DMEA - 2nd copy

Form MF-103

APPLICATION FOR AID IN AN EXPLORATION PROJECT,
PURSUANT TO DMEA ORDER 1, UNDER THE
DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

submitted by

CHESAPEAKE AND COLORADO URANIUM CORPORATION
909 - 16th Street, N. W.
Washington 6, D. C.

September 19, 1955

MF-103
(Revised April 1952)

DMEA
Date Rec'd.
SEP 19 1955

Form Approved.
Budget Bureau No. 42-R1035.2.

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

BUREAU OF MINES
Denver, Colorado

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. DMEA-3990
Metal or Mineral Uranium
Date Received 9/23/55
Estimated Cost $437,534.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: CHESAPEAKE AND COLORADO URANIUM CORPORATION
909 - 16th Street, N. W., Washington, D. C.,
a corporation organized and existing under and by virtue of the laws of the State of Delaware

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. (Page 3, attached.)

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract (Please see pages 4 and 5, attached.)

(*b*) State any mine name by which the property is known. (Please see page 6, attached.)

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Applicant is sole owner of mining claims embracing all the land covered by this application. (And see page 6 attached.)

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. (See pages 4 and 5, attached.)

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. (Please see page 7, attached.)

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. (Page 7, attached.)

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. (Please see page 7, attached.)

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. (Please see page 8, attached.)

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. (Please see page 8, attached.)

16—66551-1

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Uranium

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. (Please see Exhibit A and accompanying maps.)

(*c*) The work will start within 30* days and be completed within 12 months from the date of an exploration project contract. *unless weather conditions prevent.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. (Pages 9-13, attached.)

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). (Please see page 15, attached.)

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants. (Please see page 16, attached.)

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. (Please see page 17, attached.)

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. (Please see page 18, attached.)

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. (Please see page 19, attached.)

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. (Page 19.)

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes. (Please see page 19, attached.)

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes.

(*b*) How do you propose to furnish your share of the costs?

[x] Money [x] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper. (Please see page 20, attached.)

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated September 19, 1955

CHESAPEAKE AND COLORADO URANIUM CORPORATION
(Applicant)

By Francis M. Tompkins
Francis M. Tompkins, President

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.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

Item 1. (c) Officers of the corporate applicant, their names and addresses, are as follows:

Name	Address	Title
Francis M. Tompkins	909 - 16th St., N.W. Washington 6, D. C.	President and a director
Joe D. Parris	133 South Fourth St. Grand Junction, Col.	Vice-President and a director
Gillis W. Long	The Wyatt Building Washington 5, D. C.	Secretary
Howard Ritter	909 - 16th St., N.W. Washington 6, D. C.	Treasurer
Lytle Brown, Jr.	133 South Fourth St. Grand Junction, Col.	Chief Engineer
David L. Hoover	133 South Fourth St. Grand Junction, Col.	Project Geologist-Engineer

Item 3. Applicant's property rights.

(a) The land upon which the applicant wishes to explore consists of fifty-six (56) unpatented lode mining claims situate in Sections 26, 27, 34 and 35 of T. 50 N., R. 18 W., N.M.P.M., and Sections 2 and 3 of T. 49 N., R. 18 W., N.M.P.M., Mesa County, Colorado (see maps submitted herewith for exact locations of claims). These mining claims are described as follows:

NAME	Location (or Amended Location) DATE (Mo/day/year)	Recording DATE	Mesa County BOOK	(Col.) Records PAGE
Queen Bee No. 1	2/5/54	2/19/54	598	238
(Queen Bee No. 1-Amended)	5/2/55	8/2/55	(655)	(529)
Queen Bee No. 2	2/5/54	2/19/54	598	239
(Queen Bee No. 2-Amended)	5/2/55	8/2/55	(655)	(530)
Queen Bee No. 3	2/5/54	2/19/54	598	240
(Queen Bee No. 3-Amended)	5/2/55	8/2/55	(655)	(531)
Queen Bee No. 4	2/5/54	2/19/54	598	241
(Queen Bee No. 4-Amended)	5/2/55	8/2/55	(655)	(532)
Queen Bee No. 5	2/5/54	2/19/54	598	242
(Queen Bee No. 5 -Amended)	5/2/55	8/2/55	(655)	(533)
Queen Bee No. 6	2/5/54	2/19/54	598	243
(Queen Bee No. 6 -Amended)	5/2/55	8/2/55	(655)	(534)
Queen Bee No. 7	2/5/54	2/19/54	598	244
(Queen Bee No. 7-Amended)	5/3/55	8/2/55	(655)	(535)
Queen Bee No. 8	2/5/54	2/19/54	598	245
(Queen Bee No. 8-Amended)	5/3/55	8/2/55	(655)	(536)
Queen Bee No. 9	2/5/54	2/19/54	598	246
(Queen Bee No. 9-Amended)	5/3/55	8/2/55	(655)	(537)
Queen Bee No. 10	2/5/54	2/19/54	598	247
(Queen Bee No. 10-Amended)	5/3/55	8/2/55	(655)	(538)
Queen Bee No. 11	2/5/54	2/19/54	598	248
(Queen Bee No. 11-Amended)	5/2/55	8/2/55	(655)	(539)
Queen Bee No. 12	2/5/54	2/19/54	598	249
(Queen Bee No. 12-Amended)	5/2/55	8/2/55	(655)	(540)
Queen Bee No. 13	2/5/54	2/19/54	598	250
(Queen Bee No. 13-Amended)	5/2/55	8/2/55	(655)	(541)
Queen Bee No. 14	2/5/54	2/19/54	598	251
(Queen Bee No. 14-Amended)	5/2/55	8/2/55	(655)	(542)
Queen Bee No. 15	2/5/54	2/19/54	598	252
(Queen Bee No. 15-Amended)	5/2/55	8/2/55	(655)	(543)
Queen Bee No. 16	2/5/54	2/19/54	598	253
(Queen Bee No. 16-Amended)	5/2/55	8/2/55	(655)	(544)
Queen Bee No. 17	2/5/54	2/19/54	598	254
(Queen Bee No. 17-Amended)	5/3/55	8/2/55	(655)	(546)
Queen Bee No. 18	2/5/54	2/19/54	598	255
(Queen Bee No. 18-Amended)	5/3/55	8/2/55	(655)	(547)

909 - 16th Street, N.W.
Washington 6, D. C.

NAME	Location (or Amended Location) DATE (Mo/day/year)	Recording DATE	Mesa County BOOK	(Col.) Records PAGE
Queen Bee No. 19	2/5/54	2/19/54	598	256
(Queen Bee No. 19-Amended)	5/3/55	8/2/55	(655)	(548)
Queen Bee No. 20	2/5/54	2/19/54	598	257
(Queen Bee No. 20-Amended)	5/3/55	8/2/55	(655)	(549)
T Bar F No. 1	5/28/55	6/6/55	648	206
T Bar F No. 2	5/28/55	6/6/55	648	207
T Bar F No. 3	5/28/55	6/6/55	648	208
T Bar F No. 4	5/28/55	6/6/55	648	209
T Bar F No. 5	5/28/55	6/6/55	648	210
T Bar F No. 6	5/28/55	6/6/55	648	211
T Bar F No. 7	5/28/55	6/6/55	648	212
T Bar F No. 8	5/28/55	6/6/55	648	213
T Bar F No. 9	5/28/55	6/6/55	648	214
T Bar F No. 10	5/28/55	6/6/55	648	215
T Bar F No. 11	5/28/55	6/6/55	648	216
T Bar F No. 12	5/28/55	6/6/55	648	217
Virginia W. No. 1	5/28/55	6/6/55	648	218
Virginia W. No. 2	5/28/55	6/6/55	648	219
Virginia W. No. 3	5/28/55	6/6/55	648	220
Virginia W. No. 4	5/28/55	6/6/55	648	221
Virginia W. No. 5	5/28/55	6/6/55	648	222
Virginia W. No. 6	5/28/55	6/6/55	648	223
Virginia W. No. 7	5/28/55	6/6/55	648	224
Virginia W. No. 8	5/28/55	6/6/55	648	225
Virginia W. No. 9	5/28/55	6/6/55	648	226
Virginia W. No. 10	5/28/55	6/6/55	648	227
Virginia W. No. 11	5/28/55	6/6/55	648	228
Virginia W. No. 12	5/28/55	6/6/55	648	229
Jamie T. No. 1	5/20/55	6/6/55	648	230
Jamie T. No. 2	5/20/55	6/6/55	648	231
Jamie T. No. 3	5/20/55	6/6/55	648	232
Jamie T. No. 4	5/20/55	6/6/55	648	233
Jamie T. No. 5	5/20/55	6/6/55	648	234
Jamie T. No. 6	5/20/55	6/6/55	648	235
Jamie T. No. 7	5/20/55	6/6/55	648	236
Jamie T. No. 8	5/20/55	6/6/55	648	237
Jamie T. No. 9	5/20/55	6/6/55	648	238
Jamie T. No. 10	5/20/55	6/6/55	648	239
Jamie T. No. 11	5/20/55	6/6/55	648	240
Jamie T. No. 12	5/20/55	6/6/55	648	241

(b) A small, presently inoperative mine located on the subject property is known as "The Stormy Treasure Mine." The entire subject property, consisting of 56 unpatented lode mining claims, is known as and sometimes hereinafter referred to as "the Calamity Creek Claim Block."

(c) The applicant is the owner of all of the claims. Applicant owns the Queen Bee Nos. 1 through 20 under and by virtue of a Mining Deed, dated November 3, 1954, from Jerome Craig, Jr. and E. L. Hess, the locators of these claims. The deed was recorded in the records of Mesa County, Colorado, on November 9, 1954, in Book 624 at Page 176. Applicant is the locator of the T Bar F Nos. 1 through 12, Virginia W. Nos. 1 through 12 and Janie T. Nos. 1 through 12.

Item 4. Physical description. (a) For a detailed description of past and present mining and exploration operations on the Calamity Creek Claim Block, including existing mine workings and production facilities, please see: R. T. Brown, Report on the Geology of the Properties Held by Chesapeake & Colorado Uranium Corporation in the Blue Creek - Calamity Creek Areas, July 29, 1955, pages 5 through 8. (This document is submitted herewith as Exhibit A and is hereinafter referred to as "the Brown Report".) As to accessibility, please see the Brown Report, page 3.

(b) Past and current production is covered on pages 5 and 6 of the Brown Report. Ore reserves (there are none developed as yet) are covered on page 16 of the Brown Report.

(c) Geologic features of the subject property are covered on pages 9 through 16 of the Brown Report. Applicant's reasons for wishing to explore are covered in these pages and in the balance of the Brown Report, pages 16 through 29, in which pages applicant's proposed exploration program is also set out. In addition to the Brown Report itself, submitted herewith as Exhibit A, applicant also respectfully submits herewith four maps: Plate A, Plate B, Plate C and Plate 1, the titles of which are given on the last page of the Brown Report and on page 20 hereof. For convenience, Plate 2 and Plate 3, mentioned on the last page of the Brown Report, are not being submitted separately. These two plates were transparent overlays for Plate 1. The contents of Plate 2 have been transposed directly onto Plate 1 in the color ORANGE, and the contents of Plate 3 have similarly been transposed onto Plate 1 in the color BLACK. None of these maps need be returned.

(d) Please see pages 3, 6 and 7 of the Brown Report as to accessibility, distances, roads, and housing.

(e) Pages 6 through 8 of the Brown Report cover the subject of manpower, materials, supplies, equipment, water and power.

Item 5 (d). Qualifications of applicant and of persons who will direct the exploration project.

The Chesapeake and Colorado Uranium Corporation was incorporated under the laws of the State of Delaware on September 9, 1954, to carry on the activities of a partnership formed in late 1953 (the Tompkins-Farris Mining Company) by Francis M. Tompkins and Joe D. Farris for the purpose of assembling a desirable land spread in the Moab and Uravan Belt areas of the Colorado Plateau, to clear the titles, obtain adequate surveys, explore and drill for uranium and fluorspar, and to engage in production, if warranted.

The land acquisition phase has now progressed to the point where the Company is the owner or lessee of over 450 claims, of which 56, the Calamity Creek Claim Block, are the subject of this application. The Company is continuing to locate claims as worthwhile open areas are discovered on the Colorado Plateau. The Company and its predecessor partnership have now demonstrated through nearly two years of operation the ability to carry forward the program described above. Its activities have included the drilling of over 176 test holes in four claim groups (not on the subject property, however), totaling approximately 20,000 feet of drilling in all; exploratory tunnelling for and production of ore in its Stormy Treasure Mine (see the Brown report for details); extensive clearing, grubbing and access road building; surveying and mapping. On the business and administrative end, a cohesive and smoothly operating managerial staff and plan has been developed. A recently completed public financing has put the Company on a solid financial basis and has enabled it to acquire a well-rounded equipment spread and to complete a modern, all-weather mining camp for its employees in the immediate area of the subject property.

Mr. David L. Hoover will serve as the applicant's full-time Geologist-Engineer on this project and as the applicant's agent to complete and sign progress reports and other day-to-day working documents for the DMEA, if this application is approved. Mr. Hoover was graduated from the Colorado School of Mines on May 27, 1955, with the degree of Engineer of Petroleum Geology. Among the specialized two- or three-semester hour courses he took at the School of Mines were Mineralogy, Subsurface Geology, Field Geology, Sedimentation and Stratigraphy, Air Photos and Map Interpretation, Structural Geology, Optical Mineralogy, Plane Surveying, Uranium Geology, and Economic Geology and Ore Deposits. In addition to his technical education in engineering-geology, Mr. Hoover had field experience during his undergraduate days as a core drill helper ("roughneck") with the United States Bureau of Mines and has been steadily employed by your applicant since his graduation in positions of increasing responsibility, and with great success, in the exploration and development of the Company's Colorado uranium and fluorspar prospects. (In any conferences with DMEA field representatives involving negotiation and the making of technical and procedural decisions, the applicant will also be represented by Mr. R. T. Brown of Technical Services, Inc. (see below).)

Mr. Francis M. Tompkins, the President, a director and one of the founders of the Company, is and for many years has been the Senior Vice President of Chas. H. Tompkins Co., nationwide building and heavy construction contractors of Washington, D. C. His long and diverse experience with that company has included direct supervision of many and varied construction projects,

including earth and rock filled dams and tunnels of various types. He perceived in the early days of the uranium mining industry that earth-moving and tunnelling techniques and equipment, with which he had become intimately familiar in heavy construction work, could be applied to mining. Prior to his entry into the uranium exploration and mining business he had also acquired experience in oil wildcatting. Mr. Tompkins is a registered professional engineer (District of Columbia No. 147) and a graduate of George Washington University, Washington, D.C., where he specialized in economics, business administration and engineering.

Mr. Joe D. Farris, Vice President, a director and one of the founders of the applicant, has had a lifetime of experience in oil drilling. Starting as a "supplies hauler" for J. W. Kemp Drilling Company in 1925, Mr. Farris has subsequently had experience as lease scout, oil well drilling contractor and oil entrepreneur. For some time he was a partner in Kutz-Farris Drilling Co., oil well drilling contractors, and immediately prior to his entry into the uranium field with Francis M. Tompkins, he was engaged in the oil business in Texas, having drilled some wildcats for ventures in which he was associated with Mr. Tompkins. Mr. Farris has been in charge of the Company's Grand Junction office and of all the Company's field activities since its inception and will participate actively in the direction of the project for which application is made hereby.

Mr. Lytle Brown, Chief Engineer. Mr. Brown attended Phillips Exeter Academy (Preparatory School), Exeter, New Hampshire, and Vanderbilt University, Nashville, Tennessee. From

1930 to 1940 he was engaged in the building of flood control projects on the Ohio and Mississippi Rivers, as well as construction superintendent on roads and bridges in Arkansas, Kentucky, Mississippi and Tennessee. During World War II, he was superintendent of construction of air fields in Alabama, Louisiana and Tennessee and of water and sewer installations at Camp Campbell, Kentucky. He also served as assistant project manager of the Huntsville Ordnance project. In 1942-43 he was manager of three strip coal mining operations in Kentucky, as well as prospecting and analyzing ventures for the production of phosphate, manganese and iron. He served with the United States Navy in 1944-45. Since 1946, he has been engaged as construction superintendent of mechanical installations, building construction and rock excavation for the prime contractor on the Arnold Engineering Development Center, Tullahoma, Tennessee, and as a project manager and construction supervisor for the Chas. H. Tompkins Co. For the past few months he has served the Chesapeake and Colorado Uranium Corporation, your applicant, as manager of its Wasatch-Low Boy Division.

The applicant has retained, on a consulting basis, for the rendering of geological, engineering and technical advice and supervision on the project for which application is hereby made--

<u>Technical Services, Inc., of Grand Junction, Colorado.</u> This concern, specializing in the "hard rock" mining and prospecting industry, has on its staff three mining geologists, one mining geophysicist, five mining engineers, one registered land

surveyor, one draftsman and office manager, and several field assistants. Mr. R. T. Brown, the author of "the Brown Report" filed as Exhibit A herewith, is an officer and mining geologist of Technical Services, Inc. and will serve as applicant's consultant and as its technical representative to the DMEA, if this project is approved. The experience of Technical Services personnel has been with the following companies and organizations:

American Smelting and Refining Company, Vanadium, New Mexico
Anaconda Copper Company, Butte, Montana
Argyle Mining Company, Silverton, Colorado
Atomic Energy Commission, Grand Junction, Colorado
Chesapeake and Colorado Uranium Corporation, Grand Junction, Colorado
Climax Molybdenum, Climax, Colorado
Climax Uranium Co. (Exploration farm-outs to R. C. Dulaney, Jr.)
R. C. Dulaney, Jr., Grand Junction, Colorado
Minerals Engineering Company, Grand Junction, Colorado
Ortmayer Mining Company, Grand Junction, Colorado
Elmer V. Reinhardt, Grand Junction, Colorado
Ryan Oil Company, Grand Junction, Colorado
Simpson Mining Company, Grand Junction, Colorado
Skidmore Mining Company, Dove Creek, Colorado
Utarado Mining Company, Gateway, Colorado

and others. Services performed have consisted of surface and underground surveying; examination and evaluation of properties; radiometric, electrical and magnetic geophysical surveys; exploration supervision; development planning; and production contracting. Technical Services is at the present time developing ore at the Osceola mine at Silverton; conducting surveying, probing and planning work prior to development and production of ore at the Uintah lease, Legin Group, Slick Rock district; supervising contract drifting operations at the Blackhawk mine, Silverton; conducting radiometric surveys and geological work on the Knot mine

lease, Tenderfoot Mesa; supervising an exploration program for R. O. Dulaney, Jr. on Beaver Mesa, near Gateway; supervising exploration for the Chesapeake and Colorado Uranium Corporation on Calamity and Blue Mesas; and carrying on claim surveying work in the La Sal Mountain area.

Item 6. Estimate of costs.

(a) Independent contracts.

Description	Quantity	Unit	Unit Cost	Total Cost
Independent contract drilling (at low-bid rates of Cannon Diamond Drilling Company of Grand Junction, Colorado):				
Non-core drilling to 300' depths	35,370*	Lin.ft.	$1.50	$53,055
Core drilling to 300' depths	32,920*	Lin.ft.	$2.75	$90,530
Non-core drilling 300-700' depths	10,840*	Lin.ft.	$2.05	$22,222
Core drilling 300-700' depths	13,125*	Lin.ft.	$4.00	$52,500
				218,507
Drill rig waiting time and Gamma Ray logging	972	Hours	$14.00	$13,608
Lost cores (est. 10%)	4,605	Lin.ft.	$3.12	$14,368
Lost casings (est. 1%)	920	Lin.ft.	$3.00	$ 2,760
Gamma Ray Logging	92,255	Lin.ft.	$0.20	$18,451
Assays (est. 4 assays for each of 221 holes)	884	Assays	$5.00	$ 4,420
TOTAL, independent contracts				$271,914

*Figures include total footage for Stage 1, Stage 2 and Stage 3 drilling as described and explained in the Brown Report.

Item 6. Estimate of Costs (Continued).

(b) Labor, supervision, consultants. (Based on 12 months, 2 shifts.)

Description	Quantity	Unit	Unit Cost	Total Cost
Geologist (Company payroll)	52	Weeks	$125.00	$6,500
Ass't Geologist (Company payroll)	52	Weeks	$100.00	$5,200
Supervising Geologist (Consultant: from Technical Services, Inc., Grand Junction, Colorado; two days per week.)	104	Days	$100.00	$10,400
Consulting Geologist (Mr. Dorsey Hager, Salt Lake City; two days per month)	24	Days	$230.00	$5,520
General Superintendent (Company payroll; ½-time of officer)	26	Weeks	$250.00	$6,500
Draftsman	52	Weeks	$100.00	$5,200
Layout of roads and holes:				
Instrument Man	3,240	Hours	$2.50	$8,240
Rodman	3,240	Hours	$2.00	$6,480
Chainman	3,240	Hours	$1.80	$5,832
Other labor:				
Clearing and grubbing (labor costs only)	15	Acres	$100.00	$1,500
Excavation for access and drill locations (labor costs only)	24,450	Cu. yds.	$0.70	$17,115
Transportation (labor costs only):				
Pickup for hauling cores	3,240	Hours	$2.20	$7,128
Pickup for geologist and crew	3,240	Hours	$0.20	$ 648
Pickup for engineering crew	3,240	Hours	$0.20	$ 648
Jeep for Gen'l Supt. (½ time)	1,620	Hours	$0.20	$ 324
Warehouse for cores (labor cost only)	8,000	Cu. ft.	$0.25	$2,000
Office and furniture (labor cost only)	2,000	Cu. ft.	$0.40	$ 800
TOTAL, labor, supervision, consultants				$90,035

Item 6. Estimate of Costs (Continued).

(c) Operating materials and supplies

	Quantity	Unit	Unit Cost	Total Cost
Clearing and grubbing (materials costs only)	15	Acres	$50.00	$ 750
Layout of roads and holes: cost of stakes	7,726	Stakes	$ 0.10	$ 773
Excavation for access and drill locations (materials costs only)	24,450	Cu.yds.	$ 0.50	$12,225
Drafting materials	52	Weeks	$20.00	$ 1,040
Core boxes	7,600	Boxes	$ 2.00	$15,200
Warehouse for cores (materials costs only)	8,000	Cu.ft.	$ 0.25	$ 2,000
Office and furniture (materials costs only)	2,000	Cu.ft.	$ 0.40	$ 800
Car allowance for supervising geologist	15,600	Miles	$ 0.10	$ 1,560
Transportation (materials costs only):				
Pickup for hauling cores	3,240	Hours	$ 0.40	$ 1,296
Pickup for geologist and crew	3,240	Hours	$ 0.40	$ 1,296
Pickup for engineering crew	3,240	Hours	$ 0.40	$ 1,296
Jeep for Gen'l Supt. (½ time)	1,620	Hours	$ 0.40	$ 648
Water and Power				*
TOTAL, operating materials and supplies				$33,884

*A water well heretofore drilled by the applicant near the subject property will provide drinking water at the project. Costs of water and power for drilling are included in the independent contract per-foot drilling prices under (a) above.

Item 6. Estimate of Costs (Continued).

(d) Operating equipment (Costs of equipment owned by applicant: suggested use allowance*.)

Description	Quantity	Unit	Unit Cost	Total Cost
Clearing and Grubbing (equipment costs only)	15	Acres	$70.00	$ 1,050
Excavation for access and drill locations (equipment costs only)	24,450	Cu.yds.	$ 0.30	$ 7,335
Transportation (equipment costs only):				
Pickup for hauling cores	3,240	Hours	$ 0.60	$ 1,944
Pickup for geologist and crew	3,240	Hours	$ 0.60	$ 1,944
Pickup for engineering crew	3,240	Hours	$ 0.60	$ 1,944
Jeep for Gen'l Supt. (½ time)	1,620	Hours	$ 0.60	$ 972
TOTAL, operating equipment				$15,189

*The applicant contemplates that principal items of equipment used on the project, notably all equipment used in actual drilling operations, will be the property of the drilling contractor. Applicant will use its own equipment for the jobs listed in the above summary, and the figures presented in the summary represent applicant's best estimate of the actual cost to it of such use.

Following is a list of the equipment owned by the applicant that will be used on this project.

BUILDINGS

Mess Hall (Butler Building)	1,500.00
Food Storage Building	720.00
Bath House	950.00
Geologist Office & Quarter (Butler Building)	1,500.00
4 Bunk Houses @ 612.00 ea.	2,448.00
Shop & Supply Room	3,210.00
Melody Home Trailer	5,350.00
	15,678.00

CAMP EQUIPMENT

21 metal cots @ 12.00	252.00
21 mattresses	168.00
1 butane gas stove	170.00
2 Oil Heaters	120.00
1 Butane Refrigerator 10'	350.00
1 Butane Refrigerator 8' used	75.00
1 Ideal 2 compartment sink	19.00
4 Benches	33.00
2 Tables	79.00
3 Cabinets (72.50) 3 ea Coleman Lanterns (43.50)	116.00
Cooking Utensils	273.00
Knives, Forks, Spoons, Dishes etc.,	62.00
1 Laundry Tub, and water coolers	93.00
150 ft. Well (210.50) Pump (282.50), Elect. Wiring (240.00) Water Dist. Sys.(680.00)	1,172.00
	3,006.00

SHOP

1 Air Compressor	193.00
1 300 Amp.Hobart Welder (w/crysler gasoline) engine	1,370.00
1 Hobart M5 Elect. Gen.Plant 3KV	750.00
1 "Shopmaster" 1/2 Hp Bench Grinder	74.50
1 3/4 Black & Decker Power drill	110.00
2 Spray guns w/hose	115.00
1 Combination forge and bench	237.00
1 Combination Welding, cutting and gauges	240.00
Parts, Supplies and Hand Tools	1,575.00
	4,664.50

BLUE CREEK
FIELD EQUIPMENT LIST

1 D6 Cat Hydraulic Dozer	14,364.00
1 Dodge Pickup	1,774.80
1 Dodge 4x4 Truck	1,002.50
1 Chevrolet Pickup (new)	1,832.57
1 Chevrolet Pickup (used)	100.00
1 1 1/2 Ton Ford Truck	350.00
1 Jeep Station Wagon (4 cylinder)	1,867.50
1 Jeep Station Wagon (6 cylinder)	2,688.36
1 Willys Jeep	1,050.00
1 210 LeRoi Compressor	4,800.00
1 99 Gardner Denver Wagon Drill	2,800.00
1 89 Gardner Denver Jack Hammer	600.00
1 Horse	65.00
	33,294.73

RECAPITULATION OF INVENTORY BUILDINGS & EQUIPMENT

Camp Buildings	15,678.00
Camp Equipment	3,006.00
Shop Equipment & Inventory	4,664.50
Field Equipment	33,294.73
Total Blue Creek Inventory	56,643.23

Additional Camp Facilities required to house contract drilling crews

No. 1*	4 Bunk Houses @ 612.00	2,448.00
No. 2**	1 Well (210.50), 1 Pump (282.50)	493.00
	4 Cots and Mattresses @ 20.00	80.00
		3,021.00

No. 1* One of the bunk houses will be used by the geologist for sleeping quarters and the space made available for the removal of their bunks from the Butler building will be used for office space.

Item 6. Estimate of Costs (Continued)

(e) Rehabilitation and repairs

(Costs of rehabilitation and repairs of applicant's equipment are included in the foregoing estimates of labor, materials and equipment-use costs, (b), (c) and (d) above.)

(f) New buildings, improvements, installations.

(Costs of constructing temporary office and warehouse facilities at the project site are shown, broken down into labor and materials costs, in the foregoing summaries, (b) and (c) above. No other costs in this category are contemplated. It is believed these structures will have little or no sale or salvage value and their cost should accordingly be figured as operating expense.)

(g) Miscellaneous

Insurance, Social Security and Workmen's Compensation, figured at 6% of total costs	$ 4,447
Mess and housing for employees (3,413 man-days @ $5.00)	$17,065
TOTAL, Miscellaneous	$21,512

(h) Contingencies

(No allowance for contingencies is requested.)

Summary estimate of costs:

(a) TOTAL, independent contracts	$271,914
(b) TOTAL, labor, supervision, consultants	90,035
(c) TOTAL, operating materials and supplies	38,884
(d) TOTAL, operating equipment	15,189
(e) TOTAL, rehabilitation and repairs (see (e) above)	(None)
(f) TOTAL, new buildings, improvements, installations (see (f) above)	(None)
(g) TOTAL, miscellaneous	21,512
(h) TOTAL, contingencies (see (h) above)	(None)
GRAND TOTAL, estimate of costs of project	$437,534

Item 7. If the project is approved in the amount requested, applicant's 25% share of the total cost of $437,534 will be $109,384. Of this amount, applicant contemplates that it will furnish $15,189 through the use of equipment owned by it, as summarized in Item 6 (d), above, and will furnish the remaining $94,195 in cash.

LIST OF EXHIBITS.

Exhibit A.	R. T. Brown, Report on the Geology of the Properties Held by Chesapeake and Colorado Uranium Corporation in the Blue Creek - Calamity Creek Areas (Including Recommendations for DMEA Loan Assistance), Grand Junction, Colorado, Technical Services, Inc., July 29, 1955. (Referred to in this application as "the Brown Report".)
Exhibit B. (In envelope)	Map of the Calamity Mesa Quadrangle, Mesa County, Colorado. Prepared by Technical Services, Inc., Grand Junction, Colorado. (Referred to in the Brown Report as "Plate A".)
Exhibit C. (In envelope)	Geologic Map of the Gateway Area, Mesa County, Colorado and the adjoining part of Grand County, Utah, showing Calamity Creek Claim Block location. (Referred to in the Brown Report as "Plate B".)
Exhibit D. (In envelope)	General Geologic Cross Section, Calamity Creek Claim Block, Mesa County, Colorado. (Referred to in the Brown Report as "Plate C".)
Exhibit E. (In envelope)	Calamity Creek Claim Block base map. (Referred to in the Brown Report as "Plate 1". NOTE: The contents of transparent overlays, Plate 2 and Plate 3, referred to in the Brown Report, have been transposed directly onto Plate 1.)

EXHIBIT A

REPORT ON THE GEOLOGY OF THE PROPERTIES HELD BY CHESAPEAKE & COLORADO CORPORATION IN THE BLUE CREEK - CALAMITY CREEK AREAS

(Including Recommendations for DMEA Assistance)

July 29, 1955

R. T. Brown

EXHIBIT A

COPY

REPORT ON THE GEOLOGY
OF THE PROPERTIES HELD BY
CHESAPEAKE & COLORADO URANIUM CORPORATION
IN THE BINK CREEK - CALAMITY CREEK AREAS

(Including Recommendations for DMEA Loan Assistance)

Respectfully submitted to:

Chesapeake and Colorado Uranium Corporation

Date: July 29, 1955

By R.T. Brown, Jr.

TECHNICAL SERVICES, INC.

R. T. Brown, Consulting Geologist

CHESAPEAKE AND COLORADO URANIUM CORPORATION
909 - 16th Street, N. W.; Washington 6, D. C.

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INTRODUCTION

On the 6th of June, 1955, the writer, a geologist of Technical Services, Inc. was retained on a consultant basis by Mr. Joe D. Farris, Vice President, Chesapeake and Colorado Uranium Corporation, to prepare a geological report on properties held by the Chesapeake and Colorado Uranium Corporation for a DMEA loan application.

The following geological report is respectfully submitted to the Chesapeake and Colorado Uranium Corporation. The information contained in this report is based on data correlated from field observations made by the writer from 13 June to 12 July, 1955 and from conversations with numerous people in the field.

The writer wishes to express his appreciation for the valuable assistance and help he has received from Mr. Dorsey Hager who made many useful comments on the relative merits of the area; and to Messrs. Lee Hammond and David Reover, geologists with the company, who did much of the detailed work in the field and to Mr. Joe D. Farris and the personnel employed by the company for the wholehearted cooperation received by the writer. The writer also wishes to express his appreciation to Mr. J. W. Masler, DMEA representative

in this area, for his many useful suggestions as to the preparation of this report.

PURPOSE AND SCOPE:

This preliminary field examination was undertaken with the following objectives in mind:

1. To determine whether the Calamity Creek Claims merited extensive exploration work.
2. The most economical method of conducting this exploration program.
3. The approximate cost and time required to complete this program.

This exploration program will be designed to discover any major ore-body or mineralized area which may be present.

NAME OF PROPERTY:

The following group of claims in this report being submitted will be referred to as the Calamity Creek Claim Block which includes:

(a) Queen Bee Claim Group

(b) T Bar F Claim Group

(c) Jamie T. Claim Group

(d) Virginia W. Claim Group

All of this property is held by Chesapeake and Colorado Uranium Corporation by right of undisputed unpatented mining claims which have been properly located and surveyed in accordance with Colorado Mining Law and have been recorded in the Mesa County courthouse, Grand Junction, Colorado.

LOCATION:

The Calamity Creek Claim Block lies in Sections 26, 27, 34, and 35, Township 50 North, Range 18 West, NMPM, and in Sections 2 and 3, Township 49 North, Range 18 West, NMPM. Topographically the block lies northwest of the junction of Calamity Creek and Blue Creek in Mesa County and on the southeastern flank of Calamity Mesa.

Processing mills are located at Uravan, 17 miles; Naturita, 35 miles; and Grand Junction, 87 miles, Colorado.

ACCESSIBILITY:

The Calamity Creek Claim Block lies in rugged topographic terrain but numerous bulldozer drill roads and access roads have been built in the area and it is readily accessible to 4-wheel-drive vehicles in all but very inclement weather. During winter, it will be necessary to plow the northern slopes free of snow. The Blue Creek ranch road connects the area to the graveled Uravan-Uncompahgre road which is passable the year around and joins Colorado Highway 141 at Taylor Ranch 26 miles south and east from Grand Junction.

CLIMATE:

The climate is semi-arid with temperatures ranging from minus 20 degrees Fahrenheit to plus 100 degrees Fahrenheit. Altitudes range from 5000 to 8000 feet above sea level. Moderate snows cover the area during the winter. There is little moisture during the summer and most of the drainage is intermittent.

PHYSICAL FEATURES

CLAIMS AND AREA:

The Calamity Creek Claim Block is composed of 4 groups of claims which are here broken down into claims by group and approximate area per claim:

20 Queen Bee Claims	20 x 20 equals 400 acres
12 T Bar F Claims	12 x 20 equals 240 acres
12 Jamie T. Claims	12 x 20 equals 240 acres
12 Virginia W. Claims	12 x 20 equals 240 acres
Calamity View) Sterny Treasure)	Overstaked by other portions of the block.

A total of 1120 acres are claimed in this block.

ADJOINING AND OTHER NEARBY PROPERTIES:

To the south and east across Blue Creek on the northeastern flank of Blue Mesa, Chesapeake and Colorado Uranium Corporation owns claims commonly known as the Blue Creek Group including small blocks of property under the following claim names:

6 Raven Claims	7 Starvation Claims
1 Shortie Claim	38 Murphy Claims
2 Kennie Claims	2 Bimbo Claims
8 F. N. B. Claims	2 Lone Pine Claims

Other small groups of claims include 5 claims in the Tepee Pole group; the Tepee Pole Millsite; 15 claims in the Blue Bird group, and 5 claims in the Dorothea's Baby group.

This property is held in Section 36, Township 50 North, Range 18 West, NMPM; Sections 1, 2, 11 and 12, Township 49 North, Range 18 West, NMPM; Sections 31 and 32, Township 50 North, Range 17 West, NMPM; and Sections 5 and 6, Township 49 North, Range 17 West, NMPM.

OWNERSHIP AND TITLE:

All claims held by the Chesapeake and Colorado Uranium Corporation are wholly owned, unpatented mining claims, located in conformance with Colorado Mining Law.

PRODUCTION - SURROUNDING PROPERTIES:

There are numerous good producing mines in the area surrounding the junction of Calamity Creek with Blue Creek. Climax Uranium Company has two mines, G #1 and G #2, on Outlaw Mesa, a short distance to the northeast, which are excellent producers. Both Climax Uranium Company and U. S. Vanadium Corporation have many small mines producing ore from northern Calamity Mesa. The Hunt Oil Company is in the process of developing moderately large ore reserves on their Black Streak property in the center portion of Section 31, Township 50 North, Range 17 West, which is quite close to the area on which application for assistance is being made.

PRODUCTION:

Past Production:

Approximately 5 tons of 0.16% ore has been shipped to the

Climax mill at Grand Junction, Colorado this year by the Corporation from the Stormy Treasure prospect.

Current Production:

At this date no ore is being mined from this immediate area.

FACILITIES:

(a) Transportation:

The nearest rail junction for supplies is Grand Junction, Colorado which lies 67 miles by road to the northwest of this area. The Chesapeake and Colorado Uranium Corporation maintains two supply vehicles which commute daily between Grand Junction and the Blue Creek Camp.

(b) Power:

There are no sources of commercial power in this area. All power is supplied by portable gasoline or diesel units.

(c) Water:

There is a shortage of water in the area in the summer months. Both Blue Creek and Calamity Creek which are quite close to the Calamity Creek Claim Block are flowing until late August. At that time, Calamity Creek usually ceases to flow and the water level in Blue Creek drops to a low level. The company has drilled a water well which produces 300 gallons per hour on its Blue Creek camp site.

(d) Housing:

There are adequate housing facilities in the Blue Creek camp for all employees. Shower facilities are available and a change-house will be built when mining operations commence. Bunk houses are prefabricated in Grand Junction and the mess hall and office are constructed of aluminum sheeting. In all, the camp is well situated and presents a well-kept appearance.

DEVELOPMENT:

At this time, the Calamity Creek Claim Block is totally undeveloped. A few random percussion holes were drilled previously but no useful geologic information is available from this drilling. The Stormy Treasure main adit penetrated only 26 feet with an 8 feet off-set before drifting ceased.

Areas surrounding the Calamity Creek Claim Block, however, are well developed. The G #1 mine, owned by Climax Uranium Company on Outlaw Mesa is well into its production stages with good ore reserves blocked out.

No portion of the areas claimed by Chesapeake and Colorado Uranium Corporation can be considered to be in the development stage. However, extensive exploration is underway in the Tepee Pole Group, the Dorothea's Baby Group, the FWD Group, and the Raven Group.

EQUIPMENT:

Exploration Equipment:

The company owns 2 Winter-Heiss core drills, one mounted on a D-6 Caterpillar and one mounted on an International truck;

a small Joy 12-B core-drill; a large 600 Gryaflow Ingersol-Rand wagon-drill and 4 small Gardner-Denver wagon drills. The company also owns all the accessory equipment needed to operate this drilling equipment. In addition the corporation has a contracted wagon-drill.

Mining Equipment:

The company owns 4 hammers and jacklegs of various makes and sizes and a 215 Gardner-Denver compressor with accessory equipment for underground mining.

General Equipment:

The corporation owns a new D-8 and a D-6 Caterpillar bulldozer, also complete shop facilities including welding equipment, etc. Items too numerous to mention, for the over-all exploration work under way in the area, are all owned by the corporation.

The total cost of equipment and accessorys owned is in excess of $175,000.00

GEOLOGY

Locally, and in a regional sense, the geology is complex. The Calamity Creek Claim Block is located in a region of sharp erosional features forming deep canyons with massive walls with prominent rims of sands and steep slopes of shales. Many of the flats are covered by heavy overburden and considerable timber and brush.

REGIONAL:

The claims held by the corporation in the Blue Creek area lie on the western edge of the northern end of the Uravan Mineral Belt.

This portion of the Colorado Plateau has been mined since the early 1900's for radium and vanadium and recently vanadium and uranium. Beginning in 1948, activity sharply increased and has been on the up-swing ever since. At this time the area is undergoing extensive prospecting by thousands of part-time prospectors and by numerous companies who are employing qualified personnel to actively guide exploration in the area.

Stratigraphy:

The sediments exposed in and around the Calamity Creek

Claim Block range in age from the Jurassic Entrada formation in the Blue Creek Canyon up through the Cretaceous Burro Canyon formation which caps most of the mesas surrounding the area. Erosion has exposed Wingate sandstone and Chinle shales lying upon the pre-Cambrian granites and gneisses of the Uncompahgre Uplift near its crest and northeast of the Calamity area. Massive exposures of Wingate, Kayenta and Navajo sands and shales underlie the massive Entrada marker horizon in the Dolores River Canyon. In the Blue Creek Canyon, there is 820 feet of vertical section exposed from the top of the Entrada formation to the base of the Burro Canyon formation which includes 100 feet of Summerville shales; 240 feet of Salt Wash sands and shales; and 380 feet of Brushy Basin shales.

Structure:

The Calamity Creek Claim Block lies on the western flank of a southeasterly plunging syncline with an axial trend of North 30° West which has been formed between the two positive areas of the La Sal mountains and the Uncompahgre Uplift. On the western flank the strike of the formations is almost north-south, varying somewhat along the flank, and dipping east 1° to 5°. The axial trend of the syncline cuts through Sections 13, 12, and of Township 49 North, Range 18 West, NMPM, and Sections 3, 34, 27 of Township 50 North, Range 18 West, NMPM. A portion of

the property held on the Calamity Creek Claim Block lies on the east flank of the syncline. On the northeast flank of the syncline southwesterly dips increase toward the Uncompahgre Uplift up to approximately 15° in Section 22, Township 50 North, Range 17 West, NMPM. There is very little evident faulting visible in the regional area. The large fault to the northeast has a northwest-southeast strike. In the opinion of the writer, structure in the area was formed during and after the Laramide Revolution and will be considered Tertiary in age.

Erosion has sharply dissected the entire area into numerous dry washes, sharp V-shaped valleys with little flood plain and numerous sharp ridges or flat benches capped by rims of the Jurassic Morrison Salt Wash formation. The flat-topped mesas isolated by erosional features are generally capped by Cretaceous Burro Canyon sands.

LOCAL:

Sixty-five percent of the Calamity Creek Claim Block lies on the west flank of the southeasterly plunging syncline. The easterly dips are gentle (1° - 4°) and the strike of the formation is approximately north-south except where the claim block covers the nose of the syncline. There the strike swings through east-west to southeast.

Stratigraphy and Lithology:

Stratigraphic sections exposed in Blue Creek Canyon on the south side of the Claim Block and in Calamity Creek Canyon on the east side of the Claim Block range in age from the Jurassic Entrada to the Cretaceous Burro Canyon formations. The most prominent formation visible in the area is in outcrops of the lenzing sands of the Jurassic Morrison Salt Wash formation which is the ore-bearing horizon in this area. Lying between the Jurassic Morrison Salt Wash and the top of the Jurassic Entrada is approximately 100 feet of Jurassic Summerville shale. Overlying the Jurassic Morrison Salt Wash are 300 feet of altered green shales with massive green conglomerate member, and thin sands of the Jurassic Morrison Brushy Basin member. The Cretaceous Burro Canyon formation overlies the Jurassic Brushy Basin and caps Calamity Mesa in this area.

Generally speaking, there are four prominent rims of Morrison Salt Wash continuously visible in the canyons and valleys of the area. However, in the channels, the lenzing sands may produce as many as 9 prominent "rims". The third rim up from the base of the formation is a thick massive sandstone, well mineralized with small radiometric anomalies along the outcrop and is locally the major producing ore horizon. The first rim up in the formation also shows mineralization. Channels in these two horizons are believed by the writer to be the prime exploration targets in this area.

All of the sandstone rims of the Morrison Salt Wash are well cross-bedded, medium grained sandstones, with sub-angular to round sand grains containing much interstitial clay and variable amounts of carbonaceous material. Alteration from percolating ground waters is apparent. In the channels, alteration of the intervening shales under and over the sands and the interstitial shales or clays in the sands, is pronounced. Also, in the channels an increase in amount of carbon present and an increase in uraniferous mineralization is apparent and is closely associated with the alteration of the shales and clays. The degrees of silicification and the amount of contained calcite is variable. In mineralized outcrops, the percentage of contained calcite varies up to 14% and 15%, whereas, in non-mineralized outcrops it may be as low as 1%.

Structure:

The megascopic joints visible in the area occur in well defined systems. The first set of joints trend or strike South 80° West dipping 80° north. A later set of joints superimposed on and off-setting the first set, strike South 20° East and dip 85° - 90° to the west. The writer did not observe faulting in this area although slump areas along the rims can be expected to exist under the overburden cover. The major features of the syncline are not visible except in Blue Creek Canyon where they can

be measured along the Entrada-Summerville contact for some distance. The cross-bedded nature of the Continental Morrison deposits precludes the determination of accurate strikes and dips in that formation.

Trends:

Whenever possible, channels have been correlated across erosional features in Calamity Creek Canyon and Blue Creek Canyon. Detailed mapping between the Dorothea's Baby Claim Group and the FWB Group in Blue Creek Canyon revealed an apparent trend of South 80° West for the major channel exposed in that area. Correlation of general geologic sections run in the Calamity Creek Claim Block area yield an apparent channel trend of South 65° to 75° West. The channel being drilled in the Black Streak property owned by the Hunt Oil Company to the northeast of Chesapeake and Colorado Uranium Corporation's property has a well defined trend of South 70° West.

The writer believes that insufficient work has been done to accurately establish the trends of channelization in this area but he believes that trends of channelization will not vary beyond South 50° West to South 80° West.

ORE OCCURRENCE:

Minable uraniferous mineralization in this area is probably confined to the channels of porous and permeable cross-bedded sands of the Jurassic Morrison Salt Wash formation. The ore-body now being drilled-out in the

Black Streak property is contained in a channel in the third rim of the Morrison formation and the trend of mineralization is approximately the same as the trend of channelization. The ore contained in channels is closely associated with very abundant dark brown limonite, dark red hematite, very abundant carbon, and with intense alteration of the interstitial shales and clays. The thickness of the ore varies from 6" to as much as 6 feet. There is little warping or folding of the ore horizon in the areas examined by the writer.

ASSAY DATA:

The writer cut a channel sample from a pillar in the Old Black Streak incline on the 12th of July, 1955. The results of this assay are tabulated below. The writer believes that the results of this assay will be representative of the mineralization to be found in the third rim in this major channel which he believes extends from the Black Streak property through the southern portion of the Calamity Creek Claim Block.

The trends of channelization apparently conform closely to an apparent trend of mineralization of South 65° West established on topographic maps from prospects and mines shown on the Calamity tops in the Blue Creek Camp area.

Results of Assay

Sample #8270 - Black Streak Incline (2 ft. face)

0.88% V_2O_3

4.17 V_2O_5

0.66 $CaCO_3$

ORE RESERVES:

No ore reserves are developed to date in the Calamity Creek Claim Block.

EXPLORATION POSSIBILITIES:

The claims lie in a very favorable area and are surrounded by producing mines. The area has all of the favorable guides-to-mineralization which have been developed in this portion of the Plateau. It also contains numerous small outcrops of mineralization or radiometric anomalies located on the ground and by aerial methods. In the Calamity Creek Calim Block area, 80% of the block overlies a full Morrison section containing the first and third rims generally considered to be the best producing horizons. In the Calamity Creek Claim Block area the drilling will not exceed 350 feet in the southern and eastern portion. The western and the northern portion of the Block area to the Cretaceous capping rim will require 600 feet of drilling in the deeper holes. Numerous rims are visible and detailed surface geologic mapping of the exposed portions of the rims will contribute much valuable information to be correlated with the drilling of the unexposed portions. The writer has laid out an exploration drilling program in three basic stages:

Stage 1:

The channel believed to exist in this Calamity Creek Claim Block area will be drilled on 250 feet centers with a staggered pattern of holes where topography permits.

Stage 2:

The deeper portions of the area and that portion not including the supposed locations of the channel will be drilled on 500 foot centers with a staggered pattern of holes.

Stage 3:

Individual radiometric anomalies will be contoured by ground radiometric methods and the centers of the highs of the radiometric iso-rad contours will be drilled.

Once the initial stages of drilling have been completed the mineralized or "ore-holes" will be off-set on 100 foot centers in four directions. All sandstone rims and intervening shales of the Morrison Salt Wash member will be cored in:

(a) All holes in the apparent channel and on its fringe.

(b) Every other hole in the 500 foot grid.

The holes not cored in the 500 feet grid will be plugged to the Summerville shale contact. All holes in the first and second stages of drilling will bottom in the Jurassic Summerville shale. The holes drilled in the anomalous highs will bottom 10 feet below the sandstone rim containing the anomaly. In the secondary stages of off-set drilling, only the ore-horizons will be cored and the holes will bottom 15 feet below the mineralized zone.

The proposed location of the drill holes of the initial three stages of drilling have been plotted on Plate 2 of the accompanying maps. The expected total depth of hole (TD), the distances to be cored (C), and the distances to be drilled by plugging (rock-bit methods (P), have been tabulated below.

The writer estimates that 10% of the holes drilled will be mineralized. On that basis and using 4 - 100 feet off-sets per hole, an additional 24,000 feet of drilling should be added to the total footage. The off-set footage is calculated using an average of 300 feet per hole.

The following figures are tabulated totals:

Number of holes to be drilled - - - - - - - - - - - 221

Plug footage - - - - - - - - - - - - - - - - - - - 46,210

Cored footage - - - - - - - - - - - - - - - - - - 46,045

Total drilled footage - - - - - - - - - - - - - - 92,255

Percentage of core - - - - - - - - - - - - - - - 49.91

Number	Plug (P)	Core (C)	Total Depth (TD)
1	0	180	180
2	0	200	200
3	0	330	330
4	20	330	350
5	40	330	370
6	50	330	380
7	470	0	470
8	180	360	540
9	550	0	550
10	250	360	610

Number	Plug (P)	Core (C)	Total Depth (TD)
11	620	0	620
12	320	340	660
13	650	0	650
14	200	340	540
15	520	0	520
16	190	330	520
17	490	0	490
18	150	320	470
19	570	0	570
20	350	320	670
21	640	0	640
22	330	320	650
23	600	0	600
24	180	320	500
25	180	230	460
27	480	0	480
28	140	330	470
29	520	0	520
30	250	350	600
31	600	0	600
32	250	350	600
33	550	0	550
34	160	340	500
35	470	0	470
36	80	330	410

Number	Plug (P)	Core (C)	Total Depth (TD)
37	60	330	390
38	50	330	380
39	30	330	360
40	0	380	380
41	0	200	200
42	110	0	110
43	0	290	290
44	0	320	320
45	20	330	350
46	50	330	380
47	50	330	380
48	420	0	420
49	110	330	440
50	440	0	440
51	170	330	500
52	510	0	510
53	190	340	530
54	520	0	520
55	100	340	440
56	430	0	430
57	90	330	420
58	370	0	370
59	60	320	380
60	520	0	520
61	240	310	550
62	540	0	540

Number	Plug (P)	Core (C)	Total Depth (TD)
63	230	310	540
64	450	0	450
65	125	310	435
66	485	0	485
67	85	310	395
68	390	0	390
69	80	320	400
70	410	0	410
71	90	340	430
72	460	0	460
73	150	340	490
74	500	0	500
75	160	330	490
76	460	0	460
77	100	330	430
78	420	0	420
79	70	330	400
80	40	330	370
81	40	330	370
82	0	330	330
83	170	0	170
84	0	90	90
85	0	310	310
86	0	310	310
87	0	330	330

Number	Plug (P)	Core (C)	Total Depth (TD)
88	0	330	330
89	20	330	330
90	30	320	350
91	410	0	410
92	90	330	420
93	430	0	430
94	110	340	450
95	430	0	430
96	80	340	420
97	400	0	400
98	0	340	340
99	340	0	340
100	0	340	340
101	350	0	350
102	100	320	420
103	370	0	370
104	90	310	400
105	400	0	400
106	0	300	300
107	310	0	310
108	0	310	310
109	320	0	320
110	0	320	320
111	330	0	330
112	0	320	320

Number	Plug (P)	Core (C)	Total Depth (TD)
113	340	0	340
114	30	340	370
115	420	0	420
116	110	340	450
117	420	0	470
118	110	330	440
119	430	0	430
120	100	330	430
121	80	330	410
122	60	330	390
123	50	330	380
124	40	330	370
125	360	0	360
126	0	310	310
127	220	0	220
128	0	300	300
129	420	0	420
130	100	330	430
131	60	330	390
132	40	330	370
133	50	330	380
134	40	330	370
135	390	0	390
136	80	330	410

Number	Plug (P)	Core (C)	Total Depth (TD)
137	390	0	390
138	0	250	210
139	220	0	220
140	0	250	250
141	220	0	220
142	0	220	220
143	200	0	200
144	0	200	200
145	290	0	290
146	50	310	360
147	220	0	220
148	0	130	130
151	120	0	120
152	0	90	90
154	0	80	80
155	60	0	60
156	0	80	80
157	90	0	90
158	0	100	100
159	300	0	300
160	0	320	320
161	370	0	370
162	30	330	360
163	30	330	360

Number	Plug (P)	Core (C)	Total Depth (TD)
164	20	330	350
165	0	330	330
166	20	330	350
167	360	0	360
168	30	330	360
169	230	0	230
170	0	180	180
171	210	0	210
172	20	330	350
173	180	0	180
174	0	120	120
175	0	140	140
176	0	240	240
177	0	330	330
178	340	0	340
179	0	230	230
180	80	0	80
181	0	80	80
182	60	0	60
185	0	70	70
186	0	70	70
187	180	0	180
188	0	220	220
189	70	0	70

Number	Plug (P)	Core (C)	Total Depth (TD)
190	0	70	70
191	0	70	70
Total	34,185	33,100	67,285

Holes in Radiometric Anomalies

Number	Plug (P)	Core (C)	Total Depth (TD)	Rim Position
149	0	70	70	3rd Rim
150	0	60	60	1st Rim
152	0	60	60	3rd Rim
153	0	70	70	3rd Rim
154	0	100	100	1st Rim
192	0	100	100	3rd Rim
193	0	110	110	1st Rim
194	0	110	110	1st Rim
195	0	120	120	4th Rim
196	0	70	70	3rd Rim
197	0	100	100	3rd Rim
Total	0	970	970	
TOTAL	34,185	34,070	68,255	

Off-set Drilling

	12,025	11,975	24,000

TOTAL DRILLING FOOTAGE

221	46,210	46,045	92,255

Percentage of Core - 49.91

CONCLUSIONS

The writer is impressed by the apparent potential of this well located area. The area is surrounded by producing properties and the possibility of finding a large uraniferous ore deposit in this large unit block of ground is quite high and merits thorough exploration. It contains all of the numerous guides-to-mineralization, generally considered to be favorable on the Plateau. It contains what may well be a very large paleo-channel existing through much of Morrison time with numerous dendritic feeder channels, all of which may contain uraniferous ore-bodies. In the writer's opinion, it would be difficult to find a more promising area for extensive exploration than this block of ground.

RECOMMENDATIONS

The writer makes the following recommendations:

1. Application for aid to Defense Minerals Exploration Administration be made promptly. Before the contract is approved, it will be late fall and continuation of the program from that time on will be interrupted by seasonal climatic changes in the winter months.

2. Provisions should be made in the application for continuation of the contract into the spring months since the drilling will not be completed by 1 December 1955.

3. Detailed surface geologic mapping should be continued on this property.

4. Application should be made for assistance in the surface phase of the exploration also.

5. Drilling should continue behind the Starry Treasure adit. The information obtained from this drilling will be quite useful for future deeper exploration on portions of the Calamity Creek Claim Block.

6. Ground radiometric work should continue uninterruptedly on the many airborne anomalies located in the claim block. It will be necessary to contour these anomalies before drilling the radiometric highs.

7. Other exploration and additional road building, etc. should cease in this area until the application for aid is approved or disapproved because the cost of such exploration prior to approval of the application may not be included in the exploration contract.

8. If the request for aid is denied, wide-center deep drilling should commence by 1 March 1956 on the apparent trend of shearmelization in the Virginia W. group on the pattern laid out in the application for aid noted on Plate 2 of the accompanying maps. The corporation should continue this recommended exploration within a reasonable limit of its financial ability.

9. Underground work should not commence until sufficient ore has been blocked out to warrant the cost of the development work.

I L L U S T R A T I O N S

Plate A

Calamity Mesa Quadrangle, Mesa County, Colorado
Scale 1:24000
1950

Showing Calamity Creek Claim Block location and apparent channelization in Jurassic Morrison Salt Wash.

Plate B

Geologic Map of the Gateway Area
Mesa County, Colorado and the adjoining part of Grand County, Utah showing Calamity Creek Claim Block location.

Plate C

General Geologic Cross Section,
Calamity Creek Claim Block, Mesa County, Colorado

Plate 1

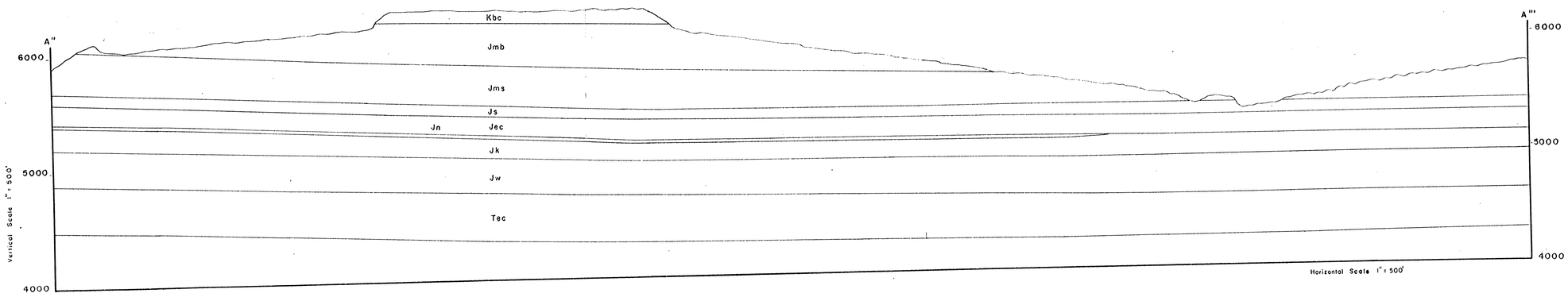
Calamity Creek Claim Block base map.
Scale - 1 inch = 500 feet

Plate 2

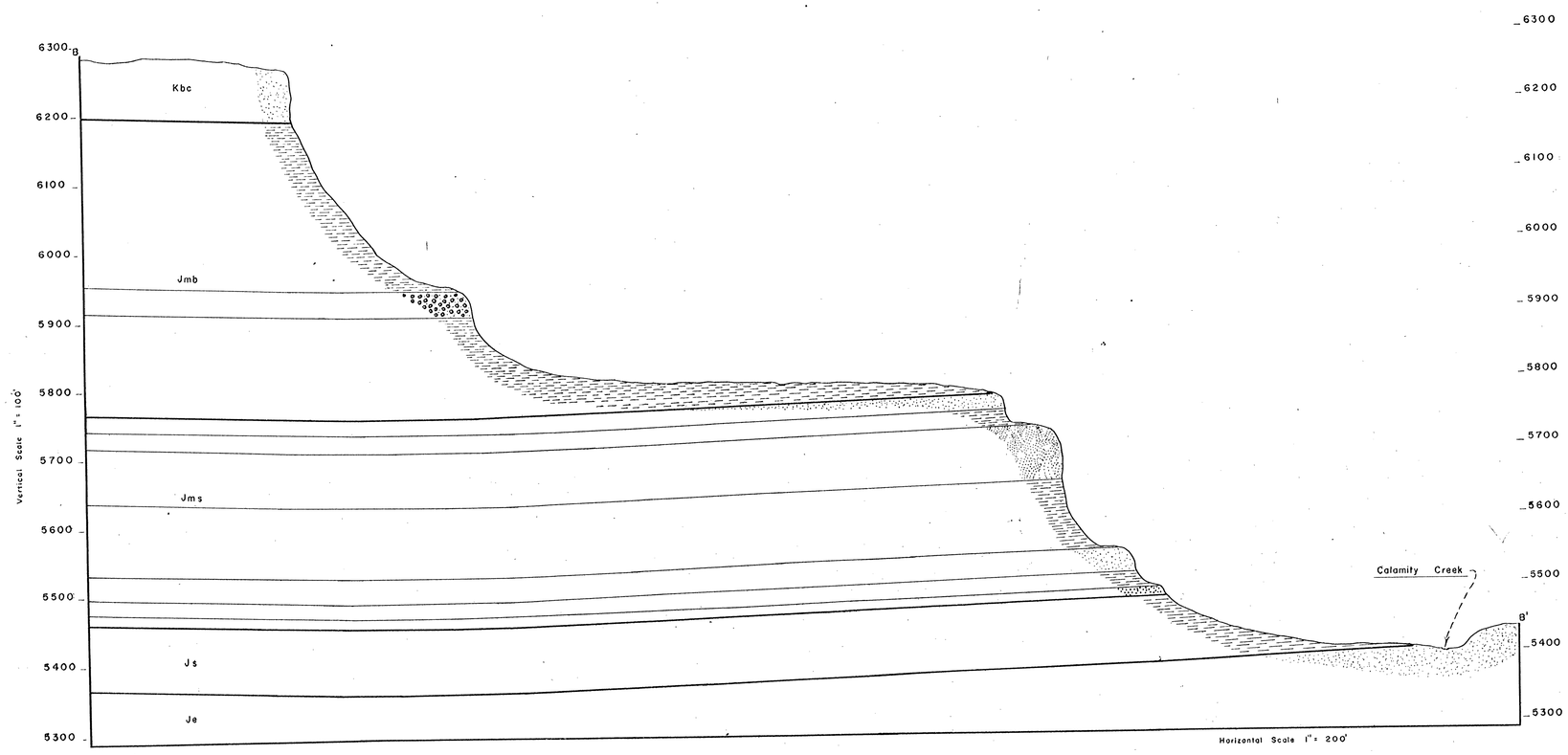
Geologic Overlay of the Calamity Creek Claim Block.

Plate 3

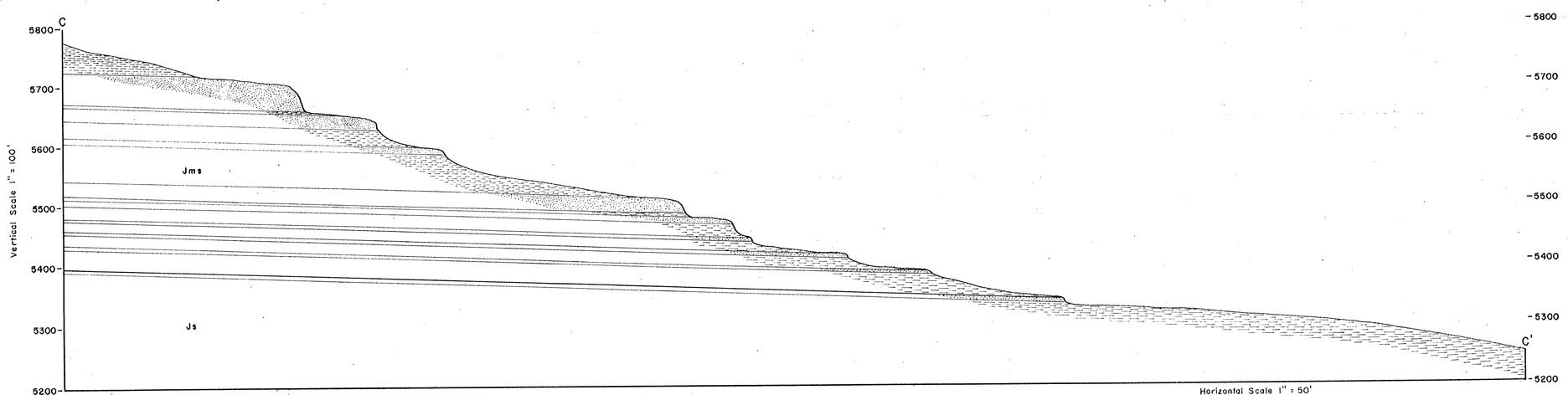
Overlay showing proposed drill sites in the Calamity Creek Claim Block.



Section taken from Geologic map of Calamity Mesa Quadrangle, Colorado
by Fred W. Cater Jr. 1955



QUEEN BEE CROSS SECTION



STORMY TREASURE CROSS SECTION

Note:
Vertical scales indicate elevation in feet above mean sea level.

L E G E N D

Shale. *Pebble Conglomerate* *Sandstone* *Cross-bedded Sandstone*

Drafting by
Technical Services Inc.
JULY, 1955

CHESAPEAKE AND COLORADO URANIUM CORPORATION
909 - 16th Street, N. W.; Washington 6, D. C.

GENERAL GEOLOGIC CROSS SECTIONS

CALAMITY CREEK CLAIM BLOCK

MESA COUNTY, COLORADO

PLATE C

CHESAPEAKE AND COLORADO URANIUM CORPORATION
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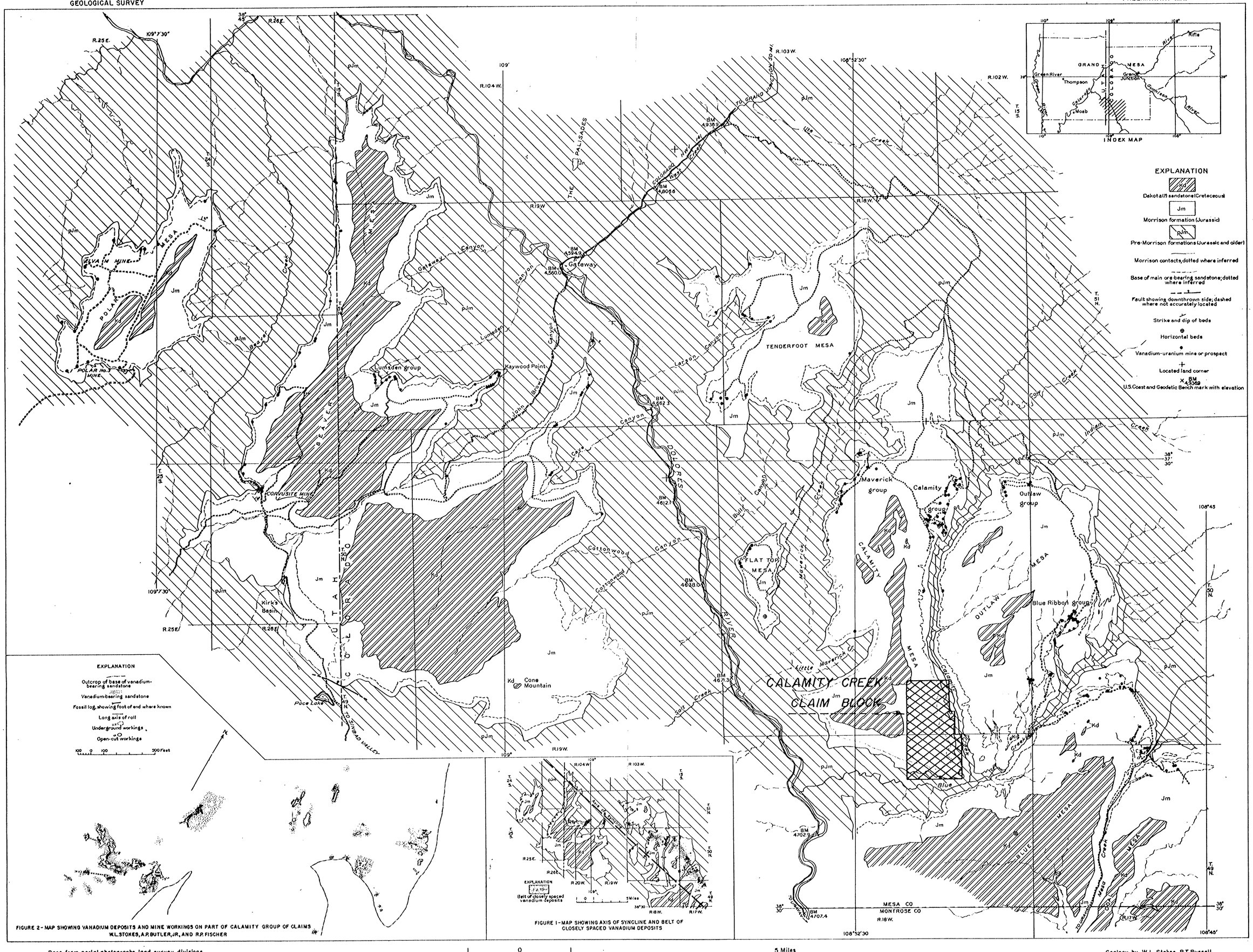
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STRATEGIC MINERALS INVESTIGATIONS
PRELIMINARY MAP



Base from aerial photographs, land survey divisions from General Land Office plats adjusted to observed land corners as plotted on photographic base.

Geology by W. L. Stokes, R.T. Russell, R.P. Fischer, and A.P. Butler, Jr.
1945

GEOLOGIC MAP OF THE GATEWAY AREA, MESA COUNTY, COLORADO, AND THE ADJOINING PART OF GRAND COUNTY, UTAH

CHESAPEAKE AND COLORADO URANIUM CORPORATION
909 - 16th Street, N. W.; Washington 6, D. C.

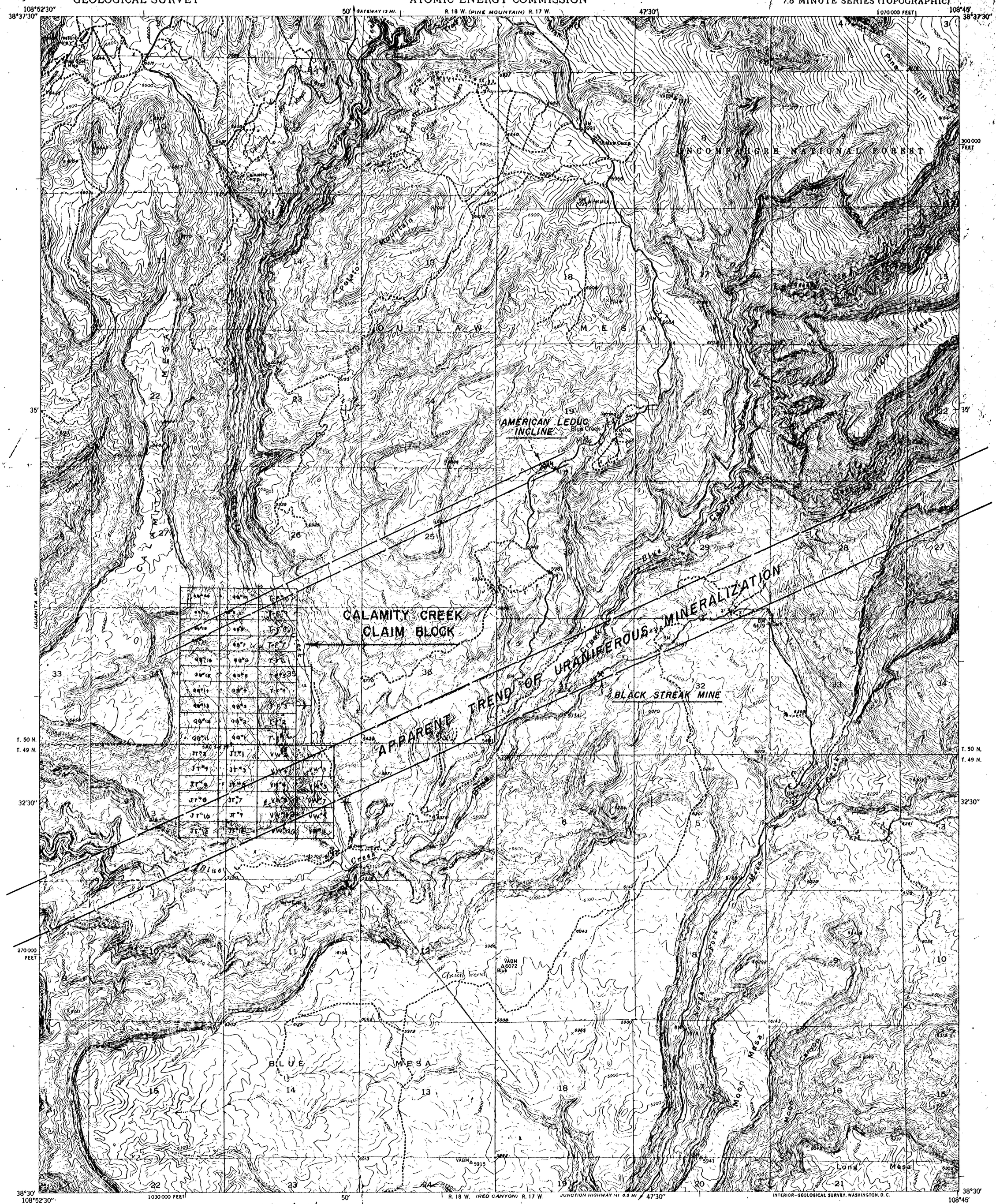
PLATE B

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
ATOMIC ENERGY COMMISSION

CHESAPEAKE AND COLORADO URANIUM CORPORATION
909 - 16th Street, N. W.; Washington 6, D. C.

CALAMITY MESA QUADRANGLE
COLORADO-MESA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods, and by plane-table surveys
Aerial photographs taken September 1947. Field check 1949

Polyconic projection. 1927 North American datum
10,000-foot grid based on Colorado coordinate system, central zone

Dashed land lines indicate approximate location
Land lines unsurveyed in part of T. 49 N.-R. 18 W. and T. 50 N.-R. 18 W.

Unchecked elevations are shown in brown

Airborne Anomaly

15°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1949

SCALE 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

PLATE A

CHESAPEAKE AND COLORADO URANIUM CORPORATION
909 - 16th Street, N. W.; Washington 6, D. C.

ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS		DRY WEATHER ROADS
Heavy-duty	4 LANE 18 LANE	Improved dirt
Medium-duty	4 LANE 18 LANE	Unimproved dirt

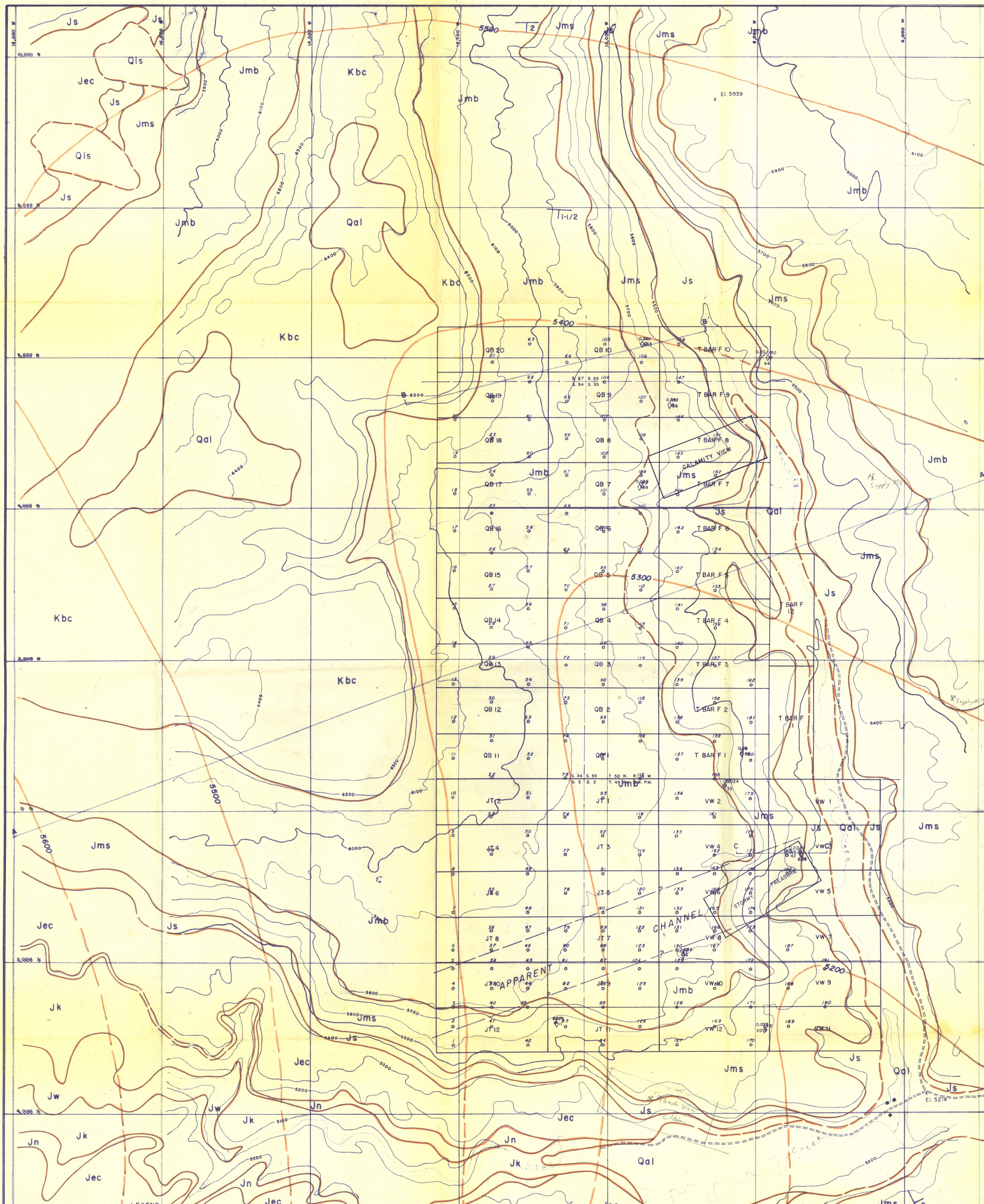
Loose-surface, graded, or narrow hard-surface

U. S. Route State Route

CALAMITY MESA, COLO.
N3830—W10845/7.5

EDITION OF 1950

NIELSEN BLUE PRINT CO., INC.
108 North 3rd St. Phone 2124
Grand Junction, Colorado



LEGEND

- Claim lines
- Grid lines
- ⊕ Discovery cuts
- 0.019 ◊ Airborne anomaly and intensity
- Mines
- Tunnels
- ==== Roads
- Camp — Camp
- Kbc, Jbb, Jmsw, etc. — Geologic symbols
- Drill holes
  - Mineralized
  - Ore hole
  - Blank hole

Note: GEOLOGY TAKEN FROM PRELIMINARY GEOLOGIC MAP OF CALAMITY MESA, COLORADO.

NOTE

Coordinate point O North, O West is located at the South West Corner of Section 31, T. 50 N. R. 17 W., N.M. P.M.

CHESAPEAKE AND COLORADO URANIUM CORPORATION

QUEEN BEE GROUP, T BAR F GROUP
JAMIE T. GROUP, VIRGINIA W. GROUP
MESA COUNTY, COLORADO

SURVEYING AND DRAFTING by TECHNICAL SERVICES, INC.

JULY, 1955

OVERLAY OF PROPOSED DRILL SITES

TD-P = Core Thickness

200 0 200 400 600 800 1000
SCALE 1" = 500'

CONTOUR INTERVAL 100 FT.

Note: Contours taken from U.S.G.S. Quadrangle of Calamity Mesa, Scale 1:24,000.

N.

PLATE 3
PLATE 2
PLATE 1