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-E1199, Docket DMEA-4962 (fluorspar), dated June 3, 1958, with

Reynolds Metals Company
301 East Grace Street
Richmond 18, Virginia

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 Watson Project on the Watson-Hicks-Tyner-Sunderland Properties located in Crittenden County, Kentucky, during the period June 3, 1958, through September 9, 1960.

A certification of discovery or development was issued on September 11, 1959, and, in accordance with Article 3 of the contract, royalty is payable on all minerals produced from the land described in Article 2, Annex I, and Amendment No. 1 of the contract for a period of 10 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 July 6, 1959, indicated accepted costs under the exploration contract amounting to $53,947.76 with the Government's contribution on a 50 percent basis being $26,973.88.

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. Accordingly, as of September 9, 1960, the royalty account of this project was found to be:

Total Royalty Payable	$ -0-
Total Royalty Paid	-0-
Balance of Royalty Due	$ -0-

E. D. Talbert
E. D. Talbert, OME Auditor

June 11, 1962

Idm-E1199 Reynolds Metals Company DMRA-4962

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 within a maximum period of 10 years from (1) the four contiguous tracts of land thereunder and (2) any lands within 1500 feet of those tracts if the Operator or any subsidiary acquires any interest therein. The land under the contract is located in the western Kentucky fluorspar district. The Operator held possession of the mineral rights in three tracts by virtue of a December 26, 1957, lease from Fluorspar Consolidated, Inc., and the fourth and smaller tract by virtue of a November 29, 1958, lease from Ray and Margaret Sunderland. In consideration of the contract, the owners executed Consents to Lien and Subordination Agreements.

Exploration work under the contract was completed during May 1959. No minerals were produced during the exploration work. By a September 9, 1960, reply to an inquiry on MME Form 63, the Operator advised that neither production nor change in possessory interests had occurred.

This review was made in lieu of an on-site audit of the Operator's accounts and records for the following reasons:

(1) The files contain no evidence of production 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.

JUN 1 2 1962

Memorandum

To: Chief, Fiscal Section, Division of Administrative Services, Office of the Secretary

From: Chief, Division of Field Operations, OME

Subject: DMEA-4962 (Fluorspar)
Reynolds Metals Company
Hudson, Hicks, and Tyner Properties
Crittenden County, Kentucky
Contract Ida-21199

Enclosed for your files is the original of a Report of Royalty Review on the subject contract.

George C. Selfridge

Enclosure

GCSelfridge/hb (6/12/62)
cc to: Docket DMEA-4962
Director's Reading File
CA&A Division
G. C. Selfridge
R. A. Laurence, USGS, Reg. IV, w/cy of Report of Royalty Review dtd 6/11/62 & orig. cy of memo dtd 6/11/62 to Chief, Div. of Field Operations from CA&A Division.
Avery Reed, USBM, Reg. IV, w/cy of ea. item sent to Mr. Laurence.

JUN 11 1962

Memorandum

To: Chief, Division of Field Operations

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: DMEA-4962 (Fluorspar)
Reynolds Metals Company
Watson, Hicks, and Tyner Properties
Crittenden County, Kentucky
Contract Idm-E1199

Enclosed are the original and two copies of a Report of Royalty Review covering the subject Region IV contract. If you concur in the facts stated therein, please make the following distribution:

(a) Original to the Fiscal Section, Division of Administrative Services, Office of the Secretary; and

(b) Two copies to Region IV files.

This report is for OME record purposes only; therefore, no copy has been provided for the Operator.

As evidence of your concurrence, a copy of your memorandum transmitting the original of the report to the Department's Fiscal Section should be furnished this Division. If for any reason you do not concur, the original and both copies should be returned to this Division with your comments.

Enclosures

EDTalbert/ama 6-11-62

cc:
Docket
Director's Reading File
CA & A Division
Mr. Rothrock

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Reynolds Metals Company
301 East Grace Street
Richmond, Virginia

pertaining to Exploration Project Contract No. Idm-E1199, DMEA No. 4962, including Amendments Nos. 1 and 2, for August 1958 to May 1959, inclusive, covering a fluorspar project on the Watson-Hicks-Tyner Prospect, Crittenden County, Kentucky.

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 following reasons:

(a) the Monthly Reports were supported by documentary proof of that portion ($49,055.80) of the costs covering work performed at unit rates under independent contract;
(b) the balance ($4,891.96) of the 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 disallowances.

The findings of this review are stated in the following summary:

Total cost billed by Operator		$53,947.76
Exceptions:		
Prior to this review	$ -0-	
Herewith	-0-	-0-
Total acceptable cost		$53,947.76

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	$26,973.88
Paid to date	25,168.27
Balance due Operator	$ 1,805.61

July 6, 1959

E. D. Talbert, OME Auditor

JUL 7 1959

Memorandum

To: Acting Executive Officer, OME Field Team, Region V

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: Docket No. DMEA-4962 (Fluorspar)
Reynolds Metals Company
Watson-Hicks-Tyner Prospect
Crittenden County, Kentucky
Contract No. Idm-K1199

Receipt of the subject Operator's final engineering and geological report now permits the release of the Report of Review requested by Mrs. Miller's June 17 memorandum. Enclosed are the original and three copies of the Report of Review.

If you concur with the facts as stated therein, the original and one copy should be forwarded to Mrs. Miller, one copy should be mailed to the Operator, and one copy should be retained in your files. If for any reason you do not concur, please return the original and all copies to this Division with your comments.

Enclosures

EDTalbert/ama
July 7, 1959

Copy to: Docket
Director's Reading File
CA & A Division
Mrs. Helen R. Miller

JUN 24 1959

Memorandum

To: Mrs. Helen R. Miller, Administrative Assistant,
Bureau of Mines, Region V

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: Docket No. DMEA-4962 (Fluorspar)
Reynolds Metals Company
Watson-Hicks-Tyner Properties
Crittenden County, Kentucky
Contract No. Idm-K1199

The original of the final (April 1959) MF-104, MF-104A and attachments, together with invoices from previously paid vouchers, which you submitted with your June 17 memorandum request for a Report of Review, are returned herewith. Although your memorandum advised that 21 invoices from prior vouchers were attached, only 18 aggregating 21 pages were received.

The review in lieu of a final audit has been completed but a report may not be issued at this time because Mr. Lynch's memorandum of June 11 indicates that the Operator's final engineering report has not been received. Instructions promulgated to the Field Team Executive Officers by the Operating Committee's letter of January 17, 1957, prohibit the issuance of a Report of Review without advice from the Executive Officer that the Operator's final engineering and geological report has been received, waived, or charged against the Operator.

A copy of this memorandum is being sent to Mr. Lynch.

Enclosures

EDTalbert/ama
June 24, 1959

Copy to: Docket
Director's Reading File
Code 800
Mr. V. J. Lynch

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION V

ELECTROTECHNICAL
EXPERIMENT STATION

P. O. BOX 217
NORRIS, TENNESSEE

REGISTERED MAIL

June 17, 1959

Memorandum

To: E. D. Talbert, Office of Minerals Exploration, Interior Building, Washington 25, D. C.

From: Administrative Assistant, Norris, Tennessee

Subject: Report of Review in Lieu of Final Audit - Contract Idm-E1199, Docket No. DMEA-4962, Reynolds Metals Company, Richmond, Virginia, Watson-Hicks-Tyner Properties, Crittenden County, Kentucky

A report of review in lieu of final audit is requested on the above contract. The following documents are attached:

1. Original MF-104, 104A and attachments covering final voucher

2. Invoices covering previously paid vouchers (total of 21 invoices)

3. Memo from Acting Executive Officer regarding completion of contract

Helen R. Miller
Helen R. Miller

Attachments
/hbm
Copies to R. A. Laurence
V. J. Lynch
Norris files
Day files

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUN 22 1959

DATE	INITIALS	CODE
6/22	G	220
		800

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUN 22 1959

DATE	INITIALS	CODE

June 11, 1959

Memorandum

To: E. D. Talbert, Office of Minerals Exploration
Room 4446 Interior Building, Washington, D. C.

From: Acting Executive Officer, OME Field Team, Region V

Subject: DMEA-4962, Idm-E1199 - Fluorspar
Reynolds Metals Company, Richmond, Virginia
Watson-Hicks-Tyner Properties, Crittenden County, Kentucky

Work on the subject contract has been recessed pending termination. Termination of the contract by mutual agreement has been recommended.

The following units of work have been acceptably performed as verified by our field examiner.

1. A total of 14,382 feet of diamond drilling was completed in 24 drill holes. (An additional 5 feet of drilling was done by the Operator at his expense.)

2. 2,966 feet of reaming was done and 30 hours were were required to complete cementing of holes.

3. 240 feet of BX casing and 400 feet of AX casing were lost in holes.

4. 70 fluorspar analyses and 50 fluorspar-lead-zinc analyses were made.

The final Operator's monthly report and voucher are being held in this office until the Operator's final engineering report and the Auditor's Report of Review have been received.

V. J. Lynch

V. J. Lynch

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- 1

Stage IX

Month of May, 1959 Docket No. DMEA 4982 Contract No. Idm-K1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 59,710.00 Government Participation: 50 % Amount, $ 29,855.00

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 Core	2,557.65	39,869.25	42,426.90			
Drilling Reaming	129.50	5,061.00	5,190.50			
Hole Stabilizing cementing		240.00	240.00			
Lost BX Casing	64.80	453.60	518.40			
Lost AX Casing	612.00	68.00	680.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes		225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis CaF2	4.50	310.50	315.00			
Sampling and Analysis CaF2, Pb, Zn		325.00	325.00			
Liability Insurance						
Incidental Allowance	242.76	3,784.20	4,026.96			
(8) Contingencies (specify):						
TOTALS	3,611.21	50,336.55	53,947.76	3611.21	50,336.55	53,947.76

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

Date 6-4-59 *Payee Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

*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:

$ 1805.60

Signature Helen R. Miller
(Authorized Certifying Officer)

Date JUL 17 1959 Vou. No. 1
(See other side)

Pot 7 T 64 1805.60

(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-1199 in accordance with the terms of the contract.

Signature [signature] Title GEOLOGIST, U. S. G. S. Date JUL 9 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature [signature] Title ACTING EXECUTIVE OFFICER OME - REGION V Date JUL 9 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 20 1959 O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Stage I

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of May 1959 Docket No. DMEA 4962 Contract No. Idm-R1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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								
Core Boxes	1			225.00	75		75	3.00
Winzes								
Drilling: Core	Ft.			20,355.00	6900		6900	2.95
Reaming	Ft.			2,299.50	1314		2000	1.75
Hole Surveyor Cementing	Hr.			184.00	23		80	8.00
Lost BX Casing	Ft.			216.00	100		300	2.16
Lost AX Casing	Ft.			17.00	10		300	1.70
Assay CaF2	1			58.50	13		75	4.50
CaF2, Pb, Zn	1			162.50	25		25	6.50
Incidental Allowance	Ft.			1,932.00	6900		6900	0.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS				25,449.50				59,710.00

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 6-4-59 Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

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: Stage I has been completed and no further work has been done.

(Instructions on reverse)

(For Government use only)

N. 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

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

Stage II

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

JUL 20 1959

Month of May 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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	2,557.65	867	22,071.90	7482		8000	2.95
Reaming	Ft	129.50	74	2,801.00	1652		2000	1.75
Hole Surv. Cementing	Hr			56.00	7		100	8.00
Lost BX Casing	Ft	64.30	30	302.40	140		300	2.16
Lost AX Casing	Ft	612.00	360	663.00	390		300	1.70
Assay CaF2	1	4.50	1	256.50	57		75	4.50
CaF2, Pb, Zn	1			162.50	25		25	6.50
Incidental Allowance	Ft	242.76	867	2,094.96	7482		8000	0.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		3,611.21		28,498.26				59,710.00

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 6-4-59 Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

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: Costs are for Hole W-24 and lost AX casing for Hole W22. Overage shown on AX casing to be billed to the project as a whole.

Project completed.

(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.

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

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUL 20 1959

DATE	INITIALS	

Reynolds Metals Company
Monthly Report - May, 1959
Watson Project - DMEA 4962 - Idm-E1199
Crittenden County, Kentucky

By
John W. Hook

The final hole, W-24, of the Watson Project was completed on May 15, 1959 at a depth of 867 feet. The report includes a log of W-24 and a combined cross section of W-24, W-17B, W-8 and W-15.

In addition to the costs for W-24, casing lost in hole W-22, not reported last month, is included in this month's accounting. There is a 90 foot over run of lost AX casing shown in the Stage II account. We understand that this over run can be charged to the project as a whole. Only 10 of an authorized 300 feet were used in Stage I, thus the total for Stages I and II is 600 feet of which 400 feet were used.

W-24 cut faults 1 and 1A 300 feet below the W-17B penetration and apparently below the juncture of faults 1 and 10. Fault 1 consisted mainly of cavities from 646 to 674 feet (rod length) with brecciated limestone to 703 feet.

Unbrecciated St. Louis limestone blocks are separated by smaller faults from 760 to 763, 790 to 794.5 and 815 to 837 feet. These faults consist mainly of limestone and calcite breccia with shine mineralization in the latter two. Assays taken from 792.5 to 796.5 feet (rod length, 4.0 feet) showed 17.06% CaF_2, 0.85% Pb and 1.69% Zn.

The hole was bottomed in slightly brecciated St. Louis limestone which had scattered traces of CaF_2.

Drilling Summary

Hole No.	Started	Finished	Depth
W-24	4-22-59	5-13-59	867 feet.

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

JUN 4 1959
PAID VOUCHER & SCHEDULE OF PAYMENTS

OPERATOR'S MONTHLY REPORT AND VOUCHER

Watson Project
Stages 1 and 11

Month of April, 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 59,710.00 Government Participation: 50 % Amount, $ 29,855.00

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 Contractors: Short Form						
Drilling: Core	7,743.75	32,125.50	39,869.25			
Bulldozing: ~~xxxxxx~~ Reaming	393.75	4,667.25	5,061.00			
Crosscutting: Hole ~~Sxxxxxx~~ Cementing	56.00	184.00	240.00			
Lifting: ~~xxxxx~~ Lost BX Casing	21.60	432.00	453.60			
Lost AX Casing	34.00	34.00	68.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track: Core Boxes		225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis: ~~xxxxxxxxxxxxxx~~ CaF2	144.00	166.50	310.50			
Payroll Taxes: ~~xxxxxxxxx~~ CaF2, Pb, Zn		325.00	325.00			
Liability Insurance: Incidental Allow	735.00	3,049.20	3,784.20			
(8) Contingencies (specify):						
Totals	9,128.10	41,208.45	50,336.55	9128.10	41208.45	50,336.55

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

Date ..... *Payee Reynolds Metals Company

Per W. E. McDaniel Title Accounting Official

*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:

$ 4564.05

Signature Helen R. Miller
(Authorized Certifying Officer)

Date JUN 2 1959 Vou. No. 115
(See other side)

4564.10

(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-1199 in accordance with the terms of the contract.

Signature W. Lynch Title MINING ENGINEER U. S. BUREAU OF MINES Date MAY 28 1959

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature ..... Title EXECUTIVE OFFICER REGION V OVER FIELD TEAM Date MAY 28 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

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Watson Project
Stage I

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of April 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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~~ Core Boxes	1			225.00	75		75	3.00
Winzes								
Drilling: Core	Ft.			20,355.00	6900		6900	2.95
~~Stopes~~ Reaming	Ft.			2,299.50	1314		2000	1.75
Hole Surveys Cementing	1			184.00	23		80	8.00
~~Stripping~~ Lost BX Casing	Ft.			216.00	100		300	2.16
~~Trenching~~ Lost AX Casing	Ft.			17.00	10		300	1.70
~~Test Pits~~ Assay CaF2	1			58.50	13		75	4.50
~~Roads and Trails~~ CaF2,Pb,Zn	1			162.50	25		25	6.50
Incidental Allowance	Ft.			1,932.00	6900		6900	0.28
Total Distributed Costs								Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		0000		25,449.50				59,710.00

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 ..... Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

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: Stage I has been completed and no further work has been done.

(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.

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

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

Watson Project
Stage II

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of April 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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.		7,743.75	2625	19,514.25	6615		8000	2.95
~~Churn~~ Reaming	Ft.	393.75	225	2,761.50	1578		2000	1.75
Hole Surv. ~~Auger~~ Cementing	Hr.	56.00	7	56.00	7		100	8.00
~~Stripping~~ Lost Bx Casing	Ft.	21.60	10	237.60	110		300	2.16
~~Trenching~~ Lost AX Casing	Ft.	34.00	20	51.00	30		300	1.70
~~Test Pits~~ Assay CaF2	1	144.00	32	252.00	56		75	4.50
~~Holes and Trans~~ CaF2,Pb,Zn	1			162.50	25		25	6.50
Incidental Allow	Ft.	735.00	2625	1,852.20	6615		8000	0.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		9,128.10		24,887.05				59,710.00

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 ..... Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

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: Costs are for holes W-20, W-21, W-22, W-23. The Joy invoice includes all costs for hole W-22 except for lost casing. This amount will be included on the May report.

(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.

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

REYNOLDS METALS COMPANY
Monthly Report - April, 1959
Watson Project-DMRA 4962 - Idm-E1199
Crittenden County, Kentucky

By
John W. Hook

Holes W-20, W-22, and W-23 were completed in April. W-24, the final hole, is in progress at a depth of 452'.

W-20 cut fault 1-A and 1 from the SE (hanging wall) side. Continuous samples from 321.3 to 452.8 averaged 131.5' (rod length) of 7.17% CaF_2, 0.13% Pb, and 2.09% Zn. Within this zone there was a 30.7' run from 349.3 to 380.0 which averaged 15.24% CaF_2, 0.23% Pb, and 5.38% Zn, and a 4.6' run from 424.7 to 429.3 which assayed 28.78% CaF_2, 0.16% Pb, and 2.09% Zn. All of the assays were less than 30% CaF_2 but the Zn assays help give combined values which may be considered as low grade ore. Please refer to the log and cross section for detailed information on the geology and assays.

W-22 was drilled under the workings of the Watson mine about 160' southwest of the W-1 and W-9 penetrations. It cut 1.9' of high grade (98.48%) from 496.8 to 498.7 with low grade in the calcite and brecciated wall rock. The average from 492.4 to 498.7 feet was 35.15% CaF_2, 0.05% Pb, and 0.00% Zn. This mineralization probably represents the junction of veins C and D, 25' below the 300 foot level. The other structures had only shine mineralization.

W-23 cut faults 1 and 1A from the foot wall side and was continued to make a hanging wall penetration of Faults 10-A and 10 (see cross section). The hole found shines of CaF_2, Pb, and Zn from 188 to 390 in the breccia associated with Faults 1 and 1-A. A few scattered shines were encountered from 460' to 527' within the graben. Faults 10-A and 10 had shines from 602' to 645'. Fault 10 had very little brecciation and there was some doubt that this breccia represented the fault. For this reason, the hole was continued to a depth of 710' but the lower 65 feet found only a few calcite stringers in otherwise unbroken St. Louis limestone.

W-24 was collared 125' in back of W-17B and is being drilled on a -54° angle to cut the brecciated zone associated with Faults 1 and 1-A at the projected intersection of Fault 10. This penetration will be 300 feet down dip from the low grade ore found in W-17B and if successful will add substantial tonnages to the blocking of reserves along faults 1 and 1-A.

Also included in this report are 8 cross sections of hole W-16. The original cross section submitted was in error and the mistake, the wrong inclination, has been corrected.

DRILLING SUMMARY

Hole	Location North	Location East	Bearing	Angle	Depth	Start	Finish
W-20	8540	9015	N47W	-65	507 ✓	3-28-59	4-3-59
W-22	9615	10593	S61E	-40	853 ✓	3-30-59	4-25-59
W-23	8890	8814	S47E	-45	710 ✓	4-6-59	4-15-59
W-24	8787	8585	S47E	-54	452 ✓	4-22-59	In Progress

REYNOLDS METALS COMPANY

(A DELAWARE CORPORATION)

GENERAL OFFICES: RICHMOND, VIRGINIA

PLEASE MAIL ALL REMITTANCES TO:
REYNOLDS METALS COMPANY
REYNOLDS METALS BUILDING,
RICHMOND 18, VIRGINIA

COPY OF INVOICE

MO.	SCHEDULE WK.	SHIPPING POINT
		Bauxite

CABLE ADDRESS: "FOILWAX"

CODES USED: WESTERN UNION—A. B. C. AND LIEBLERS

REYNOLDS ORDER NO.	TERMS (FROM DATE OF INVOICE)	DATE	INVOICE NO.
	NET 30 DAYS	5-14-59	49-5-1

CUSTOMER ORDER NO.	CUST. ORDER DATE	USE CODE	CONTRACT NO.	BILL OF LADING NO.	CHECK IF ORDER COMPLETE	TALLY NO.

CUSTOMER CODE	TAX	SALES CREDIT	ITEMS SHIPPED COMPLETE	ITEMS SHIPPED PARTIAL

SOLD TO
Department of the Interior
Defense Minerals Exploration Admin.
Attention: H. L. Burmeister
U. S. Bureau of Mines
College Park, Maryland

SHIP TO (SAME AS SOLD TO UNLESS INDICATED.)

ROUTE

ITEM	DESCRIPTION	PRODUCT CODE	PRICE	CASES	GROSS WGT.	NET WGT.	QUANTITY (IF OTHER THAN #)	AMOUNT
	To bill you with 50% of April, 1959 items of costs per the Operator's Monthly Reports and Vouchers for contract Number Idm-E-1199 and for a supplement to contract Number Idm-E-1200 as follows:		$					
	Docket No.'s DMEA 4962 / DMEA 4963							
	Contract No.'s Idm-E-1199 / Idm-E-1200							
	Monthly Totals 9,128.10 / 136.00							
	Less 50% 4,564.05 / 68.00							
	4,564.05 / 68.00							$4,632.05

TRANSPORTATION CLAUSE APPLICABLE (SEE ACKNOWLEDGMENT BACK)

PPD OR COL: P

VIA: AS DIRECTED BY REYNOLDS' TRAFFIC DEPARTMENT

Dr. A-03-1

Cr. A-03-18

R-142-53 (REV. 4-58)

SELLER REPRESENTS THAT WITH RESPECT TO THE PRODUCTION OF THE MATERIAL AND/OR THE PERFORMANCE OF THE SERVICES COVERED BY THIS INVOICE, IT HAS FULLY COMPLIED WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938 AS AMENDED. OUR RESPONSIBILITY FOR SAFE DELIVERY OF GOODS CEASES WHEN WE OBTAIN CLEAR BILL OF LADING FROM CARRIER

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

APR 22 1959 O.M.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-

WATSON PROJECT
Stages I and II

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of March, 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 59,710.00 Government Participation: 50 % Amount, $ 29,855.00

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 Core	11094.95	21030.55	32125.50			
Bulldozing Reaming	1596.00	3071.25	4667.25			
Hole Surveying Cementing	------	184.00	184.00			
Drifting Lost BX Casing	151.20	280.80	432.00			
Lost AX Casing	17.00	17.00	34.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes						
	------	225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis CaF_2	103.50	63.00	166.50			
Payroll Taxes CaF_2, Pb, Zn	162.50	162.50	325.00			
Liability Insurance						
Incidental Allow.	1053.08	1996.12	3049.20			
(8) Contingencies (specify):						
TOTALS	14178.23	27030.22	41208.45	14178.23	27030.22	41208.45

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

Date APR 13 1959 *Payee Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

*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:

$ 7089.11

Signature Wilbur R. Miller
(Authorized Certifying Officer)

Date APR 20 1959 Vou. No. 104
(See other side)

7089.12

(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-1192 in accordance with the terms of the contract.

Signature [illegible] Title MINING ENGINEER U. S. BUREAU OF MINES Date APR 17 195[illegible]

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature [illegible] Title ACTING EXECUTIVE OFFICER DME - REGION V Date APR 17 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

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Watson Project
Stage I

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of March 1959 Docket No. DMEA 4962 Contract No. Idm-E1192
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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~~ Core Boxes	1	-----	----	225.00	75		75	3.00
Winzes								
Drilling: Core Ft	ft.	1557.60	528	20355.00	6900		6900	2.95
~~Churn~~ Reaming	ft.	-----	----	2299.50	1314		2000	1.75
~~Hole Survey~~ Cementing	hr.	-----	----	184.00	23		80	8.00
~~Stripping~~ Lost Bx Casing	ft.	-----	----	216.00	100		300	2.16
~~Trenching~~ Lost Ax Casing	ft.	-----	----	17.00	10		300	1.70
~~Test Pits~~ Assay CaF_2	1	-----	----	58.50	13		75	4.50
~~Roads and Trails~~ CaF_2, Zn, Pb	1	-----	----	162.50	25		25	6.50
Incidental Allow.	ft.	147.84	528	1932.00	6900		6900	0.28
Total Distributed Costs								Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		1705.44		25449.50				59710.00

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 APR 13 1959 Operator Reynolds Metals Company

Per E. E. McDaniel Title Accounting Official

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: Costs are for hole W-15, the final Stage I hole. This hole bottomed at 534 feet, 6 feet over the maximum. Reynolds is absorbing this extra footage.

(For Government use only)

Lou Berk
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

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

Watson Project
Stage II

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

Month of March 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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	9537.35	3233	11770.50	3990		8000	2.95
Churn Reaming	ft	1596.00	912	2367.75	1353		2000	1.75
Hole Surv. Auger Cementing	hr	----	----	------	----		100	8.00
Stripping Lost Bx Casing	ft	151.20	70	216.00	100		300	2.16
Trenching Lost Ax Casing	ft	17.00	10	17.00	10		300	1.70
Test Pits Assay CaF_2	1	103.50	23	108.00	24		75	4.50
Roads and Trails CaF_2,Zn,Pb	1	162.50	25	162.50	25		25	6.50
Incidental Allow	ft	905.24	3233	1117.20	3990		8000	0.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		12,472.79		15,758.95				59,710.00

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 APR 13 1959 Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

REMARKS: Costs are for Stage II holes W-13, W-16, W-17B, W-18, and W-19. Overage on CaF_2, Zn, Pb assays are included in CaF_2 column with Reynolds absorbing the difference in the cost. Invoice for assays on hole W-13 were sent in last month.

→ 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)

W. A. Beck
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".

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GPO 872894

REYNOLDS METALS COMPANY
Monthly Report - March, 1959
Watson Project-DMEA 4962-Idm-K1199
Crittenden County, Kentucky

by
John W. Hook

Stage I

All of the Stage I work was completed in February and covered in the narrative for the February report. However, the completion date of W-15 was after the 2-25-59 Joy invoice and is charged to the March accounting forms.

As stated in last month's narrative, the total footage for Stage I is 6,906 feet, 6 feet over the maximum. The additional 6 feet are not charged to the accounting report.

The log for W-15 and a cross section showing holes W-15, W-8 and W-17B are enclosed.

REYNOLDS METALS COMPANY
Monthly Report - March, 1959
Watson Property-DMEA 4962 - Idm-E1199
Crittenden County, Kentucky

by
John W. Hook

Stage II

Holes W-13, W-16, W-17(lost), W-17B, W-18, W-19, and W-21 bottomed during March and W-20 and W-22 are in progress.

The holes are continuing to find massive zones of low grade breccias but the runs of ore grade mineralization are not very consistent from one hole to another. For the most part, the true vein structures contain calcite while the fluorspar, lead and zinc mineralization is in the brecciated limestone wall rock. The grade of these breccia zones vary greatly from one hole to another. An example of this may be seen in comparing the cross sections of holes W-17(lost) and W-17B which are only 25 feet apart.

Holes W-13, W-16, W-18, W-19 and W-22 are test along faults 3 and 12-B, southeast of the Watson mine.

W-13 cut the faults 100' northeast of and 75 feet higher than the W-3 penetration. The hole found five zones of strong mineralization in brecciated limestones (assays ranged from 5% to 30% CaF_2 - see log or cross section for details). In all, 162.9 feet of core from this hole were assayed.

W-16 was drilled 200 feet south west of W-7. This hole found very little structure and no mineralization along the projection of fault 12-B. Fault 3 had 230 feet displacement but only weak shine mineralization.

W-18 was drilled 115' north east of W-13 and on a 40° angle to cut the targets slightly higher. The hole cut similar structure but considerably less mineralization than W-13. There were 20 feet of 21.04% from 478.3 to 498.3 feet, including 7½ feet of 26.38% CaF_2 on fault 3 (vein A), but the higher structure had only traces of fluorspar. However, there were several large cavities on fault 12-B from which there was no recovery.

W-19 was drilled midway between W-7 and W-3. This hole found weak shines along the various breaks associated with fault 12-B and 17.4 feet of 13.52% CaF_2 on fault 3 (veinA). 3 feet of this assayed 32.90% CaF_2.

W-22 is being drilled 109 feet south west of W-1 and is designed to test the faults midway between holes W-1 and W-2. The hole was collared on the last day of the month.

Holes W-17, W-17B, and W-20 were tests along faults 1 and 1-A. W-17B was extended to intersect faults 10 and 10-A.

REYNOLDS METALS COMPANY

Stage II

W-17 found 24 feet of 21.03% CaF_2, 0.5% Pb and 0.51% Zn on fault 1, weak shines on fault 1-A and 3.5 feet of 30.78% CaF_2 on a new fault which we will designate as 1-B. The hole cut a large cavity on fault 10-A and was lost before fault 10 was reached.

W-17B was drilled 25 feet northeast of W-17 to replace the lost hole. This hole cut considerably heavier mineralization than W-17. The entire zone from fault 1 to 1-A was mineralized with 94.5 feet averaging 14.11% CaF_2, 0.82% Pb and 1.27% Zn from 205.3 to 299.8 feet. See log and cross section for details. Fault 1-B had calcite and only traces of fluorspar. Fault 10-A again was marked by a cavity and fault 10 was mainly calcite with shines of fluorspar in the calcite and in the brecciated footwall.

W-20 was in progress at 314' at the end of the month. This hole was drilled from the hanging wall side offaults 1 and 1-A, parallel to and 100 feet northeast of 17-B. At 314 feet it was just entering the fault zone. (This hole bottomed April 3 at 507 feet and found mineralization similar to W-17B). The log, cross section and assays will be sent with the April report.

W-21 cut fault 10 at the Rosiclare horizon, 150' feet southwest of W-11. It found a narrow vein of calcite with only traces of fluorspar.

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

Watson Project
Stage I & II

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K- 34

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of February, 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 59,710.00 Government Participation: 50 % Amount, $ 29,855.00

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 Contractor Short Form:						
Drilling Core	8,460.60	12,569.95	21,030.55			
Bulldozing Bedrock	1,230.25	1,841.00	3,071.25			
Crosscutting Hole Survey Cementing		184.00	184.00			
Lost BX Casing	64.80	216.00	280.80			
Lost AX Casing	17.00		17.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes		225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sample and Analysis CaF_2	36.00	27.00	63.00			
Bench Tests CaF_2, Zn, Pb	78.00	84.50	162.50			
Liability Insurance						
Incidental Allow.	803.04	1,193.08	1,996.12			
(8) Contingencies (specify):						
TOTALS	10,689.69	16,340.53	27,030.22	10,689.69	16,340.53	27,030.22

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

Date 3-11-59 *Payee Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

*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:

$ 5344.85

Signature Helen R. Miller
(Authorized Certifying Officer)

Date MAR 24 1959 Vou. No. 99
(See other side)

5344.85

(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 1199 in accordance with the terms of the contract.

Signature [illegible] Title Mining Engr. Date 3/18/59

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE: ACTING EXECUTIVE OFFICER

Signature [illegible] OME Title REGION V Date MAR 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.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Watson Project
Stage I

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of February 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorespar
Address Richmond, Virginia

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date [a]	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Core Boxes	1			225.00	75		75	3.00
Drilling: Core	Ft.	6,227.45	2,111	18,797.40	6,372		6,900	2.95
Churn								
Reaming	Ft.	458.50	262	2,299.50	1,314		2,000	1.75
Auger								
Cementing	Hr.			184.00	23		80	8.00
Stripping								
Lost BX Casing	Ft.			216.00	100		300	2.16
Trenching								
Lost AX Casing	Ft.	17.00	10	17.00	10		300	1.70
Test Pits								
Assay CaF2	1	31.50	7	58.50	13		75	4.50
Roads and Trails								
CaF2,Zn,Pb	1	78.00	12	162.50	25		25	6.50
Incidental Allowance	1	591.08	2,111	1,794.16	6,372		6,900	0.28
Total Distributed Costs								Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		7,403.53		23,744.06				~~59,710.00~~ 28,310.00

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.

Remarks: Costs are for holes number W-7, W-11, W-12, W-14.

Date 3-11-59 Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

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)

W. L. Burmeister 3/18/59 (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.

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

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Watson Project
Stage II

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of February 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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.	2,233.15	757	2,233.15	757		8,000	2.95
Churn	Ft.	771.75	441	771.75	441		2,000	1.75
~~Mounting~~ Auger							100	8.00
~~Hole Survey-Cementing~~ Stripping	Hr.							
~~Lost BX Casing~~ Trenching	Ft.	64.80	30	64.80	30		300	2.16
~~Lost AX Casing~~ Test Pits	Ft.						300	1.70
~~Assay CaF2~~ Roads and Trails	1	4.50	1	4.50	1		75	4.50
~~CaF2,Zn,Pb~~	1						25	6.50
~~Incidental Allow.~~	Ft.	211.96	757	211.96	757		8,000	0.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		3,286.15		3,286.16				~~22,710.00~~ 31,399.00

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.

REMARKS: Costs are for W-9 only.

Date 3-11-59 Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

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)

R. L. Burmeister 3/18/59 (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.

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

REYNOLDS METALS COMPANY
Monthly Report - February, 1959
Watson Project - DMEA 4962 - Idm-E1199
Crittenden County, Kentucky

by
John W. Hook

Stage I

All of the Stage I work has now been completed. With the completion of W-15, the total footage drilled was 6906, six feet over the contract maximum. The additional six feet will be absorbed by the operator. A total of 13 holes were drilled under Stage I, 6 of which were along Faults 3 and 12-B, 5 along Faults 10 and 10-A, and 2 along Faults 1 and 1-A. Two of the holes along Faults 3 and 12-B cut ore grade fluorspar and the other four cut very strong shine mineralization. Both holes on Faults 1 and 1-A cut very wide zones of good shines and one of the holes had two runs of ore. One of the holes along Faults 10 and 10-A cut 21.5 feet of 7.28% CaF_2, the other four had only traces or weak shines.

18 holes were originally planned for Stage I, but because locations were revised as more accurate geological data was obtained from previous holes, the allotted footage was used in 13 holes. The holes had to be drilled deeper than expected partly because of the deep weathering along the faults which made shallow tests impractical.

Holes W-7, W-12, W-14, and W-15 were completed during the month of February. The accounting report does not show W-15 which was bottomed after the 25th of the month and not complete on the Joy Invoice. For the same reason, W-11, which bottomed January 31, 1959, is on the accounting forms for this month.

W-7 (Revised Location No. 5) The January narrative covered the upper 540 feet of this hole. Below this depth the hole cut numerous shines of fluorspar, zinc and lead. Assays from 660.6 to 687.7 (red length 27.1 feet) averaged 11.35% CaF_2, 0.20% Pb, and 1.27% Zn. The main fault, Fault 3 (Vein A), however contained barren calcite. The dip of Fault 3 had flattened and the penetration was made at 841 to 850, rather than the estimated depth of 700 feet. The hole bottomed at 860 feet in Ste Genevieve limestone.

W-12 (Location No. 19) This footwall test of Faults 1 and 1-A found ore grade fluorspar on both faults, with good shines of fluorspar, lead and zinc in the broken formations between the two faults. Fault A had 29.84% CaF_2 from 189.5 to 197.1. (The average

assay from 189.5 to 215.1 was 13.63% CaF_2, 0.23% Pb, and 0.65% Zn.) Fault 1-A had 34.51% CaF_2, 2.58% Pb, and 1.23% Zn from 365.4 to 374.9. (The average assay from 345.2 to 384.6 was 15.03% CaF_2, 0.77% Pb, and 1.01% Zn.) The mineralization in this hole occurred as a breccia filling rather than in a true vein structure.

W-14 (Revised Location No. 13) This test cut Fault 10 400 feet southwest of the W-11 penetration. To keep the required distance from the property line, this hole was drilled on an 80° angle and cut the fault from 324 to 338 feet. The test was disappointing in that there was a 10 feet open cavity at the fault with only 1.5 feet of vein calcite with fluorspar shines on the footwall. The footwall formation was Ste Genevieve with traces of fluorspar.

W-15 (Revised Location No. 10) W-15 was drilled on the Sunderland property (added to the contract by Amendment No. 1) to test the projection of Fault 12-B 1,100 feet southwest of the W-7 penetration. Fault 12-B splits into numerous minor faults, the various components of which were cut from 364 to 500 feet. Faults were cut at 364-372, 386-392, 414-419, 446-446.5, and 484-499.5. Most of the intervening Ste Genevieve limestone was fractured and brecciated. There were scattered shines of fluorspar, lead and zinc from 414 to 494.5. The hole bottomed at 534 feet.

Assays for the above holes are included in the logs. There were a total of 29 assays for CaF_2, Pb and Zn. Since the Stage I allotment is 25, the four additional assays are charged on the accounting report as CaF_2 only, with Reynolds absorbing the additional cost for the Pb and Zn.

SUMMARY OF DRILLING

Hole	Location No.	Depth	Date Bottomed
W-7	5	860'	2-11-59
W-11	12	436	1-31-59 (not on last month's invoice)
W-12	19	453	2-14-59
W-14	13	362	2-10-59
W-15	10	534	2-27-59 (not on this month's invoice)
	Total for Month	2,645	
	Prev. Total	4,261	
	Grand Total	6,906	
	Stage I max.	6,900	
	Overage	6	

Form MI-104 (Rev.) (April 1962)

Watson Project Stage I

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

PAID ON VOUCHER & SCHEDULE OF PAYMENTS K-50

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of January, 1959 Docket No. DMEA 4962 Contract No. Idm-E1199

Operator's Name Reynolds Metals Company Minerals Fluorspar

Address Richmond, Virginia

Contract Amount $ 28,310.00 Government Participation: 50% Amount, $ 14,155.00

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 Core	5787.90	6782.05	12,569.95			
~~Bulldozing~~ Reaming	481.25	1359.75	1,841.00			
Hole Surveying Cementing	—	184.00	184.00			
~~Drifting~~ Lost BX Casing	—	216.00	216.00			
Lost Ax Casing	—	—	—			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	—	225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis CaF2	22.50	4.50	27.00			
~~Payroll Taxes~~ CaF2, Pb, Zn	—	84.50	84.50			
Liability Insurance						
Incidental Allowance	549.36	643.72	1,193.08			
(8) Contingencies (specify):						
TOTALS	6841.01	9499.52	16340.53	6841.01	9499.52	16340.53

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

Date FEB 12 1959 *Payee REYNOLDS METALS COMPANY GEOLOGICAL DIVISION

Per H. E. McDaniel Title Accounting Official

*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:

$ 3420.50

Signature Helen R. Meter (Authorized Certifying Officer)

Date MAR 4 1959 Vou. No. 91

(See other side)

3420.51

(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 1199 in accordance with the terms of the contract.

Signature [illegible] Title Mining Engr. Date 2/19/59

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

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

Watson Project
Stage I

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of January 1959 Docket No. DMEA 1962 Contract No. Ida-C1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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~~ Core Boxes	1	—	—	225.00	75		75	3.00
Winzes								
Drilling: Core	Ft	5787.00	1962	12,569.95	4261		6900	2.95
~~Churn~~ Reaming	Ft	481.25	275	1,841.00	1052		2000	1.75
Hole Surveying Cementing	Hr			184.00	23		80	8.00
~~Stripping~~ Lost BX Casing	Ft			216.00	100		800	2.16
~~Trenching~~ Lost AX Casing	Ft						300	1.70
~~Test Pits~~ Assay CaF2	1	22.50	5	27.00	6		75	4.50
~~Roads and Trans~~ CaF2,Pb,Zn	1			84.50	13		25	6.50
Incidental Allowance	Ft	549.36	1962	1,193.08	4261		6900	0.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		6841.01		16340.53				28,310.00

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.

REMARKS: Costs are for holes W-4, W-5, W-6, W-8, and W-10.

REYNOLDS METALS COMPANY
GEOLOGICAL DIVISION

Date FEB 12 1959 Operator

Per L. F. McDaniel Title Accounting Official

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)

W. Burmeister 2/19/59 (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.

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

REYNOLDS METALS COMPANY
Monthly Report - January, 1959
Watson Project - DMEA 1962 - Ida-E1199
Crittenden County, Kentucky
by
John W. Hook

STAGE I

Severe winter weather hampered the drilling operations in January. Freezing water lines have prevented the night shifts from drilling during the very cold weather and rains and thawing ground made moving difficult. Flooding streams have also caused lost time. As a result, we are behind schedule and may not be able to complete all of the desired work by March 10th.

Two rigs were used on Stage I drilling this month. A third rig worked on Stage II and a fourth rig has been moved in.

Holes W-4, W-5, and W-6 were covered in last month's narrative, but were not included on the monthly form because they bottomed after the 25th of the month.

W-7 (revised location No. 8) This hole was designed to explore Fault 12-B and the [illegible] in the footwall of Fault 3, the main Watson fault. It was expected to bottom when it cut the large cavity found in W-4 which cut Fault 3 from the hanging wall side. W-7 has now passed beneath this cavity in solid formations with good shines of fluorspar. In a recent meeting, Denny Ames and I decided to continue this hole and cut Fault 3 from the footwall side. The hole was 546 feet deep at the end of the month and is expected to cut the fault at about 700 feet.

W-8 (revised location No. 9) W-6 found that Fault 10 had split into two components, both of which were northwest of the projected location. W-8 was moved back (northwest) 100' from the proposed location but still cut the faults too high in the stratigraphic section. The first fault, which we will designate 10-A, had about 40 feet of displacement and had Cypress against Paint Creek. The second, Fault 10, had about 120 feet of displacement with Bethel against Renault. The hole was continued to a depth of 335 feet to check for additional faults along the projected strike but none were found. The elevation of the Ragsdale sandstone in the footwall checked with the general dip of the block between Fault 10 and 12-B. Contrary to previous mapping, it now appears that Fault 10 is nearly parallel to Fault 1 and Fault 12-B is parallel to Fault 3. The large intervening block is relatively undisturbed.

W-9 See Stage II Report.

W-10 (revised location No. 11) Based on the results of W-8 and W-6, this location was revised 350 feet to the northwest and drilled on a 45° angle. Fault 10-A was cut with Bethel against Renault and Fault 10 with Renault against Fredonia. There was a cavity on fault 10-A and Fault 10 was filled with shale gouge with a few shines of fluorspar in the footwall.

W-11 (revised location 12) The location of this hole was also revised about 350 feet to the northwest and was drilled on a 70° angle to keep the collar over 100 feet (actually 105 feet) from the property line. Fault 10-A apparently converges with Fault 10 at this point. There were two large open cavities on the hanging wall side of the fault (or faults) and 22 feet of very good shiner on the footwall. The hanging wall formation above the cavities was Bennett and the footwall was Fredonia.

W-12 (location No. 19) A fourth drill has been added to this project and is setting up on location No. 19 to make a footwall test of Fault 1.

W-13 See Stage II Report.

W-14 (revised location No. 13) This hole is designed to cut Fault 10 within Bedinhofer horizon on the hanging wall (Fredonia footwall), 400 feet southwest of the W-11 penetration. The hole will be drilled on an 80° angle to keep the required distance from the property line. The rig is presently being set up on this location.

All revisions of hole locations and angles are being made with written permission of the DMEA field team.

Drilling Summary

Hole	Location No.	Depth	Date Completed
W-4	4	411*	12-31-58
W-5	18	351*	12-29-58
W-6	8	352*	1-5-59
W-7	5	540	
W-8	9	335*	1-13-59
W-9 (Stage II)			
W-10	11	514*	1-23-59
W-11	12	436	1-31-59
W-12	19	0	
W-13 (Stage II)			
W-14	13	0	

* Bottom depth shown on Joy invoice for 1-25-59. Costs for these holes only are shown on the monthly forms for this month.

REYNOLDS METALS COMPANY

Diamond Drill Hole W-8; Angle 45° Bearing S51E Depth 335'
Coordinates: N-[illegible] E-9015 Elevation: 437.3
Property Watson; Area SE Salem County Crittenden State Kentucky
Contractor: Joy Manufacturing Company; Foreman: Hinner
Started 1/7/59 Finished 1/23/59

From	To	Fm	Description
0	15		Overburden
15	35	Cs	Sandstone, massive, oxidized.
35	54	Cs	Shale, greenish gray.
54	88	Cs	Sandstone, massive, oxidized.
88	91	Cs	Shale, greenish, soft, with marcasite.
91	94	Cs	Coal.
94	102	Cs	Shale, greenish gray.
102	123	ChbP	Loose sand and sandy shale, greenish, oxidized, poor recovery. Fault probably at base.
123	129	Cps	Shale, black.
129	186	ChbP	Sandstone, gray with black shale. Typical Bethel for this area. Fault at base.
186	192	Cr	Limestone, dark gray, medium crystalline, fractured. 3' recovery.
192	197	Cr	Limestone, medium to dark gray, medium crystalline, massive.
197	198	Cr	Limestone, coarse crystalline, brownish gray, with crinoid stems.
198	213	Cr	Limestone, medium crystalline, dark gray, massive, sandy. Very sandy at top and bottom, little shale @ 206.5.
213	224	Cl	Limestone, oolitic, medium crystalline, brownish gray.
224	235	Cl	Limestone, very fine crystalline, medium brownish gray.
235	236	Cvu	Shale, green
236	240	Cvu	Limestone, fine crystalline, brownish gray, with few green shale partings. Gently 237.5-239.5.
240	245	Cvu	Shale, green with little brown limestone.

From	To	Fm	Description
245 -	247	Cre	Limestone, fine crystalline, brownish gray.
247	266	Cre	Limestone, sandy, greenish, thin shaley partings. Open cavity at 262-63., oxidized at cavity, otherwise fresh.
266	266.5	Cre	Shale, green, oxidized.
266.5	281		Cavity, no recovery.
281	283	Cf	Limestone, medium crystalline, light gray, few shale partings.
283	291	Cf	Limestone, fine crystalline, light gray, few shale partings.
291	298	Cf	Limestone, fine crystalline, light gray, few shale partings.
298	303	Cf	Limestone, medium crystalline, medium gray, oolitic, fossiliferous. Green shale with fossiliferous ls at 300-303.
303	318	Cf	Limestone, green to gray brown, medium crystalline.
318	330	Cf	Limestone, light gray medium to fine crystalline, oolitic, shale partings from 323-330.
330	335	Cf	Limestone, green silty, fossiliferous, few shale partings, increase in shale from 333-335.

<u>Bottom 335'</u>

REYNOLDS METALS COMPANY

Diamond Drill Hole W-10; Angle -45°; Bearing S51½E; Depth 514'
Coordinates N8187 E8647; Elevation 432.5'
Area, SE Salem; Property, Watson; County, Crittenden; State, Kentucky
Started 1/25/59 Finished 1/23/59
Contractor, Joy Manufacturing Company
Foreman, Miles Hinner.

From	To	Fm	Description
0	21		Overburden
21	75	Cc	Sandstone, massive, gray, medium grained, shaley to 41', oxidized from 60 - 75 feet.
75	79	Cc	Shale, laminated with sand.
79	145	Cc	Massive sandstone, medium gray, medium grained, 1' recovery from 106'-115', 100% (probably shale). Laminated sandstone and shale 115-117. Entire run oxidized.
145	162	Cpp-	Shale
162	165	Cb	Predominately black shale with sandstone pebbles, Cgl.
165	254	Cb	Predominately gray sandstone, irregularly bedded with with black shale. 9' recovery from 169'-183', increase in sandstone from 232 to bottom of run.
254	264	Cb	Shale, black, few thin, irregular sandstone, beds
264	273	Cb	Predominately sandstone, few irregular shale partings, few calcite stringers, slightly conglomeritic in lower two feet.
273	286	Cb	Shale, black, angle of bedding 30° with core, marcasite along bedding.
286	293		Mud cavity, fault.
293	316	Cr	Limestone, brown, medium crystalline, fossiliferous, weathered from 293-299.
316	321	Cr	Limestone, medium gray, medium crystalline, fossiliferous, green shale from 318-320.
321	327	Cr	Limestone, medium gray, medium crystalline, fossiliferous, stylitic, few calcite stringers, weathered 6" from bottom, chert at 323'.
327	329	Cr	Shale, green, few limestone stringers, weathered, from 328' to 329'.
329	334	Cr	Limestone, brown gray, medium crystalline, stylitic, few shale partings, fossiliferous.

From	To	Fm	Description
334	352	Cr	Sinley limestone, green, fossiliferous, few small calcite stringers.
352	353.5	Cr	Limestone, brown, fine crystalline, slightly brecciated, calcite vein running with core in upper foot, slightly broken in lowerhalf.
353.5	356		Fault, filled with green shaley gouge.
356	358.5	Cf	Limestone, brown, fine crystalling, brecciated, shiney of CaCO3 mineral through run.
358.5	380	Cf	Limestone, brown, medium crystalline, calcite stringers, CaCO3 shiney at 364', slightly cherty, mineral shiney of CaCO3 from 378-379.
380	458	Cf	Limestone, light gray, medium crystalline, calitic, fossiliferous, few small calcite stringers. 4" sandy limestone at 401' Cavity at 437-439.
458	482	Cf	Limestone, brown, fine to medium crystalline, slightly fossiliferous, few calcite stringers, cavities from 460-464, 466.5-468.5.
482	490	Cf	Limestone, medium gray, medium crystalline, fossiliferous, few calcite stringers.
490	502	Cal	Limestone, brown gray, medium crystalline, fossiliferous few small shale partings, heavy black chert.
502	514	Cal	Limestone, fine crystalline, brownish, few calcite stringers, trace of oil at 506', chert. 18" cavity at 508.5.

Bottom 514'

NEEDLE METALS COMPANY

Diamond Drill Hole U-11; Angle 75°; Bearing 550½; Depth 136'
Coordinates [illegible] N; [illegible] E; Elevation [illegible]'
Property, Mahoney Area, [illegible] Mining County, Cattlesburg, State, Kentucky
Contractor, Jay Pennsylvania Company; Person, Wilson Kinner
Started 1/27/55 Finished 1/31/55

From	To	Fm	Description
0	18		Overburden
18	66	Cg	Shale, dark gray, few siltstones, some carbonate, weathered at top, weathered brown and very dark at 35' to bottom of run.
66	76	Cs	Sandstone, gray to brown, massive, bedded sandstone and shale in upper 2'.
76	77.5	Cs	Shale, dark gray with thin sandstone laminations in lower foot, weathered gray green and slightly sandy shale at bottom.
77.5	88	Cs	Sandstone, gray green, silty, sub-angular conglomerate in upper 6', golden brn & sandy shale bound bottom of run, carbonate lining bedding.
88	123	Cs	Sandstone, medium grained, gray, weathered brown red, quartzitic, carbonaceous 30'.
123	134	Cs	Shale, dark gray, sandy to 125, dark gray shale with few sandy zones to shale 132, 132-134 is shale, sand and shale fragments.
134	136		Cavity
136	153	Cs	Sandstone, fine grained, weathered green and brown, shaley.
153	156	Cs	Sandstone, massive, brown, medium grained.
156	175	Cps	Shale, dark gray, weathered in upper 2'.
175	249	Cb	Predominately light gray sandstone, irregular bedding, dark gray shale, conglomerate in lower 5'. (Cgl is sub-angular shale fragments in sandstone). Increase in sand from 232 to bottom of run.
249	253	Cb	Shale, black, 3" sandstone at 251, slightly sandy from 251 to bottom.
253	262	Cb	Sandstone, light gray as above.
262	264	Cb	Sandstone, light gray, medium grained, with sub-angular cgl., black shale fragments.
264	276	Cr	Shale, dark gray.
276	283	Cr	Limestone, dark gray, medium crystalline, fossiliferous, shaley, increase in shale from 279-283.
283	298	Cr	Limestone, brown, medium crystalline, fossiliferous, few calcite stringers.

REYNOLDS METALS COMPANY

page 2

From	To	Fit	Description
298	300	Cr	Green shale.
300	306	Cr	Limestone, brown, fine crystalline, fossiliferous, stylolitic
306	307	Cr	Gray green shale.
307	314	Cr	Limestone, brown, ranging to coarse crystalline.
314	323	Cr	Silty limestone and shale, gray green, weathered in lower foot.
323	330		Cavity
330	331	Cr	Limestone, weathered, medium crystalline, weathers brown, 1/2" recovery, sand sludge.
331	332	Cr	Limestone, gray green, weathered brown, sand sludge.
332	351.5		Cavity, open.
351.5	352	Cr	Limestone, medium gray, medium crystalline.
352	373.5		Fault. 352-354.5 Fractured limestone with good CaF2 shiners in calcite veinlets. 354.5-356 Vein calcite and good shiners of CaF2. 356-363 Brecciated limestone and calcite. 363-364 Open cavity. 364-370 Limestone, light gray, medium crystalline, oolitic, fractured, good shiners CaF2. 370-373.5 Limestone [illegible] weathered shiners of CaF2 and chemical odor.
373.5	386	Cf	Limestone, medium gray, fine crystalline, slightly cherty. [illegible] Calcite vein (3") at 385.
386	390.5	Cf	Limestone, dark gray, medium crystalline, oolitic, slightly fractured with calcite veinlets, stylolitic.
390.5	396.5	Cf	Limestone as above but with chert.
396.5	398.5		Vein calcite.
398.5	436	(TCa17)	Limestone, brown, fine crystalline, with few calcite stringers.

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

Watson Project
Stage II

Month of January, 1959 Docket No. DMEA 4962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 31,399.00 Government Participation: 50 % Amount, $ 15,699.50

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	—	—	—			
Bulldozing	—	—	—			
Crosscutting	—	—	—			
Drifting	—	—	—			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis CaF2	—	—	—			
Payroll Taxes CaF2,Pb,Zn	—	—	—			
Liability Insurance						
Incidental Allow	—	—	—			
(8) Contingencies (specify):						
TOTALS	—	—	—			

Hole Survey
Core
Reaming
Cementing
Lost BX Casing
Lost AX Casing

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

Date FEB 12 1959 *Payee REYNOLDS METALS COMPANY GEOLOGICAL DIVISION

Per H. E. McDaniel Title Accounting Official

*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:

$

Signature
(Authorized Certifying Officer)

Date Vou. No.
(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. ..... in accordance with the terms of the contract.

Signature ..... Title ..... Date .....

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature ..... Title ..... Date .....

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

UNITED STATES
DEPARTMENT OF THE INTERIOR

Watson Project
Stage II

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of January 1959 Docket No. DMEA 1962 Contract No. Idm-E1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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	0	0	0	0		8,000	2.95
~~Chum~~ Reaming	Ft	0	0	0	0		2,000	1.75
Hole Surv ~~Auger~~ Cementing	Hr	0	0	0	0		100	8.00
~~Stripping~~ Lost BX Casing	Ft	0	0	0	0		300	2.16
~~Trenching~~ Lost AX Casing	Ft	0	0	0	0		300	1.70
~~Test Pits~~ Assay CaF_2	1	0	0	0	0		75	4.50
~~Roads and Trails~~ CaF_2, Z_n, Pb	1	0	0	0	0		25	6.50
Incidental Allowance	Ft	0	0	0	0		8,000	0.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		0		0				31399.00

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.

REMARKS Hole W-9, the first stage II hole was started in January but is not complete.

REYNOLDS METALS COMPANY
GEOLOGICAL DIVISION

Date FEB 12 1959 Operator

Per H. E. McDaniel Title Accounting Official

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)

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

REYNOLDS METALS COMPANY
Monthly Report - January, 1959
Watson Project - DMEA 1962 -Idm-E1199
Crittenden County, Kentucky
by
John W. Hook

STAGE II

W-9 The first stage II hole collared January 13th at coordinates N-9431 E-11286 at an elevation of 558.0 feet. The hole is being drilled N64W on a 60° angle. It is designed to test vein "A" 300 feet above the W-1 penetration and vein "C" 150 feet below the W-1 penetration. W-9 should cut vein "A" from 420 to 450 feet and vein "C" from 700 to 750 feet. The hole collared in Hardinsburg sandstone and cut the top of the Golconda at 100 feet. The Hardinsburg was broken and quartzitic which made drilling difficult, and cavities in the Golconda made reaming and casing necessary. The present depth is 264 feet.

W-13 The second stage II hole, W-13 will be collared 160 feet N85E of hole W-3. It will be drilled S50E on a 45° angle and penetrate the veins 75 feet higher and 100 feet northeast of the W-3 hole.

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

Watson - Stage I

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5

FEB 4 1959

PAID ON VOUCHER & SCHEDULE
PAYMENTS K- 43

OPERATOR'S MONTHLY REPORT AND VOUCHER

O.M.E.

Month of December, 1958 Docket No. DMEA 4962 Contract No. Idm E-1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $28,310.00 Government Participation: 50 % Amount, $14,155.00

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 core	2448.50	4333.55	6782.05			
~~Bulldozing~~ reaming	649.25	710.50	1359.75			
Hole survey & ~~Crosscutting~~ cementing	-	184.00	184.00			
~~Drifting~~ lost BX casing	216.00	-	216.00			
Lost AX casing	-	-	-			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	-	225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
~~Sampling and~~ Analysis CaF_2	4.50	-	4.50			
Payroll Taxes CaF_2, Zn, Pb	-	84.50	84.50			
Liability Insurance						
Incidental allow.	232.40	411.32	643.72			
(8) Contingencies (specify):						
TOTALS	3550.65	5948.87	9499.52	3550.65	5948.87	9499.52

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

Date JAN 16 1959 *Payee Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

*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:

$ 1775.33

Signature Helen R. Miller
(Authorized Certifying Officer)

Date FEB 2 1959 Vou. No. 84

(See other side)

1775.32

(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 1199 in accordance with the terms of the contract.

Signature N. A. Burmeister Title Mining Eng'r. Date 1/27/59

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature V. J. Lynch Title ACTING EXECUTIVE OFFICER OME - REGION V Date JAN 29 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

Watson Project
Stage I

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

FEB 4 1959

Month of December 1958 Docket No. DMEA 4962 Contract No. Idm E-1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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 Core boxes	1	-	-	225.00	75		75	3.00
Winzes								
Drilling: Core	Ft	2448.50	830	6782.05	2299		6900	2.95
reaming	Ft.	649.25	371	1359.75	777		2000	1.75
Hole survey & cementing	Hr.	-	-	184.00	23		80	8.00
Churn & Auger Stripping Lost BX casing	Ft.	216.00	100	216.00	100		300	2.16
Trenching Lost AX casing	Ft.	-	-	-	-		300	1.70
Test Pits Assay CaF_2	1	4.50	1	4.50	1		75	4.50
Roads and Trails CaF_2,Zn,Pb	1	-	-	84.50	13		25	6.50
Incidental allow.	Ft.	232.40	830	643.72	2299		6900	.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		~~3550.65~~		~~9499.52~~				~~28,310.00~~

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 JAN 16 1959 Operator Reynolds Metals Company

Per J. E. McDaniel Title Accounting Official

REMARKS: Costs this month are for Hole W-3 only. Holes W-4, W-5, and W-6 were not finished in time to be included with the December Joy Invoice.

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)

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

REYNOLDS METALS COMPANY
Monthly Report - December, 1958
Watson Property - DMEA 4962 - Idm E-1199

Crittenden County, Kentucky

By
John W. Hook, Geologist

Stage I

A second rig was added to the Watson project during December and a third (for stage II work) will be added in January. One of the rigs is working on a two shift basis and the other is running three shifts. With this increased effort we expect to complete the project by the March 10th deadline.

As presently planned, the original rig will continue to follow fault 3, the main Watson structure, and the second rig will follow fault 10, a big producer in the Davenport mine. The third rig will start the stage II drilling in an attempt to expand the ore discovered in W-1. A fourth rig will be added if needed to complete the stage II work.

The holes are being numbered in the sequence in which they are drilled: W-4 was drilled at location No. 4, W-5 at location No. 18, and W-6 at location No. 8. W-7 will be drilled at location No. 5 (revised) and W-8 will be drilled at location No. 9 (revised). Permission to drill holes out of sequence and at revised locations is being granted by the DMEA field team.

W-4 cut fault 3 from the hanging wall (SE) side and bottomed in Ste. Genevieve limestone at a depth of 411. The hole collared in Hardinsburg, cut a full section of Golconda and the upper part of the Cypress sandstone in the hanging wall. The main fault was at 267 to 279 feet and consisted of brecciated sandstone fragments in a clay matrix. This was difficult material to sample and recovery was poor, but there was no evidence of CaF_2 mineralization. Ste. Genevieve limestone was cut from 79 to 323. From 323 to 398 the hole found quartzitic sandstone boulders in a matrix of loose sand and clay. Only the boulders could be recovered as core, the clay and sand were recovered in sludge samples.

This zone probably represents a very large cavity in the Ste. Genevieve filled with debris from the overlying sandstone formations rather than a graben. No fluorspar was found in this zone. Below 398' the hole went back into brecciated Ste. Genevieve with good shines of fluorspar. The hole was bottomed in shines at 411. The next hole along this system, W-7 (location No. 5) is designed to test parallel structures from the northwest side and intersect the bottom of W-4.

The second rig was moved to W-5 (proposed hole No. 12) on December 23. This hole collared in Cypress sandstone, passed through the Paint Creek shale, and cut most of the Bethel sandstone before entering a fault at 222. From 222 to 322

it found good shines of CaF_2 and Zns in a fractured and brecciated fault block of Ste. Genevieve limestone. This entire section was assayed because the low grade mineralization in high calcic limestone may be of future importance. Many of the fractures were parallel of sub-parallel to the core, indicating that the hole was possibly following a fractured zone within the block of Ste. Genevieve. It is likely, however, that this block of Ste. Genevieve in the main Moore Hill Fault (fault 1), is fractured throughout. In general, the fluorspar mineralization was best near the hanging wall and the best concentration of sphalerite was at the footwall of this block. Below the fault at 322, the hole found St. Louis limestone with a few minor fractures. The hole bottomed at 351.

W-6 was drilled at location No. 8, about 100' in back of, and in the opposite direction from W-5. Both holes are shown on the same cross sections. The various zones of the Cypress were correlated between the holes but the Paint Creek and Bethel formations were too weathered to core. Sludge samples were taken but no fluorspar, lead or zinc were found. At 250' cores of the Rosiclare sandstone were recovered, underlain by Fredonia, indicating that fault 10 had been cut in the weathered zone. The hole was continued in Fredonia to a depth of 351' but other than cavities, there was no further evidence of faulting.

Invoices are submitted by Joy on the 25th of each month. Only holes which bottom before this date are shown on the accounting forms.

Assays

Hole	Assay No.	From	To	CaF_2	Pb	Zn
W-2	A-44992	333.9	340.2	4.56	0.32	0.30
W-2	A-44993	340.2	241.5	92.38	3.84	0.00
W-2	A-44994	341.5	344.8	4.80	0.21	0.30
W-2	A-44995	301.6	303.0	86.56	2.13	0.69
W-2	A-44996	303.0	303.9	15.36	0.21	5.18
W-2	A-44997	327.0	340.2	8.76	0.27	0.80
W-3	A-57234	639	643	17.72		
W-5	A-44998	226	235	6.58		0.80
W-5	A-44999	235	256	0.88		0.10
W-5	A-45000	256	285	3.80		0.20
W-5	A-57235	285	313	5.46		1.99
W-5	A-57236	313	321.5	1.46		4.68

Drilling Summary

Hole	Location No.	Depth	Date Bottomed
W-3	3	829'	11-26-58
W-4	4	411'	12-31-58
W-5	18	351'	12-29-58
W-6	8	351'	1-5-59

REYNOLDS METALS COMPANY

Diamond Drill Hole: W-4 Angle: -44.5° Bearing: N67W Depth: 411'
Coordinates: N-8532, E-10579 Elevation: 547.5'
Property: Watson Area: SE Salem County: Crittenden State: Kentucky
Contractor: Joy Mfg. Company Started: 12-10-58 Finished: 12-31-58
Foreman: Hayes

From	To	Fm.	Description
0	14		Overburden
14	44	Ch	Sandstone, fine grained, light grey, massive.
44	53	Ch	Shale and thin bedded sandstone, mica along bedding, recovery 2'.
53	65	Ch	Ditto. Recovery 1'.
65	82	Ch	Ditto. Recovery 1'.
82	102	Cg	Limestone, dark grey, medium crystalline, ground mass with coarse crystalline, brown calcite replacing fossils, fossiliferous small crinoids give appearance of oolite, slightly shaley, angle of bedding at 86', to 87' and 94', 50°, av. for run. 96-97 fine crystalline limestone.
102	145	Cg	Shale, dark grey, calcareous, with reddish cast in shale from 112 to 113. Limestone from 106.5 - 109.5, angle of bedding 45°, av. for run.
145	165.5	Cg	Shale, dark grey, very slightly calcareous, slightly sandy in zones of irregular nodules.
165.5	170	Cg	Limestone, dark grey, medium crystalline, brown calcite replacing fossils, moderately fossiliferous, heavy fossiliferous zones, green shale partings and more fossiliferous in upper 1.5'.
170	182	Cg	Silty limestone, dark grey, fine grained, scattered fossils, replaced by brown calcite, alternates between limestone and calcareous shale.
182	189	Cg	Shale, dark grey fossiliferous, numerous bryozoan fams along bedding, fossils replaced by brown calcite, Archimedes at 189'.
189	219	Cg	Alternating limestone and shale, dark grey shale and dark, brownish grey, fine to medium crystalline clean limestone, shales are sandy from 207 - 219. Numerous bryozoan in limestone, apparently larger fossils in run, less crinoids, slightly brecciated at 206'. Angle of bedding at 215', 45°.
219	233	Cc	Sandstone, fairly massive, with few shale partings, cross bedded.

From	To	Fm.	Description
233	250	Cc	Shale, dark grey, slightly calcareous, angle of bedding 60°.
250	267	Cc	Sandstone with some shale partings, angle of bedding at 252, 60°.
267	279		Fault Sandstone breccia and fragments of sandstone in clay matrix. Recovery 4'. (Fine gravel was recovered, no evidence of CaF_2 mineralization.)
279	285	Csg	Limestone, lithographic, light brown, few fossils, recovery 6'.
285	290	Csg	Green shale in upper part, slay with fragments of weathered limestone in lower part.
290	295	Csg	Limestone, fine crystalline, greenish to brown, weathered, fossiliferous, with little shale, appears slightly sandy, recovery 1'.
295	313.5		Cavity, filled with sand and shale fragments.
313.5	323		Limestone, fine to medium crystalline, light grey, scattered micro fossils.
323	331		No recovery.
331	366		Sand filled cavity with quartz boulders. Recovered little quartz core, sludge contained sand and green shale, considerable marcasite.
366	398		No core, samples with gravel barrel in cavity. Sand and green shale fragments.
398	411		Brecciated limestone, calcite with shines of CaF_2. Limestone is fine crystalline, light brownish grey.

From 323 to 398 - probably a sand and quartzite filled cavity.

Bottom 411'

REYNOLDS METALS COMPANY

Diamond Drill Hole: W-5 Angle: -45° Bearing: N50W Depth: 351'
Coordinates: N-8717, E-9172 Elevation: 459.5'
Property: Watson (Hicks) Area: SE Salem County: Crittenden State: Kentucky
Contractor: Joy Mfg. Company Started: 12-23-58 Finished: 12-29-58
Foreman: Minner

From	To	Fm.	Description
0	15		Overburden
15	30	Ccb	Sandstone, light grey to brown, weathers brown, fine grained, massive, weathered along bedding, angle of bedding 50°, ave. for run.
30	55	Ccb	Shale, grey, weathers green and brown, weathered at upper contact, slightly sandy with pyrites along bedding. 6" sandstone at 52'.
55	60	Ccb	Sandstone, light grey weathered brown, recovered small boulders, 3" sandy shale at 55'. Angle of bedding in shale 50°. Recovery between 57 - 60, 6".
60	85	Ccb	Sandstone, shale, laminated in upper part, heavy concentrations of marcasite, weathered in bottom of run, angle of bedding 50°, ave. for run. 4' recovery.
85	115	Ccb	Sandstone, light grey, fine grained, massive, weathers brown, weathered to a mottled dark brown in lower 4'.
115	121	Ccb	Weathered shale and shale fragments.
121	146	Ccb	Shale, black, slightly clacareous, angle of bedding 50° for run.
146	205	Ccb	Shale, black alternating with thin iregular bedded and small lenses of grey sandstone, slightly calcareous, mica along bedding with some marcasite, angle of bedding approx. 60° for run.
205	214.5	Ccb	Sandstone, medium grey, fine grained, shaley, this run is similar to the one above but with more sandstone.
214.5	222	Ccb	Shale, black calcareous, some marcasite, sandy, from 220'. Very weathered in lower foot. Angle of bedding 65° for run.
222	233	Ccb	Fault. 222 - 225 Cavity, mud filled. 225 - 233 Limestone and calcite breccia with shines of CaF_2 at 228.6 - 233. 3.5' recovery from 225 - 233. Assay: 226 - 235. 6.58% CaF_2, 0.80% Zn.
233	245	Csg	Limestone, medium grey, coarse crystalline, slightly fossiliferous, very slightly oolitic, 3" fine crystalline ls. at 238, more fractured in upper 2', numerous styolites. Shines CaF_2 233-235 (scattered) " " 237.8 Assay: 235-256. 0.88% CaF_2, 0.10% Zn/

From	To	Fm.	Description
245	256	Csg	Limestone, medium grey, medium crystalline, oolitic, fossiliferous, few styolites. Shines CaF_2 at 246.5 248 - 248.8 Increase in fracturing at base.
256	258.3	Csg	Limestone, medium grey, coarse crystalline, slightly fractured with numerous calcite veinlets, heavy styolites, shines of Zn and CaF_2 scattered through the run.
258.3	262	Csg	Limestone, medium grey, shaley, very fossiliferous, weathered near base. Trace of CaF_2 at top, angle of bedding 65°, av. for run.
262	281	Csg	Limestone, dark brown grey, fine crystalline, slightly fossiliferous, heavy concentration of fossils in zones with few shale partings, calcite stringer running with core from 269 - 270 with good shine of Zn and CaF_2, trace of Pb. Slightly fractured from 274.5 - 281. Shines of CaF_2, Zn from 274.5 - 277 277.7 279.3 - 280.
281	285	Csg	Limestone, light grey, medium crystalline, oolitic, slightly fractured. Assay: 256-285. 3.80% CaF_2, 0.20% Zn.
285	292	Csg	Limestone as above with dissemenated Zn through entire run, calcite veins running with core showing shines of CaF_2 and Zn at 281.4 - 288.2 289.3 - 289.9 290.5 - 292
292	297.3	Csg	Limestone, medium to dark grey, fossiliferous, moderately fractured, numerous small calcite veinlets with shines of Zn and CaF_2 in veinlets, some Zn dissemenated in limestone. Shines of CaF_2 and Zn 292.5 - 293 (good shines) 293 - 293.3 293.7 - 297.3 (good shines)
297.3	302	Csg	Limestone, medium grey, medium crystalline, fossiliferous, broken core, trace of CaF_2 at 301.
302	306.3	Csg	Limestone, as above with calcite stringers running with core with good shines of Zn and CaF_2, but scattered in lower 1.5'.
306.3	313	Csg	Limestone as above, slightly less fractured, good shines of CaF_2 307.5 - 308.5. Scattered shine CaF_2 and Zn, Trace of Zn 310-312 (poor recovery on run.) Scattered shines of Zn and CaF_2 from 312-313. Assay: 285 - 313. 5.46% CAF_2, 1.99% Zn.

From	To	Fm.	Description
313	321.5		Fault. Brecciated limestone, chert and calcite with CaF_2 shines, and Zn disseminated in limestone and calcite. Assay: 313-321.5. 1.46% CaF_2, 4.68% Zn.
321.5	351	Cal	Limestone, medium grey to brown, medium to fine crystalline, brecciated near top, cherty, few small calcite veinlets. Angle of bedding 50° approx. ave. for run.

Bottom 351'

REYNOLDS METALS COMPANY

Diamond Drill Hole No: W-6 Angle: -45° Bearing: N50W Depth: 351'
Coordinates: N-8650, E-9263 Elevation: 450.0
Contractor: Joy Mfg. Company Started: 12-29-58 Finished: 1-5-59
Foreman: Minner

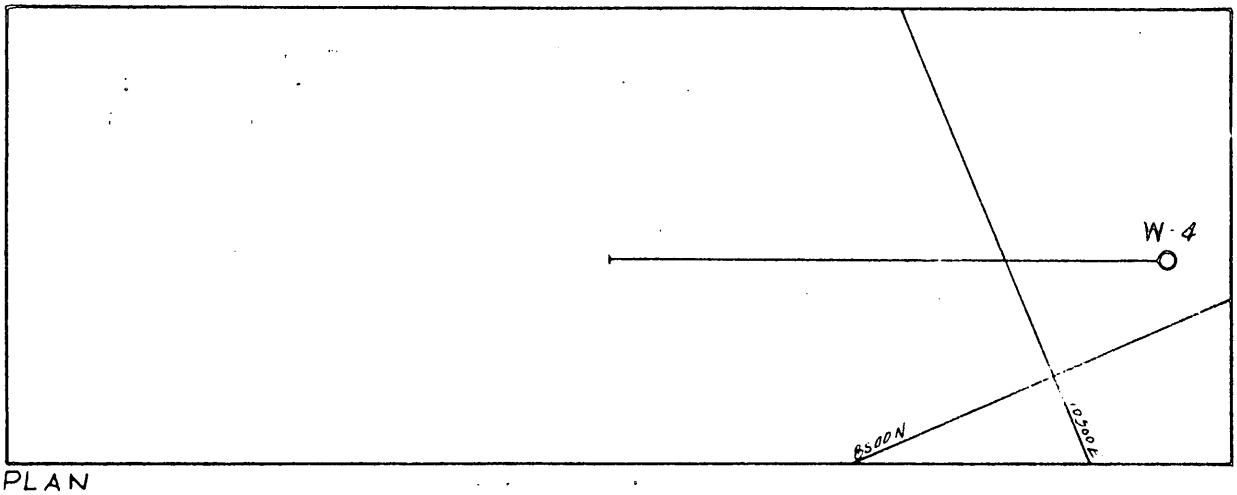
From	To	Fm.	Description
0	19		Overburden
19	45	Ccb	Sandstone
45	64	Ccb	Shale, medium grey, weatheres grey green, weathered in upper three feet. Sandy. Angle of bedding, 30°.
64	85	Ccb	Sandstone, fine grained, white, weathers green and brown, mainly broken core below 65'. Very poor recovery.
85	135	Ccb	Sandstone and shale, laminated, medium to dark grey, with some clean sandstone from 110-121, badly weathered near bottom. Angle of bedding 33°, average for run.
135	250		No core, sludge sample. Mostly sand, no mineralization found. Probable fault near bottom of run.
250	265	Crc	Sandstone, medium grained, green grey, calcareous, mostly weathered and broken core, poor recovery.
265	278		Limestone, brown, fine crystalline, slightly fossiliferous, slightly oolitic, weathered in upper part.
278	291		No core, sludge sample.
291	351		Limestone, medium grey to brown, medium crystalline, slightly oolitic, fossiliferous, weathered in zone. Cavities at 291-295 (mud filled) 297-305 (mud filled) 308-312 (mud filled) 323-328 329-331 332-342 342.5-344.5

WATSON PROJECT

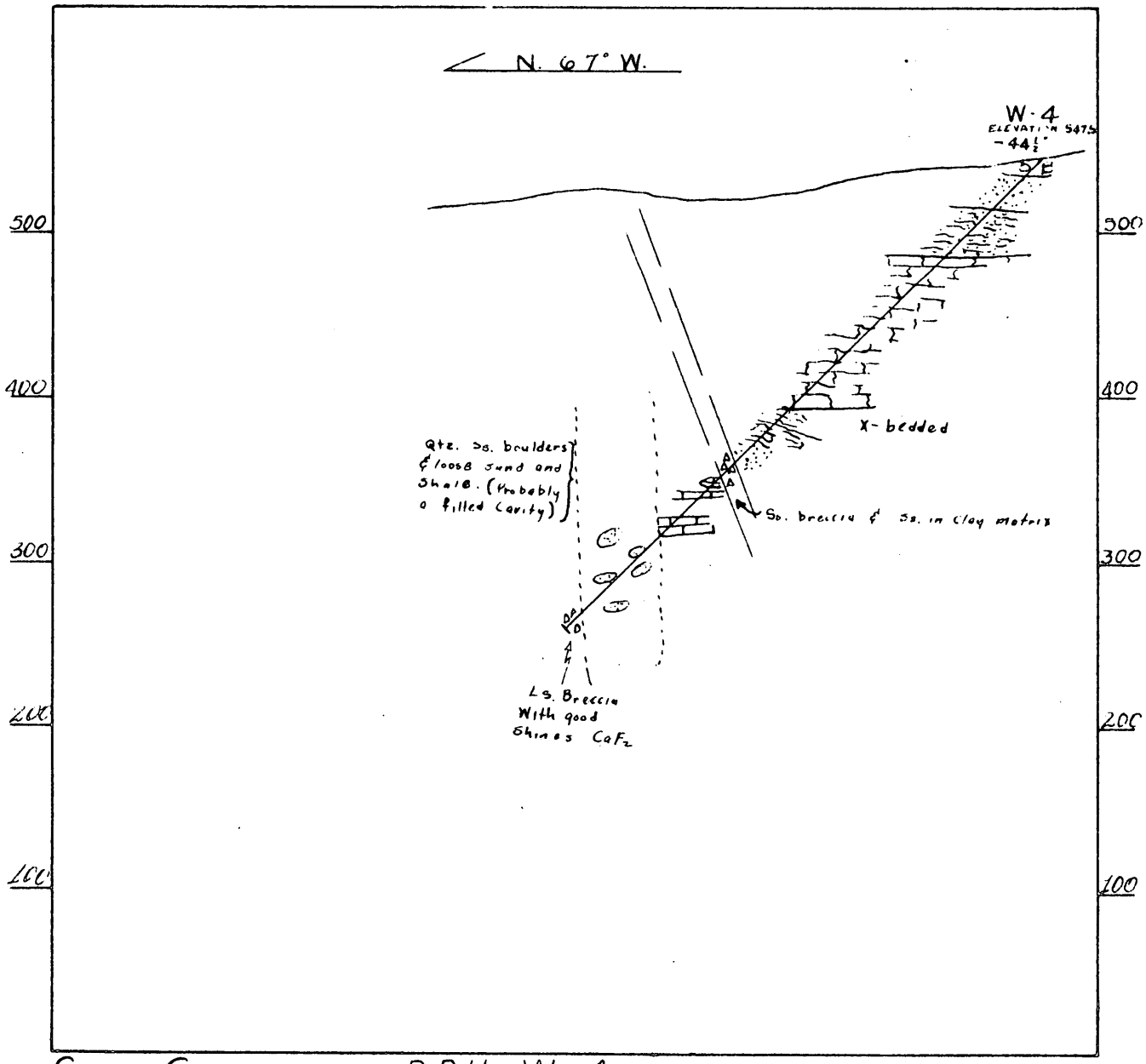
CRITTENDEN COUNTY, KENTUCKY

DMEA - 4962

Idm-E 1199



PLAN



Cross Section on D.D.H. W-4

VERT. & HORZ. SCALES: 1"=100'

0 50 100 200 300 FT.

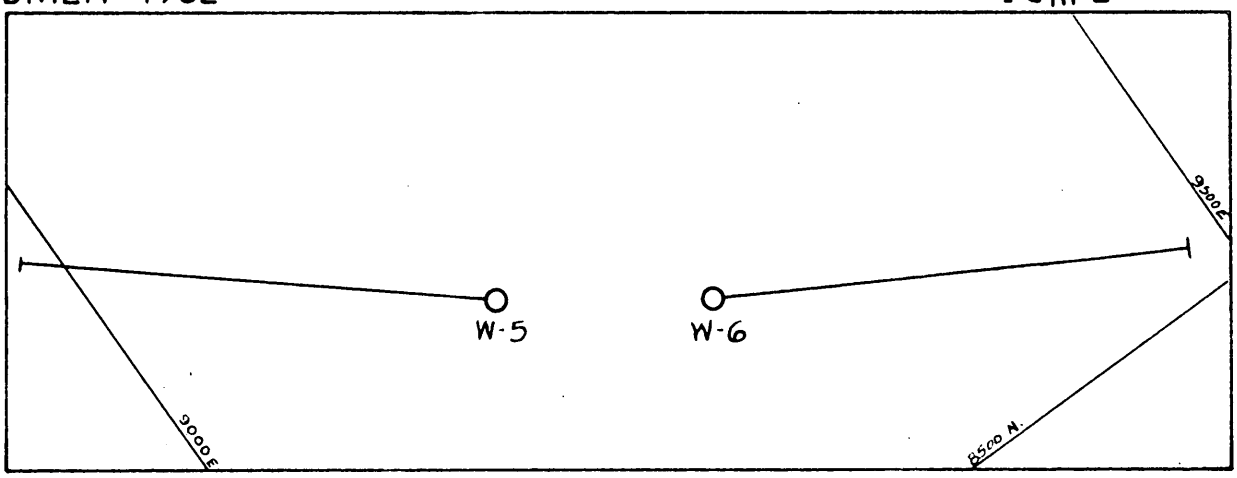
Dec. 1950

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 4 1959

DATE	INITIALS	CODE

WATSON PROJECT
CRITTENDEN COUNTY, KY.

DMEA-4962 Idm-E -1199



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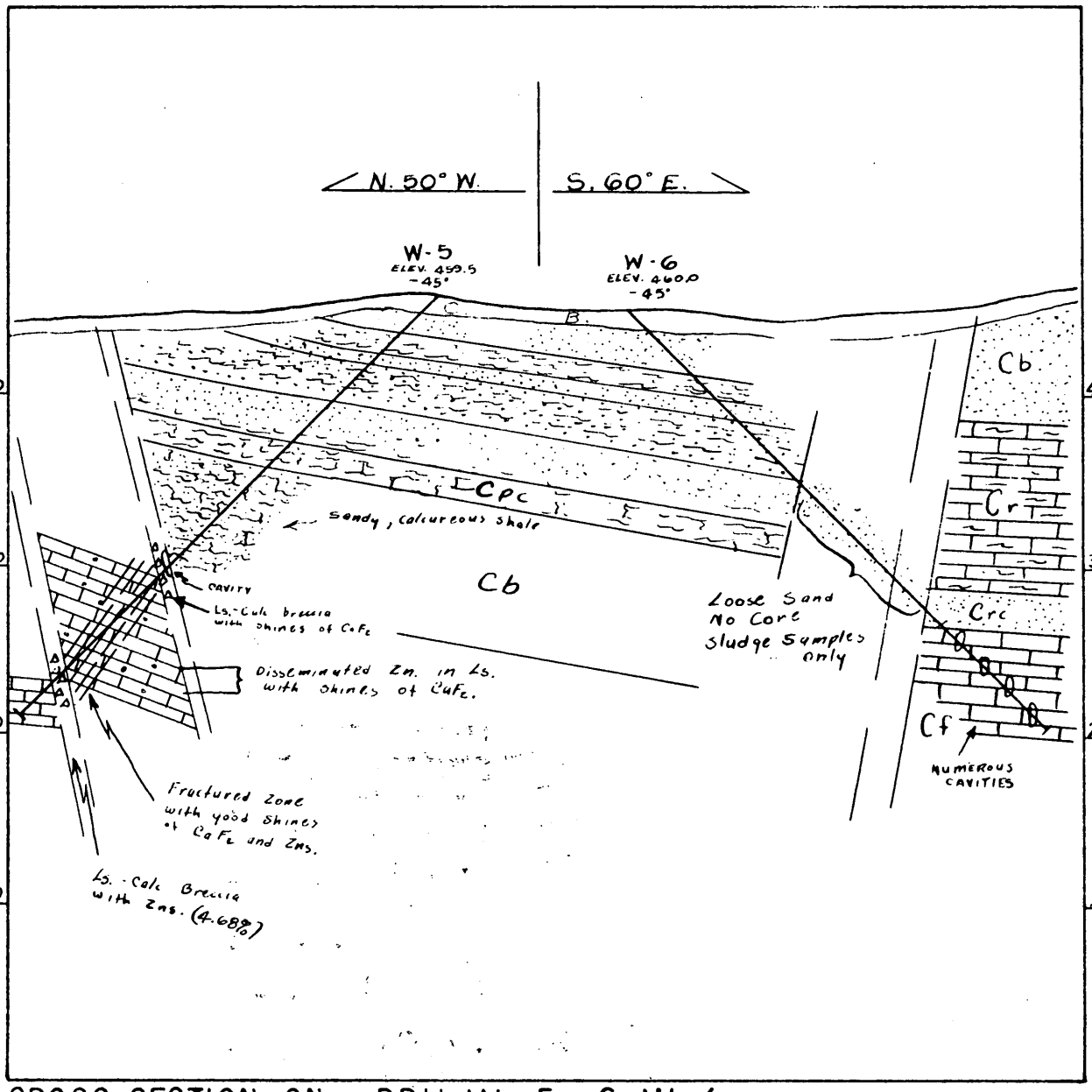


CROSS SECTION ON D.D.H. W-5 & W-6

VERT. & HORZ. SCALES: 1" = 100'

0 50 100 200 300 FT.

DEC. 1958

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 4 1959

DATE	INITIALS	CODE

Fo[redacted])

Watson - Stage I

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 November, 1958 Docket No. DMEA 4962 Contract No. Idm E-1199

Operator's Name Reynolds Metals Company Minerals fluorspar

Address Richmond, Virginia

Contract Amount, $ 28,310.00 Government Participation: 50 % Amount, $ 14,155.00

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 core	-	4333.55	4333.55			
~~Bulldozing~~ reaming	-	710.50	710.50			
Hole survey & ~~Crosscutting~~ cementing	-	184.00	184.00			
~~Drifting~~ lost BX casing	-	-	-			
Lost Ax casing	-	-	-			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	-	225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
~~Sampling and~~ Analysis CaF_2	-	-	-			
~~Payroll Taxes~~ CaF_2, Zn, Pb.	39.00	45.50	84.50			
Liability Insurance						
Incidental allow.	-	411.32	411.32			
(8) Contingencies (specify):						
TOTALS	39.00	5909.87	5948.87	39.00	5909.87	5948.87

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

Date DEC 16 1958 *Payee REYNOLDS METALS COMPANY GEOLOGICAL DIVISION

Per W. E. McDaniel Title Accounting Official

*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:

$ 19 50

Signature Helen R. Mellin (Authorized Certifying Officer)

Date JAN 13 1959 Vou. No. 75

(See other side)

19 50

(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 1199 in accordance with the terms of the contract.

Signature R. L. Burmeister Title Mining Engr. Date 12/22/58

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE: ACTING EXECUTIVE OFFICER

Signature W. J. Lynch Title OME - REGION V Date DEC 24 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.

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Watson Project
Stage I

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of November 1958 Docket No. DMEA 4962 Contract No. Ida E-1199
Operator's Name Reynolds Metals Company Minerals fluorspar
Address Richmond, Virginia

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~~ - core boxes	1	-	-	225.00	75		75	3.00
Winzes								
Drilling: Core	Ft.	-	-	4333.55	1469		6900	2.95
~~Churn~~ - reaming	Ft.	-	-	710.50	406		2000	1.75
Hole survey & cementing	Hr.			184.00	23		80	8.00
~~Stripping~~ - lost BX casing	Ft.						300	2.16
~~Trenching~~ - lost AX casing	Ft.						300	1.70
~~Test Pits~~ - Assay CaF_2	1						75	4.50
~~Roads and Trails~~ - CaF_2, Zn, Pb	1	39.00	6	84.50	13		25	6.50
Incidental allow.	Ft.	-	-	411.32	1469		6900	.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		39.00		5948.87				28,310.00

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.

REMARKS: Hole W-3 has not been completed and is not included in this report.

REYNOLDS METALS COMPANY
GEOLOGICAL DIVISION

Date DEC 16 1958 Operator

Per L. E. McDaniel Title Acctg. Official

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)

H. A. Burmeister 12/22/58
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

Reynolds Metals Company
Monthly Report - November, 1958
Watson Project - DMEA 4962 - DM E-1199
Crittenden County, Kentucky
By
T. R. Winans, Assistant Geologist

Stage I

Since the October report, hole W-3 has been drilled from 368' to the bottom depth of 829 feet. The costs of this hole are not included in this report since the hole was not complete at the time the Joy invoice was submitted.

Vein "D" had been cut by the end of October showing shines of CaF_2 and traces of Pb and Zn. St. Louis limestone was cut on the footwall side with shines of CaF_2 in scattered calcite veinlets.

A faulted zone, marked vein "F" in the enclosed cross section and consisting of limestone breccia and vein calcite with shines of CaF_2, was cut from 461' to 489.5'. Its relationship to vein "D" is similar to that of veins "C" in hole W-1 and W-2. Because of the lack of mineralization, its width, and the type of material in the vein, it is more comparable, however, to vein "F". It is considered, therefore, that vein "C" was not cut by this hole and has either pinched out or converged with veins "D" or "F". Beyond this zone to 547.8 feet slightly fractured St. Louis limestone was drilled.

From 547.8 to 782 feet, limestone breccia, vein calcite and scattered shines of CaF_2 were cut. This zone contained 2' of very good shines at 640'.

Other than the vein calcite from 741 to 782 feet, marked vein "A" in the cross section, there is very little difference in the brecciated material to define any more than a single fault. Subsequent drilling will possibly clarify the present problems concerning the structure. Undisturbed Fredonia limestone was cut from the hanging wall side of vein "A" to the bottom depth of 829 feet.

The detailed log and cross section of hole W-3 are included in this report. The Bureau of Mines hole number 7, drilled on the Watson property, is on the cross section to show the general structure of the immediate area.

Drilling Summary:

Hole No.	Started	Finished	Bottom Depth	November Footage
W-3	10-15-58			442' (total)*

* Footage figure taken from the Joy Invoice.

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

Watson Project
Stage I

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.5
VOUCHER & SCHEDULE OF PAYMENTS

RECEIVED DEC 5 1958 O.M.E.

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of October 1958 Docket No. DMEA 4962 Contract No. Idm E-1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 28,310.00 Government Participation: 50 % Amount, $ 14,155.00

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 Core	1631.35	2702.20	4333.55			
Hole Surveying & reaming	294.00	416.50	710.50			
Crosscutting cementing	-	184.00	184.00			
Drifting lost BX casing						
Lost AX casing						
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track Core boxes		225.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis CaF_2						
Payroll Taxes CaF_2, Pb, Zn		45.50	45.50			
Liability Insurance						
Incidental allow.	154.84	256.48	411.32			
(8) Contingencies (specify):						
TOTALS	2080.19	3829.68	5909.87	2080.19	3829.68	5909.87

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

Date NOV 13 1958 *Payee REYNOLDS METALS COMPANY GEOLOGICAL DIVISION

Per H. L. McDaniel Title Accounting Official

*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:

$ 1040.09

Signature Helen R. Mellin
(Authorized Certifying Officer)

Date DEC 1 1958 Vou. No. 63
(See other side)

3

1040.10

(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 1199 in accordance with the terms of the contract.

Signature R. L. Burmeister Title Mining Engr. Date 11/20/58

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER ONE FIELD TEAM REGION V Date NOV 25 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 DEC 3 1958 O.M.E.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Watson Project
Stage I

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 1958 Docket No. DMEA 4962 Contract No. Idm E-1199

Operator's Name Reynolds Metals Company Minerals Fluorspar

Address Richmond, Virginia

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 Core boxes	1	0	0	225.00	75		75	3.00
Winzes								
Drilling: Core	Ft.	1631.35	553	4333.55	1469		6900	2.95
Churn reaming	Ft.	294.00	168	710.50	406		2000	1.75
Hole survey Water cementing	Hr.	0	0	184.00	23		80	8.00
Stripping lost BX casing	Ft.	0	0				300	2.16
Trenching lost AX casing	Ft.	0	0				300	1.70
Test Pits Assay CaF2	1	0	0				75	4.50
Roads and Trails CaF_2, Zn, Pb	1	0	0	45.50	7		25	6.50
Incidental allow.	Ft.	154.84	553	411.32	1469		6900	.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		2080.19		5909.87				28,310.00

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.

REMARKS: Hole W-3 has not been completed and is, therefore, not included in this report.

Date NOV 13 1958 Operator REYNOLDS METALS COMPANY
GEOLOGICAL DIVISION

Per H. E. McDaniel Title Accounting Officer

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)

W. T. Burmeister 11/20/58 (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.

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

Reynolds Metals Company
Monthly Report - October, 1958
Watson Project - BMEA 4962 - Idm - M-1199
Livingston County, Kentucky
By
John W. Hook, Geologist

Stage I

Hole W-2 was drilled from 250' to 553' (bottom) during October. A summary log from 0' to 250' was included in the September report. Vein "A" was cut at 205.5' to 236.6', consisting mainly of brecciated sandstone and shale.

Vein "F" was cut from 280.8' to 303.7'. The vein consisted of brecciated limestone and chert in calcite. From 288.5' to 303.7' there was shine mineralization of CaF_2, Zn and Pb with a 1.5' of CaF_2 at 301.5' to 303'.

CaF_2 was cut in vein "C" from 340.1' to 341.5'. This vein was very high-grade CaF_2 with shines of Pb and Zn.

Vein "D" was penetrated from 520' to 524'. The vein material was limestone and calcite breccia with shines of CaF_2 at 520'.

From 252' to 584', excluding the main faults, there were numerous shows of mineralization in calcite stringers and veinlets, though these shows were too scattered or too small to be considered ore.

A detailed log and cross section of W-2 are included with this report.

Hole W-3 is now being drilled. The present depth is 368'. At 319' vein "D" was cut, showing very good shines of CaF_2 and traces of Pb and Zn in brecciated limestone and calcite. A summary log of hole W-3 to its present depth is included below.

From information gathered from holes W-1, W-2, and part of W-3, the various veins (at least vein "D") seem to converge toward the surface, flare with depth, and run parallel with the main vein, vein "A". The divergence of strike indicated on the geologic map is therefore in error.

Summary Log W-3

From	To	Fm.	Description
0	3		Overburden.
3	12	Cb	Sandstone.
12	140	Cr	Limestone and shale, sandy limestone and basal Cgl.
140	155.7	Cl	Limestone and shale.
155.7	208	Cre	Calcareous sand, limestone and sandy limestone.
208	319	Cf	Limestone and shale.
319			Fault, vein "D". Limestone and calcite breccia, good shines of CaF_2 and trace of Zn and Pb.

Drilling Summary - October

Hole No.	Started	Finished	Bottom Depth	Oct. Footage
W-2	9/15/58	10/10/58	553'	303' (250-553)
W-3	10/15/58			368' (present depth)

Total October footage - 671'

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-4

Watson Project
Stage I

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of September 195 8 Docket No. DMEA 4962 Contract No. Idm-E 1199

Operator's Name Reynolds Metals Company Minerals Fluorspar

Address Richmond, Virginia

Contract Amount, $ 28,310.00 Government Participation: 50% Amount, $ 14,155.00

RECEIVED OCT 27 O.M.E.

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 Contracts:						
Short-Form:						
Drilling Core	2702.20	0.00	2702.20			
~~Indicating~~ reaming	416.50	0.00	416.50			
Hole survey and cementing	184.00	0.00	184.00			
~~Crosscutting~~						
~~Drifting~~ lost BX casing	-	-	-			
lost AX casing	-	-	-			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	225.00	0.00	225.00			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
~~Sampling and~~ Analysis CaF_2						
~~Payroll Taxes~~ Zn and Pb	-	45.50	45.50			
Liability Insurance						
Incidental allowance	256.48		256.48			
(8) Contingencies (specify):						
TOTALS	3784.18	45.50	3829.68	3784.18	45.50	3829.68

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

Date 10-14-58 *Payee Reynolds Metals Company

Per H. E. McClamrock Title Accounting Official

*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:

$ 1892.09

Signature Helen R. Miller
(Authorized Certifying Officer)

Date OCT 23 1958 Vou. No. 51

(See other side)

1892.09

(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. E1199 in accordance with the terms of the contract.

Signature [illegible] Title Mining Engr. Date 10/17/58

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

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

Watson Project
Stage I

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

Month of September 1959 Docket No. DMEA 4962 Contract No. Idm-E 1199
Operator's Name Reynolds Metals Company Minerals fluorspar
Address Richmond, Virginia

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 ~~core boxes~~	1	225.00	75	225.00	75		75	3.00
Winzes								
Drilling: Core	Ft.	2702.20	916	2702.20	916		6900	2.95
~~hole survey~~ ~~reaming~~	Ft.	416.50	238	416.50	238		2000	1.75
~~Auger~~ ~~cementing~~	Hr.	184.00	23	184.00	23		80	8.00
~~Stripping~~ lost BX casing	Ft.						300	2.16
~~Trenching~~ " AX "	Ft.						300	1.70
Test Pits ~~assay~~ CaF_2	1						75	4.50
Roads and Trails ~~CaF_2,Zn,Pb~~	1			45.50	7		25	6.50
Incidental allow.	Ft.	256.48	916	256.48	916		6900	.28
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		3764.18		3829.68				28,310.00

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 10-14-58 Operator Reynolds Metals Company

Per H. E. McLamil Title Accounting Official

REMARKS: The Joy invoice covers the Grimes and Watson Projects. All items on the invoice pertaining to this contract are marked "Watson." Joy will be instructed to make separate invoices in the future.

→ 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)

Subject to Joy/MEI. Co. invoice #97368 for Aug. showing 23 hrs. for cementing and 105' of reaming.

Correction OK H.L.B.

H. J. Burmeister 10/17/58

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

Reynolds Metals Company
Monthly Report - September, 1958
Watson Project - DMMA 4962 - Idm-E 1199
Livingston County, Kentucky
By

John W. Hook, Geologist

Stage I

Hole W-1 was drilled from 836' to 916' (bottom) during the month of September. The August report discussed the upper part of the hole and mentioned that vein "A" was penetrated at 805'. The hole continued in vein "A" (blank calcite) to a depth of 870.5' at which point it entered the brecciated hanging wall formations. The only fluorspar mineralization found below 836' was a shine in the hanging wall at 903.5'. Bedding at the bottom of the hole was dipping nearly parallel to the core.

Enclosed are the detailed log and the completed cross section. As discussed in the August Report, the mine workings shown on the cross section are simply sketches from oral descriptions. There are no maps of the Two Brothers Mine.

Due to the inaccuracy of the oral descriptions, it was necessary to drill the hole considerably deeper than planned. W-1 was completed on September 8th and all of the casing (80' of NX, 253' of BX and 549' of AX) was recovered.

The rig was moved to the proposed location for hole W-2 on the hanging wall side of the fault system. The hole was started September 15th and the present depth is 250'.

A summary log for W-2 to date is as follows:

From	To	Description
0	30	Overburden, hard sand boulder (or Mardinsburg sandstone) at 18'.
30	163.5	Golconda Formation. Shale and limestone.
163.5	205	Sandstone and shale. Golconda to Cypress transition zone (usually mapped as Cypress).
205	205.5	Cypress Sandstone.

From	To	Description
205.5	207	Fault. Mud, shale and quartzite, fragments.
207	236.5	Cypress-Bethel sandstone.
236.5	238	Limestone.
238	248	Cavity, sand and sandstone fragments recovered in gravel barrel.
248	250	limestone.

(present depth is 250')

The cavity at 238' to 248' may represent the Vein "A" fault but a test of the cavity material with a gravel barrel sampler yielded no fluorspar.

This hole is expected to make a footwall intersection of veins "C" and "D". We have only a general idea of the strike of these structures and the depth of these penetrations cannot be predicted with any degree of accuracy.

Drilling Summary:

Hole No.	Started	Finished	Bottom Depth	September footage	
W-1	7/16/58	9/8/58	916'	80'	(836' to 916')
W-2	9/15/58			250'	(present depth)
			Total footage for month	330'	

REYNOLDS METALS COMPANY

Diamond Drill Hole No: W-1 Angle: -46½° at collar, -45° at 400, -45½° at 758
Bearing: S 67° 30' E Depth: 916'
Coordinates: N 9736, E 10,633 Elevation: 480'
Property: Watson Area: SE Salem County: Crittenden State: Kentucky
Contractor: Joy Manufacturing Co. Started: 7/16/58 Finished: 9/8/58
Driller: E. J. Hayes

From	To	Fm.	Description
0	25		Overburden. Sandstone boulders (Cb), sand and mud.
25	35	Cr	Shale, grey green, weathered brown. Angle of bedding (shearing possibly) 25°. Slightly fossiliferous and calcareous. 3' recovery.
35	48(?)	Cr	Shale, grey green, weathered to red brown. Very weathered at top. Slightly less near bottom. Fossiliferous and calcareous. 3' recovery.
48(?)	51.5	Cr	Limestone (buttons only), silty, weathered brown, in upper part. Lower part of run shale, green, calcareous and weathered.
51.5	63	Cr	Limestone, brown, very fine crystalline, concoidal fracture, slightly fossiliferous.
63	73	Cr	Shale, weathered in upper part, grey in lower part. 1' recovery.
73(?)	74.5(?)	Cr	Limestone, brown, fine crystalline, fossiliferous.
74.5	82	Cr	Limestone as above and weathered shale, contact and shale bedding dipping along hole.
82	85	Cr	Shale, grey green, weathered. Angle of bedding 37° with hole.
85	87	Cr	Limestone, brown, fine crystalline, fossiliferous.
87	97		No recovery, possible fault.
97	97.5	Cag	Upper zone weather limestone, brown, medium crystalline, fossiliferous, with weathered shale. Lower 4", limestone, medium crystalline, fossiliferous, partially weathered.
97.5	109.5	Cag	Limestone, grey brown, medium crystalline, fossiliferous, oolitic, with occasional green shale inclusions, small calcite veinlets. Shale partings from 99.5 to 101. Heavy stylolites in upper part. Angle of bedding along shale partings 45°. 101.5-102.5 limestone with alternating grey and light red zones. Shaley partings from 103-109.5. Angle of bedding 45° at 106. Cavity 107-109. Cavity 109.5-112.

From	To	Fm	Description
112	113	Csg	Limestone, light-medium grey, medium crystalline, oolitic.
113	114.5	Csg	Limestone, medium grey, coarse crystalline, oolitic, stylolitic.
114.5	126	Csg	Limestone, medium grey, medium crystalline, fossiliferous, slightly oolitic. 121-123 cavity.
126	129.5	Csg	Limestone, light grey, oolitic, fossiliferous, stylolite contact with limestone below.
129.5	132.5	Csg	Limestone, medium grey, fine crystalline, stylolitic, slightly fossiliferous, stylolite contact.
132.5	137	Csg	Limestone, medium grey, fine to medium crystalline, fossiliferous, stylolitic, stylolite contact.
137	140.5	Csg	Limestone, medium grey, coarse crystalline, oolitic, fossiliferous, slightly stylolitic.
140.5	151.5	Csg	Limestone, medium to dark grey, medium crystalline, very sandy, thin zones of dark grey sandy limestone. Weathered brown from 147.5 to 150. Angle of bedding at 150' 45°.
151.5	156	Csg	Limestone, medium grey, medium crystalline, oolitic, fossiliferous. Angle of bedding 50° at 156'.
156	156.5	Csg	Limestone, medium grey, shaley, fossiliferous.
156.5	157	Csg	Limestone, medium grey medium crystalline, slightly oolitic, fossiliferous.
157	159	Csg	Limestone, shaley, green-grey, highly fossiliferous.
159	161.5	Csg	Limestone, medium grey, oolitic with irregular shale (brown) partings. More limestone near base.
161.5	167	Csg	Limestone, medium grey, medium crystalline, oolitic fossiliferous, with increasing oolite near bottom.
167	168.5	Csg	Limestone, green-grey, shaley, fossiliferous, grades into shale.
168.5	170	Csg	Shale, medium grey, calcareous, fossiliferous angle of bedding 20°.
170	178	Csg	Limestone, medium grey, shaley, highly fossiliferous, questionable if limestone or shale. Transition to limestone below in last 1.5'. Angle of bedding at 171', 30°.

From	To	Fm.	Description
178	189	Cag	Limestone, medium grey, oolitic, slightly fossiliferous, 1" calcite veinlet at 178.5, other scattered calcite stringers, stylolitic.
189	193	Cag	Limestone, medium grey, coarse crystalline, fossiliferous.
193	194	Cag	Shale, medium grey, calcareous. Angle of bedding 40°.
194	200	Cag	Limestone, medium grey, fine grained (2" coarse crystalline fossiliferous). Silty. Petroleum odor.
200	201.5	Cag	Limestone, medium grey, fine crystalline, silty.
201.5	207.5	Cag	Limestone, medium grey, coarse crystalline, fossiliferous.
207.5	224	Cag	Limestone, medium grey, medium crystalline, fossiliferous oolitic, stylolitic with calcite veinlets, oil coming from small vug in calcite. Two 6" zones between 212 and 214.5 of shale partings.
224	234		Cavity, open, possible fault.
234	236	Cag	Limestone, medium brown grey, fine crystalline, slightly fossiliferous, stylolitic with small calcite stringers.
236	253		Cavity, open, possible fault.
253	273	Cag	Limestone, medium grey, medium crystalline, fossiliferous, oolitic, stylolitic, calcite stringers, oil shows in vugs in small calcite veinlet from 256' to 258. 268-269.5 oil impregnated calcite. Stylolitic at 270'. 2" calcite vein with trace of CaF_2.at 271.5-272 calcite, impregnated with oil, trace of CaF_2 near bottom. Slightly fractured small veinlets from 272' to 273' of calcite with oil in vugs in calcite.
273	294	Cag	Limestone, medium grey to brown, medium crystalline fossiliferous, oolitic, small stringers with either calcite or CaF_2 and little Pb. Oil along these stringers from 276.5-288.5. Heavy stylolites also in this zone.
294	299.5	Cag	Limestone, medium grey, medium to coarse crystalline, oolitic, fossiliferous, calcite veinlet at 294 and 294.5 with trace of CaF_2, trace of CaF_2 also at 296.
299.5	336	Cag	Limestone, light grey, medium crystalline, oolitic, stylolitic, trace of CaF_2 from 301.5-305 in small scattered veinlets. Trace of Pb at 305.

From	To	Fm.	Description
336	343.5	Cag	Limestone, dark grey, medium crystalline, fossiliferous, stylolitic, with fewer calcite veinlets than above, no oil.
343.5	347	Cag	Limestone, medium grey, fossiliferous, shaley, angle of bedding 43° at 346. (Marl)
347	374	Cag	Limestone, grey, medium to fine crystalline, cherty and few calcite stringers.
374	400	Cag	Limestone, dark grey, medium crystalline, oolitic, fossiliferous, few calcite stringers, stylolitic (some intersection). Weathered with slickensides at 396'. 3" calcite veinlet at 397 with shines of CaF_2 and trace of Pb. Stylolite at base.
400	422.5	Cag	Limestone, light grey, medium crystalline, oolitic, fossiliferous, stylolitic, small calcite veinlets with oil in vugs in veinlets at 407 (3" zone). Slickensides along fractures. Intersecting calcite stringers at 413 with few spots of oil along stringers.
422.5	436	Cag	Limestone, medium grey, medium crystalline, oolitic, fossiliferous, stylolitic, calcite stringers, oil stains in small vugs in limestone from 422.5 to 424. 6" calcite vein with trace PbS from 430 to 431. Trace of CaF_2 in calcite veinlet at 436'. Intersecting calcite and CaF_2 stringer at 437.
436	467	Cal(?)	Limestone, medium grey, fine crystalline, cherty, fossiliferous, stylolitic, calcite stringers. Trace of CaF_2 at top, Pbs at 437'. Slickensides along fractures, from 446-449, calcite stringers with trace of PbS and CaF_2. From 447-448.5 possible fault. Fractured zone, limestone and calcite breccia. Trace of CaF_2 at top. Oil shows in calcite.
467	473	Cag	Limestone, light brown, grey, medium crystalline, oolitic, slightly fossiliferous. Weathered limestone, calcite veinlets and chert at top. Intersecting calcite stringers. Increasingly more weathered and fractured near bottom.
473	475.5	Fault	Limestone, medium grey, fine crystalling, brecciated in calcite vein.
475.5	492.5	Cal	Limestone, medium grey fine crystalline, slightly fractured at top. Numerous intersecting calcite stringers. Some breccia in zone from 479 to bottom.
492.5	504.8	Cal	Limestone, dark grey, fine crystalline, slightly fossiliferous with oil from vugs in calcite stringers. Marcasite concentration along stringer at 496. Broken in lower 3' weathered in last 3".

From	To	Fm.	Description
504.8	516	Fault	504.8 - 504.8 cavity, open. 505.8 516.8 vein calcite with shines of CaF_2; 506.5, 507-508.5, 512-515.5 (with traces of lead at 513.5). 516.1 516.2 Shines of CaF_2 and Pb. Assay values: 4.72% CaF_2 - 0.21% Pb - 0.20% Zn (from 505.8-516.8)
516.8	543.1	Cal	Limestone, medium grey, fine crystalline, cherty, stylolitic with calcite stringers. 518.2 518.6 Shines of CaF_2 in small calcite veinlets, little oil along veinlets. Shines of spar in veinlets at 520.3, 520.8, 522, 522.2 to 522.3, 522.7-523.1, 526.6, 530.8-531.4, 531.7, 532.1, 532.3, 538.7, 539.3, 540.2, 540.6-541.3. Shines of Zn in veinlets, some disseminated in dense limestone from 523-534.

Assay values:		CaF_2	Pb	Zn
	530.6-533	0.24	0.53	1.49
	533 -538	0.98	0.11	0.50
	538 -540.5	7.50	0.16	0.39
	540.5-543.1	15.50	0.16	0.10

From	To	Fm.	Description
543.1	545.3	Fault	Vein CaF_2, little limestone breccia at top and bottom. Shines of Zn and Pb. Evidence of grinding in the vein. Angle of banding in the vein 50°-55°. 2.2' of core recovered. 0.5' missing from run probably from grinding in vein. Thus the real length in the high-grade vein was probably 2.7'. Assay values: 76.28% CaF_2 - 1.83% Pb - 0.69% Zn.
545.3	555.2	Cag	Limestone, medium grey, fine crystalline, stylolitic, with calcite stringers with some oil shows. Trace of spar at 545.3-545.6, 547.3. Assay values: 545.3-546.3 10.02% CaF_2, 0.11% Pb, 0.30% Zn Trace of ZnS and CaF_2 548.9'.
555.2	586.3	Cag	Limestone, brown, fine crystalline, (partially siliceous, possibly dolomite) stylolitic, slightly weathered in areas. Oil shows in calcite vein at 557.1, 560.3. Trace PbS, CaF_2 at 556.1. Shines CaF_2 557.2-557.5, 573.8, 582.3, 583.8. Siliceous vuggy zone from 555.1 to 558, from 561.1-561.9, 565.2-566.2. Calcite with some oil shows throughout.
586.3	686.2	Cal	Limestone, medium grey, fine crystalline, slightly cherty, stylolitic at top. Calcite veinlets. Trace CaF_2 and Pb at 586.4, 586.5, 591.4. Trace of CaF_2 589.7, 590.3, 615.7, 616-616.5, 617.5, 618.3, 622.6-622.8, 653.3. Large vugs between 618.3 and 631.

From	To	Fm.	Description
686.2	725	Cal	Limestone, dark grey, medium crystalline, fossiliferous, few shale partings, angle bedding at 702' 40°, little chert, alternating beds with no bedding. Angle of bedding at 723.5' 40°.
725	728.2	Fault?	Vein calcite, oil impregnated.
728.2	772.8	Cal?	Limestone, medium grey, fine crystalline, heavy stylolites, broken with numerous calcite stringers to 737.7, less fractured, heavy stylolite, calcite stringers below to 772.8.
772.8	805.2	Cal	Limestone, medium grey, fine crystalline, broken with calcite veinlets. Angle of bedding at 783' 21°. Scattered chert. 797.8-799.8 limestone and calcite breccia.
805.2	870.5	Fault	805.2 – 810: Limestone and calcite breccia. 810 – 818.5: mylonite recemented limestone and calcite. 818.5 – 823: Limestone and calcite breccia. 823 – 838: Mylonite, recemented limestone and calcite, with scattered zones of limestone and calcite breccia. 838 – 845: Limestone and calcite breccia. 845 – 867: Vein calcite. 867 – 868: Limestone and calcite breccia. 868 – 870.5: Brecciated limestone and calcite veinlets.
870.5	916		Limestone, dark grey, shaley, fossiliferous, broken with numerous calcite veinlets. Calcite vein from 874-874.5, 875.3-877 (breccia in last 0.5'). From 879-884 (mostly breccia) less calcite veins with depth, scattered up to 1' core length. Shines of CaF_2 at 903.5. Below 905.6 bedding dips with hole.

Bottom 916'

Acid Surveys

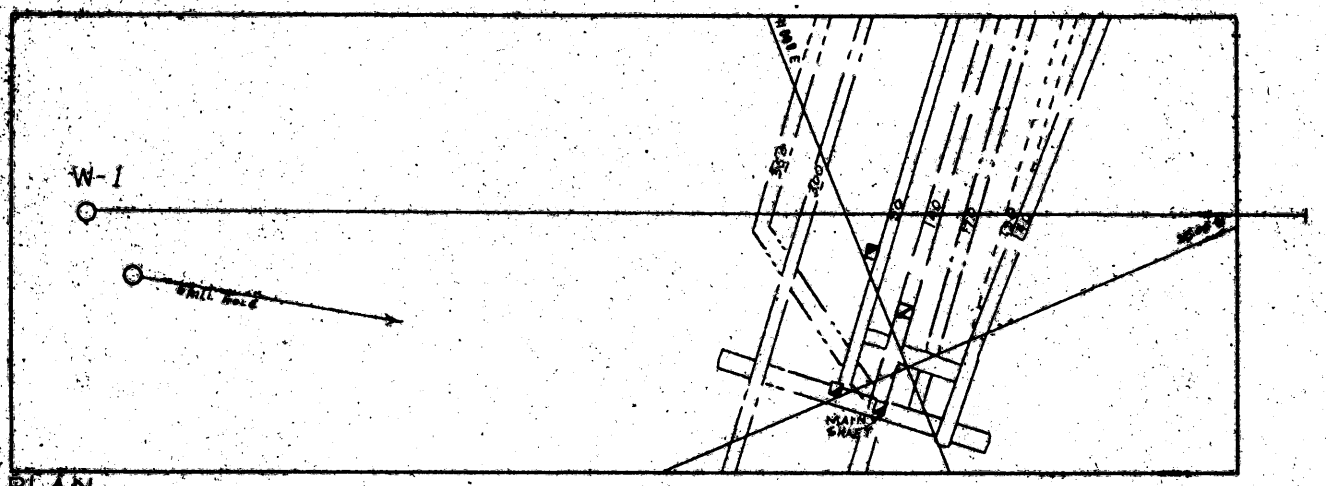
depth	angle of hole
0	- 46½°
400	- 45°
798	- 45½°

WATSON PROJECT

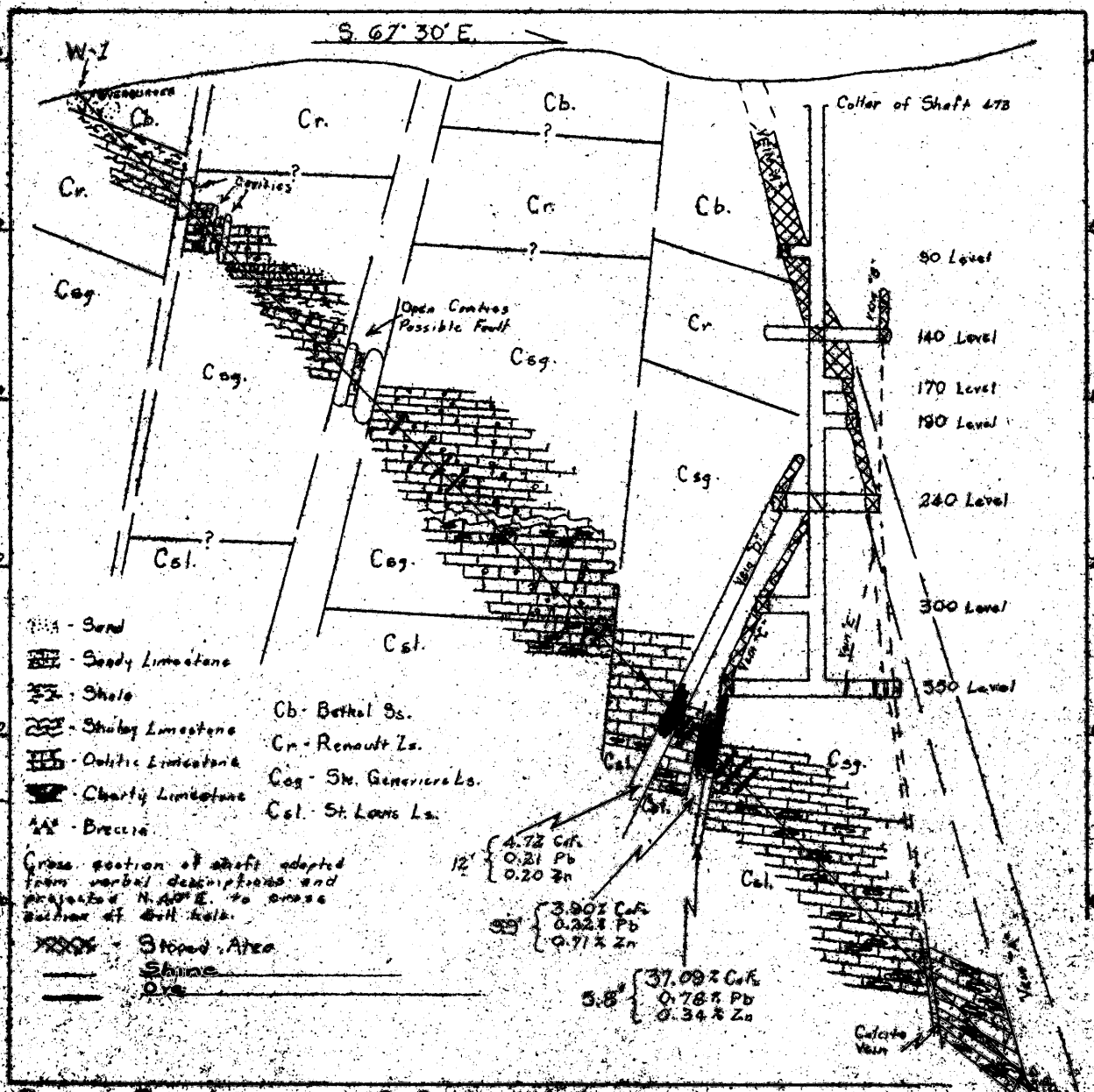
CRITTENDEN COUNTY, KENTUCKY

DMEA - 4962

Idem-E 1199



PLAN



Cross Section on D.D.H. W-1

VERT. & HORZ. SCALES: 1" = 100'

0 50 100 200 300 FT.

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

Watson Project
Stage I

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

Budget Bureau No. 42-R1036.5

RECEIVED OCT 6 1958 D.M.E.

PAID ON VOUCHER & SCHEDULE PAYMENTS K-

Month of August, 195 58 Docket No. DMEA 4962 Contract No. DMA E-1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 28,310.00 Government Participation: 50 % Amount, $ 14,155.00

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 core	0	0	0			
~~Building~~ reaming	0	0	0			
~~Crosscutting~~ cementing	0	0	0			
~~Drifting~~ lost BX casing	0	0	0			
lost AX casing	0	0	0			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core boxes	0	0	0			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
~~Sampling~~ and Analysis CaF_2	0	0	0			
~~Payroll Taxes~~ CaF_2, Zn, Pb	45.50	0	45.50			
Liability Insurance						
Incidental allow.	0	0	0			
(8) Contingencies (specify):						
TOTALS	45.50		45.50	45.50	—	45.50

I certify that the above bill is correct and just and that payment therefor has not been received.
Date 9-11-58 *Payee Reynolds Metals Company
Per S. E. McDaniel Title Accounting Official

*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:
$ 22.75
Signature Helen R. Miller (Authorized Certifying Officer)
Date OCT 3 1958 Vou. No. 45
(See other side)

1st 7/1 22.75

(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 1199 in accordance with the terms of the contract.

Signature W. L. Burmeister Title Mining Engr. Date 9/29/58

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER OME FIELD TEAM REGION V Date OCT 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

Watson Project
Stage I

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

RECEIVED OCT 6 1958 M.E.

Month of August 1958 Docket No. DMEA 4962 Contract No. Idm E-1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia

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~~ core boxes	1	0	0	0	0		75	225.00
Winzes								
Drilling: Core	Ft.	0	0	0	0		6900	20,355.00
~~Down~~ reaming	Ft.	0	0	0	0		2000	3,500.00
~~Auger~~ cement	Fr.	0	0	0	0		80	640.00
~~Stripping~~ lost BX casing	Ft.	0	0	0	0		300	648.00
~~Trenching~~ lost AX casing	Ft.	0	0	0	0		300	510.00
~~Test Pits~~ Assays CaF_2	1	0	0	0	0		75	337.00
~~Bulk Sampling~~ Assays CaF_2, Pb, Zn	1	45.50	7	45.50	7		25	162.50
Incidental Allow.	Ft.	0	0	0	0		6900	1,932.00
TOTAL DISTRIBUTED COSTS		45.50		45.50				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		45.50		45.50				28,310.00

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 9-11-58 Operator Reynolds Metals Company

Per H. E. McDaniel Title Accounting Official

REMARKS: No drilling or incidental allowance charges because hole is incomplete.

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)

H. J. Burmeister 9/29/58

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

REYNOLDS METALS COMPANY

(A DELAWARE CORPORATION)

GENERAL OFFICES: RICHMOND, VIRGINIA

PLEASE MAIL ALL REMITTANCES TO:
REYNOLDS METALS COMPANY
REYNOLDS METALS BUILDING,
RICHMOND 18, VIRGINIA

COPY OF INVOICE

MO. SCHEDULE WK.	SHIPPING POINT	CABLE ADDRESS:	CODES USED:
	Geological Division	"FOILWAX"	WESTERN UNION—A. B. C. AND LIEBLERS

REYNOLDS ORDER NO.	TERMS (FROM DATE OF INVOICE)	DATE	INVOICE NO.
	NET 30 DAYS	9-11-58	

CUSTOMER ORDER NO.	CUST. ORDER DATE	USE CODE	CONTRACT NO.	BILL OF LADING NO.	CHECK IF ORDER COMPLETE	TALLY NO.

CUSTOMER CODE	TAX	SALES CREDIT	ITEMS SHIPPED COMPLETE	ITEMS SHIPPED PARTIAL

SOLD TO Department of the Interior
Defense Mineral's Exploration Admin.
Attention: H. L. Burmeister
U. S. Bureau of Mines
College Park, Maryland

SHIP TO (SAME AS SOLD TO UNLESS INDICATED.)

ROUTE

QUANTITY SYMBOLS
#—POUNDS
P—PIECES, EACH
W—THOUSAND PIECES
S—SETS
T—THOUSAND SETS
F—FEET
C—HUNDRED FEET
K—THOUSAND FEET
E—SQUARE FEET
L—LINEAL YARDS
Y—SQUARE YARDS
R—REAMS
G—GALLONS

ITEM	DESCRIPTION	PRODUCT CODE	PRICE	CASES	GROSS WGT.	NET WGT.	QUANTITY (IF OTHER THAN #)	AMOUNT
	To bill you with 50% of August, 1958, items of costs per the Operators Monthly Report and Voucher for Docket No. DMEA 4962, Contract No. Idm-E-1199. Monthly Total $45.50 Less 50% 22.75		$					$22.75

TRANSPORTATION CLAUSE APPLICABLE (SEE ACKNOWLEDGMENT BACK)

PPD OR COL	VIA:
P	AS DIRECTED BY REYNOLDS' TRAFFIC DEPARTMENT

R - 142 - 53 (REV. 6 - 57)

SELLER REPRESENTS THAT WITH RESPECT TO THE PRODUCTION OF THE MATERIAL AND/OR THE PERFORMANCE OF THE SERVICES COVERED BY THIS INVOICE. IT HAS FULLY COMPLIED WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938 AS AMENDED. OUR RESPONSIBILITY FOR SAFE DELIVERY OF GOODS CEASES WHEN WE OBTAIN CLEAR BILL OF LADING FROM CARRIER

4962 #18

Monthly Report - August, 1958
Watson Project - ~~MMA-1963~~ - Idm B-1199
Crittenden County, Kentucky

By

John W. Hook, Geologist

Stage I

Hole W-1 was drilled from 253 to 836 during the month of August. Progress was slow because of cavities and broken ground. The hole presently has NX casing to 80', BX casing to 253' and AX casing to 549'.

The hole had to be reduced to AX size at 549' because of a flow of sand from a cavity which the drillers could not cement. Because of a very large cavity above 253', it was not advisable to pull the BX casing to ream the hole. The AX core recovery has been very good.

The enclosed cross section gives a graphic log of the hole to date. (The detailed log will be sent next month when the hole is completed.) The underground workings have been adapted from verbal descriptions and adjusted to fit the information from hole W-1.

The first vein, vein B, was calcite with 4.72% CaF_2, 0.21% Pb, and 0.20% Zn. This vein apparently had good ore at the 240' level.

Vein C had a 2.2' (real length) high grade core which assayed 76.20% CaF_2, 1.83% Pb and 0.69% Zn. This was grouped with the mineralization in the wall rock to give 5.8' 37% CaF_2, 0.78% Pb and 0.34% Zn.

Vein E was not recognized in the core. Apparently this small structure dies out below the 350' level.

A small calcite vein, which we will call vein F, may be vein E of the 350' level, but it seems more probable that this was mistakenly thought to be vein A in the 350 cross cut.

Apparently vein A maintains the same dip it had above the 240' level. We had previously thought that it steepened and was cut on the 350' level, and expected the drill hole to intersect it at 700'. The hole actually entered the vein at 805' and is still in it at the present depth of 836'. The part cut so far has been calcite and limestone fault breccia, with no fluorspar. This vein is on a major fault

and likely to be quite wide. We will attempt to test its full width and bottom the hole about 20' beyond the other side. This vein was the major producer in the mine.

Assays to date for W-1 are as follows:

From	To	CaF_2	SiO_2	$CaCO_3$	Pb	Zn
504.8	- 516.8	4.72	0.58	94.12	0.12	0.20
530.6	- 533	6.24	11.28	76.24	0.53	1.49
533	- 538	0.98	6.64	89.64	0.11	0.50
538	- 540.5	7.50	8.06	81.86	0.16	0.39
540.5	- 543.1	15.50	4.22	77.62	0.16	0.10
543.1	- 545.3	76.28	2.54	16.76	1.83	0.69
545.3	- 546.3	10.02	8.16	80.06	0.11	0.30

The only charges shown on the accounting forms are for assays to date. The cost of this hole will be listed next month when the hole is completed.

Summary:

Hole W-1	253'	7-31-58
Hole W-1	836'	8-31-58

Total footage for August - 583'.

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

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED AUG 18 1958 Dallas

Stage I
Watson Project

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of July, 1958 Docket No. DMEA 4962 Contract No. Idm-E 1199
Operator's Name Reynolds Metals Company Minerals Fluorspar
Address Richmond, Virginia
Contract Amount, $ 28,310.00 Government Participation: 50 % Amount, $ 14,155.00

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 Core	0	0	0			
~~Bulldozing~~ Reaming	0	0	0			
~~Grouting~~ Cementing	0	0	0			
~~Drifting~~ Lost BX Casing	0	0	0			
Lost AX Casing	0	0	0			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	0	0	0			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
~~Sampling and Analysis~~ CaF_2	0	0	0			
Payroll Taxes CaF_2, ZN, Pb	0	0	0			
Liability Insurance						
Incidental Allow.	0	0	0			
(8) Contingencies (specify):						
TOTALS	0	0	0			

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

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

Per ..... Title .....

*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:

$.....

Signature .....
(Authorized Certifying Officer)

Date ..... Vou. No. .....
(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 1199 in accordance with the terms of the contract.

Signature [illegible] Title Mining Engr. Date 8/7/58

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature Robert A. Lawrence Title EXECUTIVE OFFICER DMEA REGION V Date AUG 14 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 AUG 18 1958 D.M.E.A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Stage I
Watson Project

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of July 195 8 Docket No. DMEA 4962 Contract No. DMA-E 1199

Operator's Name Reynolds Metals Company Minerals Fluorspar

Address Richmond, Virginia

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 Core Boxes	1	0	0	0	0		75	225.00
Shafts								
Winzes	Ft.	0	0	0	0		6,900	20,355.00
Drilling: Core Reaming	Ft.	0	0	0	0		2,000	3,500.00
Churn Cementing	Hr.	0	0	0	0		80	640.00
Auger Lost In Casing	Ft.	0	0	0	0		300	640.00
Stripping Lost At Casing	Ft.	0	0	0	0		300	510.00
Trenching Assays CaF_2	1	0	0	0	0		75	337.50
Test Pits CaF_2, Zn, Pb	1	0	0	0	0		25	162.50
Roads and Trails Allow.	Ft.	0	0	0	0		6,900	1,932.00
Incidental								
Total Distributed Costs								Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
								28,310.00
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 ..... Operator .....

Per ..... Title .....

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: No charges will be made until first hole is completed.

(Instructions on reverse)

R. L. Burmeister 8/7/58

(For Government use only)

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

Reynolds Metals Company
Monthly Report - July, 1958
Watson Project - DMEA 4962 - Lom-KU199
Crittenden County, Kentucky
by
John W. Hook, geologist

Stage I

The drill site for hole W-1 was cleared July 1st and the drilling equipment moved in on July 3rd. Heavy rains and pump trouble delayed the start of actual drilling until July 16th.

The hole collared in loose sand and sandstone boulders representing residual Bethel sandstone to a depth of 25'. The underlying Renault shale and limestone (25 to 87') was very badly weathered with many clay filled cavities. About 27% of this material was recovered as core. The return cuttings were checked for fluorspar in the zones of poor recovery. Frequent reaming and caning were necessary in this zone.

A fault at 87 feet cut out the lower part of the Renault, the Levias, Rosiclaire, and possibly some of the Fredonia formations.

Except for open cavities, the recovery in the Fredonia has been about 100%. Large open cavities at 224 to 232 and 236 to 253 had to be cased. The drillers completed setting the BX casing to 253' at the end of the shift on July 31st.

As the veins are likely to be soft, we are attempting to maintain a BX size hole so that a BXM bit may be used if needed. The first vein is expected at 500' and the last at 700'. Several small intermediate veins are reported by local miners but these may intersect the two larger veins in the down dip projection.

No charges are shown on the accounting forms because the first hole is imcomplete, no core boxes have been purchased, and there have been no assays.

SUMMARY

Project started	————	7-1-58
Hole W-1 collared	————	7-16-58
W-1 253' deep	————	7-31-58

CERTIFICATION BY THE UNITED STATES OF AMERICA
OF A DISCOVERY OR DEVELOPMENT UNDER
AN EXPLORATION PROJECT CONTRACT

To: Reynolds Metals Company
301 East Grace Street
Richmond, Virginia

Pursuant to the provisions of Exploration Project Contract No. Idm-81189, dated June 3, 1956, Docket No. DMA-4961, hereinafter called the "contract," between the Reynolds Metals Company, a Delaware corporation, and the United States of America, hereinafter called the "Government", to establish and fix the Government's percentage royalty on production and its lien therefor and on the land described in the contract, the Government considers and therefore certifies that discovery or development from which production may be made has resulted from the exploration work.

The nature of said discovery or development is described broadly or indicated as follows:

Diamond drilling from the surface has indicated an appreciable tonnage of fluorite with subordinate sphalerite and galena in a gangue of calcite and barite, occurring as cavity-filling deposits along faults in the Fredonia, Rosmult, and Levias limestone members of the Chester and Meramec series of Upper Mississippian age.

Dated: SEP 1 1 1959

THE UNITED STATES OF AMERICA

By George C. Selfridge
Acting Director, Office of
Minerals Exploration

JWAlt/gla 9-8-59
cc to: Operator (original)
Fluorspar Consolidated, Inc.
301 W. Main, Louisville, Kentucky
Roy and Margaret Sunderland,
Salem, Kentucky
The Peoples Bank, Marion, Kentucky
C. A. Fredell, Dir. DMS, GSA
Docket
Contract Adm. & Audit Division
OME Field Team, Region V (2)
Finance Office
Director's Reading File
Frank E. Johnson
Operating Committee
Frank D. Lamb, USBM
Harold Kirkemo, USGS
Chron

SEP 15 1959

Reynolds Metals Company
[illegible] East Canal Street
Richmond, Virginia

Re: Contract No. [illegible]-4942 (Fluorspar)
Reynolds Metals Company
[illegible], Hicks, and Tyner Properties
Crittenden County, Kentucky
Contract No. [illegible]-41199

Gentlemen:

Enclosed is a certification of discovery or development that covers all the land described in Article 2 of the contract.

By the terms of the Exploration Project Contract, as amended, and the certification, all minerals mined or produced from June 3, 1958, to June 3, 1960, are subject to the Government's percentage royalty as set forth in the contract until the sum of $[illegible].00 is repaid to the Government.

Royalty payments should be made to the Executive Officer, ORE Field Team, Region V, Room 11, Post Office Building, Knoxville 2, Tennessee, by the purchaser with checks drawn payable to the Office of Minerals Exploration. The purchaser should be advised to deduct royalties from the amount due on each shipment and send the check directly to the Executive Officer. Each check should be accompanied by suitable sales evidence - such as copies of settlement checks - showing the name of the purchaser, the quantity and grade of the products sold, and the price and charges, certified to be correct by the purchaser.

You are requested to notify the Executive Officer of any changes in ownership or production rights that may have any effect on the Government's right to its percentage royalty. Your attention is called particularly to Article 2(d) of the contract relating to the preservation of the Government's right to a percentage royalty on production. Also when production starts, please notify the Executive Officer. Thereafter, if production ceases for any extended period, please notify him promptly at six-month intervals.

Sincerely yours,

George C. Selfridge

Acting Director

Enclosure

JMHL:gls 9-8-59
cc to: Fluorspar Consolidated, Inc.
Ky and Ky Fluorspar Producers Land
The Peoples Bank

Director's Reading File
R. Johnson
Operating Committee
Ruth A. Lee, DMM
Harold Simmons, DMM
Contract Division

Audit's copy

TERMINATION AGREEMENT

It is agreed this 30th day of June, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government", and Reynolds Metals Company, hereinafter called the "Operator", parties to that certain Exploration Project Contract Idm-E1199, Docket No. DMEA-4962, dated June 3, 1958, as amended, hereinafter called the "Contract", that:

1. Effective June 4, 1959, the Contract and all obligations of the parties thereunder, except as otherwise herein expressly provided, shall be and are hereby terminated.

2. The Government shall contribute only to the costs of work performed prior to said effective date.

3. 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.

4. All rights of the Government respecting certification of discovery or development, percentage royalty and liens to secure payment thereof, reports (including preservation of Operator's records), accounts, audits, and the right to recover any overpayment, are hereby preserved.

5. The Operator hereby releases and agrees to save the Government harmless from all claims or demands under or arising out of said Contract, except as otherwise provided in this Termination Agreement.

IN WITNESS WHEREOF, these parties have executed this agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank E. Johnson
Acting Director, Office of
Minerals Exploration

REYNOLDS METALS COMPANY

By Walter Rice

Title Vice President

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

EXTRA COPY
O. M. E.
RECEIVED APR 22 1959
800

April 20, 1959

Mr. John W. Hook
Reynolds Metals Company
P.O. Box
Salem, Kentucky

Re: DMEA-4962, Idm-S1199
Watson-Hicks-Tyner Properties
Crittenden County, Ky.

Dear Mr. Hook:

This will confirm the oral approval given by Mr. Amos to drill a hole from a site which is 125 feet N47W from the collar of hole W-17B; to be drilled at approximately -54° inclination, approximate bearing S47°E, and estimated depth about 850 feet.

Sincerely yours,

Robert A. Laurence
Executive Officer, OME
Region V

RAL/zm
cc
Lynch
Opr. Con-2
Amos
Files

extra

800

April 6, 1959

Mr. John W. Hook
Reynolds Metals Company
P. O. Box 64
Salem, Kentucky

Re: Docket No. DMEA-4962 (Fluorspar)
Watson-Hicks-Tyner properties
Crittenden County, Kentucky
Contract No. Idm-E1199

Dear Mr. Hook:

This will confirm the oral approval given by Mr. Amos on March 30 to drill hole W-23 from a collar site 250 feet N. 36°30' E. from the collar of W-17. The hole will have a bearing of approximately S. 47° E., an inclination of approximately -45°, and an estimated depth of about 660 feet.

Sincerely yours,

Robert A. Laurence
Executive Officer
OME Field Team, Region V

RAL/mg
cc - Operating Committee (2)
Mr. Dewey H. Amos
Mr. V. J. Lynch
File

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

March 23, 1959

RECEIVED
EXTRA COPY
O. M. E.
MAR 25 1959
COPY
800

Mr. John W. Hook
Reynolds Metals Company
P.O. Box 64
Salem, Kentucky

Re: DMEA-4962, Idm-E1199(Fluorspar)
Reynolds Metals Co.
Watson Property
Crittenden County, Kentucky

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Amos to drill the following diamond drill holes under State II of the subject contract:

(1) D.D. Hole No.21-W. The collar to be 150 feet S.38°W from the collar of D.D. Hole No. W-11. The hole is to be inclined -80°, bearing S55°E. The total estimated depth is 500 feet.

(2) D.D.Hole No. W-22 to be collared 109 feet in a S.25°W direction from the collar of D.D. Hole No. W-1. The hole is to be inclined -40°, bearing S26½°E. Estimated total depth of the hole is 730 feet.

VJL/xm

wc
Opr. Com.-2
Burmeister
Amos
Files

V. J. Lynch
Acting Executive Officer,
OME Field Team, Region V

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

March 16, 1959

Mr. John Hook
Reynolds Metals Company
P.O. Box 64
Salem, Kentucky

Re: DMEA-4963 (fluorspar)
S. R. Grimes Property
Livingston County, Ky.
Contract Idm-~~E1200~~
1199

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Amos to drill three additional diamond drill holes under Stage II of the subject contract. The holes are to be drilled as follows:

Assigned Hole No.	Location	Inclination	Bearing	Estimated Depth
W-18	115 ft. N40°E. of collar of W-13.	-40°	S.50°E	580 ft.
W-19	260 Ft. N38°E. of collar of W-7	-40°	S.50°E	750 ft.
W-20	250 ft. S40°W of collar of W-5	-65°	N47°W	450 ft.

Robert A. Laurence

VJL/sm
cc
Lynch
Dewey
Files
Burmeister
Opr. Com-2

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DATE | INITIALS | CODE
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UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

March 17, 1959

EXTRA COPY O. M. E. RECEIVED MAR 19 1959		
DATE	INITIALS	CODE
		800

Mr. John Hook, Geologist
Reynolds Metals Company
P.O. Box 64
Salem, Kentucky

Re: DMEA-4962, Idm-E1199-CaF2
Watson-Hicks-Tyner properties
Crittenden County, Ky.
Reynolds Metals Company

Dear Mr. Hook:

In our letter of March 16, confirming verbal approval given by Mr. Amos to drill holes Nos. 18, 19 and 20, we incorrectly referred to Contract No. Idm-E1200, DMEA-4963, the S. R. Grimes property. Actually we intended to refer to contract Idm-E1199, DMEA-4962, the Watson-Hicks-Tyner properties. Please correct this error on your copy.

Robert A. Laurence
Executive Officer, OME
Field Team, Region V

VJL/zm.
cc
Burmeister
Dewey
Operating Committee-2
Lynch
Files

Au[illegible] Copy

OFFICIAL [illegible] COPY
O. M. [illegible]
RECEIVED FEB 24 1959
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EXPLORATION PROJECT CONTRACT
REYNOLDS METALS CO.

DOCKET No. DMEA-4962

AMENDMENT No.2

It is agreed this 6th day of February 1959, between the United States of American acting through the Department of the Interior, Office of Minerals Exploration, and Reynolds Metals Company, the Operator, that exploration Project Contract No. Idm-E1199 (Docket No. DMEA-4962), dated June 3, 1958, is hereby further amended as follows:

1. In Article 3 of the Contract, the period for completion of the work is extended from March 10, 1959 to June 10, 1959.

This Amendment shall not be construed to increase the estimated total cost of the project, the aggregate amount which the Government may be required to contribute, the amount of any item designated as "maximum," nor the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written

REYNOLDS METALS COMPANY

By: C.E. Coghill

Title Vice President and Treasurer

Robert A. Laurence

Robert A. Laurence
Executive Officer, OME
Field Team, Region V

J.T.K.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

EXTRA COPY
O. M. E.
RECEIVED FEB 20 1959

DATE	INITIALS	CODE
		800

February 18, 1959

Mr. John W. Hook, Geologist
Reynolds Metals Company
P.O. Box 64
Salem, Kentucky

Re: Docket No. DMEA-4962-fluorspar
Watson-Hicks-Tyner properties
Crittenden County, Kentucky
Contract Idm-81199

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Dewey Amos to make the following changes in drill hole locations in the subject contract:

1 - To drill two additional holes under Stage II of the contract. The first hole, to be designated W-16, will be located 245 feet S25½°W of the cellar of Hole W-7. The second hole to be designated W-17, will be located 110 feet N42°E of the cellar of hole No.W-12.

2- To move contract hole No. 10, 715 feet S5°W of the location shown on contract map. This hole will be designated W-15.

3 - To omit drilling holes Nos. 15, 16 and 17 under Stage I of the contract.

V. J. Lynch, Acting
Executive Officer, OME
Field Team, Region V

VJL/mm
cc
Opr. Com-2
Dewey
Burmeister
Lynch
Files

OFFICIAL FILE COPY
O. M. E.
Audit Copy
RECEIVED FEB 9 1959
DATE | INITIALS | CODE

EXPLORATION PROJECT CONTRACT

DMEA-4962, Idm-E1199

REYNOLDS METALS COMPANY

AMENDMENT No.1

It is agreed this 16th day of January 1959, between the United States of America acting through the Department of the Interior, Office of Minerals Exploration, and Reynolds Metals Company, the Operator, that Exploration Project Contract No. Idm-E1199 (Docket No. DMEA-4962), dated June 3, 1958, is hereby amended, effective November 29, 1958 as follows:

To the project area, as described in Exhibit "A", there is added the following property, in Crittenden County, Kentucky:

ROY SUNDERLAND and MARGARET SUNDERLAND

Beginning at a store with black gum and two hickories marked as pointers, corner to John T. Kirk; thence with Kirk's line S 12½W, 70 poles to a dogwood corner in the same original line; thence with same N43W, 30 poles to a white oak, original corner and also corner to W. C. Tyner; thence with his line N 11E, 55 poles to a stake near Henry Watson's white oak corner and same original corner to the Fred Kirk survey of land; thence with a line of same S73½E, 32 poles to the beginning, containing ten acres by survey, be the same more or less.

The Operator holds a mineral exploration lease on this property, dated November 29, 1958. This tract is designated " HICKS (Sunderland)" on a map entitled "Properties along Moore Hill Fault" which is hereby incorporated in the contract as Map No.2.

This Amendment shall not be construed to increase the estimated total cost of the project, the aggregate amount which the Government may be required to contribute, the amount of any item designated as "maximum," nor the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

G. E. Coghill
REYNOLDS METALS CO.
Title: Vice President & Treasurer

Robert A. Laurence
Robert A. Laurence,
Executive Officer, OME, Reg. V

MF-205
(Combines and supercedes MF-20[illegible] and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator Reynolds Metals Co.
Docket No. DMEA-4962
Contract No. Idm-E 1199
Contract Date June 3, 1958

FEB 9 1959 O.M.E.

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of Crittenden, State of Kentucky, described as follows: 2/

"In a lease dated November 29, 1958, and recorded in Deed Book 89, page 429, official records of said County."

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

Mortgage lien of Peoples Bank of Marion, Kentucky, to secure a note in the principle sum of $750.00, plus interest.

"Mining Lease & Option Agreement to Reynolds Metals Co. dated November 29, 1958."

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 26 day of Jan, 1959.

Ray Sundstrand	[Seal]	Salem, Ky	[Address]
Margaret Sundstrand	[Seal]	Salem, Ky	[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, _____ certify that I am the _____ _____ (Secretary, etc.) of the corporation named herein; that _____ _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

MF-205
(Combines and supercedes MF-2[illegible] and MF-203)
June 1956

FEB 3 1959
O.M.E.

For Government's Use Only
EXPLOR[illegible]ON PROJECT CONTRACT
Operator Reynolds Metals Co.
Docket No. DMEA- 4962
Contract No. Idm-E 1199
Contract Date June 3, 1958

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of Crittenden, State of Kentucky, described as follows: 2/

"In a lease dated November 29, 1958, and recorded in Deed Book 89, page 429, official records of said County."

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

We hold first mortgage against said lands as evidenced by mortgage of record in Mortgage Book No.30 at page 174, Clerk's Office, Crittenden County Court, Marion, Ky

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

JAN 2 7 '55

Dated this ____ day of _____, 195__.

THE PEOPLES BANK, MARION, KENTUCKY

[illegible]	[Seal]	Marion Ky	[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, R W Croft certify that I am the Secretary (Secretary, etc.) of the corporation named herein; that [illegible] who signed this agreement was then President (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

R W Croft

[Corporate Seal]

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

EXTRA COPY
O. M. E.
RECEIVED FEB 9 1959

DATE	INITIALS	CODE

February 5, 1959

Mr. John T. Kilpatrick
Reynolds Metals Company
Reynolds Metals Bldg.
Richmond 18, Virginia

Re: DMEA-4962, (fluorspar)
Watson-Hicks-Tyner properties
Crittenden County, Kentucky
Contract No. Idm-E1199

Dear Mr. Kilpatrick:

Enclosed is your copy of Amendment No. 1 to the subject contract, with one copy of Consent to Lien form signed by Roy and Margaret Sunderland and one copy signed by the Peoples Bank of Marion, Kentucky. The amendment has been executed on behalf of the Government, and appropriate distribution of the other copies has been made.

Sincerely yours,

Robert A. Laurence
Executive Officer, OME
Region V

RAL/sm
cc
Opr. Com-2
Amos
Burmeister
Finance Office
Lynch
Files

REYNOLDS METALS COMPANY
REYNOLDS METALS BUILDING
RICHMOND 18, VIRGINIA

EXECUTIVE OFFICES

February 3, 1959

EXTRA COPY
O. M. E.
RECEIVED FEB 9 1959

DATE	INITIALS	CODE

Mr. Robert A. Laurence
Executive Officer
Office of Minerals Exploration
Room 2-B, Post Office Building
Knoxville 2, Tennessee

Dear Mr. Laurence:

Re: DMEA-4962, Idm-E1199-Fluorspar
Watson-Hicks-Tyner Properties
Crittenden County, Kentucky

As requested in your letter of January 16, we enclose the following:

1. Original and four copies of Amendment No. 1 to the subject contract adding the Sunderland tract. All of the enclosed copies have been signed on behalf of Reynolds Metals Company by Mr. C. E. Coghill, Vice President and Treasurer. We understand that you will have them executed by the Government and return to us a fully-executed copy for our files.

2. Original and four copies of the Consent of Lien form, all of which have been signed by Roy and Margaret Sunderland. One signed copy of this form was left with the Sunderlands. We understand that you will return one copy to us for our files when you return the signed copy of the amendment.

3. Original and four copies of a Consent to Lien form signed by The Peoples Bank of Marion, Kentucky, which holds a mortgage on this property. One copy of these forms was left with The Peoples Bank. We understand that you will return to us one copy with our signed copy of the amendment to the contract.

We trust that you will find all of the enclosed documents in order and can proceed to execute the amendment on behalf of the Government.

Very truly yours,

John T. Kilpatrick

John T. Kilpatrick

JTK:mjs

Enclosures (15)

cc Dr. John H. Moses
Mr. John W. Hook

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

February 6, 1959

EXTRA COPY
O. M. E.
RECEIVED FEB 9 1959

DATE	INITIALS	CODE
		800

Mr. John W. Hook
Reynolds Metals Company
P.O. Box 64
Salem, Kentucky

Re: MMRA-4962, (fluorspar)
Reynolds Metals Company
Watson-Hicks-Tyner properties
Crittenden County, Ky.
Contract Idm-51199

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Amos to change the location of the hole at contract location no.13. The collar of the hole, to be designated as W-14, will be 315 feet in a N55°W direction from the position shown on the map. The bearing will be approximately S49°E, the inclination -80°, and the estimated depth 350 feet.

Sincerely yours,

Robert A. Laurence
Executive Officer, OME
Region V

RAL/sm
cc
Opr. Con-2
Amos
Burmeister
Lynch
Files
Finance

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O. M. E.
RECEIVED FEB 9 1959
DATE | INITIALS | CODE
800

February 5, 1959

Mr. John K. Hook
Reynolds Metals Company
P.O. Box 64
Salem, Kentucky

Ref: [illegible]A-4952, Idn-[illegible]1199, Fluorspar
Watson-Hicks-Tyner properties
Crittenden County, Kentucky

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Amos to drill location 19 out of sequence, to drill a second hole under Stage II (to be designated as W-13), and to reverse the direction of the hole to be drilled at location No.6. The collar of this hole is to be located 525 feet in a N59°W direction from the map location, and the bearing will be S50°E.

Mr. Amos has advised me that the Stage II drilling cannot be completed by March 10, the present expiration date of the contract. Therefore, I will prepare and forward to your Richmond office for signature Amendment No.2, extending that date until June 10, 1959, a total extension of three months.

Sincerely yours,

Robert A. Laurence
Executive Officer, OME
Field Team, Region V

RAL/sm
cc
Amos
Burmeister
Opr. Amn-2
Lynch
Files

COPY
C. M. E.
RECEIVED FEB 2 1959
DATE | INITIALS | CODE
800

January 30, 1959

Mr. John K. Hook
Reynolds Metals Company
P. O. Box 61
Salem, Kentucky

Re: Docket No. D-EA-1962 (Fluorspar)
Watson, Hicks and Tyner Properties
Crittenden County, Kentucky
Contract No. Ion-51199

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Amos to change the location of contract drill hole No. 12 (your No. W-11) to a collar location 315 feet N. 55½° W. from the point shown on the map, the hole to be drilled S. 50½° E. at a -70° angle.

Sincerely yours,

Robert A. Laurence
Executive Officer
OME Field Team, Region V

RAL/mg
cc - Operating Committee (2)
Mr. V. J. Lynch
Mr. E. L. Burmeister
Mr. Dewey E. Amos
Finance Office
File

G. M. E.
RECEIVED JAN 26 1959

DATE	INITIALS	CODE
		800

January 22, 1959

Mr. John W. Hook
Reynolds Metals Company
P. O. Box 64
Salem, Kentucky

Re: Docket No. [illegible]A-1962 - Fluorspar
Reynolds Metals Company
Olson, Hicks and Tyner Properties
Crittenden County, Kentucky
Contract No. Ia-E1199

Dear Mr. Hooks

This will confirm the verbal approval given by Mr. Moe to relocate contract hole No. 11 (your number W-10), approximately 350 feet N. 51° W. from the location shown on the contract map. This change is based on results obtained from contract holes 8 and 9 (your numbers W-6 and W-8).

Sincerely yours,

Robert A. Laurence
Executive Officer
OGE Field Team, Region V

RAL/mg
cc - Operating Committee (2)
Mr. Lynch
Mr. Burmeister
Mr. Moe
File

EXTRA COPY
O. M. E.
RECEIVED JAN 12 1959

DATE	INITIALS	CODE
		800

January 9, 1959

Mr. John M. Hook
Reynolds Metals Company
P. O. Box 61
Salem, Kentucky

Re: MSA-1962 (Fluorspar)
Watson, Hicks and Tyner properties
Crittenden County, Kentucky
Contract No. Ids-41199

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Amos to drill hole no. 5 at a position approximately 140 feet S. 17° W. from the collar location shown on the contract map.

Sincerely yours,

Robert A. Lawrence
Executive Officer
JMF Field Team, Region V

RAL/mg
cc - Operating Committee (2)
Finance Office
Mr. Dewey H. Amos
Mr. H. L. Burmeister
Mr. V. J. Lynch
File

EXTRA COPY
O. M. E.
RECEIVED JAN 2 1959
DATE | INITIALS | COPY
800

December 31, 1958

Mr. John W. Hook
Reynolds Metals Company
P. O. Box 64
Salem, Kentucky

Re: Docket No. DMEA-4962 - Fluorspar
Reynolds Metals Company
Watson, Hicks and Tyner Properties
Crittenden County, Kentucky
Contract No. Idm-31199

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Dewey H. Amos to drill DD holes numbers 8 and 18 out of sequence.

Sincerely yours,

V. J. Lynch
Acting Executive Officer
OME Field Team, Region V

VJL/mg
cc - Operating Committee (2)
Finance Office
Mr. H. L. Burmeister
Mr. Dewey H. Amos
Mr. V. J. Lynch
Files

EXTRA COPY O. M. E. RECEIVED DEC 30 1958		
DATE	INITIALS	CODE
12/30	S.J.G.	2.21
		800

December 24, 1958

Mr. John W. Hook
Reynolds Metals Company
P. O. Box 64
Salem, Kentucky

Re: Docket No. DMEA-4962 - Fluorspar
Reynolds Metals Company
Watson, Hicks and Tyner Properties
Crittenden County, Kentucky
Contract No. Idm-K1199

Dear Mr. Hook:

This will confirm the verbal approval given by Mr. Dewey H. Amos to start work on Stage II of the above referenced contract.

Very truly yours,

V. J. Lynch
Acting Executive Officer
OME, Region V

VJL/mg
cc - Operating Committee (2)
Finance Office
Mr. H. L. Burmeister
Mr. Dewey H. Amos
Mr. V. J. Lynch
Files

MME Form 14
Sept. 1958

Contract No. Idm-E) 14-23) ~~1199~~

Docket No. DMEA) MME) ~~4962~~

Date of Action ~~July 14, 1959~~
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:
Reynolds Metals Company
301 East Grace Street
Richmond, Virginia

Date of Contract	Region	State	Commodity
June 3, 1958	V	Kentucky	Fluorspar
	Reserve		Obligation
Prior Amount	0		$29,855.00
Increase	0		0
Decrease	~~0~~		~~2,881.12~~
Revised Amount	0		26,973.88

Remarks:

cc: 800
210

43244

DMEA Form 14

Contract No. Idm-E 1199

Docket No. 4962

Executed contract

DEPARTMENT OF THE INTERIOR

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
June 3, 1958	V	Kentucky	Fluorspar

Name and Address of Operator: Reynolds Metals Company
301 East Grace Street
Richmond, Virginia

	Reserve	Obligation
Prior Amount	29,855.00	0
Increase	0	29,855.00
Decrease	29,855.00	0
Revised Amount	0	29,855.00

Remarks:

(Name)
Allen S. Dakan, Chief
Operations Control and
Statistics Division

(Title)

Date delivered to Bureau of Mines, Washington 6/23/58

22845

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DMEA
RECEIVED JUN 23 1958
DATE | INITIALS | CODE

Audit copy

MF-200
(Revised June 1954)

Docket No. DMEA 1962

Commodity Fluorspar

Contract No. Idm-E 1199

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this 3 JUN 1958 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] Reynolds Metals Company, a Delaware corporation, whose mailing address is 301 East Grace Street, Richmond, Virginia, 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~~ Annex II, and one 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 Kentucky, County of Crittenden, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] Lessee of [5] mineral rights in the land, in possession and entitled to possession for all of the purposes of this contract, under and by virtue of a [6] lease, [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: Interest of Lessors ~~[illegible]~~

(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 Agreement, executed by the Lessor, Fluorspar Consolidated, Inc.

(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).

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of Fluorspar. The work to be performed is described in Exhibit "A." The Operator on or before 30 days from the date of the Contract shall commence the work, and on or before March 10, 1960 (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall ~~either~~ have completed the work ~~or shall have incurred allowable costs (see Article 6) in a sum not less than the estimated total allowable cost set forth in Exhibit "A" except as otherwise provided in Exhibit "A" with respect to stages of work.~~ See 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 $59,710.00. The Government shall contribute 50 percent of the allowable costs as they are incurred in a total sum not in excess of $29,855.00: *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; but except for any such necessary excesses in categories, subcategories, or items thereunder the Operator [illegible] of the estimated total allowable cost of the work. [illegible] See 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 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. See Annex 2.

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 ten 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.

(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.

(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.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By C. F. Mittendorf
Administrator, Defense Minerals Exploration Administration

REYNOLDS METALS COMPANY
(Operator)

By C. E. Coghill

VICE PRESIDENT

I, Richard I. Dawes, certify that I am ~~the~~ an assistant secretary of the corporation named as Operator herein; that C. E. Coghill who signed this contract on behalf of the Operator, was then 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.

Richard I. Dawes
ASS'T SECRETARY

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—70617-1

35485

EXPLORATION PROJECT CONTRACT
REYNOLDS METALS COMPANY
DOCKET NO. DMEA-4962

ANNEX I

The land referred to in Article 2 of the Contract consists of three contiguous tracts, known as the Tyner, Hicks and Watson prospects, which are situated in the western Kentucky fluorspar district, near the west-central border of Crittenden County, Kentucky, about 9 miles southwest of the town of Marion. The three tracts, together with 63 other tracts excluded herefrom, were leased by the Operator from Fluorspar Consolidated, Inc., by lease dated December 26, 1957. A copy of the lease, to which reference is hereby made for a more complete description of the said three tracts, is contained in DMEA Docket No. 4962, and the same are referred to therein as tracts numbered 26, 27 and 28 respectively.

In the event the Operator or any subsidiary thereof at any time during 10 years from the date of this Contract acquires any interest, title, or equity (exclusive of agreements granting rights only to explore, purchase, or acquire a lease) in any land situate within 1,000 feet of the land described in this Contract, it is agreed that such land shall thereupon automatically be included as land subject to the provisions of this Contract.

MF-205
(Combines and supercedes MF-2[illegible] and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator
Docket No. DMEA-
Contract No. Idm-E 1199
Contract Date 8 JUN 1958

RECEIVED
MAY 15 1958
D.M.E.A.

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of Crittenden, State of Kentucky, described //////////2/ in Exhibit "A" attached hereto and made a part hereof.

, which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)
Surface rights in all the land and an undivided 1/2 interest in the oil and gas underlying a portion thereof as described in Exhibit "A" - any public and private roadways - any railroad rights of way - any easements for public utilities - any cemetery or burial ground and any right of egress or ingress thereto.

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: [illegible] (State "None" or "See Annex No.____")

Dated this 7th day of May, 1950.

Humphrey Consolidated Inc	[Seal]	[illegible]	[Address]
by [illegible]	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, Dorothy Cummings certify that I am the Secretary (Secretary, etc.) of the corporation named herein; that [illegible] who signed this agreement was then President (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

Dorothy Cummings

[Corporate Seal]

EXHIBIT "A"

WATSON-HICKS-TYNER PROJECT

Docket No. DMEA - 4962, FLUORSPAR

This project consists of three tracts described as follows:

All the minerals, metals, oil and gas underlying all that tract or parcel of land in Crittenden County, Kentucky, on the waters of Clayliick Creek, bounded and described as follows, to-wit:

Beginning at a stone, Bob Kirk's corner; thence S 11 3/4 W 76½ poles to a hickory in a rocky branch, near the mouth of a lane; thence S 78 W 53½ poles to a black oak stump with small post oak pointers on the edge of an old road; thence N 57 W 40 poles to a black gum stump, with dogwood and five sassafras pointers; thence with W. C. Tyner's home survey; thence with line of same N 2½ E 95 poles to a stone in a rock branch, also in John Conyer's line; thence with said Conyer's line S 69½ E. passing his (Conyer's stone corner at 65 poles, in all 69 poles to the beginning, containing 46 acres more or less.

All of the minerals of every kind, and marble metals, ore, oil and gas in and underlying the following described tract of land in Crittenden County, Kentucky, to-wit:

Beginning at a white oak on the East bank of Clay Lick Creek, corner to W. C. Tyner; running thence with said Tyner's line S 70 E 160 poles to a stone, with black gum and dogwood pointers, original corner to the Hall survey of land; thence with a line of said survey N 20 E 43 poles & 7 links to a stone with 3 white oak pointers, corner to said Geo. W. Conyer's; thence with his line N 70 W 160 poles to a stone with black oak pointers, corner to same, in T. A. Harpending line; thence with his line S 20 W 43 poles & 7 links to the beginning, containing 43¼ acres, by survey.

The minerals, except an undivided 1/2 interest in the oil and gas, underlying the following tract of land lying in Crittenden County, Kentucky, on the waters of Clayliick Creek, To-Wit:

Beginning at a stone in Austin's line, with a triple black oak pointer; thence with division line between Pope and the Eagle Fluorspar Company S 76-3/4 E 182 poles & 8 feet to a stone and small persimmon in the East line of the Watson survey, with a hickory pointer; thence S 15½ W 111½ poles to a dead black oak, Massey & Wring's corner; thence S 87½ W 9 poles to a rock branch, with hickory and ash pointers; thence N 40 W 34 poles to a stone with two hickory pointers; thence N 51 W, passing Wring's and John Kirk's corner at 28 poles, in all 70 poles to a stone, John Kirk's corner; thence S 40 W 45½ poles to a stone in rock branch; thence N 72-3/4 W 48 poles to a stone with two hickory pointers; thence N 12½ E 16-3/4 poles to a stone, John Conyers & Harry Austin's corner; thence with said Austin's line N 20-3/4 E 62-3/4 poles to a small red bud; thence N 70 W 24 poles to a stone with elm and two sweet gum pointers; thence N 20 E 20½ poles to the beginning, containing 95 acres and 110 square poles.

EXPLORATION PROJECT CONTRACT
REYNOLDS METALS COMPANY
DOCKET NO. IMRA-4962

ANNEX II

Article 13. Changes and added provisions.--

(a) That part of the last sentence of Article 3 beginning with the word "either" is deleted and replaced by the words "have completed the work, except as otherwise provided in Exhibit 'A' with respect to stages of work."

(b) That part of the last sentence in the first paragraph of Article 6(a) commencing after the semicolon is deleted.

(c) Categories (2) through (7) of Article 6(a) are deleted.

(d) 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.

(e) In the last sentence of Article 6(e), the words "Article 8" are substituted for the words "Article 9."

(f) 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
REYNOLDS METALS COMPANY
DOCKET NO. DMRA-4962

EXHIBIT "A"

Description of the Work

General Provisions

Exploration for fluorspar shall be performed with conventional AX, BXWL, or BXN core drilling equipment in the area indicated on the map, entitled "Watson-Hicks-Tyner Props., Crittenden Co., Ky., DMRA-4962", attached hereto and made a part hereof.

The Government shall not contribute to the cost of an incompleted hole, or to one that bottoms less than AX size.

Records of each hole drilled, together with assay certificates of samples taken and type of rock penetrated, shall be submitted with the Operator's monthly progress report, which shall include a map showing the location, inclination and direction of all holes drilled during the reporting period. All samples shall be properly identified as to drill hole number and depths represented.

The holes shall be drilled into the fault zones as indicated on the map and as nearly normal to their strike as possible.

No hole shall be drilled closer than approximately 100 feet to a property line.

The work shall be divided into two stages as hereinafter described. The Operator shall complete Stage I, and shall perform as much of Stage II as the Government approves in writing.

The location, inclination, direction, and extent of all drilling are subject to the approval of the Government.

Stage I

Drill 18 diamond core holes at the approximate locations indicated on the map, aggregating not more than 6,900 feet, as follows:

No.	Property	Bearing	Inclination	Approximate Depth	Exploration Target
1	Watson	S.67°E.	-45°	725 ft.	Dip extension of Two Brothers ore body
2	Watson	N.55°W.	-45°	425 ft.	Western extension of Two Brothers ore body
3	Watson	S.48°E.	-45°	500 ft.	Faults 3 and 12
4	Watson	N.48°W.	-45°	400 ft.	Fault 3
5	Watson	S.48°E.	-45°	300 ft.	Fault 12B
6	Watson	N.44°W.	-45°	350 ft.	Fault 3
8	Hicks	S.60°E.	-45°	250 ft.	Fault 10
9	Hicks	S.56°E.	-45°	450 ft.	Fault 10
10	Hicks-Watson	S.35°E.	-45°	800 ft.	Fault 12B
11	Tyner	S.57°E.	-45°	340 ft.	Intersection of faults 10 and 12B
12	Tyner	S.55°E.	-45°	330 ft.	Fault 10
13	Tyner	S.53°E.	-45°	350 ft.	Fault 10
14	Tyner	S.37°E.	-45°	530 ft.	Faults 3 and 4
15	Tyner	N.53°W.	-45°	270 ft.	Intersection of faults 3 and 4
16	Tyner	N.42°W.	-45°	350 ft.	Fault 3
17	Tyner	S.43°E.	-45°	330 ft.	Fault 3
18	Hicks	N.49°W.	-45°	350 ft.	Dip extension of Hicks ore body
19	Hicks	S.49°E.	-45°	250 ft.	Western extension of Hicks ore body

The holes shall be drilled in numerical sequence beginning with Hole No. 1 as shown on the map, except when information obtained from completed holes indicates that deviation from the numerical sequence, change of location, or omission of holes is advisable. Such changes may be made only with prior Government approval.

Stage II

Significant mineralization encountered in Stage I holes shall be further explored by diamond drilling not in excess of 8,000 feet of additional holes. The number, locations, inclinations, and depths of the holes shall be determined by agreement of the Operator and the Government. No Stage II hole shall be closer than 100 feet to a previously completed hole.

Estimated Costs of the Project

Stage I

Actual Costs

Category (1) Independent Contracts

6,900 feet of diamond drilling @ $2.95/ft. 1/	$20,355.00
2,000 feet of reaming and casing @ $1.75/ft.	3,500.00
80 hours of cementing and hole survey @ $8.00/hr.	640.00
300 feet of lost casing, BX size @ $2.16/ft. 2/	648.00
300 feet of lost casing, AX size @ $1.70/ft. 2/	510.00

Categories (2) through (7)

None

Fixed Unit Costs (See Article 13 of the Contract)

Incidental allowance for each foot of drilling completed3/, 6,900 feet @ $0.28/ft.	$ 1,932.00

75 wooden core boxes @ $3.00/box	$ 225.00	
75 samples to be assayed for CaF_2 @ $4.50/assay	337.50	
25 samples to be assayed for CaF_2, Pb and Zn @ $6.50/sample	162.50	
Estimated Total Cost of Stage I		$28,310.00

Stage II

Actual Costs

Category (1) Independent Contracts

8,000 feet of diamond drilling @ $2.95/ft. 1/	$23,600.00
2,000 feet of reaming and casing @ $1.75/ft.	3,500.00
100 hours of cementing and hole survey @ $8.00/hr.	800.00
300 feet of lost casing, BX @ $2.16/ft. 2/	648.00
300 feet of lost casing, AX size @ $1.70/ft. 2/	510.00

Categories (2) through (7)

None

Fixed Unit Costs (See Article 13 of the Contract)

Incidental allowance for each foot of drilling completed, 3/ 8,000 feet @ $0.28/ft.	$ 2,240.00 ~~1,840.00~~	
75 samples to be assayed for CaF_2 @ $4.50/assay	337.50	
25 samples to be assayed for CaF_2, Pb and Zn @ $6.50/assay	162.50	
Estimated Total Cost Stage II (rounded)		$31,399.00

SUMMARY

Estimated Total Cost, Stage I	$28,310.00
Estimated Total Cost, Stage II	31,399.00
Estimated Total Cost of Project (rounded)	$59,710.00
Government participation @ 50 percent	29,855.00

1/ Includes costs of moving in and out, changing of locations, water supply, replacement of bits, and all charges which may be incurred by the diamond drill contractor.

2/ The Government will not contribute to the cost of casing left in the hole at the option of the Operator.

3/ Includes all costs that otherwise would be allowable costs under categories (1) through (7) except as scheduled in Exhibit "A".

REYNOLDS METALS COMPANY
REYNOLDS METALS BUILDING
RICHMOND 18, VIRGINIA

EXECUTIVE OFFICES

EXTRA COPY

June 18, 1958

Mr. Robert A. Laurence
Executive Officer Region V
Defense Minerals Exploration Administration
United States Department of the Interior
Room 13 Post Office Building
Knoxville 2, Tennessee

Dear Mr. Laurence:

Re: Docket No. DMEA-4962
Watson, Hicks & Tyner Properties
Crittendon Co., Kentucky
Contract No. Idm-E1199

I return herewith four copies of the subject contract which has been signed on behalf of Reynolds Metals Company. We have retained for our records the Operator's copy.

Pursuant to our telephone conversation the other day, I have inserted the words "and Indenture of Mortgage and Deed of Trust dated June 1, 1955, held by Manufacturers Trust Company which is by its terms subject to the lien provided for in this contract" in Article 2.b2 and this insertion has been initialled on the margin. If there is any question about this, please let me know immediately.

Yours very truly,

John T. Kilpatrick

JTK:mjs

Enclosures (4)

cc Mr. Richard T. Dawes
Mr. Walter L. Rice
Mr. John Hook
Dr. John H. Jones

RECEIVED

DMEA Form 14

Contract No. Idm-E 1199

Docket No. 4962

Approved Contract

DEPARTMENT OF THE INTERIOR

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
June 3, 1958	V	Ky.	Fluorspar

Name and Address of Operator: Reynolds Metals Company
301 East Grace Street
Richmond, Virginia

	Reserve	Obligation
Prior Amount	0	0
Increase	29,855.00	0
Decrease	0	0
Revised Amount	29,855.00	0

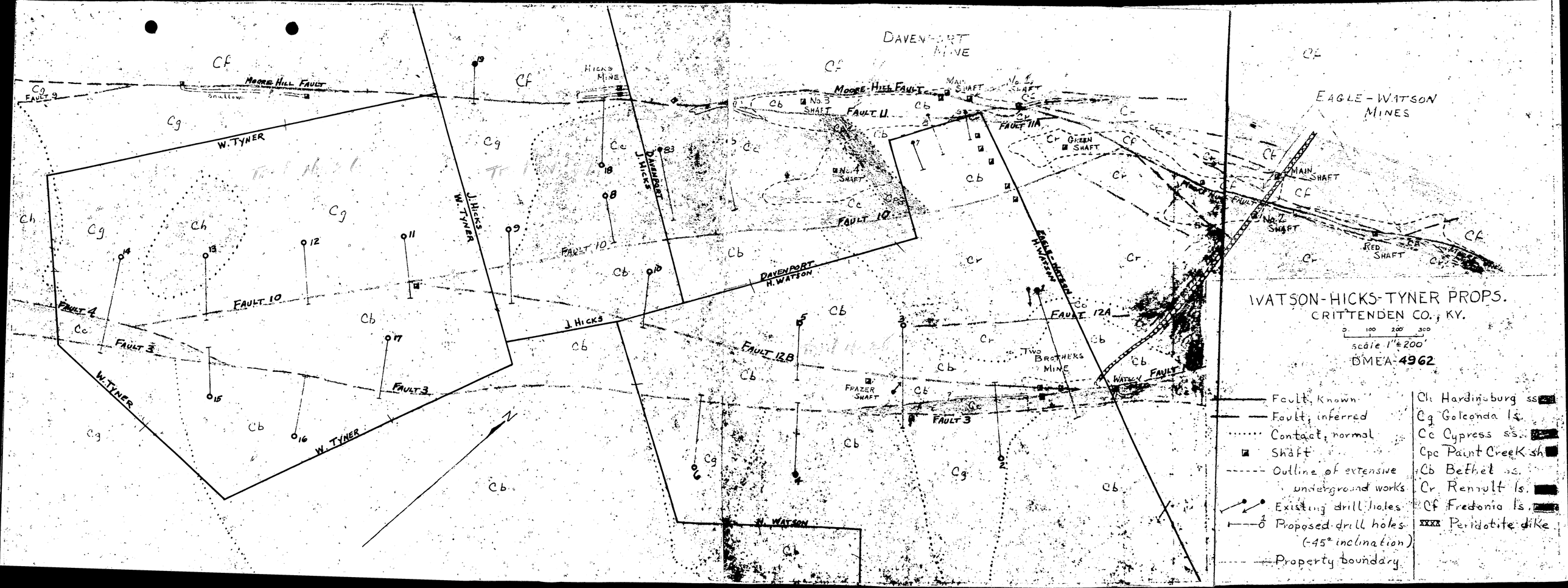
Remarks:

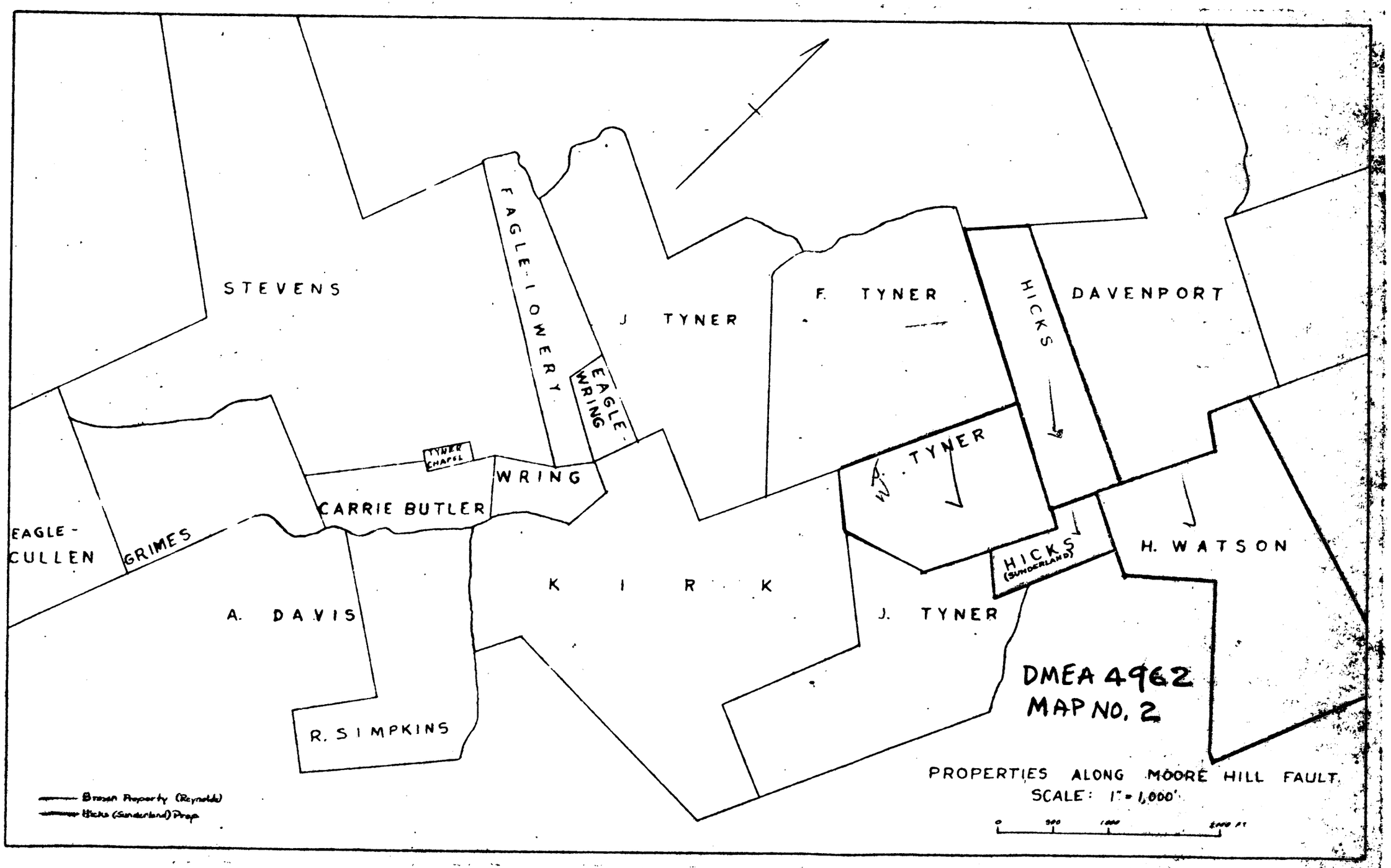
(Name)
Allen S. Dakan, Chief, Operations Control and Statistics Division

(Title)

Date delivered to Bureau of Mines, Washington 6/3/58

22848


DAVENPORT MINE
EAGLE-WATSON MINES
MOORE HILL FAULT
FAULT 9
Shallow
HICKS MINE
MAIN SHAFT
No 1 SHAFT
No 3 SHAFT
No 4 SHAFT
FAULT 11
FAULT 11A
GREEN SHAFT
FAULT 10
FAULT 12A
FAULT 12B
FAULT 3
FAULT 4
W. TYNER
J. HICKS
DAVENPORT
DAVENPORT H. WATSON
EAGLE-WATSON H. WATSON
TWO BROTHERS MINE
FRAZER SHAFT
WATSON FAULT
W. WATSON
MAIN SHAFT
No 2 SHAFT
RED SHAFT
WATSON-HICKS-TYNER PROPS.
CRITTENDEN CO., KY.
0 100 200 300
scale 1" = 200'
DMEA-4962
Fault, known
Fault, inferred
Contact, normal
Shaft
Outline of extensive underground works
Existing drill holes
Proposed drill holes (-45° inclination)
Property boundary
Ch Hardinsburg ss
Cg Golconda ls.
Cc Cypress ss.
Cpc Paint Creek sh
Cb Bethel ss.
Cr Renault ls.
Cf Fredonia ls.
Peridotite dike


STEVENS
FAGLE-LOWERY
J TYNER
F. TYNER
HICKS
DAVENPORT
EAGLE-WRING
TYNER CHAPEL
WRING
CARRIE BUTLER
P. TYNER
EAGLE-CULLEN
GRIMES
HICKS (SUNDERLAND)
H. WATSON
K I R K
A. DAVIS
J. TYNER
R. SIMPKINS
DMEA 4962
MAP NO. 2
PROPERTIES ALONG MOORE HILL FAULT.
SCALE: 1" = 1,000'
0
500
1000
2000 FT
Brown Property (Reynolds)
Hicks (Sunderland) Prop.

EXTRA COPY
O. M. E.
RECEIVED FEB 9 1959

DATE	INITIALS	CODE

EXTRA COPY
O. M. E.
RECEIVED FEB 9 1959

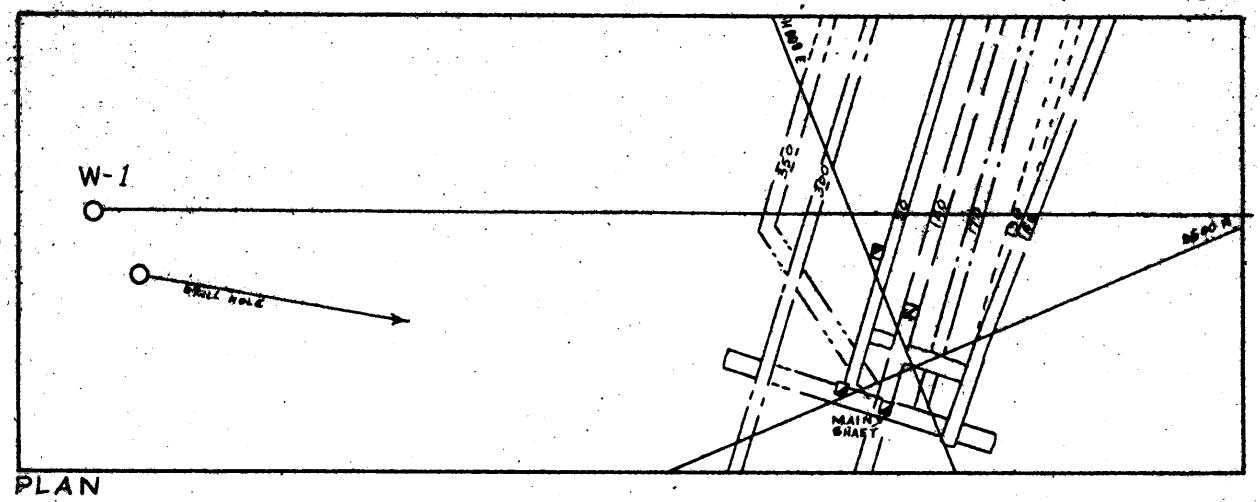
DATE	INITIALS	CODE

WATSON PROJECT

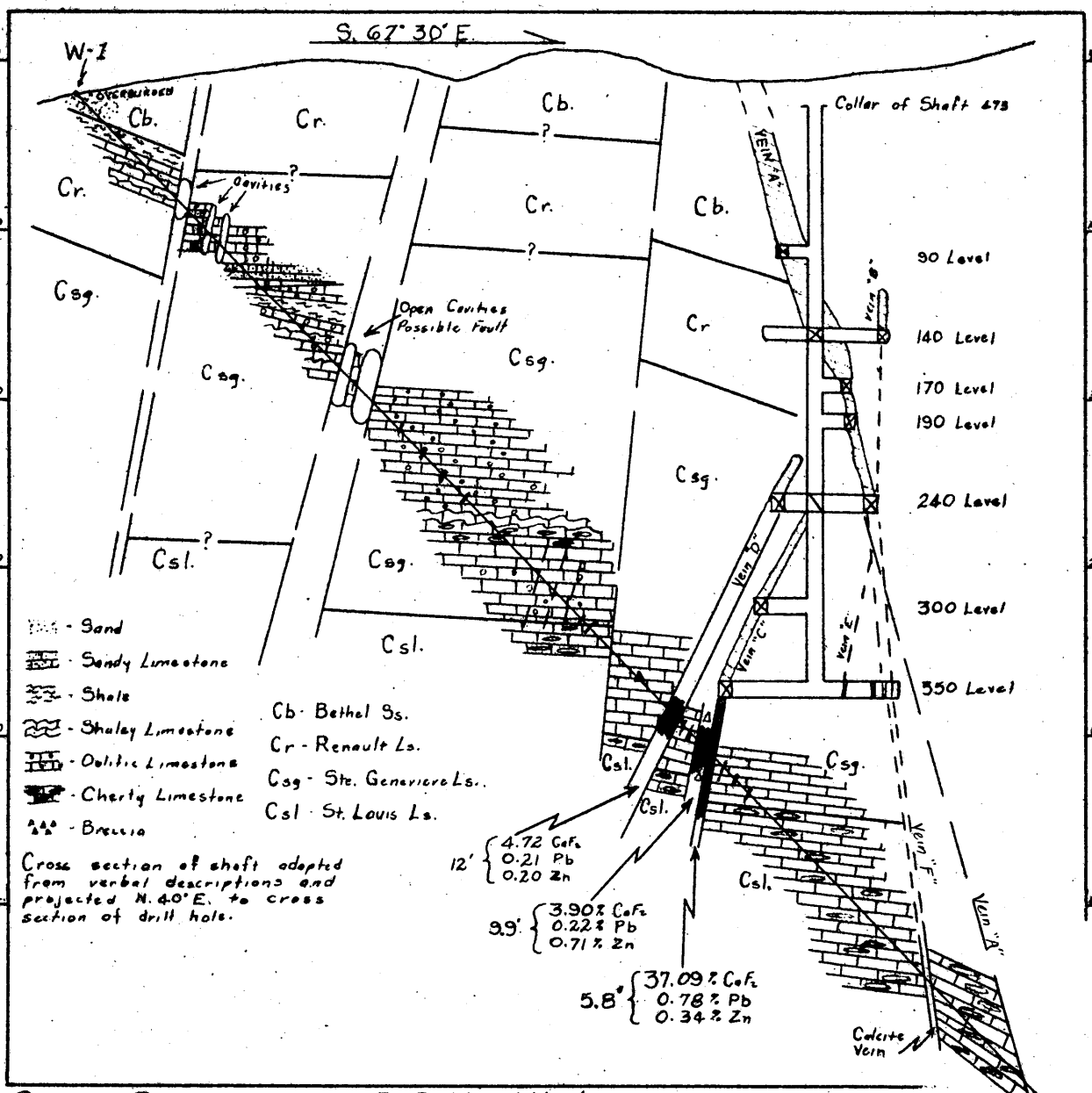
CRITTENDEN COUNTY, KENTUCKY

DMEA - 4962

Idm-E 1199



PLAN



Cross Section on D.D.H. W-1

VERT. & HORZ. SCALES: 1" = 100'

0 50 100 200 300 FT.

OFFICIAL FILE COPY
O. M. E.
RECEIVED OCT 6 1958

DATE	INITIALS	CODE