, dk grey, mott, fault @ 580
-588 Dol, med grey, hvy mott @ top, sugary
-591 Dol, lt grey, ss @ 589½
-598 Dol, med-dk grey, mott, spotted
-599 Dol, lt grey, lt ch @ base
-600 Chert, white, fragmental, TGS @ base
-603½ Dol, med-dk grey, mott, dk @ base
-604 Chert, white
-607½ Dol, lt grey, banded, lt ss plus ch nod @ base
-609 Dol, dk grey, lt bands
-610 Dol, lt grey, ch nod @ 609½
-615 Dol, med-dk grey, hvy mott, fault @ 612, TGS @ base, med grey, vuggy, sil-616
-618 Dol, lt grey, banded, ch nod @ 616½, 617, ch band 618½-619, TGS @ 619
-624 Dol, med grey, ch nods @ 623, 4" hvy grn sh @ base
-625 Semi-xl, med-dk grey, mott

-629 Dol, lt grey, banded, ch nod @ 626, TGS @ base
-635 Dol, lt-med grey, mott, TGS @ base
-637½ Dol, med-dk grey, mott, spotted, TGS @ base
-640 Dol, lt-med grey
-644 Dol, med grey, mott, 4" ch band @ 643, sand & sed congl 643-644, TGS @ 644
-645½ Dol, med grey, mott
-646½ Chert, white
-654½ Dol, lt grey, ch nod @ 647, 650, spotted 653-654½, TGS @ base
-661 Dol, med grey, mott, blotchy, TBS @ base
-665½ Dol, med grey, banded, ss @ 664½, shear @ 665
-670½ Dol, lt-med grey, hvy mott, sheared 665½-666½, lt ss 667, vugs with grn sh filling
-675½ Dol, lt-med grey, spotted, TGS @ base
-682½ Dol, med grey, few spots TGS @ 676½, 677, lt shears 676½-677, TBS @ base
-684½ Dol, dk grey, vuggy, mott, cherty, hvy ss plus ch oolite @ base
-685 Chert, blue, oolitic
-685½ Shale, black & grn
-693 Dol, med grey, darker toward base, spotted
-696 Dol, lt grey, banded, ss 694-694½, TGS @ 694½, ss @ 696 over hvy grn sh
-707 Dol, lt-med grey, mott 696-698, banded 698-703, lt ss @ 696 plus ch sed plus TGS, hvy grn sh @ base
-708 Dol, med grey, shaly
-714½ Dol, lt grey, banded, TGS @ base
-718 Dol, med grey
-729½ Dol, dk grey, shaly 718-719, spotted & mott, TBS over ch @ base
-730 Dol, lt grey, banded, hvy ss 728½-730, crackle @ base filled with lt grey dol & sand
-737 Dol, med-dk grey, mott, shaly 733½-734, TBS @ base, sugary 736-737
-739½ Dol, v. lt grey, banded 737-738
-742 Dol, lt-med grey, mott, black sh @ base
-744 Dol, med grey, mott, TGS @ base
-749 Dol, lt-med grey, darker toward base, mott, TBS @ base
-753 Dol, lt grey, banded 749-750, scatt ss 749-750, TGS @ base
-758 Dol, med grey, mott, blotchy, siliceous near base, fragmental ch @ base
-760 Dol, lt grey, banded, ch @ 759½
-771 Dol, med grey, banded, ch nod @ 762, 763, 764, ss 769-769½, TGS @ 769½, hvy grn sh @ base
-777 Dol, lt-med grey, mott, ch oolite @ base under lt ss, lt ss 774
-785 Dol, lt grey, ch plus hvy ss @ 780, ch oolite @ base
-786 Dol, med grey, hvy mott
-795 Dol, lt-med grey, mott, TGS @ 787½, lt shears 794
-800 Dol, v. lt grey, mott, ch sed @ 796
-807 Dol, lt grey, banded, ch nods @ 802, 803, 803½, 804, 805, 805½
-811 Dol, med grey, banded, scatt ss 809½-811, hvy grn sh @ 811
-811½ Dol, lt grey, breec filled with ch plus grn sh
-815 Dol, lt grey, banded, hvy grn sh @ base
-818 Dol, med grey, ch @ 816½, shears @ 817
-822 Dol, med grey, mott, ch nod 819½, 820, TGS plus ch plus ss @ base
-831 Dol, lt-med grey, banded 822-824½, ch nods @ 824, 825½, 826, TGS @ base
-852 Dol, v. lite grey scatt bands, TGS @ 839, 850, ch @ 842, 843, 845, 846, lt ss @ 849
-854 Dol, lt-med grey, mott, v. lite crackle
-857 Dol, med grey, crackle

-865 Del, lt grey, banded, hvy grn sh @ 860 plus lt ss, lt ss @ 864
-865½ Shale, grn, siliceous
-873 Del, lt-med grey, lt mott, sh nods 866, 866½, v. lite crackle, TBS @ base
-877½ Del, med grey, crackle, sh nods 874½, grn sh @ base, rubble @ base
-887 Del, lt-med grey, dry breccia plus FeS shines 877½-879, 882-884, crackle dry - base, lt ss plus TGS @ base
-892½ Del, med grey, hvy mott, v. lite crackle, TGS plus v. lite ss @ base
-893½ Del, med-dk grey, semi-xl, hvy grn sh @ base
-900 Del, med grey, mott 893½-894½, banded 894½-895½, dry breec 895½-896½
-903 Re-xl, dk brn, coarse @ top, pinkish cast
-904 Del, lt grey, banded, TGS @ 903½, 904, v. lite ss @ 904 -906 re-xl, dk brn, mott
-908 Del, med grey, blue mott, crackle
-909 Re-xl, brn, coarse, crackle
-910 Del, lt grey, rubble, lt ss @ base, some re-xl in matrix
-911 Re-xl, brn, coarse, sh @ base
-912½ Del, lt grey, banded, grn sh @ base
-915 Re-xl, brn, crackle
-917½ Del, med grey, hvy mott, crackle
-920 Del, lt grey, rubble, grn sh @ base
-925½ Re-xl, coarse, blk & white, chert band @ 925, TGS @ base
-930 Del, med grey, mott, spotted, v. lite crackle, stronger @ base
-935 Del, dk grey, crackle, FeS shine 932½
-935½ Shale, grn, cherty
-938½ Re-xl, coarse, black & white, hvy jasperoid, hvy FeS @ 937
blue
med grey, mott, crackle, lite ss @ 941, sugary @ base
, dk brn, hvy mott, siliceous, hvy wh ch @ base
med grey, mott @ top, banded @ base, TGS @ base
l, brn, sh @ base
, med grey, hvy mott, crackle to 956, rubble - base, hvy ch @ 953-955, trace ZnS @ 955, 956½-957½, sat. 5%
-970 Re-xl, 957½-959½, brn & very siliceous, 959½-965, brn, crackle, mott near base, 965-970, brn, siliceous, heavier toward base, few scatt del blocks, 957½-959½, sat. 3% ZN, 966-969½, sat. 2% ZN
-971 Del, med grey, breec sealed with silic re-xl
-975 Re-xl, coarse, brn, sh band @ 972
-976 Re-xl, blk & white, trace ZnS @ 975½
-985½ Re-xl, brn, coarse, crackle, ss @ 978½, 979½
-996 Re-xl, ½ brn, ½ blk & white, some crackle, 991-996, sat. 2% ZN, some lite FeS shines 991-996, trace fluorite 995, 985½-991, sat. 1½ ZN
-1005½ Re-xl, coarse, blk & white 997, 997-base mixture blk & white & brn, lt grey del block @ 1004, 996-997, sat. 3% ZN, 997-1004, sat. 1% ZN, 1004-1005½, sat. 5% ZN, fluorite shine @ 1003½
-1006 Del, lt grey, breec
-1019 Del, med grey, banded, hvy sh @ 1013, 6" sh @ base, crackle
-1020½ Re-xl, brn, mott, crackle
-1028 Del, med grey, hvy mott, crackle to 1024, hvy crackle 1024-1028, scatt ss @ base, 1024-1028, sat. 1.75% ZN, scatt FeS shines
-1033 Re-xl, brn, coarse, siliceous, hvy grey shale @ 1031, del block @ 1029, 1028-1031, sat. 5½% ZN
-1034½ Del, med-dk grey, hvy crackle, mott, TGS @ base
-1035½ Re-xl, brn, coarse
-1041 Del, lt grey, mott, darker toward base, ss @ 1036, very silic 1036-1037, crackle, sh nods @ 1037½, 1039, 1040½, 1041, trace ZnS @ 1038½, 1040½

-1042½ Semi-xl, med grey, banded, cherty, crackle
-1043½ Chert, blue & white
-1046 Del, lt-med grey, hvy crackle, breec chert & hvy ss over TOS @ base
-1048½ Semi-xl, hvy mott, med grey, hvy ss @ base
-1053½ Re-xl, blk & white 1048½-1051, brn & vuggy 1052, blk & white - base, siliceous, wh ch nod @ base, hvy ss 1048½-1049, 1049-1050, sat. 1½ %
-1054½ Del, lt grey, banded, crackle
-1055½ Re-xl, dk brn
-1056½ Del, lt grey, banded, lt ss @ base
-1058½ Semi-xl, med grey, mott
-1064½ Del, lt grey, wh ch nod @ 1061½, crackle near base, lt ss @ base
-1065 Chert, white
-1067 Semi-xl, brn, banded, crackle, ch @ base TD @ 1067

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

JUN 22 1959
O.M.E.

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of May, 1959 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,125.00 Government Participation: 50% Amount, $85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$5745.00	$80,817.00	$86,562.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	—	2,102.00	2,102.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	—	226.25	226.25			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. allow. @ .18/ft.	344.70	4,849.02	5,193.72			
TOTALS	$6089.70	$88,284.52	$94,374.22	6089.70	88,284.52	94,374.22

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 5/31/59 *Payee B. H. Putnam

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is ~~correct and~~ proper for payment in the amount of:

$ 3044.85

Signature Helen R. Miller
(Authorized Certifying Officer)

Date JUN 19 1959 Vou. No. 119

(See other side)

3044.85

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [signature] Title MINING ENGINEER U. S. BUREAU OF MINES Date JUN 24 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date JUN 24 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

JUN 22 1959
O.M.E.

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of May 195 9 Docket No. DMEA 4580 Contract No. Idm-E-1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$5745.00	1915	$86,562.00	28,854	3.00	50,000	3.00
Churn Roaming	Foot	—	—	2,102.00	1,051	2.00	5,000	2.00
Auger Sampling	Each	—	—	226.25	181	1.25	550	1.50
Stripping Core boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Roads and Trails Incid. allow. @ .18/ft.	Foot	344.70	1915	5,193.72	28,854	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		$6089.70		$94,374.22				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$6089.70		$94,374.22				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date 5/31/59 Operator B. H. Putnam

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.

JUN 16 '59

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

Invoice

Marietta, Ohio

B. H. Putnam, Approx.
512 Third Street
Marietta, Ohio

May 31, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Punchbeam Camp Creek Project DMEA Contract No. 4580 - May 1959

Core Hole No. CE-29

Footage drilled	915' @ $3.00/ft.	$2,745.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice

Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

May 31, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Dunchees Camp Creek Project DMRA Contract No. 4580 - May 1959

Core Hole No. CD-30

Footage drilled 1000' @ $3.00/ft. $3,000.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

A Progress Report on the Tuncheon Camp Creek Project
Grainger County, Tennessee

May 1959
by W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of May two holes were drilled on the Tuncheon Camp Creek Project. Hole GD-29 was drilled 400 feet southeast of GD-27. The hole collared in the Mascot formation and was drilled to a depth of 915'.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-10	Overburden	—	—	—
10-622	Mascot	CMS ≈ 622	Tr ZNS ≈ 210'	Dolomite
622-842	Kingsport	"R" ≈ 761 "S" ≈ 820 "T" ≈ 842	793-800, est. 5% ZN (hvy core loss in this zone) sh ≈ 814	Dolomite, re-xl, and limestone, faulted, hvy core losses
842-915	Longview	"U" ≈ 854	—	Dolomite, re-xl, and ls

Hole GD-30 was drilled on a strike fence 100 feet southwest of GD-29. The hole collared in the Mascot formation and was drilled to a depth of 1000 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-15	Overburden	—	—	—
15-676	Mascot	CM33 @ 676	—	Dolomite
676-945	Kingsport	"R" @ 948 "S" @ 897½ "T" @ 945	852-860, est. 1/2% ZN; Tr @ 903; 919½-934, est. 5½% ZN; 934-937, est. 2½% ZN	Dolomite, re-xl, in part brecci-ated
945-1000	Knagview	"U" @ 955½ L-3 @ 970½	968½-970½, est. 3% ZN	Dolomite, ½ re-xl; FeS shines 991-993

Drilling is now underway at site GD-31, 100 feet southwest of GD-30.

B. W. Putnam DH-GD-29

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.: GD-29 Collared: 5/11/59

Farm: Green-Dalton Bottomed: 5/25/59

Location: N 49,216.19 Depth: 915 feet

E 47,218.58 Casing: BX 10, AX 20

Elevation: 1243.29 DF Reaming: None

Drilled by: Putnam Drlg. Co. Cement: one bag

Logged by: W. T. Hill

Top Kingsport	622
Top "R" Bed	761
Top "S" Bed	820
Base Kingsport	842

0-10	Overburden
-12	Dol, med grey
-20	Dol, lt-med grey, ch nod @ base
-21½	Dol, lt grey, banded, TGS @ base
-30	Dol, med grey, lt bands, darker toward base (5' core loss 20-30)
-37	Dol, med grey, cherty
-40	Dol, med-dk grey
-50	Dol, med grey, mott, spotted, gen sh @ base
-55	Dol, med-dk grey, lt mott, pinkish cast, TGS @ base
-59	Dol, lt grey, cherty near top, ch nod @ 58
-74	Dol, dk grey, spotted 59-61½, sheared 61½-64, mott near base
-89	Dol, dk grey, mott 74-76
-94	Dol, v. lite grey, banded, sed. breccia 89-91, ch nods 89, 92, 93, 94
-96	Dol, med grey, banded with layers of dk & lt dol, base marked by wh ch band
-104	Dol, med-dk grey, ch nod @ 99
-106	Dol, med grey
-108	Dol, med grey, mott & vuggy, coarse grained
-111	Dol, med grey, TBS @ base
-115½	Dol, dk grey, TBS @ base
-118½	Dol, dk grey, banded, TBS @ base
-126	Dol, lt grey, pinkish mott, lt ss plus TGS @ 119, TGS @ 124
-129	Dol, lt grey, pinkish bands, spotted, TGS @ base
-140½	Dol, lt-med grey, banded & mott, TBS @ 131, pinkish cast 135½-base
-143	Dol, lt-med grey, sed congl, some sand, vuggy, sugary
-148	Dol, med grey, pink mott, TGS @ base
-149	Dol, dk grey, mott, TBS @ base
-156	Dol, med grey, banded 151-152, lt ss over ch nod @ base, base sugary
-161	Dol, med grey, banded 156-158, ch band @ base
-161½	Dol, med grey, hvy mott, ch band @ base
-165	Dol, lt grey, lt mott, wh ch nods 162, 163
-168½	Dol, med grey, mott
-170½	Dol, med-dk grey, hvy mott
-175	Dol, med grey, lt bands, vuggy 174-175
-181	Dol, dk grey, hvy mott
-182	Chert band, some gen sh
-188	Dol, lt-med grey, mott, gen sh @ 186, spotted, ch nod under sh @ base
-193½	Dol, med grey hvy bands, TGS @ 189, 190, 193½
-196	Dol, black, mott
-204	Dol, med grey, hvy mott, blotchy, siliceous, black 199-204, lt ss plus ch @ base
-207	Dol, lt grey, mott 204-206, banded 206-207, ch @ 206, base, lt ss @ base
-209	Dol, med grey
-210	Dol, lt grey, spotted
-212	Dol, med grey, hvy mott, <u>traces TGS around ch nod @ 210</u>
-219	Dol, lt-med grey, TGS @ base overlain by hvy ss plus ch (some CM)
-221	Dol, lt grey, banded
-223	Dol, lt-med grey, mott, TGS @ base
-224	Dol, med grey, hvy mott, TGS @ base
-228	Dol, med grey, lt bands
-231	Dol, lt grey
-233	Dol, dk grey, TGS @ 232, 232½, 233, hvy mott
-241	Dol, lt-med grey, lt bands, TGS @ base
-246½	Dol, med grey, lt mott

-248½ Dol, lt grey, banded, lite ss plus TGS @ base
-251 Dol, med grey, TGS @ 250
-253 Dol, dk grey, mott, TGS @ base
-255 Dol, med grey, hvy mott, TGS @ base
-263½ Dol, med grey, dk 255-256, ch nod @ 260
-266 Dol, med-dk grey, banded, TGS @ base
-270½ Dol, lt grey, mott, TBS @ base
-272 Dol, med grey, very hvy ss 271-272
-274 Dol, black mott
-278 Dol, med grey, hvy mott
-282 Dol, med grey, ch nod @ base
-284½ Dol, lt grey, banded
-285 Dol, med-dk grey, hvy mott, greenish coloring
-290 Dol, black, lt bands, sed congl @ base
-294 Dol, med grey, well banded, lt ss 293½-294, TGS @ base
-297 Dol, lt grey, hvy gen sh @ base, lt ss @ 297
-308 Dol, med grey, blue mott, ss plus TGS @ 304½
-308½ Chert, white
-309 Dol, med grey, mott
-314 Dol, med-dk grey, ch nod @ 309, 311
-318 Dol, black, hvy mott, vuggy, conglomeratic, ch @ 315
-322 Dol, lt-med grey, banded, scatt ss 321-322, TBS @ base
-325 Dol, lt-med grey, banded, TGS @ base, dip @ 325 - 33°
-326 Dol, med grey, hvy mott
-333 Dol, dk grey
-333½ Chert, white
-335½ Dol, lt grey
-340 Dol, med grey, banded, TBS @ base -342½ Dol, med grey, hvy mott, ch @ 340½
-355 Dol, dk grey, spotted, hvy ss plus some GM 354-355, TGS @ base
-357½ Dol, med grey, TGS @ base
-358½ Chert, white
-360 Dol, lt-med grey, TGS plus lt ss @ base
-363½ Dol, med grey, mott, spotted
-366 Dol, lt grey, mott & banded, ch @ 364
-366½ Dol, med grey, cherty plus ss, mott
-371 Dol, dk grey, mott, ch @ 370, 370½, TGS @ 370
-378 Dol, med grey, blue mott, scatt ss 375-376
-382½ Dol, lt-med grey, mott, sugary toward base
-385 Dol, lt grey, mott, TBS @ base
-388½ Dol, med grey, hvy mott
-395½ Dol, med grey, lt ss plus TGS @ base
-403 Dol, med grey, mott, lt ss plus TGS @ base
-403½ Chert, black & white
-406 Dol, med-dk grey, hvy mott, gen sh @ base
-406½ Chert, blue & white, TGS @ base
-412 Dol, med grey, lt bands, TGS @ base
-417 Dol, med-dk grey, mott, eyelets, cherty
-427 Dol, med grey, mott, vuggy & eyelets, chert in vugs
-438 Dol, lt-med grey, some banding, ch @ 431½, 433, congl plus ss @ 437
TGS @ base
-442 Dol, lt grey, hvy bands, scatt ss 441-442, chert oolite @ base
-449½ Dol, med grey, ch @ 447
-451½ Dol, med grey, mott, scatt ch oolite plus ss throughout, hvy ch band
@ base

-452½	Dol, med grey
-453	Chert, oolite
-458	Dol, med grey, mott, vuggy @ top
-462	Dol, med-dk grey, mott
-463	Dol, lt grey, banded, scatt ss throughout
-469	Dol, lt-med grey, hvy mott, vuggy, ss 466-468, ch @ 468
-472	Dol, dk grey, mott
-484	Dol, dk grey, spotted 481-484, fault 480½-481½ (BP), scatt shears 481½-483½
-487	Dol, med-dk grey, mott, ch congl plus ss @ base
-491	Dol, lt grey, mott, scatt ss @ base
-501½	Dol, med grey, mott, blotchy, silic 501-501½, TGS @ base
-504½	Dol, med grey, mott, dk toward base
-505	Chert, white
-509½	Dol, lt grey, banded, lt ss @ 508½, chert band @ base
-510½	Dol, dk grey
-512	Dol, lt grey, ch nod @ 510½
-520	Dol, med grey, mott, congl toward base (vuggy and coarse-grnd)
-521	Dol, med-dk grey
-533	Dol, lt grey, banded 526-531, mott 531-base, lt ss 529-531
-536½	Dol, med grey, hvy mott, lt ss plus TGS @ base
-537½	Dol, lt grey
-542½	Dol, med grey, mott and spotted
-543½	Dol, lt grey, banded
-549	Dol, lt grey, hvy mott, very vuggy, ss 545-546, ss plus ch @ base
-559	Dol, med grey, mott, spotted, siliceous, lt shears @ 552
-561	Dol, black, spotted
-564	Dol, med grey, banded, ss plus TBS @ base
-573	Dol, lt grey, mott & spotted, chert oolite plus ss @ 569½, shears 566½-567½
-585	Dol, med-dk grey, spotted, hvy grn sh @ base overlain by hvy ss plus congl, some CM
-588½	Dol, lt grey, lt bands
-591	Dol, med-dk grey, mott, silic toward base
-593	Dol, lt grey, banded, v. lt ss @ base
-594	Dol, dk grey, hvy mott & shaly
-596	Dol, v. lt grey, banded, lt ss 595-596, hvy ss @ base
-603½	Dol, med grey, banded, hvy grn sh @ base
-605	Dol, dk grey, mott, ch nod @ 604
-608	Dol, lt grey, hvy bands
-612	Dol, med grey
-614	Dol, dk grey, hvy mott
-617½	Dol, med grey
-629	Dol, black, TBS @ base, hvy mott
-622	Dol, lt grey, banded, hvy CMSS @ base
-627	Dol, lt grey
-630	Dol, med-dk grey, hvy mott
-636	Dol, lt grey, spotted TGS @ base
-637	Dol, dk grey, mott, TGS @ base
-640	Dol, lt-med grey, hvy mott
-641½	Dol, dk grey, banded
-646½	Dol, lt grey, TGS @ base
-651	Dol, med grey, mott, TGS @ 647½

-654	Dol, lt grey, lt bands, ch @ 652,653
-659	Dol, med grey, banded, ss plus TGS @ base
-660½	Dol, med grey, TGS @ base
-663½	Dol, lt-med grey, mott
-670	Dol, lt grey, lt bands
-671	Dol, med grey, ss over ch nod @ base
-677	Dol, med grey, TGS @ 672, 676, 677, 6" chert @ 674
-682	Dol, med grey, mott, TGS @ base
-689	Dol, lt grey, mott, ch nod @ base
-690	Dol, med grey, ch nod @ 689½, 690
-696½	Dol, med grey, well banded, shale breccia & ss @ base
-697	Chert, blue
-715	Dol, lt grey, banded, ch nod @ 705, 706, 713, 714, ss @ 710, 714-715, siliceous dk dol plus ss (congl), TGS @ base
-733½	Dol, lt grey, banded 715-726, TGS @ 723, base, ss @ 730, ch nod @ 721, 727, 729, 732
-738	Dol, lt grey, well banded, hvy grn sh @ base
-741	Dol, lt-med grey, banded, TGS @ base plus lt ss
-742½	Dol, med grey, ch nod @ 742
-750	Dol, lt grey
-761	Dol, lt-med grey, banded, ch nod @ 751, hvy grn sh @ base
-768	Ls, brn, shaly
-772	Dol, med grey, lt bands, lt ss plus TGS @ base
-775	Dol, med grey, mott, lt scatt shears
-776	Dol, lt grey, faulted, some gangue dol 775½-779½, 2' core loss
-777	Dol, dk grey, very shaly
-777½	Re-xl, brn
-784½	Dol, lt grey, sheared, open, some gangue dolomite
-786	Re-xl, brn, wh ch @ 785
-792	Dol, lt grey, dk semi 786-788, scatt shears, crackle, 786-792, 3' core loss
-794	Dol, dk grey, hvy mott, rubble, open, 5½' core loss 793-800
-803	Re-xl, brn, scatt shears, open, <u>1/2' solid ZNS between 793-800 plus mineral frags.</u>, core lost in min. some
-805	Dol, lt grey, sheared, open, wh ch @ base
-806½	Re-xl, black jasperoid @ base
-808½	Ls
-813½	Dol, lt grey, crackle with black ch filling, <u>ZNS sh @ base</u>
-814½	Re-xl, black, crackle
-817	Dol, dk grey, sheared, gangue dol
-819	Dol, med grey, sheared, gangue dol, wh ch @ 817½
-819½	Re-xl, black & white
-820	Shale, black, siliceous
-831	Ls, shaly, some crackle
-831½	Re-xl, brn
-834	Dol, lt grey, banded, ch nod @ 832
-840	Re-xl, brn, limy
-840½	Ls
-842	Re-xl, brn crackle
-843	Dol, med grey, crackle
-854	Dol, lt grey, wh ch @ 852, 854
-855	Shale, black, pyritiferous, siliceous
-862	Dol, med grey, wh ch nod @ 859, breccia sealed with silica (both black & white)
-863	Ls, brn, shaly
-868	Re-xl, brn, mott, ss @ 865½, some ls frags @ 865, 6" chert @ 866

-869	Dol, lt grey, banded
-872	Re-xl, brn, hvy ss @ top, re-xl, limy @ base
-873	Chert, gray band
-873½	Re-xl, siliceous
-875	Ls, brn, shaly
-880	Re-xl, brn, crackle 877-878½ with black oh filling
-884	Dol, med-dk grey, spotted
-886	Semi-xl, med grey, re-xl toward base
-887	Chert, white
-888½	Dol, med grey, TGS @ base
-896	Dol, med grey, hvy mott
-899	Re-xl, hvy mott, siliceous, ss @ base
-905	Ls, shaly, TGS @ base
-908	Dol, med-dk grey, oh @ 905½, TGS plus lt ss @ base
-911	Re-xl, dk grey, coarse, siliceous, TGS @ base
-915	Dol, med grey, crackle, hvy ss @ 914. TD @ 915

B. H. Putnam DD-GD-30

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.: GD-30 Collared: 5/27/59

Farm: Orman-Dalton Bottomed: 6/12/59

Location: N 49,126.22 Depth: 1000'

E 47,169.55 Casing: BX-10; AX-30

Elevation: 1250.03 DF Reaming: None

Drilled by: Putnam Drilling Co. Cement: 2 bags

Logged by: W. T. Hill

Top Fingsport	676
Top "R" bed	848
Top "S" bed	898½
Top "T" bed	945

0-10	Overburden
-14	Dol, frags, oxidized
-20	Dol, med grey, broken & oxid, brecc with grn sh 15-16
-40	Dol, black, asphaltic hvy mott 22-30, eyelets
-46	Dol, black, coarse grn'd, asphaltic, calcarenite
-47½	Dol, black, breccia sealed with light calcarenite
-54	Dol, dk grey, mott
-57	Dol, med grey
-63½	Dol, lt grey, lt bands, hvy grn sh @ base
-65	Dol, med grey, mott
-68½	Dol, lt grey, banded near base plus thin chert
-71	Dol, med grey, v. lt bands
-74	Dol, med grey, strong bands
-75½	Dol, dk grey, ch nod @ base
-79½	Dol, med grey
-80½	Chert, brn & white
-82	Dol, lt grey
-91	Dol, lt-med grey, mott, TBS @ base
-93½	Dol, med grey, mott, spotted
-101	Dol, dk grey, grn sh @ 98, base
-106	Dol, med grey
-119½	Dol, dk grey, lt shears 110-112
-120½	Dol, dk grey, hvy mott
-131	Dol, dk grey, lt pink bands to 126
-135	Dol, med grey, banded, TGS @ base
-140	Dol, lt grey, sed breccia 135-136, sed congl plus sand @ base
-144	Dol, lt grey, hvy bands, black ch @ 141, congl @ base plus grn silica
-145	Dol, lt grey
-150	Dol, med grey, v. lt bands
-155	Dol, med grey, hvy mott 150-151, 153-155
-163	Dol, med-dk grey, TBS @ 154, pink coloring 159-163, TGS @ base
-174	Dol, lt grey, mott 163-164, bands 164-167, hvy ss @ 167, mott 174, pink coloring
-179	Dol, med-dk grey, banded 176-179
-187	Dol, dk grey, lt mott
-188	Dol, med grey, hvy mott, TBS @ base
-191	Dol, med grey, hvy mott, sugary, sed congl @ base plus ss
-197	Dol, med grey, lt mott, TBS @ 195, base
-198	Dol, med-dk grey, hvy mott
-203½	Dol, med-dk grey, lt bands, ch plus ss @ base
-205½	Dol, lt grey, banded, ch nod @ base
-207½	Dol, med grey, TGS @ base
-212	Dol, lt grey, open shear @ 209
-216	Dol, lt-med grey, hvy mott, sugary & vuggy near base
-218½	Dol, dk grey, sugary, open shear 216, 217½
-229	Dol, med-dk grey, ch @ 220½, 221, vuggy 220½-222, darker toward base, hvy mott 223-229
-231½	Chert, white, in part brecc, grn sh plus ss @ base
-234½	Dol, lt-med grey, spotted, ch @ base, grn sh @ 233½
-242	Dol, med grey, darker toward base, bands 236½-240, scatt ss 238½-239½
-243½	Dol, dk grey, asphaltic, brecc blk ch @ base
-252	Dol, med-dk grey, mott, blotchy, siliceous, TBS @ base
-255½	Dol, med grey, sugary 253½-254, grn ch @ 254, blue ch @ base
-257	Dol, lt grey, banded, sed breccia, ss @ base
-260½	Dol, med grey, spotted near base, TGS @ base

-263 Dol, med grey, mott
-264½ Dol, lt grey, banded, TGS plus ss @ base
-268 Dol, med-dk grey, hvy mott, TBS @ base
-270 Dol, lt grey, ss @ base
-272½ Dol, med grey, banded
-273 Dol, med grey, hvy mott
-274 Dol, lt grey, mott
-274½ Dol, med grey, hvy mott
-275½ Dol, lt grey, banded
-279½ Dol, dk grey, banded, TGS plus ss @ base
-280½ Dol, lt grey
-283 Dol, med grey, mott
-291½ Dol, lt grey, banded & spotted 283-286, TGS @ 286, banded 286-288, ss @ 288, TGS @ base
-293½ Dol, lt-med grey, shaly 291½-292, ss @ 293
-296 Dol, med grey, TBS @ base
-298 Dol, lt grey, TGS @ base
-303½ Dol, med grey, lt bands
-306 Dol, dk grey, mott & spotted, ss @ base
-317 Dol, med grey, TGS @ 311, 312, 314, 315, CMSS @ 315, TGS @ 316½, 317, ch @ 316½
-323 Dol, lt grey, banded, hvy ss 322-323, TGS @ base
-325 Dol, dk grey
-329 Dol, med-dk grey, hvy mott
-332 Dol, med grey, ch @ base
-334½ Dol, lt grey
-340 Dol, dk grey, hvy mott 334½-335½
-341 Dol, med grey, mott
-343 Dol, lt-med grey, banded, hvy ss plus TGS @ base
-351 Dol, lt grey, mott
-357 Dol, med grey, blue mott, TGS @ 353, crackle @ 356-357
-358 Chert, white
-359 Dol, dk grey, mott, sugary
-360 Dol, lt grey, banded
-364 Dol, med grey, banded
-368 Dol, med-dk grey, hvy mott
-376 Dol, med grey, lt bands 368-374, mott 374-376
-383½ Dol, med-dk grey, mott & spotted, wh ch @ base
-390 Dol, lt grey, banded, ch nod @ base
-394 Dol, med grey, hvy mott
-404½ Dol, med grey, ch @ 395, hvy shear @ 401, open shear @ 401, @ 404½, <u>3½' core loss 396-401</u>, 2½' core loss 401-404
-411 Dol, lt grey, 406½-411 fault gorge
-412 Chert, white, sheared
-415 Dol, lt grey, fault gorge 412-413, lt shears - 415, <u>1' core loss 411-415</u>
-421 Dol, lt grey, mott, ss @ 417, shears near base
-426 Dol, lt grey, banded, scatt open shears throughout, hvy ss 424-425, TGS @ base
-427½ Dol, med grey, mott, sheared
-433 Dol, dk grey, spotted, sheared
-438 Dol, lt grey, mott, spotted, scatt shears throughout, TGS @ base
-440 Dol, med grey, mott, sheared
-443 Dol, lt-med grey, mott, scatt steep L shears throughout (open)
-448 Dol, med-dk grey, mott, ss plus ch @ base
-454 Dol, med-dk grey, mott, blotchy, lt ss @ base, shears @ 450, 453

-454½	Chert, white
-456	Semi-xl, dk brn, hvy mott, hvy grn sh over ch @ base
-465	Dol, med grey, lt gangue shears 462-464
-470	Dol, dk grey, mott, ss plus sed congl @ base, spotted, scatt wh chert-filled fracts
-479	Dol, med grey, mott, blotchy, spotted, white ch band @ base, thin shear @ 474
-481	Dol, med grey, banded, hvy ss @ base, bedding fault @ 481
-487	Dol, med grey, banded 481-483, lt open shears 485-487
-489	Dol, med-dk grey, hvy mott, ch @ 488, ss @ 488, base
-489½	Chert, white
-493	Dol, lt grey, banded, ss 492-493, hvy CM @ 493
-500	Dol, med grey, ch @ 497
-500½	Chert, white, ss @ base
-502	Dol, med grey, banded, cherty & sheared
-503	Chert, white
-504½	Dol, med grey, fault 503-503½, ss @ 504
-505	Chert, white
-507	Dol, med grey, oolite @ base
-508	Dol, lt grey
-512½	Dol, med grey, mott
-515	Dol, dk grey, ss @ base
-516	Dol, lt grey, banded, ss @ base
-522½	Dol, med grey, mott, lt shears
-537½	Dol, dk grey, hvy fault 533-534 (bedding plane), hvy mott 535-538½, asphaltic odor 535-538½, ch nod @ base vuggy
-543	Dol, med grey, hvy mott, hvy ss @ base, lt ss & shale 538
-545½	Dol, med grey, mott, grn sh @ 545
-552	Dol, med-dk grey, mott, spotted
-553½	Dol, lt grey, hvy mott @ base, silic, ss @ top, TGS @ base
-557	Dol, dk grey, hvy mott, blue ch @ base
-560	Dol, lt grey, banded, ch nod @ 558½, ch & ss @ base
-561½	Dol, med grey, silic, hvy mott
-563½	Dol, lt grey, ch @ 562½
-569	Dol, med grey, hvy mott, v. lite ss @ base
-569½	Chert, blue, sandy
-573	Dol, lt grey, banded, ch @ 571-573
-578	Dol, med grey, ch @ 574½, 576½, 578, TGS @ 578, dip @ 578 - 36°
-578½	Dol, med grey, hvy mott, shaly
-585½	Dol, lt grey, banded 578½-582, mott 582-585½, vert shears throughout
-588	Dol, med grey, blue mott, TBS @ base
-590	Dol, med grey, mott near base, lt shears
-592½	Dol, med grey, spotted, lt shear 591
-595	Dol, med grey, mott & spotted, lt ss @ base plus TBS, steep L shear @ 593
-601	Dol, med grey, hvy mott, ss @ 599, sheared 598-598½
-608	Dol, lt grey, ch nod @ 601, 602, 602½, 603, lt shears 601-603
-614	Dol, med grey, mott, eyelets, TBS @ 614, shear @ 612
-615½	Dol, med-dk grey, mott
-618	Dol, med grey, lt bands, TGS @ 618, ss @ 617½-618, scatt shears throughout
-619	Dol, lt grey
-623½	Dol, med grey, mott, sed congl plus ss @ base, ch @ 619, 623½, sheared 619
-627	Dol, lt grey, mott, TBS @ base, spotted
-633½	Dol, med grey, mott, spotted, TGS @ 628, lt shears 628½-632, dk dol 631-base, TGS @ base
-635½	Dol, med grey, lt bands, hvy ss 635-635½, some CM @ 635½

-636 Shale, grn & black, sandy
-642½ Dol, med grey, mott & spotted, darker toward base, lt shear637, 638½
-644½ Dol, lt grey, banded, lt ss 643½-644½, CM plus TBS @ 644½
-645½ Dol, dk grey, ss @ base, hvy grn sh @ base
-647 Dol, dk grey, hvy mott, lt shear @ 646
-656 Dol, lt grey, banded, lt ss @ 649, med grey 649-656, hvy grn sh @ base
-657½ Dol, med grey, mott, TGS @ base
-666 Dol, lt grey, banded, ch @ 658½
-668 Dol, black, mott
-672 Dol, med grey, TGS @ base, BF fault @ base
-681 Dol, lt grey, shears @ 673, hvy ss plus CM @ 676, spotted 676-681
-683 Dol, med grey, hvy mott, shaly @ top, TGS @ base
-690 Dol, lt grey, lt bands, vert shear 686-687½, TBS @ base
-691½ Dol, dk grey, banded, TGS @ base
-694 Dol, lt grey, hvy mott, TGS @ base
-696 Dol, dk grey, banded, TBS @ base plus lt ss
-701 Dol, lt grey, TGS @ base
-705 Dol, med grey, lt shear @ 702½
-718 Dol, med grey, banded, TGS @ 711, 716, hvy ss @ 716, crackle 716-718
-721 Dol, med grey, mott, TGS @ base
-723 Dol, lt grey, TGS @ 721½, 722, ch @ 722, 723, ss @ 722, 723
-728 Dol, med-dk grey, ch nod (oolite) @ base
-729 Dol, med grey, mott
-731 Dol, lt grey, TGS @ base
-738 Dol, med grey, mott 733-base, TGS @ 733, base
-743 Dol, lt grey, mott, wh ch nod @ 742
-753 Dol, lt grey, banded, wh ch nods @ 744, 746, 746½, 747½, 748½, 749, TGS @ 749, base, hvy ss 752-753
-757 Dol, med-dk grey, hvy mott, ch nod @ base
-759½ Dol, lt grey, banded, white ch nod @ base
-765 Dol, lt grey, mott, scatt open fracts
-766½ Dol, med grey, wh chert under lite ss @ base
-771 Dol, lt grey, banded, grn sh plus lite ss @ base
-778 Dol, lt-med grey, hvy grn sh @ base, silic @ base, fault @ 777½
-797 Dol, lt grey, banded, ch nods @ 784, 790, 790½, 791, ss @ 790, 793½
-799 Dol, med grey, mott, TGS @ base
-805 Dol, lt grey, banded, ss @ base
-806 Dol, med grey, crackle
-809½ Dol, lt grey, banded, hvy grn sh @ base, lt ss @ 809, lt crackle
-816 Dol, med grey, ch @ 809½, 810½, 811, TGS @ base
-818 Dol, lt grey, mott 816-817, ch band @ base, traces ZNS in chert
-824½ Dol, med grey, crackle, wh ch @ 822½
-832 Dol, lt grey, hvy crackle
-836 Dol, lt-med grey, hvy crackle, TGS @ base, lt ss @ 835
-843 Dol, lt-med grey, mott, lt crackle @ top, sheared 841½-842
-848 Dol, lt-med grey, mott, crackle, rubble 847-848, lt ss @ base, scatt shears throughout
-848½ Shale, grn, dipping 60°
-850½ Semi-xl, dk grey, mott, rubble, thin re-xl @ top, shale breccia @ base, lt fluorite shines
-852 Dol, lt grey, lt bands, rubble, lt ss @ 851, thin white ch band @ base
-853½ Shale, grn & black, steep dip, ZNS shines throughout (est .25%) ZN
-855 Re-xl, dk brn, ruble, TGS @ base
-856 Chert band, white, crackle with blk jasperoid, est 1/2% ZN
-857 Semi-xl, dk brn, mott, TGS @ base

-860½ Re-xl, brn, mott, lite @ base, shaly 860-860½, hvy grn sh @ base, Est. 1/2% ZN 857-860
-864 Dol, lt grey, hvy mott, crackle, v. lite ss over TGS @ base
-868 Dol, med grey, hvy mott, rubble 864-865½, crackle 865½-base, fault breccia @ base, TGS @ base
-868½ Dol, med-dk grey, banded
-873 Re-xl, dk brn, ruble, lt dol block @ 871
-875½ Re-xl, med brn, banded, hvy ss @ 874
-876½ Semi-xl, med brn, banded
-879 Dol, med grey, mott, v. lite crackle
-880 Semi-xl, dk brn, mott, vuggy, crackle, white ch @ base
-881 Dol, lt grey, rubble, ss @ base
-881½ Dol, med-dk grey, hvy mott
-886 Dol, lt grey, banded, rubble, blk jasper band @ 885
-889 Re-xl, brn, crackle
-891 Dol, lt-med grey
-892 Re-xl, blk & white, banded
-896 Dol, lt-med grey, crackle
-898½ Dol, dk grey, crackle
-908 Re-xl, dk grey & black, 75% shale & silica, white brecc ch frags throughout, trace ZNS @ 904
-914 Re-xl, brn mott, fract with sil re-xl @ 909, 911, wh ch (brecc) @ 911, lt shear @ base
-920 Re-xl, brn, silic, vuggy, white ch @ 919½-920, 919½-920. 20% ZN est.
-926 Dol, lt grey, lt mott, lt crackle 923½-924½ chert, white ch nods 925-925½, 926
-932 Re-xl, blk & white, siliceous, chert frags throughout, 926-932. est. 10% ZN
-932½ Dol, lt grey, crackle
-935 Re-xl, blk & white, siliceous, 932½-934. est. 4% ZN, 934-935. est. 1/2% ZN
-935½ Dol, lt grey
-937½ Re-xl, blk & white, silic., hvy ss 936½, 935½-937½. est. 3% ZN
-939½ Re-xl, brn, crackle, hvy ss @ base
-941½ Re-xl, blk & white, TGS @ base
-943½ Re-xl, brn, vuggy, silic
-945 Re-xl, blk & white
-947 Dol, lt-med grey, mott, 945-946, ch nod @ 946
-948 Dol, lt grey, wh ch @ base plus lite ss
-949 Semi-xl, silic, white ch @ 949, hvy blk shale @ base
-949½ Chert, grey & white
-955½ Dol, med grey, mott @ top, rubble to 953, crackle - base
-956 Re-xl, brn, silic
-964 Dol, med grey, mott, lt crackle, trace FeS @ 959, wh ch @ 963, lite ss 963-964
-966 Semi-xl, brn, mott, crackle
-968½ Re-xl, brn, crackle, lite ss @ base
-970½ Re-xl, grey, silic, ch & sh frags throughout, Est. 1/4% ZN 968½-969½. 4% ZN 969½-970½ Est.
-971 Chert, brn
-974½ Dol, med-dk grey, mott, eyelets, lt crackle, lite ss @ base plus TGS
-978 Re-xl, brn, silic, ss @ 977
-985 Dol, lt-med grey, blue mott, ch nods @ 978½, 982, 984½, hvy ss @ 982
-991½ Dol, med grey, mott 988½-base, crackle, TGS plus ss @ 988, ss @ 991½
-992½ Re-xl, brn, 5% FeS 991½-992
-995½ Dol, med grey, rubble, hvy FeS shines 992½-993½
-998 Re-xl, brn, rubble 995½-996
-1000 Re-xl, grey, silic, fragmental cherts throughout, chert oolite @ 999 over ss

Form MF-104 (Rev.)
(April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.4
Approval expires 6-30-53.

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 62

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of April, 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third St., Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation 50% Amount $ 85,062.00

MAY 18 1959 O.M.E.

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$4653.00	$76,164.00	$80,817.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	380.00	1,722.00	2,102.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	-----	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	8.75	217.50	226.25			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incid. allow. @ .18/ft.	279.18	4569.84	4,849.02			
TOTALS	$5320.93	$82,963.59	$88,284.52	5320.93	82,963.59	88,284.52

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 4/30/59 *Payee B. H. Putnam

Per William Meek Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 2660.47

Signature Helen R. Miller (Authorized Certifying Officer)

Date MAY 15 1959 Vou. No. 111

(See other side)

17

2660.46

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [signature] Title GEOLOGIST, U. S. G. S. Date MAY 13 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature V. J. Lynch Title ACTING EXECUTIVE OFFICER DME - REGION V Date MAY 13 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

MAY 18 1959 O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of April 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name B. H. Putnam Minerals Zinc

Address 512 Third St., Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$4653.00	1551	$80,817.00	26,939	3.00	50,000	3.00
Reaming	Foot	380.00	190	2,102.00	1,051	2.00	5,000	2.00
Sampling	Each	8.75	7	226.25	50	1.25	550	1.50
Core boxes	Each	---	---	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Roads and Trails Incid. allow. @ .18/ft.	Foot	279.18	1551	4,849.02	26,939	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		$5320.93		$88,284.52				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$5320.93		$88,284.52				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date 4/30/59 Operator B. H. Putnam

Per William T. Niles Title Superintendent

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

Hoeden

GEOLOGIST, U. S. G. S.

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

RECEIVED
MAY 13 1959
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

A Progress Report on the Puncheon Camp Creek Project
Grainger County, Tennessee

April 1959
by W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of April two holes were drilled on the Puncheon Camp Creek Project. Hole GD-27 was drilled 100 feet west of GD-26. It collared in the Mascot formation and was drilled to a depth of 770 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-11	Overburden	—	—	—
11-479	Mascot	CMSS @ 479	—	Dolomite
479-741	Kingsport	"R" @ 636 "S" @ 690 "T" @ 741	Shine @ 705, 706-707½, 3.20%	Dolomite, re-xl, ls, crackle breccia in "S" bed
741-770	Longview	"U" @ 756	—	Dolomite, re-xl

Hole GD-28 was drilled on a strike fence and is 290 feet west of GD-27. The hole collared in the Mascot formation and was drilled to a depth of 781 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-50	Overburden	—	—	—
50-486	Mascot	CMSS @ 426	—	Dolomite, numerous shears and faults throughout
486-762	Kingsport	"R" @ 645 "S" @ 698 "T" @ 762	—	Dolomite, re-xl, ls, scattered "dry" breccia & red coloration
762-781	Longview	"U" @ 775	—	Dolomite & re-xl

B. H. Putnam DD-OD-27

Copper Ridge Project - Punchbowl Camp Creek

Hole No.: OD-27	Collared: 4/10/59
Farm: Green-Dalton	Bottomed: 4/22/59
Loc.: N 49,448.33	Depth: 770
E 46,279.97	Casing: BX-10'; AX-165'
Elevation: 1,376.68	Reaming: 45-165
Drilled by: Putnam Drlg. Co.	Cement: None
Logged by: W. T. Hill	

Top Kingsport	479
Top "K" bed	636
Top "S" bed	690
Base Kingsport	741
"U" bed	756

0-11	Overburden
-26	Dol, med-dk grey, mott & spotted, 3' core loss 20-28
-30	Dol, lt grey, lt bands
-45½	Dol, dk grey, mott, 12' core loss 28-45
-47½	Dol, med grey, hvy mott
-50½	Dol, lt grey, banded, ch nod @ 48, TGS @ base
-53½	Dol, med grey, TGS @ base
-55½	Dol, med grey, shaly & hvy mott
-57½	Dol, lt grey, TBS @ base
-59½	Dol, med grey, banded, lt ss @ base
-62	Dol, lt grey, banded, pinkish
-63	Cavity
-64	Dol, lt grey, banded
-66	Dol, med grey, hvy mott, spotted
-69	Dol, med-dk grey, banded
-70½	Cavity
-76	Dol, med grey, hvy mott, spotted
-77	Dol, lt grey, banded
-77½	Cavity
-83	Dol, med grey, banded, lt ss @ 78, hvy gen sh @ base
-87	Dol, med grey, mott, hvy ss plus gen sh @ 84
-93½	Dol, lt grey, banded, sh @ 90,93½, lt ss @ 93½
-94	Cavity
-96½	Dol, med-dk grey, hvy mott
-97	Dol, med grey
-97½	Cavity
-98½	Dol, dk grey, hvy DP shears @ 97½
-103½	Dol, med grey
-105	Cavity
-107½	Dol, med grey
-118	Dol, lt grey, CMSS @ 108½, hvy ss 116½-118, ch nods 114, 115
-121	Dol, black, congl near base
-124	Dol, med grey, hvy ss plus ch @ base
-126	Dol, lt grey, ch @ base
-135	Dol, med grey, mott
-136	Dol, med, reddish, congl hvy CMSS @ base
-140	Dol, lt grey
-148	Dol, lt-med grey, lt reddish bands
-153	Dol, med grey, banded & mott, ch @ base
-160	Dol, med grey
-164	Semi-xl, med grey, hvy mott, ch band 160-160½, 50% ch 163-164
-170½	Dol, lt grey, banded, vuggy @ top, TBS @ 166, ss 166-167, lt ss 169-170, TGS @ base
-171	Dol, med grey, hvy mott
-178½	Dol, med-dk grey, mott
-179	Ch, white
-183	Dol, lt grey, banded, TGS @ base
-187	Dol, med grey, mott
-200½	Dol, dk grey, spotted, lt ss plus ch @ base
-206	Dol, med grey, ch nod @ 204
-207	Dol, lt grey, lt ss @ base
-207½	Chert, white
-210½	Dol, med grey, hvy mott, spotted, ch nod @ base
-215½	Dol, med grey, hvy mott
-220½	Dol, lt grey, spotted, banded, hvy ss 219-220

-225½ Dol, dk grey, spotted, TGS @ base
-230½ Dol, dk grey, mott, lt ss plus ch @ base
-236 Dol, lt grey, mott, vuggy, TGS @ base
-239 Dol, med grey, hvy mott, ch plus ss plus TGS @ base
-248 Dol, med grey, TGS plus ss @ base
-254 Dol, med-dk grey, spotted, lt ss plus TGS @ base
-255 Dol, med grey, hvy mott
-259½ Dol, lt grey, ch nod @ base
-270 Dol, med-dk grey, hvy mott 268-270, ss @ base
-282 Dol, med grey, mott and hvy spots, ch nods @ 274
-286 Dol, lt grey, banded, lt ss @ 283, ch @ base
-290 Dol, med grey, CMSS @ base
-296 Dol, lt grey, banded 293-296, ch @ 291, ss 294½-296, CMSS @ 296 plus TGS
-305 Dol, med grey, ch @ 297, 303, 304, 304½-305 (oolite), lt ss 303-304
-307 Dol, med-dk grey, hvy mott
-313 Dol, med grey, mott, spotted
-314 Semi-xl, dk, mott, lt ss @ base
-319 Dol, lt grey, mott, ss 317-319
-332 Dol, med-dk grey, mott, congl 321-322
-339 Dol, med-dk grey, hvy BF fault breccia 333-334, scatt shears 334-336, congl 337-338, lt ss plus grn sh @ base
-342 Dol, med grey, mott
-343 Dol, lt grey, sed breccia plus ss 342½-343
-353 Dol, med-dk grey, spotted, congl 343-344
-354 Dol, lt grey
-356 Semi-xl, med, 50% silica
-359 Dol, med grey, hvy mott, ch band @ base
-363 Dol, lt grey, banded, dk & mott, 362-363, ss @ 362
-363½ Chert, white
-364 Semi-xl, dk grey
-364½ Dol, lt grey, lt bands, ch @ 364½
-369 Dol, med-dk grey, hvy mott, conglomeratic
-370 Chert, blue & white, oolitic
-375½ Dol, lt grey, banded, ch @ 374
-376½ Dol, med grey
-379 Dol, med grey, banded, TGS @ base
-381½ Dol, med grey, mott, spotted, ch @ 380, TBS @ 381½
-384 Dol, lt grey, hvy bands, TGS plus lite ss @ base
-397 Dol, med-dk grey, hvy mott
-397½ Dol, lt grey, banded
-401 Dol, lt-med grey, mott, silic, ss @ 398-399, vuggy
-401½ Chert, congl
-411 Dol, lt grey, banded, ch nods @ 404
-418 Dol, med grey, hvy mott
-419½ Dol, dk grey
-421½ Dol, lt grey, banded
-427½ Dol, lt-med grey, hvy mott, ch @ 424,425
-432 Dol, med grey, hvy mott, spotted, sh @ 429, 431, 432
-438 Dol, black, hvy mott, spotted, TGS plus ch @ base
-439½ Dol, med grey, mott, hvy ss @ base
-440 Chert, blue & white, oolitic
-440½ Shale, green
-446½ Dol, med grey, hvy mott, TBS @ base
-449 Dol, lt grey, banded, hvy ss plus TGS @ base
-451 Dol, med grey, hvy mott
-456 Dol, lt grey, banded, ss 453-454, TBS @ 456

-460 Dol, med grey
-462 Dol, med-dk grey, hvy mott
-467 Dol, lt grey, banded, ch @ 463
-470 Dol, med grey
-472 Dol, dk grey, shaly mott
-475 Dol, med grey
-478 Dol, med-dk grey, spotted, mott
-485 Dol, lt grey, banded, ch nods @ 478, 481, hvy ss @ 478, 479, TGS @ 485
-487½ Dol, med grey, hvy mott, TGS @ base
-491 Dol, lt grey, banded
-495 Dol, med grey, mott, hvy sh @ 494, 495
-497½ Dol, lt-med grey, mott, TBS @ base
-502½ Dol, lt grey, banded, ch nod @ 498, scatt ss @ 499
-507 Dol, med grey, mott, TGS @ 505, 506
-510 Dol, med grey, hvy mott, ch nod @ base
-523 Dol, lt grey, banded, ch @ 511, 512, lt ss @ 518, 519½, TGS @ base
-526 Dol, med grey, lt mott & spotted, hvy gen sh plus ss @ base
-541 Dol, med grey, hvy ss @ 529, mott, TBS @ base
-545 Dol, v. lite brey, mott, TBS @ base
-548 Dol, lt grey, ch @ 548
-556 Dol, med grey, banded, ch nod @ 550, hvy ss 555-556, TGS @ 556
-558 Semi-xl, med grey, hvy mott, hvy sh plus TGS @ base
-562 Dol, lt grey, ch plus TGS @ base
-568 Dol, lt grey, TGS plus lt ss @ base
-569 Chert, blue & white
-570½ Dol, dk grey
-579 Dol, lt-med grey, ch @ 572½, 573, 575, 576, 577, TGS @ base
-579½ Dol, med grey, ch plus TGS @ base
-598½ Dol, v. lite grey, lt bands, hvy bands 589-590½, ch @ 590½, 592, 593, ss @ 594
-600½ Dol, med grey, mott, ch @ base
-610½ Dol, lt grey banded, ch @ 610½, lt ss plus TGS @ 605, lt ss 610-610½
-617 Dol, lt-med grey
-622 Dol, lt grey, banded, ch @ 619
-636 Dol, v. lt grey, bands, ch @ 623, gen sh @ 630, lt ss plus hvy gen sh @ base
-638 Ss-xl, black & white, crackle, lt FeS shines
-638½ Dol, mostly gen sh
-641½ Dol, med grey, mott, crackle breccia, hvy gen sh @ base
-643 Ss-xl, dk grey, shaly
-648 Dol, med brown, hvy mott, crackle, TGS @ base, lt ss @ base
-649 Ss-xl, black & white
-652 Semi-xl, med grey crackle
-653 Dol, lt grey, banded, lt ss @ base
-658 Ss-xl, brn, crackle, hvy FeS 653-654
-661 Dol, lt grey, crackle (dry)
-667 Ss-xl, brn, lt crackle
-669 Dol, med grey, ch @ 668
-674 Ss-xl, greenish, mott
-675 Dol, lt grey, lt ss plus TGS @ base
-678 Dol, lt-med grey, spotted
-681½ Dol, dk grey, spotted, hvy ch band plus TGS @ base
-683 Ls, brown, hvy sh 682, 683
-688 Dol, med-dk grey, mott & spotted, crackle
-690 Semi-xl, lt grey, banded, ch @ 688

-698	Re-xl, brn, siliceous
-700	Ls, hvy gen sh @ base
-704	Dol, lt grey, crackle, semi-xl, 700-702
-713	Re-xl, brn, breccia, sh @ 705, 706-707½, Est. 4% PE, fluorite @ 708
-713½	Dol, lt grey
-723	Re-xl, brn, crackle
-723½	Dol, lt grey, thin ls @ base
-732	Re-xl, brn
-734	Ls, brn
-741	Re-xl, brn
-756	Dol, med grey, ch nods @ 743, 744
-756½	Chert, blue & white, oolite
-757½	Re-xl, brn
-766	Dol, med grey, mott, crackle breccia
-770	Re-xl, brn, mott, lt crackle

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

April 30, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - April 1959

Core Hole No. CD-27

Footage drilled	770' @ $3.00/ft.	$2,310.00
Footage reamed	120' @ $2.00/ft.	240.00
		$2,550.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. M. Putnam DD-QD-28

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E-1088

Hole No: QD-28	Collared: 4/25/59
Farm: Green-Dalton	Bottomed: 5/7/59
Location: N 49,344.80	Depth: 781'
E 46,626.50	Casing: BX-48, AX-130
Elevation: 1398.47	Reaming: 60-130
Drilled by: Putnam Drlg. Co.	Cement: None
Logged by: W. T. Hill	

Top Kingsport	486
Top "R" bed	645
Top "S" bed	698
Top Longview	762

0-50	Overburden
-52	Dol, lt grey, banded, TGS @ base
-55	Dol, med grey, mott
-57	Dol, med grey, banded
-60	Dol, med-dk grey, banded
-70	Dol, med grey, vuggy
-75	Dol, med-dk grey, vuggy, ss @ 72, shear @ 69, 74, hvy gen sh @ base
-76	Dol, lt-med grey, sh plus lt ss @ base
-80	Dol, med grey, mott
-81	Dol, med grey, banded, TGS @ base
-83	Dol, med-dk grey
-88	Dol, med-dk grey, banded, ss plus TGS @ 85, hvy mott 85-88
-90	Dol, black, eyelets, ss @ 90, BP fault @ 88, 89
-102	Dol, med-dk grey, banded 99-102, ss @ 101, sh nod @ 97, 102
-106	Dol, med grey, lt mott
-108	Dol, lt grey, hvy bands, scatt ss throughout, hvy ss @ base
-110	Dol, dk grey, lt bands
-112	Dol, med grey, hvy mott
-117	Dol, dk grey, mott
-120	Dol, lt grey, mott & banded, lt ss @ 117, TGS @ base
-122	Dol, med grey, hvy mott
-125½	Dol, dk grey, banded 122-123½, mott 123½-125½
-128	Cavity
-133½	Dol, lt grey, hvy ss @ 130
-140½	Dol, med-dk grey, mott
-152	Dol, med grey, lt mott, ch @ 145, wh ch band @ base
-155	Dol, med-dk grey, hvy mott, wh ch band @ 153
-157	Dol, dk grey, spotted
-159	Dol, med grey, banded
-165	Dol, lt grey, banded
-166	Chert, white
-176	Dol, med-dk grey, mott
-177	Chert, white
-178	Col, lt grey, hvy bands, TGS @ 177
-181½	Dol, med-dk grey, hvy mott, ch @ 178
-185	Dol, med grey, lt mott
-192	Dol, med grey, lt gangue fracts 189-192
-195	Dol, med grey, mott, ch @ 193-194, scatt lt shears throughout
-197	Dol, lt grey, banded, hvy stp angle flt @ 195
-198	Chert, white
-201	Dol, lt-med grey, lt mott, lt ss plus ch @ base, lt shears
-210	Dol, lt-med grey, hvy mott, ss 202-204, hvy ss plus gen sh @ 204, lt shears 201-204
-212	Dol, lt grey, banded, ss @ 211
-223	Dol, med-dk grey, mott, spotted 212-214, TGS @ 216, ss @ base plus white chert
-227	Dol, lt grey, mott
-231	Dol, med grey, mott, TGS @ 231
-234	Dol, lt-med grey, shear @ 234
-244	Dol, med grey, mott, ch plus lt ss @ 241½, ss plus ch @ base
-247	Dol, med grey, hvy mott
-249	Dol, lt grey
-259½	Dol, med-dk grey, ch @ 251, shears @ 255½-256
-263	Dol, dk grey, mott, ss @ 263

-275½	Dol, med grey, mott, eyelets, shear @ 262, ch @ 270, 273, TBS @ base & lt ss
-286½	Dol, lt-med grey, lt bands, ch @ 276, 278, lt ss @ 283½
-288½	Dol, lt grey, banded, scatt ss, hvy ss plus TGS @ base
-294	Dol, med grey, ch nod 289
-306	Dol, med grey, hvy fault gouge 294-306, lt ss @ 295
-310½	Dol, lt-med grey, scatt shears, hvy ss @ 309½
-328	Dol, dk grey, scatt shears 310½-323, hvy gouge 323-325
-331½	Dol, med-dk grey, hvy mott, lt ss plus congl @ base
-339	Dol, lt-med grey, hvy mott
-346	Dol, med grey, spotted & vuggy
-347	Dol, lt-med grey
-351	Dol, med grey, hvy mott, ss @ 347½, 351, cherty 348
-351½	Chert, white
-357	Dol, lt grey, ch @ 352, ch congl 356-357, lt ss 355
-357½	Chert, white
-361	Dol, med grey, ch @ 358, 359, hvy mott 359-361, TBS @ base
-363½	Dol, med grey, mott, sugary, cherty 361-362
-368	Dol, lt grey, hvy bands 363½-366, ch @ 364, 365, 366, 367
-373	Dol, med grey, ch @ base
-374½	Dol, med grey, TGS @ 373,
-378	Dol, med grey, spotted
-380½	Dol, lt grey, banded, lt ss 379½-380½
-385	Dol, med grey, mott
-388	Dol, med-dk grey, spotted, lt ss @ base
-392	Dol, lt-med grey, lt mott
-395	Dol, med grey, hvy mott, banded near base, lt ss @ base
-395½	Chert, white
-397	Dol, med grey, hvy mott, hvy ss 395½, crackle with gen sh @ 396½
-408	Dol, lt grey, ch nods @ 398, 401, ss @ 397, TBS @ 405
-412	Dol, med grey, mott
-414	Dol, dk grey, spotted
-421	Dol, lt-med grey, ss @ 416 plus TGS, fault @ 416, 420, scatt shears 415-420
-423	Dol, med grey, mott, hvy ss plus congl @ base
-437	Dol, med-dk grey, spotted, TGS @ 429, 430, lt shears @ 429, 430, 433, 436
-438	Chert, blue, oolitic plus ss, hvy gen sh @ base
-444	Dol, lt-med grey, lt bands, TGS @ base
-446	Dol, med-dk grey, TGS @ 446
-449	Dol, med grey, shear @ 447
-451	Dol, med-dk grey, mott & silic
-463	Dol, lt grey, banded, ch @ 452, lt ss 455-456, TGS @ 456, TGS @ base shears @ 454, 457, 458, 459
-466½	Dol, med grey, mott, hvy gen sh @ base, ch @ 465, 466
-472½	Dol, med grey, lt bands
-473	Dol, dk grey, shaly
-479	Dol, med-dk grey, spotted
-480	Dol, dk grey, shaly
-484	Dol, med grey, banded, lt ss @ base
-489	Dol, med grey, lt ss 486
-491	Dol, med grey, hvy mott, TGS @ top & base
-501	Dol, lt-med grey, TGS @ base, hvy ss @ 492½, lt shears 496-497
-503	Dol, lt grey, lt shear @ 502
-505	Dol, med grey
-505½	Dol, med grey, lt ss @ base
-509½	Dol, lt-med grey

-513	Dol, med grey, TGS @ base, fault @ 512
-519½	Dol, med grey, hvy mott, ch @ 514, 515, 516, 517, 519, 519½, gen sh @ 517, 518
-525	Dol, med grey, lt bands, ch @ 521, TGS @ base, hvy ss 524½, 525
-529	Dol, med grey, spotted
-538	Dol, lt-med grey, lt mott, ss 536½-538, some CM
-552	Dol, med grey, gen sh @ 547, 552
-557	Dol, lt grey, mott, hvy gen sh @ base overlain by ch nod
-569	Dol, lt-med grey, lt bands, ch nod @ 560, 561, ss 566-569, congl 568-569
-571½	Dol, med grey, hvy mott, TGS @ 569, 571½, sh @ 571
-575	Dol, lt-med grey, ch @ 573, 575, hvy grn sh @ base
-576	Dol, med grey, lt crackle with dry breccia filling
-578	Dol, med grey, mott, hvy gen sh @ base
-588	Dol, med grey, ch @ 580, 581, 582, ss @ 582, lt crackle plus dry breccia filling
-592	Dol, med-dk grey, ch @ 589, 591, congl @ 591½, dry breccia
-597	Dol, lt grey, banded, dry breccia, ch @ 596, ss @ base
-611	Dol, lt-med grey, lt bands, ch @ 602½, 603, 606½, dry breccia 597-603, TGS @ 605, lt ss @ 607
-612½	Dol, med grey, mott
-624	Dol, med grey, banded, ss @ 617½, dry crackle @ 612½, 613, 618, 619½, 623, ss @ 621, ch @ 622
-626	Dol, med grey, hvy mott, crackle, dry
-627	Dol, lt grey
-634½	Dol, med-dk grey, spotted 627-630, ss plus ch @ 630
-640	Dol, med grey, banded, TGS plus ss @ base, ch @ 638
-646	Dol, lt-med grey, hvy mott 640-644, bands 644-646 (reddish), hvy gen sh @ base
-650	Dol, lt grey, mott, dry breccia 646-647 (semi-xl)
-654	Dol, med grey, hvy mott, congl 652-654, dry crackle 654
-657	Dol, lt grey, dry rubble, ss @ 655
-658	Re-xl, brn, dry rubble, ch nod @ base
-659	Dol, lt grey, banded, rubble @ base, ss @ base
-660	Chert, blue
-660½	Re-xl, black & white
-661	Ls-, brn, shaly
-666	Semi-xl, mott, brn, fault @ 663, thin ls @ base
-667	Dol, med grey, pink bands, TGS @ base
-672	Re-xl, mott, pinkish
-673	Dol, med grey, banded, pinkish, TGS @ base
-677	Ls, shaly, part breccia sealed with red & orange shale
-684	Dol, med-dk grey, hvy mott, reddish, lt crackle
-686	Dol, dk grey, spotted, crackle with red & gen sh gauge
-688	Ls, red shale
-692	Dol, med-dk grey, red mottling
-693½	Chert, white
-698	Dol, med grey, red mott, TGS @ base, lt crackle
-701	Ls, dry breccia 699-700
-705	Re-xl, dk grey, some gen shale, fault @ 704, ch @ base
-709	Dol, med grey, cherty @ base
-715	Semi-xl, red, dk lt crackle
-718	Dol, med grey, mott, lt crackle
-719	Chert with red and green shale
-735	Ls, brn, red shale 721-721½, 728, 729-729½, 731-732
-738	Dol, med-dk grey, lt crackle, ch nod @ 737, TGS @ base
-739½	Ls

-743	Ls, dry breccia
-745½	Ls, sh @ base
-748	Re-xl, brn, coarse, red @ base
-753½	Ls, breccia sealed with re-xl, some red & grn coloring
-757	Re-xl, limy, dk
-758½	Ls, sh @ base
-762	Re-xl, black, asphaltic odor
-764½	Dol, med grey, mott, ch @ base
-775	Dol, med-dk grey, ch @ 766½, 775
-777	Re-xl, brn, siliceous
-778	Dol, med grey, mott
-781	Re-xl, lt brn TD @ 781

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

April 30, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Luncheon Camp Creek Project DMEA Contract No. 4580 - April 1959

Core Hole No. GD-28

Footage drilled	781' @ $3.00/ft.	$2,343.00
Footage reamed	70' @ $2.00/ft.	140.00
		$2,483.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1899

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST TELEPHONE MAYFAIR 3-1596

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST LOUIS, MISSOURI PICHER, OKLAHOMA

B. H. Putnam
P. O. Box 65
Thornhill, Tennessee

4-22-59

		PERCENT ZINC
806321	GD - 26 - 1 665-667	11.90
322	No Tag, material wrapped in paper & 667-669 was in sack with 26-1	8.82 } ave 5.06% ZN
323	GD - 26 - 2 669-674	0.02
324	GD - 26 - 3 674-678	0.32
325	GD - 26 - 4 678-684	0.16
326	GD - 26 - 5 684-688	2.00
327	GD - 26 - 6 688-692	1.04

23 c
2.43% ZN

$8.75

cf-jc 69-490

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

Form MF-104 (Rev.) (April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.4
Approval expires 6-30-53.

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 59

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of March, 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$4389.00	$71,775.00	$76,164.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	380.00	1,342.00	1,722.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	---	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	53.75	163.75	217.50			
Payroll Taxes						
Liability Insurance						
Incid. allow. @ .18/ft.	263.34	4,306.50	4,569.84			
(8) Contingencies (specify):						
TOTALS	$5086.09	$77,877.50	$82,963.59	5086.09	77,877.50	82,963.59

APR 30 1959 O.M.E.

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 3/31/59 *Payee B. H. Putnam

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 2543.04

Signature Helen R. Mellin
(Authorized Certifying Officer)

Date APR 28 1959 Vou. No. 106
(See other side)

2543.05

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [signature] Title MINING ENGINEER U. S. BUREAU OF MINES Date APR 23 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature [signature] Title ACTING EXECUTIVE OFFICER DME REGION V Date APR 23 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of March 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$4389.00	1463	$76,164.00	25,388	3.00	50,000	3.00
~~Short~~ Reaming	Foot	380.00	190	1,722.00	861	2.00	5,000	2.00
~~Auger~~ Sampling	Each	53.75	43	217.50	174	1.25	550	1.50
~~Stripping~~ Core boxes	Each	----	--	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
~~Boxboard~~ Incid. allow. @ .18/ft.	Foot	263.34	1463	4,569.84	25,388	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		$5086.09		$82,963.59				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$5086.09		$82,963.59				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date March 31, 1959 Operator B. H. Putnam

Per [signature] Title Superintendent

REMARKS:

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[signature]
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Luncheon Camp Creek Project
Grainger County, Tennessee

March 1959

by W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of March two holes were drilled on the Luncheon Camp Creek project. Hole GD-25 was drilled on the Green-Delton farm. The hole was drilled 200 feet east of GD-11 and is the initial hole on a strike fence. It collared in the Mascot formation and was drilled to a depth of 703 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-25	Overburden	——	——	——
25-420	Mascot	CM @ 420	Trace ZNS @ 393	Dolomite
420-703	Kingsport	"R" @ 574 "S" @ 640	——	Dolomite, re-xl, and limestone, some lite crackle breccia

Hole GD-26 was drilled 100 feet southwest of GD-25. The hole collared in the Mascot formation and was drilled to a depth of 760 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-17	Overburden	——	——	——
17-442	Mascot	CM @ 442	——	Dolomite

RECEIVED
APR 2 1 1959
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
442-708	Kingsport	"R" @ 596 "S" @ 652 "T" @ 708	Trace ZNS @ 662 665-669, 6% ZN est. 669-670, 1/2% ZN est. Shine @ 683 685-688, 4% ZN est. 688-690, 1/2% ZN est. Shine @ 700	Dolomite & re-xl, crackle breccia in "J" bed
708-760	Longview	"U" @ 727 L-4 @ 754	——	Dolomite, re-xl, and limestone

Drilling is now underway 100 feet southwest of OD-26

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1898

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

B. H. Putman
P. O. Box 65
Thorn Hill, Tennessee

2-3-59

				ZINC		
002321	Sample	CD-22-1	143½ - 144½	11.00		
322		CD-22-2	144½ - 145½	0.40	7½'e	
323		CD-22-3	148 - 149	9.70	3.11%	10½'e
324		CD-22-4	149 - 151	2.26		2.4%
325		CD-22-5	155 - 156	6.50		
326		CD-22-6	156 - 159	1.32		
327		CD-22-7	212½ - 215	7.24		20½'e
328		CD-22-8	228 - 231	3.20	5'e	1.66%
329		CD-22-9	231 - 233	3.20	3.20%	

Pg/JE 60-760

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1899
MAIN OFFICE AND LABORATORIES 810-824 JOPLIN ST. TELEPHONE MAYFAIR 3-1556
JOPLIN, MISSOURI

EATONSVILLE, ARKANSAS

ST. LOUIS, MISSOURI

PICHER, OKLAHOMA

Mr. A. Fuhrman
P. O. Box 65
Storm Hill, Tennessee

2-11-59

00274	GU	23	1	241½-243	3.76		
741	GU	23	2	243-245	1.50		
742	GU	23	3	245-247	2.00	9½'c	
744	GU	23	4	247-249	1.44	3.07%	
745	GU	23	5	249-251	4.44		
746	GU	23	6	258-258½	0.90		
747	GU	23	7	263-265	1.36	4'c	
748	GU	23	8	265-267	1.62	1.49%	
749	GU	23	9	320-322	10.04		
750	GU	23	10	322-323½	14.44		
751	GU	23	11	323½-325	0.14		
752	GU	23	12	328-330½	1.22	13½'c	
753	GU	23	13	330½-332	0.40	4.19%	
754	GU	23	14	332-333½	7.10		
755	GU	23	15	342-343	1.71		
756	GU	23	16	348½-349½	1.72		
757	GU	23	17	356-358	2.90		

Order 63-630

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams 21.25

B. H. Putnam DD-GD-25
Copper Ridge Project - Puncheon Camp Creek
DMEA Idm-E 1088

Hole No.: GD-25

Farm: Green-Dalton

Location: N 49,622.35

E 46,981.96

Elevation: 1390.82

Drilled by: Putnam Drlg. Co.

Logged by: W. T. Hill

Collared: 3/6/59

Bottomed: 3/17/59

Depth: 703'

Casing: BX-55; AX-155

Reaming: 35-155

Cement: None

Top Kingsport	420
Top "R" bed	574
Top "S" bed	639

0-25	Overburden
-30	Dol, med grey, banded & mott, hvy gen sh @ 27, 28
-35	Dol, lt grey, red mott
-36	Dol, med grey, gen sh @ base
-37	Dol, lt grey, banded
-43	Dol, med-dk grey, banded & mott
-51	Dol, med grey, darker toward base, black sh plus hvy ss @ base
-53½	Dol, med grey, banded
-55	Dol, lt grey, banded
-57	Dol, med grey, banded
-59	Dol, lt grey, mott, very hvy ss plus congl throughout, sh @ base
-66	Dol, dk grey, mott, steep angle fault 62-63
-73½	Dol, med-dk grey
-76	Dol, lt grey, banded
-77	Dol, med grey, mott, shaly
-81	Dol, black
-87	Dol, lt grey, ss @ 83, sh @ base
-96	Dol, med grey, mott, spotted
-97½	Re-xl & chert, mott
-102	Dol, med grey
-106	Dol, med grey, hvy mott, siliceous
-114	Dol, lt-med grey, banded, ss @ 109, 114, sh @ 114
-121	Dol, med grey, mott, vuggy 118-119
-122	Chert, white
-127	Dol, lt-med grey, banded, TGS @ base
-130	Dol, med grey, hvy mott, silic 127-128
-141	Dol, med grey, ss @ base
-145	Dol, lt grey, mott @ 142
-147	Chert, white
-151	Dol, med grey, lt fracts
-152	Dol, med grey, mott, vuggy
-153½	Opening
-160	Dol, med grey, mott
-170	Dol, med grey, hvy mott, spotted 160-164, ss plus sh plus TGS @ base
-175	Dol, lt grey, mott, spotted, TGS @ base
-178	Dol, med grey, hvy mott, ss plus TGS @ base
-192	Dol, lt-med grey, mott, spotted, TGS @ 192, fault @ base
-195½	Dol, med grey, hvy mott
-200	Dol, med grey, lt bands, shear @ 192, TGS @ base
-206	Dol, med-dk grey
-209	Dol, dk grey, hvy mott, ss @ base
-220	Dol, med grey, mott, heavy spots
-225	Dol, lt grey, sh nods @ 220, 222, 225, TGS @ 225
-229	Dol, lt-med grey, scatt ss 228-229
-235	Dol, lt grey banded, ss @ 234-235, CM @ 235
-244	Dol, med grey, TGS @ base
-245	Dol, lt grey, ss throughout
-246	Dol, med grey, mott, siliceous, wh sh plus hvy ss @ base, oolite @ 246
-254	Dol, med-dk grey, mott, vuggy, TGS plus ss @ base
-257	Dol, lt grey, hvy ss @ 256
-264	Dol, med grey, hvy mott
-266	Dol, dk grey
-278	Dol, med grey, mott, TGS plus ss @ base, hvy fault 272-273
-284	Dol, lt grey, mott, hvy ss plus CM @ 282½, TGS @ 284

-295 Dol, med grey, mott, spotted, TGS plus ss @ base
-297½ Dol, med grey, mott
-298 Chert, white
-301 Dol, med grey
-305 Dol, lt grey, banded, lt ss 301-302, ch @ 303,304
-310 Dol, med grey, hvy mott, spotted, sugary
-314 Dol, lt grey, ch @ 312, 1½' core loss 310-314
-321 Dol, lt-med grey, 4' core loss 314-321
-325 Dol, very lt grey, banded, ch nod @ 325
-327½ Dol, lt-med grey, mott
-332 Dol, med grey, hvy mott, TGS plus ss @ base
-339 Dol, lt grey, mott, ss 338-339, silic 337-339
-343 Dol, lt grey, hvy mott, ch @ 342
-349 Dol, lt-med grey
-356 Dol, med grey, hvy mott, blk sh @ base
-359 Dol, dk grey, banded, spotted, TGS @ 359
-363 Dol, lt grey, mott, ss @ 363
-366 Dol, med grey
-368 Dol, lt grey, mott, sh @ base
-378 Dol, black, hvy spots, ss @ base plus 6" gen sh
-384 Dol, lt-med grey, mott
-386 Dol, med grey, mott
-387½ Dol, lt-med grey, CMSS plus TGS @ base
-391 Dol, med-dk grey, hvy mott
-399 Dol, med grey, banded, ss 391-392, TGS @ base, <u>TR ANS @ 393</u>
-400½ Dol, dk grey, hvy mott, TGS @ 399½
-404 Dol, lt grey, banded, fault breccia @ 403
-407 Dol, lt grey, mott
-415½ Dol, dk grey, mott, spotted
-423 Dol, lt grey, lt bands 419-421, ss in sed breccia (coarse bedding), spotted
-424½ Dol, hvy mott, ch @ 423, sh @ base
-434 Dol, lt grey, lt bands, TGS @ base
-437 Dol, lt grey, well banded, TGS @ 435-436, ss @ 437
-443 Dol, lt grey, TGS @ 441
-447½ Dol, dk grey, hvy mott, ch nod @ base
-454 Dol, lt-med grey, banded, ch nods @ 449, 450, 451, 453
-456 Dol, lt-med grey, banded, hvy ss 455-456, TGS @ 456
-467 Dol, lt grey, mott, TGS @ 462, 467, ch @ 460, 465, ss @ 465, 466 (CM)
-479 Dol, lt-med grey, TGS @ 473, 474, 475, ch @ 472
-488 Dol, lt grey, lt mott, ch nod @ 487, 488
-496 Dol, lt grey, strong bands, ch nod @ 481, ss 494-495, sed congl plus ss 495-496, TGS plus ch @ 496
-498 Dol, med grey, hvy mott, sed congl @ base
-517 Dol, lt grey, banded, ch nods @ 506, 507, 508, 509, scatt ss 510-511, TGS @ 511, Ch 515, 516, sed-congl 516-517
-517½ Dol, med grey, mott
-536 Dol, lt grey, banded, ch nods @ 523, 532, ss @ 529, TGS @ 525, 536
-538½ Dol, lt grey, mott, ch nod @ base
-543 Dol, lt grey, well banded, lt shears 540-541, TGS plus lt ss @ 543
-548 Dol, lt-med grey, mott, ss 547-548, 6" wh ch @ base
-548½ Shale, green, hvy FeS throughout
-549 Chert, blue
-554 Dol, med grey, hvy mott, shaly near base
-556 Dol, lt grey, mott, TGS @ base

-558 Dol, med grey, hvy mott
-560 Dol, med grey, banded, TGS @ base
-567 Dol, lt grey, lt bands, grn sh @ base
-571 Dol, lt-med grey, mott, ch @ base
-574 Dol, lt grey, banded, lt ss @ base
-574½ Shale, green
-575½ Dol, med grey, hvy mott, hvy gen sh @ base
-584 Dol, med grey, mott, lt ss @ base
-585½ Dol, med grey, sed breccia with gen sh filling (dry breccia)
-586½ Dol, med grey, banded
-588½ Dol & blue chert, dry breccia
-592 Re-xl, brn, coarse grn'd, crackle
-592½ Dol, lt grey, banded, lt ss @ base
-593½ Re-xl, brn, coarse grn'd
-595½ Dol, med grey, sugary, banded, crackle
-599 Re-xl, brn, coarse, lt crackle
-603 Dol, med grey, mott, ch nod @ 599½
-604 Re-xl, brn, vuggy
-613½ Dol, med grey, greenish, mott, crackle
-614½ Re-xl, brn, crackle
-617 Dol, med grey, crackle
-622 Dol, med grey, spotted
-625 Dol, dk grey, breccia, some FeS shines
-627 Ls, breccia, gen sh filling
-628 Chert, black & brn, shaly
-634 Dol, med grey, banded & mott
-634½ Re-xl, dk brn, vuggy, ch @ base
-639½ Dol, lt grey, banded, ch @ 636, 637, 639½
-646 Re-xl, brn, coarse, chert 639½-641
-653 Ls, brn, shaly
-654½ Dol, med grey, ch @ 653, 654
-665 Ls, brn, shaly, ch @ 655, 659, 660
-669 Re-xl & ls, dk brn, vuggy
-574 Ls, brn, shaly
-575 Dol, banded, lt ss plus gen sh @ base
-585 Ls, brn
-590 Re-xl, brn, coarse
-591 Dol, med grey, ss @ base plus TGS
-592½ Re-xl, brn
-593½ Ls, brn, shaly
-703 Re-xl, brn, coarse TD @ 703

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

March 31, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - March 1959

Core Hole No. CD-25

Footage drilled	703 @ $3.00/ft.	$2,109.00
Footage reamed	120 @ $2.00/ft.	240.00
		$2,349.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. H. Putnam DD-GD-26
Copper Ridge Project - Punchbowl Camp Creek
DMEA Idm-F 1088

Hole No: GD-26

Farm: Green-Dalton

Location: N 49,538.57

E 46,929.38

Elevation: 1379.54

Drilled by: Putnam Drlg. Co.

Logged by: W. T. Hill

Collared: 3/25/59

Bottomed: 4/9/59

Depth: 760'

Casing: BX-17, AX-100

Reaming: 30'-100'

Cement: 2 bags

Top Kingsport	442
Top "R" bed	596
Top "S" bed	652
Base Kingsport	708

0-17	Overburden
-20	Dol, med grey, very shaly
-26	Dol, lt-med, banded, exid @ 25
-30½	Dol, med grey, very shaly
-34½	Dol, med-dk grey, banded
-41	Dol, med grey, strong mott, lt ss @ 34½
-47	Dol, med grey, banded, ss @ 43, blk sh @ 45
-51½	Dol, lt grey, mott, eyelets, hvy ss plus TGS @ 50
-54	Dol, very lt grey, mott, lite ss plus TGS @ base, ch @ 53½, hvy mott @ base
-57	Dol, lt grey, lt mott
-59½	Dol, dk grey, TBS @ base
-61	Dol, med grey, hvy mott, ch @ base
-63	Dol, dk grey, spotted, hvy ss @ base
-69	Dol, lt-med grey
-72½	Dol, black, banded, CMSS @ 71, hvy black sh @ base
-77	Dol, lt grey, banded, hvy mott @ top, scatt ss 76-77, hvy CMSS @ base plus black sh
-79	Dol, dk grey
-85	Dol, med-dk grey, mott, sugary, conglomeratic
-87½	Dol, med grey, sugary, ch plus lt ss @ base
-89	Dol, lt grey, banded
-91	Dol, med grey, hvy mott, shaly
-95½	Dol, med-dk grey, congl @ base
-97½	Opening
-105	Dol, very lite grey, sed breccia 97½-98½ plus CMSS
-111	Dol, med grey, lt mott, TGS @ base
-116	Dol, med grey, hvy mott @ 113, gangue filled breccia plus oolite @ base
-121½	Dol, med grey, lt bands
-126	Dol, dk grey, hvy mott, sugary
-128	Dol, med grey, spotted, ss plus wk sh @ base
-132½	Dol, lt grey, banded, lt ss @ base
-133½	Dol, med grey, hvy mott
-141½	Dol, med-dk grey, mott
-142	Chert, white
-149	Dol, lt-med grey, banded, wh ch @ base
-154	Dol, med grey, hvy mott
-162	Dol, med-dk grey, spotted, scatt ss @ base
-162½	Chert, white, TGS @ base
-165	Dol, med grey, TGS @ base
-167	Chert, white, some congl
-170	Dol, med grey, ch med @ base
-170½	Chert, white
-178	Dol, med grey, hvy mott, spotted to 173, ss @ 173, gen sh @ 176
-183	Dol, med grey, banded, scatt hvy ss 181-182
-187	Dol, med grey, mott, spotted, TGS @ base
-192	Dol, med-dk grey, hvy mott, sugary, sh plus ss @ base
-198	Dol, very lite grey, lite bands, dip @ 196 - 36°
-202	Dol, med grey, hvy mott 199-202, hvy gen sh plus lite ss @ base
-207	Dol, med grey
-211½	Dol, med grey, hvy mott, lt ss plus TGS @ 209
-215	Dol, med grey, spotted, banded, lt ss plus TGS @ base
-216	Dol, med grey, hvy mott, shaly
-221½	Dol, lt grey, ch med @ 220½, 221½ (oolitic)
-224½	Dol, med grey

-231½ Dol, dk grey, mott, lt ss @ base
-242½ Dol, med grey, mott, spotted, siliceous, ch nod @ base, lt shear @ base
-244 Dol, med grey, ch nod @ base
-253 Dol, lt grey, banded, hvy CMSS @ 244½, 250, lt ss @ 252, ch nod @ 247
BF fault plus gen sh @ 251
-257 Dol, lt grey, broken bands, ss 256-257, CMSS @ 252 plus TGS plus ch
-266 Dol, med grey, ss 265-266, TGS @ 265, ch @ 265½
-267½ Ss-sl, brn, oolitic ch @ base
-269½ Semi-sl, brn, mott
-277 Dol, med grey, lt mott, spotted, ss @ 276
-279 Dol, lt-med grey, mott
-281 Dol, lt grey, sed breccia, hvy ss
-295 Dol, med-dk grey, hvy mott, TGS @ base, hvy BF fault 294-295
-301 Dol, black, mott
-306 Dol, lt-med, hvy mott, TGS plus ss @ base
-315 Dol, med grey, mott, spotted
-316½ Dol, lt grey, hvy mott, ch nod @ 316
-320 Dol, med grey, hvy mott
-320½ Chert, white
-325 Dol, lt grey, banded, lt ss plus ch @ base
-330½ Dol, med grey, lt mott
-332 Dol, med-dk grey, hvy mott
-333 Chert, blue and white
-338 Dol, very lite grey, banded, ch nods @ 335, 336, 337
-340 Dol, lt-med grey, TGS plus chert @ base
-340½ Chert, white
-346 Dol, lt grey, banded, lt ss @ base
-350 Dol, lt-med grey, mott, TGS plus lite ss @ 348½
-352 Dol, med grey, mott, lite ss @ base
-359 Dol, lt grey, mott
-360 Chert, white
-364 Dol, med, hvy mott, hvy ss plus congl @ 360-361, wh ch congl 363-364
-371 Dol, lt grey
-378 Dol, lt-med grey, mott, darker toward base, TBS @ base
-381 Dol, lt grey, banded, shear @ 380
-385 Dol, lt grey, mott, vuggy
-388 Dol, lt-med grey, vuggy, sandy, 6" hvy ss @ base plus sed breccia
-401 Dol, med grey, spotted, oolitic ch @ base
-408 Dol, med grey, mott, vuggy near base
-411 Dol, lt grey, banded, lt scatt ss plus TGS @ base
-412 Dol, med grey, mott
-416 Dol, lt grey, banded, scatt ss
-421 Dol, dk grey, banded, gen sh @ base
-428 Dol, lt-med grey, banded, ch nod @ 423
-433 Dol, med grey, hvy mott, shaly toward base
-435 Dol, med-dk grey
-438 Dol, dk grey
-446 Dol, lt grey, banded, CMSS @ 442, ss @ 443½
-448 Dol, med grey, hvy mott, sh @ 446 plus TGS, TGS @ base
-452 Dol, lt grey, scatt shears 448-450
-455½ Dol, med grey, mott, gen sh @ base
-458½ Dol, lt grey, mott, black sh @ base
-470 Dol, lt-med grey, ch nod near base, mott
-487 Dol, lt grey, well banded, ch nods @ 470½, 472½, 473, 474, lt ss 478-480, lt ss plus TGS @ base

-488½ Dol, med grey, sugary, hvy ss plus ch @ base
-491 Dol, lt grey, CMSS plus ch @ 490
-498 Dol, med grey, banded, TGS @ 496, 497, 498
-518 Dol, lt grey, strong banding, ch nods @ 510, 511, TGS @ 506, 515, 518, hvy ss 517-518
-521 Dol, med grey, hvy mott, hvy gen sh @ base
-535 Dol, very lite grey, banded, ch nods @ 529, 530, 531, 532, 535, hvy gen sh @ 524, 534, ss @ 534
-540 Dol, lt-med grey, ch nods @ 536, 537, gen sh @ 539, 540
-565 Dol, very lt grey, lt bands, TGS plus 6" ch @ 547, ch @ 551, 552, 553, 560
-570 Dol, lt grey, well banded, lt ss @ base
-570½ Shale gsn
-596 Dol, very lite grey, lt banding, TGS @ 575, ch @ 578, 595
-596½ Shale, green
-598 Re-xl, dk brn, mott, hvy gen sh @ base
-604 Dol, med grey, mott, TGS @ base
-605½ Dol, med grey, banded
-607 Chert, black, shaly, oxidized
-608½ Re-xl, dk brn, mott
-609½ Dol, lt grey, banded, lt ss plus TGS @ base
-610½ Shale, grn
-612 Re-xl, brn, vuggy
-612½ Dol, lt grey, banded
-613½ Chert, blue & white, hvy gen sh @ base
-617 Re-xl, brn, scatt ch nods, lt crackle
-620 Dol, lt grey, banded, dry breccia 617-619, lt ss @ 617
-623 Re-xl, brn, crackle
-623½ Dol, lt grey, crackle, lt FeS shines
-634 Semi- & re-xl, lt, lt crackle, lt ss plus TGS @ base
-637½ Dol, lt grey
-642 Dol, dk grey, spotted, lt crackle, gen sh @ base
-644½ Ls, brn, gen sh @ base
-645½ Re-xl, dk brn
-652 Dol, med grey, mott, crackle breccia
-653½ Re-xl and white chert
-674 Re-xl, brn, coarse, good crackle breccia, siliceous, ZNS shine @ 662, 665-669, Est 5% ZN, 2' loss 667-669, 669-670. Est 1/2% ZN, 2' core loss 669-674
-675 Dol, lt grey, crackle
-683 Re-xl, brn, coarse, crackle, 675½-678. Est 1/2% ZN, sh @ 683
-694 Re-xl, brn, coarse, 685-688. Est 4% ZN, 688-690. Est 1/2% ZN
-695 Dol, lt grey, crackle
-708 Re-xl, dk brn, coarse, good ZNS shine @ 700
-721 Dol, med grey, sh nod @ 711, darker toward base
-726½ Dol, med-dk grey, well mott
-735 Re-xl, coarse, dk brn, siliceous, lt crackle
-739 Dol, med-dk grey, vuggy, siliceous
-742 Semi-xl, dk brn, siliceous, ss @ 740
-743 Re-xl, dk brn
-754 Dol, med grey, banded, ch @ 745, 749, 750, 751, 752½, ss plus TGS @ 746, ss @ 754
-757 Re-xl, dk brn, mott, ss @ 756
-760 Ls, brn 760 TD

Invoice
Marietta, Ohio

B. H. Putnam, Appre.
512 Third Street
Marietta, Ohio

March 31, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - March 1959

Core hole No. CD-26

Footage drilled	760 @ $3.00/ft.	$2,280.00
Footage reamed	70 @ $2.00/ft.	140.00
		$2,420.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Form MF-104 (Rev.) (April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Budget Bureau No. 42-R1036.4
Approval expires 6-30-53.

MAR 16 1959 O.M.E.

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 51

Month of February, 1959 Docket No. DMEA 4580 Contract No. Ia-3 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$4563.00	$67,212.00	$91,775.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	40.00	1,302.00	1,342.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	10.00	153.75	163.75			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. allow @ .18/ft.	273.78	4,032.72	4,306.50			
TOTALS	$4886.78	$72,990.72	$77,877.50	$4886.78	$72,990.72	$77,877.50

I certify that the above bill is correct and just and that payment therefor has not been received.
Date 2/28/59 *Payee B. H. Putnam
Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:
$ 2443.39
Signature [signature]
(Authorized Certifying Officer)
Date MAR 12 1959 Vou. No. 92
(See other side)

2443.39

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. Tdm-E 1088 in accordance with the terms of the contract.

Signature [illegible] Title GEOLOGIST, U. S. G. S. Date MAR 6 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature V. J. Lynch Title ACTING EXECUTIVE OFFICER DME - REGION V Date MAR 11 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of February 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name B. H. Putnam Minerals Zinc

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$4,564.00	1521	$71,775.00	23,925	3.00	50,000	3.00
~~Core~~ Reaming	Foot	40.00	20	1,342.00	671	2.00	5,000	2.00
~~Core~~ Sampling	Each	10.00	8	163.75	131	1.25	550	1.50
~~Surface~~ Core boxes	Each	———	———	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
~~Replace~~ Repairs Incid. ~~allow.~~ @ .18/ft.	Foot	273.78	1521	4,306.50	23,925	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		$4,886.78		$77,877.50				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$4,886.78		$77,877.50				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date February 28, 1959 Operator B. H. Putnam

Per [signature] Title Superintendent

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.
MAR 6 1959

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek Project
Grainger County, Tennessee

February 1959

By W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of February three holes were drilled on the Puncheon Camp Creek project. Hole GD-24 was drilled 100 feet south of GD-23. The hole collared in the Mascot formation and was drilled to a depth of 501 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-65	Overburden	---	---	---
65-176	Mascot	CMSS @ 176	---	Dolomite
176-449	Kingsport	"R" @ 338; "S" @ 409; "T" @ 449	290-291, 1.58% ZN, 296-296½, 6.04% ZN, 302-303½, 1.12% ZN, 308½-309½, shines, 312½-313½, 2.28% ZN, trace @ 317, 326, 328, 333-335, 2.74% ZN, 338-346½, 2.0% ZN, 346½-348, 1.82% ZN, 356-365, 2.61% ZN 379-379½, 1.78% ZN, 386-387, 5.88% ZN	Dolomite & re-xl; R & S beds brecciated, some dry breccia
449-501	Longview	---	---	Mostly dry breccia

Hole DAL-1 was drilled on the W. Dalton farm. The hole is located 200' west of GD-21. It collared in the Mascot formation and was drilled to a depth of 410 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-77	Overburden	—	—	—
77-140	Mascot	CM33 @ 140	—	Dolomite
140-395	Kingsport	"R" @ 303, "S" @ 365, "T" @ 395	—	Dolomite & re-xl, some dry breccia
395-410	Longview	—	—	Dolomite

Hole BUL-1 was drilled on the R. Bullen farm 400 feet west of DAL-1. The hole collared in the Mascot formation and was drilled to a depth of 610 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-124	Overburden	—	—	—
124-220	Mascot	CM @ 220	—	Dolomite, numerous small shears
220	Kingsport	"R" @ 484	—	Dolomite & re-xl, faulted from 240-350 (70' vertical displacement)
551-610	Longview	"T" @ 551 "U" @ 580	—	Dolomite & re-xl

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST TELEPHONE MAYFAIR 3 1556

JOPLIN, MISSOURI

CHEMISTS
INDUSTRIAL and ANALYTICAL

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

12-17-58

		ZINC
300657	Sample GD-19-1 118-130 } 12'@ 1.96%	1.96
658	GD-19-2 183-184	0.88
659	GD-19-3 188-188½	1.92
660	GD-20-1 204-206	7.04
661	GD-20-2 222½-224½ } 3½'@ 1.38%	1.54
662	GD-20-3 224½-226	1.10
663	GD-20-4 238½-239½	5.00
664	GD-20-5 254½-256½	1.36

$10.00

Bruce Williams

fc/jf 68-397

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

B. H. Putnam DD-GD-24

Copper Ridge Project - Puncheon Camp Creek

Hole No: GD-24	Collared: 1/31/59
Farm: Green-Dalton	Bottomed: 2/10/59
Loc.: N 49,592.43	Depth: 501
E 46,186.29	Casing: BX 70 - AX 120
Elev.: 1,438.35 Platform	Reaming: 20'
Drilled by: Putnam Drlg. Co.	Cement: 2 bags
Logged by: W. T. Hill	

Top Kingsport	176
Top "R" bed	338
Top "S" bed	409
Base Kingsport	409

0-65 Overburden
-90 Dol, lite grey; 2½' core recovery; rock badly oxidized; some cherts
-95 Dol, lite-med; mott; 1½' core recovery
-109 Dol, lite grey; 2' core recovery 95-110
-110 Dol, med-dk grey; dip @ 110 - 37°
-112 Dol, med grey, banded; scatt shears @ base
-120 Dol, lite grey; chert, sed congl plus hvy ss near base (M-7); 2' core recovery 112-120
-123 Dol, lite grey; 2' core recovery 120-123
-128 Dol, med grey; mott & spotted; oxid @ 124
-129 Dol, med grey; TGS @ base
-132 Dol, med-dk grey; mott; 6" hvy ss plus oolitic chert @ base
-134½ Dol, lite grey; TGS @ base
-135½ Dol, med grey; mott & shaly
-143 Dol, med-dk grey; mott; spotted; ch nod @ base
-148 Dol, lite grey; lite bands, lite ss @ 145; hvy block sh @ base
-149 Dol, med grey; mott
-152 Dol, lite grey; banded, ss @ 150-151
-156 Dol, med grey
-157 Dol, med grey; very shaly
-160 Dol, med grey; ch nods @ 158½, 159
-162 Dol, lite grey; banded
-166 Dol, med grey; lite mott
-167 Dol, med grey; shaly
-173½ Dol, black, spotted; lite mott lower; 1' very shaly, ch nod @ base
-176½ Dol, lite grey; banded; hvy ss @ base; some CM
-183½ Dol, med grey; mott; lite gangue fracts 180-181½; sh @ base
-190½ Dol, lite grey; banded & mott; hvy CMSS @ 185, 186; sh @ 188, 189
-194 Dol, med grey; blue mott; dip @ 189 - 33°; TGS @ base
-195½ Dol, dk grey; banded; TGS plus ss @ base, ch nod @ 194½
-202½ Dol, med grey; lite gangue fracts, mott near base
-205 Dol, dk grey, cherty, mott, chert nod @ base
-212 Dol, lite grey; banded, ch nod @ 209; TGS plus lite ss @ base
-217 Dol, med greyp spotted, TGS @ base
-220½ Dol, med grey; hvy mott, TGS @ base
-221½ Dol, lite grey; lite breec plus <u>traces ZNS</u>; breec green sh, chert plus ss
-222½ Dol, med grey; mott; sugary
-223 Chert, oolite plus ss
-224½ Dol, lt grey, banded, lite ss @ base
-230 Dol, med-dk grey; wh ch @ 230
-232½ Dol, lt grey; mott
-237½ Dol, dk grey; hvy mott; TGS @ base
-241 Dol, lite grey; hvy mott; hvy green shale @ base
-252 Dol, lite-med grey; banded, ch nods @ 243½, 244, 246, 246½½:TGS @ 248 scatt hvy ss 250-252, heavier toward base; congl @ base; TGS plus chert @ base
-255 Dol, med grey; hvy mott; ch @ 253, ch congl @ base plus TGS
-269 Dol, lite grey; ch nods @ 263, 264; banded; lite ss @ 264; TGS plus ss @ base
-276 Dol, lite grey; ch nods @ 270, 271, 272½, 274-275; cherty semi-rexl; TGS @ base
-287½ Dol, lite grey, banded, ch nods @ 280, 287½; lt ss @ base; crackle 285-285½, 286½-287½; dip @ 285 - 35° (steepens toward base)
-305½ Dol, lite grey, lt bands, cherts @ 288½, 289, 290, 291, 300; dip 48° @ 293; hvy crackle throughout; ss @ 295, <u>hvy ZNS shine @ 290,-295, 296-296½ Est 3% ZN</u>; shears @ 297; <u>302½-303½, est. 3% ZN</u>
-308½ Dol, med grey; mott; breec; TGS @ 307 (dip - 45°)

-316 Dol, lite grey; banded, dip - 55°; crackle, ch mod @ top; 308½-309½. Est 1% ZN; 312½-313½ Est 2½% ZN
-317 Dol, med grey; crackle, traces ZNS @ base
-324 Dol, lt grey, banded, lt ss plus gen sh @ base; hvy crackle brecc; ch @ 317½, dip @ 324 - 45°
-331 Dol, med grey; hvy mott 324-325; brecc 325½ - 327½; traces ZNS @ 325½. ch mod @ 328; traces ZNS @ 328
-335 Dol, med grey; crackle brecc; TGS @ 332½, steep shears @ 333; 331-332, traces ZNS; Est 2% ZN 333-335
-337 Dol, lt grey, banded breccia
-342½ Dol, med grey; lt ss@ 338, breccia; 338-342. Est 1% ZN; hvy FeS
-355 Dol, lt-med grey; brecc - 342½-347½; 342½-346½. Est 2.75% ZN; crackle 347½-355, dip flat, traces FeS
-365 Dol, lt grey; breccia; banded, darker toward base; 355-365. est. 2% ZN
-366 Re-xl, brn, breccia
-367 Dol, lt grey, banded, TGS plus chert @ base
-372 Dol plus re-xl, breccia, cherty near top; hvy gen sh @ base
-373 Dol, lt grey, banded, crackle
-381 Re-xl, brn, silic, lt crackle; ch @ 375, hvy ZNS shine @ 379
-382 Dol, dk grey; mott; sugary, crackle, ch @ base
-384 Dol, lt grey; mott; breccia
-387 Dol, dk grey; mott, crackle, rubble @ base, 386-387. Est 4% ZN
-391 Dol, med grey; banded & mott; crackle; scatt ZNS shines 387-391; TGS @ base
-400 Dol, lt grey, rubble with ch and brn re-xl matrix; hvy mott @ base
-406 Dol, lt grey; lt ss @ 401; breccia (dry)
-408 Re-xl, dk brn, ch mod @ top & 408; TGS @ base
-408½ Dol, lt grey, mott
-409½ Re-xl, greenish
-412 Semi-xl, greenish
-415 Re-xl, dk brn; shaly, ch @ base
-415½ Dol, banded
-421 Re-xl, brn, crackle; ch @ 419, 421; TGS @ base
-426½ Dol, mott; breccia sealed with re-xl and gangue
-427½ Re-xl, brn, crackle
-431 Dol, lt grey; breccia; re-xl & gangue matrix
-437 Dol, lt-med grey; breccia, lite ss @ base; some dry breccia @ 433
-438 Dol, dk grey; breccia, dry
-439½ Chert
-440½ Dol, med grey
-442½ Dol, med-dk grey; mott; ch & gen sh @ base
-443½ Re-xl, brn, TGS @ base
-446 Dol, lt grey, lt mott, breccia
-449 Re-xl, dk brn
-467 Dol, med grey, breccia, ½ dry; ss @ 454, 457, 465, 467; trace ZNS @ 467
-468 Dol, very dk grey
-469½ Dol, breccia, dk & lite blocks
-472½ Dol, lt grey; breccia, cherty
-473½ Chert
-476 Dol, dk, semi, breccia
-484 Dol, lt grey breccia, fine rubble, 480-481½ sealed with re-xl
-501 Dol, lt & med frags; dry breccia; ss @ 485. TD @ 501

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

February 28, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - February 1959

Core Hole No. CD-24

Footage drilled	501 @ $3.00/Ft.	$1,503.00
Footage reamed	20 @ $2.00/Ft.	40.00
		$1,543.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. H. Putnam DD-DAL-1

Copper Ridge Project - Puncheon Camp Creek

Hole No.: DAL-1	Collared: 2/11/59
Farm: W. Dalton	Bottomed: 2/19/59
Loc.: N 49,507.78	Depth: 410'
E 45,739.34	Casing: BX-77 - AX-122
Elev.: 1495.83 GRND.	Reaming: none
Drilled by: Putnam Drilling Co.	Cement: none
Logged by: W. T. Hill	

Top Kingsport	140'
Top "R" bed	303
Top "S" bed	365
Base Kingsport	396

DAL-1

0-77	Overburden
-86	Dol, med grey, spotted
-99	Dol, lt-med grey; ox shears @ 87; lt crackle 87-88
-100½	Dol, med grey; cherty
-103	Dol, lt grey, banded; lt scatt ss @ 101; ss plus chert @ base; dip - 35°
-111½	Dol, lt grey; mott 110-111½
-112½	Chert
-119½	Dol, lt grey, lt bands; TGS @ base
-122	Dol, med grey; mott; TBS @ 121
-122½	Dol, black, mott
-129½	Dol, med grey; spotted; cavity 123-124.5; TGS @ 128
-131½	Dol, lt grey; banded; GMSS @ base
-137	Dol, med grey; ch @ base
-137½	Dol, med, shaly
-139½	Dol, dk grey; hvy mott; TGS @ base
-145	Dol, lt grey; ss @ 140
-147½	Cavity
-156½	Dol, very lt grey; banded 150½; ss plus TGS @ 151
-159½	Cavity
-164	Dol, dk grey; mott; siliceous; ch nod @ base
-175½	Dol, med grey; banded near base
-177	Dol, med grey; TGS @ base
-181½	Dol, med-dk grey; spotted; lt shears throughout
-185½	Dol, lt-med grey; ss plus ch @ 182
-187	Chert, conglomeratic; hvy ss; some dol congl
-194	Dol, med grey; shaly; banded 187-188; ss @ 188
-201½	Dol, lt-med grey; lt mott; TGS @ base
-208	Dol, lt grey; lt mott; TGS @ base
-212	Dol, med grey; ch nods @ 211, 211½, 212
-223	Dol, lt grey; banded; ch nods @ 213, 214; 221-222, hvy ss, TGS @ base
-226	Dol, med-dk grey; sugary; TGS @ 224½; hvy mott, ch nod @ base; shears throughout
-230½	Dol, lt-med grey; hvy gun sh @ base; scatt shears 226-228
-235	Dol, med grey; mott; hvy green sh plus ch @ base; lt facets throughout
-240	Dol, med grey; banded; scatt ss 239-240; ch @ 240
-245	Dol, med grey; ch nods @ 242, 245; lt shears throughout
-258	Dol, lt grey; banded; ch nods @ 250, 257, 258; hvy gun sh @ 258; shear @ 250
-261	Dol, med grey; ch 259½-260½, 261; TGS @ 260½; oolite @ 259½
-265	Dol, med grey; banded; TGS plus ch @ base
-270	Dol, med grey; banded; TGS plus ss @ base
-275	Dol, med grey; mott; scatt ss 274-275; 6" gun sh @ base
-285	Dol, med-dk grey; mott @ 281-283; spotted 283-285; darker toward base; ch @ 276, 285; some lt crackle with gun chert filling
-296½	Dol, med-dk grey; scatt lite ss plus TBS @ base
-300	Dol, med grey; mott
-304	Dol, med-dk grey; banded; hvy gun sh plus ss @ 303; ch nod @ 302
-306	Dol, med grey; hvy mott; eyelets; hvy gun sh @ base
-310	Dol, med grey; shaly & mott; fract @ 309 (dry breccia); gun sh @ base
-313½	Dol, lt grey; dry breccia
-315½	Ss-xl, dk brn; lt grey dol block @ 314
-316½	Dol, lt grey
-322	Ss-xl, brn, shaly near top; vuggy and darker toward base; crackle at base; ss @ top

-325 Dol, lt grey; dry breccia
-328 Re-xl, brn; mott
-334 Dol, med grey; hvy mott; semi-xl; crackle; TGS @ 332
-337 Dol, med grey; ch nod @ 335½, 336; hvy gsn sh @ base
-342 Re-xl, lt brn; mott; vuggy near base
-343 Dol, lt grey; banded; ss plus TGS @ base
-349 Dol, med grey; mott; lt crackle (dry); TGS @ 345, 357
-350 Re-xl, dk brn; hvy mott crackle
-354 Dol, black, brecc (in part dry); ch nod near base; hvy gsn sh : base
-354½ Chert
-355 Re-xl, cherty
-355½ Limestone
-356½ Re-xl, brn
-361 Dol, med-dk grey; mott; crackle
-365 Dol, med grey; lt bands, lite crackle; some grey dol gangue near base
-372 Re-xl & chert (75% chert); black jasperoid @ base
-377 Re-xl, siliceous; black jasperoid band & gsn sh @ base
-379 Dol, med grey; fractured; ss @ base
-391 Re-xl, brn; siliceous; gsn sh : 380, 384, 386½; ss @ 389; white sh @ base
-393 Dol, med grey
-396 Chert, white
-410 Dol, med grey; lt facets throughout. TD @ 410'

Invoice
Marietta, Ohio

B. H. Putnam, Appre.
512 Third Street
Marietta, Ohio

February 28, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - February 1959

Core Hole No. DAL-1

Footage drilled	410 @ $3.00/FT.	$1,230.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

February 28, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - February 1959

Core Hole No. BUL-1

Footage drilled	610' @ $3.00/ft.	$1,830.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. H. Putnam DD-BU-1

Copper Ridge Project - Puncheon Camp Creek

Hole No.:	BUL-1	Collared:	2/20/59
Farm:	R. Bullen	Bottomed:	3/4/59
Location:	N 49,157.03	Depth:	610'
	E 45,523.29	Casing:	BX-52 AX-140
Elevation:	1,463.19	Reaming:	None
Drilled by:	Putnam Drilling Co.	Cement:	None
Logged by:	W. T. Hill		

Top Kingsport	220
Top "R" Bed	484
Top "S" Bed	?
Base Kingsport	551
Top "U" Bed	567

To be attached to Feb 104

E 1088

RECEIVED
DATE
EXTRA COPY
C M E
800
RECEIVED
APR 13 1959
U. S. Geological Survey
Geologic Division
Washington, D.C.

0-55	Overburden
-66	Dol, med grey; some cherts, badly fractured; 2½' core recovery
-124	Opening, clay and boulder filled
-125	Dol, med grey; vertical fault gorge
-135	Dol, med grey; mott 126-135; jointed; 5' core recovery
-137	Dol, med grey, banded; scatt ss plus ch; hvy ss @ base
-140	Dol, lt-med grey; banded; hvy fault gorge @ base; scatt shears
-144	Dol, lt-med grey; banded, lt scatt shears; 1½' core recovery
-148½	Dol, med-dk grey; lt shears; some crackle
-150	Chert, white, sheared
-156	Dol, med grey; ch @ 153; lt scatt shears 152-156; 2' core recovery
-161	Dol, med grey; mott; scatt shears; 4' core recovery
-163	Dol, med-dk grey; mott; hvy gen ch @ 162; scatt ss 162-163
-166	Dol, med grey; lt shears
-170	Dol, med-dk grey; hvy mott; lt ss @ base; hvy shears; fault @ base 3' core recovery 165-170
-174	Dol, med grey; hvy mott; oolite plus hvy ss @ 171
-188	Dol, med grey; ch @ 175, 185; spotted 181-188; hvy shears 176, 177; lite shears throughout; TGS @ 183
-190	Dol, dk grey; mott; hvy fault @ 188
-194	Dol, med-dk grey; banded; lite ss @ 193; hvy ss plus TGS @ base
-195	Chert, white; TGS @ base
-197½	Dol, med grey; ch @ 196
-198½	Chert; sed congl 197½-198; white 198-198½
-202	Dol, med grey; hvy ss 198½-199½
-215	Dol, med-dk grey; spotted
-224	Dol, lt-med grey dol, banded; TGS @ 220
-228½	Dol, med-dk grey; spotted
-239	Dol, lt-med grey; lite bands; ss @ 229, 233-233½; ch nod @ 234, 234½
-240	Dol, dk grey
-242	Dol, med grey; scatt oxid shears
-248	Dol, med grey; 2' core recovery
-253	Dol, med grey; 1' core recovery; some dry breccia @ base
-256	Dol, med grey; 2' core recovery; scatt shears
-260	Dol, med grey; 1½' core recovery, spotted
-267	Dol, med grey; spotted
-270	Dol, med grey; mott; ch @ base
-274	Dol, med-dk grey; 2' core recovery; ch @ 272
-281	Dol, lt grey; hvy ch @ base; open 275-275½
-282	Dol, lt grey; hvy mott; conglomeratic
-302	Dol, med grey; ch nod @ 295, hvy vert faults 282-286; scatt steep angle fracts throughout
-304½	Dol, med grey; oxid fract @ base
-308	Dol, dk grey; mott; ch nods @ 307, 308; shear @ 305½; lite scatt shears throughout
-313	Dol, med grey; banded; ch nods @ 311, 312
-315	Dol, lt-med grey, banded, ch nod @ 313; TGS plus lt ss @ base
-324	Dol, med grey; TGS @ base
-332	Dol, med grey, banded; TGS @ 326, 326½, 327; dip @ 50°; crackle with gen ch & white gangue filling
-333	Dol, dk grey; ss plus ch @ base
-339	Dol, lt grey; lt bands; silic gen ch plus hvy ss @ 334; dry breccia crackle @ 337; ss plus ch @ base
-341½	Dol, lt-med grey; banded; oolitic ch plus hvy ss @ 340; CMSS @ base
-357	Dol, [illegible], med grey; lite bands to 352; pinkish coloring 349-353; gen ch plus ss @ base

-362 Dol, lt grey, hvy open fault @ 357½
-366 Dol, med grey; lite gen sh fract @ 363
-374 Dol, lt grey; well banded; 1' heavy ss @ base; dip @ 35°; 1' fault breccia 370, 371; TGS @ base
-375 Dol, med grey; hvy mott; steep angle fault @ 374; ch @ 374, 375; hvy gen sh @ 375
-387½ Dol, med grey; lt bands; ch @ 386½, 387½; grn silic shale @ base fault @ 380, 386; scatt crackle (dry) and shears; oolite 386½
-394 Dol, med grey; mott; ss plus ch plus gen sh @ base
-399 Dol, med grey; ch nods @ 394, 395, 395½, 396, 399
-401½ Dol, med grey; mott; semi-xl, siliceous
-410 Dol, lt grey; banded 401½-406½; ch nods @ 403; TGS @ base
-411 Dol, lt-med grey; mott
-413 Dol, med grey; banded; ch nod @ 411; TGS @ base
-418½ Dol, med grey; ch nod @ 417
-421½ Chert & gen sh; brecciated; sealed with sec chert
-434 Dol, lte grey; banded; ss @ 426; ch @ 429; ss @ 433-434; gen sh @ base
-438 Dol, lt grey; lite bands; ch nod @ 435; lite fracts throughout
-441 Dol, lt grey; mott; gen sh @ 439; lt fracts throughout
-446 Dol, med grey bands; ch nod @ 442, 443; very lt shears
-456 Dol, lt grey; lt bands; lt vert fracts with wh silic gangue; ss @ 455; some FeS sh along bedding @ 455
-463 Dol, med grey; mott; fracts with pink fn-grnd dol plus FeS from 460-463
-474 Dol, med grey; mott; scatt fracts with gen sh, 468-472 dry breccia
-482 Dol, med-dk grey; mott; crackle with gen sh; darker toward base; gen sh @ base
-484 Dol, lt grey; bands; lt shears
-494½ Semi-xl; hvy sh @ top, 1' re-xl @ top; hvy mott; open shears near base
-496 Dol, lt grey crackle; hvy gen sh @ 495½-496; vert shears @ 496
-499 Re-xl, greenish brn, crackle, hvy gen sh @ 498-498½
-504 Dol, lt grey, mott, crackle, fault @ 500
-505 Re-xl, dk brn, crackle
-509 Dol, dk grey, crackle, sugary, hvy gen sh in crackle @ 508
-510½ Silica, fragmental, some gen sh, hvy gen sh @ base
-517 Dol, med grey, mott, crackle
-523 Dol, lt grey, bands 519-520, ch @ 518
-528½ Silica, dry breccia
-532 Dol, lt grey, crackle with silic gangue, fault breccia 531-532
-534½ Re-xl, cherty near top plus gen sh
-540 Dol, lite grey, crackle, some re-xl gangue
-546 Re-xl, brn, brecc, silic, hvy ss @ base
-548½ Re-xl, brn
-551 Re-xl, brn, shaly, hvy gen sh @ base
-555 Dol, med grey, mott
-566½ Dol, med grey, ch @ 561, vert shears 561-563, some crackle
-567½ Oolitic ch plus ss, thin re-xl @ base
-573 Dol, med grey, mott, crackle
-578½ Re-xl, brn, silic, wh ch 576-576½
-583 Dol, med grey, mott, brecciated
-587 Dol, dk grey, brecciated, sheared throughout
-599 Dol, lt med grey, mott, ch nods near base plus hvy ss, brecciated
-607 Re-xl, brn, very silic 600-601, hvy ss plus gen sh @ 601, fault @ 605
-608 Dol, lt grey, ch nods, lite ss @ base
-611 Re-xl, bands, gen sh throughout, crackle
-613 Dol, lite grey, TD @ 613

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

FEB 6 1959
PAID ON VOUCHER & SCHEDULE
OF PAYMENTS

Month of January, 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Mineral Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent / Short Form Contracts:						
Drilling	$2175.00	$65,037.00	$67,212.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	——	1,302.00	1,302.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	——	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	——	163.75	163.75		153.75	153.75
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. allow. .18/ft.	130.50	3,902.22	4,032.72			
TOTALS	$2305.50	$70,695.22	$73,000.72	2305.50	70,685.22	72,990.72

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 1/31/59 *Payee B. H. Putnam

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1152.75

Signature Helen R. Miller
(Authorized Certifying Officer)

Date FEB 4 1959 Vou. No. 85
(See other side)

1152.75

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date FEB 3 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date FEB 3 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 872893

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

FEB 6 1959
O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of January 9 1959 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name B. H. Putnam Minerals Zinc

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	$2,175.00	725	$67,212.00	22,404	3.00	50,000	3.00
Reaming	Foot	—	—	1,302.00	651	2.00	5,000	2.00
Churn Sampling	Each	—	—	163.75	123	1.25	550	1.50
Auger Core boxes	Each	—	—	290.25	150	1.935	150	2.00
Stripping								
Trenching								
Test Pits								
Roads and Trails Inc. allow. @ .18/ft.	Foot	130.50	725	4,032.72	22,404	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		$2,305.50		$73,000.72				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$2,305.50		$73,000.72				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date 1/31/59 Operator B. H. Putnam

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

REMARKS:

(For Government use only)

[signature]
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A Progress Report on the Puncheon Camp Creek Project
Grainger County, Tennessee

January 1959

By W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of January two holes were drilled on the Puncheon Camp Creek Project. Hole GD-22 was drilled 100 feet north of GD-18. The hole collared in the Kingsport formation and was drilled to a depth of 315 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-62	Overburden	———	———	—
62-258	Kingsport	"R" @ 130; "S" @ 215½; "T" @ 258	143½-144½, est. 6% Zn; 144½-145½, est. 1/2% Zn; 147½-149, est. 7% Zn; 149-151, est. 1/2% Zn; 155-155½, est. 4% Zn; 155½-158½, est. 1% Zn; shine @ 191, 200½-201; 212-215, est. 8% Zn; 215-217, est. 3/4% Zn; 228-230, est. 1% Zn; 230-233, est. 1½% Zn.	Dolomite & recrystalline, some limestone. In part, brecciated. FeS mineralization 143½-158½
258-315	Longview	"U" @ 274; L-4 @ 301	———	Dolomite , rexl, some limestone; very silkeseous, no breccia

Hole GD-23 was drilled 100 feet south of GD-18. The hole collared in the Mascot formation and was drilled to a depth of 410 feet.

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks
0-65	Overburden	------	------	---
65-152	Mascot	CMas @ 152	------	Dolomite
152-378	Kingsport	"R" @ 277½; "S" @ 343; "T" @ 378	241½-251, est. 3% Zn; Shine @ 255, 258; 263-266; est. 1/2% Zn; shine @ 274; 276-277, est. 2% Zn; shine @ 280½, 281; 284½-285, est. 1/2% Zn; 320-323½, est. 10% Zn; shine 329; 329-333, est. 2% Zn; 333-336, traces; 340-343, traces; 343-344½, est. 2½% Zn; 348½-350, est. 1½% Zn; 356-358, est. 2½% Zn; shines 362, 363; 369-371, est. 2% Zn	Dolomite & re-xl, brecci-ated, scatter-ed FeS through-out
378-410	Longview	"U" @ 390	------	Dolomite and recrystalline

Drilling is now under way at location GD-24, 100 feet south of GB-23.

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

January 31, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR-4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - January 1959

Core Hole No. GD-22

Footage drilled	315' @ 3.00/ft.	$945.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A R Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B. H. Putnam, Appre.
512 Third Street
Marietta, Ohio

January 31, 1959

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - January 1959

Core hole No. GD-23

Footage drilled	410' @ $3.00/ft.	$1230.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operater

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

B. H. Putnam DD-GD-22

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.: GD-22

Farm: Green-Dalton

Location: N 49,854.49

E 46,043.65

Elevation: 1467.29

Drilled by: Putnam Drlg. Co.

Logged by: W. T. Hill

Collared: 1/14/59

Bottomed: 1/24/59

Depth: 315'

Casing: BX-62'; AX-98'

Reaming: None

Cement: None

Top Kingsport	——
Top "R" Bed	130'
Top "S" Bed	215½'
Base Kingsport	258'
Top "U" Bed	274'
Base "U" Bed	285'
Top of L-4	301'

0-62 Overburden
-85½ Dolomite, lite grey, ch nod @ 63; banded to 85; 3½' recovery 62-85; thin hvy ss @ 85½
-86 Blue chert & semi-rexl
-87 Lite grey dol, banded
-88 Lite grey dol; hvy mott; blue chert @ top
-90½ Med grey dol, lite bands; chert band @ 90; oolitic chert @ 90½
-92½ Lite grey dol, chert nod @ base
-105 Lite grey dol, banded; hvy gen sh @ base; crackle @ 93; 5' core recovery 92½-105
-105½ Ls; in part re-xl
-109 Lite-med dol; shear @ 106½; faint banded
-111 Lite-med dol; mott with eyelets
-123 Med-dk grey dol; strong bands 111-112½; lite bands to 123; lite ss @ base; ch nod @ 120; TGS @ 121; dip @ 121 - 49°
-130 Med-grey mott dol; oxid @ 123, 128-130; lite shears @ 126
-134 Re-xl, black and white; shaly 130-131½; mott lite crackle 133-134
-136 Med grey dol, banded
-139 Lite-med dol; hvy mott; scattered oxid shears 137½-139; some gangue
-140 Re-xl, brn, shaly
-143½ Dol, black; crackle
-147 Re-xl, dk brn; black and white 143½-144½; brecc 143½-144½; Est 6% ZN 143½-144½ plus FeS; Est ½% ZN 144½-145½; oxid 146; crackle breccia
-148 Dol, med grey, banded; crackle brecc
-160 Re-xl, brn & black and white; 148-149, brecc with est. 7% ZN plus some FeS crackle brecc, 149-151 with jasperoid with est. ½% ZN; dol block @ 154 (fault shears throughout); 155-156, est. 4% ZN and some FeS; Est. 1% ZN 156-159 plus FeS
-165 Dol, med grey; mott; upper 3' semi-re-xl; 6" blue ch @ base; lite crackle
-166 Dol, med-dk grey; thin gen sh @ base; lite crackle
-170½ Re-xl; greenish; shaly & mott; lite crackle
-173½ Dol, med grey; mott; lite shearing throughout; siliceous
-187 Dol, lite grey
-190½ Dol, med-dk grey; wk ch @ from 189-190½; lite crackle
-191½ Re-xl, coarse; good ZNS shine
-199½ Dol, dk grey; wk ch @ 195½; rubble breccia
-201½ Re-xl, coarse; black and white; ZNS shines 200½-201
-205 Dol, lite grey; dk grey 201½-202½ (ruble breccia); crackle 202½-205; banded, blue ch @ 203; TBS @ base
-210 Re-xl; black and white, coarse, crackle; wk ch @ base
-210½ Dol, lite grey
-211½ Re-xl, black and white; jasperoid bands
-212½ Ls; brecc sealed with jasperoid
-215 Chert and re-xl, brecc; Est 8% ZN 212½-215
-215½ Dol, lite grey; sandy; trace ZNS
-220 Re-xl, coarse; brn; cherty and siliceous; Est 3/4% ZN 215½-216½
-258 Re-xl; lite grey dol block 227, 228, 230; 220-228 brn, coarse; crackle, brecc 228-233, black and white; 233-234½ brn; 6" gen shale @ 234½; 234½-239 brn, lite crackle, 239-242, black and white, jasperoid @ top; 242-258 brown, 6" semi @ 245-245½ with ss @ base; hvy ss @ 241 plus gen sh plus chert; good ZNS shine @ 224 (along shale seam); 228-231, est. 1% ZN; 231-233 est. 1½% ZN; "S" bed

-274½	Dol, lite-med grey; white ch nod @ 260, 261½; lite crackle and shears throughout ("T" bed)
-275½	Re-xl; dk brn; white oolitic chert @ top ("U" bed)
-280	Dol, med grey; mott brecc @ base
-284	Re-xl; black and white; TGS @ base; half chert (mott) 280-282
-285	Ls, brn, shaly, thin re-xl @ base
-291	Dol, med-dk grey; eyelets, thin ss plus TGS @ base
-297	Re-xl, coarse brn, siliceous; ch nod @ 293½, 294½ (white sec.); 295; thin hvy ss @ base
-299½	Dol, lite grey, mott
-301	Re-xl, drk brn, silic., crackle @ base; ch nod @ base; 1½ core recovery 300-305
-306½	Dol, med grey; blue; mott; lite ss @ 305½
-309	Re-xl, very siliceous; dk brn, sandy
-310	Chert, white
-311	Dol, lite grey; lite ss @ base
-315	Chert, white; dol brecc with ss @ 312; TD @ 315

B. H. Putnam DD-GD-23

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.:	GD-23	Collared:	1/26/59
Farm:	Green-Dalton	Bottomed:	1/30/59
Location:	N 49,680.73	Depth:	410'
	E 46,138.93	Casing:	----
Elevation:	1459.66 (Platform)	Reaming:	None
Drilled by:	Putnam Drlg. Co.	Cement:	None
Logged by:	W. T. Hill		

Top Kingsport	124
Top "R" Bed	277½
Top "S" Bed	343
Top "T" Bed	378
Top "U" Bed	390

0-65	Overburden
-68½	Dol, lite grey; thin shear @ base
-69½	Dol, dk grey; mott
-75	Dol, lite-med grey, lite bands; heavy CMSS plus gen shale @ base plus chert
-91½	Dol, lite grey; lite scatt shears 88-89; lite ss @ base
-92½	Dol, dk grey
-95½	Dol, lite grey, banded; thin ss beds throughout; thin blue ch @ base
-96½	Dol, med grey; mott; lite ss @ base
-100	Dol, lite grey; well banded; lite ss 98-100; CMSS @ 97½; brn ch @ base
-104	Dol, med grey; gangue facets 101-102; TBS @ base
-105	Dol, med grey, shaly & mott (heavy)
-106½	Dol, med grey; mott 105-105½; ch nod @ 106
-112	Dol, lite-med grey; banded 108-110; dip @ 110' - 34°
-114	Dol, med grey; TBS @ base
-115	Dol, shaly; heavy mott; oxidized
-120	Dol, very dk grey; eyelets
-121	Dol, dk grey; shaly & mott; oxidized; fault @ 121
-129	Dol, dk grey; banded 121-125; mott 125-129; 6" heavy ss @ 124; ss chert @ 121½
-129½	Dol, shaly & mott; oxidized
-132	Dol, med-dk grey; mott; TBS @ base
-136	Dol, lite grey; banded 132-134; hvy ss @ 133; CMSS @ 133½
-138	Dol, med-dk grey; mott; TBS @ 136½, 138
-141	Dol, lite-med; mott; TBS @ base
-142½	Dol, dk grey, banded TBS @ base; dip @ 142 - 31°
-146	Dol, med grey; scatt ss 143-143½; TBS @ base
-148½	Dol, med grey; mott TBS @ base
-152	Dol, dk grey; mott; shaly; oolitic chert @ base
-155½	Dol, lite grey; banded; mott 152-153; eyelets
-157	Dol, dk grey; banded, TBS @ base
-165	Dol, lite-med grey banded 157-159½; lite ss @ 158½; TBS @ 161; 164; TGS @ base; spotted 161½-165; dip @ 159 - 32°
-170	Dol, lite grey; mott; lite oxid shears throughout
-171	Chert, white; hvy cherty ss @ base underlain by blue chert
-173½	Dol, lite grey; faintly banded, lite ss @ top
-178	Dol, med grey, mott
-178½	Dol, med grey; heavy mott TGS @ top and base
-185½	Dol, med grey; well mott; TGS @ 182-183½
-189	Dol, very lite grey; well mott; TGS @ base
-192½	Dol, very lite grey; banded; blue ch nods @ 190, 190½, 191, 192, 192½
-195	Dol, med-dk grey; banded
-198	Dol, very lite grey; well banded; scatt ss 196½-197½; heavy ss 197½-198
-200	Dol, med grey; well mott; sugar
-201½	Dol, med grey; banded, sugary; sed congl @ base overlain by chert oolite
-206½	Dol, very lite grey; hvy green sh @ base; thin rubble above shale
-209	Dol, lite dol; green sh @ base; ch congl @ 208½
-214	Dol, very lite grey; hvy banded 211½-214; wh ch @ 209, 210, 211, 214; ss @ base
-218½	Dol, lite grey; ch @ 216, 216½, 218½
219½	Re-xl, vuggy, mott; gen sh @ base, dip @ 225 - 34°
-237½	Dol, lite grey, banded; ss @ 227, 235; 2 gangue facets (bedding) @ base
-241½	Dol, med grey; mott
-243	Dol, lite grey; brecc; <u>Est 3% ZN 241½-243</u>; carbonate @ top

-252 Dol, lite grey, banded; brecc; 243-251, est. 3% ZN; hvy gen sh @ base, some FeS throughout
-259 Dol, med grey; brecc 252-255½; crackle - 259; blue ch nods @ 254, 254½; ZNS shine 255½, 258, 258½
-260 Semi-xl, green, shaly
-269 Dol, lite grey; mott 260-263; lite banding to 268; crackle 263-269; 263-266½, Est 1/2% ZN; scatt open shears 263-266½
-272½ Dk grey dol; crackle; FeS shine
-275½ Dol, med grey; mott; lite crackle; good ZNS shine @ 274
-277½ Dol, med-dk grey; brecc; 276-277, Est. 2% ZN; heavy FeS shines
-278½ Re-xl; black, heavy green shale @ top
-280½ Dol, med-dk greenish grey; mott; lite crackle; heavy FeS plus trace ZNS @ base; heavy green sh @ base
-285½ Dol, med grey; hvy mott; crackle, rubble 284½-285 (Est 1/2% ZN); ZNS shine 281½; heavy FeS shines throughout
-288 Dol, black; semi-xl; hvy mott; crackle; good ZNS shine 286½
-288½ Shale, green
-289 Re-xl; dk brn, brecc
-291 Dol, med grey; mott; ruble breccia; lite ss @ base
-296½ Re-xl, dk brn brecc; dol block 295-295½
-298½ Dol, med grey; banded; crackle
-306 Re-xl, brn; mott 300-305; crackle 298½-303
-307 Dol, med grey; banded; blue ch @ top
-310 Re-xl, greenish brn; mott
-316 Dol, med grey; mott; crackle; lite ss : 313½
-325 Dol, dk grey. rubble breccia; fault brecc @ base; 320-323½, Est 10% ZN some FeS 320-323½
-325½ Re-xl, brn
-326 Chert, gra; hvy gen sh @ base
-333 Re-xl, brn; rubble breccia; 329-333½ Est 2½% ZN; steep shears 329
-336 Dol, lt greh; rubble breccia; banded; scatt traces ZNS
-343 Dol & re-xl, rubble breccia; chert @ 336, 337, 339, 340¢ scatt FeS throughout; traces ZNS 340-343
-358 Re-xl; black & white 343-354 lite dol blocks @ 345, 354; FeS throughout, 343-344½ Est 2% ZN; 348½-350 Est 1½% ZN; brn re-xl 354-357; blk & white 357-358; brecc, 356-358, Est 2½% ZN
-378 Re-xl, brn to 366; blk & wh to 370; brn to 371; blk & wh to 377; brn to 378; ss @ 364,358; good ZNS shine @ 363-363½, 369-370 Est 2% ZN, plus FeS
-389 Dol, lite grey, banded; blue ch @ 379, 379½
-389½ Chert, blue, oolitic
-390½ Re-xl, brn, siliceous
-397 Dol, med grey, mott
-408 Re-xl, brn, siliceous, crackle
-410 Dol, lite grey; TD @ 410'

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of December, 1958 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent / Short Form Contracts:						
Drilling	2025.00	63,012.00	65,037.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	62.00	1,240.00	1,302.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	76.25	87.50	163.75	66.25		
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incld. allow. @ .18/ft.	121.50	3,780.72	3,902.22			
TOTALS	2,284.75	68,410.47	70,695.22	2274.75	68,410.47	70,685.22

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 12/29/58 *Payee B. H. Putnam

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1137.37

Signature Helen R. Miller
(Authorized Certifying Officer)

Date JAN 13 1959 Vou. No. 73
(See other side)

1137.38

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature L. Weedon Title GEOLOGIST, U. S. G. S. Date JAN 5 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature N. J. Lynch Title ACTING EXECUTIVE OFFICER DMEA - REGION V Date JAN 5 1959

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of December 1958 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name B. H. Putnam Minerals Zinc

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	2,025.00	675	65,037.00	21,679	3.00	50,000	3.00
Churn Reaming	Foot	62.00	31	1,302.00	651	2.00	5,000	2.00
Auger Sampling	Each	76.25	53	163.75	123	1.25	550	1.50
Stripping Core boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Roads and Trails Inc.								
A.16w. @ .18/ft.	Foot	121.50	675	3,902.22	21,679	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		2,284.75		70,695.22				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		2,284.75		70,695.22				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date 12/29/58 Operator B. H. Putnam

Per William [illegible] Title Superintendent

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[illegible]
GEOLOGIST, U. S. G. S.
JAN - 5 1959

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc.". The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT
GRAINGER COUNTY, TENNESSEE, FOR:

December, 1958

By: W. T. Hill

Docket No. 4580
Contract No. Idm-E 1068

During the month of December two holes were drilled on the Puncheon Camp Creek Project. Hole GD-20 was drilled 100 feet southwest of GD-19. The hole collared in the Kingsport formation and was drilled to a depth of 310 feet.

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-58	Overburden	—	—	—
58-274	Kingsport	"R" @ 157½; "S" @ 223; "T" @ 274	204-206, 2' @ 7.04%; shines 216-219; 238½- 239½, 1' @ 5.00%; 242½-243½, 1' @ .75%; 254½-256½, 2' @ 1.36% shine @ 261	dolomite, re-xl; crackle breccia
274-310	Longview	"U" @ 290	shine @ 295	dolomite and re-xl; crackle breccia

Hole GD-21 was drilled 100 feet southwest of GD-20. The hole collared in the Kingsport formation and was drilled to a depth of 365 feet.

0-70	Overburden	—	—	—
70-328	Kingsport	"R" @ 210½; "S" @ 298½; "T" @ 328	—	dolomite and re-xl; numerous green shales and sands above "R"; "dry" breccia in "R" and "S"
328-365	Longview	"U" @ 338; L-4 @ 365	—	dolomite, recrystalline, and silica; brecciated, sealed with silica and gangue

RECEIVED
JAN 2 - 1959
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

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INSPECTIONS and TESTS

The Bruce Williams Laboratories

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MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS | ST. LOUIS, MISSOURI | PICHER, OKLAHOMA

Mr. B. H. Putman
P. O. Box 69
Thora Hill, Tennessee

10-13-58

		ZINC
790051	CD-12-1	6.22
054	CD-12-2	1.30
055	CD-12-3	0.26
056	CD-15-1	1.46
057	CD-15-2	0.60
058	CD-15-3	1.30
059	CD-15-4	5.52
060	CD-15-5	0.72

cf/nlo 67-788

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
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JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

Mr. B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

10-18-58

				ZINC
798307	GD-16-1	234½ - 235½	1	6.40
308	GD-16-2	238½ - 239½	1	1.56
309	GD-16-3	245 - 246	1	3.22
310	GD-16-4	247 - 249	2	4.52
311	GD-16-5	250 - 252	2	2.44
312	GD-16-6	252 - 254	2	2.56
313	GD-16-7	261 - 263	2	0.30
314	GD-16-8	263 - 264	1	0.60
315	GD-16-9	265 - 267	2	1.76
316	GD-16-10	269 - 270	1	10.72
317	GD-16-11	273½ - 274	½	2.52
318	GD-16-12	275½ - 277½	2	4.22
319	GD-16-13	281 - 282	1	3.30
320	GD-16-14	308 - 310	2	1.06
321	GD-16-15	319 - 321	2	1.22

9' @ 2.47%

8½' @ 2.40

cf/nls 67-852

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
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CHEMISTS

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ESTABLISHED 1898

MAIN OFFICES
620 Joplin Street
JOPLIN, MISSOURI

Mr. B. H. Putnam

STATEMENT OF YOUR ACCOUNT

P. O. Box 65

TERMS CASH
NO DISCOUNT

Thorn Hill, Tennessee

THE JOPLIN PRINTING CO., JOPLIN, MO. SH 1 45 14444

DATE	ASSAY NO.	DESCRIPTION	
1958 Oct.		Statement rendered for work from 9-26 to 10-25-58 incl.	
		TOTAL AMOUNT DUE	$28.75

OK. W. T. Tate Appro.

Please duplicate all copies (10 copies needed) and return.

ENGINEERING
INSPECTIONS and TESTS

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INDUSTRIAL and ANALYTICAL
CHEMISTS

The Bruce Williams Laboratories

ESTABLISHED 1898
MAIN OFFICES
620 Joplin Street
JOPLIN, MISSOURI

Mr. B. H. Putnam

STATEMENT OF YOUR ACCOUNT

P. O. Box 65

Thorn Hill, Tennessee

TERMS CASH
NO DISCOUNT

THE JOPLIN PRINTING CO., JOPLIN, MO. SN 1 49 14494

DATE	ASSAY NO.	DESCRIPTION		
1958 Nov.		Statement rendered for work from 10-26 to 11-25-58 incl.		
		TOTAL AMOUNT DUE		$37.50

ENGINEERS
INSPECTIONS and TESTS

CHEMISTS
INDUSTRIAL and ANALYTICAL

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ESTABLISHED 1898

Main Office 618-624 Joplin Street Telephone 556

JOPLIN, MISSOURI

Connell Hotel Lobby
Picher, Oklahoma
Telephone 710

St. Louis, Missouri
306 Valley Drive
Telephone Hobart 7-3226

November 25, 1958

Mr. B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

			ZINC
799751	GD-18-1	203-204	5.36%
752	GD-18-2	210-213½	1.90%
753	GD-18-3	214-215	4.26%
754	GD-18-4	219½-221	7.46%
755	GD-18-5	221-223	4.80%
756	GD-18-6	221½-232½	7.32%
757	GD-18-7	243-245	3.08%
758	GD-18-8	248½-251	0.78%
759	GD-18-9	257-258	3.14%
760	GD-18-10	259½-261½	2.54%
761	GD-18-11	261½-262½	5.24%
762	GD-18-12	268-269½	2.32%
763	GD-18-13	270-271	3.94%
764	GD-18-14	272-274	4.08%
765	GD-18-15	274-276	6.28%
766	GD-18-16	276-278	4.34%
767	GD-18-17	278-280	1.82%
768	GD-18-18	280-281½	4.12%
769	GD-18-19	284-285	2.82%
770	GD-18-20	285-286½	1.50%
771	GD-18-21	287½-289½	1.76%
772	GD-18-22	289½-291½	3.16%
773	GD-18-23	291½-293½	6.88%
774	GD-18-24	297-299	4.76%
775	GD-18-25	299-301	3.38%
776	GD-18-26	301-302	2.20%
777	GD-18-27	304-306	7.56%
778	GD-18-28	328½-329½	0.92%
779	GD-18-29	340-341½	0.40%
780	GD-18-30	342½-344	2.12%

13'- 2.19% ZN

11½'- 3.75% ZN

49'- 2.46% ZN

36'- 2.93% ZN.

16½'- 3.25% ZN

THE BRUCE WILLIAMS LABORATORIES

Bruce Williams

cf/nls 68-194

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

December 28, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - Dec. 1958

Core Hole No. CD-20

Footage drilled	310 ' @ $3.00/ft.	$930.00
Reaming	31 ' @ $2.00/ft.	62.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By:_____
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B. H. Putnam, Appre.
512 Third Street
Marietta, Ohio

December 28, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR-4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - Dec. 1958

Core Hole No. CD-21

Footage drilled	365' @ $3.00/ft.	$1,095.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: _____
A. R. Eddy
Drilling Superintendent

B. H. Putnam DD-GD-20

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E-1088

Hole No.:	GD-20	Collared:	12/1/58
Farm:	Green-Dalton	Bottomed:	12/9/58
Loc.:	N 49,765.02	Depth:	310'
	E 45,889.46	Casing:	BX-58'; AX-131
Elev.:	1488.46	Reaming:	31'
Drilled by:	Putnam Drlg. Co.	Cement:	None
Logged by:	W. T. Hill	Water table:	?

Top Kingsport	—
Top "R" bed	158
Top "S" bed	223
Base Kingsport	274
Top "U" bed	290
Base "U" bed	—

CD-20

0-58	Overburden
58-62	Lt-med grey dol; 6" sed congl @ 58½ plus hvy ss; 6" ss @ 59½ plus CMSS (1½' core 58-62)
-65	Med grey mott dol; TGS @ 63½
-72	Mod slip
-74½	Lite grey dol; mott
-86	Med grey shaly dol; banded; dip 36½°
-82	Very lite grey dol; lightly banded
-91	Lite grey dol; mottled; brn ch nod @ 89, 90
-93	Med grey dol; well mott & banded, lite scatt ss 92-93. TBS @ 93
-98	Med grey dol; blue ch nod @ 93, 95, 96, 98
-114	Lite grey dol; well banded lite ss @ 105, 114; ch nods @ 101½, 105, 110, TGS @ 105, 105½; dip - 38° @ 102
-114½	Brn ch
-119	Lite-med dol; banded 114½-116½; oxid @ 115; mott 116½-119. TBS @ base; oxid dip - 40° @ 116
-119½	Med grey dol; hvy mott
-127	Lite grey dol; banded, thin ss @ 124 (3' core loss 119½-124; 95% core loss 124-127)
-130	Opening
-131½	Lite grey dol; ch nod @ base
-132½	Med grey dol
-138	Lite grey dol; mott 137-138; TGS @ 135½, 136
-141	Med grey dol; ch nod @ 138,140
-148	Lt grey dol; (1' core recovery)
-153	Med grey dol; mott; TGS plus ss @ 150½; TGS @ 152
-157	Lite grey dol; ruggy; mott; ch nod @ base; lite crackle
-159½	Dk grey semi-xl 157-157½; broken shale @ 157½; green ch band 158½; crackle
-163	Med dk greenish-grey dol; shaly; crackle; fine disseminated FeS throughout
-165	Med grey mott dol; sugary; lite crackle
-166	Lite grey mott dol; ruggy lite shears @ 165½
-166½	Green shale underlain by thin bed of re-xl
-171	Dk-grey (black) sugary dol; crackle
-174	Re-xl, coarse brn; 4" hvy green shale @ 172½
-174½	Dol, lite grey
-177½	Re-xl, dk brn, ruggy; hvy gen sh @ 175, ch @ 174½; crackle
-180	Lite grey dol; 6" hvy grn sh @ 178 plus lite ss, lite shears @ 177½-180; banded, dip - 60°
-184½	Re-xl; brn; ruggy (filled with ch, mott, lite crackle)
-185½	Med grey; semi-xl; mott; lite crackle; TGS @ 185
-188½	Lite grey dol, mott, ruggy; ch nod @ 188, lite crackle 188; lite shears @ base
-189	Re-xl, coarse brn, crackle, oxid TGS @ base
-193½	Med-dk dol; well banded & mott (dip 40°) <u>FeS shines @ 192</u>
-196	Med dol, mott, lite crackle
-200	Lite dol, well banded 196-197; mott 197-201; lite crackle @ base
-204	Med-dk dol, ch nod 203½, darker toward base; two ch nods @ base (white); base TGS
-206	Re-xl, coarse brn, siliceous; <u>Est 5% ZN 204-206</u>
-207½	Chert, some re-xl, oxid white & brn
-215½	Dol, dk grey (hvy core loss)
-219	Dol, dk, some breccia; oxid; mott; (50% core loss) traces ZNS
-222½	Dol, med grey; banded 219-221; lite oxid shears & crackle; <u>hvy ZNS shine @ base</u>
-242	Re-xl coarse, brn & black & white, siliceous; 6" white ch @ 227½; <u>Est 1% ZNS 222½-226</u>; brecciated, oxid FeS 232½-237; <u>strong ZNS shine @ 239</u>
-243½	Dol, lite grey; breec sealed with re-xl & white gangue; <u>Est 3/4% ZN 242½-243½</u>

-262 Re-xl, brn; dk brn & sil to 246; brn & wh & vuggy to 249; brn & crackle to 254; breec brn to 256; 254½-256½ Est 1% ZN, 1% FeS; dk re-xl to 261 plus ZNS shine @ 258½; 1% FeS 258-260; vuggy from 261-262 and banded

-263 Lite dol, banded, sandy, dip - 35°

-272½ Dk brn re-xl, mott, some black & white TGS @ 268; siliceous

-274½ Lite-med dol, breec sealed with re-xl & gangue

-289½ Med dol; 6" shear @ 275 & 288; BP shear @ 280; ch @ 277, 278, 281; lite crackle

-290½ Chert; oolite over white chert band

-298 Dol, med, well mott; breec 293-296; ZNS sh @ 296; lite FeS shines 293-296; ch mod @ base

-299 Re-xl, brn & black, mott; ZNS plus hvy FeS @ base; ls, breec @ top (3") with hvy FeS shines

-302 Re-xl, brn

-310 dol, med grey, ss @ 308

B. H. Putnam DD-CD-21

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No.: CD-21

Farm: Green-Dalton

Loc: N 49,680.01

E 45,837.82

Elev.: 1497.76 P.F.
1496.26 Grnd.

Drilled by: Putnam Drlg. Co.

Logged by: W. T. Hill

Collared: 12/10/58

Bottomed: 12/23/58

Depth: 365

Casing: BX 70, AX 110

Reaming: None

Cement: None

Top Kingsport	---
Top "R" Bed	210
Top "S" Bed	298½
Base Kingsport	328
Top "U" Bed	338
Base "U" Bed	---

GD-21

0-	Overburden
-106	Lite-med del; lite mott; TBS @ 103½
-110½	Med del; hvy mott; TBS @ 107, oxid 106-107½
-119	Very lite grey del; mott; 3' core loss @ base (ground); ch nod @ 119'
-127	Med grey, well bounded del; ch nod @ 120,121; TS @ 122; 2' ss from 125-127 lower 1'very heavy & congl; dip @ 120 - 40°
-130	Med grey well mott del; ch & TGS @ top
-130½	Semi-re-xl, ½" gen sh @ 130½; mott
-141	Lite grey del; ch nods @ 131½, 132½, 136; lite shears 140-141; opening 134½-136
-145	Med grey; banded; ch nod 141½, lower part mott; lite ss @ base plus ch and TGS
-147	Med grey del; lite scatt shears; brecc @ top
-148½	Dk grey del; ch nod @ base; scatt shears
-155½	Lite-med del; hvy gen sh @ 150 plus oxid; very lite crackle; TBS @ base
-160	Med grey del; ch nod @ 158; TGS plus very lite ss @ base
-167	Lite-med del, banded; crackle @ 161½; dip @ 161½ - 41°; lite ss @ 166½; ch plus TGS @ base
-168½	Med del, ch congl @ base
-171	Lite grey del; wh ch nods @ 168½, 169
-176	Med grey del, thin ss @ 172; lite mott @ base
-177	Semi-xl; sed brecc; greenish mott
-179½	Med-dk grey del; brecc @ 179 sealed with lite del
-182	Med grey del, banded; TGS @ 180½, 182; lite ss @ 182
-189	Med grey del, banded & mott; brecc @ 186½ sealed with lite del; scatt ss 188-189; TGS @ base
-190½	Med-dk del; brecc sealed with lite del plus green sh; mott @ base; TGS @ base
-193	Med del; crackle 191-192 with lite del matrix
-194	Med-greenish del
-201	Lite-med del, eyelets 194-200, ch brecc @ 198
-210½	Med-grey del, litely banded; brecc 206-207 sealed with lite del-gen sh-wh gangue; TGS @ 208½; lite ss plus TGS @ base
-214½	Lite-med del; well mott; few eyelets
-216	Med grey del; crackle brecc
-220	Lite-med del, well mott; few eyelets, lite brecc & shears @ base
-224	Med grey del; brecc sealed with greenish del & white gangue; FeS shine @ 223; Lite ss @ 223
-227	Lite med del, mott
-229	Del, dk grey; lite ss @ 228
-231½	Re-xl, coarse; brn; TGS @ base
-234	Del, lite-med; lite ss plus TGS @ base; brecc 132½-134; sealed with dk re-xl
-235½	Re-xl, brown; lite crackle
-236½	Del; brecc sealed with dk re-xl, gen sh, wh gangue
-237½	Del, med grey, banded; dip - 46°
-240	Del, med grey, banded; brecc sealed with re-xl and white gangue
-243	Del, med dk greenish grey; strongly mott with green sh
-243½	Del; brecc sealed with green sh & re-xl & ch
-245	Del, lite, hvy mott; dry brecc 244-245
-246½	Re-xl, dk brn; TGS @ base
-248½	Del, dk grey, mott; crackle sealed with greenish and white gangue
-251	Del, lite grey; brecc sealed with gangue & gen sh
-257	Del, lite-med grey; lite ss @ 255; mott; TGS @ base, very little crackle
-261	Del, lite-med grey; breccia, dry (rounded frags)
-262	Re-xl, dk brn; brecc, dry

-265 Re-xl, dk brn; crackle; dry
-266 Dol, med grey, breccia block
-269½ Re-xl, grn-brn, mott, crackle
-270½ Dol, med, banded; brecc block
-274 Re-xl, brn, coarse, mott, crackle
-275½ Dol, brecc, sealed with brn re-xl
-277 Re-xl, dk
-278½ Dol, med, brecc, dry
-281 Re-xl, dk
-290 Dol, med grey, dry brecc
-291 Re-xl, brown, mottled TGS @ base, crackle
-294 Dol, dk grey; brecc dry and white gangue
-295 Chert, brecc, sealed with green sh
-296½ Semi-xl, dark green shale bands, crackle w wh gangue
-298½ Dol, med grey, brecc 297½-298½, wh gangue
-299½ Re-xl, greenish brown, crackle
-303½ Dol, med grey, crackle, with dry brecc matrix; lite ss @ 303; TGS @ base
-307 Re-xl, brn, mott, reef-like with gastropod shells, jasperoid near base
-309 Dol, med; brecc; dry brecc; black masperoid near base
-310½ Re-xl, brn; brecc; some jasperoid
-312 Dol, med; mott; lite crackle
-319½ Re-xl, coarse; TGS and ss @ top; ss @ 319; crackle
-320½ Dol, med; brecc
-323 Re-xl, brown; mott; green near base; Hvy ss @ top
-325 Dol, med; brecc & sealed with brn re-xl
-328 Re-xl, brn; mott
-329 Dol, lite grey; mott; sugary
-335 Dol, med-dk grey; mott 329-330; TGS @ 332; lite crackle w white gangue
-338 Dol, dk grey; crackle breccia
-338½ Chert, blue; top oolitic
-339 Re-xl, grey
-343½ Dol, med; mott; brecciated with lite FeS shines; hvy green shale @ base
-345 Re-xl, hvy mott; TGS @ base
-346½ Re-xl, greenish brown crackle; lite FeS shines
-348½ Dol, med grey; breccia sealed with white gangue and some chert; 6" chert brecc @ 346½-347
-351 Re-xl, brn, siliceous; hvy chert @ 350; shears (vert) @ 350
-352 Dol, med grey; lite shears
-355 Re-xl; 50% silica; sh nods @ 352½, 353½, 355; banded
-359 Dol, med grey; crackle; lite ss @ 356½
-363 Re-xl, brn, siliceous; sandy 360½; TGS @ base
-365 Re-xl, brn and white congl; 2" hvy ss @ top; 6" hvy white chert @ base

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 32

DEC 4 1958

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of November 1958 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name B. H. Putnam Minerals Zinc

Address 512 Third Street, Marietta, Ohio

Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	3777.00	59,235.00	63,012.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	48.00	1192.00	1240.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	290.25	290.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	—	87.50	87.50			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. Allow. @ .18/ft.	226.62	3,554.10	3780.72			
TOTALS	4051.62	64,358.85	68,410.47	4051.62	64358.85	68410.47

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 11-29-58 *Payee B. H. Putnam

Per William T. Blair Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 2025.81

Signature Helen R. Miller
(Authorized Certifying Officer)

Date DEC 2 1958 Vou. No. 64
(See other side)

$2025.81

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. Dm-E1088 in accordance with the terms of the contract.

Signature W. M. Beck Title MINING ENGINEER U. S. BUREAU OF MINES Date DEC 1 1950

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert H. Lawrence Title EXECUTIVE OFFICER DME FIELD TEAM REGION V Date DEC 1 1950

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

RECEIVED DEC 4 1958 O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of November 1958 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	3777.00	1259	63,012.00	21,004	3.00	50,000	3.00
~~Open~~ Reaming	Foot	48.00	24	1240.00	620	2.00	5,000	2.00
~~Angle~~ Sampling	Each	—	—	87.50	70	1.25	550	1.50
Stripping Core Boxes	Each	—	—	290.25	150	1.935	150	2.00
Trenching								
Test Pits								
Roads and Trails Inc. Allow. @ .18/ft.	Foot	226.62	1259	3780.72	21,004	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		4051.62		68,410.47				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		4051.62		68,410.47				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date Nov. 29, 1958 Operator B. H. Putnam

Per William T. Bell Title Superintendent

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

Hendor
GEOLOGIST, U. S. G. S.
DEC 1 1958

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

November 30, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - Nov. 1958

Core Hole No. CD-17

Footage drilled	595' @ $3.00/ft.	$1785.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Co.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

November 30, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - Nov. 1958

Core hole No. GD-18		
Footage drilled	400' @ 3.00/ft.	$1200.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Co.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B. H. Putnam, Appro.
512 Third Street
Marietta, Ohio

November 30, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - Nov. 1958

Core hole No. GD-19

Footage drilled	264' @ 3.00/ft.	$792.00
Reaming	24' @ 2.00/ft.	48.00
	Total	$840.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT
GRAINGER COUNTY, TENNESSEE, FOR:

November, 1958

By: W. T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of November, three holes were drilled on the Puncheon Camp Creek Project. Hole GD-17 was drilled 200 feet southwest of GD-16. The hole collared in the Mascot formation and was drilled to a depth of 595 feet.

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-68	Overburden	---	---	---
68-280	Mascot	CMss @ 280	---	Dolomite; some faulting
280-568½	Kingsport	"R" @ 475, "S" @ 531½, "T" @ 568½	---	Dolomite; brecciated from 310-480; hvy faulting 425-480; dol. and re-xl in R-S bed zones
568½-595	Longview	"U" @ 580½	---	Dolomite & re-xl

Hole GD-18 was drilled on a dip fence 300 feet north of GD-16. The hole collared in the Mascot formation and was drilled to a depth of 400 feet.

0-91	Overburden (Mascot)	CMss in overburden	---	---
91-351	Kingsport	"R" @ 223, "S" @ 308½, "T" @ 351	199-200, shines; 203-04, 5.36% Zn; shines 205½, 207; 210-213½ 1.90% Zn, 214-215 4.26% Zn, 219½-232½ 13'-2.19% Zn, shines 238, 239, 241; 243-245, 2'-3.08% Zn., 248½-251, 2½'-0.78% Zn. 257-262½, 5½'-2.44% Zn. 268-68½, ½'-2.32% Zn. 270-281½, 11½'-3.75% Zn. or 281½-293, 23½'-3.05% Zn, 289½-306, 16½'-3.25% Zn, Total 270-306, 36'-2.93% Zn., shines 317, 323; 328½-329½-1'-0.92% Zn.; 340-340½-½'-0.40% Zn. 342½-344, 1½'-2.12% Zn.	Dolomite; well brecciated from 200-348
351-400	Longview	"U" @ 359	Shine @ 384½'	Dolomite & re-xl

Hole GD-19 was drilled 174' west of GD-18 on a northeast-southwest strike fence. The hole collared in the Kingsport formation and was drilled to a depth of 264 feet.

0-60	Overburden	---	---	---
60-230	Kingsport	"R" @ 105, "S" @ 179, "T" @ 230	ZnS shines @ 115, 116, 117; 118-130, 12'-2% Est.; ZnS shines @ 173, 179; 183-184, 1' -1% Est.; shines @ 185½, 188, 189, 191½	Dolomite, re-xl, some limestone; crackle & rubble breccia; some FeS shines
230-264	Longview	"U" @ 244'	---	Dolomite & re-xl

B. H. Putnam DD-GD-17

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E 1088

Hole No:	GD-17	Collared:	10-21-58
Farm:	Green-Dalton	Bottomed:	11- 7-58
Loc: N	49,328.92	Depth:	595'
E	46,130.91	Casing:	EX 68, AX 120
Elev:	1396.12	Reaming:	None
Drilled By:	Putnam Drlg. Co.	Cement:	None
Logged By:	J. W. Spears		

Top Kingsport	280
Top R Bed	475
Top S Bed	531½
Base Kingsport	568½
Top U Bed	580½
Base U Bed	589½

0-68	Overburden
-88	Med dk gr dol; mott & some white eyelets (12' core loss 68-88)
-94	Lt med gr dol; mott 89-94; scatt ss grains 89-½ w/2" v hvy sand @ 89½; scatt ss grains 89½-91½ w/hvy ss @ 91½; sli darker 91½-94; shears 92-94; sand @ 94
-102	Med gr dol; TGS 97; bott foot mott & scatt ss grains
-103½	Lt med gr dol; brecc chert nod @ top; then mott w/scatt sand grains
-105	Chert, brecc; some re-xl, silica & shale
-109	Med gr semi re-xl to sug dol; mott
-109½	Dk gr dol; v mott (core from 109-120 was spilled, possibly some beds might have been reversed) (1' core loss 109-120)
-111	Lt gr dol; v sandy & some mottling
-114	Lt med gr dol; mott
-133	Dk gr dol; occ mott & eyelets; shears scattered thruout; fault (bedding plane?) @ 132
-134	Med dk (med) gr dol
-136	Dk gr dol; v mott (2' core loss 134-138)
-141½	Lt med gr dol (to med gr) well mott; sandy bott 6"
-143½	Med (lt) gr dol; mott & some eyelets; oxidized bott 6"
-149½	Med dk gr dol; well mott to 147
-152	Med gr dol; few hite eyelets @ top & bott 6"
-153	Lt med gr dol; some lt bands
-155½	Lt med semi re-xl to sug dol; v cherty top 6", then TGS & chert nod
-157	Med dk gr dol; v mott; few ss grains @ base
-158	Chert; bott 6" white chert
-162	Lt med (lt) gr dol; lt shears thruout; few ss grains @ 61; chert bott 3"
-163	White chert
-165	Lt med gr dol; shears to crackle
-168½	Lt med (med) gr dol; mott & sug; shaly @ 66½ w/tr FeS; v cherty bott foot & few scatt sand grains
-171	Lt gr dol; few lt bands; chert nod @ base
-175	Med gr dol; 1" fault @ 74½; 74½-75 mott & cherty & sug
-179½	Lt med gr dol; v mott top foot; then occ white eyelet to 78; v cherty 79-½
-185½	Lt gr dol; lt mott to 81½; then banded (41° dip) to 85 w/few scatt ss grains 84-85
-188½	Lt med gr dol; mott; grades to med gr
-192	Med gr dol; mott to well mott; scatt sand bott 6"
-196	Lt med (or med) gr dol; mott to well mott
-197	Med dk gr dol; well mott
-199	Med gr dol; scatt ss grains bott foot w/some sed. brecc @ base sealed w/grn shale
-212	Lt med gr dol; v mott top foot; chert nod 01½; lt bands 01½-07½; mott 07½-12
-213½	Med gr dol; mott & some silic eyelets; thin fault @ 13½
-215½	Med dk gr dol; banded; small chert nod @ 15 (Base M-8)
-218	Lt med gr dol (some med @ top) bands top foot; lt shears thruout; o xid. fault @ base w/chert nod below fault
-219½	Lt gr dol; lt mott; few white eyelets; grades to lt med gr
-222	Lt med gr dol; v mott & sugary
-223	Med gr dol; mott & sug; bott 6" v sandy edgewise congl. w/lite pebbles (base Bed M-7)
-224½	Lt med (to med) gr dol; mott; few lt shears
-227½	Med gr dol; mott; occ silic & white eyelets; faulted bott 6"
-229	Med dk gr dol; lt mott; few eyelets as above
-231½	Med gr dol; occ white eyelet
-233	Dk gr dol; shaly mott & white eyelets; v mott bott 3"
-234	Med gr dol; v mott
-235	Lt med gr dol; bott 6" hvy sand, then oolitic chert (Base M-6)
-236½	Lt gr dol; some scatt ss grains top 4"
-237½	Lt med gr dol; v mott
-241½	Med gr dol; v mott; some shears @ base
-242½	Med dk gr dol; shaly mott
-243½	Lt med gr dol
-245½	Dk gr dol; shaly bands and few eyelets
-248	Med gr dol; lt bands (to tr mott) few thin sands 46½-47, hvy sands 47 & 48

-250 Lt med gr dol; well mott; sli sug & tr's of silica; few scatt sand grains bott 6"
-253½ Lt gr dol; banded (@ 35° dip) scatt sand grains @ 51; grades to lt med gr dol about 52; TBS @ base
-258 Lt med to med gr dol; few white eyelets 57-58
-261 Lt med to med gr dol; v mott; sli sug & tr FeS @ top; chert nod @ base
-261½ Lt semi re-xl; shaly @ base & many sand grains
-263½ Med gr dol; lt shears
-268 Lt med gr dol; lt bands (35° dip) to 65; then lt mott
-275 Med gr dol; mott & occ white eyelets
-276 Med dk gr dol; v mott; chert nod @ base
-280 Lt med gr dol; lt bands (@ 38° dip) CM sands 79½ & 80 (TOP KINGSPORT FM 280')
-283 Lt med (med) gr dol
-288 Med gr dol; mott; chert nod 85
-297 Lt med gr dol; scatt sands (some hvy sands) 89½-90, also some grn shale from about 93 becomes darker w/lt mott (3' core loss 95-301)
-302½ Lt med gr dol; occ white eyelet to 300; lt crackle 300-01½; TGS @ base
-303½ Lt med sug dol (or semi re-xl) specks of FeS thruout
-308 Lt med gr dol
-310½ Lt med to med gr dol; scatt sed. brecc
-317 Med dk gr dol; mott; fault 10½-11 w/shears to 12 (2' core loss 13-17)
-320½ Lt med (& med) gr dol; sed. brecc; chert nod @ base (1' core loss 17-27)
-323 Lt med gr dol; thick bands @ 40° dip
-326 Med gr dol; some crackle
-327 Med dk gr dol; mott & silic eyelets
-344 Med to lt med gr dol; sed. brecc to 32½ w/bands 28½-30; sed. brecc 35-38; mott 40-41½
-344½ Med dk gr dol; mott
-346½ Lt med gr dol; sed. brecc; bott 6" v sandy then oolitic cherts (base K-2)
-348 Lt med gr dol; shears & lt crackle; v hvy ss @ 48
-355 Med gr dol; occ sed. brecc zone; (2' core loss 48-60)
-357½ Lt med gr dol; some sed brecc top foot
-359½ Med gr dol; few eyelets top 6"; then sed brecc
-368 Lt med gr dol; sed brecc; some crackle w/gangue to 64; @ base grades to med gr dol
-371 Med dk gr dol
-373½ Med gr dol; sed. brecc
-375½ Lt med gr dol; occ white eyelet
-376 Med gr dol; sed brecc
-383½ Lt med gr (med) dol; 1" TGS @ 77; chert nods (some brecciated) 80½, 81, 81½, 82; banded 82-83½; chert nod 83½ (1½' core loss 76-80)
-392 Med (& lt med) gr dol; sed brecc; also some brecc to crackle w/gangue
-396 Lt med gr dol; sandy 93-½ & 94½; brecc 94-96
-399 Med gr dol; some crackle to 97; sed brecc 97½-99
-400 Lt med gr dol; bands & crackle; few ss grains & TGS @ base
-404 Med (& lt med) gr dol; sed brecc
-405 Lt med gr dol; brecc oolitic chert @ top
-415 Med (& lt med) gr dol; sed brecc; ss grains 410½-11 (3' core loss 405-11)
-432 Lt med gr dol; sed brecc; v sug 17-18; (1' core loss 11-15) shears 27-29, shaly @ 30, banded 30-31 w/few eyelets (5½' core loss 15-25, 1½' core loss 25-30; 1½' loss 30-38)
-434½ Lt gr dol; bott foot sed brecc
-438 Lt med gr dol; sed brecc; occ chert fragment
-439 Lt gr dol; shears (1½' core loss 38-43)
-443 Lt med gr dol; top foot sed brecc, then 6" hvy brecc w/white gangue; then shears to base
-448 Lt gr dol; some crackle & some sed brecc; banded; sandy @ 45-½ (2' core loss 47-50)
-450 Med gr dol
-455 Lt gr dol; lt bands; occ white eyelet (3½' core loss 50-60)
-460 Med gr dol; shears
-466 Lt med (lt) gr dol; shears (4' core loss 60-67)
-468 Med gr dol; mott & sug; shears (2½' core loss 67-75)
-475 Lt med gr dol; mott; faulted to 73, then many shears (TOP K BED @ ABOUT 475'
-480 Med gr dol; mott & sug; occ shears & some oxidized

-483 Lt gr dol; some brecc w/grn shale top few inches; then occ zone dk re-xl; 82-½ pt chert pt re-xl; some eyelets and bands 81-82½
-484½ Br re-xl w/chert fragments
-486 Lt gr dol; lt bands; some sed crackle
-489½ Br re-xl; band of shale 86½-87; then scatt chert fragments
-495½ Lt br re-xl to semi re-xl, becomes mott (2' core loss 90-97)
-497 Lt med gr dol
-501½ Br to lt br re-xl; mott; occ zone darker brown
-502½ Lt med gr dol; some bands; chert nod @ 502
-504 Dk br shaly re-xl; some red oxidation
-509 Br re-xl
-514 Lt med gr dol; sug @ top; occ lt crackle to eyelets of re-xl; bott 6" becomes mott semi re-xl w/chert @ base
-514½ Dk br re-xl; silic; mott
-517½ Med dk gr dol; crackle to brecc; some silica & re-xl; few eyelets (base bed K-7)
-520 Lt br re-xl; v shaly & some silica
-524 Med dk to med gr semi re-xl; crackle to brecc top 1½'; mott
-524½ Lt semi re-xl
-525½ Med dk gr mott sug dol
-531½ Lt med gr dol; scatt dry brecc to 30 w/chert nod @ 30; v banded 30-31½ w/grn shale @ base
TOP S BED 531½
-537 Br re-xl; coarse; v silic to 36; chert nod 37
-543½ Lt med gr dol; sug; chert nod 39; semi & shaly 39-40; occ crackle w/gangue; cherty @ 542½
-548 Br re-xl; v cherty top few inches; v mott to poss old brecc
-549 Blocks of lt med gr dol in br re-xl
-553 Lt br re-xl; v shaly w/some sec chert 49½-53 (5' core loss 51-60)
-568½ Br re-xl; mott & silic top foot; then occ crackle; some shaly; becomes lighter br towards base
BASE KINGSPORT FM 568½'
-571 Lt med gr dol; sug @ top; mott; several cherts bott 6"
-580½ Lt med to med gr dol; chert nod 71½; occ lt crackle
TOP U BED 580½
-581 4" oolitic chert; then br re-xl
-587 Lt med semi re-xl; well mott; some red oxidation bott foot, then shaly @ base
-589½ Dk gr cherty re-xl
BASE U BED 589½
-593 Lt med gr dol; lt mott
-595 TD Med (med dk) gr dol; eyelets, crackle

E. H. Putnam DD-GD-18

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E 1088

Hole No:	GD-18	Collared:	11-8-58
Farm:	Green-Dalton	Bottomed:	11-18-58
Loc: N	49,769.76	Depth:	400'
E	46,091.28	Casing:	BX 70, AX 110
Elev:	1473.75	Reaming:	None
Drilled By:	Putnam Drlg. Co.	Cement:	2 Sacks
Logged By:	J. W. Spears		

Top Kingsport	in overburden
Top R Bed	223'
Top S Bed	308½'
Base Kingsport	351'
Top U Bed	359'
Base U Bed	371'

OD-91	Overburden
-94	Dk gr dol; v mott (9' core loss 91-104)
-102	Lt med gr dol; some banding; few white eyelets
-103	Dk gr dol
-108	Lt med gr dol; mott; shears 106-07 (1' core loss 104-10)
-114½	Lt gr dol; cherty top few inches; sandy @ 08½; fault @ 11; v sandy & some oolitic chert 13½-14½ (base bed K-2) (1' core loss 110-15)
-117	Lt med gr dol; v hvy ss @ 15½; lt mott; TBS @ base
-125	Med gr dol; lt shaly mott & occ white eyelet; to 20½ w/TBS 20½; well mott & occ TBS 120½-25
-127½	Med gr dol; ox to lt med gr dol; well mott; shears @ base, then TBS
-135	Lt gr dol; mott to 31½ w/½" TGS @ 31½; then lt bands to 35 w/chert nods 33½, 34-½ & 35.
-142	Lt med gr dol; banded (43° dip) chert nod 36; then becomes well banded to wavy to 41; scatt ss grains 39-40½; v sandy 40½-41 (base K-3)
-145½	Med gr dol; mott & sug; tr congl bott few inches; ½" TGS @ base
-156½	Lt gr dol; few lt bands (40° dip) to 49 & few shales; chert nod 49; lt mott 49-55 w/sev cherts 54-55; banded to well banded 55-56½ w/a bleached chert @ 55½
-158	Lt med gr dol; v banded to wavy; scatt ss grains & chert fragments bott 6" w/TBS @ base
-162½	Lt med gr dol; lt bands; chert nod @ top; sev large cherts 60-62; bott 6" lt gr
-165	Lt gr semi re-xl or sug dol; mott; v cherty top 6" (base K-4)
-171½	Lt gr dol; lt bands to 71½; sev TBS's 67½-68; chert nod 69½, then grades to lt med gr
-178	Lt gr dol; mott top foot; then bands to well banded (49° dip) to 75½; chert nods 76½, 77½, & 178
-184½	Lt med (med) gr dol; banded (41° dip) to 81½, then mott
-189	Lt gr dol; lt bands, slightly wavy
-189	Lt gr dol; lt bands, slightly wavy
-194	Lt med gr dol; crackle 90-91; oxid sheets 91½-92; scatt ss grains 92½-3½; grn shale & some re-xl 93½-94
-196	Med gr dol; crackle, mott; chert nod 195; (base bed K-5)
-200	Lt gr dol; lt bands; few eyelets @ top; <u>crackle w/ZnS shines 99-200</u>
-201	Lt med gr dol; mott & sug; sli oxid
-203½	Lt gr dol; lt mott & occ eyelet; brecc bott 9"; <u>est 2½% ZnS 203-04</u>
-205½	Med gr dol; top 3-4" brecc w/Zn; thin shaly mott w/occ eyelet & lt crackle; <u>ZnS & FeS shine @ 205½</u>
-210	Med gr dol; lt bands; crackle; <u>ZnS sh 07½</u>; dk chert nod @ 208
-217	Lt med (med) gr dol; crackle to brecc; <u>est 1% ZnS 10-13½</u>; <u>est 2½% ZnS 14-15</u>; some lt bands; ox @ base & few ss grains
-223	Lt med to lt gr dol; mott; ox @ top; brecc 19-23 <u>w/est 2½% ZnS & ½% FeS 19-23</u>; 1' core loss 20-23) <u>(TOP R BED 223)</u>
-224	Grn shale & re-xl; <u>tr ZnS top & bott</u>
-227	Med gr dol; mott & sug; shears to vuggy crackle to 26; v oxid 26-27
-229½	Lt med gr dol; sug & mott; crackle; <u>oxid & ZnS sh 28-29</u> (1' core loss 26-31)
-232½	Lt gr dol; brecc; est 3% ZnS 31½-32½ (much carbonate)
-234	Med dk gr dol; sug; lt mott to bands
-239	Dk gr dol; sug & mott; <u>strong ZnS sh @ 38</u> (½' core loss 31-39)
-241½	Br re-xl; brecc; cherty & shaly top part; occ tr ZnS
-243	Lt med gr dol; bands; lt crackle
-246	Br re-xl; brecc & silic to 45 <u>w/est 2% ZnS 43-45</u>
-247	Lt gr dol; some bleached; some crackle w/re-xl gangue & tr of FeS
-248½	Gr re-xl; v hvy FeS top 6"
-251½	Gr v banded semi re-xl
-253	Lt br re-xl; ZnS shine @ 52
-255	Br re-xl
-257	Lt gr re-xl (to semi re-xl) mott
-258	Re-xl; brecc; <u>est 2% ZnS</u>
-259½	Lt re-xl; some brecc w/shaly re-xl
-263½	Brecc. shaly re-xl; occ block dol; <u>est 4% ZnS 59½-62½</u>; chert nod @ 63½
-264½	Lt gr dol; lt bands
-266½	Gr mott to shaly re-xl; lt crackle

-268 Lt re-xl; crackle to 67½; then brecc; hvy ZnS sh @ 68
-272 Lt med mott sug dol to semi re-xl; brecc 70-71 w/est 3% ZnS
-272½ Br re-xl; brecc w/est 4% ZnS
-277½ Lt gr dol; brecc; est 4% ZnS 72½-77; some ss 73½ & 74½
-278 Br re-xl; brecc; est 4% ZnS
-284 Lt med gr dol; brecc; est 2½% ZnS 78-81½; few shears @ base
-285 Med dk & some lt gr dol; brecc; est 3% ZnS 84-85
-286 As above plus re-xl; brecc; est 1% ZnS 85-86
-287½ Gr re-xl; sli silic; est 1% ZnS 86-½
-289½ Lt gr dol; brecc; est 1½% ZnS
-295 Gr re-xl; w/scatt blocks lt & dk dol; est 3½% ZnS 89½-93½
-297 Dk gr dol; few eyelets; tr crackle
-302 Lt gr dol; brecc w/few dk gr blocks; sealed w/gangue and re-xl; est 2% ZnS & scatt FeS
-304 Dk gr dol; bott 6" to semi re-xl or re-xl
-306 Lt med semi re-xl; brecc w/gangue & re-xl; est 3½% ZnS
-307 Dk gr dol; eyelets; tr crackle
-308½ 6" lt re-xl; chert nod, then 6" lt med gr dol
TOP S BED 308½
-316 Cosrse blk & white re-xl; silic; some brecc w/gangue; block dk gr dol @ 11, block lt dol @ 13; cherty 14-16
-317½ Lt br re-xl; silic; tr ZnS 17
-319½ Gr to dk re-xl; silic & scatt cherts
-322½ Lt br & white re-xl; chert @ base
-323½ Dk br re-xl; tr ZnS 23; chert @ base
-328½ Lt to med dk dol blocks sealed w/much cherty gr re-xl
-330½ Br re-xl; brecc; est 1% ZnS 28½-29½
-348 Blocks of med & med dk gr dol & semi re-xl sealed w/gr jasporoid re-xl & some white gangue; scatt FeS thruout; ZnS sh 40-½, 41½; block br re-xl 41½-42½; est 2% ZnS 42½-44; cherty @ base
-349 Lt med gr dol
-351 Lt br re-xl; tr vugs
BASE KINGSPORT @ 51
-359 Lt med gr dol; sli sug top 6"; chert nod 52; brecc w/re-xl 53-54½ & 58-59; some re-xl oxidation @ base
TOP U BED 359
-359½ Br re-xl; oolitic chert @ top
-365 Lt med gr dol; mott; sug (tr some poss semi re-xl) darker bott 6"
-367 Lt br re-xl
-368 Med gr dol blocks sealed w/re-xl (w/FeS) & some white gangue
-371 Lt br re-xl; lt mott (1' core loss 70-73)
Base U Bed 371
-372½ Med gr dol; brecc w/hvy FeS
-374 Med dk gr dol; eyelets; crackle w/FeS
-376 Med gr dol; @ top tr of re-xl & some chert; crackle to brecc w/FeS
-377 Lt br re-xl; v cherty @ top
-380 Lt med gr dol; brecc w/occ chert fragment & v hvy FeS
-383 Br mott re-xl
-384 Blocks of lt med gr dol & chert sealed w/jasporoid & re-xl
-386 Br re-xl & much jasper; some cherts; ZnS sh @ 84½; sandy 85½
-388½ Br re-xl; mott w/white; scatt FeS; grades to lt br
-389½ Lt gr dol; several cherts top 6"
-390 Lt re-xl
-392 Br banded re-xl
-393½ Lt mott re-xl
-398½ Lt gr dol; conc cherts 95 & 96; few ss grains @ base
-400 Lt med gr dol; lt mott (TD)

B. H. Putnam - D.D. GD-19

Copper Ridge Project - Pumcheon Camp Creek

DMEA Idm-E 1088

Hole No:	GD-19	Collared:	11-20-58
Farm:	Green-Dalton	Bottomed:	11-26-58
Loc: N	49,851.88	Depth:	264'
E	45,938.63	Casing:	BX 60; AX 110
Elev:	1467.21	Reaming:	86'-110'
Drilled By:	Putnam Drlg. Co.	Cement:	None
Logged By:	W. T. Hill		

Top R Bed	105
Top S Bed	179
Base Kingsport	230
Top U Bed	244

0-60	Overburden
-61½	Lt gr dol; banded; blue ch nods @ 61, 61½
-63½	Lt med gr dol; mott; some oxid.
-64½	Lt gr dol; banded
-68½	Lt med gr dol; banded
-70	Med dk gr dol; banded
-70½	Med gr dol; lt ss @ 70½
-71	Re-xl; coarse; brn; siliceous
-73½	Dol; med gr; banded; thin ch @ 71
-74½	Dol; lt gr; mott; oxid @ base
-85½	Dol; dk gr; banded (90% core loss)
-88½	Dol; lt-med gr; wh ch nod @ base
-90	Dol; dk gr; mott; lt gangue fracts.
-105	Dol; med-dk gr; mott; crackle & lt FeS shines (3' core)
-115	Re-xl; coarse grn'd; v siliceous; oxid. (1½' core)
-117	Dol; med-dk; mott; brecc; some traces ZnS and FeS; oxidized
-118	Re-xl; dk brn; ZnS shines; hvy ch 118 w/strong ZnS
-130	Re-xl; black & white; hvy ZnS shines; some FeS (5' core 120-130)
-131	Dol; lt gr
-135	Re-xl; brn; mott; crackle; 2" fault gangue 32'; vuggy
-141	Dol; lt-med; crackle; mott; ch nod 139½, 140
-148½	Re-xl; coarse; greenish 41-43; grades into semi; some crackle; rubble 47½-48½
-154	Dol; lt gr; banded 48½-49½; mott 49½-52; crackle; some lt FeS shines
-155	Dol; dk gr; crackle
-157	Cavity
-166½	Dol; dk gr; crackle; lower part mott
-167	Re-xl; silic; oxid
-168	Chert
-179	Dol; lt gr; rubble breccia; ZnS shines @ 73½, 78½; scatt FeS thruout
-182½	Re-xl; brn; coarse; silic
-183	Dol; brecc
-184½	Re-xl; brn; 183-84½ Est 1 % Zn; 5% FeS
-188	Dol breccia, sealed with re-xl and wh gangue; some chert; ZnS shines 85, ½; strong ZnS @ 88 in jasperoid
-191½	Ls; shaly; re-xl @ 89 & ZnS shine; 91-½, 20% re-xl & ZnS shine
-192½	Chert; brecc black jasperoid
-201½	Re-xl; brn; coarse black chert @ 94; 98 (6"); FeS @ 97; crackle thruout
-209	Dol; brecciated and sealed with re-xl & gangue
-211	Re-xl; brn; crackle 209-11; oxid @ 208½
-230	Re-xl; coarse to 25½; lt ss @ 18; bands jasperoid 11-13; FeS @ 19, 20-21, 22-23, 24 25 (hvy)
-244	Dol; lt med; v lt crackle
-253	Dol; mott; oolite @ 44; crackle 45-49
-256	Re-xl; coarse
-264	Dol; med gr; wh nods thruout; TD @ 264'

Form 14F-103 (Rev.) (April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of [illegible], 195[illegible]. Docket No. DMEA [illegible] Contract No. [illegible]

Operator's Name [illegible] Minerals [illegible]

Address [illegible] Street, [illegible], Ohio

Contract Amount, $ [illegible] Government Participation: [illegible] % Amount, $ [illegible]

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	[illegible]	[illegible]	[illegible]			
Bulldozing						
Crosscutting						
Drifting						
[illegible]	[illegible]	[illegible]	[illegible]			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	[illegible]	[illegible]	[illegible]			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	[illegible]	[illegible]	[illegible]			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incid. Office						
[illegible]	[illegible]	[illegible]	[illegible]			
TOTALS	[illegible]	60,727.72	[illegible]	3631.13	60,727.72	64358.85

I certify that the above bill is correct and just and that payment therefor has not been received.

Date [illegible] *Payee [illegible]

Per John W. Spears Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1815.56

Signature Helen R. Meier
(Authorized Certifying Officer)

Date NOV 4 1958 Vou. No. 54
(See other side)

1815.57

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature H. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date OCT 31 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER DME FIELD TEAM REGION V Date OCT 31 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1962)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 195 8 Docket No. DMEA 4580 Contract No. Ion-3 1088

Operator's Name D. H. Ritman, Operator Minerals Ino

Address 512 Third Street, Marietta, Ohio

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core Sampling	Foot	3199.00	1066	39,235.00	19745	3.00	50,000	3.00
Churn Sampling	Foot	70.00	35	1,192.00	596	2.00	5,000	2.00
Auger Sampling	Each	21.25	17	87.50	70	1.25	550	1.50
Core Boxes	Each	150.00	75	290.25	150	1.935	150	2.00
Stripping								
Trenching								
Test Pits								
Roads and Trails								
Incid. Exp. @ .18/ft.	Foot	191.88	1066	3,554.10	19745	.18	50,000	.18
Total Distributed Costs		3611.13		44,358.85				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs								

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date October 27 Operator D. H. Ritman

Per John W. Spears Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

Remarks:

(Instructions on reverse)

(For Government use only)

W. J. Lynch
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

Invoice
Marietta, Ohio

B. H. Putnam, Appre.
512 Third Street
Marietta, Ohio

October 31, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - Oct. 1958

Core Hole No. CD-15

Footage drilled	513' @ 3.00/ft.	$1539.00
Reaming	35' @ 2.00/ft.	70.00
		$1609.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B. H. Putnam, Appre.
512 Third Street
Marietta, Ohio

October 31, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - Oct. 1958

Core Hole No. GD-16

Footage drilled	553' @ 3.00/ft.	$1659.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Statement

Jefferson City, Tenn. 9/15/58 195

M H. H. PUTNAM DRILLING CO

THORN HILL, TENN

MOYERS CABINET SHOP

108 Carson Street

Telephone 3113

1/11/58	25 -AX core Boxes 5' long	@ 200	50.00
	500 Grade Stakes	3	15.00
			65.00
		Tax	1.95
			66.95

This ONE IS NATIONAL LEADS

6/21/58	50 - AX CORE BOXES 5' LONG	@ "200	100.00
		TAX	3.00
			103.00

9/21/58	50- AX CORE BOXES 5' LONG	@ 2.00	100.00
	500 -GRADE STAKES	.3	15.00
			115.00
		TAX	3.45
			118.45

75 Boxes to P. Camp

Charge to Oper. W. Hill

Total Due	66.95
	103.00
	118.45
Total Amount Due	288.40

Putnam owes this

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1888

MAIN OFFICE AND LABORATORIES 610-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

ST. LOUIS, MISSOURI

BATESVILLE, ARKANSAS

PICHER, OKLAHOMA

Mr. B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

10-13-58

				ZINC	
798053	GD-12-1	441-443	(2')	6.22	= 8' @ 1.93%
054	GD-12-2	445½-447½	(2')	1.30	
055	GD-12-3	447½-449	(1½')	0.26	
056	GD-15-1	408½-411	(2½')	1.46	= 11' @ 1.02%
057	GD-15-2	412½-413½	(1')	0.80	
058	GD-15-3	416-417	(1')	1.30	
059	GD-15-4	418½-419½	(1')	5.52	
060	GD-15-5	425½-427½	(2')	0.72	

cf/nls 67-788

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1888
MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556
JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

Mr. B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

9-25-58

				ZINC
797311	GD-14-1	292½ - 293½	(1')	2.12
312	2	301½ - 303½	(2')	2.44
313	3	305½ - 307½	(2')	1.40
314	4	307½ - 309½	(2')	1.52
315	5	346½ - 348½	(2')	1.16
316	6	348½ - 350	(1½')	11.12
317	7	351½ - 352	(½')	0.54
318	8	365 - 367	(2')	4.14
319	9	367 - 369	(2')	6.14
320	10	369 - 371	(2')	0.72
321	11	371 - 373	(2')	3.10
322	12	378½ - 379½	(1')	0.78
323	13	379½ - 382	(2½')	0.12
324	14	382 - 384	(2')	3.96
325	15	395 - 396½	(1½')	0.80
326	16	398½ - 400½	(2')	1.24
327	17	409 - 410	(1')	1.44

67-609 cf/nls

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

INDUSTRIAL AND ANALYTICAL CHEMISTS

The Bruce Williams Laboratories

ESTABLISHED 1906

MAIN OFFICE: 618-622 JOPLIN STREET
TELEPHONE MAYFAIR 3-1556

Joplin, Missouri

ENGINEERING INSPECTIONS AND TESTS

BRANCH OFFICES:

306 VALLEY DRIVE
ST. LOUIS, MISSOURI
TELEPHONE HOBART 7-3226

219 TERMINAL WAREHOUSE BLDG.
LITTLE ROCK, ARKANSAS
TELEPHONE FRANKLIN 2-0683

CONNELL HOTEL BLDG.
PICHER, OKLAHOMA
TELEPHONE 710

STATEMENT OF YOUR ACCOUNT

Mr. B. H. Putnam
P. O. Box 65
Thorn Hill, Tennessee

TERMS CASH
NO DISCOUNT

DATE	ASSAY NO.	DESCRIPTION		
1958 Sept.		Statement rendered for work from 8-26 to 9-25-58 incl.		
		TOTAL AMOUNT DUE		$21.25

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

RECEIVED OCT 3 1958 O.M.E.

Month of Sept. 1958 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name E. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:	2784.00	53,253.00	56,037.00			
Drilling						
Bulldozing						
Crosscutting						
Drifting Reaming	—	1122.00	1122.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track Core Boxes	—	140.25	66.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	—	66.25	140.25			
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incid. Allow .18/ft.	167.04	3,195.18	3,362.22			
TOTALS	2951.04	57,776.68	60,727.72	2951.04	57,776.68	60,727.72

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 9/30/58 *Payee E. H. Putnam

Per W. T. [illegible] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1475.52

Signature Helen R. Miller
(Authorized Certifying Officer)

Date OCT 1 1958 Vou. No. 39

(See other side)

1475.52

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [illegible] Title SEP 29 1958 Date SEP 29 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title [illegible] OFFICER DME FIELD TEAM REGION V Date SEP 29 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

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Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED OCT 3 1958 O.M.E.

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of Sept. 1958 Docket No. DMEA 4580 Contract No. Idm- E 1086

Operator's Name B. H. Putnam, Operator Minerals Zinc

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	2784.00	928	56,037.00	18,679	3.00	50,000	3.00
~~Churn~~ XXX Reaming	Foot	-	-	1122.00	561	2.00	5,000	2.00
~~Auger~~ XXXX Sampling	Each	-	-	66.25	53	1.25	550	1.50
XXXXX Core Boxes	Each	-	-	140.25	75	1.87	150	2.00
Stripping								
Trenching								
Test Pits								
Roads and Trails Incid. Allow. @ .18/ft.	Foot	167.04	928	3,362.22	18,679	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		2951.04		60,727.72				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		~~2951.04~~		~~60,727.72~~				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date Sept. 30 Operator B. H. Putnam

Per W. T. Kelly Title Superintendent

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

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In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT,
GRAINGER COUNTY, TENN. FOR SEPT. 1958

BY: W. T. HILL

Docket No. 4580
Contract No. Idm-K 1088

During the month of September, two holes were drilled on the Puncheon Camp Creek Project. Hole GD-13 was drilled on a strike fence 200 feet northeast of GD-12. The hole collared in the Mascot formation and was drilled to a depth of 423 feet.

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-29	Overburden	—	—	—
29-111	Mascot	CMas @ 111	—	Dolomite; 60% Core loss
111-359	Kingsport	Top of "R" @ 240 Top of "S" @ 295½ Top of "T" @ 359	—	Dolomite, limestone, & re-xl; no brecciation.
359-423	Longview	Top of L-4 @ 400	—	Dolomite, re-xl; some limestone.

Hole GD-14 was drilled on a strike fence 100 feet southwest of GD-8. The hole collared in the Mascot formation and was drilled to a depth of 505 feet.

0-82	Overburden	—	—	—
82-122½	Mascot	CMas @ 122½	—	Dolomite
122½-412½	Kingsport	Top of R @ 279½ Top of S @ 360 Top of T @ 412½	Shines @ 284½; 288; 293-293½, est. 2%; 298; 301½-308½, 7' @ 1.26% Zn; 343½; 346½-352, 5½' @ 3.5%; 365-373, 8' @ 3.52, 378½-384, 5½' @ 1.64%; 395-400½, 5½' @ 0.67%, 409-410, 1' @ 1.44%	Dolomite & re-xl; in part brecciated
412½-505	Longview	Top of L-4 @ 452		Dolomite and re-xl.

Drilling is now underway at location GD-15 100 feet southwest of GD-14.

Invoice
Marietta, Ohio

B. H. Putnam, Appre.
512 Third Street
Marietta, Ohio

September 30, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. BOX 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMRA Contract No. 4580-Sept. 1958

Core Hole No. CD-13

Footage drilled	423' @ 3.00/ft.	$1269.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy

A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B. N. Putnam, Appre.
512 Third Street
Marietta, Ohio

September 30, 1958

In account with
PUTNAM DRILLING COMPANY
P. O. Box 647

512 Third Street

Phone: FR 4-6761

Statement for drilling Rumebaum Camp Creek Project DMEA Contract No. 4580 - Sept. 1958

Core Hole No. CD-14

Footage drilled	505' @ 3.00/ft.	$1515.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just in accordance with the bid submitted by Putnam Drilling Company.

B. N. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

E. H. Putnam D.D. GD-13

Copper Ridge Project-Pumcheem Camp Creek

DMEA Idm-E 1088

Hole No:	GD-13	Collared:	8-29-58
Farm:	Green-Dalton	Bottomed:	9-6-58
Loc: N	50,010.11	Depth:	423
E	46,743.77	Casing:	BX 29; AX 123'
Elev:	1415	Reaming:	None
Drilled By:	Putnam Drlg. Co.	Cement:	None
Logged By:	E. W. Spears		

Top Kingsport	82' est (much more less)
Top R Bed	240'
Top S Bed	298
Base Kingsport	359
Top U Bed	365
Base U Bed	383½

0-29 Overburden
-32 Lt med gr del; top 3" sandy edgewise congl (Base M-7) then lt mott w/chert nods 30½, 31, & 32 (18' core loss 33-61)
-37 Lt gr del; lt bands (dip @ 30°) to 34 w/TGS @ 34; then lt mott & grades to lt med gr; thin fault 36-½; TGS 37
-45 Lt med to med gr del; mott w/silic eyelets; @ 40 v oxid prob much core loss below 40
-59 Med gr del; mott w/gangue & silic eyelets
-60 Lt gr del; thin ss @ base
-61 Lt br shaly re-xl
-66 Lt med gr del; lt mott; sugary @ top; grades to med gr
-69½ Med gr del; mott w/gangue & silic eyelets; bott 2' much darker
-72 Lt med gr del; some sand & tr congl top 6"; sandy 71-72 (12' core loss 70-85)
-87 Only recov med gr mott to shaly del (10' core loss 85-98)
TOP KINGSPORT EST. @ 87'
-92 Med gr del; v mott
-97 Lt gr del
-100 Med gr del; lt mott to shaly mott (5' core loss 98-110)
-103 Lt med gr del; mott & oxid
-104 Med gr del; to lt med gr; banded
-110 Lt med gr del; v sandy (3") @ about 105
-116 Med dk gr del; shaly mott & eyelets (2' core loss 110-120)
-118 Lt med gr del; bands
-124 Med gr del; shaly bands (35° dip) sands 122½-24 w/hvy ss 24
-125½ Lt med gr del; shaly & sugary bott 2"
-126½ Med gr del; well mott
-128½ Lt med gr del; lt mott; lt shears; chert nod & TGS @ base
-137 Lt gr del; 2" oolitic sandy chert nod @ 34; sed. breec 34-36 w/hvy ss & oolite @ 36 (Base K-2 thin zone)
-141 Lt med gr del; lt mott; TGS @ 37½
-148½ Med gr del; v mott top 6"; then shaly mott
-157 V lt gr del; lt shaly mott to 53 w/TGS 53; then lt bands (dip 36°) chert nods 56 & 57
-159 Lt gr del; well banded (35° dip) chert nods 58½ & 59
-165½ Lt med gr del; v banded to wavy (dip 35-36°) v sandy 64-65½ w/bott 3" mostly grn shale (base bed K-3)
-168½ Lt gr del; top 6" darker & some crackle
-172 Lt med to lt gr del; lt mott to 70 w/thin fault @ 70; lt bands 70-72 w/chert nod @ 72 (tr oolite)
-172½ Lt med gr sugary del; mott (to cong.) w/scatt ss gra ins
-178 Lt to lt med gr del; chert nod 75; v banded to wavy 75-78 w/chert nods 76, & 78 & few ss grains 78 (this zone partly sed. breec)
-183½ Lt gr del; cons. banded chert nods 79½, 80½, 81½, & 82½
-184 Lt gr sugary del; many specks white silica & some scatt ss grains; TGS @ base
-185 Lt med gr del; mott; TGS @ base (base bed K-4)
-191½ Lt gr del; lt bands (few gangue eyelets top6") chert nods 89 & 90
-193 Lt med gr del; banded to mott; TBS @ base.
-202 Lt gr del; lt mott top foot; then banded (dips 28-37°) chert nods 96½, 98½, & 99-½
-205 Lt to lt med gr del; lt mott; TGS @ 204½
-213 Lt gr del; banded to wavy to 10 w/some large eyelets 05-06; few scatt ss grains @ 10, then TGS; lt bands 10-12; well banded 12-13 (37° dip)
-215 Lt med gr del; scatt ss grains for 4" @ 14; then 4" grn shale & 4" chert re-xl & shale (base bed K-5)
-219½ Lt gr del; lt bands & trace lt crackle
-220½ Med to lt med gr sugary del; shaly mott to mott
-234 Lt gr del; mott to 23; then bands (dips 32-37°) scatt ss grains @ 33½; TGS @ 234
-238½ Lt med gr del; lt bands & mott @ top to mott @ base; some eyelets bott 6"
-240 Lt (lt med) gr del; banded (36° dip) few ss grains bott inch
TOP R END 240'

-241 Grn. shale; some chert in lower part.
-243½ Med gr sugary dol; mott
-245 Lt med gr dol; mott; chert nod 44
-249½ Med gr dol; mott & sug; some lt crackle; 1" TGS @ 45½; bott 2" lt med gr; few ss grains & TGS @ base
-253 Lt br re-xl; mott & shaly
-254½ Br. vuggy re-xl w/eyelets (grades to semi re-xl)
-255 Med gr dol; sugary; vuggy
-255½ Lt med gr dol; some bands of brece chert sealed w/gangue & re-xl
-258½ Lt re-xl; chert nod then grn shaly @ 57
-260 Lt med gr dol; sug & mott (some semi re-xl)
-261 Dk br mott re-xl
-262 Lt gr dol; TGS 4" above base, then bott 4" sug
-267½ Br. re-xl; 65-67 white eyelets w/Fleurite centers
-272 Lt med semi re-xl to sug dol; chert nods 71 & ½
-277 Br. & grn mott re-xl; tr crackle @ 76
-279 Lt gr to grn re-xl (poss semi re-xl)
-280 Dk br re-xl; some vugs & eyelets
-286 Lt med gr dol; some crackle 80½-81 w/tr FeS; few ss grains 81, then sli darker & sug 81-½
-286½ Br mott re-xl
-289 Med dk (or dk) gr dol; vugs & eyelets; cherts 87½ & 88 (base bed K-7)
-291 LS; top 4" grn shale; TGS @ base
-293½ Med dk to med gr sug dol; few eyelets
-295½ Lt med gr dol; brece top 6" w/FeS shines; crackle 94-95½
TOP S BED 295½
-298 Br re-xl; many dol blocks to 97; chert nod @ base
-298½ Med gr dol
-302½ LS; 1" re-xl & shale @ top; shaly & some zones congl; chert nod 302
-303 Med gr sug dol
-314 LS; cherty @ 07½; chert nod 09; shaly 09½ w/poss ZnS traces 09½-3/4; bott foot sli re-xl
-316 Br. re-xl
-321 3/4 LS; top 2" ptly re-xl
-323 Med gr dol; few ss grains @ base
-336 LS; chert nod & tr ss @ 32½; bott foot v re-xl
-337½ Br. re-xl; some white eyelets
-338 Gr banded re-xl; occ ss grains
-344 LS; v banded 40-41; partly re-xl & banded 41-44 w/some red oxidation
-347½ Lt br limy re-xl; some bands 46-3/4 w/thin ss 46 3/4; v tiny 46 3/4-47; TGS 47½
-349½ LS; partly re-xlized
-351½ Br. re-xl
-354½ SS
-359 Dk br re-xl
BASE KINGSPORT FM. 359'
-360 Gr re-xl to semi re-xl
-363 Lt med gr dol; sug; large chert nod 61; cherts 62½ & 63
-365 Med gr dol
TOP U BED 365'
-3666 Br. re-xl; oolitic chert nod @ top
-371 Med (lt) gr dol; v sugary & well mott
-376 Med to med dk gr dol; chert nod 74
-383½ Br re-xl; some lt crackle; darker bott foot; grn shale @ base
-388½ Lt med gr dol; semi @ top; then to sug to dol
-389½ Med gr dol; eyelets
-390½ Med semi re-xl; bott 6" chert
-392 Med gr dol; sug; some eyelets
-392½ Lt med gr dol; chert nod @ top; few sand grains @ base
-395½ Br re-xl; mott & silic & small vugs
-396 3/4 Lt med semi re-xl; v hvy ss @ base

-397 Dk br re-xl; bott 3" much LS & chert (2' core loss 97-409)
-398 Lt br re-xl; chert mod @ base
-400 Br re-xl; v cherty (base bed L-3)
-403 Lt med gr del; bleached chert 400; few ss grains 402
-406 Lt br re-xl
-410 LS; chert mod & some re-xl @ base
-412 Lt med gr del; some crackle; scatt ss grains bott 3"
-417 Br. re-xl; silic, eyelets & vuggy
-418 Or to br re-xl
-419 Lt med gr semi re-xl
-422 Lt br to br re-xl; lt crackle
-423 Lt re-xl; lt bands & chert mod in middle (TD).

B. H. Putnam D.D. CD-14
Copper Ridge Project - Puncheon Camp Creek
DMEA Idn-E 1088

Hole No: CD-14

Farm: Green-Gelton

Loc: N 49,767.91
E 46,388.73

Elev: 1475.89 D.F

Drilled By: Putnam Drlg. Co.

Logged By: J. W. Spears

Collared: 9-9-58

Bottomed: 9-18-58

Depth: 505'

Casing: HX 32'; AX 100'

Reaming: None

Cement: None

Top Kingsport	122½
Top R Bed	279½
Top S Bed	360 (? - core loss this zone)
Base Kingsport	412½
U Bed	426-437

0-82 Overburden
-88 Med to med dk gr dol; shaly bands
-90 Dk gr dol; shaly mott
-91 Med gr to lt med gr dol; scatt sands bott 3" w/hvy ss @ base
-92 Lt med gr dol
-94 Med gr dol; v mott & sugary
-97 Lt med to med gr dol; well banded (42° dip) scatt thin sands from 95-97
-100 Lt med to med gr dol; banded (dip 42°)
-101½ Lt med gr dol
-104 Med gr dol; oxidized; shaly mott; chert nod @ base
-108 Lt med gr dol; banded (38° dip)
-109 Med gr dol
-114 Med dk gr dol; shaly mott
-117 Med gr dol
-119½ Med dk gr dol; shaly mott & white eyelets; chert nod @ base
-122½ Lt med gr dol; banded (40° dip) hvy sands bott 3"
TOP KINGSPORT FM 122½'
-124½ Lt med gr dol; lt bands; sandy 24-½
-127½ Med gr dol; lt mott; few eyelets
-129 Lt med gr dol; v sug; mott; top 4" v sandy & shaly
-135 Lt gr dol; banded to 30½ w/sand @ 30½; then lt mott & grades to lt med gr dol; TOS @ base
-137 Lt med gr dol; mott & oxid; poss 6" cavity near base
-141 Lt med to med gr dol; mott; v oxid top 1½'
-145 Lt gr dol; lt bands; poss cavity @ 42; sandy 42½; grades to med gr mott dol
-149 Med gr dol; shaly mott
-153 Med dk gr dol; shaly mott
-159 Med gr dol; few bands to 54, then broad bands (40° dip) w/occ chert nod to 59; v oxid. 57-59 w/poss cavity 58
-160½ Med to lt med gr dol; mott @ top; then lt bands w/few thin sands bott 6"
-168½ Lt med gr dol; lt mott & occ TOS; oxid w/poss cavity @ 65; v mott 65-68½ w/3" sandy congl @ 68½ & TOS @ 68½
-173½ Lt gr dol; 71½-72 sandy edgewise congl to oolitic chert; occ sand or oolitic chert to 73½ w/hvy ss & chert @ 73½
-174½ Lt med gr dol; some lt bands
-178 Med gr dol; mott
-178½ Med v mott sug dol w/chert nod @ top
-184 Med dk gr dol; shaly mott; some zones oxidized
-188 Lt gr dol; shaly mott; ½" TOS @ base
-192 Lt gr dol to lt med gr; lt bands; chert nods 90½, 91, 91½, & 92
-194 Lt med gr dol; well banded (41° dip) chert nods 93½ & 94
-202 Med to lt med gr dol; well banded to wavy; few sands 99-200½, v sandy 200½-02 w/1½" TOS @ 202 (base bed K-3)
-205 Med gr dol; well mott & sug; bott 2" is congl & chert w/a trace of TOS
-207½ Lt gr dol; lt bands (42° dip) 1" TOS @ base
-210½ Med to lt med gr dol; shaly mott; chert nod @ base
-220 Lt med gr dol; mott to bands to 11½ w/large chert nod @ 11½; banded to wavy 11½-25 w/small chert nod 13 (dip 40°) lt mott 15-16 w/scatt ss grains @ 15; lt bands 16-20 w/chert nods 16½, 17, 18, 18½ & 19½
-221 Lt gr sug dol (to semi re-xl) large eyelets @ top; scatt specks of silica thruout
-221½ Med (med dk) gr dol; shaly mott; TBS @ base (base bed K-4)
-228 Lt gr dol; chert nod 26½ (dip 40°)
-229 Lt med gr dol; bands
-234 Lt gr dol; some mott top foot; then banded (40° dip) to wavy; large chert nod @ base
-235½ Med (lt med) gr dol; mott & sug; chert nods 35 & 35½
-240 Lt med gr dol; banded; chert nod 37½ & few ss grains few inches below the chert; TBS 39
-242 Lt med gr dol; mott
-243 Med gr dol; mott

-248 Lt gr del; lt mott top 1½ feet & some white eyelets; then bands to wavy bands (dip 40°) & grades to lt med gr del; TBS @ base
-253 Lt med gr to lt gr del to 50 mott & crackle then banded sandy bott 6"
-254 Med gr del; v cherty; top 4" grn shale (base bed K-5)
-258 Lt to lt med gr del; few eyelets, top foot; lt crackle
-261½ Med gr del; mott; crackle; FeS shines 58½-59 & 60½
-264 Med dk gr del; shaly mott; lt crackle; occ tr FeS
-265½ Med gr del; bands (41° dip)
-270 Lt med gr del; crackle (some calcite filled) occ tr FeS; chert mod 69
-272½ Med gr del; lt bands; some eyelets top foot & crackle w/FeS traces; few scatt ss grains bott 9"
-277½ Lt med gr del; mott; lt crackle to 75, then strong crackle; darker towards base
-279½ Lt med gr del; banded (41° dip) bott 4" breec sealed w/grn shale
TOP R BED 279½'
-280½ Grn brecciated shale
-282½ Lt med gr sug del; about semi re-xl @ top; mott & crackle
-283 Med gr sug del; well mott; crackle
-286 Lt med gr sug del; well mott; crackle; ZnS shine 84½
-290 Med gr mott & sug del; crackle; strong ZnS shine @ 88½; scce FeS 89½
-291 Med dk gr del; sug; & some lt g r del
-291½ Lt med gr del; crackle w/traces of FeS
-294 Lt br re-xl; crackle to breec; top 3" grn shale; est 2% ZnS 93-½
-295½ Gr shale mott re-xl
-296 Lt br mott re-xl
-298 Br mott re-xl; vugs & eyelets
-298 3/4 Lt med gr del; tr ZnS @ base
-299 Gr shaly breec re-xl
-300 Br semi re-xl; vugs & eyelets
-301½ Lt med gr del; banded; some crackle w/FeS; @ base 1" scatt ss grains then 3" re-xl & chert w/a ZnS tr @ top of re-xl
-303½ Med to lt med gr del; banded breec; est 6% ZnS 02½-2 3/4; scatt ss grains bott 2"
-305 Mixture of re-xl, chert, silica & some gangue; v hvy ZnS shine @ 04; 2" grn shale (dk) @ base
-307 Dk br re-xl; FeS thruout; ZnS shine 05½; est 2% ZnS 06-06½
-308 Lt med gr del; mott, sugary & breec; est 1½% ZnS 07-08
-310½ Br re-xl; strong ZnS shine @ 08½; v silic 09-½
-312½ Lt med gr del; banded; scatt FeS thruout
-317 Lt br re-xl; @ base grades to semi re-xl
-320 Lt semi re-xl to sug del
-322½ Lt gr del
-325½ Br re-xl
-341 Lt med gr del; scres of semi & sug; crackle to 32; breec 39-41
-343 Med dk gr del; crackle; eyelets & vugs
-343½ Dk gr & lt gr del; breec; ZnS shines
-346 Med gr sug del; crackle
-350 Br jasperoid re-xl; breec; est 1% ZnS 46-48½; est 8% ZnS 48½-50
-353 Med dk gr del; sug; crackle; eyelets; FeS shine 51; ZnS shines 51½-52; bott 3" becomes dk re-xl (5' core loss 52-62)
TOP S BED (?) 353'
-355½ Lt br re-xl; bott foot chert
-362 (Most of core loss thin zone) become lt med gr del; breec & sealed w/re-xl
-363 Br re-xl; bleached chert med @ base (1' core loss 62-65)
-363½ Lt med gr del
-381 Br re-xl; blocks of dbl to 68; all silic 69-½; v cherty 72-½; v silic & oxid (vugs) 72½-75; thick band silica 77½; v silic 78½-81; ZnS 65-66½ est 1½; 66½-69 est 8%; 69½-72½ est 2½%; 78½-79½ est 3%; shines 79½-80½

-382 Lt. med gr dol; crackle; ZnS shines throughout
-384 Br silic re-xl; est 3½% ZnS
-389 Lt br silic (v) & vuggy (oxid) re-xl
-391 Lt br mott re-xl
-391½ Lt med semi re-xl
-393½ Br re-xl; mott w/white; scatt ss grains 92-½; v sandy 91½-93
-398 Lt br v silic & vuggy re-xl; 94½-95 est 3% ZnS
-398½ Lt med semi re-xl; bands; crackle w/ZnS shines
-404 Lt br v silic vuggy re-xl; ZnS shines to 401
-412½ Lt re-xl; occ vug & eyelet to 07; then mott; 09½-10 est 2% ZnS; bott foot becomes dk gr.
BASE KINGSPORT FM 412½'
-426 Lt med gr dol; sug @ top; chert nod 15½; v silic to chert 15-16½; chert nod 18½ & below 18½ grades to med gr mott dol; crackle 21-22 w/chert nod 21½
TOP U BED 426
-427 Br re-xl; sandy oolitic chert @ top
-432 Lt med g v mott sugary dol to med gr sug dol
-437 Br re-xl; white mott to 33½; then v silic
-440 Lt med gr dol; to med gr; sug; lt mott
-442½ Med (med dk) gr dol; crackle & eyelets; scatt ss grains & FeS bott 3"
-443 See. chert
-446½ Lt med gr dol; few ss grains @ 43½; some breec w/re-xl gangue 43½-44½; lt crackle; chert nod near base; v heavy ss @ base
-452 Br re-xl; to 50 v silic & cherty; bott 6" most of bleached chert
-453½ Lt med gr dol; v cherty top 6"; scatt ss grains bott 6"
-455 Lt semi re-xl; mott
-459½ Lt br re-xl; few ss grains @ 56½; breec 57½-59½ w/chert & few blocks sandy lt gr dol
-464 Mostly silica, some lt br re-xl & chert
-464½ Br re-xl
-465½ Lt med gr dol; top 4" semi to sug; chert 65; few ss grains @ base
-467 Br re-xl; silic top 6" (1½' core loss 65-70)
-468 Lt med gr dol; chert nod in middle
-471 Gr mott re-xl (to semi re-xl)
-475½ Lt (lt med) gr dol; lt crackle w/occ FeS traces; chert nod 73; banded 73-75½ w/few ss grains & chert nod @ 74½
-480½ Lt br to br re-xl; v silic top 6"; chert nod 77½; banded & silic w/traces of FeS from 77½-79½ (also oxid) sandy 79-½; shears (to fault) 79½-80½ w/chert nod @ 80½
-486½ V lt re-xl; breec 81½-82½ sealed w/shale & chert & sands; v silic 84½-85; chert nod 85-85 3/4 (oolitic??) crackle 85 3/4 to 86½
-489 Lt br re-xl; v mott w/white (reef?) bott foot becomes v silic
-490 Dk re-xl; band silic @ base
-491½ Lt med gr dol; lt crackle
-494 Lt br well mott re-xl (reef?)
-495 White re-xl; v silic
-496 Lt med gr dol (a breec block)
-498 Lt re-xl; to 97½ mush grn material (shale?) sand @ base
-503 Lt br re-xl; mott; occ zones shaly (grn) & jasperoid; v sandy 02½-03
-504 Br & grn shaly re-xl; sandy
-505 Br re-xl (TD)

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

RECEIVED SEP 12 1958 PAID ON VOUCHER & SCHEDULE OF PAYMENTS

Month of August, 1958 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name B. H. Putnam Minerals Zinc
Address 512 Third Street, Marietta, Ohio
Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	1380.00	51,873.00	53,253.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	--	1,122.00	1,122.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	--	140.25	140.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	17.50	48.75	66.25			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incid. Allow. @ .18/ft.	82.80	3,112.38	3,195.18			
TOTALS	1480.30	56,296.38	57,776.68	1,480.30	56,296.38	57,776.68

I certify that the above bill is correct and just and that payment therefor has not been received.

Date August 30, 1958 Payee B. H. Putnam

Per William Thief Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 740.15

Signature Helen R. Miller
(Authorized Certifying Officer)

Date SEP 10 1958 Vou. No. 32
(See other side)

9

740.15

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. 1am E1088 in accordance with the terms of the contract.

Signature [illegible] Title GEOLOGIST, U. S. G. S. Date SEP 4 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER DMEA FIELD TEAM REGION V Date SEP 4 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

RECEIVED SEP 12 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of August 195 8 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name B. H. Putnam, Operator Minerals Zinc

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	1380.00	460	53,253.00	17,751	3.00	50,000	3.00
~~Churn~~ Reaming	Foot	---	-	1,122.00	561	2.00	5,000	2.00
~~Auger~~ Sampling	Each	17.50	14	66.25	53	1.25	550	1.50
~~Stripping~~ Core Boxes	Each	---	-	140.25	75	1.87	150	2.00
Trenching								
Test Pits								
Roads and Trails Incid.								
llow. @ .18/ft.	Foot	82.80	460	3195.18	460	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		1480.30		57,776.68				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		1480.30		57,776.68				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date August 30, 1958 Operator B. H. Putnam

Per William T. Neff Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

Vernon Weaver Jr.
GEOLOGIST, U. S. G. S.
SEP 4 1958

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

Invoice
Marietta, Ohio

B. H. Putnam, Appro
512 Third Street
Marietta, Ohio

August 31, 1958

In account with
PUTNAM DRILLING COMPANY
512 Third Street P. O. BOX 647 Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMRA Contract No. 4580 - August, 1958

Core Hole No. CD-12

Footage drilled	460' @ 3.00/ft.	$1380.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B. H. Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1888

MAIN OFFICE AND LABORATORIES 610-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1980

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS — ST. LOUIS, MISSOURI — PICHER, OKLAHOMA

National Land Company
P. O. Box 61
Thorn Hill, Tennessee

5-15-58

			ZINC			
791	GD-4-1	294'6" - 96'6"	0.48	.96		
789	GD-4-2	296'6" - 90'6"	0.86	1.72		
790	GD-4-3	298'6" - 300'6"	3.20	6.40	6.0	13.6
791	GD-4-4	300'6" - 302'6"	1.30	2.60	1.70%	1.07%
792	GD-4-5	302'6" - 305'6"	0.02	.06		
793	GD-4-6	305'6" - 307'6"	1.08	2.16		
794	GD-4-7	307'6" - 310	0.18	.45		
795	GD-4-8	419 - 421	0.86			

Charges $10.00

66-277

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1898

MAIN OFFICE AND LABORATORIES 610-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS — ST. LOUIS, MISSOURI — PICHER, OKLAHOMA

National Lead Company
P. O. Box 65
Green Hill, Mo.

5-23-58

			ZINC
75 2146	GD-5-1	497-99	10.76
147	GD-5-2	499-501	2.62
148	GD-5-3	501-503	1.28
149	GD-5-4	507½-509½	0.92
150	GD-5-5	512-513½	4.14
151	GD-5-6	485½-487.	0.78

16½' @ 2.26%

6' @ 4.88% @ 8' @ 3.66%

Charge $7.50

10/31 66-377

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

B. H. Putnam - D.D. GD-12

Copper Ridge Project - Puncheon Camp Creek

DMRA Idm-E 1088

Hole No:	GD-12	Collared:	8-20-58
Farm:	Green-Dalton	Bottomed:	8-27-58
Loc: N	49,846.84	Depth:	460'
E	46,634.33	Casing:	44' BX; 103' AX
Elev:	1390.85	Reaming:	None
Drilled By:	Putnam Drlg. Co.	Cement:	None
Logged By:	J. Spears & H. Hill	Water Table:	?

Top Kingsport Fm	128'
Top R Bed	277½'
Top S Bed	336'
Base Kingsport Fm	391½'
Top U Bed	403?
Base W Bed	421

-44	Overburden
-45	Med gr dol; v mott (10' core loss 44-60; cavities)(?)
-46	Lt med gr dol; bands; some sands & scatt ss grains bott 6" (dip 40°)
-46½	Lt re-sl; v sandy near base
-48	Lt to lt med gr dol; v mott
-	Poss cavity
-69	Lt gr dol; occ chert nod to 60 (6' core loss 60-70)
-71	Med (to med dk) gr dol; sugary & mott; some eyelets; bott 2" sandy edgewise congl. (base bed M-7)
-73	Lt gr dol; lt mott; few eyelets top 6"; @ base grades to lt med gr dol
-75	Lt med gr dol; lt mott; TBS's 74 & 75
-77½	Med gr dol; mott & eyelets
-83	Med dk to dk gr dol; shaly mott (2' core loss 81-90)
-84½	Med gr dol; bott 6" hvy ss & oolitic chert
-86	Lt gr dol
-93½	Lt med gr dol; top 6" v cherty; vug (to oxid sheer) @ 90½; from 90½-93 becomes darker & is mott w/silic eyelets
-94½	Med gr dol; mott w/silic eyelets
-96	Med dk gr dol; mott
-99	Lt med gr dol; bands (38° dip) scatt ss grains bott 3"
-101	Med gr dol; v cherty top 6"; then mott & sugary
-105½	Lt gr dol; well banded (36° dip) sands 102 & 03½; TBS @ base
-109	Lt med gr dol; bands
-111	Med gr dol; v shaly mott & oxidized
-115½	Lt med gr dol; bands; large chert nod 112 (39° dip)
-124½	Med dk gr dol; shaly mott & few eyelets; v oxidized 119-20
-125½	Dk gr dol; v shaly mott
-128	Med to lt med gr dol; banded (39° dip); sandy @ base
	TOP KINGSPORT FM. 128'
-131	Lt gr dol; lt bands (2' core loss 128-37)
-132½	Lt med (med) gr dol; v mott & shaly
-134	Lt med gr dol; lt mott & few eyelets; TBS @ base
-135	Med gr dol; shaly mott
-137½	Lt med to lt gr dol
-138½	Lt med gr dol; mott; sand @ 138; TBS @ base
-140½	Med gr dol; lt bands; TBS 139; cherts 39½ & 40; TBS @ base
-143½	V lt gr dol; lt mott (to shaly)
-145½	Med gr dol; v shaly top 2"; mott; TBS @ base
-147	Lt med gr dol; lt mott
-150	Lt gr dol; TBS @ base
-151½	Lt med to med gr dol
-155	Med dk (dk) gr dol; shaly mott; chert nod @ base (base bed K-1)
-156½	Med gr dol; cherts 155½, 156, 156½; mott
-160½	Lt med gr dol; broad bands; many cherts 158-59
-161	Med gr; banded, blk sh seams 60½-60 3/4
-166	Med gr; faintly banded; 3" ss @ 63; blk sh @ 64½
-170½	Lt med, mott, lt shears @ 68-69½; 3" sh @ lt ss @ 70½; smoky chert above sh.
-173	Lt med; sugary banded dol; 6" blue & white conc ch nods @ base; 5" hvy ss in and above chert; sed. congl.
-182½	Lt med; lt bands to 75; faint mott to 80; lt ss @ 73½; 1" hvy ss & sh @ 74½; blk sh @ 77; 79½-80½ hvy mott; bl ue & white chert mott @ 80; grn sh @ 80½, 81½.
-186½	Med gr mott dol; TBS @ base; bed darker toward bott; 82-84 gangue shears
-190½	V lt gr hvy mott dol; 1" ss @ base; blue chert nod above sh
-195½	V lt gr dol; banded; blue chert nods @ 92½, 93, 94
-211½	Med gr hvy banded dol; TBS @ 97, 97½, 98½, then smoky chert @ 96½, dip @ 98 = 36½°; chert @ 200 (congh) 201, 01½, 02½, 06½, 07½, 08½, 10 lt ss & TBS @ 205½ (overlain by 1" hvy band dol) 6" blk shaly dol @ base, overlain by 8" of semi-rexl

-215 V Lt gr dol
-220 Lt dol; banded; blue ch @ 17½, 18; v lt ss @ 19½-20; TGS @ base
-230 Lt dol; 95% core loss (base of run ground)
-238 V lt dol; banded; blue ch @ 32, 33½, 35; TGS @ 33½ v lt ss; thin [illegible] @ 237
-241 Lt gr dol; mott 39-40½; upper 1' banded; TGS @ base
-242 Med gr dol; mott; shaly; dip @ 248 = 34½°
-250 Lt gr dol; banded (stronger toward base) few vugs; 4" v lt ss @ 247 & TGS; ch nod @ 47½; v lt ss @ base
-255 Lt dol; 6" blue ch nod @ 51; 3" shears @ 250½; lt crackle @ 52, 53½
-256½ Med dol; greenish, lt crackle
-270½ Lt med dol; mott to 58½; banded to 62½; banded 67-69; ch breec @ 58½; lt crackle 58½-59½; ch nod 62; lt sh @ 62½, 64; lt crackle @ 70; TGS & lt ss @ base; dip @ 69 = 35°
-277½ Lt med dol; mott 73-75; banded 75-76½; lt ss @ 77-½; TGS @ base; Top of R bed @ 277½
-278½ Cherty re-xl; mott
-279 Grn sh; part oxidized
-281½ Lt mott dol; wh ch nod @ 80; TGS @ base
-290 Med-dk dol; banded & shaly to 82½; hvy mott to 86; sugary near base
-291½ Grn shaly re-xl; 4" hvy shale @ top
-293 Brn re-xl; breec (fault); mott
-295 Lt gr dol; blue ch @ 94-95; hvy ss @ 94½; hvy grn sh @ base
-298 Brn re-xl; brecciated (fault?)
-321 Lt gr dol; mott; grn & sh sec ch @ 05; hvy core loss 300-21 (7' out of 21) most loss near base)
-322 Lt gr dol; faulted near base
-323½ Med gr mott semi re-xl; hvy fault gouge throughout
-327 Dk gr dol; some crackle; 1½' core loss 21-26
-330½ Ls; v shaly; 2' core loss 26-31; breec near top; part re-xl
-331 Re-xl; brn
-335 Dk gr dol; 2½' core loss 31-35, most in lower part; breccia; some faulting; oxid
-336 Lt gr dol; breec; oxid; Top of "S" bed @ 336'
-361 Re-xl; silic; coarse; weathered; vuggy; 16½' core loss from 35-36; fault @ 338
-362 Dol; lt gr; breec
-371 Re-xl, silic; coarse; weathered; vuggy; 1' core loss 62-70
-377 Ls; shaly; some crackle; 1' core loss 70-75
-379 Re-xl; 4½' loss from 78-84
-386½ Ls
-387 Re-xl
-388½ Re-xl & ls
-389 Ls
-391½ Re-xl; brn; crackle; silic; hvy silica (1') @ base; BASE KINGSPORT @ 391'
-407 Dol; ch nod @ 92; 401½, 02; core complete 84-91½; 6' loss 91½-01; complete 01-03; loss 3-7.
-412 Dol; lt gr; mott
-420½ Re-xl; dk; 6' core loss from 411-19
-425 Dol; lt gr; eyelets; crackle @ base
-427½ Dol; med-dk gr; vuggy; crackle
-429 Re-xl; brn; mott; grn sh @ top
-429½ Dol; lt gr; crackle; lt ss @ base
-430½ Re-xl; brn; silic; wh ch nod @ base
-433 Semi re-xl; gr, mott; 2" hvy ss @ base
-434 Re-xl & ch; chert v hvy; part white; part blue
-438 Dol; med-dk gr; breec; hvy sh nods (white) from 34-36
-443 Re-xl; brn; brecciated; v silic 41½-43; ZnS sh @ 40½; 41-43 ext. 6% ZnS; lt ss 40-41
-444 Dol; lt gr; sandy; TFS & FeS @ base
-450 Re-xl; brn; coarse; v siliceous; strong ZnS shines @ 45½, 46; 49
-450½ Dol; v lt gr
-454 Dol; part semi; mott; ch nod @ 53½; TGS & lt ss @ base
-455 Re-xl; black & white; coarse
-460 Dol; lt-med; wh some ch @ 58; bl ch @ 60; TD @ 460

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK
PROJECT, GRAINGER COUNTY, TENN.
FOR AUGUST - 1958

BY: W. T. HILL

Docket No. 4580
Contract No. Idm-E 1088

Drilling was resumed on the Puncheon Camp Creek project on August 20, 1958. Hole GD-12 was drilled 100 feet northeast of GD-2 and 100 feet SE of GD-4. The location is the first hole drilled on a strike fence between the Green-Dalton dip fence and the Stapleton dip fence. The hole collared in the Mascot formation and was drilled to a depth of 460 feet.

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-44	Overburden	—	—	—
44-128	Mascot	CMas @ 128	—	Dolomite.
128-391½	Kingsport	Top of R @ 277½ Top of S @ 336 Top of T @ 391½	—	Dolomite, re-sl, and ls, considerable core loss from 298-391½. Some breccia in "R" bed.
391½-460	Longview	Top of U @ 403 Top of L-4 @ 434	ZnS shine @ 40½; 441-443, est. 6% Zn; hvy shines 445½, 46, 49.	Dolomite and re-sl; very siliceous; breccia from 424-445.

Drilling is now underway 200 feet northeast of GD-12 at location GD-13.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

EXTRA COPY
DEPT.
RECEIVED JUL 11 1958
800

July 11, 1958

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4580, Idm-E1088-zinc. B. H. Putnam, Assignee
Puncheon Camp Creek, Grainger County, Tennessee

Reference is made to your letter of July 9.

We received the Operator's May voucher on June 1 and held it up, pending discussion of our memorandum to you dated June 11. As a result of that discussion, we forwarded the voucher to the Finance Office on June 27, approving payment for holes through GD-6, and disallowing payment for GD-7, 7A, 8 and 9. We also advised the Operator that GD-10 and GD-11 would not be approved for payment.

Drilling is temporarily suspended, while the Operator is getting started at the Luttrell project. The Operator's geologist has been advised that when work has been resumed at Puncheon Camp, no holes on similarly close spacing will be approved for payment.

After we have completed a review of these holes drilled at the Operator's own expense, there may be recommendations for a closer spacing of fences; if so we will write at that time.

Robert A. Laurence, Executive
Officer, DMEA - Region V

V. J. Lynch, Member
Bureau of Mines

RAL/sm
cc
Opr. Com.-2
Lynch
Shirley-Files

Form MF-101 (Rev. April 1952)

RECEIVED JUL 18 1958 D.M.E.A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 1

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of May, 1958 Docket No. DMEA 4580 Contract No. Idm-E-1088

Operator's Name D.H.Putnam, Operator Minerals Zinc

Address 512 Third Street, Marietta, Ohio

Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	7,935.00	45,609.00	53,544.00	6264.00	45609.00	51873.00
Bulldozing						
Crosscutting						
Drifting						
Reaming	371.00	832.00	1,203.00	290.00	832.00	1122.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	140.25	140.25		140.25	140.25
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	—	48.75	48.75		48.75	48.75
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incidental allowance @ $.18/foot	476.10	2,736.54	3,212.64	375.84	2736.54	3112.38
TOTALS	8,782.10	49,366.54	58,148.64	6929.84	49366.54	56296.38

I certify that the above bill is correct and just and that payment therefor has not been received.

Date May 31, 1958 *Payee D.H.Putnam, Operator

Per William Thile Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 3464.92

Signature Arlen R. Miller (Authorized Certifying Officer)

Date JUL 2 1958 Vou. No.

(See other side)

3464.92

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [illegible] Title MINING ENGINEER U. S. BUREAU OF MINES Date JUN 27 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A Lawrence Title EXECUTIVE OFFICER DMEA FIELD TEAM REGION V Date JUN 27 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of May 1958 Docket No. DMEA 4580 Contract No. Idm-E-1088

Operator's Name D.H.Putnam, Operator Minerals Zinc

Address 512 Third Street, Marietta, Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	foot	7,935.00	2645	53,544.00	17,848	3.00	50,000	3.00
~~Churn~~ reaming	foot	371.00	185.5	1,203.00	601.5	2.00	5,000	2.00
~~Auger~~ sampling	ea.	———	———	48.75	39	1.25	550	1.50
~~Stripping~~ Core Boxes	ea.	———	———	140.25	75	1.87	150	2.00
Trenching								
Test Pits								
~~Roads and Trails~~ Incident. allowance @ $.18/ft.	foot	476.10	2645	3,212.64	17,848	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		8,782.10		58,148.64				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		8,782.10		58,148.64				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date May 31, 1958 Operator D.H.Putnam, Operator

Per William T. Hill Title Superintendent

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

Payment for Hole GD-7 has been disallowed

V J Lynch

MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT

GRAINGER COUNTY, TENNESSEE

FOR MAY, 1958

By: W. T. Hill

Docket No. 4580
Contract No. Idm-E-1088

During the month of May, six (6) holes were drilled on the Puncheon Camp Creek Project.

On the Stapleton farm, hole ST-6 collared in the Kingsport formation and was drilled to a depth of 290 feet.

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-38	Overburden	———	———	———
38-273½	Kingsport	"R" bed @ 172 "S" bed @ 241 "T" bed @ 273½	Traces 221-226 237½-238, 1% Est.	Dolomite, re-xl., and some ls., brecc. 140-260; FeS from 150-217
273½-290	Longview	"U" bed @ 285	———	Dolomite & re-xl.

Hole ST-7 was drilled 100 feet north of ST-6. The hole collared in the Kingsport formation and was drilled to a depth of 226 feet.

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-23	Overburden	———	———	———
23-205½	Kingsport	"R" bed @ 72½? "S" bed @ 142 "T" bed @ 205½	153½-155, shines; 157½-158½, 1% Est.	Dolomite & re-xl. in part brecc.; heavy core loss to 140.
205½-226	Longview	"U" bed @ 224	———	Dolomite & re-xl.

Upon completion of ST-7, the drill was moved to the Green-Dalton farm. Hole GD-4 was drilled 100 feet north of GD-2. The hole collared in the Mascot formation and was drilled to a depth of 433 feet.

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-51	Overburden	——	——	——
51-100	Mascot	CM ss @ 100	——	Dolomite, heavy core loss.
100-368	Kingsport	"R" bed @ 254½ "S" bed @ 323 "T" bed @ 368	296½-302½, 6' @ .78% Zn., or 294½-307½, 13' @ 1.07% Zn., 307½-310, .18% Zn.	Dolomite & re-xl, lower part brecc., FeS shines 274-322.
368-433	Longview	"U" bed @ 380 L-3 bed @ 394	419-421, 2' @ 6.36%Zn	Dolomite & re-xl., in part brecc.

Hole GD-5 was drilled 100 feet south of GD-2. The hole collared in the Mascot formation and was drilled to a depth of 586 feet.

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-19	Overburden	——	——	——
19-258½	Mascot	CM ss @ 258½	——	Dolomite
258½-533	Kingsport	"R" bed @ 420 "S" bed @ 486 "T" bed @ 533	485½-487, .78% Zn 497-503, 6' @ 4.88%Zn or 8' @ 3.66% Zn 497-513½, 16½' @ 2.26% Zn.	Dolomite & re-xl; in part brecc.
533-586	Longview	"U" bed @ 542 L-3 bed @ 556	——	Dolomite, re-xl; and limestone.

In order to determine the rake of the ore body, the drill was moved west of the "fence" to a location (GD-6) 100 feet from GD-2 and 100 feet from GD-5. The hole collared in the Mascot formation and was drilled to a depth of 553 feet.

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-49	Overburden	——	——	——
49-226	Mascot	CM ss @ 226	——	Dolomite; heavy core loss to 160.
226-495	Kingsport	"R" bed @ 385½ "S" bed @ 455 "T" bed @ 495	shines @ 412; 427½; 440; 446-446½; ½%Est.; shines @ 448½, 449	Dolomite, re-xl, and ls.; some brecc. & FeS shines.
495-553	Longview	"U" bed @ 507½	526½-527½, 1' @ 3% Est Traces @ 535½, 537½.	Dolomite & re-xl; in part brecc.

Hole GD-7 was drilled 100 feet north of GD-6. The hole collared in the Maseot formation and was drilled to a depth of 557 feet.

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-70	Overburden	------	------	------
70-162	Maseot	CM ss. @ 162	------	Dolomite, heavy core loss 110'
162-446	Kingsport	"R" bed @ 323 "S" bed @ 403 "T" bed @ 446	336½-337½, 3% Est. Shines @ 343½,364½-365;374-3/4-375½, 2% Est.; 399-400, 1½% Est.	Dolomite, re-xl., and some ls.; well-brecciated.
446-557	Longview	"U" bed @ 459 L-3 bed @ 471½	459-459½, 3% Est. Shines 470-471,478-479, & 481; 487½-488, 3% Est. Shines @ 493,494,502½-503;507-512½, 4% Est.; 516-516½, 3% Est.; Shines @ 521,523½;524½-527½, 1½% Est.	Dolomite & re-xl; in part bresc.

Invoice
Marietta, Ohio

B.H.Putnam, Appro
512 Third Street
Marietta, Ohio

May 29, 1958

In account with
PUTNAM DRILLING COMPANY

512 Third Street | P.O.Box 647 | Phone: FR 4-6761

Statement for drilling Luncheon Camp Creek Project DMEA Contract No. 4580 - May, 1958

Core Hole No. GD-7

Footage drilled	557 @ $ 3.00	$ 1,671.00
Footage reamed	40½ @ $ 2.00	81.00
		$ 1,752.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

E.H.Putnam, Appro
512 Third Street
Marietta, Ohio

May 28, 1958

In account with
PUTNAM DRILLING COMPANY

512 Third Street | P.O.Box 647 | Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - May, 1958

Core Hole No. GD-6

Footage drilled	553 @	$ 3.00	$ 1,659.00
Footage reamed	25 @	$ 2.00	50.00
			$ 1,709.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

E.H.Putnam, Operator

By: A.R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

D.H.Putnam, Appro
512 Third Street
Marietta, Ohio

May 28, 1958

In account with
PUTNAM DRILLING COMPANY

512 Third Street | P.O.Box 647 | Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - May, 1958

Core Hole No. CD-5

Footage drilled	586	@ $ 3.00	$ 1,758.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

D.H.Putnam, Operator

By: A.R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B.H. Putnam, Appro
512 Third Street
Marietta, Ohio

May 28, 1958

In account with

PUTNAM DRILLING COMPANY

512 Third Street | P.O.Box 647 | Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - May, 1958

Core Hole No. GD-4

Footage drilled	433 ft	$ 3.00	$ 1,299.00
Footage reamed	38 ft	$ 2.00	76.00
			$ 1,375.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam, Operator

By: A. R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B.H.Putnam, Agpro
512 Third Street
Marietta, Ohio

May 28, 1958

In account with

PUTNAM DRILLING COMPANY

512 Third Street | P.O.Box 647 | Phone: FR 4-6761

Statement for drilling Funcheon Camp Creek Project DMEA Contract No. 4580 - May, 1958

Core Hole No. ST-7

Footage drilled	226 @	$ 3.00	$ 678.00
Footage reamed	82 @	$ 2.00	164.00
			$ 842.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam, Operator

By: A.R. Eddy
A. R. Eddy
Drilling Superintendent

Invoice
Marietta, Ohio

B.H.Putnam, Appro
512 Third Street
Marietta, Ohio

May 28, 1958

In account with

PUTNAM DRILLING COMPANY

512 Third Street P.O.Box 647 Phone: FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 - May, 1958

Core Hole No. ST-6

Footage drilled	290 @ $ 3.00	$ 870.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam, Operator

By: A.R. Eddy
A. R. Eddy
Drilling Superintendent

E. H. PUTNAM DD - ST-6

Copper Ridge Project - Purchase Camp Creek
DMSA - Idm-I 1088

Hole No:	ST-6	Collared:	4-30-58
Farm:	W.H. Stapleton	Bottomed:	5-2-58
Loc:	N 50,341.85	Depth:	290'
	S 46,952.02	Casing:	BX 38'; AX 47'
Elev:	1446.54	Reaming:	none
Drilled by:	Putnam Drlg. Co.	Cement:	none
Logged by:	J.W. Spears	Water Table	?

Top Kingsport	-	collared in Kingsport
Top R bed	-	171½ (est)
Top S bed	-	240
Base Kingsport	-	273½
Top U bed	-	284½

C -38 Overburden
-39½ med gr dol; mott. (2' core loss 38-47)
-46 lt gr dol; sandy oolitic chert at 44½; banded 44½-46 w/ heavy sands 45½-46 (base K-2)
-48 med gr dol (3' core loss 47-64)
-60 lt med gr dol; TBS 52; ox. and mott 52-54 w/ TBS 54; lt mott 54-60
-65 lt gr dol; lt mott to 64
-66½ lt(lt med) gr dol; lt mott to bands; chert nods 66 & 66½; ox. at 67(poss cavity)
-74½ lt med(med) gr dol; banded to mott(5' core loss 64-75); sandy 72-74½
-75½ med gr dol; TGS at 75 then large chert nod(1½' core loss 75-79) (base k-3)
-86 lt med(lt) gr dol; lt bands(dip at 79' 39°) to 80½; then mott to 83½ w/ bleached chert nod and few ss grains at 83½; bands 83½-86(dip 44°)
-88 lt med(med) gr dol; v. wavy bands; mott ss grains 87½-88 & TGS at 88
-92½ lt med gr dol; chert nods 88½, 89½, 90½ & 92 XXXX (1' core loss 91-100)
-93½ lt gr sugary dol; silic and mott ss grains to 93, then mott (base K-4)
-97 lt gr dol; bands(40°) & few eyelets
-100 lt med gr dol, grades to lt gr; banded (45° dip at 100') chert nods 98 & 100
-107½ lt gr dol; well banded, wavy bands at 106½ (40° dip at 105')
-111 lt gr dol; cherty 107½-08½; small bleached chert nod at 110; large chert at 111
-119 lt med gr dol; banded(40°); few large eyelets top 2 feet; then sugary & lt mott
-129 lt gr dol grading to lt med gr; well banded to 124(48°); then mott 124-25½; then bands to 128 (dip 47°); few ss grains 128½; Green shale 128½-29 (base K-5)
-129½ lt med gr dol(oxidized)
-131 med gr dol
-134½ lt med gr dol; TBS 132½, sli mott & sugary 132½-34½ w/ TBS 134½
-135½ lt gr dol, occ eyelet
1-50 lt med gr dol; lt mott to silic eyelets to 137½; brecc chert nod 137½; crackle 137½-38; bands 140-42 (dip 50°); crackle 142-43½; tr. crackle 145; occ lt crackle 147-50; TBS 150 (50° dip at 150)
-151½ med gr dol; bands; crackle w/ FeS shines & mott. streaks of FeS thruout the Dol; grades to lt med gr dol (<u>start of brecc body</u>)
-153 lt med gr dol, as above; oxidized 152-52½; mott ss grains 152½-53
-160½ med gr dol; mott; crackle w/ FeS shines to 153½; brecc 154½-57 w/ FeS shines; large eyelets 158-59; brecc w/ FeS shines 160-60½
-164 lt med gr dol; banded; brecc w/ few FeS shines (some dips to 80°)
-166 lt med(med) gr dol; mott & few eyelets
-168 lt med gr dol. banded (2½' core loss 166-70); some brecc w/ FeS shines; few ss grains and some dark inclusions bott 3"
-171½ lt med sime re-xl; banded to mott; 3" of dark shaly material at top

<u>Top 8 bed ast at 171½'</u>
-172½ br re-xl; brecc w/ est 5% FeS
-174 lt med gr dol, some brecc w/ FeS shines; lt bands; bott 3" some ss grains & dk inclusions
-175 "dry brecc"; mixture of re-xl, chert, silica & shale
-179 med gr dol & med semi re-xl; mott; brecc W/ est 6% FeS
-181 med gr to med dk gr sugary dol; bott 6" partly dk re-xl
-183 br re-xl; brecc w/ tr of FeS
-185 lt br re-xl; crackle
-186 br re-xl; crackle and occ vug
-191 lt br re-xl; brecc w/ est 4% FeS; at 189½ 3" lm block of lt gr dol; 3" br vuggy re-xl at base
-193 lt med gr dol; banded; brecc w/ FeS traces
-197½ lt br mott re-xl(brecc?); heavy FeS 196½-97; few ss grains at 194 & 197½

-200 med gr dol; sugary to semi re-xl; breec sealed w/ re-xl & white gangue &tr FeS
-201 lt gr dol; breec w/ gangue at 3% FeS 197½-201
-204½ "dry breec"; lt & lt med gr dol blocks sealed w/ much shaly re-xl & silica & traces of FeS; heavy FeS shine bott 6"; thin as near base
-208 lt br re-xl; 3" v. coarse & shaly at 207
-210 lt med semi re-xl, some breec sealed w/ re-xl
-212 med to lt med gr dol; crackle w/ re-xl gangue
-217 lt br re-xl; shaly mott; crackle
-218 med semi-re-xl to sugary dol; br ec w/ FeS shines
-221 lt(lt med) gr dol; breec to 220, 219½-20 w/ re-xl gangue
-221½ med semi re-xl to br re-xl; ZnS shine at 221½
-224 lt gr dol; breec w/ few blocks dk gr dol; see ZnS shine; chert nod at base
-226 med dk gr dol; some breec w/ re-xl gangue & traces of ZnS; few cyclets (base K-7)
-227 dk shaly re-xl; large chert nod at base
-228 LS, shaly
-229½ lt br re-xl; sli shaly
-230½ dk semi re-xl; crackle
-233 med gr sugary dol; mott; some lt shears bott 6"
-240 lt med gr dol; sugary; br ec 236½-37 w/ ZnS shines; Then 3" of re-xl; cherty 237-38; some bands 238-40

Top S bed est at 240'
-242 lt br re-xl, few blocks of dol at top, cherty; chert nod 241½-42
-243 lt med gr dol; bott 6" breec sealed w/ re-xl; chert nod at base
-248½ br re-xl; breec sealed w/ re-xl, silica, chert & shale; bott foot mostly all chert
-252 lt br re-xl; breec; 251½-52 much jasperoid and chert
-252½ lt semi re-xl; crackle
-254½ lt med gr dol; crackle top foot; few as grains at base
-255 green shaly silica w/ some re-xl & as
-256½ br coarse grained mott re-xl(breec?)
-261 lt re-xl, coarse grained, mott; lt crackle; chert nods bott 6" & grades to br re-xl
-264 br re-xl, mott, scatt traces of FeS
-265 lt med sugary dol to semi re-xl; mott
-267½ lt br re-xl; shaly; scatt as grains 266-67
-271 lt re-xl; tr breec 268½; shaly 270-71½
-273 gr re-xl; shaly; blue chert nod 272

Base Kingsport Fm 273½'

-278½ lt med gr dol
-284½ med gr dol; sugary bott 4"

Top U bed 284½'
-286 br re-xl; top 9 inches chert, part oolitic
-290 med gr sugary dol, mott TD

E. H. PUTNAM ST-7

Copper Ridge Project - Puncheon Camp Creek

DMEA Ids-E 1088

Hole:	ST-7	Collared:	5-2-58
Farm:	W.H. Stapleton	Bottomed:	5-5-58
Loc:	N 50,429.39	Depth:	226'
	S 46,903.17	Casing:	BX 23'; AX 130'
Elev:	1441.95	Reaming:	82' (48-130')
Drilled by Putnam Drlg. Co.		Cement:	none
Logged by J.W. Spears		Water table:	?

Top Kingsport Fm	-	collared in Kingsport
Top R Bed	-	72½' est
Top S Bed	-	142'
Base Kingsport	-	205½'
Top U Bed	-	217'

0 -23 Overburden
-26½ lt med gr dol; lt mott (1' core loss 23-27')
-34 lt med gr dol; lt bands (dip 7°); few eyelets; (1½' core loss 27-34')
-39 lt med gr dol; red mott; v. oxidized; TBS 39'; (2' core loss 34-40')
-42 med to lt med gr dol; banded (dip 35°)
-48 lt med gr dol; lt mott to 45', then sli darker & banded (dip 35°)
-53 med gr dol; mott; many eyelets & at 51
-54 lt med gr dol, lt bands; (4½' core loss 48-59, mostly from 54-59)
-59 med semi re-xl to sugary dol; mott
-62 lt med gr dol; lt mott; (1' core loss 59-63)
-65 lt gr dol; mott
-66½ cavity
-71 med(med dk) gr sugary dol; mott, tr. crackle; (10' core loss 67-95', prob. from 73-95)
-72½ lt med gr dol; crackle; lt bands; scatt ss grains at base

Top of R bed est. at 72½'

-76 lt br re-xl; shaly, crackle; v. oxidized in places
-95 br & gr re-xl; occ breec or crackle; v. oxidized 92-94 & some lt gr dol at 94
-98 lt re-xl; oxidized (6½' core loss 95-110')
-102 lt gr dol
-110 lt re-xl
-112 br re-xl (3' core loss 110-32')
-120 cavity
-121 lt gr dol
-122 br mott re-xl
-126 med gr dol; 124-26 breec w/ gangue & silica
-130 br re-xl; v. silic. & poss breec; shaly
-136 lt med gr dol; mott top foot (3' core loss 137-140')
-137½ br re-xl & sec. chert
-142 lt gr dol, some breec bott foot

Top S bed ~~xxx~~ est at 142'

-147½ gr mott re-xl, silic & oxidized and occ crackle
-148 dk br re-xl & much sec chert
-148½ med gr semi re-xl
-159 lt gr re-xl, v. silic & oxidized; v. sherty 151-53 & shaly at 153; <u>ZnS shine 153½-55</u>; chert nods 155½ & 156½; <u>est 1% ZnS 157½-58½</u>;
-164½ gr re-xl, mott, lt crackle; some silica bott foot
-170½ lt to lt br re-xl, mott; chert nod 169½, then sli darker to base
-172 lt med gr dol
-174 lt re-xl
-175½ lt(bleached?) gr dol, banded (35° dip)
-183½ lt br re-xl; breec 176-77, then v. silic. & vuggy to oxidized
-186½ v. lt re-xl, breec 185-86½
-191½ lt re-xl; mott to 187 & shaly at 188; silic & oxidized
-192½ lt semi re-xl, breec
-202½ lt re-xl; scatt ss grains top 3", then breec w/ some silica gangue to 196, then very silic. to 201½
-204 gr re-xl
-205½ med gr semi re-xl, lt mott

Base Kingsport Fm 205½

-207½ lt med gr dol; chert not at base
-217 med gr dol, lt mott to bands

Top U bed 217'.

-218 br re-xl, large chert nod at top
-223½ lt med gr sugary dol; mott & occ lt crackle
-224½ chert & oolitic chert
-226 med mott semi re-xl, few as grains at top TD

H. H. Putnam DD GD - 4

Copper Ridge Project - Puncheon Camp Creek

DMEA Idn-E 1088

Hole No:	GD - 4	Collared:	5-8-58
Farm:	Green - Dalton	Bottomed	5-12-58
Loc:	N 49,852.24	Depth:	433'
	E 46,537.87	Casing:	BX 51'; AX 110
Elev:	1401.13	Reaming	38'(72-110')
Drilled by Putnam Drlg. Co.		Cement:	none
Logged by J. W. Spears		Water Table:	?

Top Kingsport Fm:	100' (est, much core loss)
Top R bed	254½'
Top S bed	323' (est, in breec zone)
Base Kingsport	368'
Top U bed	380'

0 -51 Overburden
-61 lt med(med) gr dol; mott & silic eyelets (6' core loss 51-64)
-63 med gr dol; mott; several oolitic cherts bott foot
-69 lt med gr dol; sandy & oolitic chert at 64, then well banded to mott(dip 37°); some shears at 68; (3' core loss 64-72')
-73 med gr dol; mott & silic eyelets; sandy bott 2"; (5' core loss 72-85')
-76 lt gr dol; well banded(dip 38°); scatt ss grains 73½-74 & a sand at 75
-83 lt med gr dol, lt bands
-85½ med gr dol; mott & oxidized
-90 lt gr dol; chert nod at 86½ (5' core loss 85-95')
-92 med(lt med) gr dol, some mottling
-106 med dk gr dol, shaly mott; (9½' core loss 95-106)

Top Kingsport Fm between 92 & 106, est at 98 -100'

-107½ lt med(med) gr dol; mott; TGS at base
-111 lt gr dol; lt bands (32° dip); thin ss at 108½; TGS at base
-114 lt med to med gr dol; mott to sli shaly; shaly & oxidised at base
-116½ lt gr dol; lt mott; TGS at base
-118 med gr dol; ½" TGS at base
-122 lt med gr dol; scatt ss grains 118½; grades to med gr dol & bott 2' mott
-124 med gr dol; shaly mott (2' core loss 120-129')
-128½ med dk gr dol; v. shaly mott; (base bed K-1)
-132½ lt med gr dol; v. cherty 129-29½ & chert nods 130½, 31½ & 32½
-133½ med gr dol; v. banded (40°) dip) (1' core loss 129-136)
-138½ lt med gr dol; shaly at 135; scatt ss grains 136-36½
-140½ lt med (med) gr dol; shaly mott
-144½ lt med gr dol; lt mott
-145 med gr dol; brecc; some ss grains,& green shale w/ TGS at base
-151 lt med gr dol; 148-48½ some oolitic chert & ss; occ chert frag & few ss grains 148½-50 w/ heavy ss & oolitic chert at 50 (base bed K-2)
-162 med gr dol; TGS 152½; lt mott 151-54½, then v mott 154½-55½, then lt mott to 162
-163 lt med gr dol, TGS at base
-172 lt gr dol; lt mott to 167½ w/ TGS at 167½; v. lt bands 167½-70(41° dip); chert nods 170½, 171, 171½ & 172
-180 lt(lt med) gr dol; well banded 172-73½(37° dip); chert nods 173½ & 174; very banded to mott 174½-80, & sandy 178½-80 w/ poss some sedimentary brecc; 1" TGS at 180 (base K-3 bed)
-181½ lt br mott semi re-xl grading to silica at base
-191½ lt bands to 185(40° dip); TGS 185; lt mott 185-87, then lt bands to 190 w/ chert nods 188½, 89½ & 90; well banded 190-91½
-198½ lt med(med) gr dol; well banded(40° dip) to 193½; scatt ss grains 194-94½ w/ TGS 194½; several cherts 195½-96½; large chert nods 197 & 198
-199 lt mott re-xl to semi re-xl
-200 med dk gr dol, shaly mott (base bed K-4)
-205½ lt gr dol;lt bands(dip 38°); chert nods 203 & 204½
-217 lt med gr dol; banded & thin shales to 206½, then lt mott to 207½; bands 207½-09 w/ chert nod at 209; v. mott to banded 209-10½ w/ chert nod 210½; bands 210½-12 (dip 42°); cherty 212-12½; lt bands 212½-17 w/ chert nods 213½, thin ss 214 and TGS 215(dip 38°)
-219 lt med gr sugary dol; mott
-228 lt gr dol; lt bands to 220, then well banded to mott to 223½ w/ TGS 223½; few ss grains 227-27½; TGS then large chert nod at 228 (base bed K-5)
-247 lt (lt med) gr dol; lt bands to 232(38° dip); then lt mott to 235 w/ TGS 233 & a few eyelets 233-35; lt bands 235-39 W/ chert nods 237 & 239; some lt mott or banding 239-47 w/ s sandy TGS at 247

-254½ lt med gr dol; crackle & lt mott to 252½, then lt bands & crackle

Top R bed 254½ feet

-255½ br mott jasperiod re-xl, 1" TGS at top & 4" TGS at base
-264½ med & lt med gr dol; mott, sugary, crackle; tr FeS at top; shaly 258½-59; semi re-xl & shaly 260-61; TGS at base
-265½ lt shaly re-xl
-267 gr re-xl; occ vug
-268 lt gr dol, bottom 6" cherty & some sand grains
-269 br coarse rained re-xl
-269½ lt green shlay re-xl
-271½ gr re-xl to semi re-xl; some lt crackle
-272 lt gr dol; occ sand grain
-273 2" dk chert; 2" green sandy shale; 5" brecc chert sealed w/ re-xl & shale, then ½" TGS & 3" br re-xl
-275 mixture of lt med gr dol & re-xl, silica & green shale, lower foot almost all dol; chert nod at base
-278 br to lt br re-xl; some brecc; ~~TX~~ FeS shine at 277
-281 lt re-xl to semi re-xl; lt crackle
-285 lt med gr dol, some sugary; lt mott; occ crackle; chert nod 284½; TGS 285
-287½ lt br to gr fine grained re-xl
-293½ lt med gr dol; crackle 287½-8 w/ FeS shines; 288-90 sugary to semi re-xl; lt crackle 292-93½
-294 br re-xl
-307 Brecc W/ lt med gr dol & some blocks lt & med gr; 294½-301 est 1½% ZnS; (1' core loss 294-301); ZnS shines 301-05; est 2% ZnS & 2% FeS 305-07
-310 med dk gr dol, brecc; est 1/2% ZnS; (1' core loss 301-10)
-312½ med gr dol; crackle (1' core loss 310-15)
-314½ lt re-xl; brecc
-323 Brecc; lt & med gr dol w/ few dk gr blocks & some semi re-xl; sealed w/ white gangue and re-xl; scatt heavy FeS shines (1' core loss 319-24)

Top S bed est. at 323 feet

-326 Brecc: lt, med & dk gr dol sealed w/ much re-xl & silica (1' core loss 324-27)
-329 lt br re-xl; many chert fragments & occ dol block; vuggy (2½' core loss 327-33)
-333 lt re-xl, vuggy & occ bleached chert fragment
-337½ lt gr re-xl; brecc; vuggy (1' core loss 333-336)
-339½ lt br re-xl; v. silic & vuggy (1' core loss 336-343)
-341 lt gr dol; bleached chert nod at 340 (2' core loss 343-360)
-348½ lt br re-xl; silic; brecc w/ white gangue; bleached chert nod at 343
-349½ lt re-xl
-350½ lt gr dol
-355 br re-xl; v. much dk silica & bleached chert fragments
-358 br re-xl; silic & v. vuggy
-359 lt gr re-xl to semi re-xl
-366 lt br re-xl; silic & vuggy; feww ss grains at top; v. silic at base (1'core loss 360-67)
-368 lt gr fine grained re-xl

Base Kingsport Fm at 368 feet

-373½ lt gr dol; brecc w/ silica gangue to 369; bleached chert nod 369; lt bands (dip 39°); bleached chert nod373½ (1' core loss 370-73)
-380 med gr dol; bleached chert nods 374 &374½; (½' core loss 373-76; 1½' loss 376-79)

-380½ reddish br oxidized re-xl
-388½ lt med to med gr dol, sugary & lt mott
389½ lt re-xl
-390 br re-xl
-394 lt br re-xl; mott & some brecc; TGS at base
-396 lt med gr semi re-xl to sugary dol
-398 lt gr dol; crackle
-401 med gr dol; lt crackle; few eyelets; few ss grains & TGS at base
-402 br re-xl
-404 med gr semi re-xl to sugary dol; few ss grains bott inch
-405½ br mott silic re-xl
-407½ lt gr fine grained re-xl to semi re-xl; lt crackle; several chert nods; sandy bott 4 inches; TGS at base
-408½ brecc chert sealed w/ silica & re-xl
-410 br re-xl; lt crackle; bott 6" mostly chert
-412 med gr dol; chert nod 410½ & occ small chert nod to 411; scatt ss grains bott 3" and TGS at base
-414½ br re-xl; silic; top 6" shaly; few ss grains top & bott; TGS at base
4416½ lt br re-xl; brecc; few ss grains at top
-417½ lt med gr dol; lt crackle; scatt ss grains bott 6"
-419 lt br mott re-xl
-421 br silic re-xl; chert nod at top; <u>est 5% ZnS 419-421</u>
-423 gr re-xl
-424 lt gr sugary dol; chert nod 423½
-426 gr re-xl
-427 lt gr dol; sandy at base then TGS
-427½ br re-xl; shaly at top
433 TD lt gr dol; large chert nod 432

E.H. Putnam DD OD - 5

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No:	OD - 5	Collared:	5-13-58
Farm:	Green-Dalton	Bottomed	5-17-58
Loc:	N 49,678.25	Depth:	586'
	E 46,633.44	Casing:	BX 19'; AX 39'
Elev:	1391.48	Reaming:	none
Drilled by Putnam Drlg. Co		Cement:	none
Logged by J.W. Spears		Water Table:	?

Top Kingsport Fm.	-	258½'
Top R bed	-	420
Top S bed	-	486
Base Kingsport Fm.	-	533
Top U bed	-	542½

0 -19 overburden
-20 med gr dol; mott & silic eyelets (3' core loss 19-32')
-23 med to lt med gr dol; lt bands; some sand 22½-23; oxidized at base
-25 med gr v. mott semi re-xl
-28 med(lt) gr dol; bands(41°); TGS at base
-32 lt med gr dol to med gr dol; lt mott
-34 dk gr dol; shaly mott w/ white eyelets
-36½ med dk gr dol; v mott; sandy 36-36½ w/ sand & TGS at 36½
-38 lt med gr dol; lt mott; some silic & white gangue eyelets
-51 med gr dol; mott & silic eyelets to 48½ w/ chert nod at 48½'
-53½ lt gr dol; bands (39°); sandy top 6"; (2' core loss 51-60)
-57½ lt med gr dol; v lt bands; oxidized bott foot
-59 lt med gr dol; mott & sandy & tr congl to 58½, then lt bands W/ ss & TGS & crackle at 59
-64½ lt gr dol; lt mott to bands; scatt ss grains 63½-64½ w/ 3" CM ss at 64½
-67 lt med gr dol; chert nod 66½; TGS 67; (1' core loss 67-76')
-72 med gr dol; large eyelet at 70
-73 lt med gr dol; mott; sandy
-76½ lt gr dol; sandy; becomes silica at 75, and from 75-76 is a mixture of silica, sand and oolitic chert
-78 gr re-xl; v mott
-81½ lt med gr dol; sugary; mott
-84½ med gr sugary dol; well mott
-85½ lt re-xl; v sandy
-87 lt gr dol; lt bands & sandy (dip 40°)
-90 lt med gr dol; mott
-106½ med dk gr dol; v mott to 91; then lt mott; fault 100-05 (1' core loss 95-98')
(1' core loss 98-101') (3½' core loss 101-05')
-107 med gr dol
-110 dk gr dol; v mott at top; tr brecc at base: (1' core loss 108-113')
-115 lt med gr dol; mott; scatt sag-rains 114½-15 w/ a sand at 115: (1' core loss 113-17)
-124 med to med dk gr dol; mott & eyelets(silic. & gangue)
-125 lt med gr dol; lt bands (40° dip); few eyelets at top; few ss grains at base
-126 lt semi re-xl; silic; TGS at base
-129 med(med dk) gr sugary dol to semi re-xl; v mott; chert nod at base
-132½ lt med gr dol; bands (35°); scatt ss grains 132-32½ w/ large chert nod at base
-134½ lt re-xl; silic; cherty 133-33½; chert nod at base
-136 lt med gr dol
-139 lt med gr sugary dol; well mott; cherty & TGS at base
-144 lt gr dol; lt bands; chert nod at base (1' core loss 141-43')
-150 lt med gr gol grading to med gr (2' core loss 143-150')
-153 lt med gr dol; lt mott & many eyelets (½' core loss 150-59')
-157 lt gr dol; well banded (40° dip); occ a few ss grains
-158½ lt fine grained mott re-xl
-161½ lt med gr dol; mott; sli darker and shaly at base
-163 med gr sugary dol; mott; scatt ss grains & TGS at base
-170 lt med gr dol; v lt mott to 165, then well mott to 168½; bands 168½-70 & v sandy ;69½-70 (47° dip)
-173 lt gr dol; mott & few vugs (1' core loss 170-74')
-174 lt silic semi re-xl w/ scatt ss grains
-177½ lt gr dol; shears at 175; chert nods 176½ & 177½
-182 lt med gr dol; lt bands (40° dip)
-183 med gr dol; mott & silic eyelets; oxidized at base
-190 dk gr dol; shaly mott
-191½ med dk gr dol; banded (42° dip)
-193½ med gr dol; sandy 192½-93 w/ chert nod 93; some shears 193-93½

-195 lt gr dol; lt bands at top; then scatt ss grains and some silica
-199 med gr mott sugary dol to semi re-xl; band of silica at top; few vugs; sandy at base
-203 lt to lt med to med gr dol; lt mott & occ silic eyelet
-212 med(med dk) gr dol; mott & silic eyelets
-213 med dk gr dol; v. mott
-214 med gr dol; bott 6" oolitic cherts and sand
-215 lt med gr dol
-217 med gr dol; mott & shaly; 3" v shaly at base
-221 lt med gr dol; mott 219-21 (1½' core loss 220-27')
-223½ med gr dol; well mott
-226 lt gr dol; lt bands; sandy bott foo w/ heavy ss at base (41° dip)
-229 lt med to med to lt med gr dol; v mott & silic 227-28½; scatt ss grains bott 6"
-231 lt gr dol; banded & scatt sands (41° dip); TBS at base
-236 lt med gr dol; wavy bands & sandy to 232; then well banded; some crackle to lt shears
-238½ med gr dol(some Med dk gr at top); mott
-242½ lt gr dol; chert nod 240; then banded (39° dip); grades to med dk gr at base
-254½ med dk gr dol; shaly mott & occ eyelet
-255½ dk gr dol; v mott
-258½ med to lt med gr dol; lt bands (40° dip); scatt ss bott 6" w/ CM ss at base

Top Kingsport Fm at 258½'

-262 lt med gr dol
-265½ med dk gr dol; shaly mott
-271 lt med gr dol; lt bands top foot, then lt mott
-272½ med to med dk gr dol; shaly mott to v shaly
-276 lt gr dol; mott
-277½ med gr dol; shaly to banded (40° dip)
-278½ lt med gr dol; banded; sandy bott 4"
-281½ lt gr dol; TBS at base
-283 lt med gr dol; lt mott
-287½ med gr dol; mott & some silic eyelets, increasing towards base; chert nod at base
-303½ lt med gr dol; broad bands to 293; chert nods 28[illegible]½ & 89½; banded 293-96½ (41° dip)
s and sandy 295-96½; TBS 299; few ss grains 300; TBS's 302½ & 303½
-306 lt gr dol
-309½ lt med gr dol; sandy at base
-310½ med gr dol; TBS 310
-317½ med(med dk) gr dol; shaly mott
-321½ lt med gr dol; mott & few silic eyelets; TBS at base
-326½ v lt gr dol; lt mott; ½" TGS at base
-330½ lt gr dol; lt bands (38° dip); chert nods 329½, 330 & 330½
-331 med gr cherty dol
-339 lt med gr dol; well banded(39° dip) to 333 w/ chert nods 332, 332½ & 333; banded to mott 333-339; sandy 337-39 w/ TGS 339 (bas bed K-3)
-342 br re-xl; mott; few ss grains at base then TGS
-353 lt gr dol; ½"TGS at 344; then lt mott; bleached chert nod 350; many eyelets & few ss grains 350-51 w/ TGS at 351; 351-51½ breec chert; chert nods 352 & 353
-355½ lt med gr dol; wavy bands; few ss grains bott 3" w/ TGS at base
-360 lt med gr dol; chert nods 357 & 358
-361 v silic lt semi re-xl; 2" TGS at base (bas bed K-4)
-361½ lt med gr dol; mott & eyelets
-393 lt gr dol; lt bands to 368 (39°dip); chert nods 364, 67, 68 & 68½; TGS 369; v banded to shaly 368-69; chert nod 370; v banded 371-73½ w/ chert nods 372 & 373½; few ss grains 373½; mott 373½-75 w/ small cherts 374 & 74½; v cherty 375-76; banded 376-80½(40°dip) w/ thin ss 377½; lt mott 380-82½ w/ large chert nod & TGS at 382½; banded to mott 382½-93(41°dip); w/ few ss grains & TGS at 388; scatt ss grains 392-93 w/ 1" TGS 393

-394 lt med gr dol; lt crackle at top; chert nod 393½
-397½ lt gr dol; lt bands (40° dip)
-398 lt med semi re-xl
-400½ lt gr dol; lt crackle; TBS at base
-404½ lt med gr dol; chert nod 403; bands 403-04½ (40° dip)
-413 lt gr dol; some lt bands 411-13 (44° dip) 93½' core loss 395-413)
-420 lt med gr dol; thin ss near top; TGS 414, then lt mott

Top R bed 420 feet

-421 green shale w/ some blocks of dol
-424 med gr mott dol
-426 med gr to green mott sugary dol
-429 dk semi re-xl, mott; crackle
-434 lt gr to br re-xl; 3" shale at top; some vugs bott foot & tr crackle
-435 lt med gr dol; breec; few ss grains at bas then a brece chert nod
-436 lt re-xl; breec w/ re-xl & many chert fragments; shaly at base
-439 dk br re-xl; breec w/ gangue
-440 lt br v coarse grained re-xl; some blocks of dk re-xl & green shale
-441½ lt med gr dol; crackle
-444 br re-xl; some crackle (2' core loss 433-48')
-449 lt re-xl to semi re-xl; chert nod at base
-450 lt gr dol
-454 lt br shaly mott re-xl
-456 lt br to green mott semi re-xl
-458 lt br mott re-xl
-460 br re-xl; few vugs
-461½ lt med gr dol; lt crackle
-462 greenish gr semi re-xl
-468 lt med(lt) gr dol; lt crackle
-474 med dk gr dol; breec w/ gangue to 471, then breec sealed w/ re-xl & shale
4475½ lt br re-xl; several TGS's
-478 med gr dol; sugary; mott
-480 lt med gr dol
-481 med gr sugary dol to semi re-xl
-482 br re-xl
-486 med to lt med gr dol; lt crackle; few bands (37° dip); <u>breec bott 6" w/ ZnS shines</u>

Top S bed 486 feet

-490½ lt br re-xl; breec; few dol blocks in top foot; <u>est 1% ZnS 485½-87'</u>; tr FeS 487-87½
-496 lt med to med semi re-xl; mott; from 492½-96 breec sealed w/ gangue & re-xl
-501 lt br re-xl; breec; many chert fragments; occ FeS shine; <u>est 10% ZnS 497-99; est 3% ZnS 499-501</u>
-501½ lt med gr dol; few ss grains at base
-511½ br re-xl; feww ss grains at top; silic & occ FeS shine; crackle to some breec; breec 507½-09½; <u>est 1% ZnS 501-03; est 1% ZnS 507½-09½</u>
-512 lt gr re-xl; occ chert fragment
-533 lt br & lt gr re-xl; <u>est 5% ZnS 512-13½</u>; small bed dol about 520½; heavy FeS shine at 521½; sandy 520½; some breec 522-24 & 526-28; v jasperiod 530-30½; v fine grained & mott bott 2 feet

Base Kingsport Fm 533 feet

-537 lt med gr dol; lt bands (30° dip at 536'); v cherty at base

-542½ med gr dol; crackle; cherty near base

Top U bed 542½ feet

-543 br re-xl; chert nod at top
-549½ lt med(med) gr sugary dol; mott
-553 lt gr re-xl; grades to br mott re-xl
-556 br re-xl; TGS then large chert nod at base
-558 med gr dol; cherty top foot; mott to few eyelets
-560 gr re-xl; chert nod at 559
-562½ med gr dol; 3" v heavy sand at 562½; chert nod 561½
-563½ dk re-xl; grades to LS
-564 LS; partly re-xlized; chert nod at base
-567 br re-xl; coarse grained; large chert nod at 565½; v cherty 566-67
-568½ gr semi re-xl to sugary dol; chert nod 567½; few ss grains at base
-572 br to green mott re-xl; crackle; few ss grains near base
-573 dk re-xl
-575 LS, sli re-xlized
-575½ dk re-xl
-576½ LS, sli re-xlized
-577 dk re-xl
-578½ med gr dol; sugary; several chert nods; scatt ss grains bott 6"
-580 br re-xl; lt crackle; chert nod at base
-582 lt br re-xl
-584 LS, sli re-xlized
-586 br re-xl; lt crackle TD

B. H. Putnam DD GD - 6

Copper Ridge Projedt - Puncheon Camp Creek

DMEA Idm-F 1088

Hole No:	GD - 6	Collared:	5-18-58
Farm:	Green-Dalton	Bottomed:	5-24-58
Loc:	N 49,674.52	Depth:	553'
	E 46,536.84	Casing:	BX 49'; AX 160'
Elev:	1403.15	Reaming:	83' (77-160')
Drilled by Putnam Drlg. Co		Cement:	none
Logged by J. W. Spears		Water Table	?

Top Kingsport Fm:	-	226
Top R bed	-	385½
Top S bed	-	455
Base Kingsport Fm.	-	495½
Top U bed	-	507½

0 -49 overburden
-50 med gr v mott semi re-xl (2' core loss 49-59)
-55½ med gr dol; mott; lighter at top and darker at base
-57 lt med gr dol; bands to mott & sandy
-59 med gr mott dol
-79 dk gr dol; v mott top 2'; v sugary & mott 76-79 (7' core loss 59-67; 6' core loss 69-77; 5' core loss 77-85')
-89 lt med to med gr dol; mott & some silic eyelets
-94 med gr dol; mott & silic eyelets
-97 cavity
-99 med gr dol; bands to mott; (1' core olss 97-99)
-100 cavity
-105 lt med gr dol; large chert nod at top; bands & eyelets to 103 w/ ss at 103; few eyelets 103-105; (1½' core loss 100-103; 1½' core loss 103-106)
-106½ med gr dol; mott
-109½ lt gr to med mott re-xl (poss semi re-xl)
-113 lt med gr dol; banded (43°dip) w/ few scatt ss grains to 111; sandy & oolitic cherts 111-111½; bands to lt mott 111½-113
-115 lt gr dol; v lt bands(43° dip); large chert nod at base (1½' core loss 113-119)
-117 lt med gr dol; lt bands (43° dip); grades to med gr dol
-119 med gr dol
-123 lt med gr dol (3' core loss 119-123)
-123½ chert & silica (1½' core loss 123-129)
-126 lt med gr dol; mott & some silic eyelets
-128½ lt gr dol; bands (43° dip)
-132 lt med gr dol; mott
-134 med gr dol; shaly mott at top, then mott; scatt ss grains 133-34
-142½ lt med gr dol; mott to 140½, then bands (48° dip at 141); v sandy 142-42½
-145 med gr dol; mott & silic eyelets
-146 lt v silic re-xl to silica
-149 lt med gr dol (2' core loss 146-49)
-159 cavity
-159½ dk gr dol; shaly mott & eyelets
-160 med gr dol; bands (41° dip); grades to lt med gr dol
-161½ lt med gr dol; lt bands
-165 lt gr dol; scatt ss grains 161½-62, then lt mott & occ eyelet; some scatt ss at 164; silic 164½-65 w/ 2" of silica at 165; (2' core loss 162-72)
-170½ lt med gr dol; becomes lt mott; scatt ss grains at base
-171 sandy edgewise congl: (base bed M-7)
-171½ med gr sugary dol
-172 lt med gr sugary dol; mott; TGS at base
-173 lt gr dol; few ss grains at top
-181½ med gr dol; mott & silic eyelets; TGS's 175 & 178½
-182½ lt med gr dol; 182-82½ v sandy & oolitic cherts
-184 lt gr dol; ½" TGS at base
-19[illegible] lt med gr dol; mott & occ TGS
-192 med gr dol; mott & some eyelets
-194 lt gr dol; lt bands (40° dip); occ thin sand w/ a 1" CM ss at base
-195 lt med gr dol; sandy bott 2"
-197½ lt med to med gr sugary dol; mott & some scatt silica
-200 lt gr dol to lt med gr; few ss grains at top, then well banded (40° dip); sandy at 200
-206 lt med gr dol; few ss grains & a TBS at 200½, then banded & occ eyelet to 204
-207 med dk gr dol; shaly mott
-208 med gr dol; chert nod at base
-212 lt med gr dol; occ chert nod to 209, then banded(40° dip); TBS at base

-215 med gr dol; TBS 213; becomes mott at base & darker
-217½ med dk to dk gr dol; shaly mott
-218½ med gr dol
-221 med dk to dk gr dol; shaly mott & occ white eyelet
-223 dk gr dol; v shaly mott; chert nod at base
-226 med to lt med gr dol; banded (40° dip); sandy 225½-26 w/ CM ss at 226

Top Kingsport Fm at 226 feet

-228 lt med gr dol; some ss at top
-231 med(med dk) gr dol; shaly mott; chert nod at base
-232½ lt med(med) gr dol; well mott
-233 med dk gr dol; shaly mott
-237 lt med gr dol; lt bands top foot; some mott bott foot; TBS at base
-239½ med gr dol; shaly mott; TBS at base
-240½ med dk gr dol; shaly w/ TBS at base
-243½ lt med gr dol; mott
-245 med gr dol; banded (40° dip); TBS at base
-248½ lt med gr dol; scatt ss grains top 6"; becomes mott & med gr at base w/ TBS at base
-251½ med gr dol; shaly mott
-253½ med dk gr dol; shaly mott
-258½ lt med gr dol; banded (40° dip); grades to med gr dol
-260½ med dk gr dol; broad bands
-265½ lt med gr dol; some lt bands; scatt ss grains 261-61½ W/ TBS's 261½ & 265½
-266½ lt med gr dol; sugary, shaly & mott
-283½ lt med gr dol; mott to 271; v sandy & green shales 270½-71(poss. sed. congl); 271-74½ banded to mott & sli darker w/ heavy ss at 274½; sandy & oolitic cherts at 276; TBS 277½; lt mott 276-79; v mott 279-80; v lt bands 280-82 w/ TGS 282; lt mott 282-83½ W/ TBS 283½
-287½ med gr dol; shaly mott
-292½ lt gr dol; TGS 288; lt mott; bleached chert nod 291½; TGS 292½
-297 lt(lt med) gr dol; v lt bands; chert nods 295, 95½, 96 & 97
-305 lt med gr dol; banded to 299½(41° dip) w/ chert nod 298½; 299½-305 v banded to mottxx w/ scatt sands 301½-05 & 2"TGS at 305 (base bed K-3)
-307½ med gr sugary dol; mott; tr congl at 306½-07; TGS 307; v cherty 307-07½
-325½ lt gr dol; lt bands(40° dip) to 311 w/ chert nod & TGS at 311; lt mott 311-17 w/ bleached chert nods 315½, 16 & 17; banded 317½-19½(36° dip) w/ bleached cherts 318½ & 19; v mott to banded 31[illegible]½-21 w/ thin ss at 321; lt bands 321-25½ w/ chert nods 322, 23, 23½, 24 & 25 (35° dip at 325)
-327 lt semi re-xl to sugary dol; scatt specks of silica & few ss grains; A 2" TGS and then a chert nod at base (base bed K-4)
-334 lt gr dol; some lt bands(38° dip at 332); chert nod 332½; TGS at base
-334½ lt med gr sugary dol; TGS at base
-337½ lt gr dol; lt mott top foot, then lt bands(39° dip at 337) to 337½ w/ chert nod at base
-339 lt med gr dol; mott to bands; few ss grains near base & TGS at base
-347 lt gr dol; chert nod near top & a 6" chert at 341½; lt bands(36° dip) from 341½-45 w/ small bleached chert nod 342½ & TGS 344; lt mott 345-47
-348½ lt med gr sugary dol; mott
-353½ lt med gr dol; banded(38° dip); few ss grains at base then a ½" TGS
-359 lt med gr dol; sli darker at top; some bands to mott & lt crackle; scatt ss grains bott 6" w/ 3" TGS at base (base bed K-5)
-359½ med gr dol; lt crackle
-363½ lt med gr dol; TGS at base
-364½ lt med gr sugary dol; lt mott
-367 lt med gr dol; lt mott; some lt crackle; few silic eyelets; TBS at base

-367½ med gr dol; cherty
-371 lt med gr dol; chert nod 369; lt bands 369-71(41°dip); shaly at base
-374½ lt gr dol; lt crackle (41° dip)
-378½ lt med gr dol; banded(39°dip); few ss grains at base then ½" TGS
-380½ med gr dol; sugary & mott
-385½ lt med gr dol; bands(37° dip at 382); lt mott at base

Top R bed at 385½ feet

-386½ green shale, breccia; tr ss at top
-389 med gr sugary dol; well mott & lt crackle
-390 lt med gr sugary dol to semi re-xl; mott; 1 inch shaly at top
-395 med gr sugary dol; mott; crackle; FeS shine 394
-398½ lt br re-xl; 3" shaly(green) at top; mott; grades to br vuggy re-xl
-400 lt med gr dol; banded(47° dip); few ss grains at base & some breccia chert & re-xl
-402 breccia chert sealed w/ jasperiod re-xl & green shale
-403 LS, grades to re-xl
-405 br re-xl; lt mott 403-04; vuggy 404-04½
-406 lt med gr dol; breccia w/ re-xl & green shale
-406½ breccia chert & green shale
-408 lt med gr dol, few lt bands
-413 lt to br re-xl; v mott top 2'; lt crackle; ZnS shine 412; FeS shine 412½
-417 lt med gr sugary dol to semi re-xl
-419 lt gr dol; chert nods 417½ & 18; TGS 419
-421 br re-xl; shaly top foot; then well mott
-427 lt semi re-xl(greenish) to fine grained re-xl
-428 lt br re-xl; crackle; tr ZnS at 427½
-438 lt med gr dol; sugary; lt crackle; 1"TGS at 429½; FeS shine 434½
-441½ med to med dk gr dol; crackle; some breccia w/ re-xl & green shale bott 4"; ZnS shine at 440; (2' core loss 438-41) (base bed K-8)
-444 LS; shaly top 6"
-444½ green shale, silica & re-xl
-445½ dk semi re-xl; FeS shines throughout; some breccia at top
-448½ med gr dol; breccia to 446½; sat w/ ZnS 446-46½; then crackle; FeS shine 447½; ZnS shine 448½
-455 lt med gr dol; sugary; mott; crackle; ZnS shines 449-49½; large chert nod 451; lt bands 451-53(28° dip) (ground 4' core 455-461')

Top S bed sat at 455 feet

-460 breccia re-xl, chert & some col blocks
-462½ breccia chert sealed w/ silica & re-xl
-465½ LS, partly re-xlized to 463½; chert nod 465
-467½ lt br re-xl; becomes limy at base
-468½ LS, ½" TGS at base
-469½ med gr dol; 1" TGS at base
-471 LS; shaly; large chert nod at base
-472 med dk gr shaly dol(breccia block?); tr re-xl & ss at top
-476 LS; XX sli re-xlized; bott 2" grades to re-xl
-492½ lt br re-xl; occ lt gr to br & zones shaly & mott; few bands & poss semi re-xl 481½-82(34°dip) w/ few ss grains at 482; silic 486-88 & shaly 488-89
-495½ lt gr re-xl(to semi re-xl?); large chert nod at base

Base Kingsport Fm at 495½ feet

E. H. PUTNAM DD GD - 3

Copper Ridge Project - Punchson Camp Creek
DMRA Idm-5 1088

Hole:	GD-3	Collared:	4-2-58
Farm:	Green-Dalton	Bottomed:	4-10-58
Loc:	N 49,935.51	Depth:	364'
	E 46,480.16	Casing:	BX 49'; AX # 68'
Elev:	1403.48	Reaming:	none
Drill. by:	Putnam Drlg. Co.	Cement:	none
Logged By:	J.W. Speers	Water Table	?

Top Kingsport	30'est (in overburden)
Top R Bed	192
Top S Bed	257½
Base Kingsport	347½
Top U Bed	318
Base U Bed	336

C-49 Overburden
-50½ med gr dol; banded; several TGS's bott few inches
-54 lt med(med) gr dol; lt mott; v. sandy 51-51½
-56½ med gr dol; mott; grades to med dk gr dol
-60 med dk gr dol to dk gr dol; well mott
-61½ med gr dol; wavy bands; at base grades to lt med gr dol.
-63½ lt med gr dol; wavy bands at top to banded at base
-66 med(med dk) gr dol; darker at 65; well banded 65-66 (dip 40°)
-68 lt med(med) gr dol; lt wavy bands; scatt ss grains 67-68
-74 lt med(lt) gr dol; TGS 72; mott 72-74
-77½ med gr dol; some crackle at 75 & 76-76½; TGS & few ss grains at 76½; from 77-77½ sand & large oolitic cherts
-78½ lt gr dol; sandy & mott; some shears
-84 med(lt) gr dol; lt mott
-91½ med gr dol; v. mott; oxidized 84-87½
-109½ lt gr dol; lt mott to 97, then lt bands to 100½ w/ chert nods at 99, 100 & 100½ well banded 100½-03½ w/ chert nods 103 & 103½ (dip 101 - 39°); 103½-09½ well mott to banded & grades to lt med gr.(dip 105 - 46°); scatt ss grains 106½-09½ w/ heavy sands 108½-09½ & TGS 109½
-112 br semi re-xl; well mott & vuggy; v cherty bott 4", poss some oolite; TGS at base
-115 lt gr dol; v lt bands: ½" oxidized TGS at base (dip 114 - 43°)
-125 lt med(med) gr dol; well mott & oxidized to 120½; banded 120-23½ w/ cherts~~XXXXXX~~ 120½ & 121; wavy banding 123½-25 w/ some large ss grains bott 2" then TBS
~~XXXX~~ (dip 130 - 42°)
-130 lt med gr dol; chert nods 126½ & 126 3/4; many large dk cherts 127½-29½
-130½ lt med gr ~~XX~~ mott semi re-xl; TGS at base
-131½ med gr sugary dol; well mott; TBS at base
-150½ lt gr dol(& some lt med gr); lt bands 133-38½ w/ chert nods 136½ & 137 3/4; TBS 138; mott & shaly 138-40; banded 141-44½ (dip 41½°) w/ occ small chert nod; few ss grains & TGS at 144½; crackle 145-46; v cherty 146-47; lt bands 147-50½ w/ cherts 148½ & 149; TBS 150½ (dip 150 - 42°)
-154 lt med gr dol; lt bands at top to mott at base; shaly at base
-155 med gr dol; mott, v. mott
-159½ lt gr dol; banded; few ss grains then TGS at base
-164 lt med gr dol; mott; tr crackle at 161 w/ FGS shine; 1½" TGS at 164
-164½ lt br re-xl; 1" dk & shaly at base
-166½ med to lt med gr dol; shaly at top; some lt crackle bott foot
-169 lt med gr dol; occ lt crackle
-170½ med gr dol; mott to v mott
-172 lt to lt med gr dol; lt mott; tr crackle at base then breec chert nod
-175 med gr dol; mott; lt crackle; chert nod at base
-179½ lt med(med) gr dol; occ tr of crackle
-182 lt(lt med) gr dol; occ lt shear
-191 lt med gr dol; mott; occ crackle
-192 lt gr dol; lt bands; thin ss at base

TOP "B" BED AT 192'
-194 lt br re-xl; 2" green shale at top & 1" TGS at base
-198½ lt med gr sugary dol to semi re-xl; breec 196-98½; 2" TGS at base
-200 lt gr sugary dol to semi re-xl
-202 dk to med dk gr dol
-203½ med gr dol; sugary, mott

-204½ lt med to lt gr dol; banded
-208 lt re-xl, v shaly 204½-05½; breec(fault?) 206½-08
-209 lt med gr dol; banded; few ss grains & chert nod at base
-210½ lt re-xl; shaly to 4"
-214 br re-xl; breec 211½-12½; breec(fault?) 212½-14
-215 chert, see chert & some green shale
-215½ lt gr dol
-220½ lt br re-xl; mott & some crackle
-223 lt re-xl to semi re-xl
-225½ lt gr sugary dol; chert nod at base
-233 lt re-xl to semi re-xl; occ vugs and oxidized breec.
-241½ lt gr sugary dol, some semi re-xl; 239-40 some oxidized breec and vugs
-243 med gr dol; fault breec 241½-42½
-244½ med dk gr dol; crackle; chert nod at base
-245 med gr dol; shaly at base
-245½ lt re-xl w/ large chert nod at top; heavy ZnS shine at 245½
-246½ med(med dk) gr dol
-248 gr cherty re-xl; ZnS shine at top; much jasperiod and FeS; heavy ZnS shine at 248
*251 3/4 med & med dk gr dol; breec sealed w/ re-xl & gangue; heavy ZnS & FeS 248-51; ZnS shines 251-52; Est 2% ZnS 245½-252
-252 gr re-xl
257½ lt med gr dol; sugary; crackle; 254½-55 chert & re-xl; 255-57 crackle to breec w/ FeS shine at 257½

TOP "S" PAY AT ~~XXX~~ 257½'

-262½ "dry breec"; 257½-59 mostly lt gr dol sealed w/ re-xl, silica & green shale; 259-62½ mostly dk & med dk gr dol sealed w/ re-xl, silica & white gangue; 262-63 v. heavy FeS(est 10%) & some ZnS
~~XX~~-265 lt br re-xl & lt gr dol
-267 lt gr dol; breec w/ few dk blocks and some chert fragments; sealed w/ white gangue and some re-xl; few traces of FeS
-267½ chert, see chert & green shale
-269 lt to lt med gr dol; 1" TGS 1" from top
-280 lt br re-xl; v silic, cherty & shaly; 277-79 almost all silica & chert
-281½ lt med gr dol; some crackle w/ re-xl; 3" TBS at base
-286 lt re-xl, breec
-287 gr re-xl
-288 lt med gr dol; oxidized crackle
-293 lt re-xl; breec to 289; oxidized & v shaly 289-89½; then vuggy(ground 5' between 291 - 299)
-307½ gr mott re-xl; some vugs

BASE KINGSHURST FM AT 307½'

-312 lt med gr dol; large chert nod at 308; some sli banding; from 309½-10½ v silic and sugary to semi re-xl
-318 med gr dol, mott, several cherts 314½-15; sli darder bott 6"
-319 dk mott re-xl
-320½ lt(lt med) gr sugary dol
-325 lt med mott dol, sugary; some semi at top
-326 med gr semi re-xl to lt gr re-xl w/ scatt silica (1' core loss 325-29)
-327 see silica
-332 br mott re-xl
-335 white re-xl
-336 gr re-xl to semi re-xl (1' core loss 329-39)
-340 lt med gr dol; crackle; chert nod 340
-342 med gr dol; mott & eyelets; sandy bott 4"
-343 lt gr dol; few ss grains at top
-343½ dk mott re-xl
-344 lt med gr dol

-348 lt semi re-xl(fine gr re-xl?); much silic top 4"; very cherty 346½-48; v. sandy 347½-48
-35½ dk re-xl; almost all chert & silica
-354 lt med gr dol; sugary; few ss grains at base (1½' core loss 351-54)
-356 lt br re-xl
-362 SS, partly re-xlized; at 361 becomes lt re-xl; chert nods 361½ & 362
-364 lt med to lt gr dol; lt sands bott 6", then tr of re-xl at base. TD

Invoice
Marietta, Ohio

B.H.Putnam, Appro
512 Third Street
Marietta,Ohio

April 30,1958

In account with
PUTNAM DRILLING COMPANY

512 Third Street | PO Box 647 | Phone FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No 4580 for April,1958.

Core Hole No. CH-3

Footage Drilled	364'	@ $3.00	$1092.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam,Operator

By Raymond Eddy
Raymond Eddy
Drilling Superintendent

R.H. PUTNAM DD ST-2

Copper Ridge Project - Puncheon Camp Creek

DMRA Idm-# 1088

Hole:	ST-2	Collared:	4-11-58
Farm:	Stapelton	Bottomed:	4-14-58
Loc:	N 50,112.61	Depth:	210'
	E 46,395.44	Casing:	BX 68'; AX 87'
Elev:	1429.19	Reaming:	none
Drill.by:	Putnam Drlg. Co.	Cement:	none
Logged:	J. W. Spears	Water Table	?

Top Mingsport	———
Top R Bed	?
Top S Bed	130'(core loss this zone)
Base Mingsport	193
Top U Bed	206½

0-68 overburden
-73 med(lt) gr dol; mott & sugary; 1" TGS at base (6' core loss 68-77')
-76 lt & dk re-xl w/ much chert & shale
-79 lt br re-xl
-85 cavity
-86 br re-xl; cherty at top
-87 lt med gr dol; sugary; brecc
-88½ br re-xl; brecc; some jasperiod (3' core loss 87-100')
-96 lt re-xl; some crackle
-97 lt med gr dol; chert nod near middle
-98 br re-xl
-109½ lt semi re-xl; lt mott; crackle (occ zone of re-xl or sugary dol)
-116 rotten rock, loss core, few pieces of med gr mott dol.
-123 LS, dk gr; sheared at base & tr re-xl (2' core loss 116-121')
-124 med gr dol; brecc
-126 silica, chert & tr re-xl (6' core loss 124-135')
-128 lt semi re-xl; oxidized gangue filled fractures
-135 br coarse re-xl; some gangue filled fractures
-151½ LS; occ gangue filled fracture; some shale & silica at 139½-40
-152½ med gr dol; fractures w/ gangue filling; TGS at base
-165½ LS; bott few inches grades to re-xl (2' core loss 150-170')
-170 gr re-xl; some gangue filled fractures & occ chert fragment
-170½ LS; thin ss at base (2' core loss 170-179')
-171½ gr re-xl
-175 LS (dip 42°)
-177 gr re-xl
-179 LS
-180 gr semi re-xl(re-xl?); band of silica at base
-186 LS; some banding at top
-193 br mott re-xl

DRILL BIT CHANGE FM 193'

-199½ lt gr to lt med gr dol; chert nods 194½, 196, 198½ & 199½; tr re-xl at 196; tr silica at 197 (dip 41°)
-206½ lt med to med gr dol, lt mott; few lt shears
-208½ br re-xl; chert nod & few ss grains at top (2' core loss 196-210')
-210 lt gr sugary dol TD

Invoice
Marietta, Ohio

To B.H.Putnam,Appro
512 Third Street,
Marietta,Ohio

April 1,30,1958

In account with
PUTNAM DRILLING COMPANY

512 Third Street | PO Box 647 | Phone FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMRA contract No. 4580 for April,1958.

Core Hole No. ST-2

Footage Drilled	210' @ $3.00	$630.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam,Operator

By: Raymond Eddy
Raymond Eddy
Drilling Superintendent

-507½ med gr dol; crackle to brecc XX 495 -97; chert nods 496, 97 & 99; crackle 502½-06; brecc 506-07½ w/ some re-xl gangue & traces of FeS

Top U bed at 507½ feet

-508 br re-xl; brecc; oolitic chert nod at top
-516½ lt med gr dol; brecc 509-10 w/ some re-xl gangue; FeS shine at 506½; then sugary & some bands to mott; grades to med gr (1' core loss 505-14)
-520 lt br re-xl, v cherty 516½-18, then mott & lt crackle; FeS shines 519½-20
-526½ med mott semi re-xl to sugary dol; bott foot vuggy & some crackle
-530½ lt br re-xl; mott to brecc; est 3% ZnS 526½-27½; jasperiod 527½-30½
-532 lt med gr dol; mott & sugary (1½' core loss 514½-34)
-536 lt med to med gr dol; some eyelets; sugary 534-34½ w/ few ss grains & TGS at 534½; 534½-36 brecc sealed w/ chert & re-xl w/ ZnS shine at 535½
-536½ br re-xl; FeS shine at 536½
-538 lt med gr dol; crackle w/ FeS shines; ZnS shine at 537½
-539 br re-xl; brecc w/ some blocks chert & dol
-542 lt med gr dol; v sandy at top w/ tr brecc w/ re-xl; then occ brecc zone w/ gangue & traces of FeS; bott 6" brecc w/ many chert fragments & some re-xl
-543 br re-xl & chert fragments
-544½ brecc lt gr dol; v sandy; & br re-xl & occ FeS shine
-546 lt br re-xl, chert nod 545 & 545½
-553 brecc; br re-xl, chert & dol

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 55

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of April, 1958 Docket No. DMEA 4580 Contract No. IDM-E 1088

Operator's Name B.H.Putnam,Operator Minerals Zinc

Address 512 Third Street, Marietta,Ohio

Contract Amount, $ 170.125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	6135.00	39,474.00	45,609.00			
Bulldozing						
Crosscutting						
Drifting						
reaming	374.00	458.00	832.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
core boxes	0	140.25	140.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	3.75	45.00	48.75			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
incidental allow. @ .18/ft.	368.10	2368.44	2736.54			
TOTALS	6880.85	42,485.69	49,366.54	6880.85	42,485.69	49,366.54

I certify that the above bill is correct and just and that payment therefor has not been received.

Date April 30,58 *Payee B.H.Putnam,Operator

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 3440.42

Signature [signature] (Authorized Certifying Officer)

Date MAY 14 1958 Vou. No. 173

(See other side)

3440.42

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature J. D. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date MAY 12 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Laurence Title EXECUTIVE OFFICER DMEA FIELD TEAM REGION V Date MAY 12 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 872893

Form 9IF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of April 195 8 Docket No. DMEA 4580 Contract No. Dm-1088

Operator's Name D.H.Putnam Minerals Zinc

Address 512 Third Street, Marietta Ohio

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	foot	6135.00	2045	45,609.00	15,203	3.00	50,000	3.00
Churn reaming	foot	374.00	187	832.00	436	2.00	5,000	2.00
Auger sampling	ea.	3.75	3	48.75	39	1.25	550	1.50
Stripping core boxes	ea.	-	-	140.25	75	1.87	150	2.00
Trenching								
Test Pits								
Roads and Trails Incld.	foot	368.10	2045	2736.54	15,203	.18	50,000	.18
Allow. .18/ft.								
TOTAL DISTRIBUTED COSTS		6880.85		49,366.54				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		6880.85		49,366.54				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date April 30,58 Operator D.H.Putnam

Per W. T. Hill Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

V. J. Lynch
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

[illegible]

[illegible] No. 45?0
Project No. [illegible]

During the month of April, five holes were drilled on the [illegible] Chip Creek Project.

Hole GC-3 was drilled 200 feet north of GC-? on the Green-Walton farm. The hole collared in the Kingsport formation and was drilled to a depth of 364 feet.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0-49	Overburden	---	---	---
49-30?	Kingsport	"?" bed 19? "?" bed 2?? "?" bed 32?½	2??-2??, 6? at 1.76? Zn. ???-??3, shine	Dolomite ? re-xl; lower part brec; some ? ? 2??-291
30?-364	Longview	"?" bed 31?	---	Dolomite, re-crystalline and ls.

Hole GC-? was drilled on the Stapleton farm 200 feet north of GC-3. The hole collared in the Kingsport formation and was drilled to a depth of 210 feet.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0-6?	Overburden	---	---	---
6?-193	Kingsport	"?" bed 1??½ "?" bed 193'	---	Dolomite, re-xl, and ls; numerous cavitys and heavy core loss.
193-210	Longview	---	---	Dolomite & re-xl.

RECEIVED
MAY 5 - 1958
[illegible]

Hole ST-3 was drilled [illegible] feet e[illegible]t [illegible] -1. The hole coll[illegible]ed in the Mascot formation and was drilled to a depth of 642 feet.

[illegible]	Formation	[illegible]	[illegible]	[illegible]
0-21	Mascot	C[illegible] ss at 250'	---	Dolomite
21-632	Ingleport	"[illegible]" bed 494 "[illegible]" bed 568 "[illegible]" bed 632	---	Dolomite, re-xl, and ls.
632-642	Longview	---	---	Dolomite.

Hole ST-4 was drilled 500 feet north of ST-3. The hole collared in the Mascot formation and was drilled to a depth of 479 feet.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0-97	Overburden	---	---	---
97-301	Mascot	C[illegible] ss at 301	---	Dolomite
301-465	Ingleport	"[illegible]" bed 360 "[illegible]" bed 431½ "[illegible]" bed 465	---	Dolomite, re-xl, in part, brecc.
465-479	Longview	---	---	Dolomite & re-xl.

Hole ST-5 was drilled 500 feet north of ST-4. The hole collared at the base of the Mascot formation and was drilled to a depth of 360.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0-93	Overburden	[illegible] at 60'	---	---
93-33[illegible]	Ingleport	"[illegible]" bed 207 "[illegible]" bed [illegible] "[illegible]" bed 33[illegible]	Blue at 171½, 200½-207½, est. shines from 203½-219½, shines from 303½-31[illegible].	Dolomite, re-xl, brecciated. some Fe.
33[illegible]-360	Longview	---	---	Dolomite.

Drilling is now underway 100 feet north of ST-5.

D.H. PUTNAM DD ST-3

Copper Ridge Project Puncheon Camp Creek

DMEA Idm-R 1038

Hole:	ST-3	Collared:	4-15-53
From:	Stapleton	Bottomed:	4-2[illegible]-53
Loc:	N 49,904.16	Depth:	642
	E 47,193.53	Casing:	BX21: [illegible]
Elev:	1421.84	Reaming:	33 [illegible]0'
Drilled by:	Putnam Drilling Co.	Cement:	None
Logged by:	J.[illegible]. Spears	Water Table:	?

Top Kingsport Fm	350
Top R Bed	493½
Top S Bed	569
Base Kingsport	632

Collar: 4-15-59
BK 21'
AX 35'

ST 63

0-21 Overburden
-29 Lt. med. gr. dol; occ. shale; some lt. mott.
-30½ Med. to lt. med. gr. dol; mott. (3' lose 33-33)
-34 Chert & sec. chert.
-34½ Lt. med. gr. dol; TGS at base.
-38 Med. gr. dol.
-39 Lt. v. mott. semi re-xl to sug. dol.
-41½ Med. dk. gr. dol; few eyelets, TGS at base.
-43½ Med. gr. (to lt. med.) dol; scatt. ss grains 43-43½.
-50 Lt. med. gr. dol; lt. bands to 47½(dip 30°); well mott. 47½-50.
-51 Med. gr. dol., mott.
-55 Med. dk. gr. dol; (to dk. gr.) mott & few silic eyelets.
-56 Silica
-57½ Lt. med. gr. dol; sugary, lt. bands.
-61½ Lt. med. gr. dol; (dip 30°)
-65 Lt. med. v. mott. semi re-xl.
-77 Med. gr. dol; v. lt. mott. sli. sugary; chert nods 75½,76,77(Sher 76-77)
-79 Lt. med. gr. dol.
-82 Chert & occ. chert (2' core lost 79-82)
-83½ Lt.(l.m.) gr. dol; sand at 83 (36° dip)
-90 Lt. med. gr. dol; mott; eyelets; semi- re-xl at top to sugary.
-91½ Lt. v. mott. re-xl.
-93 Lt. med. gr. dol; banded to 94½ (dip 30°) w/ scatt. sands 93½-94½; ox. & mott to bands 94½-95½; sli. darker & mott 95½-97 & occ. white gangue eyelets & TGS 97.
-99½ Med.(m.l.) gr. dol.; w/ large gangue eyelets; TGS about in middle.
-104½ Med. dk. gr. v. mott. semi re-xl to sug. dol; 2" of re-xl at base.
-110 Lt. med. gr. dol; lt. mott; eyelets & occ. vug; TGS & chert nod at base.
-113 Med. gr. dol; mott; bott. 2" sandy & some TGS.
-113½ Lt. med. gr. dol (to med. at base) mott.
-121 Med. gr. dol (some semi-sug) mott; few ss grains bott. 6"; chert nod 3" from base; TGS at base.
-125½ Lt. med. gr. dol. grading to med. gr.; well mott & silic eyelets.
-127 Lt. med. gr. dol; lt. bands to sli. mott; few ss grains at base (dip 37°
-129 Med. gr. v. mott. semi re-xl (to sug. dol)
-133 Lt. med. gr. dol; some lt. mott top 2 ft; TGS at base.
-135½ Med. gr. dol., lt. bands.
-139 Dk. gr. dol; sbly mott.
-143½ Med. gr. dol; mott; 3" sand & tr. re-xl at base.
-147 Lt. med. gr. dol; lt. mott; eyelets bott. 6"; TGS at base.
-156½ Med. (med. dk.) gr. dol; lt. bands; TGS at base. (30° dip)
-154½ Med. (med. dk.) gr. dol; v. mott top 2 ft.; then mott; many silic & white gangue eyelets; chert nod at base.
-159 Lt. med. gr. dol; bands top 1 ft; ss near top; large chert nod at base.
-163 Med. to lt. med. gr. dol; large chert nod at 160; fault(?) bott. 6" w/ sandy & TGS at base.
-163½ Med,gr. dol; scatt. ss gr ins.

-164 Lt. med. gr. dol; scatt. sands.
-170 Lt. gr. dol (some l.m. at top); chert nod 166; then lt. mott. to sands; scatt. ss grains 169½-70.
-173 Lt. med. gr. dol; small chert nod 171, 173.
-177 Med. gr. dol; scatt. ss grains 177-78 / 176 177½. (dip 33°)
-179½ Lt. med. gr. dol; large oolitic chert nod at top; then scatt. ss zones & some eyelets & small cherts.
-181½ Re-xl,179 3/4 -180½ brec. chert seled w/ gangue; then 4" silica w/ oolitic chert nod; then silic cherty re-xl.
-183½ Lt. med. mott. semi re-xl; to sug. dol; TBS at base.
-187½ Med. gr. dol; some sugary; mott; bott. 6" much darker.
-190 Lt. med. gr. dol: mott & vuggy.
-191½ Lt. gr. dol; banded; v. sandy top 4"; then scatt. sands to 191.
-193 Lt. med. to med. gr. sugary dol.
-204 Med. dk. gr. dol., v. mott. w/ silic eyelets to 196; then lt. mott. & some silic eyelets to 201; then mott. & eyelets.
-208 Med. gr. dol., lt. mott;bedding plane fault 205-06.
-209 Med. dk. gr. dol.
-217 Cavity
-219½ Lt. med. gr. dol; lt. mott & few eyelets; TBS at base.
-224½ Med. to lt. med. gr. dol; mott w/ eyelets.
-225 Med. gr. dol/ mott.
-226 Lt. med. gr. dol; banded (dip 33°)
-227 Lt. silic re-xl, some ss grains at top.
-229½ Lt. med. gr. dol, sugary, mott; much silic bott. foot & 3" band of silica at base.
-235 Lt. gr. dol; lt. bands to 234 (dip 33°) v. cherty 233-34½.
-236 Med. & some lt. med. gr. dol; chert nod 236.
-236½ Lt. med. gr. dol, chert nod 236½.
-237½ Lt. gr. dol.
-240 Lt. med. gr. dol: v. mott 237½-38; 239-39½; oolitic chert nod at 240.
-245 Lt. gr. dol; bands (40° dip) chert nod at base.
-249½ Med. gr. dol; lt. bands (40° dip) occ. small chert nod & few ss grains & tr. silica at base.
-251 Chert to re-xl, tr. green shale about 250.
-252 Lt. med. gr. dol., lt. mott.
-255 Lt. gr. dol, v. banded (wavey) (33° dip)
-256½ Lt. med. gr. sug. dol (to semi); mott.
-258 Lt. gr. dol., mott.
-261½ Lt. med. gr. dol., to med. gr; mott; TBS at base.
-267½ Lt. gr. dol; lt. mott. & grades to lt. med. gr. dol; few eyelets 266-67.
-271 Lt. gr. dol; lt. mott; scatt. ss grains top foot; silic 270-71 w/ band of silica & chert at base.
-272 Lt. med. gr. dol., large chert nod at base.
-275 Lt. gr. dol.
-283½ Lt. med. (m) gr. dol; well mott w/ silic eyelets; TBS at base.
-285 Med. gr. dol; mott w/ silic eyelets.
-288 Lt. med. gr. dol; banded (dip 33°) grades to lt. gr. dol.
-292 Lt. med. gr. dol; mott, sugary; chert nod 291.
-293 Occ. chert to re-xl, some ss grains bott. 6" & chert nod at base.
-297 Lt. med. (med); lt. mott & occ. eyelets.
-302½ Med. gr. dol; many gangue filled eyelets to 299; then few silic eyelets.
-306 Dk. to med. dk. gr. dol; top foot only mott; then lt. mott. & occ. eyelets.
-306½ Med. gr. dol; ss at 3"; then 3" of oolitic chert.
-307½ Lt. gr. dol; cherty chert 307-07½.
-311½ Lt. med. gr. dol; lt mott and/or bands.
-315½ Med. gr. dol; mott & eyelets.

-319 Lt. med. gr. dol; few ss grains 317-18 w/ 1" CMss at 318; few scatt. ss grains 318-19 w/ heavy ss & TGS at 319.
-320 Med. gr. dol., mott; sugary; TGS at base.
-325 Lt. gr. dol; well banded (dip 36°) scatt. ss grains 322-323½.
-329 Lt. med. (m) gr. dol. (3' core loss 328½-330)
-330 Med. gr. dol.
-332 Lt. med. gr. dol; chert nods 331½ & 332.
-339½ Lt. gr. dol; lt. bands; v. shaly at base.
-347 Med. dk. & dk. gr. dol; mott. & shaly; v. dk. gr. bott. foot.
-350 Lt. med.gr. dol; lt. bands (36°) ss at 350.
Top Kingsport Fm. 350 feet.
-353½ Lt. med. gr. dol., Lt. mott. & occ. eyelets; shaly at base.
-356 Med. gr. dol., v. mott.
-361½ Lt. gr. dol., TGS at base.
-362½ Lt. med. gr. dol., TGS at base.
-365½ Lt. gr. dol; lt. mott; TBS at base.
-372½ Lt. med. gr. dol., lt. bands to 367½ (36°); few TBS's 367-67½; scatt. ss grains at 368; TBS's 370½,71,72½ (grades to med. gr. dol.)
-374½ Dk. (m.d.) gr. dol., mott & shaly.
-376½ Med. gr. dol., lt. mott.
-382 Lt. med. gr. dol; lt. bands; cherty 377,378 & 380½ (grades to med. gr. dol)
-383½ Med. dk. gr. dol., v. banded w/ TBS's (35° dip)
-386½ Lt. med. gr. dol; scatt. thin sands 383½-85; 2" chert nod then 2" TGS at base.
-389 Lt. med. gr. dol., well mott.
-393 Lt. gr. dol; chert nod 393; sandy & cherty (pt-oolitic) 395-95½; large oolitic chert (w/ tr. ss) at 397; TBS 398.
-401 Lt. med. gr. dol; dk. oolitic chert nod at base.
-409 Med. gr. dol; shaly mott.
-413 Lt. gr. dol; v. mott to 413 w/ small chert nod & TBS at 413; several chert nods 415½-16; banded 416-18 (35° dip).
-423½ Lt. med. gr. dol; v. banded to mott; scatt. ss grains 421½-23; dk. shale & chert 423-23½.
-439½ Lt. gr. dol. lt bands to 426 (34° dip) small chert nod 424; dx.mott 426-29 w/ chert nod at 429; some bands 429-30 w/ oolitic (or congl) chert at 430; banded 430-433 (dip 35°) banded to mott. 433-35 w/ TBS 435; bleached chert nods 436 & 437.
-440 Lt. gr. sug. dol; v. silic (tiny white specks) few ss grains near top; 1" TGS at base.
-440½ Med. dk. gr. dol; sugary, mott & shaly.
-457½ Lt. gr. dol., some lt. bands & occ. small bleached chert nod (2½' core loss 441-43) (dip 34°); at 449 a 4" dk. chert nod w/ TGS at base; lt. bands 449-50 (dip 29°); cherty & mott 452-53; lt. bands 453-57½; chert nods 454½ & 456; (dip at 455 - 29°) few ss grains 456½; TBS 457½ (34° dip at 457).
-460 Lt. med. gr. dol; lt. bands top foot; then mott & becomes sugary; TGS at base.
-468 Lt. gr. dol; well banded & few eyelets (dip 32°); top foot lt. mott.
-469 Lt. med. gr. dol; TGS & chert nod at top; large chert nod at base.
-476½ Lt. gr. dol; lt. mott & some eyelets; TGS 472½; TBS 476; at about 477 becomes banded (dip 32°+) to 479 w/ chert nod 479; some v. lt. bands 479-86½ w/ TGS at base.

-479 Lt. med. gr. dol; sugary, lt. mott; few ss gr ins at base then 1" of TGS and chert.
-493½ Lt. med. gr. dol; lt. mott to base to 490; then banded 490-93½ (34° dip) w/ 1" TGS at base.
Top B Bed 493½
-496 Med. gr. sug. dol (l. semi reexl) well mott & sugary.
-496½ Lt. greenish gr. dol.
-500 Lt. med. gr. dol., well mott. sugary; some thin shears.
-501 Lt. greenish semi re-xl, TGS at base.
-504 Lt. med. gr.(green) mott. semi re-xl.
-506½ Lt med. (to med.) gr. dol; mott to 506; 1" TGS at base.
-509½ Lt. re-xl to semi re-xl, mott; 2" v. coarse re-xl at top,
-511 Br. mott. re-xl.
-511½ Lt. med. gr. dol.; chert nod at base.
-516½ Br. re-xl, sli. banded to 516½, then mott; some lighter re-xl 516-17½; darker & vuggy 517½-18½.
-519½ Lt. med. gr. dol; 2" re-xl at base.
-521 LS, TGS 520,520½.
-521½ Med. gr. sugary dol.
-531½ Lt. br. coarse repxl, to lt. re-xl; 2" chert nod at base.
-536½ Lt. med. gr. dol; 2" TGS at base.
-537½ Br. shaly re-xl, mott; becomes lt. re-xl; bott. foot br. re-xl.
-549½ Lt. med. gr. dol; sugary to poss. semi re-xl. (6' core loss 543-50, recovered 2' of continous dol; then a 1" bott. of LS)
-553½ LS, occ chert nod, TGS at base.
-554½ Br. shaly re-xl.
-564 Med. (& l.m.) semi re-xl to sugary dol (2' core loss 559-61) large fractured chert nod at 561. (9' core loss 562-72).
-567½ Lt. semi re-xl.
Top C Bed 568 est.
-572 Br. re-xl.
-579 LS (dip 534- 35°) (1' loss 573-83; 1' loss 583-89) tr. lt. med. gr dol at 579.
-590½ Lt. re-xl.
-594½ LS, at base grades to re-xl (2' core loss 591-99)
-595½ Lt. br. re-xl.
-597 Lt. med. gr. dol; mott. lt fractures.
-603 Br. v. vuggy re-xl, mott & breccia.
-610½ Lt. br. to lt. re-xl; silic, some vuggy brecc. 609-10. (9½' core loss 605-610)
-614 Br. v. vuggy re-xl, mott. & silic (3' core loss 610-20)
-617 Lt. br. re-xl.
-617½ Lt. med. gr. dol; few ss grains at base.
-619½ Lt. br. re-xl; few ss grains at top; silic.
-625 LS, at base becomes re-xlized. (5' core loss 620-31)
-632 Lt. br. re-xl to gr. re-xl; mott top 3-4 feet. (2' core loss 631-37)
BASE MISSOURI fm. 632
-636 Lt. med. gr. dol, lite fractures.
-637 Med. (l) gr. sugary dol, lt. fractures
-642 T.D. med. gr. dol. lt. fractures (2' core loss 637-42).

Invoice
Marietta, Ohio

B.H.Putnam,Appro
512 Third Street
Marietta,Ohio

April 30,1958

In account with
PUTNAM DRILLING COMPANY
PO Box 647

512 Third Street

Phone FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580 for April,1958.

Core Hole No. ST-3

Footage Drilled	642	@ $3.00	$1926.00
Footage Reamed	187	@ $2.00	$ 374.00
			$2300.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam, Operator

By Raymond Eddy
Raymond Eddy
Drilling Superintendent

B.H.PUTNAM RD CT-4

Copper Ridge Project Punchson Camp Creek

Exh. IM-B 1038

Hole: CT-4
Form: Stapleton
Loc: N 50,086.78
E 47,092.89
Elev.: 1425.01
Drilled by: Putnam Drilling Co.
Logged by: J.M. Spears

Collared: 4-[illegible]-58
Bottomed: 4-[illegible]6-58
Depth: 479'
Casing: BX 97'; AX 115'
Reaming: None
Cement: None
Water Table: ?

Top Kingsport fm.	201'
Top M.Bed	36[illegible]
Top B Bed	421[illegible] (?)
Base Kingsport fm.	465
Top E Bed	477

0-97 Overburden
-101½ Lt. med. gr. dol.(bleached); from 00-101½ v. mott. w/ few eyelets; chert nod at top.
-103 Med. to med. dk. gr. dol; mott.
-114 Lt. (lt. med.) gr. dol; lt. mott; sandy green shale at base.
-116 Lt. med. gr. dol; mott; few ss grains top 3".
-117½ Lt. gr. sugary dol. to some re-xl; v. silic; bott. few inches re-xl; mott; chert nod at base.
-015½ Lt. gr. dol; bleached chert nod at 120; then grades to lt. med. gr. w/ lt. bands (dip 36°).
-133 Med. gr. dol. (l.m. at top) mott w/ silic eyelets; bott. foot much darker w/ TBS at base.
-135½ Lt. gr. dol.
-140½ Lt. med. gr.sugary dol; silic to 140; mott; v. sandy 140-40½.
-153½ Med. gr. dol; white gangue eyelets to 143½; then lt. mott. w/ silic eyelets to 150; then few gangue eyelets 150-51½; shaly 153; sugary & v. mott 153-53½.
-154½ Med.(lt.) gr. dol; v. sandy & oolitic cherts bott. 6".
-160 Lt. med. gr. dol; bands (to mott) to 157 (dip 40°).
-165½ Med. gr. dol; mott w/ some silic eyelets; sli. darker towards base.
-167½ Lt. med. gr. dol; wavy bands (dip 40°) 1" CK type ss at base.
-169½ Lt. gr. dol; few ss grains bott 1" w/ TGS at base.
-170½ Med. gr. sugary dol; well mott & grades to l. med. gr. dol; silic bott. 6".
-171½ Lt. gr. sugary dol; some silica & occ. ss grains; ½" TGS at base.
-180 Lt. med. gr. dol; banded (dip 175-46°); few thin sands 173½-74½; TGS at 180.
-180 Med. gr. dol; shaly mott 180-80½, then mott w/ chert nod at base.
-190 Lt. med. gr. dol; bands to 186 (dip 39°) then from 186½ grades to almost med. gr. dol.
-191 Med. dk. gr. dol; shaly mott.
-194 Med. gr. dol; lt. mott; few eyelets.
-196 Lt. med. (m) gr. dol.
-197 Med. gr. dol.
-197 Dk. gr. dol; v. shaly mott.
-201 Lt. med. to lt. gr. dol; banded (dip 39°); bott 4-6 " CMss.
Top Kingsport 201.
-206½ Lt. med. gr. dol., lt. mott; occ. silic eyelet; shaly bott 2" w/ chert nod at base.
-209 Med. gr. dol; v. mott.
-215 Lt. gr. dol, few lt. bands top foot.
-216 Lt. med. gr. dol; (39°).
-219 Lt. gr. dol; lt. mott to bands & occ. eyelets; TBS base.
-221 Med. gr. dol; lt. bands (dip 40°); shaly bott 4" & TBS at base.
-224½ Lt. med. gr. dol; sandy near top; grades to med. dk. gr.; 1" TBS at base.
-229 Med. gr. dol; some mott. at top; grades to med. dk. gr.; 1" TBS at base.
-231 Med. dk. gr. dol; mott; chert nod at base.
-234 Lt. med. gr. dol; mott to bands; chert nod 232½.
-242½ Lt. gr. dol; chert nod near top & at 235½,35 3/4, & 237 (dip 48°) well banded & grades to lt. med. gr. dol; mott. ss grains 241-42½ w/ heavy ss to congl. at base.

-245 Lt. gr. dol; lt. mott; several cherts & some sec. chert 244-45.
-248 Lt. med. gr. dol; mott; sandy at base.
-250 Lt. re-xl to sec. chert; tr. brecc. at top.
-250½ Lt. gr. dol.
-252 Lt. & lt. med. gr. dol; congl.; v. sandy, several cherts bott 6"; some oolitic chert.
-260 Lt. med. gr. dol; (occ. sli. color changes); lt. bands (40° dip) TGS 255
-260½ Med. dk. gr. dol; shaly mott.
-261½ Lt. med. (med.) gr. dol; well mott. to silic eyelets (as TGS about 9" from top); TGS at base.
-277 Lt. gr. dol; lt. mott. to 271 w/ TGS 271; lt. bands 271-77 increasing to 277 (36° dip) w/ chert nods 274,75,75½.
-283 Lt. med. gr. dol; v. banded (wavy); sandy 280½-82; brecc. chert 282-83.
-304 Lt. gr. dol; lt. bands to 286½ (34° dip); lt. mott. 286½-92 w/ bleached chert nods 292 & 291; banded 292-95 w/ bleached chert nod 293 (dip 39°) v. banded (wavy) 295-97 w/ scatt. ss grains for 3" at 297, then TGS & chert nod; 6" chert nod at 302, nod at 303.
-304½ Lt. gr. sugary dol; many small specks of white silica & few ss grains; 1" chert & 1" TGS at base.
-305½ Lt. med. gr.dol; sugary.
-314 Lt. gr. dol; occ. eyelets to 306½; then lt. bands to 309, then well banded; (dip 35°); chert nod 310½, few ss grains at base, then ½" TGS & 3" chert nod.
-323 Lt. med. gr. dol; some bands to wavy bands; chert nod (pt. oolitic) at 317; 319-20 v. banded w/ several cherts & tr. silica & ss grains; chert nod 321½; some brecc. w/ jasperiod at 322 & also a heavy ss.
-324½ Med. gr. sugary dol.
-326½ Lt. med. gr. dol; TGS 325; bands 326-26 (33° dip); mott 326-33½ w/ occ. jasperiod zone 327½-28½.
-332 Lt. to lt. med. gr. dol; well banded (dip 33°); 1" TGS at base.
-337 Lt. med. gr. dol; banded; ss grains bott. few inches w/ 2" TGS & 4" chert nod at base.
-337½ Med. gr. dol.
-334 Lt. med. gr. dol, sugary 339-43; chert nod at 344, few eyelets 344-44½; lt. bands to 343 (36° dip at 345); from 346½-43 some brecc. w/ bli. jasperiod & some white gangue; black chert at 351; bands 351-53 (35° dip).
-362 Lt. med. gr. sugary dol; scatt. ss grains 354-55; 356-62 crackle w/ gangue & some jasperiod.

Top K Bed 362

-363½ Br. re-xl, 2" TGS at top.
-371 Lt. med. med. gr.dol; sugary to semi re-xl: 3" TGS at top; mott. & greenish.
-372½ Gr. mott. re-xl, eyelets, grades to semi re-xl.
-373 Lt. med. gr. dol; black chert nod & TGS at base.
-375 Lt. re-xl; greenish mott; becomes fine grained to semi re-xl.
-380 Br. mott. re-xl, few vugs; grades to semi re-xl.
-380½ Lt. med. gr. dol.
-382 Br. re-xl, tr. TGS & chert at top; sli. banded; tr. crackle w/ re-xl. & gangue; 2" of lt. gr. dol. at base w/ tr. ss & chert at base.
-386½ Br. mott. to sli. shaly re-xl, occ. crackle.

-3[illegible] Lt. med. gr. sugary dol; mott; tr. crackle w/ jasperoid & gangue & tr. Fed.
-3[illegible] Lt. br. vuggy & mott. re-xl.
-39[illegible] Lt. med. gr. dol; brecc. sealed w/ re-xl & green shale & occ. chert fragments.
-393 Lt. med. gr. dol., sugary; sli. banded (34° dip) (3' core loss 3[illegible]-97)
-39[illegible] Lt. br. re-xl, mott.
-400 Lt. gr. semi re-xl.
-404½ Lt. re-xl, 9" TOS at top (ptly re-xl): sli. shaly; 1" IOS 403½.
-409½ Lt. med. gr. sugary dol, some semi re-xl at top.
-410½ Lt. br. v. mott. re-xl.
-413½ Lt. gr. dol; brecc. w/ gangue to 410½, then w/ gangue & re-xl.
-415 Gr. to greenish dol & some dk. dol; brecc. w/ gangue & tr. re-xl.
-420 Med. gr. dol; "dry brecc."; v. shaly at 419.
-4[illegible] Brecc. chert sealed w/ re-xl & green shale.
-425 Med. gr. semi re-xl, some crackel tr. brecc. w/ white gangue.
-4[illegible] Lt. semi re-xl, bott. 6" chert nod.
-431½ Lt. med. gr. fine grained re-xl to semi re-xl, some crackle, gangue top part & re-xl bott. foot.

Top U Bed 431½ (?)

-434½ Lt. br. coarse mott. re-xl, chert at base.
-4[illegible] Lt. med. gr. dol; crackle.
-439½ Brecc. chert, some re-xl & green shale. (1' core loss 43[illegible]-43).
-4[illegible] Lt. gr. fine grained re-xl, (to semi?) crackle.
-443 Brecc. chert, re-xl & green shale.
-446½ Med. gr. dol; weak dry brecc.
-4[illegible]5 Lt. br. re-xl; some fixation at 451 & 452; crackle 450-53; shaly U sandy 453½-54; v. coarse re-xl 454½-54½; v. shaly 454½-55.
-4[illegible]7½ LS, tr crs. of [illegible]'s bott 2".
-4[illegible]4 Gr. to gray re-xl, tr. brecc. 458½-59.
-4[illegible]5 Lt. gr. fine grained re-xl.

[illegible] KINGSTON 465.

-470 Lt. med. gr. dol; sugary 466½-67 w/ TOS 467; chert nod 470.
-477 Med. gr. dol; lighter at top; mott; large chert nod at base; some crackle bott. ft.
- Top L Bed 477
-477½ Br. re-xl.
-479 T.D. Gr. semi re-xl., mott.

Invoice
Marietta, Ohio

B.H.Putnam,Appro
112 Third Street
Marietta, Ohio

April 30,1958

In account with
Putnam Drilling Company
PO Box 647

112 Third Street

Phone FR 4-6761

Statement for drilling Punchbowl Camp Creek Project DMRA Contract No. 4580
April,1958.

Core Hole No. ST-4

Footage Drilled	479' @	$3.00	$1437.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam,Operator

By Raymond Eddy
Raymond Eddy
Drilling Superintendent

L.H. PUTNAM [illegible] St-5

Copper Ridge Project Puncheon Camp Creek

[illegible] Idm - E 1033

Hole:	St-5	Collared:	4-2 -53
Farm;	Stapleton	Bottomed:	4-30-53
Loc:	N 50,254.21	Depth:	350'
	E.47,000.42	Casing:	AX73' BX 93'
Elev:	1433.94	Reaming:	None
Drilled by:	Putnam Drilling Co.	Cement:	None
Logged by:	J.W. Spears	Water Table:	?

Top Kingsport fm.	In Overburden, est. 69'
Top R. Bed	227'
Top S. Bed	292½'
Base Kingsport fm.	333
Top U Bed	343½

0-73 Overburden
Top Kingsport fm in overburden, est. 69'.
-77 Lt. (m.d.) gr. dol; shaly mott, occ. eyelet; bott foot oxidized.
-93 CAVITY
-94½ Lt. gr. dol.
-100½ Med. dk to dk. gr. dol; top foot bleached; well mott. to shaly; cherty 99-100.
-101 Med. gr. dol; sli. banding.
-103 Lt. med. gr. dol; bands to mottling; several cherts bott. 1½ feet.
-106 Med. dk. gr. dol; well banded; chert nod 104. (dip 35°).
-108 Med. gr. dol. (to med. dk.); lt. mott. to bands; sandy at 107, banded 107-08; sandy & tr. congl at 108 then ½" TGS.
-109½ Lt. gr. dol; 1" TGS at base.
-113 Lt. med. gr. dol; mott; grades to lt. gr. dol.
-119 Lt. gr. dol; ss & congl at 118 & oolitic chert 118; tr. of ss 118-119 w/ ss at 119. (34° dip).
-124 Lt. med. gr. dol; lt. bands to sli. mott; TGS 121 (sli. darker 121-22) (36° dip).
-127 Med. gr. dol; shaly mott; some oxidized zones; TGS at base.
-131½ Lt. med. gr. dol; lt. mott. to mott. w/ silic eyelets.
-136 V. lt. gr. dol; lt. mott. to 136 w/ TGS 136.
-143 Lt. gr. dol; v. lt. bands; chert nods at top & at 139,39½,40,40½,41 w/ ½" TGS 141; banded 141-43 (dip 36°) w/ chert nods 142 & 143.
-149 Lt. med. gr. dol, well banded (wavy); mott. ss grains 147-48½; bott 6" (148½-49) green shale, chert & re-xl; occ. sli. crackle throut bed;
-153½ Lt. gr. dol; bands; some fracturing to crackle filled w/ re- l (40°dip); heavy TGS at base.
-155 Lt. med. gr. dol., mott.
-160 Lt. gr. dol; bands (dip varies from 36°- 45°).
-162½ Lt. gr. dol; v. mott to banded; (dip 161- 35°); few ss grains bott. 4" & TGS at base.
-168 Lt. med. gr. dol; lt. mott; chert nods 165,66,66½,66 3/4,& 67½.
-169 Lt. gr. sugary dol; silic, crackle.
-176 Lt. gr. dol; brecc 169-70 w/ green shale & gangue; crackle 171½ w/ strong ZnS shine; bands 172-76 (dip 173 - 34°) & tr. of crackle; chert nods 176 & 177; tr. FeS 172½ ; few bands at 179 (dip 32°); tr. FeS 180½ well banded 181-84; cherty 182½-83 w/ tr. ss; brecc. chert nods 184-185; brecc. 185½-86 w/ chert nod 186.
-186½ Med. dk. gr. dol; banded; sand & tr. FeS at 186½.
-189 Lt. med. gr. dol (to med. gr.) bands (dip 35°); tr. FeS at 188.
-192½ Med. gr. dol., mott; tr. FeS in crackle 190½-91½; grades to med. dk. mott dol.
-196 Lt. med. gr. dol; lt bands (35°) & occ. eyelets; grades to lt. gr.
-202 Lt. gr. dol; bands to mott; thin ss 197; brecc. 197-98 w/ heavy FeS; brecc. 200-202 w/ ZnS shines (est ½%) from 200½-02; shaly towards base w/ few ss grains then 1" TGS at base.
-203½ Lt. med. gr. dol; sli. darker top 2"; crackle 203-03½ w/ ZnS shine at 203½.
-207½ Med. gr. dol; mott; brecc. 203½-04½ w/ some re-xl & silic fragments in the gangue; ZnS shines 204-04½; brecc. w/ gangue 204½-06 w/ ZnS shine 205 & FeS shines 205-206; v. shaly & mott. 206-07½ w/ lt. crackle w/ FeS shines.

-209 Lt. gr. dol; lt. mott. to silic eyelets; heavy ZnS shine at 209 in crackle; brecc. chert nod.
-210½ Lt. med. gr. dol; banded; crackle w/ several chert fragments; ZnS shine 209 3/4 @ (dip 34°); brecc. chert nod at 210; ZnS shine 210½.
-222 Lt. gr. dol; lt. crackle; few as grains at 220½ then a TGS.
-224 Lt. med. gr. dol; lt. mott. & sugary & some lt. crackle.
-227 Lt. gr. dol, lt. bands; crackle w/ FeS shine at 225;(dip 35°); bott 6" brecc. & sealed w/ green shale & silica; few as grains at 226; TGS at base.
Top K Bed 227 feet.
-228 Br. mott. re-xl, TGS at base.
-229½ Med. gr. mott. sugary dol; heavy FeS 228-29.
-231 Lt. med. gr. mott. sugary dol.
-232 Med. gr. mott. sugary dol; crackle; TGS at base.
-235 Med. semi re-xl, shaly to mott.
-237 Lt. v. mott. to brecciated re-xl.
-238 Lt. med. gr. dol; lt. crackle w/ re-xl.
-240½ Lt. br. re-xl, v. shaly top 2".
-242 Br. re-xl, vuggy.
-244 Lt. med. gr. dol; brecc. (1' core loss 240-47).
-246 Brecc. chert sealed w/ sandy br. re-xl.
-248 Lt. med. gr. re-xl to semi re-xl, some brecc.
-249 Dk. br. re-xl.
-252 Blocks of lt. & lt. med. gr. dol, in re-xl, silica, chert & gangue.
-253 Lt. med. gr. dol.
-259 Lt. re-xl, v. mott. top foot, from 256 grades to semi re-xl, chert nod at base.
-261 Lt. med. gr. dol; chert nod at 260.
-264 Lt. br. shaly re-xl, 2" TGS at top.
-265 Med. semi & re-xl, v. shaly.
-270 Lt. med. gr. dol; sli. darker top 4-6"; then grades to lt. gr. dol w/ few eyelets.
-270 3/4 Br. re-xl.
-274½ Med. dk. (dk.) gr. dol; brecc., mott; occ. eyelet & vug; v. shaly to jasperiod at base.
-275 LS
-276 Dk. re-xl, brecc.
-277½ Med. gr. sug. dol. to semi re-xl, some crackle w/ re-xl & white gangue.
-281 Lt. med. gr. sugary dol; some crackle w/ re-xl; v. cherty at 281.
-289 Lt. med. gr. dol; brecc. to crackle w/ gangue 281-83; brecc. w/ silica & shale 283-83½; tr. re-xl & a chert nod at 284½; banded 284½-87 (dip 45°) & crackle; brecc. 287-89.
-292½ Lt. med. gr. dol., brecc; bott. foot has pieces of re-xl, shale & silica in the gangue.
Top S Bed 292
-294 Br. re-xl, occ. lt. crackle; few chert nods bott. foot.
-300 Lt. (lt. med.) gr. dol; banded; 295½-300 brecc. w/ much re-xl, shale & silica & chert.
-302 Green shale & silica & some re-xl.
-306 Re-xl, silica & chert; ZnS shine 303½.
-307 Lt. br. re-xl, silic; crackle; heavy ZnS shine 307-07½; chert nod 308.
-310½ Lt. med. (med.) gr. dol; some brecc. w/ re-xl and gangue.

-313 Gr. w. silic re-xl; heavy ZnS shine at 310½; occ. ZnS shine to 312½.
-315 Lt. br. re-xl, brecc. w/ hard silica at base.
-317 Br. re-xl, occ. crackle & some small vugs; chert nod at 317.
-320½ Lt. br. re-xl, ZnS shine 317-17½; shaly 317½-19, sandy 319-19½: then shaly w/ brecc. w/ sandy, FeS shine.
-325½ Gr. re-xl; sandy 322-324; FeS shine 325-325½.
-330½ Br. re-xl, some bands of crackle; FeS shine 329-30½.
-333 Lt. re-xl.
-333½ Br. gr. re-xl.
Base Kingsport from 333½ feet.
-34[illegible] Br. med. (med.) gr. dol; brecc. w/ re-xl & gouge top foot; & FeS shine at top; chert nod 339½, then 3" sugary dol e/ TGS at base.
Top U Bed 348½
-349½ Br. re-xl, large chert nod at top; pt oolitic.
-350 Gr. Lt. med. gr. semi re-xl to sugary dol, mott.

Invoice
Marietta Ohio

B.H.Putnam,Appro
512 Third Street
Marietta, Ohio

April 30,1958

In account with
PUTNAM DRILLING COMPANY
PO Box 547

512 Third Street

Phone FR 4-6761

Statement for drilling Puncheon Camp Creek Project DMEA Contract No. 4580
April,1958

Core Hole No. ST-5

Footage drilled	350'	@ $3.00	$1050.00

I hereby certify that to the best of my knowledge and belief the above invoice is correct and just and in accordance with the bid submitted by Putnam Drilling Company.

B.H.Putnam,Operator

By Raymond Eddy
Raymond Eddy
Drilling Superintendent

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1889

MAIN OFFICE AND LABORATORIES 610-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

ST. LOUIS, MISSOURI

CHEMISTS
INDUSTRIAL and ANALYTICAL

PICHER, OKLAHOMA

BATESVILLE, ARKANSAS

National Lead Company
P. O. Box 61
Thorn Hill, Tennessee

4-18-58

Samples from B. H. Putnam, P. O. Box 61, Thorn Hill, Tennessee

			ZINC
790419	GD-3-1	245½ - 47½ (2')	0.82
420	GD-3-2	247½ - 49½ (2')	1.96
421	GD-3-3	249½ - 252 (2½')	2.36

= 6½' @ 1.76 %

$9.75

CF-nls 65-979

THE ABOVE FIGURES ARE AS DETERMINED IN OUR LABORATORIES
ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

Form MF-104 (Rev.)
(April 1952)

RECEIVED MAY 16 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of FEBRUARY 1958 Docket No. DMEA 4580 Contract No. IDM-E 1088

Operator's Name NATIONAL LEAD COMPANY Minerals ZINC

Address 111 BROADWAY, NEW YORK, N.Y.

Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	3477.00	35,997.00	39,474.00			
Bulldozing						
Crosscutting						
Drifting						
REAMING	40.00	418.00	458.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
CORE BOXES	0	140.25	140.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	37.50	7.50	45.00			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
INCIDENTAL ALLOW. @ .18/FT.	208.62	2,159.82	2,368.44			
TOTALS	3763.12	38,722.57	42,485.69	3763.12	38,722.57	42,485.69

I certify that the above bill is correct and just and that payment therefor has not been received.

Date FEBRUARY, 1958 *Payee NATIONAL LEAD COMPANY

Per [signature] Title SUPERINTENDENT

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John, Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1881.56

Signature Helen R. Miller
(Authorized Certifying Officer)

Date MAY 14 1958 Vou. No. 172
(See other side)

6 ck

1881.56

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature V. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date MAY 12 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER DMEA FIELD TEAM REGION V Date MAY 12 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of FEBRUARY 1958 Docket No. DMEA 4580 Contract No. IDM-E 1088
Operator's Name NATIONAL LEAD COMPANY Minerals ZINC
Address 111 BROADWAY, NEW YORK, N.Y.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	FOOT	3477.00	1159	39,474.00	13,158	3.00	50,000	3.00
Churn REAMING	FOOT	40.00	20	458.00	249	2.00	5,000	2.00
Auger SAMPLING	EACH	37.50	30	45.00	36	1.25	550	1.50
Stripping CORE BOXES	EACH			140.25	75	1.87	150	2.00
Trenching								
Test Pits								
Roads and Trails INCID.								
ALLOW. @ .18/FT.	FOOT	208.62	1159	2,368.44	13,158	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		3763.12		42,485.69				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		3763.12		42,485.69				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date FEBRUARY, 1958 Operator NATIONAL LEAD CO.

Per [signature] Title SUPERINTENDENT

REMARKS:

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[signature]
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT

GRAINGER COUNTY, TENNESSEE

FOR FEBRUARY 1958

BY: W.T. HILL

DOCKET No. 4580
CONTRACT No. IOM-E 1088

DURING THE MONTH OF FEBRUARY, TWO HOLES WERE COMPLETED ON THE PUNCHEON CAMP CREEK PROJECT.

HOLE GD-1 (GREEN-DALTON FARM) WAS DRILLED 2115 FEET EAST OF DA-1 AND 600 FEET SOUTH OF GEOPHYSICAL STATION GP 11½. THE HOLE COLLARED IN THE MASCOT FORMATION AND WAS DRILLED TO A DEPTH OF 625 FEET. THE RESULTS ARE SUMMARIZED BELOW:

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-7	OVERBURDEN	---	-----	--
7-326	MASCOT	CMss @ 326	----	DOLOMITE WITH OCCASIONAL THIN BEDS OF RE-XL.
326-594½	KINGSPORT	"R" @ 497 "S" @ 560, T @ 594½	ZNS SHINES @ 487½, 491, 493, 498½, 512½, 523, 524, 525½, 538.	DOLOMITE AND RE-XL; IN PART BRECCIATED;
594½-625	LONGVIEW	"U" BED @ 607½.	----	DOLOMITE & RE-XL.

HOLE GD-2 WAS DRILLED 200 FEET NORTH OF GD-1. THE HOLE COLLARED IN THE MASCOT FORMATION AND WAS DRILLED TO A DEPTH OF 534 FEET. THE RESULTS ARE SUMMARIZED BELOW:

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-71	OVERBURDEN	----	----	--
71-190	MASCOT	CMss @ 190'	----	DOLOMITE.

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
190-475	KINGSPORT	"R" @ 356½; "S" @ 424½. "T" @ 475	408½-410½, 1% EST.; 419-419½, 2% EST.; 426-426½, 5%; SH @ 429, 432; 434-446, 12' @ 5.59%; OR 434-454, 20' @ 3.6%. 456-458, .36%; 458-464, 6' @ 4.23%; OR 456-470½, 12½' @ 2.71%. 495-496, 2.46%;	DOLOMITE & RE-XL; IN PART BRECCIATED.
475-534	LONGVIEW	"U" @ 487; L-3 @ 502.	SHINES @ 478½, 488; 491½-492, SHINES; 495-496, 2.46%; SHINES @ 502, 505½, 506, 507½, 508½, 510½; 515-520, 5' @ 2.95%.	DOLOMITE & RE-XL; IN PART BRECCIATED.

THE DRILLING HAS BEEN TEMPORARILY HALTED AS NATIONAL LEAD COMPANY IS WITHDRAWING FROM THE PROJECT. AS SOON AS THE ASSIGNMENTS TO B. H. PUTNAM, OPERATOR, HAVE BEEN MADE, THE DRILLING WILL BE RESUMED.

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1898

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

National Lead Company
P. O. Box 61
Thorn Hill, Tenn.

2-27-58

OUR NO.	MARK	DESCRIPTION	ZINC
738210	JA-2-1	631½ - 633	0.27
211	JA-2-2	593 - 595	0.60
~~212~~	~~VA-7-1~~		~~2.76~~
~~213~~	~~VA-7-2~~		~~4.32~~

3.50
~~$2.75~~

Bruce Williams

ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

20/32

65-464

INDUSTRIAL
AND
ANALYTICAL
CHEMISTS

The Bruce Williams Laboratories

ESTABLISHED 1898

MAIN OFFICE: 618-622 JOPLIN STREET
TELEPHONE MAYFAIR 3-1556

Joplin, Missouri

ENGINEERING
INSPECTIONS
AND
TESTS

BRANCH OFFICES:

306 VALLEY DRIVE
ST. LOUIS, MISSOURI
TELEPHONE HOBART 7-3226

219 TERMINAL WAREHOUSE BLDG.
LITTLE ROCK, ARKANSAS
TELEPHONE FRANKLIN 2-0693

CONNELL HOTEL BLDG.
PICHER, OKLAHOMA
TELEPHONE 710

March 12, 1958

National Lead Company
P. O. Box 61
Thorn Hill, Tennessee

		ZINC	RERUN
788920	GD-2-1	6.32	
921	GD-2-2	0.48	
922	GD-2-3	7.76	
923	GD-2-4	15.08	
924	GD-2-5	2.56	
925	GD-2-6	1.38	
926	GD-2-7	none detected	
927	GD-2-8	none detected	
928	GD-2-9	1.98	1.98
929	GD-2-10	0.44	0.40
930	GD-2-11	none detected	
931	GD-2-12	0.36	
932	GD-2-13	1.92	1.86
933	GD-2-14	6.04	
934	GD-2-15	4.74	
935	GD-2-16	0.20	
936	GD-2-17	1.50	1.50
937	GD-2-18	2.06	2.04
938	GD-2-19	5.00	
939	GD-2-20	2.46	
940	GD-2-22	4.24	
941	GD-2-23	2.48	
942	GD-2-24	1.30	

THE BRUCE WILLIAMS LABORATORIES

Bruce Williams

28 @ $1.25 = $35.

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.		DATE	AT REC. POINT	B.O. NO.
			OUR ORDER NO.			
CONTRACT	63	CODE		DATE	AT SHIP POINT	

SOLD TO
National Lead Company
Box 2047
Morristown, Tennessee

SHIPPED TO
Puncheon Camp, Tennessee

TERMS NET 30 DAYS
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 97042

INVOICE DATE 2-25-58

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
			To 625.' Core Drilling at Puncheon Camp, Tennessee as per agreement.					
		Prospect #	From / To		Total Feet	Unit Cost		Total Cost
		C D 1	0. / 625.		625.	$3.00		$1,875.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
Box 2047
Morristown, Tennessee

SHIPPED TO

Puncheon Camp, Tennessee

[redacted]
NO CASH DISCOUNT

PLEASE REMIT TO PITTSBURGH, PA.

INVOICE NO. 97087

INVOICE DATE 3-17-58

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
			To 534.' Core Drilling at Puncheon Camp, Tennessee as per agreement.					
		Prospect#	From / To		Total Feet	Unit Cost		Total Cost
		G. D. 2	0. / 534.		534.	$3.00		$1,602.00
		Reaming						
		G. D. 2	75. / 95.		20.	2.00		40.00
								$1,642.00
			WORK COMPLETED					

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

Form [illegible]-104 (Rev. April 1957)

RECEIVED FEB 2 [illegible] D.M.E.A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-42

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of January, 1958 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator National Lead Company Minerals Zinc

Address 111 Broadway, New York, N.Y.

Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	6843.00	29,154.00	35,997.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	210.00	208.00	418.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	51.50	88.75	140.25			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	2.50	5.00	7.50			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incidental Allow. @ .18/ ft.	410.58	1749.24	2159.82			
TOTALS	7517.58	31,204.99	38,722.57	7517.58	31,204.99	38,722.57

I certify that the above bill is correct and just and that payment therefor has not been received.

Date January 1958 *Payee National Lead Company

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 3758.79

Signature [signature] (Authorized Certifying Officer)

Date FEB 25 1958 Vou. No. 133

(See other side)

3758.79

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date FEB 20 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER DMEA FIELD TEAM REGION V Date FEB 20 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(*a*) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(*b*) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(*c*) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

RECEIVED FEB 27 1958 D.M.E.A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month January 195 Docket No. DME 4580 Contract No. Min-E 1088
Operator's Name National Lead Company Minerals Zinc
Address 111 Broadway, New York, N.Y.

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	6843.00	✓2281	35,997.00	11,999	3.00	50,000	3.00
Reaming	Foot	210.00	✓105	418.00	209	2.00	5,000	2.00
Sampling	Each	2.50	2	7.50	6	1.25	550	1.50
Stripping Core Boxes	Each	51.50	25	140.25	75	1.87	150	2.00
Trenching								
Test Pits								
Roads and Trails								
Incid. Allow. @ .18/ ft.	Foot	410.58	✓2281	2159.82	11,999	.18	50,000	.18
Total Distributed Costs		7517.58		38,722.57				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		7517.58		38,722.57				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Remarks:

January 1958 Operator National Lead Company

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

(For Government use only)

[signature]
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

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GPO 872894

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT

GRAINGER COUNTY, TENNESSEE

FOR JANUARY 1958

BY: W.T. HILL

Docket No. 4580
Contract No. Idm-E 1088

During the month of January, three holes were completed on the Puncheon Camp Creek Project.

On the Dalton farm, hole DA-2 was drilled 200 feet north of DA-1. The hole collared in the Mascot formation and was drilled to a depth of 715 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-44	Overburden	—	—	—
44-401	Mascot	CMss @ 401'	Shine @ 313'	Dolomite with occasional thin beds of re-xl. Several cavities in upper part.
401-679	Kingsport	"R" bed @ 580½; "S" bed @ 643½; "T" bed @ 679	Shine @ 491	Dolomite & re-xl; some LS; occasional crackle brecc. with trace of FeS.
679-715	Longview	"U" bed @ 689	—	Dolomite and re-xl; bott. 9' brecciated.

On the Elvin Jackson farm, two holes were drilled. Hole JA-1 was collared in the Mascot formation and was drilled to a depth of 836 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZONS	ZINC MINERALIZATION	REMARKS
0-27	Overburden	—	—	—
27-545	Mascot	CMss @ 545	—	Dolomite with occasional thin beds of re-xl.
545-815½	Kingsport	"R" bed @ 711½; "S" " " 760; "T" bed @ 815½	Traces of ZnS @ 674½, 684	Dolomite and re-xl w/one thin bed of LS; crackle & rubble breccia scattered throughout; FeS shines from 628-752.
815½-836	Longview	"U" bed @ 824½	—	Dolomite and re-xl.

Hole JA-2 was drilled 200 feet north of JA-1. The hole collared in the Mascot formation and was drilled to a depth of 731 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-27	Overburden	—	—	—
27-434½	Mascot	CMas @ 434½	—	Dolomite w/occasional thin beds of re-xl; occasional breccia from 320-434½ with scattered FeS shines.
434½-693	Kingsport	"R" bed @ 597; "S" bed @ 648; "T" bed @ 693	Shines @ 557; 558½-559½; 579½-581½; 589-591; 593-595, Est. 1% Zn; 631½-633, Est. ½% Zn.	Dolomite and re-xl; in part brecciated, FeS shines from 563-690.
693-731	Longview	"U" bed @ 703	—	Dolomite and re-xl.

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

CHEMISTS
INDUSTRIAL and ANALYTICAL

ESTABLISHED 1898

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

National Lead Company
Thorn Hill, Tennessee

12-28-57

OUR NO.	MARK	DESCRIPTION	[redacted]	
			ZINC	IRON
784868	60-6-1		0.02	----
869	6-2		None Detected	----

ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

CF-nls

904

Bruce Williams

CHARGE $2.50

Statement

Jefferson City, Tenn. 1/11/58 195

M National Lead Co

Thorn Hill, Tenn

MOYERS CABINET SHOP

108 Carson Street

Telephone 3113

25- AX Core Boxes 5' Long	@ 2,00	50,00
500- Grade Stakes	.3	15,00
		65,00
	Tax	1,95
		66,95

THANKS

25 CORE BOXES $50.00

TAX 1.50

TOTAL $51.50

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96963

INVOICE DATE 12-31-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 836.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		J-1	0.	836.		836.		$3.00	$2,508.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tennessee

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

INVOICE NO. 97011

INVOICE DATE 1-25-58

SHIPPED TO

Puncheon, Tennessee

PLEASE REMIT TO
PITTSBURGH, PA.

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
			To 730.' Core Drilling at Puncheon, Tennessee as per agreement.					
			Prospect # From To		Total Feet		Unit Cost	Total Cost
			JA 2 0. 730.		730.		$3.00	$2,190.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

FORM P133A

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE 63			DATE	AT SHIP POINT	

SOLD TO: National Lead Company
Box 2047
Morristown, Tennessee

[redacted]S
NO CASH DISCOUNT

PLEASE REMIT TO PITTSBURGH, PA.

INVOICE NO. 96971

INVOICE DATE 1-22-58

DATE SHIPPED

SHIPPED VIA

SHIPPED TO: Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 715.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		DA-2 ~~B2~~	0.	715.		715.		$3.00	$2,145.00
		Reaming							
		DA-2 ~~B2~~	62.	167.		105.		2.00	210.00
									$2,355.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

Form MF-104 (Rev.)
(April 1952)

RECEIVED JAN 16 1958 D.M.E.A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 33

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of December 1957 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name National Lead Company Minerals Zinc
Address 111 Broadway, New York, N.Y.
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	3396.00	25,758.00	29,154.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	—	208.00	208.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	88.75	88.75			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	—	5.00	5.00			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incidental Allow. @ .18/ ft.	203.76	1545.48	1749.24			
TOTALS	3599.76	27,605.23	31,204.99	3599.76	27605.23	31204.99

I certify that the above bill is correct and just and that payment therefor has not been received.

Date December 1957 *Payee National Lead Company

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1799.88

Signature [signature]
(Authorized Certifying Officer)

Date JAN 14 1958 Vou. No. 108

(See other side)

1799.88

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature W. J. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date JAN 7 - 1958

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER DMEA REGION V Date JAN 7 - 1958

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MI-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of December 1957 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name National Lead Company Minerals Zinc
Address 111 Broadway, New York, N.Y.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	3396.00	1132	29,154.00	9718	3.00	50,000	3.00
Churn Reaming	Foot	---	---	208.00	104	2.00	5,000	2.00
Auger Sampling	Each	---	---	5.00	4	1.25	550	1.50
Stripping Core Boxes	Each	---	---	88.75	50	1.77½	150	2.00
Trenching								
Test Pits								
Roads and Trails Incidental Allow. @ .18/ft.	Foot	203.76	1132	1749.24	9718	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		3599.76		31,204.99				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		3599.76		31,204.99				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date December 1957 Operator National Lead Company

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

[signature]
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc.". The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

SHIPPED TO

Puncheon Camp, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96913

INVOICE DATE 12-18-57

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
			To 260.' Core Drilling at Puncheon Camp, Tennessee as per agreement.					
		Prospect #	From / To		Total Feet		Unit Cost	Total Cost
		CO-7	0. / 260.		260.		$3.00	$780.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	63 CODE			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96948

INVOICE DATE 12-24-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 872.'	Core Drilling at Puncheon Camp, Tennessee as per agreement.					
		Prospect #	From / To		Total Feet		Unit Cost	Total Cost
		DA-1	0. / 872.		872.		$3.00	$2,616.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT

GRAINGER COUNTY, TENN. FOR DECEMBER 1957

BY: W.T. HILL

Docket No. 4580
Contract No. Idm-E 1088

During the month of December, two holes were completed on the Puncheon Camp Creek project.

On the Coffman farm, hole CO-7 was drilled 200 feet north of CO-6. The hole collared in the Kingsport formation and was drilled to a depth of 260 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-80	Overburden	—	—	—
80-238	Kingsport	Top of "R" @ 131½; "S" @ 188; "T" @ 238	—	Dolomite and re-xl; in part brecciated; numerous cavities.
238-260	Longview	—	—	Dolomite and re-xl.

On the Dalton farm, hole DA-1 was drilled 700 feet east of MG-1 and 580 ± feet NE of MG-5. The hole collared in the Mascot formation and was drilled to a depth of 872 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-47	Overburden	—	—	—
47-544½	Mascot	CMss @ 544½	—	Dolomite w/occasional thin beds of re-xl; some FeS mineralization.
544½-825	Kingsport	Top of "R" bed @ 745; "S" @ 795½; "T" @ 825.	Tr. ZnS @ 666	Dolomite, re-xl, and limestone; in part brecciated; heavy FeS mineralization from 595-688; lt. FeS from 688-758.
825-872	Longview	—	833-835½, 2½' @ ⅛% Est; 836-838, 2' @ ½% Est.	Dolomite, re-xl, and limestone.

Drilling is now underway at location DA-2, 200 feet north of DA-1 and at JA-1, 1200 feet west of the Coffman fence of holes.

NATIONAL LEAD CO. D.D. DA-1

Copper Ridge Project - Puncheon Camp Creek

DMEA Idm-E 1088

Hole No: DA-1

Farm: W.B. Dalton

Loc: N 48,469.19
E 44,894.01

Elev: 1403.44

Drilled By: Joy Mfg. Co.

Logged By: J. Spears

Collared: 12/2/57

Bottomed: 12/20/57

Depth: 872

Casing: BX 47'; AX 60'

Reaming: None

Cement: None

Water Table: ?

Top Kingsport	544½
Top R bed	739½
Top S bed	795½
Base Kingsport	825
"U" bed	835½-45

cc/ New York
C.D. Hulin
Leroy Seharon
B.H. Putnam
H.B. Burwell
DMEA

0-47	Overburden
-49	Med. dk. gr. dol; v. mott; chert nod @ top; v. oxid. top 6".
-55	Med. gr. dol; banded.
-51½	Med. dk. gr. dol; v. mott; 3" shaly, sandy chert @ base.
-53½	Chert & sec. chert w/hvy. ss then chert nod @ base.
-56	Lt. gr. dol; lt. mott.
-70	Lt. med. gr. dol.
-71½	Med. gr. dol; sandy bott. foot; mott.
-75	Lt. med. gr. dol; lt. banding.
-76	Lt. med. semi re-xl; lt. mott.
-79	Dk. gr. dol; v. mott; dk. chert nod 76½.
-86½	Med. dk. gr. dol; mott. w/silic eyelets to 83'; v. mott. 83-86½ w/few ss grains bott. 4".
-88	Med. gr. dol; banded; 6" sec. chert 87-87½.
-89	Lt. gr. dol; well banded; thin ss & TGS @ base.
-95	Med. gr. dol; lt. mott. to 92½ w/1" TGS 92½; well mott. 92½-95.
-103	Lt. med. gr. dol; sands 97-98; thin ss 100½; grades to lt. gr.
-105	Med. gr. dol; well mott.
-106	Dk. gr. dol; well mott.
[illegible]	
-118½	Lt. med. gr. dol; lt. banding 106-11; lt. mott. 11-18½; oxid. 15-16 w/TBS 16.
-120	Med. gr. dol.
-129	Lt. med. gr. dol; TGS 126; oxid. 27-27½; thin ss 27½; mott. 26-29.
-130	Med. gr. dol.
-132	Lt. gr. dol.
-133	Lt. med. sugary dol; mott.
-135½	Lt. med. gr. dol.
-137	Lt. gr. dol; banded to mott.
-141½	Med. gr. dol; banded to mott.
-146	Lt. med. gr. dol; vert. ~~sm~~ ox. shear 141½-42½.
-147½	Med. dk. gr. dol; TBS 146½; large dk. chert nod @ 147½.
-158	Lt. med. gr. dol. to med. gr; lt. banding to mott. 47½-56½; v. sandy 56½-58.
-159½	Med. dk. gr. dol; shears @ base.
-161½	Med. gr. dol; sheared; v. mott.
-168	Med. dk. gr. dol; mott. 61½-63; 6" chert nod @ base.
-169	Lt. med. gr. dol; banded.
-179	Med. gr. dol; mott; TGS 177.
-180	Lt. med. gr. dol; v. sandy 79-80 w/TGS 180.
-190	Lt. gr. dol; red mott; few ss grains 88-88½; TGS 88½.
-192	Lt. med. gr. dol; red. mott.
-193	Med. gr. dol; mott.
-193½	Lt. med. gr. dol.
-197	Brecc. chert & sec. chert (2' core loss 194-99)
-199	Lt. gr. dol; hvy. ss top 3".
-200	Med. gr. sugary dol.
-202½	Med. semi re-xl; mott; (to sug. dol.)
-205	Dk. gr. v. mott. semi re-xl.
-213	Lt. gr. dol; shears @ top; lt. banding; scatt. ss grains 209-09½; chert nod 209½.
-215	Lt. med. gr. dol.
-221	Med. gr. dol; mott.
-222½	Brecc. chert w/semi re-xl; bott. 6" sec. chert.
-225	Lt. gr. dol.
-231½	Lt. med. gr. dol; lt. banding to 230; well mott. 230-31½.
-243½	Med. gr. dol; mott. 231½-33½; v. hvy. to GM sands 243-43½ w/chert nod 243½.
-244	Lt. gr. dol; v. sandy.
-245	Brecc. chert; some sand top 2".
-248	Lt. med. gr. dol; crackle; FeS shine 247½.

-248½ Lt. gr. dol; mott; crackle.
-249½ Brecc. chert.
-251 Lt. gr. dol; several chert nods bott. 6"; TGS @ base.
-253 Lt. re-xl; mott; hvy. ss 252½; then shaly, sandy, & cherty to base.
-256½ Lt. med. semi re-xl; mott.
-264 Lt. med. gr. dol; lt. mott. to 258½; scatt. sands 258½-260 w/heavier sands towards base; eyelets 261-64.
-265½ Med. gr. dol; eyelets; shaly, bands.
-271½ Med. dk. gr. dol; sugary; mott.
-272½ Lt. re-xl; v. cherty; scatt. ss grains.
-275 Lt. med. to med. gr. dol; mott; eyelets 275-76.
-296½ Med. gr. dol; few ss grains & TGS @ 290; mott. 290-93½.
-298½ Lt. re-xl; dk. chert nod 297½.
-299½ Med. gr. re-xl; v. mott.
-300½ Med. dk. gr. dol; mott; sugary.
-301 Lt. v. silic. re-xl.
-304 Med. gr. dol; TBS @ base.
-310½ Dk. gr. dol; 306-10½ mott.
-313 Med. dk. gr. dol; v. mott.
-314 3" re-xl; then lt. gr. dol.
-315 Lt. med. gr. dol; many eyelets; TGS @ base.
-320½ Med. dk. to med. gr. dol; mott; eyelets.
-325 Dk. gr. dol; shaly; mott.
-326½ Med. gr. dol; banded.
-330 Lt. gr. dol; well banded to mott. 326½-28; lt. mott. 328-30 w/chert nod 330.
-336 Lt. med. gr. dol; 335-36 v. mott; sandy 335½-36.
-341½ Lt. gr. dol; hvy. ss & large chert nod 336½-37; v. mott. to 337; then lt. mott; scatt. sands 340½-41½; heavier bott. 6".
-347 Med. gr. dol; sli. banded (some small zones lt. med. gr.).
-349 Lt. med. gr. dol. to semi re-xl; mott; v. silic. w/scatt. ss grains.
-358½ Med. gr. dol; oolitic chert nod 351½; v. mott. 352½-55; mott. 355-58½.
-361 Dk. gr. dol; v. mott.
-362 Med. gr. dol; banded; sandy top 3".
-367½ Lt. med. gr. dol; v. mott. 362-66 w/tiny vugs to 64 & v. sandy 364-66; mott. 66-67½.
-382 Dk. gr. dol; mott. to 372.
-383½ Med. dk. gr. dol.
-385 Med. gr. dol; fault 384-85.
-386 Dk. gr. dol; mott; sheared.
-387 Med. gr. dol.
-388½ Dk. gr. dol; v. mott.
-398 Lt. med. gr. dol; v. mott. to 396; v. sandy 395½-96; oxid. 396-97.
-400 Med. gr.dol; mott.
-406 Med. dk. gr. dol; mott.
-408 Lt. gr. dol; vl mott; silic & cherty; 1" silic TGS @ 407½; few ss grains 406.
-411 Med. gr. dol; v. mott & sugary; 410-11 few ss grains & poss. edgewise congl.
-411½ Lt. silic. re-xl.
-416 Med. gr. dol; thin fault then chert nod @ 413½; few ss grains 415-15½; shears @ 415½ & silic. TGS; v. cherty 415½-16.
-417 Lt. gr. dol; tr. brecc. @ top.
-419½ Lt. med. gr. dol.
-423 Med. gr. dol; blue mott; large chert nod @ base.
-426½ Lt. med. gr. dol; well banded 423-25; 2/3 chert 425-26½.
-430½ Med. gr. dol; fault 426½-27.
-433 Brecc . chert sealed w/chert; <u>est. 1% FeS.</u>
-437½ Lt. med. gr. dol; <u>lt. crackle 33-35 w/est. ½% FeS</u>; 35-35½ fossiliferous oolitic chert.
-445 Med. gr. dol; blue mott. to 440; v. mott. 440-43½ w/few ss grains 442½-43½.

-460 Lt. med. gr. dol; v. mott. 446-49; banded 449-50; v. mott. & sugary 450-52 w/sand @ 50; few sands 452-52½; mott. 452½-54 w/ a sand @ 454.
-470 Med. gr. dol; 465-68 mott.
-473 Med. dk. gr. dol.
-476 Med. gr. dol; banded; large chert nods @ base.
-478½ Lt. med. gr. dol.
-481 Med. gr. sugary; sandy; edgewise congl.
-485 Lt. med. gr. dol; thin steep fault @ top (apparant displacement 3") eyelets 481½-85.
-487 Med. gr. dol; eyelets; shears 486, 487.
-495 Med. dk. gr. dol; occ. mott. & occ. lt. crackle.
-496 Med. gr. dol; 495½-96 hvy. ss & oolitic chert.
-498½ Lt. med. gr. dol; lt. mott; TBS @ base.
-503½ Med. to lt. med. gr. dol; well mott. to 500; then lt. mott.
-506½ Dk. gr. dol; chert nod @ 505.
-512 Med. gr. dol; lt. banding; thin sands 508½, 09, 10 w/TGS 510; well mott. 510-12; w/FeS shine 510½; occ. steep shear; few ss grains & TGS @ 512.
-517 Lt. med. to med. gr. dol; well banded to 516.
-521 Med. gr. to med. dk. gr. dol; TGS @ 521.
-528 Lt. med. gr. dol; mott. to 523 w/few ss grains & TGS @ 523; lt. banding 523-28 w/occ. lt. crackle; FeS shine 528, grades to med. gr.
-532 Med. gr. dol. to lt. med. gr; occ. lt. crackle; FeS shine 530½.
-541 Dk. gr. dol; well mott. to 535; mott. 539-40; v. mott. 40-41.
-550 Med. dk. gr. dol; sli. banded to 544 w/sand @ 544 & 1" CM @ 544½, fault (bedding plane, 50) TOP KINGSPORT 544½
-558½ Med. gr. dol; v. mott. 550-51 w/TBS 551; lt. mott. 551-53; then v. lt. banding 53-58½.
-562 Lt. med. gr. dol; mott; few eyelets.
-568 Med. gr. dol; fault 563½-64½. (N 20° W, 70 NE)
-570 Med. dk. gr. dol.
-574 Dk. gr. dol; v. mott.
-579½ Med. dk. to med. gr. dol; lt. crackle; v. lt. banding; chert nod 579½.
-583½ Med. gr. dol; banded; sandy 583-83½.
-593 Lt. med. to med. gr. dol; 1" sandy zone 1" from top; 586½-88½ blue mott; 588½-93 mott. w/tr. of crackle.
-602½ Lt. gr. dol; 593-98½ crackle to brecc; FeS shines 596-98½; lt. crackle 598½-600; v. sandy & mott. (to congl.) 600-01 w/tr. oolitic chert @ 601; v. sandy & oolitic cherts 602-02½.
-616½ Med. gr. dol; occ. crackle; brecc. w/FeS 608-08½; v. mott. 609-11; FeS shines 612-13 & 614-16 (est. 1%)).
-626 Lt. med. gr. dol; brecc. 617-18 w/est. 2% FeS; shears 619-20 (N 45° W, 45 NE); tr. brecc; brecc. chert & FeS @ 620; crackle 623-26 w/est. ½% FeS & some grn. gangue.
-629 Med. gr. dol; crackle w/est. ½% FeS; chert nods 627½, 28, 29.
-656½ Lt. med. gr. dol; v. banded to mott. 629-38; crackle w/FeS shines 632-38 (1½' core loss 628-38), few ss grains 636½-38 becoming stronger towards 638 & a chert nod @ 638; lt. banding 638-44½; 6" TGS 644½-45; mott. 646-47; brecc. 649-55 w/many chert frag's & est. 2% FeS (cherts 649½, 50, 52, 52½, 53, 54, 55, 55½) v. mott. 656-58; brecc. 658-63 w/est. 2% FeS & some grn. gangue & occ. chert fragments; chert nod 665½.
-667½ Lt. silic. dol. (many white specks) sheared; mott; few ss grains; ZnS shine @ top; then few FeS shines.
-673 Lt. gr. dol; brecc. 667½-72 w/est. 1½% FeS; some grn. gangue.
-695 Lt. med. to lt. gr. dol; lt. crackle & shears to 677½ w/few FeS shines; brecc. 677½-83 w/est. 3% FeS & large chert nod 681; banded & crackle 683-85 w/FeS shines; brecc. 685-88½ w/est. 2% FeS; 2" TGS 688½; banded 688½-89½ w/FeS shine @ 689½; TGS @ 689½; 692-93 v. mott. to banded & crackle w/FeS shines.
-697 Top 6" brecc. chert w/FeS shines; then 2" of re-xl w/ silic; then med. mott. semi re-xl.
-702 Lt. gr. to lt. med. gr. dol; crackle w/occ. FeS shine.
-703 Med. gr. dol; mott.
-710 Lt. gr. to lt. med. gr. dol; scatt. ss grains 709-10 w/3" TGS @ 710.
-712 Med. gr. dol.

-716 Lt. med. - med. gr. dol; well mott. & sugary; TGS @ base.
-718½ Lt. med. gr. dol; grades to med. gr. in bott. feet.
-725 Med. to med. dk. gr. dol; crackle w/est. 1% FeS; 718½-19½ & 723-25; sli. banded 721-25; 1" band of silica @ base.
-731 Lt. med. gr. dol; lt. banding; few v. thin shears.
-733 Med. gr. dol; occ. crackle w/FeS shine; scatt. ss grains & ½" TGS @ base.
-736 Lt. med. gr. dol; mott.
-739½ Med. gr. dol; brecc. to crackle w/FeS shines 736-38½; 38½-39½ sealed w/grn./ shale.
-743½ Mixture of dol. & lt. re-xl.
-746½ Med. dk. v. mott. semi re-xl to re-xl; tr. crackle w/FeS shines.
-747½ Dk. br. mott. re-xl.
-748½ Lt. med. gr. dol.
-751½ Br. re-xl; some dol. blocks; v. much grn. shale w/some chert fragments.
-756 Br. re-xl; mott; FeS shine w/gangue @ 755.
-758 Med. gr. dol; top 6" some brecc. w/shale & re-xl.
-763 Br. mott. re-xl; occ. lt. crackle w/FeS shine.
-765 Lt. re-xl; lt. mott; few eyelets & vugs.
-766 Lt. med. gr. dol; chert nod @ base.
-774 Med. re-xl; mott.
-781 Lt. med. gr. semi re-xl - sugary dol. - dol.
-781½ Dk. re-xl.
-784 Dk. gr. dol; lt. crackle; grn. shale @ base.
-790 LS; grn. & red shale @ 788½.
-790½ Dk. re-xl.
-791 Lt. med. gr. dol; sheared to brecc. w/some grn. shale.
-793 Br. re-xl; bott. 9" chert nod.
-795½ Lt. med. gr. dol; lt. banding.
-799½ Br. v. mott. re-xl; cherty & shaly; 1" TGS @ base.
-800 LS; 1" TGS @ base.
-801½ Med. dk. gr. dol.
-802½ Lt. gr. dol.
-805½ Dk. gr. dol. w/few lt. gr. blocks sealed w/re-xl & shale.
-806 Dk. re-xl; cherty @ 806.
-811 LS; 6" dk. re-xl & grn. shale @ 807-08½; TGS @ 809.
-812½ Br. re-xl; top 6" partly LS (1½' core loss 806-16)
-814 Gr. re-xl; crackle 812½-14.
-816 Br. re-xl; mott; lt. crackle; chert nod 815 (2½' core loss 816-21)
-821 Gr. re-xl; v. mott.
-824 Lt. re-xl.
-824½ Br. re-xl.
-825 Lt. semi re-xl or fine grained re-xl.
-827 Lt. med. gr. dol.
-832 Med. dk. gr. dol.
-835½ Med. gr. dol; crackle; ZnS est. 1%; 833-35½.
-835½ Chert & re-xl (doleclastic chert)
-841 Lt. med. gr. semi re-xl to sugary dol; mott; lt. crackle w/est. ½% ZnS 836½-38; 2" grn. shale @ base.
-842 Lt. re-xl; TGS @ base.
-843 LS
-844 Dk. shaly re-xl & grn. shale w/tr's of LS.
-845 LS & grn. shale.
-848 Dk. gr. dol; many eyelets; brecc. top 1½' sealed w/grn. shale.
-850 Med. gr. sugary dol; mott.
-851½ Lt. med. gr. dol; occ. thin zone of re-xl; chert nod 853; thin ss & TGS @ 583½.
-851½ Re-xl & chert; dk. chert nod @ top; 2" lt. re-xl; 4" chert, then alternating br. re-xl & chert about 6"/ unit; TGS @ base.

-852½ LS; 1" shaly re-xl @ 861.
-864 Lt. med. gr. dol; scatt. ss grains bott. 6".
-865 Lt. re-xl to LS.
-869½ LS; 3" dk. re-xl @ 866; TGS @ base.
-872 Misture of dk. re-xl & lt. LS. (TD)

Note: Fault measurements are made by orienting the core with the bedding planes striking E-ward dipping to the south.

NATIONAL LEAD CO. D.D. CO-7

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E 1088

Hole No: CO-7

Farm: D.F. Coffman et ux

Loc: N 48,372.80
E 42,824.59

Elev: 1571.92

Drilled By: Joy Mfg. Co.

Logged By: J.W. Spears

Collared: 12-2-57

Bottomed: 12-6-57

Depth: 260'

Casing: BX 80; AX 99

Reaming: None

Cement: None

Water Table: ?

TOP KINGSPORT	Collared in Kingsport
TOP R BED	131½
TOP S BED	188
BASE KINGSPORT	238

cc/ N.Y. Office
C.D. Hulin
Leroy Scharon
B.H. Putnam
H.B. Burwell
DMEA (5)

0-80	Overburden
-81	Lt. gr. dol; banded; chert nod 81.
-90	Cavity.
-99	Med. gr. dol; cherty (3' core loss 96-99)
-115½	Lt. med. gr. dol; (2½' core loss 99-102; 1' core loss 102-04; 2' core loss 104-07; ½' core loss 107-08½; 2' core loss 109½-12½) ox. @ 108; vert. ox. shears 110-11; banding 112-14.
-120	Lt. gr. dol; mott. to banded; oxl crackle to brecc. 118-19; fault 119-20.
-125½	Lt. med. gr. dol; sheared; chert nod 123½; hvy. grn. shale then chert nod 125½.
-128½	Med. gr. dol; mott.
-131½	Lt. gr. dol; mott.
	TOP R BED 131½
-132½	Lt. br. re-xl; mott; shaly; grn. shale 132-32½.
-136	Br. re-xl; mott; large chert nod 134; hvy. ss then chert nod @ 135.
-139	Lt. gr. dol.
-141	Lt. med. gr. dol. (sugary) to semi re-xl; mott.
-142	Br. re-xl; crackle.
-143	Lt. gr. dol; brecc. w/grn. shale & re-xl; hvy. TGS @ base.
-152	Lt. gr. re-xl; mott; lt. crackle.
-153½	Lt. med. gr. dol; sugary; chert nods 152½, 153½.
-161	Lt. gr. dol; sugary to semi re-xl; lt. mott. 155-61; oxl crackle 158-60.
-163½	Med. gr. dol; sugary; well mott; occ. vug.
-164	Br. re-xl.
-169	Lt. gr. to med. gr. dol; ox. shears 167-69 (1' core loss 167-71).
-170	Dk. br. re-xl; mott; crackle; several chert nods.
-173	Med. dk. gr. dol; crackle; chert nod 173.
-175	Lt. med. gr. dol; brecc; gouge & some grn. shale; oxid. (1' core loss 173-75)
-176	Cavity
-177	Dk. br. shaly, banded re-xl.
-181	Med. gr. dol; sugary; mott; brecc; (2' core loss 177½-181½).
-183	Br. re-xl; 182-82½ sec. chert & chert; v. brecc. to fault 182½-83 (½' core loss 81½-83).
-183½	Lt. gr. fine grained re-xl; crackle.
-188	Lt. med. gr. dol; sugary; lt. mott; brecc; chert nod 187; brecc. w/re-xl 187-88.
	TOP S BED 188
-189	Mixture of re-xl & sec. chert; oxid; chert nod 189.
-193	Lt. med. gr. dol; crackle 189-91½; brecc. (some re-xl) 191½-92½.
-196	Gr. re-xl; chert nod 193½; band. dol. 194-94½; jasperoid; chert nod 196.
-203½	Lt. br. re-xl; brecc; silic.
-208	Dk. br. re-xl; brecc. 205-08.
-209	Lt. med. gr. dol.
-210½	Coarse br. jasperoid re-xl & few blocks lt. med. gr. dol.
-215½	Cavity
-218	Lt. br. mott. re-xl; brecc.
-226	Br. re-xl; lt. crackle.
-231	Lt. grl re-xl; cavity 227-30.
-232½	LS, gr; bott. 6" partly re-xl.
-237	Gr. re-xl.
-238	Lt. gr. fine grained re-xl.
	BASE KINGSPORT FM. 238
-240½	Lt. med. gr. dol; top foot semi re-xl; chert nod 240½.
-246	Med. gr. dol; chert nod 242 (245)
-246½	Lt. gr. silic. re-xl.
-251	Med. gr. dol; chert nod @ base.
-256	Lt. gr. fine grained re-xl.
-258½	Lt. med. gr. dol; mott.
-260 TD	Lt. v. silic. re-xl.

Form MF-104 (Rev.)
(April 1952)

RECEIVED JAN 16 1958

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 33

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of November 195 7 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name National Lead Company Minerals Zinc

Address 111 Broadway, New York, N.Y.

Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	7413	18,345.00	25,758.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	—	208.00	208.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	88.75	88.75			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	5.00	—	5.00			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incidental Allow. @ .18 /ft.	444.78	1,100.70	1,545.48			
TOTALS	7,862.78	19,742.45	27,605.23	7862.78	19742.45	27605.23

I certify that the above bill is correct and just and that payment therefor has not been received.

Date November 1957 *Payee National Lead Company

Per [signature] Title Superintendent

* When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is ~~correct and~~ proper for payment in the amount of:

$ 3931.39

Signature Helen R. Miller (Authorized Certifying Officer)

Date JAN 14 1958 Vou. No. 108

(See other side)

3931.39

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature S. Fettler Title MINING E... S. BUREAU OF MINES Date DEC 27 1957

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature V. J. Lynch Title ACTING EXECUTIVE OFFICER DMEA - REGION V Date DEC 27 1957

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of November 1957 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name National Lead Company Minerals Zinc
Address 111 Broadway, New York, N.Y.

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	7413.00	2471	25,758.00	8586	3.00	50,000	3.00
Churn Reaming	Foot	—	—	208.00	104	2.00	5,000	2.00
Auger Sampling	Each	5.00	4	5.00	4	1.25	550	1.50
Stripping Core Boxes	Each	—	—	88.75	50	1.77½	150	2.00
Trenching								
Test Pits								
Roads and Trails Incidental Allow. @ .18 /ft.	Foot	444.78	2471	1,545.48	8586	.18	50,000	.18
Total Distributed Costs		7862.78		27,605.23				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		7862.78		27,605.23				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date November, 1957 Operator National Lead Company

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

Remarks:

(Instructions on reverse)

(For Government use only)

[signature]
MINING ENGINEER
U. S. BUREAU OF MINES

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96864

INVOICE DATE 11-25-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 830.' agreement.	Core Drilling at Puncheon Camp, Tennessee as per						
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		M-5	0.	830.		830.		$3.00	$2,490.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96863

INVOICE DATE 11-25-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 754.' agreement.	Core Drilling at Puncheon Camp, Tennessee as per						
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		CO-4	0.	754.		754.		$3.00	$2,262.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.

CONTRACT	CODE	DATE	AT SHIP POINT
	63		

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS.~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96912

INVOICE DATE 12-18-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 490.' Core Drilling at Puncheon Camp, Tennessee as per agreement.						
		Prospect #	From / To		Total Feet		Unit Cost	Total Cost
		CO-5	0. / 490.		490.		$3.00	$1,470.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

SHIPPED TO

Puncheon Camp, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96911

INVOICE DATE 12-18-57

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 397.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		CO-6	0.	397.		397.		$3.00	$1,191.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P13[illegible]A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

NATIONAL LEAD CO. D.D. MO-5

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E 1088

Hole No: MO-5

Farm: J.C. McGinnis et UX

Loc: N 48,169.32
E 44,613.07

Elev: 1326.70

Drilled By: Joy Mfg. Co.

Logged By: J.McDonald, J.Spears

Collared: 10-31-57

Bottomed: 11-15-57

Depth: 830'

Casing: BX 7'; AX 10'

Reaming: None

Cement: None

Water Table: ?

Top Kingsport Fm. (Chas)	512'
Top R Bed	681'
Top S Bed	753½'
Base Kingsport Fm.	790½'

0-7	Overburden
-9	Lt. gr. dol; chert nod @ 9; lt. fract. thruout.
-17	Lt. gr. dol; 4" chert & mott. @ 9' ±.
-25	Dk. gr. dol; lt. shearing @ 24-25.
-31½	Med. gr. dol; mott; 28-31 lt. vert. shearing.
-34½	Chert; lt. ss @ base.
-45	Lt. gr. dol; banded; lt. fracts. thruout; vugs 34½; chert nod & ss @ 34; TGS @ base.
-50	Dk. gr. silic. dol; white blotches.
-59½	Med. gr. hvy. mott; siliceous; lt. fract. thruout; TGS @ 59.
-61	Lt. gr. dol; banded; lt. fracts; TGS @ base.
-64½	Med. gr. dol; hvy. mott.
-72	Med. gr. dol; faintly banded.
-74½	Lt. gr. dol; banded; lt. ss 72-73; crackle & sheared.
-77½	Med. gr. dol; sheared 77-78.
-80½	Hvy. fault gangue; steep angled.
-82½	Dk. gr. dol.
-83½	Med. gr. dol.
-88	Lt. gr. dol; vuggy.
-89	Lt. med. dol; 88½-89 banded & vuggy.
-98	Lt. med. gr. dol; banded; WGF @ 91½; lt. fracts. thruout; redish banding.
-99	Lt. med. gr. dol; bluish mott; lt. ss & grn. shale @ base.
-105	Lt. gr. dol; TGS @ base; v. lt. ss @ base; lt. banding 104-05; lt. fracts. 101-02.
-107	Med. gr. dol; lt. shearing @ 105; lt. mott. thruout; 2" hvy. ss @ base.
-113½	Dk. gr. dol; 107½-08½ hvy. mott; lt. shears 112-115½.
-117½	Med. gr. dol; 113½-115 lt. scatt. fracts.
-120½	Dk. gr. dol; 118½-120½ lt. shears; spotted; base marked by 3" blue chert.
-122	Med. gr. dol; lt. shearing 120½-21½.
-125½	Dk. gr. dol; 1" CHss @ 124½; TBS above ss.
-126½	Med. gr. dol; breoc. chert @ base.
-127½	Med. gr. dol; hvy. mott; lt. fracts.
-133	Lt. med. gr. dol; banded 129½-33; scatt. ss 131-33; hvy. ss @ base; in pt. CH; TGS @ base. 128½-29 breoc.
-135	Dk. gr. dol; TGS @ base.
-138	Med. gr. dol; lt. mott.
-143½	Dk. gr. dol; 138-40 mott; lt. fracts; TGS @ 143; 143-43½ sh. & ss & chert.
-145½	Lt. med. dol; brn. chert @ 144; crackle @ 145.
-148	Med. gr. dol; hvy. mott.
-154½	Dk. gr. dol; v. lt. banded.
-157	Med. gr. dol; banded; 6" scatt. ss & grn. shale @ base.
-160	Lt. brownish dol; dip @ 157=.29°.
-171½	Med. gr. blue mott. dol; some lt. banding; lt. crackle 170½-71½.
-172	Brown breoc. chert w/white gangue dol; TGS @ base.
-174½	Lt. gr. dol; sli. banded; 175½-76 mott; shaly.
-178	Dk. gr. dol; mott; breoc; ½% FeS 176½-77½.
-180	Dk. gr. dol; lt. crackle; shears @ base.

-181½ - Dk. dol; lt. banded; crackle @ 180½ & 81½.
-182½ Med. gr. dol; crackle thruout; med. ss 182-82½; 2" chert breccia @ base.
-186 Med. gr. dol; banded; lt. shear thruout; 184 weak breccia wgf; chert nod @ 186.
-190½ Med. gr. dol; mott; chert @ 186½; lt. fract. thruout; 189½ weak breccia.
-193½ Dk. gr. dol; lt. crackle thruout; 191 weak breccia wgf.
-195 Med. gr. dol; wgf breccia and small fault @ 194-94½; breccia @ base.
-196 Brecciated chert.
-202 Med. gr. dol; lt. band; scatt. ss @ base above 3" ch; str. crackle breccia 96-97; weak fault @ 200½; crackle 201½-02.
-203 Med. gr. dol; crackle thruout.
-205½ Mott. & dk. gr. dol.
-216 Dk. gr. dol; lt. spotted; lt. breccia 206½; fault gangue 3" wide @ 207; low angle 30° ∠; lt. crackle breccia @ 209½ & 12.
-218 Lt. gr. dol; 3" hvy. sands @ 216½; 2" chert @ 217; hvy. sands & chert @ base.
-221 Brecciated chert; ¼% FeS @ 219-20; 220-20½ lt. gr. dol; 220½-21 ¼% FeS.
-223 Lt. gr. dol; 2" chert breccia; TBS @ base.
-227 Lt. gr. dol; mott; chert filled fract. @ 225; scatt. ss & grn. shale @ 26; chert @ base.
-231 Med. gr. dol; banded; minor fault @ 230; 230-31 scatt. ss.
-236 Med. gr. dol; vuggy & spott; fault gangue @ 231 3/4; thin shearing @ 235-36.
-242½ Dk. gr. dol; mott.
-243 Strongly spott. dol; cherty @ 293; breco. and silic; probable fault zone.
-243½ Breccia zone; silic.
-245½ Lt. med. gr. dol; lt. mott; 243½-44½ strong crackle.
-247 Lt. gr. dol; spott; 246-47 vuggy.
-249 Lt. med. gr. dol; spott. thruout; vuggy @ 148; 4" chert @ base.
-255 Med. gr. dol; str. blue mott; str. crackle breccia @ 245, 246 & 48; breccia is vuggy.
-260½ Med. gr. dol; lt. mott; str. crackle @ 256½-58; fault breccia @ 58; crackle 58-59; weak crackle 260-60½.
-263½ Lt. med. gr. dol; mott; str. crackle @ 260½-63½.
-265 Dk. med. gr. dol; crackle from 264-68.
-271 Dk. med. gr. dol; str. mott; wgf breccia @ 69; ch. breccia @ 70½; wgf & ch. nod @ base.
-271½ Lt. gr. dol; med; lt. fract.
-273 Dk. med. gr. dol; str. mott; chert nods; spott; 271½-72.
-281½ Med. gr. dol; fract. 277-81.
-282½ Lt. med. gr. dol; banded; thin chert bands 281½-82; TBS @ base.
-286 Dk. gr. dol; str. mott. 83½-84; fracts @ 85; str. crack. 85½-86; sand, pebbly @ base—(edgewise congl.)
-287½ Med. gr. dol; spotted.
-289 Med. gr. dol; mottled.
-291 Med. gr. dol; spott; vuggy; thin bedding plane fault @ 91; cherty @ base.
-299 Dk. gr. dol; spott. 291½-96½; cherty 291-92; thin bedding plane fault @ 291.
-299½ Lt. gr. dol; banded; thin bedding plane fault @ 299½.
-300 Lt. med. gr. dol; 2" hvy. ss (some CM?) TBS @ base.
-300½ Lt. med. gr. dol; scatt. hvy. ss thruout.
-306½ Dk. med. dol; spott. 302; vug. 304; chert nod 306; lt. fract. 300½-01.
-309 Lt. med. gr. dol; str. fract. 308½-09; 1" fract. chert @ base.
-311 Med. gr. dol; scatt. ss thruout; hvy. ss @ 10; blue chert @ base; (ch.) spott. 10-11, vuggy; lt. fract. thruout.
-315 Lt. med. dol; scatt. ss 314-15; TBS; hvy. ss @ base (some CM?) hvy. fract. 11-12½.
-316 Chert bed; banded; scatt. ss thruout; sand dike @ top.
-324 Med. gr. dol; spott. 319½-20½; chert nod 317; scatt. ss 323-24; shearing thruout; small fault (brecciated) 316½-20; chert nods near & @ base.
-325½ Sheared chert bed; scatt. ss thruout; FeS shine lower contact; lt. fract.
-326½ Med. gr. dol; sugary; re-xl? silic; oolitic chert nod @ base.
-334 Lt. med. gr. dol; mott; chert nod & vuggy 27-28; bed plane fault @ 27; 3" bed. plane fault @ 32; steep angle fault (breccia) @ 329-30; fract. thruout.
-335½ Dk. gr. dol; silic; med. ss @ base; fract. thruout/

-336½ Med. gr. dol; banded; scatt. ss thruout; 2" hvy. ss & TBS @ base, steep angle fault extends length of bed.
-338 Lt. med. gr. dol; banded; fract. 336½-37; dol. breccia 337; lt. shear 37½-38.
-344 Dk. med. gr. dol; cherty 39-40; FeS shine 340; med. scatt. ss 39½-40½; lt. scatt. ss 40½-41; str. fract. thruout.
-359 Dk. gr. dol; spott; str. fract. thruout; small bed. plane faults; ½% FeS est. 350-50½ in wgf; 3/4% FeS est. 352-53 in wgf; ½% FeS est. 356½-58½.
-359½ Fault gangue; FeS shine.
-362 Lt. med. gr. dol; lt. fract. thruout; 3" fault breccia @ base, FeS shines in breccia.
-370½ Dk. med. gr. dol; [redacted] Mott; silic; lt. ss 370-70½; med. ss @ base; str. fract. @ 61-62; 69; ½% FeS est. in wgf. @ 366½-67; FeS sh. @ 368 in wgf.
-370 Dk. med. gr. dol; lt. mott; spott; TBS @ 373 & 76; rubble breccia @ 371½ & 72-73½; low angle fault (breccia) @ 377½; FeS sh. @ 73-73½ & 80, in wgf.
-371 Lt. gr. dol; fract. thruout.
-372 Med. gr. dol; str. mott; v. silic; (cherty) chert nod @ base.
-375½ Semi re-xl; med. gr; lt. mott.
-376 Bedded chert; highly fract.
-376½ Lt. med. gr. dol; fract; silic.
-377 White chert; brecciated -3% FeS Est.
-391½ Lt. med. gr. dol; lt. banding; str. fract. 387-88½, fault gangue 388½-89; fault steep dipping, extends to 390; wgf @ 390; crackle @ base.
-395 Lt. gr. dol; lt. mott; breccia 393½-95, wgf; FeS sh. 393½-94.
-395½ Blue and white breccia. chert; fract's wgf; FeS sh. near base, occurs along fract. plane
-398½ Med. gr. dol; banded; rubble breccia thruout; chert nod @ 397; FeS sh. @ 96½-98.
-399 Cherty fault gouge; FeS shine @ base.
-406½ Med. gr. dol; rubble breccia 399½-400; fract. 400-01; rubble breccia @ 401-03; wgf FeS sh. @ 399½; ½% FeS est. 403-04½ & 05-05½, FeS in wgf; 6" silic. grn. shale & 2" dol. chert @ base.
-407 Semi re-xl; gr. brn.
-409 Med. gr. dol; str. mott; silic; str. fract. 407½-08½, 4" cherty fault gouge @ 408.
-410½ Lt. gr. dol; banded.
-415 Dk. med. gr. dol; lt. band; fract. 409-10; TGS & 1" hvy. ss @ base.
-417 Lt. med. gr. dol; blue mott; sheared 416-17; 2" fault gouge @ base.
-419½ Dk. med. gr. dol; banded; shearing 418-18½; lt. scatt. ss 419-19½; silic 419-19½.
-422 Lt. med. gr. dol; mott; v. str. mott. 421-21½; lt. ss @ 421½-22.
-422½ Brecciated chert.
-430 Lt. med. gr. dol; vuggy 422½-23½; ch. nod @ 24; fract. @ 27½.
-435 Med. gr. dol; mott; TGS @ 431; rubble @ 432-33; FeS shine @ 432.
-438 Dk. gr. dol; mott; crackle 435-35½, 436½-37; spott. 435-35½; lt. shear 436-37½.
-441 Dk. med. gr. dol; lt. banding; med. scatt. ss 440½-41; TGS & 3" ch. @ base; wgf 440½-41; rubble 438½; crackle 438-39.
-445 Lt. gr. dol; crackle 442-43.
-447½ Lt. med. gr. dol; str. mott; 446-47½ med. hvy. ss; edgewise congl. 47-47½; lt. fract. thruout; some CM @ base.
-455 Med. gr. dol; str. crackle thruout; rubble 450-51; 452½-54½; rubble contains many diff. dolo; much sandy dol; more ch. spott. 451-51½; FeS sh. 450-50½.
-460 Dk. gr. dol; spott; rubble 457½-58; str. crackle 458-60.
-461½ Dk. med. gr. dol; hvy. ss 461-61½; crackle thruout.
-462 Brecciated oolitic chert; w/sand dike.
-468 Med. gr. dol; lt. banding; shaly 464-64½; lt. ss 62-62½; rubble 62-72½; crackle 62½-63 & 467-67½; fault breccia 463½, steep angle.
-474 Dk. gr. dol; mott; spott. 469-70; crackle 69½-70 & 72½-73; lt. fract. 70-72½.
-476 Med. gr. dol; 2" hvy. ss @ 475; 1" hvy. ss & 1" GS & 1" ch. @ base; lt. fract. thruout.
-478 Dk. med. gr. dol; sugary; str. mott; chert nod @ 477; 1" ch. @ base.
-479 Lt. med. gr. dol; banded.
-483 Med. gr. dol; lt. band; lt. spott. thruout; bed. angle; lt. fract. thruout; str. crackle 480-81 & 81½-82.
-484½ Dk. med. gr. dol; TGS @ base; crackle 484½-86; rubble 486-86½.

-492 Med. gr. dol; banded; TGS 486 3/4; ch. nod 487½-89; thin fault breccia 487½-88; crackle 488-89½; rubble 489½-90; steep angled fault 491-91½; fault gouge.
-493½ Lt. med. gr. dol; lt. band; fract. thruout.
-497½ Med. gr. dol; TGS @ base; lt. fract. 493½-95; str. shear 495-96½.
-503½ Dk. gr. dol; sugary; lt. fract. thruout; rubble 503-03½; WG filled, some grn. silic.material.
-510 Dk. med. gr. dol; lt. mott; spott. @ 508; TBS @ 506 & @ base; str. fract. 506-07½.
-512 Med. gr. dol; hvy. ss @ base; some CM; sand dikes (?) length of bed; rubble 510-10½; crackle thruout.
-516 Med. gr. dol; banded; hvy. ss @ 513 & @ base & CM @ base(?) & 2" oolitic chert-dol; breccia 512½, 14½, steep angled fault.
-522 Dk. med. gr. dol; spott.517-19; steep angled fault (breccia) 516-17; WOF 520½-21, some grn. silica & FeS shine @ 521.
-523 Lt. med. gr. dol; str. crackle thruout.
-524 Fault gouge; fault plane steep angle (75°)
-525½ Lt. gr. dol.
-529 Med. gr. dol; 527½-28 dol. breccia; lt. fract. 527-27½ & 28.
-533 Lt. med. gr. dol; mott; TBS @ 529½; dol. breccia 529½-30½; spott. 530½-33; 6" rubble breccia @ base; WG filled & grn. silica.
-537 Lt. gr. dol; banded; 2" fault breccia WG & grn. silica; @ 535-36½; FeS sh. @ 535.
-541 Med. dk. gr. dol; brecc. 537-38, 539-41; some silica gangue; est. 1% FeS 539-41.
-547½ Lt. gr. dol; mott; shears 541-41½.
-556½ Med. gr. dol; crackle to 550½; brecc. 554-56½ w/est. 1% FeS; chert nod 554½.
-560 Lt. med. gr. dol; lt. crackle.
-565 Lt. gr. dol; 564-65 mott.
-580 Med. to lt. med. gr. dol; crackle 568-68½; brecc. 570-74 w/occ. FeS sh; crackle 74-80.
-581 Med. dk. gr. dol.
-582½ Med. gr. dol; hvy. sands.
-583 Med. dk. gr. dol.
-594 Med. gr. dol; chert nods 583, 84; band. 84-88 & brecc; est. 1% FeS 86-87; hvy. sands 87-88 w/chert nod 588; mott. 588-89½ w/hvy. ss 588½.
-595 Dk. gr. dol.
-600 Med. gr. dol; v. banded 595-97½; brecc. 596-97½ w/FeS sh; brecc. 99-600 w/est. 1%FeS; sand @ 600.
-602 Lt. med. gr. dol; crackle; 601½-02 hvy. sands.
-606 Med. gr. dol; brecc; sandy; FeS shine 605½.
-614 Lt. med. gr. dol; brecc. 609-11 w/some sands; 612-13½ sand congl; shears 613½-14.
-618½ Med. gr. dol; brecc. 614-17 w/some black sands; 1% est. FeS 614-15; crackle 617-18½.
-619 Silica & chert.
-621 Lt. med. gr. dol; brecc. to 621 w/est. 4% FeS 619½-20½; cherty & tr. ss @ 621.
-622½ Lt. gr. dol; banded.
-638 Lt. med. gr. dol; brecc. 622½-24 w/some re-xl gangue; several chert nods 624½-25½; crackle 624-27 w/TBS 25½ & FeS sh. 25½; est. 1% ZnS 25½-27 w/thin ss 27; brecc. sealed w/shale 27-27½; brecc. 28-29½ pt. sealed w/re-xl & occ. FeS sh; few ss grn's 39½; brecc. 30-32½ w/est. 2% FeS; crackle 32½-36 w/FeS sh. 35; large chert nod 35½; brecc. 36-38 w/est. 2% FeS; ch. nod 637.
-639 Lt. med. dol; sugary; w/many specks of white silica.
-642 Lt. gr. dol.
-643 Lt. med. gr. dol; brecc.
-645½ Lt. gr. dol; banded; brecc. 645-45½ w/est. 1% FeS.
-656 Lt. med. gr. dol; mott; brecc. w/est. 2% FeS 648-49; crackle 646-48; brecc. 652-56 w/FeS sh.sh. 652-52½; ZnS sh. 653½; chert nods 654½, 655, 655½.
-657 Lt. gr. dol; brecc. w/est. ½% FeS.
-660 Lt. med. gr. dol; crackle.
-664 Lt. gr. dol; brecc. 661-62 w/est. 3% FeS; brecc. 662-64 pt. sealed w/re-xl.
-669½ Lt. med. gr. dol; mott; crackle to 666.

-672 Med. gr. dol; weak breec. w/FeS shine 669½ & chert nod 670.
-673½ Lt. med. gr. dol; lt. mott; lt. crackle; est. ~~1% ZnS 672½-73~~.
-676½ Med. gr. dol; crackle breec. w/some chert fragments.
-678½ Lt. med. gr. dol; lt. banding; chert nods 678, 78½.
-688 Med. gr. dol; 4" breec. @ 679 w/many chert fragments; occ. thin breec. zones to 681. 681-84 breec. sealed w/re-xl & chert fragments; large chert nod 682; 684-88 breec. w/ re-xl & white gangue; large chert nod 687.
-689 Lt. med. gr. dol; top 1" many specks of silica; ~~crackle 688-89½ w/est. 1% ZnS.~~
-692 Med. gr. dol; ~~crackle 689-89½ w/FeS shine @ top then ZnS shine~~; chert nod 689½; from 689½-90 breec. sealed w/br. re-xl; ~~crackle breec. 690-92 w/ZnS shines 690½-91.~~
-711½ Lt. med. gr. dol; ~~3" breec. @ 695 w/br. ZnS~~; chert nod 695½; from 697-98 breec. w/ gangue & br. re-xl; occ. crackle w/gangue 698-700 w/large chert nod @ 700 from 702-05 breec. sealed w/dk. re-xl & chert fragments; sand grains 705-05½; from 706½-09 breec. sealed w/re-xl & chert fragments; crackle breec. 709-11½ & sand 09-10 & sev. chert nods 710-11½.
-714 Med. gr. dol; some breec. sealed w/gangue, re-xl & chert fragments.
-718 Lt. gr. dol; lt. banding; tr. flourite @ 718.
-719 Lt. med. gr. dol; breec; cherty.
-720 Med. gr. dol.
-721 Lt. med. gr. dol; chert nod @ base.
-724 Med. dk. to med. gr. dol.
-731½ Dry breec; lt. & med. gr. dol; sealed w/dk. cherty re-xl; occ. gangue filled crackle.
-733 Dk. re-xl & semi re-xl.
-738 Lt. re-xl; fine grained to semi re-xl; lt. crackle.
-744½ Alternating blocks of med. gr. & lt. gr. dol; some bands of dk. re-xl.
-750½ Lt. gr. dol; chert nod 749; tr. re-xl 749½.
-751½ Dk. re-xl; chert nod 751 then 6" grn. shale.
-753½ Lt. med. gr. dol; thin ss 752½; v. sugary & mott. w/crackle 752½-53½ w/TGS 753½.
-754½ Lt. re-xl.
-763 Blocks of dk. & lt. med. gr. dol; 6"-12" thick; TGS 761; dk. re-xl 762½-63.
-764 Med. dk. gr. dol; breec. & sealed w/dk. re-xl.
-765 Dk. re-xl; chert nod 765.
-765½ Br. spotted re-xl; chert nod 765½.
-768 Lt. gr. dol; breec.
-772 Lt. re-xl.
-776 Dk. cherty re-xl.
-777 Lt. re-xl; chert nod 777.
-778 Lt. med. gr. dol; w/many chert nods & crackle.
-781½ Br. re-xl; chert @ top; from 778-83 horizontal joints.
-782½ Dk. cherty re-xl.

-785½ Lt. re-xl; v. cherty 783-83½; crackle.
-790½ Dk. re-xl; chert nods 787, 88.
BASE KINGSPORT FM. 790½
-798½ Med. gr. dol; 790½-91½ brecc. sealed w/re-xl; grn. shale & gangue; 791½-98 crackle; 798-98½ brecc. w/some chert fragments.
-799 Lt. br. re-xl.
-800 Med. gr. dol; crackle.
-800½ Med. gr. & lt. med. gr. dol; mott; brecc. sealed w/chert, re-xl, shale & gangue.
-802 Lt. med. gr. dol; mott; crackle to brecc
-802½ Lt. re-xl.
-803½ Med. gr. dol; large chert nod 803-03½.
-804½ Lt. med. gr. dol.
-805 Dk. re-xl & chert.
-808 Med. gr. dol.
-810 Lt. br. re-xl; 6" chert nod @ 809.
-811 Lt. gr. dol; chert nods 810½, 11.
-812 Lt. med. gr. dol.
-813½ Br. cherty re-xl.
-817 Med. gr. dol. (814½-15 re-xl)
-818 Br. cherty re-xl; large chert nod @ base.
-824 Lt. med. gr. dol; large chert nods 819½, 23.
-830 TD Lt. br. re-xl; cherty; brecc. chert nod 825½; scatt. ss grains 828; large chert nod 829½.

NATIONAL LEAD CO. D.D. CO-4

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E 1088

Hole No: CO-4

Farm: D.F. Coffman

Loc: N 47,711.17
E 43,287.61

Elev: 1440.57

Drilled By: Joy Mfg. Co.

Logged By: W.Hill, J. McDonald, J.Spears

Collared: 10-26-57

Bottomed: 11-12-57

Depth: 754'

Casing: BX 18'; AX 31½'

Reaming: None

Cement: None

Water Table: 40'

-18 Overburden
-23 Med. dk. gr. dol; mott. to well mott; cavity 19-20.
-25 Med. gr. dol; sec. chert 24-24½; cherty to 25.
-26 Lt. gr. dol; sand @ base; banded.
-29 Med. gr. dol; ½" TGS 28½; v. mott. 28½-29.
-33½ Lt. med. gr. dol; lt. mott.
-40 Lt. gr. dol; few large eyelets to 35; then banded to 36½ w/thin sands 36-36½; thin ss 38½; banded 38½-39; mott. 39-40.
-41 Cavity
-42 Med. dk. gr. dol; v. mott; chert nod @ base.
-44 Lt. gr. dol.
-46 Med. dk. gr. dol; banded.
-51½ Lt. gr. dol.
-53 Cavity
-64 Lt. med. gr. dol; banded to 56½; thin sands 56-56½; sli. ox. to 63, fault 63-64.
-66 Lt. gr. dol; thin ss 66.
-70½ Lt. med. gr. dol; tr. of crackle w/FeS shine @ 69; banded 69-70½; hvy. sands 70-70½ w/TGS @ base.
-75 Med. gr. dol; banded to mott.
-79 Lt. med. gr. dol; sand @ top; eyelets 78-79.
-81 Med. dk. gr. dol.
-82 Lt. med. gr. dol.
-82½ Med. gr. dol; mott.
-85 Lt. med. gr. dol; lt. mott; 1" CMss @ 85.
-93 Lt. to lt. med. gr. dol; v. sandy 91½-93.
-95 Dk. gr. dol.
-96 Med. dk. gr. dol; v. mott; chert nod @ base.
-97 Lt. med. gr. dol; v. mott.
-101 Med. dk. gr. dol; v. mott. & banded to 100.
-103 Med. gr. dol.
-106 Lt. gr. dol; some congl. top foot.
-107½ Med. gr. dol.
-112½ Dk. gr. dol; lt. ba nding.
-114 Med. gr. dol; well mott.
-115½ Lt. med. gr. dol; banded; v. sandy; TGS @ base.
-119 Lt. gr. dol.
-124 Lt. med. gr. dol; lt. mott.
-128 Med. gr. dol; mott.
-129 Lt. med. gr. dol.
-132 Med. gr. dol; vuggy to 130, chert 131-32.
-135½ Lt. med. gr. dol.
-136½ Med. gr. dol.
-139½ Med. gr. semi re-xl; v. mott.
-140½ Dk. gr. dol; mott.
-144 Lt. med. gr. dol; lt. banding.
-148½ Lt. gr. dol; mott. to 145 w/thin ss 145; well banded 145-48½.
-150½ Lt. med. gr. dol.
-154 Med. gr. dol.
-155½ Med. dk. gr. dol.
-156½ Lt. med. mott. semi re-xl.
-160½ Lt. gr. dol.
-165 Lt. med. gr. dol; well banded.
-171 Med. gr. dol; v. mott. to 167; then lt. mott. to 170.
-180 Lt. med. gr. dol; few eyelets 172-73; mott. 178-80; sandy 179-80 w/3" CMss @ 180.
-184 Brecc. chert sealed w/chert.
-186½ Lt. re-xl; (2' core loss 182½-87½).
-187½ Lt. med. gr. dol; sandy; chert nod 187.

-188 Lt. med. gr; scatt. ss thruout; 2" hvy. ss & chert & grn. shale @ base; mott.
-193 Lt. gr. dol; banded; ss thruout; hvy. ss @ 191.
-197 Med. gr. dol; vuggy near top.
-202 Dk. gr. dol; mott. & banded; TGS @ bottom.
-208 Lt. gr. dol; mott; TBS @ base.
-209 Med. gr. dol; sli. mott; black chert nod @ 209.
-212 Dk. gr. dol; hvy. mott; shaly @ base.
-222 Lt. med. gr. dol; sli. mott; TGS @ base & 8" hvy. ss.
-225 Lt. med. gr. dol; sli. mott.
-226 Dk. gr. dol; TBS @ base.
-227 Lt. gr. dol; lt. ss thruout.
-232 Med. gr. dol; hvy. mott; TGS @ base.
-233½ Lt. gr. dol; TBS @ base.
-241½ Dk. gr. dol; black shale bands; TBS @ base.
-244½ Dk. gr. dol; hvy. mott; shaly; shale @ base.
-256 Med. gr. dol; hvy. mott. 245½-47½; shaly; sli. mott. thruout.
-261 Lt. gr. dol; banded; hvy. ss 257-57½; OM @ 257; sand dike @ 257½.
-263 Lt. gr. dol; banded; TBS @ base.
-265 Med. dol; mott. vug @ 264½; scatt. ss 264-65 & hvy. ss @ 265. 1" ch. @ base.
-269½ Lt. gr. dol; lt. mott; 268½-269½ scatt. ss; hvy. @ base.
-270½ Lt. gr. dol; holothurian texture.
-277½ Lt. med. dol; scatt. ss @ base; white chert nods @ 272-72½; small chert nods & frags. 270½-278; vuggy @ 275.
-279 Lt. gr. dol; silic; sandy thruout; sugary (xl).
-280½ Sec. chert & re-xl; chert is doloclastic.
-283 Med. gr. semi re-xl; mott; chert nod @ 282.
-286½ Med. gr. dol; mott; spotted.
-290½ Dk. mott. dol; spotted; siliceous 287½-290; lt. ss @ base; lt. shear @ base.
-291 Lt. gr. dol; sandy; hvy. ss @ base.
-294 Med. gr. dol; mott.
-297 Dk. gr. dol; mott. 294-95½; lt. ss 295½-97.
-298 Lt. dol.
-305 Dk. gr. dol; hvy. mott; silic; spotted.
-311 Med. gr. dol; mott.
-313½ Lt. gr. dol; banded; chert nod @ 311½; shear (hvy.) 313-13½, low angle; strong fault 13½
-317 V. dk. gr. dol; lt. mott; lt. fract. thruout.
-319 Dk. gr. dol.
-322 Med. gr. dol; hvy. mott; TGS @ 319½; TGS @ 320, 21; 21½, lt shear; TBS @ base.
-329½ Lt. gr. dol; 323 3" hvy. sand; 323-24 vuggy; scatt. shears 24-24½.
-333 Med. to dk. dol; mott; spotted; 330-31 lt. scatt. shear.
-335 Re-xl; breec. coarse.
-337 Med. gr. dol; lt. band.
-339½ Dk. gr. dol; strongly mott; fract. thruout; lt. sand & chert & GS @ base; low ∠ fault.
-345 Lt. gr. dol; faint blue mott; faint banding; lt. scatt. ss 344-45.
-347 Med. gr; strong mott; shears (lt.); TBS @ base.
-350 Lt. gr. dol; blue mott. & ba nd; scatt. steep angled fract. thruout.
-351 Med. gr. semi re-xl; blue-white chert bed @ base.

-354 Solid lt. chert; FeS shine 352; base in TBS and FeS shine (½% est.).
-357½ Med. gr. dol; weak breccia @ 355, weak fault zones @ 355½ & 366½; chert nod @ 355½-357; spotted @ base.
-358½ Fault breccia, chert & dol; filled also white gangue; Est. ½% FeS 357½-358½.
-363 Dk. gr. dol; fractured @ 358½-359 and lt. fractured @ 362½-363.
-364 Chert breccia @ 358-363; white chert band, & TGS @ base; 363½-64 much grn. silica.
-371 Lt. gr. dol; banded; lt. shear @ 366 and 369½.
-373 Lt. gr. dol; mott; TBS @ base.
-377 Med. gr. dol; sugary; 376½-77 ss; hvy. ss & TGS @ base.
-383½ Lt. gr. dol; mott.
-389½ Lt. gr. dol; mott; 384-84½ med. ss; grn. shale @ 385½.
-395½ Lt. gr. dol; banded; 393½-95½ blue mott.
-403½ Med. gr. dol; mott; few spots; TGS @ base.
-407 Lt. gr. dol; banded; 406½-07 scatt. ss; 2" bed of chert @ base.
-410½ Lt. gr. dol; mott.
-411 Oxid, fault breccia, 2% FeS est.
-413 Re-xl; 412-13 weak fault breccia; steep angled 515; edgewise congl. @ base.
-416 Lt. med. gr. dol; spotted thruout; lt. fract. @ 413-14; 415-16.
-419 Med. dk. dol; mott; thin fault gangue @ 416½; fract. 416-17; 417½ TBS.
-429 Dk. gr. dol; spotted; lt. mott. thruout; TBS @ 419, 423½, 425, 426½; lt. ss, 1" white sandy chert @ base (CM?); chert nod @ 418, str. shear, fault breccia @ 423½.
-430 Lt. gr. dol; hvy. ss @ 429½, 429 3/4; sand dike @ 29½-29½; 2" gr. shale @ base.
-436 Lt. med. to med. gr. dol; mott; dol. breccia @ 431(?); spott. & vuggy 433½-44; lt. shear; weak bed. plane; fault 432½-33½.
-439 Dk. dol; sugary; crackle thruout; faulted length of bed, vertical.
-442½ Lt. med. gr. dol; banded; lt. ss thruout; hvy. ss; BS @ 441; (CM?) 3" hvy. ss; TBS @ base
-443½ Dk. med. gr. dol; mott; silic.
-444½ Lt. med. gr. dol; mott; 1" gr. shale @ base.
-448 Lt. gr. dol; banded; shearing @ 445-46; shearing, fault breccia @ 447½.
-451½ Dk. med. gr. dol; shearing thruout; TBS @ 450; crackle @ 450-51½; 4" BS @ base.
-453½ Med. gr. dol; mott; lt. shears thruout; spott. 453-53½; 2" fault gouge @ base; fault plane @ 450.
-455 Lt. gr. dol; banded; lt. shearing thruout; fault breccia @ 454½; fault plane vert.
-457 Med. gr. dol; banded; TBS @ 456½-57; fault breccia 55-55½, fault plane vert.
-460 Dk. gr. dol; banded & mott; 3" BS @ base.
-466 Dk. gr. dol; lt. mott; BS @ base; shearing @ 461-65.
-468½ Dk. med. dol; banded; str. crackle breccia @ 466-67; vert. fault extends from top to base, weakly oxid; thin sand @ base.
-469 Lt. gr. dol; sandy; CM @ 468½-3/4.
KINGSPORT
-474½ Dk. gr. dol; lt. mott; sand dike @ 469; thin ss @ 470; crackle 469-70; dol. breccia @ 470; shearing 470½-71½; TBS @ base.
-480½ Lt. gr. dol; shear 477-79.
-482 Dk. gr. dol; mott; TBS @ base.
-484½ Lt. gr. dol; lt. mott; steep angle (minor) fault 482-82½; TBS @ base.
-486½ Dk. gr. dol; banded; TBS @ base.
-491 Lt. gr. dol; mott. & spott. 490-91; 2" med. ss @ 486½; then dol. breccia (½") @ 487½.
-495 Dk. med. gr. dol; mott; chert nod 493-96; crackle 93-94.
-500 Lt. med. dol; banded; blue chert (nod?) @ 496-96½-97, 98½-99; spott. 97-98.
-501 Dk. gr. dol; banded; shaly.
-504 Med. gr. dol; spott. thruout; TBS @ base.
-506 Med. gr. dol; 505½-06 shaly.
-509½ Med. gr. dol; mott; lt. shear 508-09½.
-510 Dk. gr. re-xl (?) fine grained.
-513 Med. gr. dol; lt. crackle 511-12; 512-13 fault; lt. sand, pebbles; & 2" blue chert @ base.
-516 Med. gr. dol; chert nod & hvy. ss @ 514½; str. crackle @ 513-13½ & 514-14½.

-419 Dk. gr. dol; lt. banding; last 4" brecciated chert, fault.
-520 Med. dk. gr. dol; str. mott; (holothurian structure).
-522½ Dk. gr. dol; banded; TBS @ 421½-22.
-524½ Lt. med. gr. dol; str. shear @ 423; TBS @ 423½.
-528½ Lt. med. gr. dol; lt. mott; TBS & TGS @ base; lt. shear @ 427.
-533½ V. lt. gr. dol; lt. mott; TGS @ base.
-537½ Lt. gr. dol; lt. banding; chert nod 435½ to base; lt. dol. breccia @ 434-34½.
-545 Lt. med. gr. dol; str. banding; chert nod 437½-39; lt. ss @ 440½, 444½-445; spott. 441½-base; TGS & chert @ base.
-546 Med. gr. dol; mott; silic; chert nod @ 445 3/4; scatt. ss & pebbles @ base; WGF @ 446.
-546½ Brecciated chert.
-549 Lt. med. gr. dol; 3" GS & 3" chert @ 448½-49; TGS @ base; lt. crackle @ 448.
-553½ Lt. med. gr. dol; crackle 550-51.
-563½ Lt. med. gr. dol; banded; chert nods 556-57½, 560 thru 563½; lt. ss @ 556½ & 560-60½; crackle 554-55, 557 & 63½; ½% FeS est. 554-54½.
-567 Lt. med. gr. dol; 2" chert @ 566; scatt. ss 566½-67; 1" congl. @ base; vuggy 564-64½.
-569½ Med. gr. dol; mott; sugary texture; silic. grn . shale 567½-568.
-576 Med. gr. dol; spott. 570-71½; scatt. ss, TGS @ 573; TBS @ base; lt. fract. 575½-76½.
-578½ Lt. gr. dol; banded.
-582 Lt. gr. dol; str. shear 579-80½.
-584½ Lt. med. gr. dol; banded; crackle @ 582½; rubble 83-83½; 2" fract. chert @ base.
-591 Med. gr. dol; TBS @ 589; crackle 584½-85; FeS sh; str. shear 590-90½.
-594 Med. gr. dol; mott.
-596½ Lt. med. gr. dol; fract. 594½-95½; crackle 596-96½.
-599½ Lt. med. gr. dol; banded; scatt. ss @ 599; mott. 599-99½.
-604½ Lt. gr. dol; banded; lt. scatt. ss 604-04½; ch. nod @ 02; 2" GS @ base; steep angle fault 602½-03, 3" fault gouge 603.
-607 Lt. med. gr. dol; chert nods 605-06; crackle 605½-06.
-610 Med. gr. dol; fract. thruout; low angle fault @ 609, 2" fault gouge; t. brecciated chert bed @ base.
-612½ Lt. gr. dol; lt. mott; fract. thruout; TBS; 1" chert @ base.
-616½ Med. gr. dol; crackle 613½-15; 2" fault breccia 614½ & 616½, FeS sh. 614½.
-622½ Med. gr. dol; banded; thin hvy. sand @ base; fract. 617½-18½; str. crackle 617½, FeS sh; 621-622½ rubble breccia; FeS sh. @ 622½.
-624 Lt. med. gr. dol; rubble 622½-23; crackle 623-24; ½% FeS 622½-24; 2" fault breccia @ base.
-626½ Med. gr. dol; TGS @ base; rubble breccia thruout; ½% FeS est. 624-25; ½% 625-26½.
-629 Brown-grey re-xl; fault breccia 626½-27; 628½-29; TBS @ base; FeS sh. @ 627-29.
-631½ Inter-bedded brown & gr. re-xl; & gr. dol; mott.
-633 Lt. med. gr. dol.

-638½ Med. gr. dol; sugary to semi re-xl; mott; 3" TGS @ base.
TOP "R" BED 638½.
-647½ Br. re-xl; silic; 639½-40 cherty & sandy; fault 641½-42½.
-652 Lt. gr. re-xl; brecc. chert nod @ base w/FeS shine.
-653 Lt. med. gr. dol; brecc. occ chert nod; FeS shine.
-657½ Br. re-xl; grn. shale 653½-54; occ. brecc. w/FeS shines; 1% FeS est. 656-57½.
-662 Lt. gr. dol.
-665 Dk. gr. dol.
-667 Med. gr. dol.
-668 Re-xl & darker gr. dol.
-671 Med. dk. gr. dol; crackle.
-674 Med. gr. dol; chert 673½-74; crackle.
-677 Lt. med. gr. dol; some crackle w/some re-xl gangue; banded.
TOP "S" BED 677.
-679½ Br. re-xl; v. silic.
-687 Br. to gr. re-xl; crackle to 686, then brecc. 686-87 w/est. 3" FeS.
-689½ Lt. gr. fine grained re-xl to semi re-xl; chert 689-89½.
-691½ Lt. med. gr. dol; sugary; brecc. sealed w/re-xl; est. ½% FeS 690-½-91.
-693 Br. mott. re-xl; cherty @ 692½-93.
-697 Lt. br. re-xl.
-704½ Br. re-xl; brecc. 700-04½ w/FeS shines 701, 704.
-707 Lt. med. gr. dol; crackle brecc; FeS shine 707; thin as 707.
-708½ Chert, silica & re-xl.
-712½ Lt. coarse re-xl; band of dk. silica @ base.
-713½ Br. re-xl; mott.
-714½ Lt. coarse re-xl; brecc; tr. of FeS.
-728½ Lt. br. re-xl; crackle 714½-15½ w/FeS shine 715½; occ. crackle to 722 w/chert nod 722; crackle to brecc. 722-28½, shaly @ base.
-729½ Dk. br. re-xl; mott; crackle.
BASE KINGSPORT FM. 729½
-731 Lt. med. gr. dol; occ. crackle.
-741½ Med. gr. dol; crackle 731-34½; FeS shine 737; crackle w/est. ½% FeS 741-41½.
-742½ Lt. gr. re-xl; crackle.
-748 Med. gr. dol; crackle w/est. ½% FeS 742½-744; crackle 745-48½; est. 1% FeS 746½-48½.
-752 Lt. med. re-xl to semi re-xl; mott.
-754 TD Med. gr. dol; mott; brecc. ~~[illegible]~~ w/est. 1% FeS 752-53.

NATIONAL LEAD CO. D.D. CO-5

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E 1088

Hole No: CO-5

Farm: (d.f.) Coffman

Loc: N 48,040.81
E 43,058.72

Elev: 1483.11

Drilled By: Joy Mfg. Co.

Logged By: J. Spears

Collared: 11/15/57

Bottomed: 11/27/57

Depth: 490

Casing: BX 62; AX 80

Reaming: None

Cement: None

Water Table: ?

Top Kingsport	197
Top R Bed	366½
Top S Bed	419
Base Kingsport	468

0-62 Overburden

-101½ Lt. med. gr. dol; (some lt. gr.) banded 62-63; chert nod 65½-66 (6½' core loss 65½-73) banded 74-75½ (1' core loss 73-75½) (3½' core loss 75½-80), chert nods 75½-82 w/large nod 81½-82½ (1' core loss 80-82) chert nod 85, 86, 89, 90; thin fault 86½; Cavity 90-96; mott. 96-100½ w/shears at 98½ & 100; FeS sh. in lt. crackle @ 100½; SCATT. SS GRAINS 100½-01½.

-103 Med. gr. dol; mott.

-106½ Lt. med. gr. dol; lt. mott; fault 104-05½.

-107½ Lt. silic. re-xl; mott.

-108½ Lt. med. gr. dol; mott; sheared; TGS @ 108½.

-109½ Lt. gr. dol; fault.

-111½ Lt. med. gr. dol; mott; crackle w/FeS sh. 110-110½; chert nod 110½; fault 111½.

-112 Semi re-xl; v. cherty.

-119½ Lt. gr. dol; shears to 114½.

-127½ Med. gr. dol; mott. to 122, then mott. & silic. eyelets to 127½.

-131½ Lt. med. gr. dol; lt. banding to 130; thin sands 130-31½ w/1" GM then TGS then 2" blue chert @ base

-135 Lt. gr. dol; mott. 133-34.

-136½ Chert w/2" sand [redacted] oolite @ base.

-140 Lt. gr. dol; mott. w/few eyelets; TGS @ base.

-146½ Med. gr. dol; mott; some eyelets pt. silic.

-149½ Lt. med. gr. dol; mott; ox. shear @ base.

-150½ Med. dk. gr. dol; mott; sugary.

-152 Med. gr. dol; lt. banding; str. sands 51½52 w/large oolitic chert nod 152.

-160 Lt. med. gr. dol. to lt. gr. dol; 3" grn. shale & re-xl @ 154; 57-60 sli. darker.

-163 Med. gr. dol; v. mott; sugary.

-167 Lt. gr. dol; sandy bott. 4 inches w/½" TGS @ base.

-170 Med. gr. dol; v. mott.

-174½ Lt. med. gr. dol; few ss grains 170½ & silica 170½-3/4.

-177 Med. gr. dol.

-182 Lt. med. gr. dol; to med. gr; mott; chert nod @ 181, 182.

-185½ Lt. gr. dol; lt. banding.

-195 Med. dk. gr. dol; mott; fault 192-93.

-197 Med. gr. dol; banded.

TOP KINGSPORT 197'

-202 Lt. med. gr. dol; thin ss @ top & @ 198; TGS 198; lt. mott. 198-202 w/2" shale @ 202.

-204 Med. gr. dol; mott; sugary to semi re-xl.

-208 Lt. gr. dol.

-210 Med. gr. dol; mott; shale bott. 4".

-215 Lt. med. gr. dol; mott. to 213 w/TBS's @ 213 & 15.

-219 Lt. gr. dol; sandy top 6"; TBS 219.

-222 Lt. med. to med. gr. dol; ½" TBS @ base.

-224½ Med. dk. gr. dol; v. mott; chert nod @ 223.

-236 Lt. med. gr. dol; banded; chert nods 228, 28½, 29½ & 30; sandy 32-32½; TGS 236.

-239 Med. gr. dol; mott. to 237; lt. crackle 237-39.

-243 Lt. gr. dol.

-245 Lt. med. gr. dol; lt. crackle.

-247½ Lt. gr. dol.

-249½ Med. gr. dol.

-251 Lt. med. gr. dol; mott; oolitic chert nod 250½.

-253 Med. gr. dol; mott.

-261½ Lt. gr. dol; from 255½-59 mott. w/few eyelets; shears 259; from 262-67 ox. [redacted] breec.

-261½ Lt. med. gr. dol; ox. breec.

-270½ Lt. gr. dol; well banded; chert nods 268½; 270½.

-272½ Lt. med. gr. dol; well banded.

-274 Lt. gr. dol; banded; sandy 73-74 w/1" TGS @ base.

-276 Lt. med. gr. dol; mott; @ base 2" w/white specks; small chert nod @ base.

-285½ Lt. gr. dol; vert. ox. shear 75-79; chert nod 79; 1" TGS 79½; mott. 79½-80½; crackle 280½-84½ w/2 chert nods 284½.

-288 Lt. med. gr. dol; chert nods 286-86½.
-289½ Lt. gr. dol; well mott. to banded.
-295½ Lt. med. gr. dol; chert nods 290, 91½, 93, 94½, 95½.
-296½ Lt. semi re-xl; silic; 1" TOS @ base.
-308½ Lt. gr. dol; lt. banding; chert nods 300, 301, 302½.
-314 Lt. med. gr. dol; to 310½ mott. to banded w/chert nods 309, 10, 10½; chert nod 11½, 12½-13; brecc. 12-12½.
-328 Lt. gr. dol; banded 14-15; large dk. chert nod 18½; TOS 19; mott. 19-20; well banded 320-24, lt. banding 24-28.
-337 Lt. med. gr. dol; scatt. ss grains 29½-30; then TOS & large chert nod. (3' core loss 335-340) fault @ 337.
-341 Med. gr. dol.
-348½ Lt. med. gr. dol; crackle 44-45; chert nod (pt. oolitic??) 346½.
-354 Lt. gr. dol; lt. banding; occ. lt. crackle; chert nod 354.
-358½ Med. gr. dol; thin fault 355½; brecc. 355½-56½; crackle 356½-58½.
-360½ Lt. med. gr. dol; thin fault 359½; 360-60½ brecc. w/silic. & re-xl.
-362½ Med. to med. dk. gr. dol; mott; crackle 361-61½.
-366½ Lt. med. semi re-xl; mott.
TOP R BED 366½
-368 Br. re-xl & dk. grn. shale; brecc.
-369 Med. gr. dol; sugary; hvy. ss 369.
-370 LS: bands of grn. shale & ss & re-xl.
-371½ Dk. re-xl; top 9" shaly.
-373½ Lt. med. gr. dol; crackle.
-374 Br. mott. re-xl; crackle.
-375 Lt. gr. dol; brecc. w/shale & re-xl; some crackle w/gangue.
-375½ Lt. br. coarse jasperiod re-xl; some lt. grn. shale.
-377½ Lt. med. gr. dol; banded; crackle.
-386½ Lt. re-xl; mott; shears bott. 6".
-389½ Lt. gr. dol; sugary; chert nods 388, 88½ (1' core loss 88½-90½).
-391 Br. & grn. mott. re-xl.
-393 Lt. gr. semi re-xl; mott; crackle.
-404½ Lt. med. gr. dol; mott; sugary; crackle; 3" shaly re-xl @ 398.
-405½ Dk. re-xl; mott.
-409 Dk. gr. dol; chert nods 407½-08.
-411 Blk. silic. shale & some re-xl.
-414 Med. dk. gr. dol.
-415 Lt. med. gr. dol; mott.
-416½ Br. re-xl; sheared; large chert nod @ base.
-419½ Lt. med. gr. dol; crackle 16½-18½; brecc. 18½-19½.
TOP S BED 419½
-423 Lt. br. re-xl; 419½-23 silic. & cherty w/est. 2% FeS; cherty 22-22½.
-425 Lt. gr. fine grained re-xl; crackle; fault 425½-26.
-433½ Lt. med. semi re-xl; lt. mott. & lt. crackle; grading to dol; brecc. 29-33½ w/est. 4% FeS 432-33½; chert 433½.
-443 Lt. br. re-xl; cherty & shaly top 6"; lt. crackle w/occ. FeS shine.
-444 Lt. med. gr. dol; chert nod 43½; scatt. ss grn's 43½-44; some brecc w/re-xl & wht. gangue
-445 White silica w/est. 2% FeS.
-445½ Br. jasperiod re-xl.
-457½ Lt. gr. re-xl; from 49-51 dk. silic. & lt. grn. shale mix. w/re-xl; sandy 456; fault 57½.
-458 Lt. med. gr. dol; sheared.
-461 Lt. gr. re-xl; ½" TOS @ 458½; brecc. 60-61.
-467½ Lt. br. re-xl; mott. 61-64; several thin faults bott. 6".
-468 Lt. gr. fine grained re-xl; crackle.
BASE KINGSPORT 468
-470 Lt. gr. dol; lt. banding; cherty @ base.
-470 Lt. med. gr. dol; ~~ss~~ mott. 70-71; grades to med. gr. dol; lt. crackle; chert nods 77-½.
-475½ Chert nods & some re-xl.
-485 Lt. med. gr. dol; top few inches semi re-xl; mott. 81½-85.
-490 TD Lt. re-xl; vert. fault along half the core 87½-89.

NATIONAL LEAD CO. D.D. CO-6

Copper Ridge Project-Puncheon Camp Creek

DMEA Idm-E 1088

Hole No: CO-6

Farm: D.F. Coffman

Loc: N 48,202.00
E 42,941.25

Elev: 1534.55

Drilled By: Joy Mfg. Co.

Logged By: J. Spears

Collared: 11/21/57

Bottomed: 11/27/57

Depth: 397

Casing: BX 87; AX 98

Reaming: None

Cement: None

Water Table: ?

Top Kingsport	97
Top R bed	271½
Top S bed	328
Base Kingsport	385

0-8'	Overburden
-9'	Med. dk. gr. dol; mott. & eyelets to 94; lt. banding 94-97 w/thin sands 96-97 & hvy. ss 97.
-103	Med. gr. dol; lt. mott; few ss grains @ 98½; dk. chert nod 103.
-111	Lt. med. gr. dol; well mott to 106; hvy sands 07-07½; oxid 07½-08; lt. mott 09-11.
-112	Med. gr. dol; mott; shale bott. 2".
-115½	Lt. med. gr. dol; mott.
-117½	Med. dk. gr. dol; banded to mott.
-124	Lt. med. gr. dol; TBS 121; mott. 21-24; few ss grains 117½.
-127	Med. dk. gr. dol; well mott.
-155	Lt. med. (some lighter) gr. dol; 27-33 lt. banding w/thin fault 33; shaly 39½; vl mott. 39½-43½ w/3" of sandy chert @ 43½ then TGS; lt. mott & crackle 44-46½; sand & chert @ 46½; 46½-47½ v. mott & silic w/hvy ss & some oolitic chert nod 53; v mott & chert.53-54.
-161	Lt. med. grading to med. gr. dol; well mott.
-170	Lt. gr. dol; lt. mott 61-65½; chert nods 67½, 68, 68½, 69; banded 67-70.
-175	Med. gr. dol.(to lt. med. gr.) banded; chert nods 170½, 71; tr. crackle 74½-75.
-178	Lt. med. gr. dol; banded & mott; sandy 76½-78; lt. crackle 76½-77.
-179½	Lt. med. re-xl to semi re-xl; v. silic & mott; 3" chert nod @ top; sandy & TGS @ base.
-194	Lt. med. gr. dol; v. lt. banding to 83 w/chert nod 83; eyelets 83-84; mott. 84-85; chert nod 87½; sev. cherts & few ss grn's 90-90½ w/TGS 90½; lt. mott. 90½-94, 93½-94 sandy & chert fragments w/nod (oolite??) @ 194.
-202	Med. gr. dol; shears 98 (2' core loss 91-200) (3½' core loss 200-10) large chert nod 202.
-204	Lt. med. gr. dol.
-206	Lt. med. gr. dol; sugary; many white specks of silic & some ss grains; TGS @ base.
-216	Lt. gr. dol. (2' core loss 210-15).
-218	Lt. med. gr. dol; mott; lt. crackle; chert nod @ base.
-220½	Lt. gr. dol; chert nod 20; thin ss 20½.
-226	Lt. med. gr. dol; 24-26 well mott.
-230½	Lt. gr. dol; lt. banding; scatt. ss grains bott. 6".
-231	Med. gr. dol; mott.
-236	Lt. gr. dol; (to lt. med.) banded; lt crackle.
-237½	Lt. med. gr. dol.(to med) 2" TGS @ top; chert nods 36½, 37; some ox. crackle.
-243	Lt. gr. dol; occ. large eyelets; shears 42-43.
-245½	Lt. med. gr. dol; ox. crackle; chert nod 245½.
-249	Med. gr. dol; some ox. crackle; chert nod 249.
-253	Lt. gr. dol; lt. banding.
-263½	Lt. gr. to lt. med. gr. dol; lt. crackle 53-55; scatt. ss grn's then TGS @ 57; mott. 57-60; lt. banding 60-63½.
-264½	Grn. shale & silica w/few ss grains.
-265	Dk. br. re-xl; crackle.
-271½	Med. gr. semi re-xl to sugary dol; well mott; shaly top foot; 70½-71½ lighter gr. & brecc. sealed w/shale; <u>1" TGS w/FeS shine @ base.</u>
-273½	Br. re-xl; 72½-73½ v. shaley.
-274½	Lt. gr. re-xl.
-276	Br. re-xl; v. cherty & shaly & sandy to 75½; bott. 6" grn. sandy shale.
-277½	Dk. re-xl; v. cherty.
-279	Lt. med. gr. dol; mott; sugary; some brecc. w/re-xl top 6"/
-280	Dk. br. re-xl; mott.
-283	Med. gr. dol; brecc. sealed w/much silic & shaly sandy re-xl.
-289	Gr. re-xl; mott; crackle; <u>ZnS shines thruout est. 1%</u> (2' core loss 80-89).
-296½	Lt. gr. dol; sugary (semi re-xl to 92) mott. w/vugs to 92; chert nods 92, 92½; lt. band. 92½-93½; mott. 93½-96½.
-297	Grn. & br. v. mott. re-xl.
-303	Med. gr.(to med. greenish) semi re-xl; crackle; <u>est. 4% FeS 300-01.</u>
-303½	Br. shaly re-xl.
-309	Lt. med. to med. gr. dol; sugary; crackle 05-08 w/<u>FeS shine 307.</u>

-310½ Dk. mott. re-xl.
-313½ Dk. gr. dol; crackle 10½-12½; brecc. 12½-13½; est. 3% FeS 11-15.
-316 Dk. re-xl; shaly & silic; 15-16 all dk. silic. shale.
-316½ Br. re-xl; brecc. sealed w/dk. silica & white gangue.
-322 Med. gr. to med. dk. gr. dol; sugary; 16½-18 brecc. w/re-xl & gangue; crackle 18- FeS shines 320½; 321½-22.
-323 Lt. med. gr. dol; sugary.
-325 Med. semi re-xl; chert nods 324½-25.
-328 Lt. med. gr. dol; crackle 26-28 w/FeS shine 326.
TOP "S" BED 328'
-332½ Br. re-xl; FeS shine 330; much jasporiod 30-32½.
-334 Med. dk. gr. dol; chert nod 33½; some crackle w/re-xl & gangue; est. 1% FeS 32-33.
-338 Med. gr. dol.
-340 Br. re-xl; est. 4% FeS 38-39; chert nod 39½-40.
-350½ Lt. br. re-xl; from 42-42½ mixture of chert nods, jasporiod & re-xl w/FeS shines; crackl to brecc. thruout occ. FeS shine & est. 3% FeS 47-50; silic. 50-50½.
-352 Dk. br. re-xl; mott; chert & FeS shine 351½.
-357 Med. gr. dol; mott; brecc. sealed w/gangue & re-xl; est. 3% FeS 52-54½; 55-57 the re-xl predominates.
-364 Lt. re-xl; much jasporiod 58-59; crackle; chert nod @ 364.
-366 Br. re-xl; crackle to brecc; est. 3% FeS 64-66.
-373 Lt. br. re-xl; crackle.
-377 Br. re-xl; FeS shine 373½; crackle.
-381 Lt. br. re-xl; crackle.
-385 Lt. gr. fine grained re-xl; mott; shears 84-85.
BASE KINGSPORT FM. 385
-386½ Lt. gr. dol; lt. banding; TGS @ base.
-387 Lt. med. semi re-xl; TGS @ base.
-390 Lt. med. gr. dol; lt. banding; lt. crackle; chert nod 95; oolite nod 95½; large nod 96.
-390½ Br. re-xl.
-397' TD Lt. med. gr. dol.

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898

CHEMISTS
INDUSTRIAL and ANALYTICAL

MAIN OFFICE AND LABORATORIES 618-624 JOPLIN ST. TELEPHONE MAYFAIR 3-1556

JOPLIN, MISSOURI

BATESVILLE, ARKANSAS ST. LOUIS, MISSOURI PICHER, OKLAHOMA

National Lead Company
P. O. Box 61
Thorn Hill, Tennessee

11-20-57

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
781086	G ~~NL~~-5-1		0.44				
087	G ~~NL~~-5-2		0.10				
088	G ~~NL~~-5-3		0.14				
089	G ~~NL~~-4-1		0.38				
090	KL-6-1		0.20				
091	KL-6-2		0.06				
092	KL-6-3		0.24				
093	KL-6-4		4.68				

ADDRESS ALL COMMUNICATIONS TO JOPLIN, MISSOURI

Bruce Williams

64-515

$10.00

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT
GRAINGER COUNTY, TENNESSEE
FOR NOVEMBER 1957

BY: W.T. HILL

Docket No. 4580
Contract No. Idm-E 1088

During the month of November, four holes were completed on the Puncheon Camp Creek project.

One of these holes, MG-5, was drilled on the McGinnis farm 200 feet south of MG-4. The hole collared in the Mascot formation and was drilled to a depth of 830 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-7'	Overburden	--	--	--
7-512	Mascot	CMss @ 512	--	Dolomite; sporadically brecciated and mineralized with FeS.
512-791	Kingsport	Top of "R" @ 681; "S" @ 762½; "T" @ 791	625½-627, 1½' @ .44%; 653½; 672½-673, ½' @ ⅛%; 688-689½, 1½' @ .14% ZN; 695	Dolomite and recrystalline; brecciated; FeS mineralization scattered throughout upper part.
791-830	Longview	Top of "U" @ 804½	----	Dolomite and re-xl.

On the Coffman farm, three holes were drilled. CO-4 was drilled 200 feet north of CO-2 and 200 feet south of CO-3. The hole collared in the Mascot formation and was drilled to a depth of 754 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-18	Overburden	---	----	--
18-469	Mascot	CMss @ 469	--	Dolomite; faulted in lower part.
469-729½	Kingsport	Top of "R" @ 627; "S" @ 677; "T" @ 729½.	--	Dolomite and recrystalline; in part brecciated and mineralized with FeS
729½-754	Longview	---	--	Dolomite and recrystalline; crackle breccia with FeS mineralization.

Hole CO-5 was drilled 200 feet north of CO-3. The hole collared in the Mascot formation and was drilled to a depth of 490 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-62	Overburden	--	------	--
62-197	Mascot	CMas @ 197	---	Dolomite.
197-468	Kingsport	Top of "R" @ 367; "S" @ 419; "T" @ 468.	---	Dolomite, recrystalline, and limestone. Some FeS mineralization in the lower part.
468-490	Longview	---	---	Dolomite and re-xl.

Hole CO-6 was drilled 200 feet north of CO-5. The hole collared in the Mascot formation and was drilled to a depth of 397 feet. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-87	Overburden	---	----	---
87-97	Mascot	---	----	Dolomite.
97-385	Kingsport	Top of "R" @ 271½; "S" @ 328; "T" 385	283-289, 6' of shines.	Dolomite and re-xl, in part brecciated; FeS mineralization from 300-374.
385-397	Longview	---	---	Dolomite.

Drilling is now underway 200 feet north of CO-6 at location CO-7 and 600 feet east of MG-5 at location DA-1.

Form MT-134 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 27

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of October 7 4580 Km-5 1038

Operator's Name National Lead Co. Docket No. DMEA Contract None

Address 111 Broadway New York, N.Y. Minerals

Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:	9138.00	9207.00	18,345.00			
Drilling						
Bulldozing						
Crosscutting						
Drifting	208.00	—	208.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track Boxes	—	62.75	62.75			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment	—	—	—			
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (Specify): Incl. Sec. 10/21.	548.28	552.42	1100.70			
	9894.28	9848.17	19,742.45			
TOTALS				9894.28	9848.17	19742.45

I certify that the above bill is correct and just and that payment therefor has not been received.

Date Oct. 1957 *Payee National Lead Co.

Per G. S. Brown Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 4947.14

Signature Helen R. Miller
(Authorized Certifying Officer)

Date NOV 22 1957 Vou. No. 67
(See other side)

3

4947.14

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature [illegible] Title GEOLOGIST, U. S. G. S. Date NOV 19 1957

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature [illegible] Title ACTING EXECUTIVE OFFICER DMEA - REGION V Date NOV 19 1957

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED NOV 25 1957

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 1957 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name National Lead Co. Minerals Zinc

Address 111 Broadway, New York, N.Y.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	9138.00	3046	18,345.00	6115	3.00	50,000	3.00
Churn Reaming	Foot	208.00	104	208.00	104	2.00	5,000	2.00
Auger Sampling	EA.	—	—	—	—	—	550	1.50
Core Boxes	EA.	[illegible]	[illegible]	88.75	50	1.77½	150	2.00
Stripping								
Trenching								
Test Pits								
Roads and Trails Incidental Allow. @ 18/ft.	Foot	548.28	3046	1,100.70	6115	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		9894.28		19,742.45				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		9894.28		19,742.45				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date October 1957 Operator National Lead Co.

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

[signature]

GEOLOGIST, U. S. G. S.
NOV 19 1957

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc.". The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases; such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE 63			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
Box 2047
Morristown, Tenn.

TERMS NET 30 DAYS
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96773

INVOICE DATE 10-21-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 510.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		MC-2	0.	510.		510.		$3.00	$1,530.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
Box 2047
Morristown, Tenn.

SHIPPED TO

Puncheon Camp, Tenn.

[redacted]S
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96816

INVOICE DATE 10-25-57

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
			To 59.' Reaming in connection with core drilling at Puncheon Camp, Tennessee as per agreement.					
		MB-2	Reaming From 50 to 109. 59.		@$2.00 per ft.			$118.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

FORM P133A

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE 63			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
Box 2047
Morristown, Tenn.

SHIPPED TO

Puncheon Camp, Tenn.

[redacted]
NO CASH DISCOUNT

PLEASE REMIT TO PITTSBURGH, PA.

INVOICE NO. 96818

INVOICE DATE 10-25-57

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 380.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		M1-3	0.	380.		380.		$3.00	$1,140.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

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FORM P133A

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JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE 63			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

TERMS NET 30 DAYS
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96774

INVOICE DATE 10-21-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 854.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		Coffman 2	0.	854.		854.		$3.00	$2,562.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM P133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96817

INVOICE DATE 10-25-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 617.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		C.O. 3	0.	617.		617.		$3.00	$1,851.00
		Reaming							
		C.O. 3	55.	100.		45.		2.00	90.00
									$1,941.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

FORM P133A

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE 63			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tennessee

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96841

INVOICE DATE 11-13-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 685.' agreement.	Core Drilling at Puncheon Camp, Tennessee as per						
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		MG 4	0.	685.		685.		$3.00	$2,055.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM F133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK PROJECT
GRAINGER COUNTY, TENNESSEE
FOR OCTOBER 1957

Docket No. 4580
Contract No. Idm-E 1088

During the month of October, five holes were drilled on the Puncheon Camp Creek project.

Three holes were drilled on the McGinnis farm. Hole MG-2 was drilled 200' north of MG-1. The hole collared in the Mascot formation and was drilled to a depth of 510'. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS *
0-42	Overburden	---	------	--
42-182	Mascot fm.	CMss @ 182	------	Dolomite; few cavities near top.
182-454	Kingsport fm.	Top of "R" bed @ 365; "S" @ 418; "T" @ 454	Sh. @ 297; 316-17, 1' @ 1% Est.	Dol. and re-xl; in part brecc; some scatt. FeS shines.
454-510	Longview fm.	Top of "U" bed @ 465'.	------	Dol. and re-xl; some crackle brecc; lt. FeS shines 492-499.

Hole MG-3 was drilled 200' north of MG-2. MG-3 collared in the Kingsport formation (the CMss would have been in the overburden) and was drilled to a depth of 380'. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-127	Overburden	---	---	--
127-354	Kingsport fm.	Top of "R" bed @ 273; @ 321; "T" @ 354	"S" Sh's. 187½-91.	Dol, re-xl; and limestone; both crackle & rubble brecc; FeS sh. 229-44, 295-304, 340-343.
354-380	Longview fm.	Top of "U" bed @ 365	----	Dol. and re-xl.

MG-4 was drilled 200' south of MG-1. The hole collared in the Mascot formation and was drilled to a depth of 685'. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-24	Overburden	----	----	---
24-389	Mascot fm.	CMss @ 389	----	Dol; some FeS shines near base.

389-660	Kingsport fm.	Top of "R" @ 559, "S" @ 615, "T" @ 660	Shine @ 491; 493½-96, 2½' @ 1% Est; 503½-04½, 1' @ ¼% est; 510½-12, 1½' @ ¼% Est; Sh. @ 527, 30, 31½	Dol. re-xl, and chert, in part brecc; rubble brecc. near base; scatt. FeS shines.
660-685	Longview fm.	Top of "U" bed @ 672	----	Dol. and re-xl.

On the Coffman farm, hole CO-2 was drilled 200' to the north of CO-1. The hole collared in the Mascot formation and was drilled to a depth of 854'.

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-16	Overburden	----	----	—
16-566	Mascot fm.	CMss @ 566'	----	Dolomite.
566-832	Kingsport fm.	Top of "R" @ 715; "S" @ 785; "T" @ 832.	----	Dol. & re-xl; in part brecc; Traces FeS 768-820
832-854	Longview fm.	Top of "U" bed @ 844'	----	Dol. and re-xl.

Hole CO-3 was drilled 400' north of CO-2. The hole collared in the Mascot formation and was drilled to a depth of 617'. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-26	Overburden	—	—	—
26-323	Mascot fm.	CMss @ 323'	—	Dolomite.
323-598½	Kingsport fm.	Top of "R" @ 507; "S" @ 552½; "T" @ 598½.	—	Dolomite & re-xl; in part brecciated.
598½-617	Longview fm.	Top of "U" bed @ 611'	----	Dol. & re-xl.

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED OCT 25 1957 DIVISION OF PAYMENTS

PAID VOUCHER & SCHEDULE
K- 21

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of September, 1957 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name National Lead Co. Minerals Zinc
Address 111 Broadway, New York, N.Y.
Contract Amount, $ 170,125.00 Government Participation: 50 % Amount, $ 85,062.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	4656.00	4551.00	9207.00			
Bulldozing						
Crosscutting						
Drifting						
Reaming	---	--	--			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	88.75	---	88.75			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	--	---	---			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Incidental Allowance at .18/ft.	279.36	273.06	552.42			
TOTALS	5024.11	5370.18	9848.17	5024.11	4824.06	9848.17

I certify that the above bill is correct and just and that payment therefor has not been received.

Date Sept. 1957 *Payee National Lead Co.

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 2512.06

Signature [signature]
(Authorized Certifying Officer)

Date OCT 23 1957 Vou. No. 77

(See other side)

2

2512.06

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-1088 in accordance with the terms of the contract.

Signature J. F. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date OCT 18 1957

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lemmerer Title EXECUTIVE OFFICER DMEA FIELD TEAM REGION V Date OCT 18 1957

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1962)

Budget Bureau No. 42-R1151.2

RECEIVED
OCT 25 1957
D.M.E.A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

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Operator's Name National Lead Co. Minerals Zinc
Address 111 Broadway, New York, N.Y.

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Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core		4656.00	1552	9207.00	3069	3.00	50,000	3.00
Churn Reaming	Foot	----	----	----	----	----	5,000	2.00
Auger Sampling	Foot	----	----	----	----	----	550	1.50
Stripping Core Boxes	Ea.	88.75	50	88.75	50	1.77½	150	2.00
Trenching								
Test Pits								
Roads and Trails Incid.	Foot							
Allowance @ .18¢/ft.		279.36	1552	552.42	3069	.18	50,000	.18
TOTAL DISTRIBUTED COSTS		5024.11		9848.17				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		5024.11		9848.17				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date Sept. 1957 Operator National Lead Co.

Per [signature] Title Superintendent

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REMARKS:

(Instructions on reverse)

(For Government use only)

[signature]
GEOLOGIST, U. S. G. S.

OCT 18 1957

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A PROGRESS REPORT ON THE PUNCHEON CAMP CREEK
PROJECT, GRAINGER COUNTY, TENNESSEE
FOR SEPTEMBER 1957

Docket No. 4580
Contract No. Idm-E 1088

During the month of September, two holes were drilled on the Puncheon Camp Creek project.

One hole was drilled on the McGinnis farm (MG-1). The hole collared in the Mascot formation and was drilled to a depth of 591'. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0'-95'	Overburden	—	—	—
95'-276'	Mascot fm.	CMas @ 276'	—	Light, medium, and dk. gray dol.
276-557'	Kingsport fm.	Top of "R" @ 480; top of "S" @ 519½; top of "T" @ 557.	Shines @ 388, 390; 426½-427, ½' @ 1% Est; 428.	Light, medium, and dk. gray dol w/re-xl and limestone in lower part; in part brecc.
557-591'	Longview fm.	—	—	Dol. and re-xl.

One hole was drilled on the Coffman farm (CO-1). The hole was collared in the Mascot formation and was drilled to a depth of 961'. The results are summarized below:

DEPTH	FORMATION	KEY HORIZON	ZINC MINERALIZATION	REMARKS
0-9'	Overburden	—	—	—
9-661'	Mascot fm.	CMas @ 661'	Trace @ 290½	Dol; light, med. dk. gray.
661-939'	Kingsport fm.	Top of "R" bed @ 853; top of "S" bed @ 905; top of "T" 939.	—	Light, med. and dark gray dol. w/recrystalline and limestone in lower part.
939-961'	Longview fm.	—	—	Dol. w/some re-xl.

On the McGinnis farm, drilling is now underway 200' north of MG-1 at location MG-2.
On the Coffman farm, drilling is underway at location CO-2 200' north of CO-1.

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE			DATE	AT SHIP POINT	
	63					

SOLD TO

National Lead Company
Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96746

INVOICE DATE 9-25-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 961.' Core Drilling at Puncheon Camp, Tennessee as per agreement.							
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		Coffman 1 CO-1	0.	961.		961.		$3.00	$2,883.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

FORM 2133A

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.
CONTRACT	CODE 63			DATE	AT SHIP POINT	

SOLD TO

National Lead Company
Box 2047
Morristown, Tenn.

SHIPPED TO

Puncheon Camp, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO PITTSBURGH, PA.

INVOICE NO. 96747

INVOICE DATE 9-25-57

DATE SHIPPED

SHIPPED VIA

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 591.' Core Drilling at Puncheon Camp, Tennessee as per agreement.						
		Prospect #	From / To		Total Feet		Unit Cost	Total Cost
		MB-1	0. / 591.		591.		$3.00	$1,773.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

FORM P133A

Statement

Jefferson City, Tenn. 10/7/57 195

M National Lead Co

Thorn Hill, Tenn

MOYERS CABINET SHOP

108 Carson Street

Telephone 3113

25-	AX Core Boxes	5' Long	@ 2.00	50.00 } 88.75
25-	AX Core Boxes	4' "	1.55	38.75
500-	Survey Stakes		.03	15.00
200-	" Hubs	2x2x12	.03	6.00
				109.75

THANK YOU

Form MR-104 (Rev.) (April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 16

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of August, 1957 Docket No. DMEA 4580 Contract No. Idm-E 1088
Operator's Name National Lead Company. Minerals Zinc
Address 111 Broadway, New York 6, N.Y.
Contract Amount, $170,125.00 Government Participation: 50 % Amount, $ 85,062.00

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	4551.00	---	4551.00	4551.00		4551.00
Bulldozing						
Crosscutting						
Drifting						
Reaming	---	---	---			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	---	---	---			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	---	---	---			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify): Incidental allowance .18 ¢ ft.	819.18	---	819.18	273.06		273.06
TOTALS	5370.18	---	5370.18	4824.06		4824.06

I certify that the above bill is correct and just and that payment therefor has not been received.

Date August, 1957 Payee National Lead Company

Per [signature] Title Superintendent

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

(Instructions on reverse)

2412.03

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$2,412.03

Signature [signature] (Authorized Certifying Officer)

Date SEP 27 1957 Vou. No. 58

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. Idn. E1088 in accordance with the terms of the contract.

Signature W. A. Beck Title MINING ENGINEER U. S. BUREAU OF MINES Date SEP 20 1957

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER DMEA FIELD TEAM REGION V Date SEP 20 1957

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of August 1957 Docket No. DMEA 4580 Contract No. Idm-E 1088

Operator's Name National Lead Co. Minerals Zinc

Address 111 Broadway, New York 6, N.Y.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	4551.00	1517	4551.00	1517	3.00	50,000	150,000.00
~~Churn~~ Reaming	Foot	---	---	---	---	2.00	5000	10,000.00
~~Auger~~ Sampling	Ea.	---	---	---	---	1.50	550	875.00
~~Stripping~~ Core boxes	Ea.	---	---	---	---	2.00	150	300.00
Trenching								
Test Pits								
Roads and Trails Incidental allowance .18 /ft.	Foot	319.18	1517	319.18	1517	0.18	50,000	9000.00
TOTAL DISTRIBUTED COSTS		5370.18		5370.18				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		5370.18		5370.18				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date August, 1957 Operator National Lead Co.

Per [signature] Title Superintendent

NOTE.—Title 18, U. S. Code (Crimes), section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

REMARKS:

(Instructions on reverse)

(For Government use only)

Incidental Allowance should be $273.06 and totals $4824.06

[signature]
MINING ENGINEER
U. S. BUREAU OF MINES
SEP 20 1957

[signature]
GEOLOGIST, U. S. G. S.
SEP 20 1957

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

A PROGRESS REPORT ON THE
PUNCHEON CAMP CREEK PROJECT, GRAINGER COUNTY,
TENNESSEE FOR AUGUST, 1957.

By: W.T. Hill

Docket No. 4580
Contract No. Idm-E 1088

During the month of August, two holes were drilled on the Puncheon Camp Creek project. The first hole was drilled on the V. Stapleton farm (ST-1). The hole collared in the Mascot formation, and was drilled to a depth of 607 feet. The results are summarized below:

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks.
0-1½	Overburden	—	—	—
1½-360	Mascot fm.	CMas @ 360'	—	Lt. med., and dk gray dolomite.
360-563½	Kingsport fm.	Top of "E" bed 493'; Top of "G" bed @ 543'.	—	Light, med. and dark gray dol. with recrystalline and limestone in the lower part.
563½-607	Longview fm.	Top of "T" bed 563½; Top of "u" bed 575½.	—	Dolomite and recrystalline.

The second hole was drilled 40 feet south along the "fence" on the Winstead farm. Hole WC-1 collared in the Mascot formation and was drilled to a depth of 310'. The results are summarized below:

Depth	Formation	Key Horizon	Zinc Mineralization	Remarks.
0-1	Overburden	---	---	---
1-673½	Mascot fm.	CmSS @ 673½	ZnS sh. @ 538	Light, medium, and dark gray dol.
673½-905	Kingsport fm.	Top of "[illegible]" bed @ 753'; top of "[illegible]" bed @ [illegible]57	ZnS sh. @ 763½, est. [illegible] ZnS 766½-767.	Light, medium and dark gray dolomites; limestone and recrystalline in lower part; some crackle breccia.
905-910	Longview fm.	Top of "T" bed @ 905'	---	Medium gray dolomite.

Drilling is now underway on the [illegible].R. Coffman farm.

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.

CONTRACT	CODE	DATE	AT SHIP POINT
	63		

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

~~TERMS NET 30 DAYS~~
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96620

INVOICE DATE 8-16-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION	CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 607.' Core Drilling at Puncheon Camp, Tennessee as per agreement.						
		Prospect #	From / To		Total Feet		Unit Cost	Total Cost
		Jackson 1 ST-1	0. / 607.		607.		$3.00	$1,821.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

FORM P133A

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING

PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER NO.	DATE	REQ. NO.	OUR ORDER NO.	DATE	AT REC. POINT	B.O. NO.

CONTRACT	CODE	DATE	AT SHIP POINT
	63		

SOLD TO

National Lead Company
P.O. Box 2047
Morristown, Tenn.

TERMS NET 30 DAYS
NO CASH DISCOUNT

PLEASE REMIT TO
PITTSBURGH, PA.

INVOICE NO. 96685

INVOICE DATE 8-31-57

DATE SHIPPED

SHIPPED VIA

SHIPPED TO

Puncheon Camp, Tenn.

P. O. ADDRESS

MARKS

REQUESTED ROUTING

SHIPPED FROM

ORIGINAL QUANTITY ORDERED	UNIT	PART NUMBER	DESCRIPTION		CODE	UNIT PRICE	QUANTITY BACK ORDERED	QUANTITY SHIPPED	AMOUNT
		To 910.' agreement.	Core Drilling at Puncheon Camp, Tennessee as per						
		Prospect #	From	To		Total Feet		Unit Cost	Total Cost
		Winston 1	0.	910.		910.		$3.00	$2,730.00

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED

NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

FORM P133A

A PROGRESS REPORT ON THE
PUNCHEON CAMP CREEK PROJECT, GRAINGER
COUNTY, TENNESSEE FOR JULY, 1957.

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 12 1957

DATE		CODE
8/12	G	220
		800

Docket No. 4580
Contract No. Idm-E 1088

Drilling is now underway on the Puncheon Camp Creek project. The first drilling location is on the V. Staplet~~on farm (5I-1)~~. Due to the steep rocky slope at the drilling site, a great deal of time was spent preparing the location and moving in the drilling equipment, and as a result, drilling has been underway only a few days. The "Operators Unit Cost and Progress Report" is not being submitted with this report.

REPORT
OF REVIEW

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF ROYALTY REVIEW

I have reviewed the files of the Washington office pertaining to Contract Idm-E1088, Docket DMEA-4580 (zinc), dated May 20, 1957, with

National Lead Company
111 Broadway
New York 6, New York
and its assignee
Benjamin H. Putnam
512 Third Street
Marietta, Ohio

for the purpose of determining the amount of royalty payable to the U. S. Government on sales of minerals from property referred to as the Puncheon Camp Creek Area located in the Copper Ridge Zinc District, Grainger County, Tennessee, during the period May 20, 1957, through December 1, 1960.

A certification of discovery or development was issued on January 3, 1961, and, in accordance with Article 6, Annexes I and II, and Amendment No. 5 of the contract, royalty is payable on all minerals produced from the land described in Article 2, as amended, of the contract for a period of 23 years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. A Report of Review dated December 7, 1960, indicated acceptable costs under the exploration contract amounting to $154,387.34; however, an aggregate of $154,357.34 only was claimed by the assignor and assignee, with the Government's contribution on a 50 percent basis being $77,178.67.

The status of the project, the scope of review, and the reasons therefor are stated on page 2.

This review established no sales subject to the Government's royalty for the period covered. Accordingly, as of December 1, 1960, the royalty account of this project was found to be:

Total Royalty Payable	$ -0-
Total Royalty Paid	-0-
Balance of Royalty Due	$ -0-

May 11, 1962

E. D. Talbert, OME Auditor

Idm-E1088 Benjamin H. Putnam, Assignee DMEA-4580

STATUS OF PROJECT, SCOPE OF REVIEW
AND REASONS THEREFOR

This contract provides that the Operator, as principal if the producer or as surety if not the producer, shall pay to the Government a percentage royalty on all minerals produced for a maximum of 23 years from (1) the lands thereunder, and (2) any contiguous lands in which the Operator or any subsidiary acquires any interest before May 20, 1967. The term "minerals" includes limestone and dolomite products derived from processing ores.

At the time this contract was executed, the land thereunder consisted of 12 parcels of land aggregating 812 acres, more or less. Amendments to the contract added 2 parcels totalling 187 acres. Of the total of approximately 999 acres, one parcel of about 218 acres was held under an option to purchase in fee simple and the remaining tracts and acreage were held under options to purchase the mineral rights therein. Consents to Lien and Subordination Agreements were waived. All options were in the name of B. H. Putnam, but were assigned to the National Lead Company prior to execution of the exploration project contract, and re-assigned to B. H. Putnam during March 1958. The Government, in turn, approved the assignment of the contract to Benjamin H. Putnam without releasing the assignor from any of the provisions thereof.

During this review it was noted that a map, prepared by the Operator during December 1959, indicates that options were held on several parcels of land contiguous to but not included in the land under the contract. Initial options, however, may have predated the contract.

Exploration work under the contract was completed on June 29, 1960. The Operator's final geological and engineering report was received on December 1, 1960. Up to that date no ores had been produced from the property under the contract.

This review was made in lieu of an on-site audit of the Operator's accounts and records for the following reasons:

(1) No minerals have been produced from the property under the contract during the period covered by this review; and
(2) The administrative cost to the Government of an on-site royalty audit at this time would be excessive in relation to the amount of possible royalty which might be disclosed.

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

National Lead Company, Assignor
111 Broadway
New York, New York
and
Benjamin H. Putnam, Assignee
512 Third Street
Marietta, Ohio

pertaining to Exploration Project Contract No. Idm-R1088, DMEA No. 4580, including Amendments Nos. 1 through 6, for August 1957 to June 1960, inclusive, covering a zinc project in the Puncheon Camp Creek Area, Grainger County, Tennessee.

My review included an examination of the Monthly Reports (Forms MF-104) and supporting documents, comparison of the claimed costs with the contract and pertinent schedules, verification of work performed by reference to Field Team reports and correspondence, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of a final audit of the Operator's accounts and records for the reasons given in the attached schedule.

The findings of this review are stated in the following summary and the attached schedule:

Total cost billed by Operator		$154,546.09
Exceptions:		
Prior to this review	$22.75	
Herewith	-0-	22.75
Acceptable cost claimed by Operator		154,523.34
Acceptable costs not claimed, to ~~partially~~ offset exceptions		22.75
Total accepted cost		154,546.09
Acceptable cost not claimed	$64.00	
Less: Offset above	22.75	41.25
Total acceptable cost, if claimed		$154,587.34

The contract calls for a 50 percent contribution of the allowable costs by the Government. Therefore, if the project is otherwise accepted as having met the terms of the contract, payments as follows are valid and proper:

Payable on audited claim	$ 77,173.05
Paid to date	72,716.09
Balance due Assignee	$ 4,456.96
Additional payable, if claimed by Assignor	$ 5.62
Additional payable, if claimed by Assignee	$ 15.00

Paid [illegible]

E. D. Talbert

December 7, 1960

E. D. Talbert, OME Auditor

Reasons for Report of Review in lieu of a final audit:

(a) the Monthly Reports were supported by documentary proof of that portion ($145,151.25) of the acceptable costs covering work performed at unit rates under independent contract;
(b) the balance ($9,236.09) of the acceptable costs was under a contract provision for payment by the Government at fixed unit costs for work performed; and
(c) the administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible further disallowances.

Exceptions prior to this review:

Hauling core and capping holes, 7 hrs. @ $3.25, claimed by Assignee in Apr. 1960 MP-104, not authorized by contract ..... $ 22.75

Acceptable costs not claimed by Assignor:

(a) Claimed 36 assays @ $1.25/assay, i.e., $45.00, whereas allowable are analyses of 31 samples @ $1.50/sample, i.e., $46.50; difference ..... $ 1.50
(b) Claimed 75 core boxes at total cost of $140.25, whereas allowable are 75 core boxes @ $2.00, or $150.00; difference 9.75
$ 11.25

Acceptable costs not claimed by Assignee:

Claimed 191 assays @ $1.25/assay and 10 assays @ $1.00/assay, i.e., $248.75, whereas allowable are 201 samples @ $1.50/sample, i.e., $301.50; difference ..... $ 52.75

Acceptable costs, if claimed:

Category (1), Independent Contracts -

Drilling (91 holes)	47,838' @ $2.98+	$142,596.50*
Reaming	1,266' @ 2.00	2,532.00*

Fixed Unit Costs -			
Incidental allowance	47,838'	@ $ .18	$ 8,610.84
Core boxes	150	@ 2.00	300.00
Samples analyzed	232	@ 1.50	348.00
			$154,387.34

* Actual costs invoiced by drilling contractors:

(a) Joy Manufacturing Company (20 holes) -

Drilling	13,158'	@ $3.00	$ 39,474.00
Reaming	229'	@ 2.00	458.00

(b) Putnam Drilling Company (63 holes) -

Drilling	30,914'	@ $3.00	92,742.00
Reaming	1,037'	@ 2.00	2,074.00
Hauling core & capping hole	30 hrs.	@ 3.75	112.51

(c) E. J. Longyear Company (8 holes) -

Overburden drilling	612'	@ $2.75	1,683.00
BX drilling	80'	@ 3.05	244.00
AX drilling	3,074'	@ 2.75	8,453.50
Hauling core & capping hole	31 hrs.	@ 3.25	100.75
			$149,341.76

DLG 22 NOV

Memorandum

To: Mr. Robert A. Lawrence
U. S. Geological Survey
Room 11, Post Office Building
Knoxville 2, Tennessee

From: Chief, Division of Field Operations

Subject: Records for Region IV, OME, Knoxville Official File
DMSA-4580 (Zinc)
Benjamin H. Putnam, Assignee
Donahoe Camp Creek Prospect
Grainger County, Tennessee
Contract Idm-[illegible]

Attached are a Report of Review dated December 7, 1960, with original transmittal memorandum of December 7, 1960, a copy of the Operator's final voucher with narrative for June 1960, a copy of a memorandum dated December 19, 1960, to the Chief, Fiscal Section, Division of Administrative Services, Office of the Secretary, approving payment of the final voucher, a copy of a letter dated December 16, 1960, to the Assignee-Operator from the Chief, Division of Field Operations, and a copy of a letter dated December 19, 1960, to the Assignee from the Chief, Division of Field Operations.

George C. Selfridge

Attachments

GCSelfridge/ab (12/22/60)
Copy to: Docket DMSA-4580
Director's Reading File
CAAA Division
G. C. Selfridge
Chron

DEC 19 1960

National Lead Company, Assignor
111 Broadway
New York, New York

Re: DMEA-4580 (Zinc)
Benjamin H. Putnam, Assignee
Punchbowl Camp Creek Prospect
Grainger County, Tennessee
Contract Idm-E1088

Gentlemen:

Enclosed for your information and files is a copy of a Report of Review on the project costs under the subject contract.

Sincerely yours,

George C. Selfridge

Chief, Division of Field Operations

Enclosure

LGHouk/GCSelfridge/gla/fw-12/16/60

cc: Docket (white)
Director's read. file
GA&A Division
Reg. IV (1)
Fiscal Section, Div. Admin. Services
Mr. Houk (pink surname copy)
Chron.

174

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 1, POST OFFICE BLDG.
KNOXVILLE 2, TENNESSEE

JUL 28 1960
O.M.E

July 26, 1960

Memorandum

To: Contract Administration & Audit Division
Office of Minerals Exploration, Washington, D. C.

From: V. J. Lynch, Mining Engineer- Knoxville, Tenn.

Subject: Final Monthly Report & Voucher - DMEA-4580 (zinc)
B. H. Putnam, Operator
Puncheon Camp Creek Area, Grainger County, Tenn.
Idm-E1088.

Work on the subject contract was completed June 30, 1960.

The number of units of work completed by the Operator and accepted by the Field Team are as follows:

Diamond drilling	47,838 feet
Feet of hole reamed	1,266 "
Samples analyzed	237
Core boxes used	150

An acceptable final engineering and geological report was received DEC 1 1960.

The total amount of $72,716.09 has been paid todate to the Operator; $4,445.57 having been withheld pending final audit or review.

A report of Review is requested.

The original and three copies of the June 1960 final monthly report and voucher are enclosed.

L. G. Houk
Acting Field Officer
OME, Region IV

Audit Copy

EXPLORATION PROJECT CONTRACT
BENJAMIN H. PUTNAM, ASSIGNEE
DOCKET NO. DMEA-4580

AMENDMENT No.6

It is agreed this 14th day of January, 1960, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government" and Benjamin H. Putnam, hereinafter called the "Operator" that Exploration Project Contract No. Idm-E1088 (Docket No. DMEA-4580) dated May 20, 1957, as amended, is further amended as follows:

In Annex I of the contract, there is hereby added the following parcel of land, which adjoins the original project area on the east:

Dave Jackson and Mary E. Jackson, 132 acres.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

Benjamin H. Putnam,
Assignee

THE UNITED STATES OF AMERICA

By Robert A. Lawrence
Executive Officer,
OME Field Team, Region V

Audit's Copy

EXPLORATION PROJECT CONTRACT
BENJAMIN H. PUTNAM, ASSIGNEE
DOCKET NO. DMEA-4580

AMENDMENT NO. 5

It is agreed this 6th day of November, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government," and Benjamin H. Putnam, Assignee, hereinafter called the "Operator," that Exploration Project Contract No. Idm-K1088 (Docket No. DMEA-4580), dated May 20, 1957, as amended, is further amended as follows:

1. The date fixed in Amendment No. 4 for completion of the work is extended from December 31, 1959, to June 30, 1960.

2. The maximum period for royalty payments and the liens to secure the payments thereof, provided for in Amendment No. 4, is increased from twenty-two (22) years to twenty-three (23) years from the date of the Contract.

3. It is the essence of this Contract that the work be completed before the termination of the period here fixed for completion; and if it is not so completed in the manner required by the Contract, the following provisions shall thereupon become effective:

(a) The Contract and all obligations of the parties thereunder, except as otherwise herein expressly provided, shall be and are hereby terminated effective June 30, 1960, if the work is not completed on or before June 30, 1960.

(b) The Government will contribute only to the allowable costs of any work performed prior to June 30, 1960.

(c) The Operator shall promptly perform all winding-up and settlement actions provided for in the Contract, including the rendering of the final report and final account.

(d) The Operator, as principal if the Operator is the producer, or as surety if the Operator is not the producer (for example, if the Operator either transfers or fails to retain its interest in the land), shall pay the Government the royalty on production provided for in the Contract, in the same manner and amount and for the full period provided for in the Contract, as amended, as if certification of discovery or development had been made, such certification being hereby waived by the Operator. In addition, all rights of the Government provided for in the Contract with respect to a certification of discovery or development, and all rights of the Government as to reports (including the preservation of the Operator's records), audit, and recovery of any overpayment, are preserved.

(e) The Operator hereby releases and agrees to save the Government harmless from all demands under and arising out of the Contract, except as otherwise provided for in this Amendment No. 5.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank E. Johnson
Acting Director, Office of
Minerals Exploration

Benjamin H. Putnam, Assignee

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

ROOM 2-8 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

EXTRA COPY
O. M. E.
RECEIVED DEC 10 1959

DATE	INITIALS	CODE
		800

December 8, 1959

Mr. B. N. Putnam
170 East Pearson St.
Chicago 11, Illinois

Re: DMEA-4580, Idm-E1068-zinc
Puncheon Camp Creek
Grainger County, Tennessee

Dear Mr. Putnam:

May I point out that time is running out on this contract? Unless Amendment No.5, which I sent you on November 9, is signed and returned to me the contract will expire on December 31 in accordance with the terms of Amendment No.4. We consider the remaining drilling to be well worth doing, and I hope you will execute the amendment promptly.

I understand that the drill rig is currently out of operation, for repairs. Because of the impending expiration date, and the probability that your November voucher may therefore be the final one, I must hold it in suspense until work is resumed. When drilling starts again, provided either that Amendment No.5 has been executed, or there is sufficient time to complete a hole before December 31, we will process the November voucher for payment.

With best wishes of the season, I am

Sincerely yours,

Robert A. Laurence
Executive Officer, OME
Region V

RAL/sm
cc
Opr. Com-2
Fischer
Finance
Lynch
Files

Audit's copy

EXPLORATION PROJECT CONTRACT
BENJAMIN H. PUTNAM, ASSIGNEE
DOCKET NO. DMEA-4580

AMENDMENT NO. 4

It is agreed this 7th day of July, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government", and Benjamin H. Putnam, Assignee, hereinafter called the "Operator", that Exploration Project Contract No. Idm-R1088 (Docket No. DMEA-4580) dated May 20, 1957, as amended, is further amended as follows:

1. The date fixed in Amendment No. 2 for completion of the work is extended from June 30, 1959, to December 31, 1959.

2. The maximum period for royalty payments and the liens to secure the payments thereof, provided for in Amendment No. 2, is increased from twenty-one (21) years to twenty-two (22) years from the date of the Contract.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank E. Johnson
Acting Director, Office of
Minerals Exploration

Benjamin H. Putnam, Assignee

Audit's copy

OFFICIAL FILE COPY
O. M. E.
RECEIVED NOV 24 1958
DATE | INITIALS | CODE

EXPLORATION PROJECT CONTRACT
BENJAMIN H. PUTNAM, ASSIGNEE
DOCKET NO. IMEA-4580

AMENDMENT NO. 3

It is agreed this 24th day of October, 1958, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, and Benjamin H. Putnam, Assignee, that Exploration Project Contract No. Idm-E1088 (Docket No. IMEA-4580), dated May 20, 1957, as amended, is further amended as follows:

In Exhibit A, under the heading Description of the Work, the third paragraph, as revised by Amendment No. 2, is further revised to read as follows:

> "A series of widely spaced dip fences shall first be drilled, not less than 1,200 feet apart. Following this preliminary work, auxiliary dip and strike fences may be drilled not less than 400 feet apart. The holes on both the preliminary and auxiliary fences shall be spaced not closer than 200 feet. However, with prior Government approval, such spacing may be reduced from 200 feet to 100 feet."

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank E. Johnson
ACTING Director, Office of Minerals Exploration

Benjamin H. Putnam, Assignee

Audit copy

EXPLORATION PROJECT CONTRACT
BENJAMIN H. PUTNAM, ASSIGNEE
DOCKET NO. DMEA-4580

AMENDMENT NO. 2

It is agreed this 6th day of June, 1958, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Benjamin H. Putnam, Assignee, that Exploration Project Contract No. Idm-E1088 (Docket No. DMEA-4580), dated May 20, 1957, as amended, is further amended, as follows:

1. The date fixed in Article 3 of the Contract for completion of the work is extended from August 15, 1958, to June 30, 1959.

2. The maximum period for royalty payments and the liens to secure the payment thereof, provided for in Article 8(b)(2) of the Contract, is increased from twenty (20) to twenty-one (21) years from the date of the Contract.

3. In Exhibit "A", under the heading, Description of the Work, the third paragraph is revised to read as follows:

> "A series of widely spaced dip fences shall first be drilled, not less than 1,200 feet apart. Following this preliminary work, auxiliary dip and strike fences may be drilled not less than 600 feet apart. The holes on both the preliminary and auxiliary fences shall be spaced not closer than 200 feet. However, with prior Government approval, such spacing may be reduced from 200 feet to 100 feet."

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By C. Mistendorf
Administrator, Defense Minerals
Exploration Administration

Benjamin H. Putnam, Assignee

Aud[illegible]'s copy

Official COPY

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible] 27 [illegible] 1958.

[illegible]

By ______________________

Title VICE PRESIDENT

I, _____, certify that I am the _____ secretary of the corporation named herein; that _____ who signed this instrument on behalf of the corporation, was then _____ of said corporation; that said instrument was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

_____ (Corporate seal)

Official

Official

ASSIGNEE'S AGREEMENT

The Assignee hereby [illegible] and agrees to [illegible] terms, provisions and conditions of the Contract.

Dated this 8th day of May, 19[illegible]

[illegible]

By [signature]

GOVERNMENT'S CONSENT

The Government, this 11th day of April, 19[illegible], hereby consents to the above Assignment [illegible] National Bank Company [illegible] provisions and conditions of the Contract [illegible] including a termination agreement and [illegible]

THE UNITED STATES OF AMERICA

By [signature]

[illegible]

EXTRA COPY
DMEA
RECEIVED MAR 17 1958
DATE | CODE
8CC

March 14, 1958

Mr. W. Church Holmes, Assistant Manager
Mining Department
National Lead Company
111 Broadway
New York 6, New York

Re: Docket No. DMEA-4580 (Zinc)
Punncheon Camp Creek Area
Grainger County, Tennessee
Contract No. Idm-E1088

Dear Mr. Holmes:

Mr. B. H. Putnam has advised me that you have notified him of National Lead Company's intention to withdraw from the Copper Ridge area and has forwarded to me a copy of your letter to him, dated February 21, 1958, signifying your intention of returning all the leases on Copper Ridge to him under terms of your agreement with Mr. Putnam dated February 1, 1957.

I wish to call to your attention Article 1, sentence 2, 3 and Article 2d of Exploration Project Contract No. Idm-E1088. Under these provisions the Operator (National Lead Company) cannot simply walk off and abandon its contract with the Government. It should be noted that Mr. Putnam is not a party to the cited contract, as he was in the case of Idm-E1002 (DMEA-4361) and Idm-E1022 (DMEA-4422) which were assigned to National Lead Company as successor in interest to B. H. Putnam.

We will be glad to consider, and to refer to our Washington office for appropriate action, a request to assign the two uncompleted Copper Ridge contracts (Idm-E1022 and Idm-E1088) to Mr. Putnam, but we cannot do so without a request from National Lead Company. Therefore, will you please send me at once a letter explaining what you wish to do with these contracts and how the Government's interest is to be protected when your interest in the land is surrendered?

Sincerely yours,

Robert A. Laurence
Executive Officer
DMEA Field Team, Region V

RAL/mg
cc - Operating Committee (2)
Mr. V. J. Lynch File

Audit Copy

EXPLORATION PROJECT CONTRACT

NATIONAL LEAD COMPANY

Docket No. DMEA-4580

AMENDMENT No.1

It is agreed this 17th day of December 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the National Lead Company, that Exploration Project Contract, No. Idm-E1088(Docket No. DMEA-4580) dated May 20, 1957, be amended as follows:

In Annex I of the contract, there is hereby added the following parcel of land, shown on the map attached hereto and made a part hereof, which parcel is further identified as follows:

Name of Property Owner	Approximate Acreage
William H. Johnson	55

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute or the fixed unit cost of any item of work.

EXECUTED in sextuplicate the day and year first above written.

NATIONAL LEAD COMPANY

By _____

Title VICE-PRESIDENT

THE UNITED STATES OF AMERICA

By _____

Acting Executive Officer
Defense Minerals Exploration
Administration, Region V

z

Received
~~EXTRA~~ COPY
DMEA
RECEIVED JAN 24 1958

DATE	INITIALS	CODE
		800

January 22, 1958

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: Amendment No. 1. National Lead Company, Assignee
Puncheon Camp Area, Grainger County, Tennessee (zinc).
DMEA-4580, IdME-1088

Transmitted are two copies of the subject amendment signed by H. C. Wildner, Vice President of National Lead Co., one copy of the land option, and two copies of a map showing the location of the property.

The usual distribution of the other copies has been made by this office.

V. J. Lynch, Acting Executive Officer
DMEA Field Team, Region V

S. C. Bergman, Geologist
Geological Survey

sm.
cc
Finance
Lynch-Shirley-Wedow
Laurence

MME Form 14
March 1961

No. 74

Contract No. Idm-E) 14-23) [illegible]

Docket No. DMEA) MME) 4920

Date of Action May 22, 1961
Reobligation

DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OBLIGATION DOCUMENT

To: Chief, Fiscal Section, Office of the Secretary

From: Chief, Division of Administrative Management

Please enter the amounts shown below on the accounts of the Office of Minerals Exploration.

Name and Address of Contractor:

Benjamin A. Fuchs,
111 Broadway
New York 6, New York

Date of Contract	Region	State	Commodity
May 22, 1957	IV	Tennessee	Zinc
	Reserve		Obligation
Prior Amount	0		$77,173.05
Increase	0		5.02
Decrease	0		0
Revised Amount	0		$77,170.07

Remarks:

cc: 110
800
210

88995-61

MME Form 14
Sept. 1958

No. 61

Contract No. Idm-E) 1088
14-23)

Docket No. DMEA) 4580
MME)

Date of Action December 20, 1960
Terminated contract

DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OBLIGATION DOCUMENT

To: Chief, Accounts Section, Finance Branch, Bureau of Mines

From: Director, Division of Operations Control and Statistics

Please enter the amounts shown below on the accounts of the Office of Minerals Exploration.

Name and Address of Contractor:

Putnam, Benjamin H.
111 Broadway
New York 6, New York

Date of Contract	Region	State	Commodity
May 20, 1957	IV	Tennessee	Zinc

	Reserve	Obligation
Prior Amount	0	$85,062.50
Increase	0	0
Decrease	0	~~7,889.45~~
Revised Amount	0	77,173.05

Remarks:

cc: 800
210

43244

DMEA Form 14

Contract No. Idm-E 1088

Docket No. 4580

DEPARTMENT OF THE INTERIOR

Executed contract

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Obligation Document

TO: Chief, Finance Section, Budget and Finance Branch, Bureau of Mines

Please make the following entry on the records of the Defense Minerals Exploration Administration under the Strategic and Critical Minerals Exploration Program.

Date of Contract	Region	State	Commodity
May 20, 1957	V	Tennessee	Zinc

Name and Address of Operator: National Lead Co.
111 Broadway
New York 6, N. Y.

	Reserve	Obligation
Prior Amount	$85,062.50	0
Increase	0	$85,062.50
Decrease	$85,062.50	0
Revised Amount	0	$85,062.50

Remarks:

ALLEN S. DAKAN

(Name)

Allen S. Dakan, Chief
Operations Control and
Statistics Division

(Title)

Date Delivered to Bureau of Mines, Washington 6/5/57

16416

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 5 1957

DATE	INITIALS	CODE
		800

Audit copy

MF-200
(Revised June 1954)

Docket No. DMEA - 4580

Commodity Zinc

Contract No. Idm-E 1088

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this 20 MAY 1957 day of ....., 195..., between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and [2] NATIONAL LEAD COMPANY, a New Jersey corporation

whose mailing address is 111 Broadway
New York 6, New York

hereinafter called the "Operator," as follows:

ARTICLE 1. *This contract* is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF-200), the attached Exhibit "A," Annex I, ~~and~~ XXX, Annex II, and map.

The Operator shall not transfer or assign this contract or any right thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The land which is the subject of this contract (hereinafter called "the land") is in the State of Tennessee, County of Grainger, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] See Annex I of [5] See Annex I in the land, in possession and entitled to possession for all of the purposes of this contract, under and by virtue of a [6] See Annex I, [7] ....recorded in Book ....., page ....., official records of said County; and

(2) The Operator's right, title, or interest (whether as owner, lessee, or otherwise) is subject only to the following claims, liens, or encumbrances: Interests of owners of land listed in Annex I

(c) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above, and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] Insert name, and if an organization, its nature (corporation and place of incorporation, partnership with names of partners, etc.).
[3] State on a separate sheet marked "Annex I" the legal description or enough to identify the property, particularly excluding any areas from which the production is not to be subject to the Government's percentage royalty.
[4] Insert "owner," "lessee," "contract purchaser," "locator," etc.
[5] Insert "the entire interest," "the mineral rights," "an undivided one-third," etc.
[6] Insert "deed," "lease," "contract," "location notice," "patent," etc.
[7] If not recorded, so indicate by inserting "un."

of the land (lessor, seller, optionor, etc.), are attached, as follows: Consent to Lien and Subordination Agreements of owners of land are waived.

(d) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. Until the lapse of the time within which the Government may make a certification of discovery or development without any such certification having been made, and after any such certification has been made, the Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. If the Government makes no certification of discovery or development within the time limited in Article 8, it shall thereafter have no claim against the land or any production therefrom except for any production referred to in Article 8(b)(1). See Annex I.

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of Zinc. The work to be performed is described in Exhibit "A." The Operator on or before 60 days after date of contract shall commence the work, and on or before 15 mos. after date of contract (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall [redacted] have completed the work [redacted] allowable costs (see Article 6) in a sum not less than the estimated total allowable cost set forth in Exhibit "A." See Article 13 and Annex II.

ARTICLE 4. *Performance of the work.*—(a) *Operator's responsibility.*—The work shall be performed with reasonable diligence, efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for liability insurance covering employment; and with suitable and adequate equipment, facilities, materials, supplies, and labor, to bring it to completion within the time fixed.

(b) *Independent contracts.*—To the extent that the allowable costs are estimated in Exhibit "A" with express reference to performance by independent contractors on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations), the work may be so performed; but if the reference in Exhibit "A" to any such independent contract requires the Government's approval thereof, payments under such contract will not be allowable costs unless the Government gives its written approval of the contract. Any such independent contract shall refer to some specific and identifiable part of the work, and shall be subject to all of the pertinent terms and conditions of this exploration contract; but the Government shall not be considered a party thereto, and its rights under this contract, including the right to terminate its contributions, shall not be affected thereby. Regardless of the provisions of any such independent contract and regardless of the Government's approval thereof, the Government will participate in payments to the independent contractor only on account of work performed in accordance with the provisions of this exploration project contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable.

(c) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after a certification of discovery or development to inspect production operations and underground workings. The operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 5. *Contribution by the Government.*—The estimated total allowable cost of the project, set forth in Exhibit "A," is the sum of $170,125.00. The Government shall contribute 50 percent of the allowable costs as they are incurred in a total sum not in excess of $85,062.50: *Provided,* That until the Operator has rendered to the Government his final report, and any final auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last

voucher or vouchers such sums as it sees fit not in excess of 10 percent of the estimated total cost of the work or not in excess of the amount of the Government's contribution to the cost of property which is or may become subject to disposal as provided in Article 9(c), whichever is greater. The Government will make its contribution on the basis of the monthly vouchers referred to in Article 7(b), but all payments by the Government are provisional only, subject to audit, until the account between the Operator and the Government is finally audited and settled. "Costs incurred" mean costs that have been paid or have become due and payable, or that in the opinion of the Government have become an obligation. The Government may make payments directly to independent contractors and suppliers for the account of the Operator rather than to the Operator.

ARTICLE 6. *Estimated costs.*—(a) *Categories of costs.*—The allowable costs of the work to which the Government shall contribute are limited to those that are direct, reasonable, necessary, and that are estimated in Exhibit "A" by categories as specified in this article. If any category or subcategory is omitted from the estimate of costs, or if the word "none" is annexed to the listing thereof, costs under such category or subcategory are not allowable. Any excess over any estimate which is indicated as the maximum of any category, subcategory, or item, either as to requirement or related cost, and any excess over the estimated total allowable cost of the work, shall not be allowable. Any excess over the estimate of any category, subcategory, or item, either as to requirement or related cost, not indicated as a maximum shall be allowable within the limit of the estimated total allowable cost of the work. To the extent that excesses over maximums other than the estimated total allowable cost of the work may be necessary for the performance of the work, the Operator shall incur such excesses for his own account without contribution by the Government; [redacted] See Article 13 and Annex II.

To the extent specified in this article or in Exhibit "A" the following categories, subcategories, and elements thereof are maximums; but if not so specified either here or in Exhibit "A" they are not maximums, and may be exceeded within the limit of the estimated total allowable cost of the work:

CATEGORY (1)—INDEPENDENT CONTRACTS.—Work to be performed under independent contracts (see Article 4(b)). The estimated total amount of this category and the estimated cost of each unit of work for performance under an independent contract are maximums. See Article 13 and Annex II.

CATEGORY (2)—PERSONAL SERVICES.

Subcategory (a)—Supervision.—All elements of this subcategory (number of supervisors, periods of employment, rates of pay, and total) are maximums.

Subcategory (b)—Technical services.—All elements of this subcategory (number of technicians, periods of employment, rates of pay, and total) are maximums.

Subcategory (c)—Labor.

CATEGORY (3)—OPERATING MATERIALS AND SUPPLIES.—Includes such items as drill bits and steel, explosives, fuel, pipe, power, small tools costing less than $50 each, timber, track.

CATEGORY (4)—OPERATING EQUIPMENT.

Subcategory (a)—Rental.—The number of each object to be rented [6 mine cars, 1 truck], the rate of rental [$100 per month, $5 per hour], and the total of this subcategory are maximums.

Subcategory (b)—Purchases.—The estimated total of this subcategory is a maximum.

Subcategory (c)—Depreciation.—All elements of this subcategory (time periods, rate of depreciation, and subcategory total) are maximums.

CATEGORY (5)—INITIAL REHABILITATION AND REPAIRS.—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

Subcategory (a)—Initial rehabilitation and repairs of existing buildings, fixtures, and installations (exclusive of mine workings).—The estimated total of this subcategory is a maximum.

Subcategory (b)—Initial rehabilitation and repairs of operating equipment.—The estimated total of this subcategory is a maximum.

CATEGORY (6)—NEW BUILDINGS, FIXTURES, AND INSTALLATIONS (EXCLUSIVE OF MINE WORKINGS).—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

CATEGORY (7)—MISCELLANEOUS.—Repairs and maintenance (other than initial) of operating equipment, analytical work, prints and other reproductions, accounting, Operator's share of payroll taxes, liability insurance covering employment, travel, communications, and any other items of requirement or cost that do not fall within any of the first 6 categories.

THE ESTIMATED TOTAL ALLOWABLE COST of the work is a maximum.

(b) *Nonallowable costs.*—The following costs are not allowable for contribution by the Government:

(1) *Costs of the land,* such as rental, depreciation, depletion, or other cost of acquiring, owning, or holding possession;

(2) *Indirect costs,* such as general overhead, corporate management, interest, taxes (other than payroll and sales taxes), insurance (other than liability insurance covering employment), damages to persons, damages to property (other than necessary repairs or replacements of equipment or other property used in the work);

(3) *Previous work* performed or costs incurred before the date of this contract; and

(4) *Deferred payments.*—Any costs incurred by the Operator under any rental-purchase agreement, installment-purchase agreement, or any agreement for the purchase of goods under the provisions of which payment of the full purchase price is deferred more than 90 days from the delivery of the goods; unless the purchase agreement is approved by the Government in writing.

(c) *Reductions in costs.*—The Operator shall account for and give the Government credit for any incidental benefits, credits, or money received in the ordinary course of business in prosecuting the work (as by salvage or sale of materials or equipment, furnishing of room or board, furnishing of power or services to third persons, rebates or discounts on purchases, etc.), in the same ratio in which the Government contributes to costs; and such amounts shall be treated as a reduction in costs incurred so that they are available for use within the limit of the original estimated total cost. This provision does not apply to receipts from production which are subject to the Government's percentage royalty under the provisions of Article 9.6. See Article 13 and Annex II.

ARTICLE 7. *Reports, accounts, audits.*—(a) *Operator's records.*—The Operator shall keep suitable records and accounts of the work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. If the Government elects to audit said records and accounts relating to the exploration work by certified public accountant, it may do so as a cost of the work to which the Operator shall contribute. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine any pertinent books, documents, papers, and records of the Operator. All of the Operator's vouchers and records and accounts relating thereto and the Government's payments thereof remain subject to adjustment until final audit by the Government. If work under this contract is carried on in conjunction with any other operations, or if labor, supervision, services, materials, supplies, equipment, facilities, or other requirements for carrying on the work are also used in connection with other operations, the costs shall be segregated and accounted for on a basis and by methods and accounts that are satisfactory to and approved by the Government.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing detailed costs incurred during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and related costs incurred.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 8. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after a sufficient final report and final account (see Article 7) has been rendered, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer, or as surety if the Operator is not the producer, shall pay to the Government a royalty on all minerals mined or produced from the land, as follows: (1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, within a period of [redacted] years from the date of the contract, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. [redacted]

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling or assaying, or transportation, performed or paid by the Operator or by anyone other than the buyer, are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent) applied to the crude ore or other production after it is extracted from the ground, to put it into a commercially marketable form; excluding fabricating or manufacturing. [redacted]

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent), after the lapse of six months from the date the ore was extracted from the ground, remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value therof in the form in which and at the time when it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½)

percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

(For instance: the royalty on an amount of five dollars ($5.00) per ton would be one and one-half (1½) percent; on an amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this article.

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 9. *Interests in purchased property.*—(a) *Title and ownership.*—All costs under this contract shall be incurred by the Operator in the Operator's own name and for the Operator's own account; but any property acquired to the cost of which the Government contributes shall belong to the Operator and the Government jointly in proportion to their respective contributions, although title thereto shall be taken in the name of the Operator.

(b) *Preservation of property.*—Until the final disposal of any property in which the Government has an interest the Operator shall preserve and protect same for the best interest of the Government, any reasonable and necessary costs thereof to be treated as an allowable cost of the project. After the completion of the work or termination of the Government's obligation to contribute, or when such property is not in use for or needed for the work, the Operator shall neither use it without the written consent of the Government nor without paying a reasonable rental to be fixed by the Government for its interest.

(c) *Disposal of property.*—Upon the completion of the work or termination of the Government's obligation to contribute to costs, or when the property is no longer needed for the work, the Operator shall promptly dispose of salable or salvageable property in which the Government has an interest for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator or the Government at a price at least as high as could be obtained from others, unless the Government in writing waives its interest in any such property. Without advance approval of the sales price by the Government the Operator shall not sell at any price any item of property the cost of which was more than $500, and shall not sell at less than 25 percent of the purchase price any item of property which cost $500 or less. The Government, in lieu of approving the sales price for any such item, may itself purchase the item at the best price which the Operator is able to obtain or himself cares to give. Property remaining upon any termination of the work shall be considered in groups or categories (such as drill steel, or explosives, or pipe, or rails), and if the original cost of the remaining unexpended portion of any such group or category is less than $50, the Government waives its interest therein. If necessary to accomplish the disposal of any item the Operator shall dismantle and sever it from the land, the cost thereof to be treated as a cost of the project.

(d) *Default of the Operator re disposal.*—If within 90 days after the completion of the work or termination of the Government's obligation to contribute to costs, or after the property is no longer needed for the work, or after such further time as the Government may in writing allow, the Operator has failed to sell or otherwise liquidate or dispose of any property in which the Government has an interest, the Government, at any time prior to final settlement under the contract, may pursue one of the following two courses: (1) the Government, by written notice to the Operator, may place upon such property what in its opinion is a fair valuation thereof, not in excess of the cost less 1.66 percent per month from the

date such property was purchased under this contract to the termination of said 90-day period; and such property shall thereupon be considered and accounted for as having been purchased by the Operator at the valuation so fixed by the Government; or (2) the Government may enter and take possession of such property wherever it may be found, and remove and dispose of it for the joint account of the parties.

ARTICLE 10. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery, and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon: (1) the Government shall be free of all obligation to contribute to costs not then incurred other than such as may be allowable under the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon: (1) the Government shall be relieved of all obligation to contribute to costs not incurred when the notice was given, other than such as may be allowable by the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The remedy provided for the Government in this paragraph "(b)" is in addition to any other remedy provided in this contract, and in addition to any other remedy the law may provide for breach of contract.

(c) The giving of any notice by the Government under the provisions of this Article 10 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and such rights shall be fully preserved.

ARTICLE 11. *Notices to be given by the Government* may be delivered to the Operator, or may be sent by registered mail addressed to the Operator at his mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 12. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 13. *Changes and added provisions.*—
See Annex II attached hereto as a part hereof.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By E. Mittendorf
Administrator, Defense Minerals
Exploration Administration

NATIONAL LEAD COMPANY
(Operator)

By H. C. Wildner

Title Vice President

I, J. Lawler, assistant secretary of the corporation named as Operator herein; that H. C. Wildner who signed this contract on behalf of the Operator, was then a Vice President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

J. Lawler

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—70617-1

EXPLORATION TRACT CONTRACT
NATIONAL LEAD COMPANY
FORMS NO. [illegible]

ARTICLE I

The land referred to in Article 2 of the contract is shown on the map entitled "Revised Exploration Program, Southern Ohio Quick Project, Grainger County, Tennessee," attached hereto and made a part hereof. It comprises a total of [illegible] acres, more or less, consisting of [illegible] parcels of land in Grainger County, Tennessee. The Operator has the right to explore for minerals pursuant to subsequent agreements described below, assigned to him by L. E. Vance, the options named in all of said agreements, for an instrument dated February 1, 1957.

All recording references in agreements are to the land records in the Register's office of Grainger County, Tennessee.

Agreements granting rights to explore for Minerals and the rights to renew the option for mineral rights

1. Agreement between Vive H. and V. H. Stapleton and L. E. Putnam, dated November 2, 1956, as extended by an agreement dated March 21, 1957, extending the option period to November 2, 1958. The agreement is recorded in Miscellaneous Book 16, page 44.

Agreements granting the rights to explore for Minerals and [illegible] to renew the mineral options.

1. Agreement between Elvis Johnson and Bessie Johnson, his wife, and L. E. Putnam, dated May 7, 1956, which expires May 7, 1958. The Agreement is recorded in Misc. Book 16, page 304.

2. Agreement between Elmer Bruning and Vienna Bruning, his wife, and L. E. Putnam, dated May 7, 1956, which expires May 7, 1958. The agreement is recorded in Misc. Book 16, page 305.

3. Agreement between E. E. Bruning and Edith Bruning, his wife, and L. E. Putnam, dated May 7, 1956, which expires May 7, 1958. The Agreement is recorded in Misc. Book 16, page 307.

4. Agreement between Austin Johnson and Bessie Johnson, his wife, and L. E. Putnam, dated May 7, 1956, which expires May 7, 1958. The agreement is recorded in Misc. Book 16, page 308.

5. Agreement between B. R. Coffman, widower, and B. H. Putnam, dated May 10, 1956, which expires May 10, 1959. The agreement is recorded in Misc. Book 18, page 497.

6. Agreement between Rosa Bullen, widow, and James Bullen, and B. H. Putnam, dated May 25, 1956, which expires May 25, 1959. The agreement is recorded in Misc. Book 18, page 572.

7. Agreement between T. A. Green and Gertrude Green, his wife, and B. H. Putnam, dated May 8, 1956, which expires May 8, 1959. The agreement is recorded in Misc. Book 18, page 311.

8. Agreement between Prior Acuff and Grassie Acuff, his wife, and B. H. Putnam, dated May 7, 1956, which expires May 7, 1959. The agreement is recorded in Misc. Book 18, page 304.

9. Agreement between W. B. Bolton and Sarah J. Bolton, his wife, and B. H. Putnam, dated May 16, 1956, which expires May 16, 1959. The agreement is recorded in Misc. Book 18, page 553.

10. Agreement between J. C. McGinnis and Eugene McGinnis, his wife, and B. H. Putnam, dated May 7, 1956, which expires May 7, 1959. The agreement is recorded in Misc. Book 18, page 308.

11. Agreement between H. H. Winstead and Cynee Winstead, his wife, and B. H. Putnam, dated May 15, 1956, which expires May 16, 1959. The agreement is recorded in Misc. Book 18, page 327.

SPECIAL AGREEMENT CONCERNING LAND

1. In the event the Operator or any subsidiary thereof at any time during the period expiring ten years from the date of this contract acquires any interest, title, or equity, in any lands contiguous to the premises described in this contract, it is agreed that such contiguous lands shall thereupon become subject to the provisions of this contract and the parties hereto shall promptly execute amendments to this contract listing such contiguous lands as land included in this contract.

2. It is further agreed that the Operator may, at any time before the expiration of sixty days following the conclusion or termination of exploration work performed pursuant to the terms of this contract, request the Government to delete from this contract such lands described in the option agreements listed in this Annex I,

or in any amendments thereto, as have no known value for mineral production. The Government will promptly prepare amendments removing the qualified lands from the contract, which amendments shall provide that the Operator:

(a) certifies the lands have no known value for mineral production;

(b) has, prior to the execution of the respective amendment, surrendered or otherwise disposed of all of its interest, title, and equity in such land, and any minerals produced therefrom, including any rights, leases or permits thereon, without any consideration whatsoever, including future compensation, for such surrender or disposition, other than relief from the cost of maintaining such interest;

(c) agrees that no benefit from such land or any production of minerals therefrom will accrue to the Operator or to any of its subsidiaries, directly or indirectly, during the period expiring twenty years from the date of this contract; and

(d) agrees that if the Operator or any of its subsidiaries acquires any interest, title, or equity in such land or any minerals produced therefrom, or derives any benefit therefrom, before the expiration of twenty years from the date of this contract, the land with respect to which such interest, title, or equity is acquired, and any minerals produced therefrom, shall be deemed subject to this contract and any establishment of discovery or development from the date that the Operator or its subsidiaries acquired such interest, title, or equity, or any benefit therefrom, until the expiration of twenty years from the date of this contract, or until the total amount contributed by the Government under this contract is fully repaid, whichever occurs first.

EXPLORATION PROJECT CONTRACT
NATIONAL LEAD COMPANY
DOCKET NO. [illegible]

ANNEX II

1. In Article 2, the words following the reference to Article 18 are deleted, and the following words are substituted: "shall have completed the work."

2. In Article 6(a), that part of the last sentence in the first paragraph beginning after the semicolon is deleted.

3. Categories (2) through (7) of Article 6(a) are deleted.

4. In Article 6(c), the words "Article 9" are changed to "Article 8."

5. In Article 8(b): (1) the word "minerals" includes limestone and dolomite products produced in processing the ore; and (2) the words "ten years" are changed to "twenty years."

6. The following clause is added to Article 8(c):

"Provided, however, That so long as the Operator operates smelting facilities as an integrated part of its business, the settlement made by the Operator's smelter to its mine or mill on the ore or concentrates subject to the Government's royalty shall be, for the purpose of calculating the royalty payable to the Government under this contract, on the same settlement basis that the said smelter makes to its independent suppliers under the schedule most favorable to any independent supplier; or, should gross income from mining operations for percentage depletion purposes in Federal income tax determination show a greater value for ore or concentrate sales than that value which would result from applying the smelter schedule most favorable to an independent supplier, the greater value will be used as the basis for calculating royalty payable to the Government."

7. In addition to the costs of work estimated in Exhibit "A" by categories of actual costs, the costs of work requirements specified in Exhibit "A" as "Fixed Unit Costs" are allowable costs of the project. The Government will contribute to the fixed unit costs as work units are performed. A "Fixed Unit Cost" is an agreed price for each unit of work to be performed regardless of costs incurred by the Operator. Costs set forth in Exhibit "A" include all allowable costs of the work to be performed under the contract.

8. Notwithstanding any other provision of the contract, the allowable unit cost per foot of a drilling item is the average unit cost per foot computed on the basis of all the actual unit costs of said drilling item incurred by the Operator; Provided, That the Government will not contribute to any portion of an average unit cost of a drilling item that exceeds the estimated unit cost of said item set forth in the contract.

EXPLORATION PROJECT CONTRACT
NATIONAL LEAD COMPANY
DOCKET NO. DMEA-4580

EXHIBIT "A"

Description of the Work

The purpose of the project is to explore for ores of zinc by diamond drilling (and such churn drilling of overburden as may be required).

Zinc ores in the Copper Ridge Belt occur in the Kingport dolomites and limestones, and the Mascot dolomite of the Knox group. In the area in which the project is to be performed, the formations dip southeasterly at an angle of about 36 degrees.

A series of widely spaced dip fences shall first be drilled, not less than 1,200 feet apart. Following this preliminary work auxiliary fences may be drilled, not less than 600 feet apart. The holes on both the preliminary and the auxiliary fences shall be spaced not closer than 200 feet. However, with prior Government approval, such spacing may be reduced from 200 to 100 feet.

It is estimated that approximately 80 holes will be required, having an average depth of about 600 feet, with the greatest depth for any hole being approximately 1,000 feet. Not more than 50,000 feet of drilling shall be performed.

The approximate locations of the initial holes are shown on the attached map, but the actual locations, directions, inclinations, and depths of all holes are subject to prior Government approval.

All diamond drilling shall be done with AX size, or larger, coring bits, except where it is necessary to use an EX size bit in order to complete a hole. All drill holes shall be logged and all drill core shall be made available to the Government for examination. All significantly mineralized core, in lengths not to exceed five feet, shall be split and one half thereof shall be properly sampled and the sample analyzed for zinc.

In significantly mineralized ground, if core recovery is poor and sludge samples are taken, both the core and sludge shall be split and one half thereof properly sampled and the sample analyzed for zinc.

The remaining half of all significantly mineralized core samples, and sludge samples where taken, shall be furnished to the Government upon request.

All assays shall be reported monthly to the Government, together with drill logs and proper plan maps and sections showing the progress of the work and sample locations.

All work of drilling and sample preparation shall be properly supervised by competent engineers and geologists.

Drill holes shall be reamed and cased or cemented and redrilled as necessary.

Drilling shall not be done at locations closer than 200 feet from a boundary of the land described in Annex I.

Estimated Costs of the Project

Actual Costs

Category (1) Independent Contracts

Overburden drilling and diamond drilling to approximately 1000-foot depth, 50,000 feet @ $3.00/ft. 1/ 2/	$150,000.00	
Reaming AX hole to receive AX casing 5,000 feet @ $2.00/ft.	10,000.00	$160,000.00

The above rates include charges for cementing and redrilling, water supply, changing of locations, and all other charges which may be incurred by the diamond drilling contractor.

Neither the cost nor the value of casing left in drill holes at the option of the Operator will be accepted as a charge to the contract.

Categories (2) through (7) None

Fixed Unit Costs (See Article 13 of the contract)

Incidental allowance 2/ for each foot of drilling completed, 50,000 feet @ $0.18/ft.	$9,000.00	
Core Boxes - 150 @ $2.00/each	300.00	
Sample analyses - 550 @ $1.50/each sample	$825.00	$ 10,125.00
Estimated Total Cost of the Project		$170,125.00
Government's Participation @ 50%		$ 85,062.50

1/ See Article 13.

2/ Includes all costs that might otherwise be allowable costs of the project under Categories (1) through (7) of Article 6(a), except as otherwise scheduled in Exhibit "A".

3/ Any drilling with EX size bit will be at a maximum rate of $2.00 per foot.

DMEA Form 14

Contract No. Idm-E 1088

Docket No. 4580

DEPARTMENT OF THE INTERIOR

Approved contract

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Obligation Document

TO: Chief, Finance Section, Budget and Finance Branch, Bureau of Mines

Please make the following entry on the records of the Defense Minerals Exploration Administration under the Strategic and Critical Minerals Exploration Program.

Date of Contract	Region	State	Commodity
May 20, 1957	V	Tennessee	Zinc

Name and Address of Operator: National Lead Co.
111 Broadway
New York 6, N. Y.

	Reserve	Obligation
Prior Amount	0	0
Increase	$85,062.50	0
Decrease	0	0
Revised Amount	$85,062.50	0

Remarks:

ALLEN S. DAKAN
(Name)

Allen S. Dakan, Chief
Operations Control and
Statistics Division
(Title)

Date Delivered to Bureau of Mines, Washington 5/29/57

16416

FIGURE 2

REVISED EXPLORATION PROGRAM
PUNCHEON CAMP CREEK PROJECT
GRAINGER COUNTY, TENNESSEE

DMEA DOCKET NO. 4880

NATIONAL LEAD COMPANY