MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

JUN 29 1955

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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. 3887
Metal or Mineral Uranium
Date Received 7-5-55
Estimated Cost $281,820
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: Treasury Vault Uranium Corporation, 505 Colorado Building, 1615 California Street, Denver 2, Colorado

(*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. Incorporated in Colorado, July 29, 1954.

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners. Not applicable

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 See attached note and exhibits

(*b*) State any mine name by which the property is known. Champaign Mine and Coney Mine.

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise See attached note and exhibits for sub-Item 3(a)

(*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. See attached note and exhibits for sub-Item 3(a).

(*e*) If you own the land, describe any liens or encumbrances on it No encumbrances on land owned by applicant.

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See attached note and exhibits for sub-Item 3(a).

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. See attached note for Item 4.

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

(*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. See attached note for Item 4 sub-Item (c) and engineers' reports.

(*d*) State the facts with respect to the accessibility of the project, access roads, distances to shipping, supply and residence points. See attached note for Item 4 sub-Item (d).

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

See attached note for Item 4 sub-Item (e).

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. See attached note Item 5 sub-Item (b) and maps.

(*c*) The work will start within ..... days and be completed within ..... months from the date of an exploration project contract. See attached note Item 5 sub-Item (c).

(*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. See attached note Item 5(d).

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.).

(*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. See attached note Item 6 ~~(b)~~.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See attached note Item 6.

(*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. See attached note Item 6.

(*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. None

(*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. None.

(*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. See attached note Item 6.

(*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. See attached note Item 6.

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 [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper. See attached note Item 7.

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 June 24, 1955

Treasury Vault Uranium Corporation
(Applicant)

By Ben Lowright Jr.

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Application of

TREASURY VAULT URANIUM CORPORATION

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Sub-Item 3 (a)(c)(f) Applicant's Property Rights in Land to be Explored

PATENTED PROPERTY

Claim	Survey No.	Location	How Controlled
Champaign	646	Sec. 1, T. 9 S., R. 79 W. Sec. 6, T. 9 S., R. 78 W. Sec. 31, T. 8 S., R. 78 W. Sec. 36, T. 8 S., R. 79 W.	Record Ownership in Entirety
Fanny	4490	do	do
Edna	3926	Sec. 1, T. 9 S., R. 79 W. Sec. 6, T. 9 S., R. 78 W.	do
Sunny South	2606	do	do
Little Newton	19926	Sec. 1, T. 9 S., R. 79 W.	do
Redman	5828	do	do
Coney	3371	Sec. 36, T. 8 S., R. 79 W.	do
Imperial Placer	1641	Sec. 1, T. 9 S., R. 79 W. Sec. 6, T. 9 S., R. 78 W.	do
June	6534	Sec. 31, T. 8 S., R. 78 W. Sec. 36, T. 8 S., R. 79 W.	do
Clipper	17024	Sec. 31, T. 8 S., R. 78 W. Sec. 6, T. 9 S., R. 78 W. Sec. 1, T. 9 S., R. 79 W.	do
Clipper No. 2	17514	Sec. 1 ,T. 9 S., R. 79 W.	do
Wealth	17935	Sec. 31, T. 8 S., R. 78 W. Sec. 6, T. 9 S., R. 78 W.	do
Prince Oscar	17935	do	do
Vulcan	17935	Sec. 31, T. 8 S., R. 78 W.	do
Eclipse	175	do Sec. 36, T. 8 S., R. 79 W. Sec. 1, T. 9 S., R. 79 W.	1/4 owned; 3/4 held by lease & option
Lone Star	2774	Sec. 36, T. 8 S., R. 79 W. Sec. 1, T. 9 S., R. 79 W.	do
Keystone	272	Sec. 36, R. 8 S., R. 79 W. Sec. 1, T. 9 S., R. 79 W.	2/3 held by lease & option
S. M.	4022	do	Record Ownership in entirety
Cliff	3817	do	
Triangle	3818	do	do
Comstock No. 1	17471	do	do
Comstock No. 2	17471	do	do
Jacob's Wonder	1394	Sec. 31, T. 8 S., R. 78 W.	do
Wonderful	1395	do Sec. 6, T. 9 S., R. 78 W.	do
Three Brothers	2102A	do	do
" " Millsite	2102B	do	do
St. Louis	5091	Sec. 31, T. 8 S., R. 78 W.	do
Brighton	2226	do	do

West 1/2, Sec. 36, T. 8 S., R. 79 W. (State School Land) 20 yr. lease

Note: Applicant has no lease or option on 1/3 of the Keystone Claim, Survey #272, described above, but is now negotiating for lease and option on this interest.

UNPATENTED PROPERTY

Claim	Recording Book	Recording Page
Moinie	39	186
Jamie	39	185
Boynton	39	136
Lewie	39	187
Manson	39	166
Diorite	39	131
Jackie	39	134
Treasury Vault	43	373
Treasury Vault No. 1	43	373
Treasury Vault No. 4	43	341
Treasury Vault No. 5	43	342
Treasury Vault No. 6	43	343
Treasury Vault No. 7	43	344
Treasury Vault No. 8	43	475
Treasury Vault No. 9	43	476
Treasury Vault No. 10	43	477
Treasury Vault No. 11	43	478
Treasury Vault No. 12	43	479
Treasury Vault No. 13	43	480
Treasury Vault No. 14	43	481
Treasury Vault No. 15	43	482
Treasury Vault No. 16	43	483
Treasury Vault No. 17	43	484
Treasury Vault No. 18	43	486
Treasury Vault No. 19	43	487
Treasury Vault No. 20	43	488
Hale No. 1	43	337
Hale No. 2	43	338
Hale No. 3	43	339
Palmyra	38	152
General Canby	34	346
Bellefontaine	38	400
Tunnel	37	553
Frances	43	473
Dorothy	43	472
David	43	471
Virginia	43	474
Wallace	43	485
Dickey	39	132
Odell	39	135
Steele No. 1	43	491
Steele No. 2	43	492
Steele No. 3	43	493
Imperial No. 5	42	665
Sherwood No. 1	43	217
Sherwood No. 2	43	218
Sherwood No. 3	43	219
Loveland No. 1	43	489
Loveland No. 2	43	490
Wanda Rose	42	660
Reserve Placer	38	24
Wonder Home Placer	37	574

Note: Applicant is record owner in entirety of all unpatented property listed on this page.

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DEFENSE MINERALS EXPLORATION ADMINISTRATION

Application of

Treasury Vault Uranium Corporation

Item 1-C -- Officers.

President - Benjamin Lee Wright, Jr., 1672 South Elizabeth Street, Denver, Colorado; attorney at law.

Vice President - Robert Ray Bale, Fairplay, Colorado; automobile dealer.

Vice President - Leroy Allison West, 3546 Eudora Street, Denver, Colorado; Regional Farm Placement Representative of Regional Office, U. S. Government Bureau of Employment Security.

Secretary-Treasurer - David James McKee, 2984 Birch Street, Denver, Colorado; attorney at law.

Directors.

Benjamin Lee Wright, Jr., Robert Ray Bale, and Leroy Allison West, are also directors. Additional directors are:

Delbert LeRoy Peterson, 1428 East Evans Avenue, Denver, Colorado; a Supervisor for Gates Rubber Company.

Cora Delcena Young, 402 Franklin Street, Denver, Colorado; housewife.

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APPLICATION OF TREASURY VAULT URANIUM CORPORATION

ITEM 5 - Current Work at Applicant's Expense (Not Included in Project)

As stated in Item 4, Sub-Item (a), applicant, in the fall of 1954, started to carry out a preliminary portion of its plans, with its own funds, by reconditioning and equipping with air-powered drills the Champaign No. 4 Tunnel, and providing for housing of men and machinery at the portal of that adit.

This operation was suspended December 15, 1954, when the road was snowed in, and was resumed April 1, 1955, after the purchase of a weasel, to permit transportation over snow. As stated in Item 4, Sub-Item (b), No. 4 Tunnel is now being advanced as a 5' x 7' heading on one of the fractures of the Fanny system, parallel to and southeast of "main" Fanny vein. As of this date, the adit has been continued for 120' in vein material from which samples have been taken which run from .04 to .11% U_3O_8; and recently a sulphide streak of undetermined width and mineral content, resembling the high-grade gold-silver ore heretofore produced in Champaign, has been encountered in the bottom of the drift. See map of Champaign workings, submitted as exhibit with Item 4, Sub-Item (c).

Applicant recently purchased a machine drill adapted to "long steel" drilling, and intends to "fan out" a series of exploratory "long holes" as the heading is advanced. A few "long holes" have already been drilled on either side of the vein now being followed. The cuttings from these holes have shown no high uranium mineralization.

Since April 1, applicant has expended about $10,500.00 of its funds in the above installations and exploration work. The adit advance is contracted and costs applicant about $22.00 per foot. "Long hole" drilling will cost around $1.25 per foot.

Referring to said Champaign Mine workings map, applicant, with its own funds, independent of this application, intends to continue advance of No. 4 Tunnel about 285' to cut Roberts vein, concurrently drilling approximately 470 feet of "long holes."

Sub-Item (b)- The Proposed Work Under this Application

Although so far no uranium ore occurrences of commercial grade or size have been encountered either underground or on the surface of applicant's holdings, applicant believes, based on uranium mineralization recently encountered in No. 4 Tunnel advance and on the engineering opinions and anomaly maps of Lundberg, Wilfley, and Freeman, that the intense volume of radon gas encountered in the Champaign tunnels and the radioactivity observed on the surface and from the air by some of these engineers, has its source in several uranium deposits, some in the immediate vicinity of the Champaign workings and to the southeast thereof, and in others on both slopes of Treasury Vault Ridge. In other words, applicant believes its holdings may contain a potential new uranium field, rather than a single deposit, or one immense deposit at depth.

Applicant's objective, in this exploration project, is to explore its holdings by core drilling both from the surface and from underground, as well as by "long steel" drilling from present underground workings and extensions thereof; and, by advance of one of these workings, the Champaign No. 4 Tunnel, to cut the cross veins showing radioactivity

in the upper or No. 3 Tunnel, as well as to drift and cross-cut from No. 4 Tunnel to explore Anomalies A and A' of the Lundberg ground survey. See Item 4, Sub-Item (c) (Map 22-377-1).

It will be advisable first to have additional geophysical surveys on the surface made by Lundberg Explorations, Ltd., or by some similar organization, in order to lay out additional grid mapping before a full surface core drilling program can be evolved on the remainder of the anomalies shown by the Lundberg airborne survey. It will also be necessary further to blow out radon gas from the two Champaign tunnels and to obtain the information resulting from more effective Geiger readings at the vein crossings and from long steel drilling before a program of underground core drilling can be laid out. For these reasons it is impossible now to estimate intelligently the total number of core drill holes which may be required or the angle and depth of these holes and the total core drilling footage required. However, some surface drilling in Anomalies A, A', and D (Map 22-377-1) could be commenced sooner. Therefore, at this time it is possible only to set up the project in stages and to use round figures in the estimates.

Applicant has been advised that, prior to laying out a surface core drilling program, it should employ competent engineers to make a detailed surface examination of the area included in Lundberg's principal airborne anomaly in order to attempt to determine possible connection between the noted radioactivity and the numerous porphyry dikes, faults, and veins which traverse Treasury Vault Ridge in several directions. Assays and analyses are, of course necessary on sampling by the engineers engaged in this work.

Applicant believes that important information might be obtained by reopening several short adits driven in earlier days in the anomaly area, particularly on Treasury Vault Ridge. As most of these workings are in the perma-frost zone, reopening would consist mainly of ice removal.

Applicant believes that the project should be carried out in the following order:

1. Examination by engineers, as described hereinabove in the fourth paragraph under Sub-Item (b), of the surface of approximately 240 acres contained in the "core," or area of highest radioactivity of Lundberg's principal anomaly resulting from his airborne survey. See Item 4, Sub-Item (c) (Map 22-372-1).

2. To employ Lundberg Explorations, Ltd., or some similar organization, to make a ground survey in order to lay out grid map for core drilling of the said 240-acre area. If this ground survey shows anomalies comparable to those of Lundberg's 1954 ground survey, it would be advisable, later, to continue the ground survey over the area covered by the remainder of the principal anomaly shown on the airborne survey map, representing an additional area of about 600 acres.

3. The last half mile of the road to the Champaign should be reconstructed to permit year-around transportation, and rehabilitation work should be done on the long-disused road which gives access to the terrace above the Champaign cliffs, and on the several old wagon roads branching off therefrom, which in turn give access to the foot of Treasury Vault Ridge, all of which have to be used in transportation of core drilling equipment, etc.

4. Reopening old mine workings as mentioned above.

5. Core drilling from surface on locations, which now, or which may hereafter, appear to be favorable as a result of the engineers' surface examination and the proposed Lundberg ground survey. Since surface operations are limited to summer and fall months, it seems advisable to commence this drilling as soon as it is practicable. As each hole is put down, the information so obtained would to a large extent determine the position, angle, and depth of future holes. Before the first "pilot" hole is put down on Anomalies A, A', or D, a geologist should determine as well as possible the dips and strikes of fissures and fractures in these anomalies, pending actual determination through the core drilling.

6. Following blowing out of radon gas from Champaign mine workings and the long steel drilling program now in process, to lay out, with advice of competent engineers and, if possible, by consultation with engineers of Defense Minerals Exploration Administration, Atomic Energy Commission, and United States Geological Survey, a program of core drilling from Champaign workings. Applicant considers it advisable to contract all core drilling.

7. If favorable results are obtained from applicant's current long hole drilling program, the project should include 300 feet of drifting or cross cutting from Champaign No. 4 Tunnel into Anomaly G (Map 22-377-1) so that core drilling can be done from the most advantageous positions.

Champaign No. 4 Tunnel should be advanced by drifting approximately 700 feet to explore the horizon under No. 3 Tunnel, where the Fanny vein system is joined by Canham-Nelson, Roberts, Edna, and Sunny South veins; then a cross-cut of around 400 feet should be driven from Champaign No. 4 Tunnel to explore Lundberg Anomalies A and A' (Map 22-377-1).

8. Applicant believes it necessary to employ, on a monthly basis, a competent supervisor (preferably a graduate engineer) to oversee the core drilling and to make logs thereon as well as to attend to sampling and assaying of cores.

9. The expense of assaying and analyses of drill cores and sludge is included in cost estimate.

10. Applicant has included in cost estimate the services of bookkeepers and auditors in connection with this project.

Sub-Item (c) Date of Starting and Completing Project

As stated elsewhere in this application, due to the elevation and climate, geological examination and core drilling from the surface can only be accomplished in the period between June 1 and October 15 of each year. If this application had been filed earlier and if Defense Minerals Exploration Administration had approved the loan, this work could have been started by June 1, 1955. Under the circumstances it is impossible to state a precise date of starting this work. As also stated elsewhere herein, if the entire project, as outlined in this application, should be carried out, it would take two "summer" periods of 4½ months each to complete this work. Actually underground exploration by long hole drilling, core drilling, or by drifting and cross cutting can be carried on at all times of the year and therefore could be started at any time after this application might be approved.

Sub-Item (d) - Operating Experience and Background of Applicant

The applicant is a recently incorporated company, and therefore has no operating experience or background, but believes that it can, in short order, assemble an organization capable of carrying out the proposed exploration project.

Applicant's president and legal counsel, Ben L. Wright, Jr., is a Denver attorney with considerable familiarity with mining law. In the course of his practice he has done legal work for mining clients including Leadville Lead Corporation, and for others with properties on the Colorado Plateau. He therefore has a somewhat wide acquaintance with uranium operators. He can be of considerable assistance to applicant in the selection of an operating organization. He has been an officer of Leadville Lead Corporation since 1950, during which time it conducted exploration work under a Defense Minerals Exploration Administration loan.

So far, the rehabilitation work at Champaign Mine has been under the direction of Robert R. Hale of Fairplay, a practical miner but not a mining engineer. Mr. Hale is a vice-president of applicant. Mr. Hale owns and manages the B & B Motor Company in Fairplay, which, in addition to buying and selling automobiles and tractors, operates a machinery repair shop. This enterprise has been managed successfully by Mr. Hale for around 15 years. He has a wide acquaintance in the Fairplay and Leadville districts, and is in a position to engage a competent mine superintendent and a capable crew. Mr. Hale is serving at present as the applicant's General Manager, and it is the intention of applicant to employ as soon as possible a full time mine superintendent to work under Mr. Hale's direction. Mr. Hale is one of the principal stockholders of applicant.

James N. Redman, one of the principal stockholders and a consultant of applicant, has practiced mining engineering in Colorado for more than 25 years, and has an intimate knowledge of the Alma-Horseshoe District, and particularly of the Treasury Vault area. Mr. Redman served as an engineer and General Manager for Leadville Lead Corporation from 1947 to 1949 and as President of that company in 1948-49. He has a wide acquaintance in the mining engineering profession and among the miners of the Alma-Horseshoe and Leadville districts; therefore, he can assist applicant in selecting mining engineers to help in laying out a core drilling and underground exploration program, as well as in selection of an operating organization.

Leroy A. West, a vice president of applicant, is a practical miner, although not a mining engineer. He formerly resided in the Alma District, and at one time had a lease on the dumps of the Champaign Mine. He also conducted mining operations on other properties in the Alma District. He has an intimate knowledge of the Treasury Vault area.

Applicant also hopes to have engineering advice from the Atomic Energy Commission and the United States Geological Survey and Defense Minerals Exploration Administration.

APPLICATION OF TREASURY VAULT URANIUM CORPORATION

ITEM 6 - Estimate of Cost

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1.	Engineering:		
	Engineer-Geologist - fee $100 per day, 30 days	$3000.00	
	Ass't Eng. - fee $50 per day 30 days	1500.00	
	Two Helpers - at $1.50 per hr. 30 days	720.00	
	Assaying and Analyses	3000.00	
	Miscellaneous and contingencies	1000.00	$ 9,220.00
2.	Geophysical Surface Survey, by Lundberg Explorations Ltd. of said 240-acre area		
	One Engineer and One Geologist, combined fee $125 per day 40 days	$5000.00	
	Two Helpers at $1.50 per hr. 40 days	960.00	
	Transportation - $12.50 pr.day 40 days	500.00	
	Expenses of Lundberg Engineers - $15 per day 40 days	600.00	7,060.00
3.	Road Work		5,000.00
4.	Reopening Old Workings:		
	Coney Mine, estimated	$2000.00	
	Misc. mine workings, on north slope of Treasury Vault Ridge	3000.00	5,000.00
5.	Core Drilling from Surface:		
	20,000 ft. on said 240 acre area, contracted at $7.50 per foot		150,000.00
6.	Core Drilling from Champaign Mine Workings:		
	6,000 ft. contracted at $7.50 per ft., core drilling Lundberg Anomalies A, A', and D shown on Map 22-377-1. Remainder of core drilling will be governed by results of proposed geophysical survey (see Par. No. 2 above)		45,000.00
7.	Underground Development from Champaign Mine Workings:		
	1,400 ft. of drifting or cross-cutting contracted at $35 per foot		49,000.00
8.	Supervision of Core Drilling:		
	Salary $500.00 per mo. for 12 months		6,000.00
9.	Assaying and Analyses of Drill Cores and Sludge		3,000.00
10.	Bookkeeping and Auditing - estimated		2,000.00
		Total	$281,820.00

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APPLICATION OF TREASURY VAULT URANIUM CORPORATION

ITEM 7 - Sub-Item (b)

Applicant understands that if the project is approved, applicant will be reimbursed approximately 75% of the expenditures made under the project in accordance with the regulations on government participation (Sec. 7, DMEA No. 1). Applicant's share of these funds will be derived from the sale to the public of applicant's stock.

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Application of

TREASURY VAULT URANIUM CORPORATION

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ITEM 4 - PHYSICAL DESCRIPTION

Applicant's properties are situated in Mosquito Mining District, Park County, Colorado, in Sec. 6, T. 9 S., R. 78 W., in Sec. 1, T. 9 S., R. 79 W., in Sec. 36, T. 8 S., R. 79 W., in Sec. 31, T. 8 S., R. 78 W., which properties are approximately 13 miles by road northwest of the town of Fairplay.

These properties are on Treasury Vault Mountain, adjacent to the Mosquito Range and the London Fault. Climax, with its huge deposits of molybdenum, lies but four miles north. The London Mine, one of Colorado's largest gold producers, is only one mile south of the center of applicant's property. Six or seven miles to the south lie the Hilltop and other former large producers of lead, silver, and zinc. Colorado's largest producing mining camp, the Leadville District, is eight miles southwest of the Treasury Vault area.

The altitude ranges from 11,500 ft. to 13,521 ft. at Treasury Vault Peak. The elevation of most of the property is between 11,700 and 12,600 ft.

Sub-Item (a)

This area was explored and developed between 1873 and 1919 for gold and silver. The principal mine of the area is the Champaign, discovered in 1876, and mined intermittently between 1882 and 1919 with a reputed production of around $250,000 in gold and silver. The workings consist of four adits all driven southwesterly on the Fanny Vein. No. 1 adit is 80' long; No. 2 (120' lower) is 260' in length; No. 3 (35' lower than No. 2) is the main working of the mine and is approximately 1500' long; No. 4 (111' lower than No. 3) is approximately 1220' long. Nos. 2, 3 and 4 adits are interconnected by stopes as the ore shoots mined in the early days were continuous between these levels. The ore shoots occurred at or near the junctions of the Fanny Vein with numerous cross veins. The adits are locally styled Nos. 1, 2, 3 and 4 Tunnels, and will so be called hereinafter.

The mine was principally worked by lessees. Nearly all of their mining was done by "hand" as no air compressor was installed at the mine until 1930. Production ceased in 1919 when the lessees lost the vein in both Nos. 3 and 4 Tunnels and a considerable length of each tunnel was driven in country rock off of the Fanny Vein.

Applicant, in the fall of 1954, reopened and retimbered the portals of both Nos. 3 and 4 Tunnels; retimbered an additional 600' of No. 4 Tunnel. When applicant started work, No. 4 Tunnel had a length of 1113 ft. Applicant widened the adit for that distance, laid track and compressed air line from portal to breast, dug a drainage ditch for the entire length of the tunnel. Approximately 2000 tons of waste rock was removed from No. 4 Tunnel in the course of this work.

The No. 3 Tunnel was likewise retimbered at the portal and for approximately 300' inside the mine; about 1000 tons of waste rock was removed; part of the track was repaired.

The above work was performed to permit better inspection and ventilation of the mine workings and in preparation for future exploratory work, including long steel drilling and core drilling, recommended by the engineers Wilfley, Freeman, and Lundberg, and for future exploratory drifting and cross cutting.

Applicant resumed work in April 1955, installed ventilation pipe for the entire length of No. 4 Tunnel; also installed blower so that mine ventilation is now good.

Since April 1, 1955, applicant has advanced, by contract, No. 4 Tunnel as a 5 x 7 heading on a vein southeast of and parallel to the Fanny Vein for a distance of 120'. Because, until very recently, the surface has been covered with snow, applicant has not had an opportunity to sample the outcrops of the several porphyry dikes ahead of the Champaign adits and on the crest and northern slopes of Treasury Vault Mountain. This work will probably be started within the next two weeks. At the same time, applicant expects to reopen and enter several adits driven in earlier days on both slopes of Treasury Vault Mountain, as well as to sample the dumps thereof.

The mine workings are presently accessible as explained hereinbelow in Sub-Item (d) of this Item.

Sub-Item (b)

There is no current production, and, as stated above, the past production is locally estimated at $250,000, consisting of gold-silver ore, which, as sorted for shipment, probably averaged 80 oz. silver and 2 oz. gold per ton. There are no exposed gold-silver ore reserves in the mine, although within the past few days silver-gold-lead-zinc ore has been encountered in advancing the heading of No. 4 Tunnel; the extent and average grade has not yet been determined. There are no proved uranium ore reserves in applicant's properties, but based on the opinion of engineers Lundberg, Wilfley and Freeman, applicant believes that the intense radioactivity of the last 200' of No. 4 Tunnel, and the last 900' of No. 3 Tunnel indicate the presence of uranium deposits, the extent and precise location of which can only be determined (a) by core drilling; (b) by so-called long hole drilling from the tunnels, and (c) by the advance of No. 4 heading into the principal anomalies indicated by the Lundberg Survey, or by other exploratory work.

There are no uranium exposures of commercial grade present in either tunnel, although samples taken during the last 60' of the 1955 advance of No. 4 Tunnel have assayed from .04% to .11% U_3O_8.

As stated, since applicant resumed operations in 1955, No. 4 Tunnel heading has been advanced 120' on a vein of the Fanny series paralleling the "main" Fanny Vein and slightly to the south thereof. This advance was begun about 113' from Station 26. At this point samples from both walls, from face and from back or "roof" of adit, ran from a low of .05 to a high of .11% U_3O_8.

At 173' from Station 26 sampling of the back at a junction with a cross vein ran .08% and the breast sample at the same point ran .07% U_3O_8.

The heading has only been sampled intermittently. The next sampling was taken 193' from Station 26 where the face near bottom ran .05 and near back .04% U_3O_8.

The next sampling was taken at 196' from said station where the center of face ran .04%. Another sampling was had at 204' from Station 26, where the left-hand half of the back ran .05 and the right-hand half .06% U_3O_8.

Samples have been taken but not run from a point near the present breast, approximately 233' from Station 26. At this point, the vein has widened to between four and five feet and a sulphide streak occurs near center of vein from five to eight inches wide. No assays have been run on this sulphide streak, either U_3O_8 or gold-silver-lead-zinc.

A sample taken from the breast of the cross-cut known as "Dog Leg," which was started close to Station 25, and which is entirely off the vein from which the other samples were taken, showed .02% U_3O_8.

The returns recited hereinabove were obtained from the University of Denver Research Institute.

No systematic sampling has yet been undertaken of the old Champaign underground workings. It is possible that a thorough sampling of the raises, stopes and crosscuts of both Nos. 4 and 3 Tunnels might disclose higher grade uranium occurrences accidentally exposed by former operators. None of the earlier operators of the Champaign Mine reported any uranium discoveries. They were probably unable to identify uranium minerals if they had been encountered in the adits.

In 1951, a U. S. Geological Survey crew reported slight indications of uranium on the dumps of both of the Champaign Tunnels. In the fall of 1952, the caved portals of these adits were opened sufficiently to permit entry, and Geiger counters were taken into each tunnel. Only a moderate reading was had in the first 900' of the No. 4 Tunnel and in the first 600' of the No. 3 Tunnel. The Geiger reading rose rapidly at a point in the No. 3 Tunnel where the Fanny Vein (on which both tunnels were driven) junctions with a cross vein known as Clipper. The Geiger rose more rapidly at the junction of the Fanny and Thomas Veins, about 100' beyond the Clipper crossing. The Geiger made a further rise at the next vein known as Canham-Nelson. At a point over Roberts Winze, the Geiger attained its maximum reading and remained ineffective to the breast of the tunnel.

In the No. 4 Tunnel, the first high reading was had near the Clipper Vein crossing. As shown in the attached mine working map, the No. 3 Tunnel extends much farther into the hill than does the No. 4 Tunnel, so, the latter tunnel which has already been advanced past the assumed position of the Thomas Vein and is close to that of the Canham-Nelson Vein, would have to be advanced around 285' to cut the downward extension of the Roberts Vein where the highest reading was had in the upper tunnel.

Applicant will attempt to blow out the intense volume of radon gas in both tunnels in order to obtain a more accurate Geiger reading at the numerous vein crossings. While applicant cannot prove this statement, old timers in the district insist that this gas (not then identified as radon gas) has been present in both adits since around 1893.

In the Summer of 1953 the Champaign Mine was entered and examined by the mining engineer, T. S. Ary. In the summer of 1954, Ary requested Robert Hale to furnish him air samples taken near the breast of Champaign No. 4 Tunnel. According to Ary's instructions, Hale pumped the air into an automobile innertube which he took to the United States Vanadium Company's mill at Rifle, Colorado, where a "scaler" determination was had, showing an equivalent of 4.59% U_3O_8. Ary expressed the opinion that some of the high readings might be due to what he called "direct emanations" from nearby uranium deposits. Ary also expressed the opinion that it would be impossible to blow out completely the radon gas in the two Champaign tunnels.

Geological Survey Circular No. 294, "Results of Reconnaissance for Radioactive Minerals in Parts of the Alma District, Park County, Colorado" by C. T. Pierson and Q. D. Singewald, Table 1, shows "EU" Per cent of .013 from vein material from Champaign fissure; .006, 005 and .004 from vein material from Champaign dumps.

Although Circular No. 294 was published in 1953, it apparently gave effect only to the reconnaissance in the summers of 1951 and 1952. The caved portals of Champaign Nos. 3 and 4 Tunnels were

reopened in the fall of 1952. At that time it was found that a caved stope had blocked No. 3 Tunnel at a point about 600' from the portal thereof. In the spring of 1953 this caved material was removed so that this tunnel was open to the breast. Both Nos. 3 and 4 Tunnels were examined several times in the summer and fall of 1953 by engineers of the USGS, including Robert U. King. Apparently none of the results of the 1953 examination shows in Circular No. 294.

Sub-Item (c)

The general geology of the Treasury Vault area is described in Geological Survey Bulletin No. 911 and delineated on the geologic map of the Alma-Horseshoe District, accompanying said bulletin. Lundberg's anomalies, resulting from his Airborne Survey, were superimposed on a "blow-up" of this map.

The applicant's property generally covers the so-called Treasury Vault granite batholith (Silver Plume Granite) in which occur numerous schist inclusions and which is cut by a number of porphyry dikes (quartz-monzonite, monzonite-diorite, and tertiary white porphyry). Some small pegmatite dikes are also found in this area. All of the sedimentaries have been scored away in this region.

There is probably a great deal yet to be learned about the deposition of uranium. The Mosquito Range and London Fault have been the sources of large deposits of ores. The applicant believes there is a distinct possibility that when the other large deposits of ore were deposited, uranium was also deposited, either contemporaneously or within other geologic periods, in a favorable place and host rock in the general vicinity of the London and Mosquito Faults. Treasury Vault Mountain and the surrounding territory show the highest radiation anomaly on the Mosquito Range, so far as our knowledge extends, and certainly the only high anomaly along the London Fault. We believe our area is where the uranium was deposited.

We showed the two Lundberg anomaly maps to AEC officials, also to officials of United Stated Geological Survey. Independent of each other, officials of these two agencies, after examining the USGS map accompanying Geological Bulletin No. 911, (a blow-up of which map the Lundberg engineers used as a base for their anomaly maps), suggested that the maze of porphyry dikes shown by the original USGS map on Treasury Vault Mountain and in the neighborhood of the Champaign Mine might have some bearing on the radioactivity noted by Lundberg. They suggested that we have this map from Bulletin No. 911 blown up on a scale large enough so that the outcrops of these dikes could be clearly shown and superimpose thereon Lundberg's anomalies. We followed this suggestion and are submitting with this application two prints of the same tracing, on which the Lundberg anomalies are superimposed; one map colored as to geology and showing only anomaly lines, the other colored only as to Lundberg's anomalies.

The pattern of criss-crossing porphyry dikes on Treasury Vault Mountain as shown by this map resembles to some extent maps of the productive portions of the Marysvale, Utah, area. Applicant understands that the primary uranium ores of Marysvale occur in close proximity to a porphyry stockworks and in other cases near junctions of porphyry dikes.

We believe that prints of the two above-mentioned maps might assist materially in laying out a surface core drilling pattern designed to explore the above-mentioned maze of porphyry dikes, after the porphyry outcrops have been examined and sampled by geologists.

The engineer, Robert D. Wilfley, whose report is submitted herewith, expressed the opinion that the higher radioactivity near the breast of Champaign No. 3 Tunnel and the surface radioactivity noted beyond the breast is related to a strong porphyry dike in that vicinity.

Attention is called also to the grid survey of a portion of the area by Lundberg Explorations Ltd. The Fanny Vein has been productive of gold and silver. It lies more or less along the center of the mapped area. Towards the sides of the mapped area appear anomalies which roughly parallel the trend of this vein. Obviously, grid mapping of the larger area requested herein will assist in determining the complete pattern and assist in exploration.

The principal development of this area has been on the Fanny Vein, a fault-fissure series, which strikes S. 37 deg. W. and is believed to effect an almost right-angle junction with the London Fault. It is believed that the London Fault antedates the Fanny because the Fanny fracture system appears to have dislocated or "thrown" the London Fault at the junction point. The Fanny Vein dips to the northwest from 65 deg. to 87 deg., 75-80 probably an average. To the north occur two veins approximately paralleling the Fanny, known as Imperial and General Canby. The Fanny is a vein system in a persistent northeast-southwest striking fractured zone rather than an individual fissure.

The Fanny is cut by a series of cross-fissures, known as Champaign, Hom, Clipper, Thomas, Canham-Nelson, Edna, and Sunny South, of strike generally approximating N. 75 W. These cross veins carried only sparse gold-silver mineralization and therefore received little development in the early days. Applicant believes that the radioactivity in the Champaign Nos. 3 and 4 Tunnels proceeds from the cross veins rather than from the main Fanny Vein. Geiger and scintillometer readings on the surface seem to bear out this theory.

Three adits, at different elevations, were driven on the Clipper Vein resulting in an unimportant gold-silver production. The uppermost and lowermost of these adits are now open to the breast. Each shows radon gas, but in lesser volume than that present in Champaign Nos. 3 and 4 Tunnels.

The Eclipse-Lone Star Mine was developed by a shaft of unknown depth and laterals therefrom. This mine is said to have had commercial gold-silver production but no accurate records are available. Three times normal background Geiger readings have been had on the dump from this shaft.

The Coney Mine is located on the steep southern cliff face of Treasury Vault Peak and is difficult of access. Its workings have not been reopened. It is said to have had an early-day commercial production of high grade gold-silver ore. This property was first located as the Treasury Vault Claim and gave its name to the mountain.

The concentration of radon gas is extremely high in the Champaign tunnels. As stated, an air sample taken at the breast of No. 4 Tunnel and "scaled" at United States Vanadium Company plant at Rifle, Colorado, gave results of 4.59% U_3O_8. We believe the concentration at the breast of No. 3 Tunnel would run higher. We know of no other mine in the United States having a comparable volume of radon gas. These tunnels are in or near the "hottest" part of the anomaly shown by the airborne survey by Lundberg. This "hot" part of the anomaly is approximately 1 mile long and one-half mile wide. The grid surveys indicate localized "hot spots." These hot spots may be caused by uranium deposits along vein systems. We believe the uranium deposits will be high-grade primary deposits. We therefore believe that an exploration program which is altered and amended as information is developed will discover a large amount of primary uranium ore. The core drilling program will require expert engineering advice which we hope can

be partially supplied by the Defense Minerals Exploration Administration, Atomic Energy Commission, and/or the United States Geological Survey.

Sub-Item (d)

As stated elsewhere herein, the Champaign workings are approximately 13 miles by road northwest of Fairplay, Colorado. Five miles of this road is part of State Highway No. 9, the next 7-1/2 miles is a county road, in generally good condition. The last half mile has deteriorated but is presently negotiable by truck and jeep.

The Champaign Nos. 3 and 4 Tunnels are on the westerly slope above North Mosquito Creek. These tunnels were driven southwesterly under a bench. The surface from the top of this bench for almost a mile southwesterly is relatively easy terrain. North of this terrace the terrain steepens sharply to the north up the Treasury Vault Ridge. Roads built relatively recently to the North London and Oliver Twist Mines (both now inactive), could be rehabilitated at comparatively small expense, so that transportation of core drilling equipment, etc., to surface drilling sites south of Treasury Vault Ridge could be handled by trucks.

Jeeps could negotiate, with little difficulty, the area north of Treasury Vault Ridge.

Because of the altitude, the winter climate is severe. No surface drilling can be begun before July 1st, and all surface work will terminate around November 1st, so probably two summer seasons will be required to drill the anomalies indicated by Lundberg. Much worthwhile core drilling could be done underground at any time of the year from locations in the two Champaign adits, especially after Champaign No. 4 Tunnel has been advanced 400' or more feet into the hill.

Sub-Item (e)

Applicant believes sufficient manpower will be available in the Fairplay region or in the nearby Leadville District to carry out the project planned. No railroads serve this region so all materials, supplies, and equipment must be transported by truck. There is sufficient water for underground core drilling at all times of the year and for surface drilling between June 1 and October 15.

Applicant plans to contract the core drilling and it is likely that contractors will use either gasoline or diesel-powered equipment. The Public Service Company's electric transmission line runs within one-half mile of the Champaign tunnels. The cost of the extension from this line to the Champaign is estimated at $2,000.00.

RECEIVED
JUL - 5 1955

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Application of

TREASURY VAULT URANIUM CORPORATION

ITEM 3--APPLICANT'S PROPERTY RIGHTS - SUB-ITEM (O)

Copy of lease from State of Colorado on West ½ of Section 36, Township 8, South, Range 79, W 6 P.M.

RECEIVED
JUL - 5 1955

COLORADO
MINING LEASE

NO. 470-16

1. THIS MINING LEASE, Made and entered into this 1st day of October, 1954, by and between THE STATE OF COLORADO, acting through its State Board of Land Commissioners, hereinafter referred to as "Lessor," and Ben L. Wright, Jr., of 718 Symes Building, Denver, Colorado, hereinafter referred to as "Lessee";

2. NOW, THEREFORE, Lessor, for and in consideration of the sum of One hundred sixty and no/100 Dollars ($160.00) as rental for the first year hereof, receipt of which is hereby acknowledged, and the further payment of an equal sum on or before each anniversary of the date hereof, as annual rental for the ensuing year, which Lessee hereby covenants and agrees to pay so long as this lease shall remain in effect, and in further consideration of the covenants and agreements hereinafter mentioned, to be kept and performed by the Lessee, its successors and assigns, has demised and leased to the Lessee the right and privilege of mining for and taking uranium and vanadium and other minerals of value that can be removed in the process of mining and milling uranium and vanadium, from the lands hereinafter described, situate, lying and being in the County of Park and State of Colorado, to-wit:

320.00 acres--Sec. 36, Twp. 8-South, Range 79-West, 6th P.M.

together with the right to use as much of the surface thereof as may reasonably be required in the exercise of the rights and privileges herein granted, subject to the rights of patentees of said premises, where the land herein leased or any part thereof has been patented and mineral rights reserved to the State of Colorado.

3. Reserving, however, to the State of Colorado:

a. The rights to all peat, coal, petroleum, oil, gas, naphtha, asphaltum, and kindred substances.

b. The right to use or lease said premises, or any part thereof, at any time, for any purpose other than the rights and privileges herein specifically granted.

c. The right at all times during the life of this lease to go upon said premises and every part thereof, for the purpose of inspecting same, and the books of account and records of mineral workings therein, and of ascertaining whether or not said Lessee and those holding thereunder, by and from it, are carrying out the terms, covenants and agreements in this lease contained.

d. Reserving all rights and privileges of every and whatsoever kind or nature not herein expressly granted.

4. TO HAVE AND TO HOLD the above described premises, with the appurtenances, unto the Lessee and the heirs, assigns, successors

or legal representatives of Lessee, from the 1st day of October, 1954, for the full term of twenty (20) years and until the first day of October, 1974, and as long thereafter as uranium and vanadium or other minerals of value are being produced in paying quantities from said premises, and the royalty and rents provided for herein are being paid, subject to the following terms, conditions and agreements, to-wit:

5. As minimum and advance royalty, without relation to the amount of the uranium and vanadium or other minerals of value mined from the leased premises, the Lessee shall pay to the Lessor during the continuance of this lease, the following amounts:

Lease Year	Minimum Royalty	Lease Year	Minimum Royalty
1st year	$ 0	11th year	$320.00
2nd year	0	12th year	"
3rd year	0	13th year	"
4th year	0	14th year	"
5th year	0	15th year	"
6th year	160.00	16th year	640.00
7th year	"	17th year	"
8th year	"	18th year	"
9th year	"	19th year	"
10th year	"	20th year and all subsequent years	"

6. In the event that said Lessee shall not extract from said premises said minimum amounts above specified during each lease year of the term of this lease, it is nevertheless understood that the above sums of money are royalties for the years stated, and are due and payable to the Lessor whether uranium and vanadium and other minerals of value are mined or not during such year, but that such minimum advance royalty shall be credited upon the first royalties due as hereinafter provided for minerals actually produced from said premises and sold or milled during the year for which such minimum royalty was paid. Provided, however, that the minimum royalties herein provided, and the rate of royalty to be paid on all uranium and vanadium and other minerals mined shall at all times be subject to revision, either by increase or decrease, when so authorized and directed by statute enacted by the General Assembly or by the People under the initiative power reserved to them by the Constitution.

7. Lessee covenants and agrees that during the continuance of this lease he will fully comply with all of theprovisions, terms and conditions of all laws, whether state or federal, and orders issued thereunder, which may be in effect during the continuance hereof relating to the operations of Lessee under this lease, and the marketing of any product thereof, or labor relations in connection with such operations or marketing.

8. The Lessee shall mine and extract from the demised premises uranium and vanadium and other minerals that can be extracted in the process of mining and milling the uranium and vanadium, so as to procure the greatest net return per ton of ore mined, regardless of the principal type of ore which shall yield such return.

9. Lessor reserves as royalty, and Lessee agrees to pay to Lessor on or before the 20th day of each month hereafter, the following amounts:

a. An amount equal to 15 percent of the gross value delivered to the mill at which sold, of all uranium or thorium or other materials which have been or may hereafter be determined by the Atomic Energy Commission to be peculiarly essential to the production of fissionable materials, produced from the leased premises and sold during the preceding month, whether the same is mined or produced as the principal mineral for which this lease is granted, or is produced, or saved in the process of mining or milling the principal mineral for which this lease is granted.

b. An amount equal to 10 percent of the gross value delivered at the mill of any mineral not covered in the preceding paragraph 9-a the right to mine or remove which is herein given, which is produced from the leased premises and sold or milled during the preceding month, whether the same is mined or produced as the principal mineral for which this lease is granted, or is produced, or saved in the process of mining or milling the principal mineral for which this lease is granted; provided that as used in this paragraph, where minerals or ores are milled at a mill owned or operated by Lessee, the words "value delivered at the mill" shall mean: Where the mill to which such mineral is delivered is a custom or commercial mill, the amount which would actually be paid by such mill for mineral of equal quantity and assayed value upon the purchase thereof upon the same day, from any person other than Lessee; where the mill to which such mineral is delivered is a private mill owned and operated by Lessee for the milling only of minerals produced by Lessee, the amount which would actually be paid by the nearest custom or commercial mill for mineral of equal quantity and assayed value purchased upon the same day.

10. Royalty payments shall be made and shall apply to any bonus payment received by the Lessee on uranium and vanadium or other mineral so sold or milled. The uranium and vanadium and other minerals mined from the leased premises may be milled in a custom or commercial plant or mill owned and operated by Lessee. They may not be mixed or co-mingled with ores from other properties until they have been crushed and sampled by the mill for the purpose of determining the uranium and vanadium and other minerals contained in the crude ore. The resulting samples shall be assayed at the laboratory used by the mill where ore is milled, and Lessor shall receive an assay certificate showing the contents of each day's delivery to mill. In addition, the mill shall reserve a pulp of each day's composite sample for testing, provided, however, said mill shall not be obliged to keep pulp for a period of more than sixty (60) days. In the event of a dispute as to analysis, the pulp prepared from each day's composite sample shall be referred to an umpire acceptable to Lessor and Lessee and the determination of the umpire shall be binding upon both parties. The net weight of the crude ore on a dry weight basis shall be determined at the scales at the mill. Lessor shall have the right to check the weights as often as it deems advisable. Lessee shall furnish Lessor

with duplicate scale weight certificates. Lessee agrees to, and shall be held accountable to see that the foregoing provisions are carried out by such mill or mills as shall receive minerals produced from the premises herein demised.

11. On or before the 20th day of each and every month during the term of this lease, Lessee shall make a sworn report to the Lessor in which shall be entered and set down the exact amount in weight of all uranium and vanadium and other minerals of value mined on said premises during the preceding calendar month. Such statements shall clearly set forth the tonnage as shown by the miners' production reports, and shall also show the use or disposal by the Lessee of uranium and vanadium or other minerals of value. The report shall be made whether or not any uranium and vanadium or other minerals are mined during the month for which the report is made. In the event that no mining is done during the month for which the report is made, such report shall contain a complete statement of the work done by the Lessee during the month.

12. The Lessee shall have the right to mine, raise, carry and transport ores from the lands hereby leased through other lands now or hereafter owned or leased by the Lessee, and the right to raise, carry and transport ores mined by the Lessee from other lands owned or leased by the Lessee over or through the lands covered by this lease; provided, that the ores mined from other lands are in no event mixed with ore mined from these leased premises, except as provided in Paragraph 10 herein.

13. The Lessee further agrees to hold the Lessor harmless for any and all manner of claims arising or to arise from the operation of said leased premises by Lessee whether from soil or surface subsidence, or from any other cause or any other nature soever; this paragraph shall be binding upon Lessee and upon the heirs, assigns, successors and legal representatives of Lessee, and shall be a continuing obligation during and after the expiration of this lease, so long as any possibility of soil or surface subsidence remains.

14. In the underground and open pit workings, all shafts, inclines and tunnels shall be well timbered (when good mining requires timbering) and all parts of workings, where uranium and vanadium and other minerals are not exhausted, will be kept free from water and waste materials, as in ordinary operations. The underground and open pit workings shall be protected against fire and floods and the creeps and squeezes. If such events do occur they shall be checked in a manner which is in keeping with good methods of mining. Such methods of mining shall be used as shall insure the extraction of the greatest possible amounts of uranium and vanadium and other minerals of value, consistent with good mining methods.

15. Lessee shall be liable and agrees to pay for all damages to the surface of the land, livestock, growing crops or improvements caused by Lessee's operations on said lands. It is agreed and understood that no operations shall be commenced on the lands hereinabove described unless and until the Lessee or his assignee shall have filed a good and sufficient bond with the Lessor in an amount to be fixed by Lessor, to secure the payment for such damage to the surface of the land, livestock,

growing crops or improvements as may be caused by Lessee or his assignee's operations of said lands and to secure compliance with all the provisions, conditions, covenants and obligations of this lease and the statutes of the State of Colorado, and rules and regulations thereto appertaining.

16. It is agreed that during all proper hours and at all times during the continuance of this lease the Lessor, by its Superintendent of the Mineral Department or by its duly authorized agent or agents, shall be, and hereby is authorized to check scales as to their accuracy, to go through any of the slopes, entries, shafts, openings or workings on said premises, and to examine, inspect and survey the same and to examine and make extracts or copies of all books and weight sheets which show in any way the uranium and vanadium and other mineral output of the leased premises, and that all conveniences necessary for said inspection, survey or examination shall be furnished to the Lessor, its Superintendent of the Mineral Department or its agent or agents by the Lessee.

17. It is agreed that the Lessee, while using any diamond, churn or other drill on said premises during the term of this lease, shall keep an accurate log of all work so done and performed, showing the geological formations penetrated, the depth or thickness of each, the mineral character of each, especially mineral veins and strata, their elevations, the location of same by tying to a corner of some legal subdivision or, in unsurveyed territory, to some bench mark or other officially established point, established by United States surveys, and each and everything necessary to make and supply a perfect and complete log of the hole throughout its entire depth, a true copy of which said log shall be furnished the Lessor when and at the time such holes are drilled or at any time thereafter upon demand of the Lessor.

18. A map of the mine shall be made yearly by an engineer or surveyor duly licensed by the State of Colorado, on a scale of not less than 100 feet nor more than 200 feet to the inch, showing the dimensions of ore vein, a permanent hub with center point at the top of the shaft or the face of the slope, at each elevation and at each angle, at side entries, stopes, rooms or drifts, showing elevation of same and latitude and departure and date established, each point taken from a true meridian established on the surface; and shall bear the name or number of the mine; its location as to county, section, township, and range, the name of the company or owner; the north points; the scale to which the map is drawn and explanatory legend; and the certificate of the engineer or surveyor as to its accuracy.

19. Mine maps and plans hereinbefore mentioned shall be extended and corrected at least once each year. True copies of all maps and plans shall be provided as follows: The original maps and tracings to be kept in the office of the engineer or surveyor, blue or white prints certified to by engineer to be on file, one at the office at the mine, one at the office of the Mineral Superintendent of the State Board of Land Commissioners, Capitol Building, Denver, Colorado.

20. Lessor reserves the right to grant rights of way over said premises for public roads, railroads, power, telegraph, telephone,

ditches, and canal lines, or lease the above described lands for any other purpose than the one specified herein, which such grants or leases shall be so made as not to interfere with the operation of this lease, and so as to require the grantees of such rights to assume all risk resulting therefrom.

21. Any notice required or permitted to be given to the Lessee under the provisions of this lease shall be sent by registered mail, addressed to Ben L. Wright, Jr., 718 Symes Building, Denver, Colorado. Such service of notice by mail shall be sufficient and in full compliance with the terms of this lease.

22. In the event this lease is terminated by forfeiture, surrender or the expiration of term, the Lessee may, subject to the provisions of Paragraph 26 hereof, remove all improvements and equipment from the said premises within nine (9) months from the date of such termination, and such removal shall be accomplished without unnecessary waste or injury to the premises. All improvements and equipment remaining on the leased premises nine months after the termination hereof shall be forfeited to the State of Colorado, without compensation.

23. This lease may be surrendered by the Lessee at the expiration of any lease year, upon three (3) months' written notice to Lessor, of Lessee's intention to surrender, and upon payment of all rents and royalties due and payable to Lessor and performance of all obligations required herein to the end of such lease year; notice given by Lessee of intention to surrender under the provisions hereof shall operate as an election to surrender at the end of such lease year, and shall not be withdrawn by Lessee without consent of Lessor; it being understood and agreed that should this lease be so surrendered by the Lessee, or should this lease be cancelled by Lessor as hereinafter provided, or should this lease be terminated in any manner, advance rentals and minimum royalties which shall have been paid in or shall have become due hereunder shall be and remain the absolute property of the Lessor, regardless of the amount of ore mined during the term of this lease under the terms hereof and regardless of the length of unexpired term of this lease.

24. All the conditions, covenants and agreements in this lease contained shall be binding upon the heirs, assigns and successors of the Lessee.

25. The Lessee, before commencing work under the provisions of this lease, or sub-leasing, contracting or subcontracting any of the work, shall procure Workmen's Compensation Insurance, as required by the Workmen's Compensation Act of Colorado, and shall at all times keep such compensation insurance in full force and effect, and shall furnish the Lessor with premium receipts or other satisfactory evidence of Lessee's compliance with this requirement; and a failure of the Lessee strictly to comply with this requirement shall subject this lease to cancellation at the option of Lessor as hereinafter provided.

26. It is agreed that if for any reason the Lessee shall fail to keep each and every one of the covenants herein, and such default shall continue for a period of sixty (60) days after service of written notice thereof upon the Lessee by the Lessor, the Lessor shall have the right to declare this lease forfeited, and to enter onto the leased premises, or any part thereof,

either with or without process of law, and to expel, remove and put out the Lessee or any person occupying the premises, using such force as may be necessary to do so. In the event of the termination of this lease by reason of breach of the covenants herein contained, the Lessee shall surrender and peaceably deliver up to the Lessor the above described premises, and such premises shall be in good mining condition. If, upon termination of this lease for any reason, whether by surrender, forfeiture or expiration of term or otherwise, Lessee shall not have fully complied with the terms of this lease, Lessor shall hold and retain possession of the property, improvements, and equipment of Lessee, as security unto Lessor for the payment of rents and royalties due it, or to protect it against liens, or to indemnify it against any loss or damage sustained by it by reason of the default of the Lessee, for which purpose Lessor is hereby given a lien upon all of such property, improvements, and equipment, which lien shall attach as the same are placed upon the premises. In the event Lessor shall foreclose the lien in this Article given to it by Lessee, Lessor may itself be a purchaser at any sale thereof under such foreclosure. Upon the termination of this lease for any cause, if the Lessee shall remain in the possession of said premises, he shall be guilty of an unlawful detainer under the statutes in such case made and provided and he shall be subject to all the conditions and provisions thereof and to eviction and removal, forcibly or otherwise, with or without process of law, as above provided.

27. Lessee shall pay all taxes lawfully assessed on property of Lessor located on the leased premises.

28. Lessee shall furnish corporate surety bonds from time to time as required by Lessor and in form and amounts satisfactory to the Lessor, which bond shall be conditioned upon the performance by Lessee of its obligations as provided in Paragraph 15 hereof, and any such bonds shall run to the State of Colorado and to any individual or individuals as may be determined by Lessor.

29. No assignment or transfer of this lease will be held valid by Lessor, unless made with its consent in writing and duly entered in the books of record of said Board.

30. The benefits and obligations of this lease shall extend to and be binding upon the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

31. IN WITNESS WHEREOF, the Lessor has caused these presents to be executed in duplicate by the State Board of Land Commissioners and sealed with the official seal of said Board, and the Lessee has hereunto set his hand and seal, all on the day and year first above written.

STATE BOARD OF LAND COMMISSIONERS

s/ A. M. Ramsey
President (SEAL)

s/ A. S. Willburn
Engineer

s/ E. Pickard
Adm. Asst.

s/ Don L. Wright, Jr.
Lessee

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GRID MAP RADIATION SURVEY REPORT
ON
THE TREASURY VAULT URANIUM CORPORATION
PROPERTY

TREASURY VAULT MOUNTAIN
PARK COUNTY
COLORADO

Geology by R. D. Wilfley.

Grid Maps by R. D. Wilfley & J. G. Freeman.

Radiation Determination by John G. Freeman.

Radiation Interpretation by Dr. Gordon L. Locher.,
Ph D. Physicist.

To Mr. Ben L. Wright
718 Symes Bldg.
Denver, Colorado

Radioactivity Report
on
Surface Survey, and Grid Maps
of
Treasury Vault Uranium Corporation
Property

To: Mr. Ben L. Wright
718 Symes Bldg.
Denver, Colorado

From: John G. Freeman
1717 N. Weber St.
Colorado Springs, Colorado

Subject:

Radioactive measurements, and Grid Maps on surface of property, covering mine tunnels No. 3 and No. 4 (Champaign) tunnels, in Fanny Vein, located on Treasury Vault Mountain, Mosquito Mining District, Park County, Colorado.

Time: October 9th, thru October 21st, 1954.

Equipment:
F-1 Nuclear Survey Meter.
Raytomic, Super X.
Western Radiation Lab. XR7. Super Radiation Meter.

A special instrument, the F-1 was used to establish key points for grid work. This instrument is a specially high sensitivity instrument, having 25 special tubes and an ionization chamber. It has 8 sensitivity ranges: .02, .05, .10, .20, .50, 1.0, 5.0 and 10.0, in mr/hr and the ratios are: 1, 2.5, 5, 10, 25, 50, 250, and 500 to 1. Due to the high sensitivity of the F-1 it was used as a pilot instrument for locating key points to start check on the grid. After key points were established, the work was carried on with a second instrument calibrated to the F-1.

The second instrument was a Raytomic, Super X, with 12 high sensitivity tubes, and calibrated to the F-1. This instrument was the same as used in the original tunnel surveys, and very reliable.

The third instrument was a Western Radiation Laboratory, XR7 built especially for this survey by Dr. G. L. Locher, and is a Super Radiation Meter, and so calibrated to only show extremely high intensities.

The background count of the F-1 instrument was .55 mr/hr on selector .02 mr/hr.

The background count of the Raytomic Super X was 55 (C.P.M.) counts per minute on the 1000 C.P.M. range.

The background count was .10 mr/hr on the XR7 on the 0.2 mr/hr range.

Grid and Isorad Map.

On October 9th, 1954, the surface survey was started by first laying out a grid pattern on the surface, and staking each corner.

Number 2 corner of Survey No. 4490 was used as a starting point. This corner became our "ZERO" and was so selected in order that the boundary lines of the grid would parallel the Fanny vein, and give sufficient area on both sides of the Champaign tunnels, in order to follow the "Hot" spots originally observed in the tunnel survey,

The grid was laid out in 100 foot squares, divided into 25, 20 foot squares each. The westerly line of the grid started at zero, or No. 2 corner of Survey No. 4490, and ran N. 32° 58' W. for 300 feet, to crest of hill, then 90° easterly or 122° 58' for 300 feet. Then in a southerly direction from zero a line of stakes was set along the Fanny vein S. 30° 45' W. for 400 feet. This brought the southwest grid line approximately 20 feet beyond the breast of No. 3 tunnel and the Little Newton shaft.

The 100 foot markers placed in the N.E. end of the grid are designated as +1, +2, +3 from "0", and the S.W. end of the grid, the markers are designated as -1, -2, -3, -4 from "0". The lines running the length of the grid and parallel to the Fanny Claim are designated A, B, C, D. Radioactivity observed between these lines within the 20 foot squares are noted as being so many feet from the main grid lines, for example: 40 feet from +2C toward +3A, etc.

RADIOACTIVITY MEASUREMENTS.

The following are radioactivity measurements as observed, and include the background count in mr/hr for the F-1 instrument, counts per minute (C.P.M.) for the Raytomic Super X, and mr/hr for the XR7.

Column 1, Readings on F-1 Nuclear Survey Meter.
" 2, " Raytomic Super X.
" 3, " XR7 Super Radiation Meter.

Station No.	(1) Meter - Selector Range	(2) C.P.M.	(3) X1 Range
A 0	80 on 0.1	(80 on 1000 scale)	20
A+1	100 on 0.02 40% reduction 100 on 0.5 0.8 reduction 80 on 0 reduction	75	20

Station No.	(1) Meter - Selector Range	(2) C.P.M.	(3) X1 Range
A+2	off 100 on 0.02 off 100 on 0.25 off 100 on 0.5 80 on 0.1 30 on 0.2	75	20
A+3	84 on 0.1 84 on 0.05 reduction of 0.5	85	30
B+3	78 on 0.1	75	18
C+3		85	18
D+3	94 on 0.1	82	20
D+2	90 on 0.1	82	20
40 ft. on line to B+2 Granite outcrop	100-on 0.1 36 on 0.2	85 100 next day	30
On same line 40 ft. from B+2	95 on 0.1	85	18
C+2	70 on 0.1	80	18
B+2	85 on 0.1	85 95 to 100	18 20 - second day
B+1	85 on 0.1	75	12
B 0	70 on 0.1	70	15
C 0	75 on 0.1	75	12
D 0	80 on 0.1	75	18
D+1	65 on 0.1	65	10
D-1	85 on 0.1	75	10
Center of square made by D-1, D-2, C-1 and C-2	85 on 0.1	80	12
D-2	80 on 0.1	80	5 to 10
30 ft. S.E. of D-1	85 on 0.1	80	15

Station No.	(1) Meter - Selector Range	(2) C.P.M.	(3) X1 Range
A-1		80	14
A-2		78	18
A-3		85	16
A-4		80	16
100 ft. E. of A-4		80 to 100 in bursts	20
Shaft 40 ft. N. of Little Newton shaft		90 to 100	
B-4		78	12
D-4		85 Steady with bursts	18
C-4		65	12
D-3		80	14
D-2 Cor. No. 6 Sur. No. 19926 lies S. 18° W. 18 ft.		85 2nd day	18
D-1		70 2nd day	12
D-1 + 30 ft. on line to D 0 Granite outcrop		95	20
C-1		80	15
B-1		75	12
B-2 Granite outcrop		85	12
C-2		90 to 95	18
C-3		75	14
Small dump N. 75° E. 60 ft. from B-3		90 to 95	18
B-3		77	14
C+1		82	16

The following are radioactivity intensities after transposing all observations to mr/hr, calculating statistical errors and fluctuation, and represent the INTENSITIES above background.

Stations	Inst. #1 mr/hr	Inst. #2 mr/hr	Inst. #3 mr/hr
A 0	.267	.267	.2
A+1	.333	.246	.2
A+2	.267	.246	.2
A+3	.268	.287	.3
B+3	.233	.246	.18
C+3	.267	.267	.18
D+3	.313	.284	.2
D+2	.30	.284	.2
40 ft. on line to B+2	.333	.284/.333	.3
40 ft. on line from B+2	.313	.287	.18
C-2	.23	.267	.18
B-2	.268	.289/.333	.2
B-1	.268	.246	.12
B-0	.23	.23	.15
C 0	.267	.267	.12
D 0	.269	.246	.18
D-1	.248	.246	.10
Center of Grid Square between D-1, D-2, C-1 & C-2	.269	.267	.12
D+2	.248	.248	.10
30 ft. S.E. of D-1	.269	.267	.15
D+1	.196	.196	.10
A-1		.267	.14
Key Points covered with F-1 Instrument			
A-2		.249	.18
A-3		.287	.16
A-4		.267	.16
100 ft. E. of A-4		.333 Bursts	.2
Shaft 40 ft. N. of Little Newton shaft		.333	.2
B-4		.249	.12
D-4		.287	.18
C-4		.076	.12
D-3		.267	.14
D-2		.287	.18
D-1		.23	.12

Stations	Inst. #1 mr/hr	Inst. #2 mr/hr	Inst. #3 mr/hr
D-1 30 ft. on line to Granite outcrop D.O. line		.317	.2
C-1		.267	.15
B-1		.246	.12
B-2 Granite outcrop		.287	.12
C-2		.315	.12
C-3		.246	.14
Small dump N. 75° E. 60 ft. from B 3		.315	.18
B-3		.250	.14
C+1		.272	.16

USE OF GRID MAP:

A map showing elevation of tunnels, and underground workings with surface elevation has been made, and is at the top of the sheet, a top view of the tunnels and directions through the Fanny vein, also the junction of two other veins, the Clipper and the Edna. The "Hot" spots, as observed are taken from the Tunnel Survey, and are shaded in Red. The "Hot" spots observed in first survey are also shown on elevation map, and shaded in Red as well as the "Hot" spots of the surface survey shown along surface outline of mountain.

The grid map is designed to be an overlay for the map described above, this gives a quick and accurate location. The grid map is also shaded in red, which places anomalies on surface and tunnels in relation to each other, as observed from both surveys. It is very important that index points of the No. 2 map be placed accurately under indexing corners of "Isorad" grid when studying the anomalies.

CONCLUSION:

Although no extremely high Radiation was observed on the surface, it was seen that the entire surface was at all times well above established background count. Over-burden, talus and snow have an effect, detrimental too, and reduce intensities. In many cases snow alone will block out an observation, due to the snow absorption of the Gamma Rays. 2½ feet of water is sufficient. One foot of snow contains one to two inches of water. Wherever snow was encountered during the survey, snow was cleared down to the earth, before taking a reading, and all key points were established on snow free points. It will be noted that the "Hot" spots on surface vary in relation to the "Hot" spots as observed in the tunnels. It is also interesting to observe the "intensity" of the junctions of the Fanny and the Clipper veins, also it is observed that a "path" of very low radiation cuts across the Fanny vein, almost the center of the Edna Vein. This might be caused by a fracture, stemming from a small fault apparently originating, or running

southeasterly through the top of, and down Treasury Vault Peak and close to the base of Redman Hill. This "Path" may possess other enrichments in mineral, but seems to be very low in radiation near the surface.

It is the belief of the author of this report that core drilling from the surface will produce cores of some intensities at shallow depths, however, ore should be reached between 150 and 200 feet in the areas where higher Isorads on grid coincide with high intensities in tunnels. It is believed that good ore is in the vicinity of the breast of tunnel No. 3; although the grid does not indicate an anomaly directly over the breast, it does show an Isorad of good intensity around the breast, and the ore in this area is possibly 300 to 400 feet in depth.

According to the grid, it is the opinion of the author that a core drill started near grid corner +2 between B and C and angled toward the Clipper vein to approximately +3B. This connects a high Isorad on grid with a high intensity area as observed in the tunnels, and it is believed the coring should go somewhat deeper than the tunnel levels.

A test coring should be made about 40 feet from D on line +2, and terminate in the area of line +2C, and terminate not less than 50 feet below tunnel level of No. 3 tunnel.

A test coring should be made 40 feet from C between -4 and -3 and angled toward the breast of No. 3 tunnel, and should be at least 100 feet below tunnel level. This area appears to be a promising one considering the relation of tunnel intensity to grid Isorad, as the grid Isorad almost circles the tunnel breast.

The map, grid, and record of the intensities of this report, together with Mr. Wilfley's report, in the hands of a reputable and experienced core drilling organization can establish correct starting points to drill, correct angles to follow, and depths to terminate.

The anomalies observed and recorded are commensurate with the survey made in the tunnels some months ago and is considered better than expected when type of rock, general terrain and the geology are considered. These points are brought out in Mr. Wilfley's report.

John G. Freeman

Report on interpretation of radiation measurements on Treasurevault Mountain, based on radiation survey of October 9 to 21, 1954 (Nov. 1954)

The tabulated intensity measurements made on top of the mountain, the grid map of the area surveyed, and maps of elevation and top view of the tunnels have been examined.

Measurements were made with three different radiation instruments, all responding principally to gamma rays. Results for each instrument appear to be consistent among themselves, with minor exceptions which are neglected. In evaluation of results, measurements made with a given instrument at different stations are compared with one another, and overall comparisons of results with the three instruments are used to give a map of intensities in the area surveyed. In the data shown on the grid map, relative intensities are shown. Background readings have been subtracted in all cases.

Use of a plurality of radiation instruments in the grid survey is a safeguard against possible erroneous performance of any single instrument, and is always desirable practice. Instruments used should read radiation intensities in standard units of intensity; milliroentgens per hour or microroentgens per hour, and never in counts per minute or other arbitrary units which depend on the particular construction of a particular instrument. The latter cannot be compared with results from other instruments, without deduction and inference.

The most important reading of any radiation instrument is the background reading in the general vicinity of the anomaly--but not over an anomaly. If the anomaly is small, little significance can be attached to observations, except in terms of the background intensity. The smaller the anomaly, the more important the background intensity becomes; repeated checks of background readings of instruments used during the mapping is a necessity. These facts were taken into account in the survey reported, and in the interpretation given below.

The isorads on the grid map show the parts of the area where surface radiation intensity is highest. The area covered shows a clear radiation anomaly, although it is not a large one such as would be found over an outcrop of ore. From the area and intensity pattern, the writer believes that the ore-body lies at some feet depth below the surface.

It is not possible to place a 'range of detection' on a uranium deposit under the surface, due to the many variables involved. But direct detection of a deposit from surface measurements has never been reported at a depth of 100', as far as I know, except through the indirect agency of radon gas, or from low-grade ore or contamination which extends upward toward the surface and gives measurable intensity at the surface. The attenuation of direct radium radiation by earth and rock is very rapid. Even if there were a large exposed uranium deposit in the tunnels, no

large surface anomaly would be expected on top of the mountain, due to the thickness of intervening rock. So the absence of a high surface anomaly is not to be construed as absence of uranium at or near the levels of the tunnels, or higher up.

The regions of higher activity are on the northeast part (+1, +2 and +3) and at the other side of the area (-3B, -4B). The overburden may be less in those areas, or the uranium may be nearer the surface or in larger quantity. On the basis of the radiation survey on top of the ground, the points of highest surface intensity would appear to be the most desirable places for drilling.

Core-drilling at selected places on the mountain would give good information. But from the radiation measurements at hand, I cannot advise as to the relative merits of core-drilling from the surface or drilling inside the tunnels. Considerations of cost and of available methods of drilling are involved, also, the non-equilibrium conditions of observations on radioactivity inside the tunnels as compared with the more stable conditions of activity as measured on the mountain.

Examination of rock or earth on the mountain for possible alpha-particle emitters might prove valuable in connection with radon seepage from a major deposit of uranium. If a region of high alpha-activity were found on top of the mountain, and if no uranium were shown in the surface, escape of radon gas would be indicated.

Respectfully submitted,

Gordon L. Locher, Ph.D., physicist

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GEOLOGIC INTERPRETATION OF RADIATION READINGS

TREASURY VAULT URANIUM CORPORATION, TREASURY VAULT MOUNTAIN, MOSQUITO MINING DISTRICT, PARK COUNTY, COLORADO.

A radiation survey on grid laid out on the surface above the high radiation areas noted in the Champaign tunnels 3 and 4 was made by the writer and John G. Freeman, October 9 to October 21, 1954. The grid was made in one hundred foot squares, and was 300 feet wide - 150 feet on each side of the Fanny vein - and seven hundred feet along the vein. Each one hundred foot square was roughly subdivided into twenty-five twenty foot squares, and readings taken continuously along the boundaries of these small squares. Snow was scraped off where necessary and readings of several minutes were taken at the corners of the one hundred foot squares, as described in Mr. Freeman's report. While not included in the grid, readings were taken along the course of the Fanny vein to its intersection with the quartz-monzonite dike which cuts the Fanny vein about a hundred feet beyond the end of the Champaign No. 3 tunnel. No exceptional counts were noted there, but the count was as high as that in the area of the Little Newton shaft.

The formation within the boundaries of the grid is granite, like the rest of the Treasury Vault Mountain area. This granite contains several pegmatite dikes and the quartz-monzonite dike mentioned above. A. F. Buddington, in "Ore Deposits of the Western States", page 373, states that uranium deposits with ingenous affiliations are genetically connected with granite and with quartz-monzonite. Dana's System of Mineralogy, seventh edition, page 614, mentions four principal modes of occurence of uraninite. Of these the first and fourth modes might be considered here.

The first is in pegmatite dikes, and this does occur, as a small pocket, or lens, containing iron stained mica, coarse feldspar and quartz, and is located in a pegmatite north 11° West, 500 feet from the zero corner of the grid. This pocket gave high radiation readings, and small specimens removed from it gave about twice the background count. This pocket is an enlargement of a tight feldspar-quartz seam dipping about 30° into the hill. The pegmatite itself is "tight", that is, of a non-porous structure. It is difficult to see how a gas such as radon could travel through it in any quantity such as is found in the Champaign tunnels, in the few weeks before it would lose its radioactivity. Pockets such as this seem to be rare here, as many readings were taken both within and without the grid boundaries on pegmatite exposures. While in general they showed an increase in count, it was no more than on the ordinary granite exposures. So it seems to me that we can rule out that the radon is of pegmatitic origin.

This leaves the fourth mode of occurence as the most likely here. This is in hydrothermal sulfide veins formed at moderate temperatures, without Co-Ni minerals. The uraninite is found as colloform crusts, with sulfides such as pyrite, chalcopyrite, sphalerite and galena. This is the type of mineralization found in Gilpin County, Colorado. The fact that specimens of this type have been found on the dumps of the Champaign tunnels is further evidence that this is the type of occurence to be expected. The association of uraninite with quartz-monzonite in Gilpin County and elsewhere seems to me to indicate that the quartz-monzonite here may have a genetic relationship to the uraninite.

According to V. M. Goldschmidt, the possibility of large scale substitution in minerals from magmas will be limited to such pairs of ions, the radii of which agree within a tolerance of 10-15 per cent of the radius of the largest pair. Quadrivalent ions similar to calcium in size are cerium (1.02A), uranium (1.05A), and thorium (1.10A). The ions of trivalent bismuth (1.1A), and univalent silver (1.13A) belong to the same class. An important host mineral in igneous rocks is plagioclase feldspar, the laboadorite in quartz-monzonite. This may also explain the common association of uranium with silver minerals. The oxidation from the quadrivalent to the hexavalent stage makes it more readily soluble. The path of low radiation noted along the Edna vein might be explained by assuming that this area is more open to the weathering and oxidation by surface waters than other parts of the general area. This would mean that the uranium along this low-radiation path may have been dissolved and carried downward. Secondary enrichment at lower levels might be expected if proper precipitating minerals exist at these levels. While enrichment might not necessarily be expected at the intersection of the dike with the Fanny and other veins, the immediate area of these intersections with the Fanny and other veins seems to me the logical place to expect the highest enrichment.

CONCLUSION:

The radiation intensity in tunnels number three and four is near maximum at the breasts, that is at the points nearest the quartz-monzonite dike; it seems to me that drill holes radiating from the breast and angling toward the dike should disclose ore in this area. The concentration of radon in this area seems to indicate the close proximity of ore there. The intersections of the Clipper and other cross veins also show radiation increases, and these areas should be investigated. The enrichment from these cross veins could easily have come from the quartz-monzonite at depth.

R. D. Wilfley, M. E.

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DEFENSE MINERALS EXPLORATION ADMINISTRATION

Application of

TREASURY VAULT URANIUM CORPORATION

ITEM 3—APPLICANT'S PROPERTY RIGHTS - SUB-ITEM (O)

The copy of lease from Effie M. Haring on 3/4 ECLIPSE, 3/4 LONE STAR, 2/3 KEYSTONE.

copy

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MINING LEASE AND OPTION

THIS INDENTURE, Made this 2nd day of August, 1954, between EFFIE M. HARING, of the County of Boulder, State of Colorado, ~~party of~~ the first part, hereinafter called Lessor, and JAMES N. REDMAN, of the City and County of Denver, State of Colorado, party of the second part, hereinafter called Lessee,

WITNESSETH: That Lessor, for and in consideration of the sum of One Hundred Twenty ($120.00) Dollars, heretofore in hand paid Lessor by Lessee, (which amount, in the event the Lessee exercises any of the options to purchase the hereinafter described mining claims as such option is given him under Paragraphs numbered 15 and 16 of this instrument, shall be credited on the option price of the particular interest or interests which may be purchased by Lessee), and other good and valuable considerations, and of the rents, covenants and agreements hereinafter expressed to be paid, kept and performed by the Lessee, has leased, let and demised, and by these presents does lease, let and demise unto said Lessee, the following described undivided interests in and to the following described mining claims, situate, lying and being in the Mosquito Mining District, Park County, Colorado, to-wit:

3/4 ECLIPSE	U. S. Survey No.	175
3/4 LONE STAR	U. S. Survey No.	2774
2/3 KEYSTONE	U. S. Survey No.	272

together with all of the right, title and interest of Lessor in and to the lodes, veins and ore deposits in said claims, and to all of the rights, privileges, hereditaments and appurtenances thereunto belonging or in any wise appertaining.

TO HAVE AND TO HOLD the same for the purposes of mining for a term beginning on the date hereof and terminating on the 31st day of July, 1959, unless sooner forfeited or terminated, in accordance with the terms hereof, with full power to Lessee to assign this lease and option, or any interest therein, or to sublet all or any portion of herein demised premises, and

In consideration of this lease, Lessee hereby covenants and agrees with Lessor as follows, to-wit:

1. To enter upon said leased premises, or any of them, on or before the first day of September, 1954, and to work and maintain said premises in a manner necessary for the preservation of the premises as a workable mine, with due regard for the covenants herein contained.

2. To work and mine said leased premises at the discretion of Lessee, in a good and miner-like fashion during the life of this Lease.

IT IS UNDERSTOOD AND AGREED that Lessee shall not be required to make any specified performance of labor or improvement upon the

hereunder demised premises, but shall pay Lessor the advance royalty required in Paragraph numbered 8 hereof, and the annual general taxes assessed against the demised premises, as required in Paragraph numbered 7 hereof.

3. To carry Workmen's Compensation Insurance during operation of this lease so as to save Lessor harmless from any liability for industrial accidents arising from Lessee's operations, and to keep notices respecting such insurance properly posted on said premises.

4. To allow Lessor or her agents, at all reasonable times, access to said demised premises for the purposes of inspection and sampling.

5. To repair all old timberings in workings and openings operated by Lessee and in addition to do all work in miner-like fashion, and to protect properly all workings made by Lessee on demised premises, unless prevented by extraordinary mine casualty.

It is further understood that all tunnels excavated by Lessee in said premises shall be at least 6 feet in height in the clear, and 3½ feet in width in the clear; that all shafts sunk by Lessee shall be at least 7 feet long and 3½ feet wide in the clear; that no underhand stoping shall be done; that all crossveins which may be discovered in said premises shall, within the boundaries of demised claims, be the property of the owners of the said claims, as their interests may appear.

6. To furnish Lessor full, true and accurate information with regard to condition of underground workings, or any part thereof, and as to the work performed, and any money expended by Lessee in the operation of said premises.

7. To pay all general taxes for the year 1953, due and payable in 1954, on the leased premises, and to pay such taxes for each succeeding year of the life of this lease.

8. To pay or case to be paid promptly, collectively to the owners of the said Eclipse, Lone Star and Keystone claims as royalties, ten percent (10%) of thenet smelter or mill value of all ores removed from demised premises by Lessee during the life of this lease, and to pay or cause to be paid promptly to Lessor herein the proportion of said ten percent royalty, to which said Lessor shall be entitled, according to her respective undivided interests in said claims.

By net smelter or mill value of ore is meant the value of the ore after deducting the following charges: the actual cost of transporting said ore from the mine to buyer or custom mill; all smelter and custom mill charges for the treatment and handling of said ore, and such additional charges or deductions as are usually made by such smelter or custom mill.

Detailed duplicate statements on all sales of ore from demised premises to smelter or custom mill shall be furnished by the buyer to Lessor.

Lessee shall pay Lessor, as advance royalty and rental, the sum of Ten Dollars ($10.00) per month, on the first day of each month, beginning with the month of September, 1954.

Any and all royalties, and such advance royalties so paid Lessor, shall be credited by Lessor on the options to purchase herein demised premises, or any of them, as recited in Paragraph numbered 15 hereof.

9. Lessee shall save Lessor harmless from any and all costs, liability or damage whatsoever for any labor, services, skills, machinery, materials or supplies used by Lessee during the life of said lease, and Lessee will post conspicuously upon the premises, notices to the effect that Lessor will not be held responsible for any such obligations contracted by Lessee.

10. Lessee covenants and agrees to deliver the said premises to Lessor in good order and condition, without demand or notice upon the termination of this lease, or at any previous time, upon forfeiture thereof.

11. Lessee agrees that the ownership of all ores extracted and not removed from the premises shall remain in the Lessor and her co-owners as their respective interests shall appear.

12. In the event of any breach of covenant or condition of this lease by Lessee, Lessor shall notify Lessee in writing of Lessor's intention to declare forfeiture for default, such default to be specified in said notices and if Lessee, within 30 days after receipt of said written notice shall not have remedied the particular specified defects, Lessor shall thereupon declare forfeiture and re-enter the premises without prejudice to any and all claims for damages which Lessor may have by reason of theviolation of any covenant hereof by Lessee.

13. Lessee shall have the right to surrender this lease and all of his rights thereunder to Lessor at any time during the life of this lease. Prior to any such surrender, Lessee shall give Lessor thirty (30) days notice in writing of Lessee's intention to surrender said leased premises. Any such surrender shall not operate to release or discharge Lessee of liability for default on his part occurring prior to the time of such surrender, but shall only relieve Lessee from the obligation of further operation of demised premises.

14. Upon the termination of this lease for any cause, all timber, houses and erections placed on said premises by Lessee shall remain there as the property of Lessor, but all machinery, mine tools, pipe and rail placed thereon by Lessee shall remain as Lessee's property, and may be removed by him within a reasonable time after termination, forfeiture or surrender of this lease.

15. In consideration of Lessee having fully complied with all of the terms and provisions hereof, Lessee is hereby given the following exclusive option to purchase, on or before July 31, 1959, the above described interests of Lessor, namely:-

(a) to purchase Lessor's undivided 3/4 interest in and to said ECLIPSE and LONE STAR lodes for $3000;

(b) to purchase Lessor's undivided 2/3 interest in and to said KEYSTONE lode for $2000;

IT IS UNDERSTOOD AND AGREED that any and all royalties, or advance royalties, which may be paid to Lessor under this lease on any or all of the three above described ownerships of Lessor, shall be credited to Lessee on the option price of the particular interest or interests which may be purchased by Lessee.

16. It is further understood and agreed that Lessee shall have the right, at his election, to completely exercise either of the foregoing options, without the necessity of completely exercising both of them.

17. In the event of expiration of this lease or its termination by forfeiture or surrender, any or all of the payments and/or royalties and advance royalties theretofore paid or caused to be paid to Lessor by Lessee, shall be retained by Lessor as her property as liquidated damages.

Each and every clause and covenant of this lease shall extend to the heirs, executors, assigns and successors of each of the parties hereto.

IN WITNESS WHEREOF, The parties hereto have hereunto set their hands and seals, in duplicate, the day and year first above written.

/s/ EFFIE M. HARING (SEAL)
Effie M. Haring, Lessor.

/s/ JAMES N. REDMAN (SEAL)
James N. Redman, Lessee.

RECEIVED
JUL - 5 1955

REPORT ON THE GEOPHYSICAL SURVEY OF A PORTION OF THE PROPERTY OF TREASURY VAULT URANIUM CORPORATION, ALMA DISTRICT PARK COUNTY, COLORADO

LUNDBERG EXPLORATIONS LIMITED

TORONTO

December 20, 1954

REPORT ON THE GEOPHYSICAL SURVEY OF A PORTION OF THE PROPERTY OF TREASURY VAULT URANIUM CORPORATION, ALMA DISTRICT PARK COUNTY, COLORADO

INTRODUCTION

The geophysical survey on the Treasury Vault Uranium Corporation property was undertaken in order to measure the extent and quantity of gamma radiation on the surface and to establish any trends in the radiation pattern.

The survey was begun on October twenty-fourth and completed on November fourth. During this period six and one-half days were spent in the field.

The necessary unskilled labour to assist the geophysical survey was supplied by Treasury Vault Uranium Corporation. Mr. Melvin Koepke actively assisted in the grid lay-out.

PHYSICAL CONDITIONS

Location and Area

The property is located in Park County, in the Alma district of Colorado. The property is about seven miles west of the town of Alma.

Approximately two thousand seven hundred feet of profile were geophysically surveyed.

Accessibility

A motor road leads from Alma up North Mosquito Gulch, and a small road branches off this and leads directly to the survey area.

Topography

The property is about thirteen thousand feet above sea level and is situated on a glacial terrace on the south side of the North Mosquito Gulch. The terrace is relatively flat, however the hillside on which the Champaign mine is situated is quite precipitous. The survey area is covered with little over-burden and is cut by a small intermittent stream in the south-east end.

WEATHER CONDITIONS

The geophysical survey was interrupted due to inclement weather owing to the approach of winter.

GEOLOGICAL CONDITIONS

The geology of the Treasury Vault Uranium Corporation property will not be discussed in detail as it is adequately covered by the following author.

Singewald, Quentin D. and Butler, B.S.	"Ore Deposits in the Vicinity of the London Fault of Colorado", USGS Bulletin 911, 1941.

General

The property is entirely underlain by the Precambrian basement complex. Injection gneiss and quartz-mica schist are present in the north-western part of the map area. These rocks are believed to be the oldest rocks in the district and are co-related with the Idaho Springs formation. They are thought to be the metamorphosed equivalent of a thick series of somewhat sandy shales containing a few lenses of nearly pure sandstone.

The granite of the area is a fine to medium grained, light-grey biotite-muscovite rock and has been correlated with the Silver Plume granite. The granite is the most abundant rock type in the map area. The gneiss, schist and granite has been intruded by numerous pegmatite dykes which are genetically related to the granite.

The ore deposits of the area are gold-silver fissure types. Three parallel vein systems cut the area, the Fanny vein, striking S37°W, the Imperial and General Canby striking north-south.

THE GEOPHYSICAL SURVEY

Uranium, thorium and very minor amounts of radium occur in most igneous rocks. Many granites and related rocks contain about 0.003 per cent uranium and/or thorium oxide. These elements produce gamma particles in proportion to the amount of

element present in the rock. Potassium in the form of K^{40} also produces gamma particles which contribute to the total radiation. Potassium is present in most igneous rocks as a constituent of feldspars and micas. Thus over an igneous mass of uniform composition the radiation pattern should be relatively uniform. However, if radioactive elements such as radon gas dissolved in ground waters are transferred to the surface along breaks and joints in the rock, those breaks will appear as radiation highs when compared to the general background.

If the deposits are drift-covered the effectiveness of this method will depend upon the kind of soil, its porosity, water content, drainage, etc.

The Radiation Method

The radiation survey was made on one hundred foot centres on one hundred foot lines. A Precision III hand scintillator was used. Neither the snow nor the overburden appeared to interfere with the readings, however the ground was bared for each reading.

Readings were taken underground for comparison purposes using a geiger counter supplied by Robert Hale of Treasury Vault Uranium Corporation. It was found that the counter became so contaminated with radioactive material as to render it useless for spotting the source of the radiation. Fortunately, however, the counter was enclosed in a plastic bag during the visit to number four tunnel and only the bag became contaminated.

RESULTS OF THE SURVEY

Map No. 22-377-1

One map accompanies this report, drawn to the scale of one inch equals one hundred and twenty feet. Map No. 22-377-1 is the radiation map of the Treasury Vault property. The areas of high radiation are coloured red; those of low radiation coloured green.

Discussion of the Results

The radiation survey has indicated several anomalous areas. The known fault system which coincides with the anomaly A' indicates that the anomalies may be due to radon gas seepage along fractures or fracture systems in the rock. For this reason possible fracture systems have been shown on the map by dashed lines passing through the anomalies. The general trend of most of these probable fractures is in a north-west direction with variations in strike from N20°W to about N70°W. Examples of these systems are anomalies A, A', C, J, D. A possible north-east fracture system is also apparent from the anomalies. This system roughly parallels the Clipper vein system. Anomalies E, D, G, F and H show this trend.

The Fanny vein system projected to the surface coincides with a radiation low. This fact could be due to mining along the fissure which has allowed the ground waters, with their dissolved radon gas, to escape.

The readings underground are roughly ten times higher than those at the surface. Unfortunately instrument contamination prevented the selection of the actual source of radiation underground. A possible method of overcoming this difficulty will be mentioned in a later section.

We believe from our comparison of the surface results with the readings taken underground, that the source of the radon gas is associated with the mineralization in and below the workings and not near the surface. However, it seems likely that the source is associated with the cross-fractures rather than the main Fanny fissure since the cross-fractures occur as radiation highs at the surface.

SUGGESTIONS

1. Ventilation of the mine workings might eliminate contamination and thereby permit a radiation survey of the tunnel to locate the source of the emanations.

2. The radiation survey in the tunnel could be accomplished

by covering an instrument with several plastic bags. This would allow the meter to remain visible and prevent the radon gas from coming in contact with the instrument. A reading could then be taken at a point for a specific time. Immediately before the next reading is taken the bag would be removed, thus leaving an uncontaminated surface.

3. The radiation survey could be extended to the north to cover the Clipper workings at a favourable time of the year when the hill side is more accessible. Further geological investigation could be done in the anomalous areas on surface. A detailed geological mapping underground in conjunction with a tunnel radiation survey would be of assistance in locating the radioactive source.

4. Systematic sampling underground and analyses of these samples after the geological and radiations surveys have been completed, would assist in the layout of a comprehensive diamond drilling program.

5. To avoid any risk of harm due to radiation to the personnel working in the mine, a radiation dosimeter should be worn to measure the radiation over longer periods of time. Further information regarding these instruments and the allowable dosage could probably be obtained from the local Civil Defence organization.

CONCLUSIONS

The radiation survey has indicated several anomalous areas. These anomalies have been attributed to radon gas seepage in fracture zones. None of these anomalies appear to be due to a near surface radioactive deposit.

Extension of the radiation survey to the north and further geological work on the surface and underground appears to be warranted.

We would appreciate being kept informed on the progress of any future work as this would enable us to better evaluate the results of these surveys and, in this way, help to guide a future development program.

Respectfully submitted,

LUNDBERG EXPLORATIONS LIMITED,

/s/ Hans Lundberg
Hans Lundberg
President

Toronto, Ontario
December 20th
1 9 5 4

RECEIVED
JUL - 5 1955

REPORT ON THE TREASURY VAULT PORTION OF THE RADIATION SURVEY FOR LEADVILLE LEAD CORPORATION PARK COUNTY, COLORADO

Map No. 22-372-1

LUNDBERG EXPLORATIONS LIMITED
TORONTO

REPORT ON THE TREASURY VAULT PORTION OF THE RADIATION SURVEY FOR LEADVILLE LEAD CORPORATION PARK COUNTY, COLORADO

INTRODUCTION

An airborne radiation survey was conducted for Leadville Lead Corporation in September 1954. Through an agreement with Leadville Lead Corporation, the northern portion of the radiation map has been made available to Treasury Vault Uranium Corporation. This report will deal only with the northern section of the map area.

THE GEOPHYSICAL SURVEY

Trace elements occur in all of the igneous and sedimentary rocks. Among these elements are minor amounts of uranium, thorium and radium. These elements due to their radioactive nature yield gamma emanations in proportion to the amount of element present. Potassium in the form of K^{40} and radon gas emanating through fissures and joints also produce gamma particles which contribute to the total radiation.

Using a suitable gamma ray detector it is, therefore, possible to map various rock types through the gamma ray emanations. Similarly uranium deposits which yield high radiations can be detected by this method.

If the deposits are drift-covered, the effectiveness of this method will depend upon the kind of soil, porosity, water content, drainage, etc. The overburden in the survey area is very light and had no apparent effect on the emanations.

THE RADIATION METHOD

The radiation survey was made with a very sensitive airborne scintillation counter. This instrument is only sensitive to gamma particles. The profiles were flown in an east-west direction contingent on the

topographic conditions. Where possible, lines were flown five hundred feet apart and at an elevation of two hundred feet. Corrections were made for variations in altitude.

RESULTS OF THE SURVEY

One map no. 22-372-1 drawn to scale 1:12000 accompanies this report. This is the radiation map of the Treasury Vault Mountain Area. Areas of high gamma radiation are coloured varying shades of red; of low radiation coloured green.

A relatively high background counting rate is general throughout the area. The Precambrian granites and gneisses appear as radiation highs throughout the area; as do the Weber (?) shales. The carbonaceous rocks, siliceous rocks and the porphyries appear as radiation lows.

In the north portion of the surveyed area the uplift on the east side of the London fault has exposed Precambrian rocks. Therefore, the radiation high caused by these igneous rocks makes it possible to trace the London fault in that area. However, where the Precambrian and the Weber (?) shale are in contact, the location of the fault becomes indefinite. The minor features such as fissures, which are so important in this area as mineralizing conduits, are difficult to trace by this method.

An area of relatively intense radiation occurs in the vicinity of Treasury Vault Mountain extending southeast to include the North London area. The most intense radiation occurs in a fairly local zone on the south slope of Treasury Vault Mountain. The presence of talus in this area could account for some of this high radiation. As this anomaly includes a portion of the Champaign property, it is reasonable to assume that the high is caused by the same source as the radiation in the Champaign tunnel. For

this reason it is recommended that the property underlying this anomaly be acquired, if that has not already been done.

CONCLUSIONS

The airborne radiation survey in the Champaign area has yielded several interesting facts. The radiation pattern shows broad regional changes due to geology and large structures, such as the London fault. An area of high radiation south of Treasury Vault Mountain could be caused by radon gas seepage from extensive uranium deposits.

Respectfully submitted,

LUNDBERG EXPLORATIONS LIMITED

. . . . . .

Hans Lundberg
President

Toronto, Ontario
January 7th
1955

TREASURY VAULT URANIUM CORPORATION

TREASURY VAULT MOUNTAIN, PARK COUNTY, COLORADO

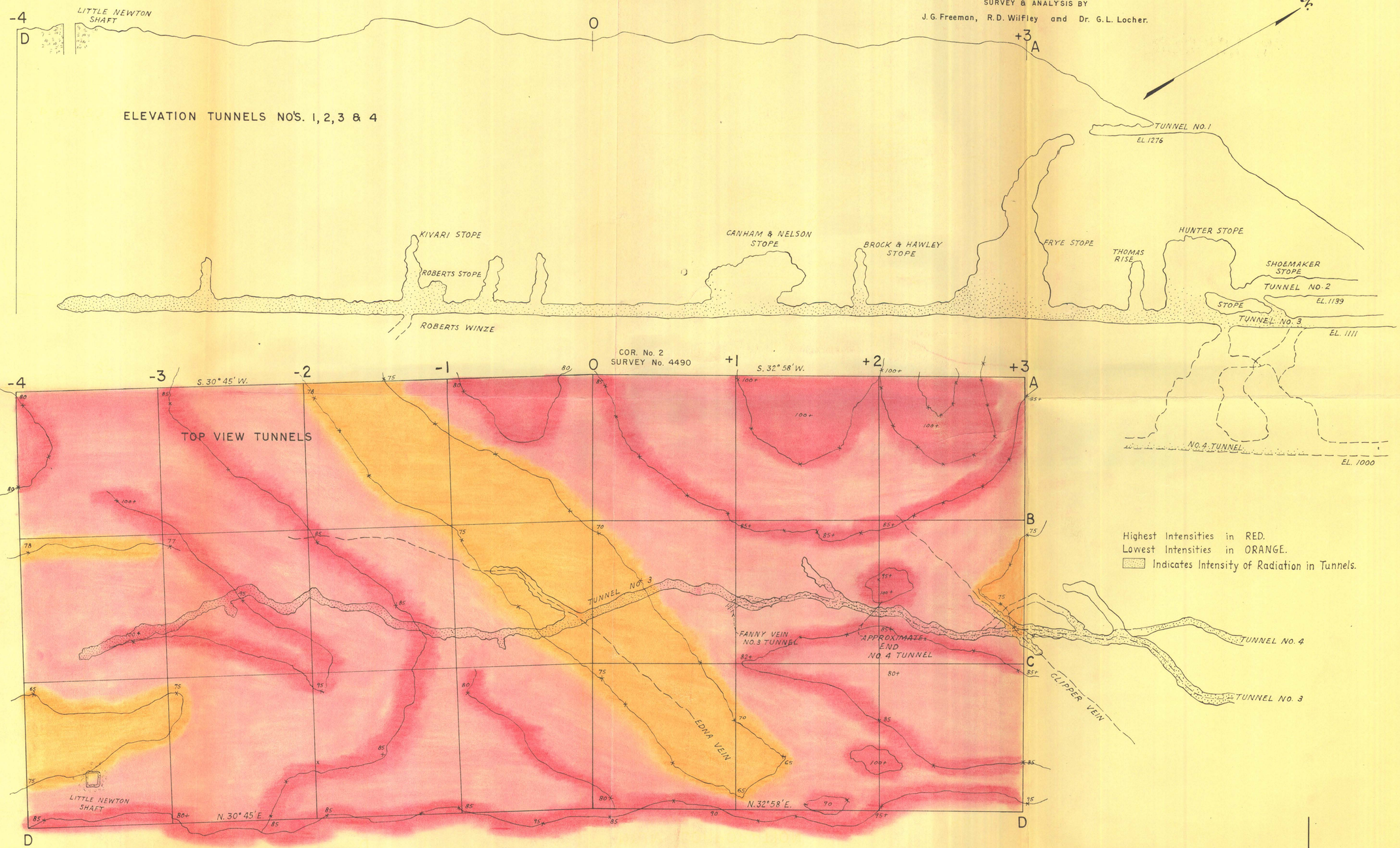
SCALE 3 IN. = 100 FT.

RADIATION SURVEY

TOP & SECTIONAL VIEW

SURVEY & ANALYSIS BY

J. G. Freeman, R. D. Wilfley and Dr. G. L. Locher.



TREASURY VAULT URANIUM CORPORATION

TREASURY VAULT MOUNTAIN, PARK COUNTY, COLORADO

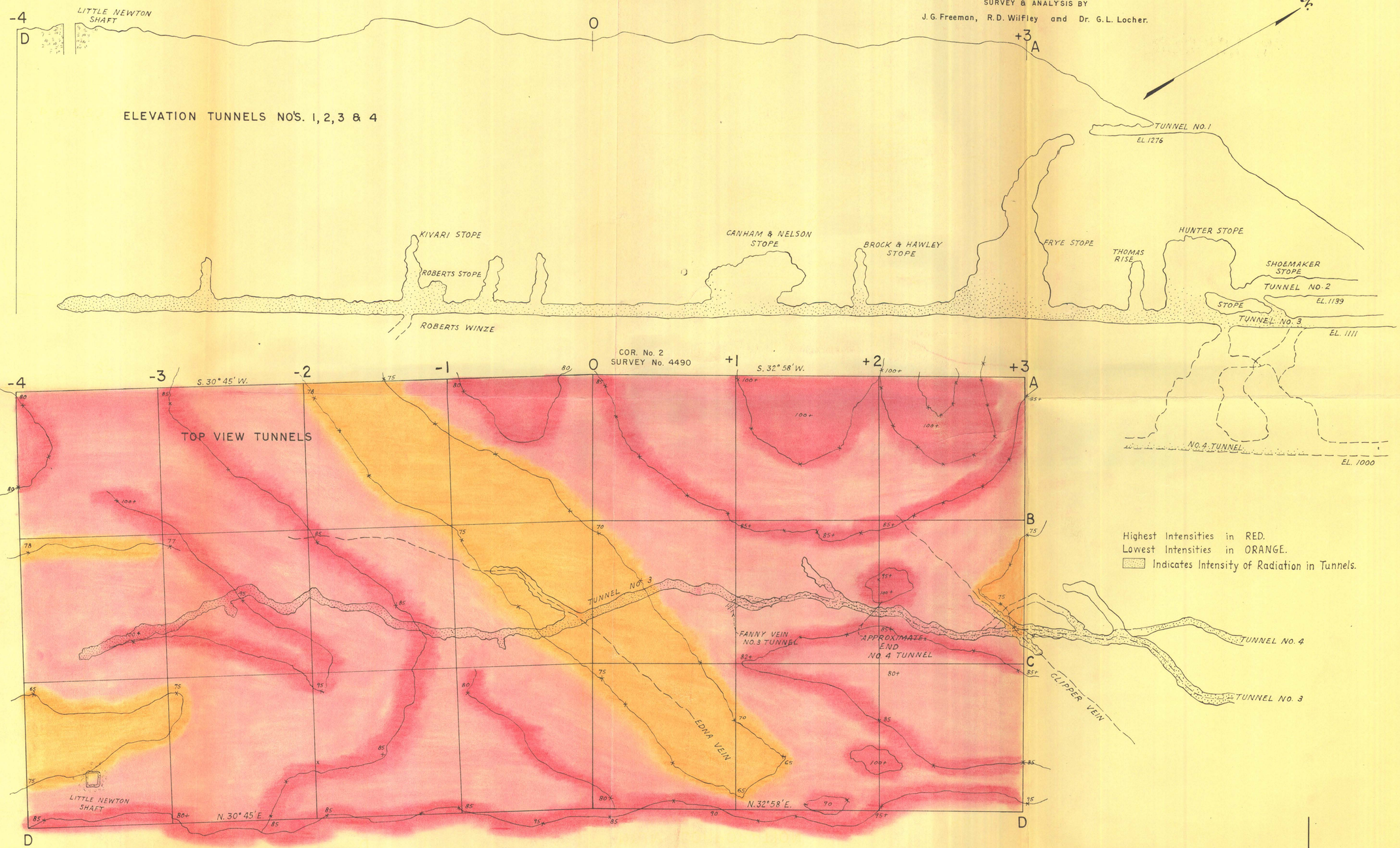
SCALE 3 IN. = 100 FT.

RADIATION SURVEY

TOP & SECTIONAL VIEW

SURVEY & ANALYSIS BY

J. G. Freeman, R. D. Wilfley and Dr. G. L. Locher.



Land Owned
Land Held By Location
Leased Land
Partly Owned
Partly Leased
Partly Owned & Partly Leased
COLORADO
STATE
SCHOOL
LAND
LEASE
TREASURY VAULT NO. 20
TREASURY VAULT NO. 19
TREASURY VAULT NO. 18
TREASURY VAULT NO. 17
TREASURY VAULT NO. 16
TREASURY VAULT NO. 15
TREASURY VAULT NO. 14
TREASURY VAULT NO. 13
TREASURY VAULT NO. 12
TREASURY VAULT NO. 11
TREASURY VAULT NO. 10
TREASURY VAULT NO. 9
TREASURY VAULT NO. 8
TREASURY VAULT NO. 7
TREASURY VAULT NO. 6
TREASURY VAULT NO. 5
TREASURY VAULT NO. 4
TREASURY VAULT NO. 3
BABY McKEE
GOLCONDA
DICKEY
ODELL
STEELE NO. 1
STEELE NO. 2
STEELE NO. 3
GRAND PRIZE
DIORITE
HALE NO. 2
HALE NO. 3
JACKIE
VULCAN
WONDER
BONANZA KING
BRIGHTON
ST. LOUIS
ONTARIO
EMMA
SNOW FLAKE
RAVIN
COBURN
TRUMAN
GRACE
LOVELAND NO. 1
LOVELAND NO. 2
GRIMSBY
JEROME B. CHAFFEE
HOODUM
BELLE FONTAINE
WEALTH
TUNNEL
PRINCE OSCAR
BONANZA QUEEN
DIEFENDORF
RESERVE PLACER
WONDER HOME PLACER
MANSON
WALLACE
ROSE
WANDA
PALMYRA
JANIE
DOROTHY
DAVID
MOINIE
LONDON
LEWIE
SHERWOOD
SHERWOOD NO. 1
SHERWOOD NO. 2
SHERWOOD NO. 3
BOYNTON
VERNER
IMPERIAL
PLACER Tract 1.
THREE BROTHERS NO. 5
THREE BROTHERS NO. 2
THREE BROTHERS NO. 3
THREE BROTHERS NO. 4
JO DANDY
LONDON M.S.
LEHIGH VALLEY PLACER
PILGRIM
EMERALD
AERIAL TRAM
FAULT
ACCOMMODATION
COMSTOCK NO. 2
COMSTOCK NO. 1
ASPEN NO. 1
ASPEN NO. 2
GREY EAGLE
BALTIC
GOLDEN EAGLE
RICHARD
HARD TO BEAT
VENTURE
MINNESOTA
OTTAWA VALLEY
TWIN BROTHERS
MINERS HOPE
MICHIGAN NO. 1
MICHIGAN NO. 2
MICHIGAN NO. 3
MICHIGAN NO. 4
MICHIGAN NO. 5
MICHIGAN NO. 6
MICHIGAN NO. 7
MICHIGAN NO. 8
MICHIGAN NO. 9
ELEANOR
Coney Lake
Champion Tunnels
Clipper Tunnel
SUNNY SOUTH
LITTLE NETTIE
ARBITRAN
IMPERIAL
CLIFF
TRIANGLE
FOUNDOUT
HUMBO
NEW YORK
OLIVER
ADVANCE
BUN
BOB
MINNESOTA
EAGLE
LONDON NO. 1 M.S.
LONDON NO. 2 M.S.

MAP
SHOWING
GEOLOGY AND ANOMALIES
IN THE
TREASURY VAULT MOUNTAIN AREA

Scale:
One inch equals 500 feet.

Legend:

YOUNGER IGNEOUS ROCKS
- Quartz monzonite porphyry
- Monzonite-diorite porphyry
- Later white porphyry
- Lincoln porphyry
- White porphyry

TERTIARY

SEDIMENTARY ROCKS
- Weber Formation
- Leadville Limestone

CARBONIFEROUS

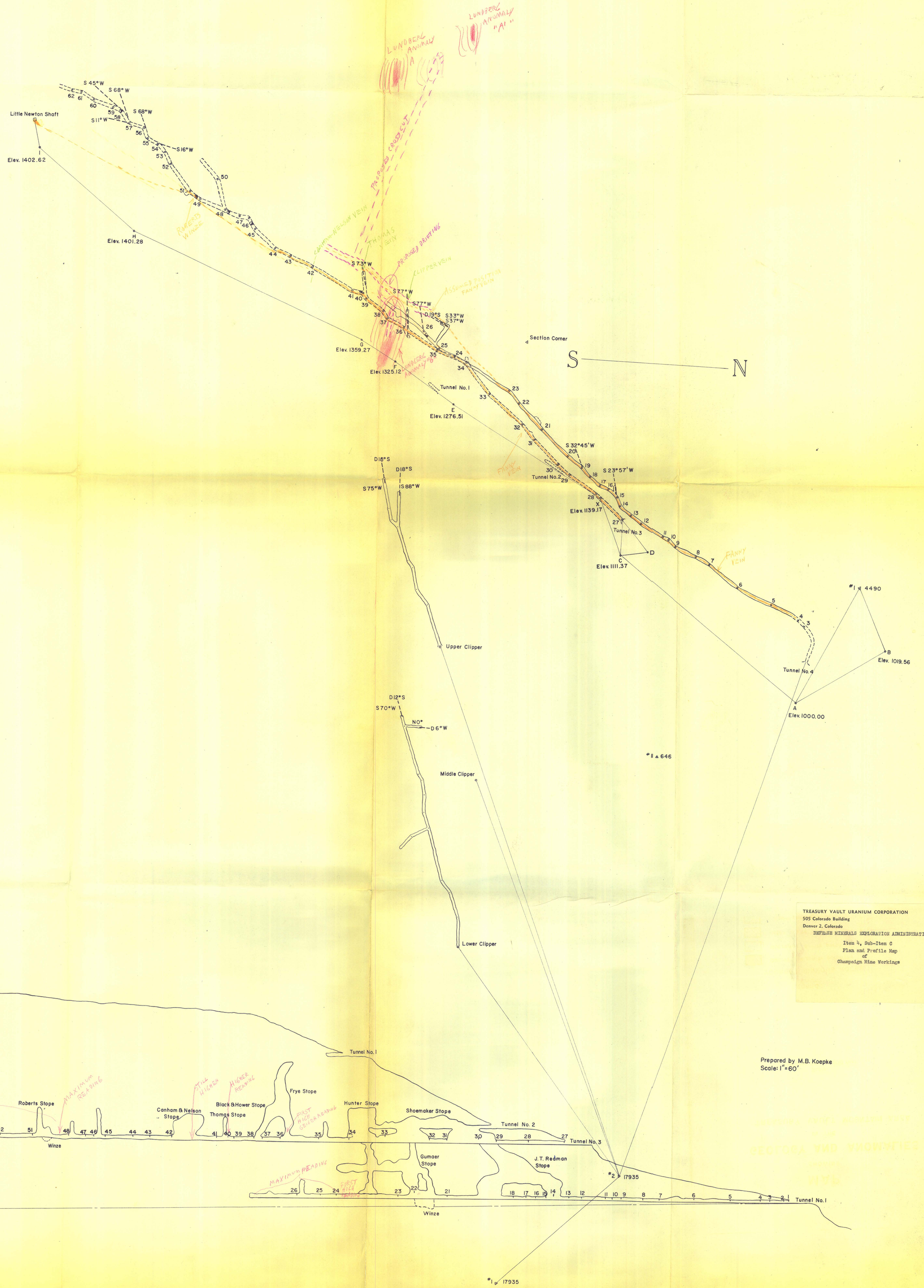
OLDER IGNEOUS AND METAMORPHOSED SEDIMENTARY ROCKS
- Pegmatite dikes
- Silver Plume granite
- Schist and injection gneiss

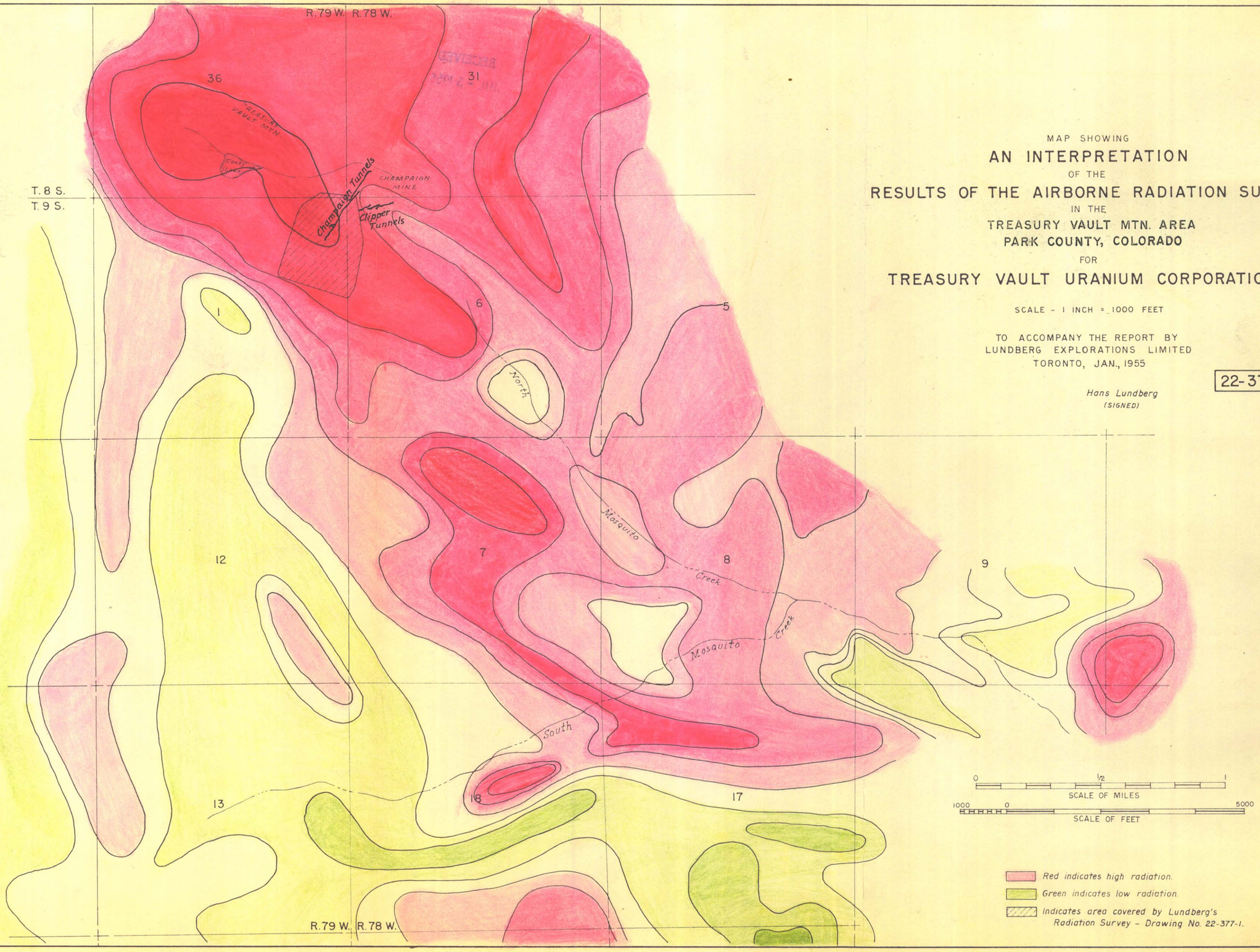
PRE-CAMBRIAN

TREASURY VAULT URANIUM CORPORATION
505 Colorado Building
Denver 2, Colorado
To Defense Minerals Explorations Administration
Item 4, Sub-item C

U.S. G.S. Geology Map Bulletin 911 with Lundberg Anomalies Superimposed, Colored as to Geology

(Please return to applicant)


Little Newton Shaft
Elev. 1402.62
Elev. 1401.28
Elev. 1359.27
Elev. 1325.12
Elev. 1276.51
Elev. 1139.17
Elev. 1111.37
Elev. 1019.56
Elev. 1000.00
Tunnel No. 1
Tunnel No. 2
Tunnel No. 3
Tunnel No. 4
Section Corner
S
N
LUNDBERG ANOMALY "A"
LUNDBERG ANOMALY "A'"
PROPOSED CROSS CUT
PROPOSED DRIFTING
CANYON-NELSON VEIN
THOMAS VEIN
CLIPPER VEIN
ASSUMED POSITION FANNY VEIN
FANNY VEIN
POWERD WINZE
S 45°W
S 68°W
S 11°W
S 16°W
S 73°W
S 77°W
S 33°W
S 37°W
S 32°45'W
S 23°57'W
D16°S
D18°S
S 75°W
S 88°W
D12°S
S 70°W
N0°
D 6°W
#1 ▲ 4490
#2 ▲ 17935
#1 ▲ 17935
#11 ▲ 646
Upper Clipper
Middle Clipper
Lower Clipper
TREASURY VAULT URANIUM CORPORATION
505 Colorado Building
Denver 2, Colorado
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Item 4, Sub-Item C
Plan and Profile Map
of
Champaign Mine Workings
Prepared by M.B. Koepke
Scale: 1"=60'
Little Newton Shaft
400
300
200
100
0
GEIGER STAYED AT MAXIMUM READING
MAXIMUM READING
STILL HIGHER
HIGHER READING
FIRST HIGH GEIGER READING
MAXIMUM READING
FIRST HIGH READING
Roberts Stope
Canham & Nelson Stope
Thomas Stope
Black & Hower Stope
Frye Stope
Hunter Stope
Shoemaker Stope
Gumaer Stope
J. T. Redman Stope
Winze
Winze
Tunnel No. 1
Tunnel No. 2
Tunnel No. 3
Tunnel No. 1



MAP SHOWING

AN INTERPRETATION

OF THE

RESULTS OF THE AIRBORNE RADIATION SURVEY

IN THE

TREASURY VAULT MTN. AREA
PARK COUNTY, COLORADO

FOR

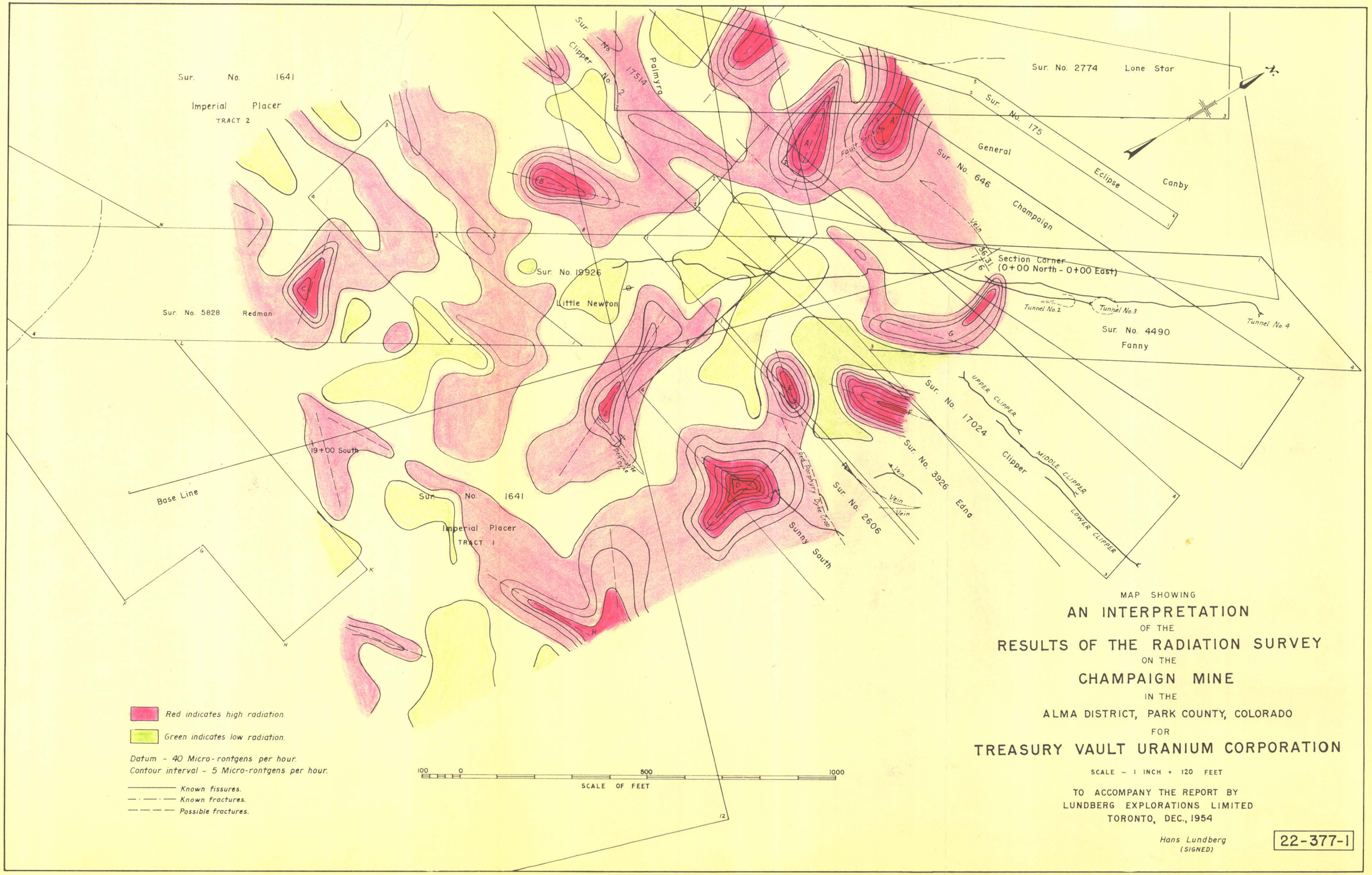
TREASURY VAULT URANIUM CORPORATION

SCALE - 1 INCH = 1000 FEET

TO ACCOMPANY THE REPORT BY
LUNDBERG EXPLORATIONS LIMITED
TORONTO, JAN., 1955

22-372-1

Hans Lundberg
(SIGNED)



MAP SHOWING

AN INTERPRETATION

OF THE

RESULTS OF THE RADIATION SURVEY

ON THE

CHAMPAIGN MINE

IN THE

ALMA DISTRICT, PARK COUNTY, COLORADO

FOR

TREASURY VAULT URANIUM CORPORATION

SCALE - 1 INCH = 120 FEET

TO ACCOMPANY THE REPORT BY
LUNDBERG EXPLORATIONS LIMITED
TORONTO, DEC., 1954

Hans Lundberg
(SIGNED)

22-377-1