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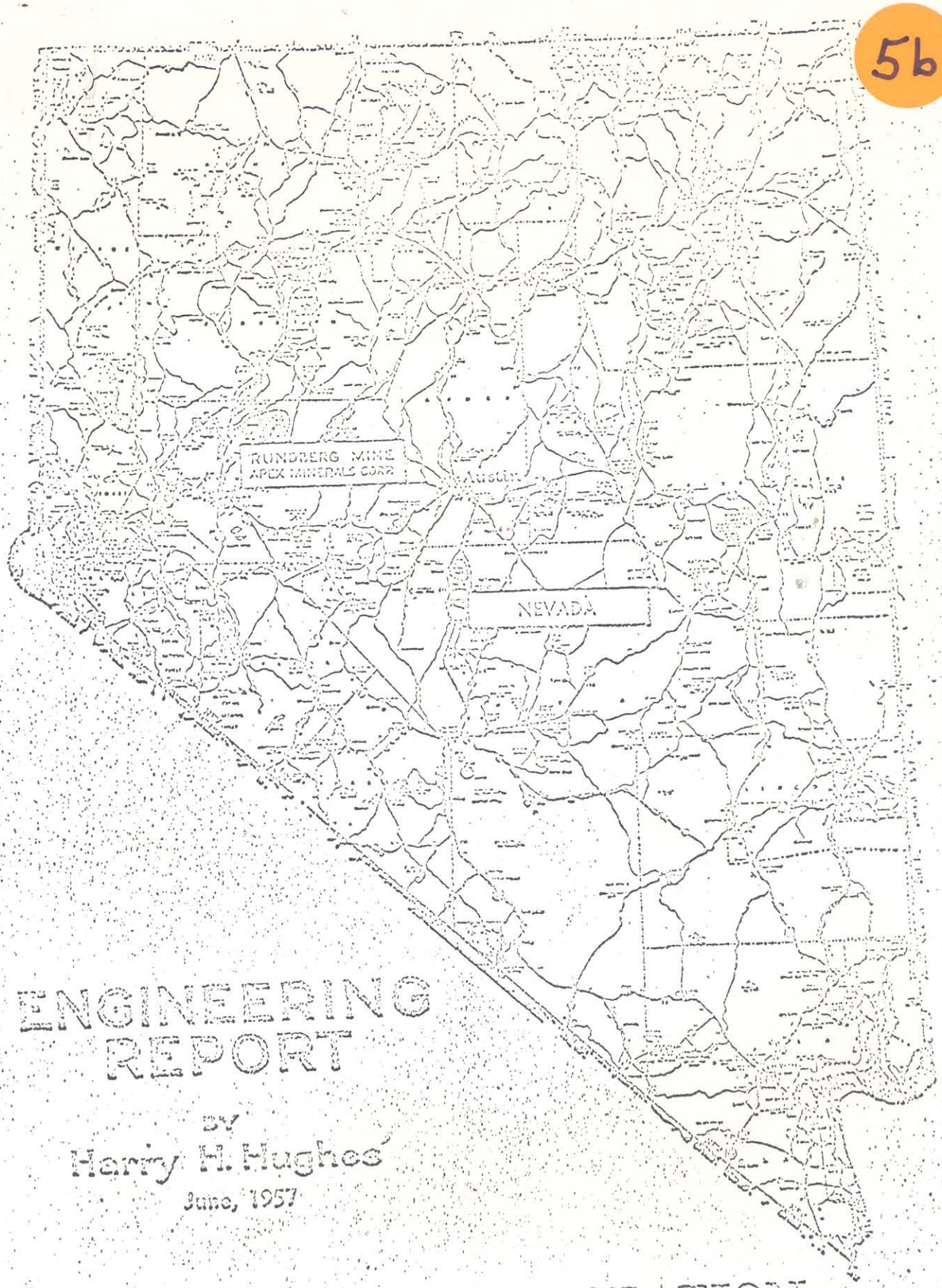


ENGINEERING REPORT

by

Harry H. Hughes

June, 1957

APEX MINERALS CORPORATION

(Lander Co. Nv.)

HARRY H. HUGHES
MINING GEOLOGIST
GOLDFIELD, NEVADA

STATE WATER RIGHT SURVEYOR
ESMERALDA COUNTY ENGINEER
REGISTERED PROFESSIONAL ENGINEER
NEVADA NO. 699; MISSOURI NO. C-0704

POST OFFICE BOX 9
TELEPHONE 3017

June 22, 1937

To the Board of Directors
Apex Minerals Corporation
317 Clay Peters Building
Reno, Nevada

Gentlemen:

Attached herewith is my report on your Rundberg mine near Austin, Lander County, Nevada.

Very truly yours,

Harry H. Hughes

Harry H. Hughes

REPORT ON MINES OF APEX MINERALS CORPORATION
AUSTIN, NEVADA

SUMMARY AND CONCLUSIONS

For three years the writer has been making statements, predictions and recommendations on the uranium ore deposit of the Apex Minerals Corporation near Austin, Lander County, Nevada. Most of the engineers who have visited the property in that time have disagreed with the statements and predictions. For example, one engineer who is a friend of the writer even stated that we would never find primary ore in the ground.

However, thanks to the vision and courage of the management in being willing to believe the predictions and follow the recommendations, Apex Minerals Corporation has more than three times the tonnage of ore reserves today than it had a year ago (374,400 tons now and 106,200 last year). And the reserves are increasing daily under the vigorous development campaign being carried on. In fact, it is phenomenal the manner in which the ground responds to development.

The word "phenomenal" is used advisedly, but is the only one the writer can think of to describe the growth of the property. When he first became associated with the operation three years ago, the only ore showing was in the Rundberg tunnel and its surface outcrop; and the ore in the tunnel was only partially developed. It was at this stage that the skeptical engineers began saying that the ore would not go down and that the Rundberg autunite and torbernite were local concentrations of uranium leached out from the nearby granitic rocks.

However, the writer, whose thirty-five years' experience in mining with some of the world's largest metal mining companies which include ten years with The American Metal Company's Mexican subsidiary; and the Metals Reserve (a U.S. Government agency) during World War II in Brazil, reasoned that in all outcropping orebodies there are certain indications that spell out commercial ore deposits; and those indications hold in uranium ores as well as for all other minerals. And a study of the then infant Rundberg orebody and surface conditions convinced the writer that the required earmarks to make a mine were present.

One of the things which impressed the writer is that the Rundberg deposit is of the vein type. This means that the orebodies will have continuity not only in strike, but more particularly in depth. This is very significant when the Rundberg is compared to (or rather contrasted with) the Colorado Plateau uranium deposits. There, the deposits are in restricted channels, with widths, thicknesses of ore, and even lengths confined to certain areas and horizons. The Rundberg, being of the vein type, has no foreseeable limits, especially in depth; and we can confidently predict that at the present stage of development we are merely on top of the best orebodies.

Subsequent development has more than vindicated our vision and judgment; and we are very proud to have had a part in the making of this mine.

Today there are six orebodies of major importance developed, or partially developed in the Rundberg mine of the Apex Minerals Corporation. They are tabulated below. It might be noted here that we are changing the nomenclature of the ore classifications. Instead of speaking of "Positive," "Probable" and "Possible" ore, we are changing the terminology to "Indicated," "Inferred" and "Potential" ore. The latter is that which is used by the Atomic Energy Commission and in order to be in agreement, we will use their classifications.

It is understood that the new nomenclature does not change the classification of ores previously used by the writer, but merely the terminology.

As will be noted in detail later, a series of diamond drill holes have been drilled in a definite pattern westerly from any previously known ore. These holes have been drilled on a grid of fifty foot centers and have revealed an orebody to which the writer has assigned a volume of 72,200 tons. However, since the maps and computations were made for the AEC, additional holes have been drilled (holes "M" and "N") both of which have cut ore as shown in the logs. These holes increase the tonnage by a minimum of 14,400 tons but the continuing drilling program is extending the orebody hole by hole. Also, it is stated definitely that this is one of the largest orebodies in the mine; and, like the Diamond orebody, should be amenable to an open pit mining operation. The most

encouraging aspect of this drilling campaign is the fact that it is proving that the ore-bodies extend out under the valley fill.

This diamond drill orebody is five hundred feet westerly from the orebody in the Adit No. 2; and from our experience in developing, it is safe to say that the ore will fill in and make one large orebody. This would make the orebody 700 feet long and if it is projected an additional 500 feet out under the valley fill, it would indicate an orebody with a length of 1,200 feet and it is believed that there is every chance of it being this large.

There is approximately 80 feet of overburden on top of the ore. This would permit stripping in order that the ore could be mined from an open pit, which should give a mining cost of about $1.00 per ton as against a probable cost of $5.00 per ton for underground mining. From the logging of the diamond drill holes it is felt conclusively that the ore is the primary coffenite. The Rundberg, Diamond, and Adit No. 2 orebodies are without a doubt oxidation products from this original coffenite ore; and in depth we are very certain now that all of the orebodies will be this primary uranium.

Proof of this is in the logging of the "H" hole in which, at a depth of 148 to 158 feet, values average over 1.33% U_3O_8. In order to have these values we are certain that the ore must be the coffenite. Furthermore, the cuttings in drilling the holes were the black color indicative of the coffenite.

These higher values in depth have been cut in each succeeding hole drilled westerly from this "H" hole and to date show a proven length of 150 feet in "H", and since there have been no blank holes drilled in this westerly direction, the orebody is without a doubt continuing as noted above out under the valley fill.

The following is a tabulation of the tonnages of the various orebodies:

	Tons Indicated Ore	Tons Inferred Ore	Tons Potential Ore	
Adit No. 1 (Primary Ore)				
(a) Hanging wall orebody	8,800	4,000	8,820	(Each 100 Ft.) *
(b) Foot wall orebody	6,000	4,000	8,220	(Each 100 Ft.) *
Rundberg orebody	37,000	25,000	25,000	See note below
Diamond orebody	53,200	53,200	53,200	(Each 100 Ft.) *
Adit No. 2 orebody	180,000	180,000	180,000	(Each 140 Ft.) *
Diamond drill holes	87,600	87,600	43,800	(Each 100 Ft.) *
TOTALS	374,460	356,200	319,040	

Note: This tonnage of potential ore is used because at this time the Rundberg orebody is apparently merging with the Adit No. 2 orebody.

*: To determine total potential tonnages to a depth of 500 feet, multiply each figure by 5 (with the exception of the Adit No. 2 orebody); which is carried 140 feet in the table, and if multiplied by 5 would extend the ore 700 feet.

These tonnages are considered quite conservative, since from the development standpoint, this property has hardly been scratched. The average grade of this ore, as determined from chemical assays and radiometric probings of the diamond drill holes, is .242% U_3O_8.

In previous calculations of tonnage for the Diamond orebody a width of 58 feet was used. The orebody is, of course, this wide; and across this width it will average .15% U_3O_8. However, recent developments in the orebody have disclosed that across a width of 21 feet the ore will average .53%. Therefore, it is considered better mining practice to mine 21 feet of .53 % ore than it would be to mine the 58 feet of the lower grade material. Thus, in view of the fact that in mining 20,000 tons from the 21 foot width, 212,000 pounds of U_3O_8 will be produced as against 160,500 pounds from the 53,200 tons, it is recommended that the 21 foot width be mined.

In 1956, 1,509 tons of ore were shipped from the Rundberg, Primary and the Diamond orebodies. These were as follows:

	Percent U_3O_8
18 cars of Rundberg ore; averaging	.161
7 cars of Primary ore; averaging	.625
1 car of Diamond ore; averaging	.201

This is considered the best sampling of the respective orebodies that it is possible to have. However, these shipments were from the full width of the Diamond orebody as noted previously.

These carload shipments were made to the Vitro Uranium Company mill near Salt Lake City, Utah; and the average of the entire shipments was .2526% U_3O_8.

Since the sampling of the Adit No. 2 orebody, a raise has been driven near the northeast edge of the ore. At the time of this writing, this raise is 60 feet above the Adit No. 2. Two hundred fifty tons of ore from this raise have been separated and assays from it indicate that it will carry .7% U_3O_8 or better.

LOCATION AND ACCESSIBILITY

The Apex Minerals Corporation mines are located near Austin, the county seat of Lander County, Nevada. The mines are three miles in an air line southerly, or 7½ miles by road from Austin. Of the road distance, 5 miles are over U. S. Highway 50; the remaining 2½ miles is over a graded and maintained gravel road. From the mines to the recently purchased Linka mill the distance is 27 miles.

This Linka mill is centrally located to receive and treat any uranium ores that might be produced and sold to Apex Minerals Corporation on a custom basis.

HISTORY

Uranium was discovered in September, 1953 by Joe and Rudy Rundberg on the ground now held by Apex Minerals Corporation. They drove 118 feet of tunnel which cut a corner of the Rundberg orebody. On November 1, 1955, Apex Minerals Corporation acquired a 20-year lease and an option to purchase the Rundberg group from Uranium Mines, Inc. Since that time an intensive development campaign of bulldozing on the surface, driving tunnels, raising and drilling have opened six large orebodies of uranium ore, with other possible orebodies as yet undeveloped.

PROPERTY

Claims held by Apex Minerals Corporation are 57 in number. Of these, 7 are in the Rundberg group and are held under a 20-year lease and an option to purchase from the Rundbergs.

The company acquired outright the Jumbo, Paiute, Paiute Nos. 1 through 8, Western Soldier and Western Soldier Nos. 1, 2 and 3.

The Carnotite, Carnotite Nos. 1 through 11, Noonday, Noonday Nos. 1 and 2, Ace, Autun, Autun Nos. 1 through 5, Sundown, Sundown Nos. 1 through 9, Sundown No. 11, Rundberg Extension, and Rundberg Extension Nos. 1 and 2 are held by Apex Minerals Corporation under a lease and option to purchase agreement.

In 1956 there were some legal difficulties with neighboring claim owners over the Paiute and Western Soldier claims and the Diamond of the Rundberg group. This involved a court action but all has been settled satisfactorily to Apex Minerals Corporation which is now in full possession of the ground. The writer has checked court decisions in this matter and finds that all titles are in order.

GEOLOGY

Since the writer's report of three years ago, there has been nothing found to change our original ideas on the geology. Therefore, the following section, with the exception of the last paragraph, is lifted bodily from the previous printed report.

The claims of the Apex Minerals Corporation are near the southwest border of the quartz monzonite pluton which is the core of the Reese River mining district in which is located the famous old silver mining camp of Austin.

In the area of these claims the quartz monzonite has intruded a series of (presumably) paleozoic shales and quartzites, indurating and altering the shales almost to slates and schists. Locally, in the area of the Apex claims, the metasediments consist almost entirely of the quartzites, many of them being carbonaceous. In several places in the vicinity of the orebodies, the writer has found streaks of pure graphite, one of which is 4 inches thick. The carbonaceous material is quite significant since all authorities on uranium agree that presence of carbon is required to precipitate the uranium minerals from their solutions.

The quartz monzonite-quartzite contact strikes northwest-southeast generally and can be followed for a distance of about 9,000 feet on the Apex claims. Along the contact, the quartzites have been greatly folded, crumpled and kaolinized, resulting in crushed zones which have afforded excellent channels for the uranium solutions to circulate and precipitate. In spite of the generally consistent NW-SE strike of the contact, there are many local irregularities along it with small noses and embayments of the monzonite intruding the quartzites.

Also, throughout the area of the Apex Minerals Corporation claims there are numerous aplite dikes of varying thickness which cut across the monzonite-quartzite contact. They cut the contact varying from almost right angles to almost parallel. The dikes are later than the monzonite intrusion into the quartzites, and the intrusive action of the dikes further shattered the quartzites making even better channels for the circulation of the ascending uranium solutions. To put it in plainer terms, it is clear that a solution will pass through a bed of gravel easier than through a mass of rock only slightly cracked.

Therefore, it is certain today that the aplite dikes are the structural control for the uranium mineralization.

At the time the primary ore was first found in the Adit No. 1 it was thought that the dike along the ore was the same as that exposed in the Emma Adit. However, since the No. 1 and No. 2 Adits have been connected along the dike; and since the big orebody on the Adit No. 2 has been developed, it has been found that there are two separate dikes. The one associated with the ore in the Adit No. 2 is the one which is a part of that in the Emma.

SAMPLING

A total of one hundred eleven channel samples were cut by this writer in the area of the orebodies. These samples averaged about fifty pounds each. The channels are well defined and in addition to this, white stripes have been painted along each cut with the numbering H-1, H-2, etc. at the designated sample; so that any cut can be readily found and checked. These samples are shown on the accompanying assay map, and are tabulated at the end of this report.

It will be noted from the map that 66 of these samples were taken in the Adit No. 2 orebody and are the basis for the average grade assigned to this orebody which is .10% U_3O_8. However, as stated under "Summary and Conclusions," the raise now being driven in the Adit No. 2 orebody is averaging at least .7%. In addition to this new raise, 16 of the samples were recut for checking purposes and these recuts, together with the value in the raise, were used in calculating the average noted above.

Chemical assaying of samples was done by Black and Deason of Salt Lake City, Utah.

Since the formal sampling mentioned above, the following additional ones have been taken:

	Percent U_3O_8
Raise in branch drift Adit No. 2	.70
Grab broken ore at Diamond	1.00
Twenty-one feet cut across face of Diamond	.41
Cut on top bench at Diamond - 17 feet	.18
Five foot cut in raise back end of Adit No. 1	.10
Grab of muck pile - drift at back end of Adit No. 1	.13

DIAMOND DRILLING

At the time of the writer's last report, one surface hole had been drilled, showing, by probing, 31 feet averaging .25% U_3O_8 at a depth from 49 to 79 feet. Another band of ore in this same hole between 91 and 95 feet averaged .15% (this was the bottom of the hole).

Since the last report an additional five holes have been drilled in the same vicinity and all have cut ore except No. 6 which was collared too far in the hanging wall of the ore zone to be in ore.

These holes are very important because they serve to prove the extent of the large autunite orebody opened on the Adit No. 2 level.

In addition to the numbered holes mentioned above, there have been ten others drilled 400 feet to the west. These holes have been designated by letters, C, D, E, F, G, H, I, J, K and L. They were drilled on a grid of 50 foot intersections, so that (except for the "C" hole) they are 50 feet apart each way.

Sections have been put through these holes, showing the widths and values of ore encountered in each; and also the relative depths where ore was cut below the Adit No. 1 level.

It will be noted on the section of "H" hole that the ore came just up to the level of Adit No. 1 at this point. For this reason the west drift was driven to intersect the hole. This has been done, and the ore found at the spot where it was calculated to be. A sample of the ore has been assayed and showed .30% U_3O_8. This is of particular value because it confirms the probing of the hole with the Babbel Geiger counter, which gave readings of .38 and .44% for the first two feet of ore.

The importance of these surface drill holes cannot be stressed too greatly because they prove an orebody 200 feet west of any previously known ore; and already they prove this orebody to have a known length of 200 feet with projecting any distance beyond the most westerly hole (D). Additional drilling to the west will extend the zone even further. And the writer will predict that uranium orebodies will extend out under the valley fill.

RECOMMENDATIONS

The development campaign being carried out at this time is increasing the ore reserves daily and the following recommendations are made with a view to the continuation of further building up these ore reserves:

1) The raise from the main drift in Adit No. 1 should be completed to cut the downward extension of the Adit No. 2 orebody and the ore shown in the numbered diamond drill holes.

2) The raise from the southwest end of Adit No. 1 which is presently being driven in the coffenite ore, should also be continued.

3) The raise in the good ore above the Adit No. 2 orebody should be also be driven through to the surface.

4) The Veatch Canyon tunnel should be driven on to prospect the area southeast of the Diamond orebody. This is exploring virgin country over which airborne scintillator anomalies have been logged.

5) A winze should be sunk below Adit No. 1 in the vicinity of the "T" hole to explore this orebody in depth and reach the high grade coffenite ore.

6) It is also recommended that a cross-cut tunnel be driven under the Diamond orebody to cut this ore at a depth of 100 or more feet. This will not be a duplication of the Veatch Canyon work and the recommendation is made because a relatively short cross-cut tunnel will develop the Diamond orebody in depth.

7) Continue the pattern of surface diamond drill holes to the west to extend the presently known orebody in this direction, toward the valley fill. At the same time, and filling out the same pattern of the diamond drill holes, a series of churn drill holes are recommended to the west beyond the point where it would be feasible to use the diamond drill.

GENERAL

The Linka mill of the Consolidated Uranium, Inc. has been purchased to be converted for the treatment of the Apex Minerals Corporation uranium ore. This is a 300 ton daily capacity milling plant and is virtually new, having been operated only a few hundred hours. To convert the mill for the treatment of uranium ores, will require only the addition of leaching tanks, etc. Mr. Albert Silver, consulting metallurgist of Reno, has worked out, in cooperation with the Colorado School of Mines Research Foundation, a carbonate leach flow sheet for extraction of the uranium oxide.

Mr. Silver and this writer have made two trips to Grand Junction, Colorado to confer with the U. S. Atomic Energy Commission officials in regard to a buying contract for Apex Minerals Corporation; and this is presently being processed. The application to the Atomic Energy Commission is based on a daily capacity of 200 tons for a period of five years. This will leave an excess capacity of 100 tons for handling custom ore. Mr. Silver has designed a sampling plant to be a part of the mill which will allow the sampling for purchase of custom ore. The Atomic Energy Commission recommends that this be incorporated in the mill.

The Rundberg mine is completely equipped with tools and machinery for a continuing mining operation.

Applications are being made to the State Engineer of Nevada for water permits for both mining and milling, which are both being used at the present time. Ample water is developed at both the mine and at the Linka mill to take care of the entire operation.

Respectfully submitted,

Harry H. Hughes

Harry H. Hughes

June 22, 1957

COPY

UNITED STATES
ATOMIC ENERGY COMMISSION
GRAND JUNCTION OPERATIONS OFFICE
GRAND JUNCTION, COLORADO

In reply refer to: MD: RTM

January 5, 1956

Mr. Hugh Cameron
Apex Uranium, Inc.
Austin, Nevada

Re: CERTIFICATION NO. D.U.P.-C6-621

Dear Mr. Cameron:

The hand specimen of dark rock which you gave to our engineer on December 9, 1955, from your new discovery in drift "C" has been analyzed by our mineralogy laboratory. The rock apparently is a judstone. The uraniferous mineral contained in the rock is coffenite, considered a primary mineral. The radiometric assay of this specimen was 3.00% U_3O_8 and the chemical analysis was 3.19%.

We hope that you have been able to further develop this discovery.

Very truly yours,

/s/ R. H. Toole
R. H. Toole, Chief
Leasing and Development Branch
Mining Division

COPY

APEX MINERAL CORPORATION

Ore Shipped to Vitro Uranium Company During June, July and August 1956

Lot No.	Dry Weight Lbs.	Dry Weight Tons	Settlement Assay % U_3O_8	Lbs. Per Ton	Lbs. U_3O_8	
5	128,510	64.255	.79	15.80	1015.28	M
6	131,804	65.902	.20	4.00	263.61	SP
7	130,712	65.356	.17	3.40	222.21	SP
8	123,318	61.659	.18	3.60	221.97	SP
10	119,008	59.504	.16	3.20	190.41	SP
11	122,910	61.455	.14	2.80	172.07	SP
12	126,888	63.444	.19	3.80	241.09	SP
13	126,482	63.241	.16	3.20	202.37	SP
14	126,878	63.439	.590	11.80	748.38	M
15	127,784	63.892	.19	3.80	242.79	SP
16	127,104	63.552	.18	3.60	228.79	SP
17	123,936	61.968	.14	2.80	173.51	SP
18	126,176	63.088	.17	3.40	214.50	SP
19	118,356	59.178	.15	3.00	177.53	SP
20	124,010	62.005	.69	13.80	855.67	M
21	132,416	66.208	.12	2.40	158.90	SP
22	128,408	64.204	.11	2.20	141.25	SP
23	134,236	67.118	.10	2.00	134.24	SP
24	122,930	61.465	.15	3.00	184.40	SP
25	118,152	59.076	.61	12.20	720.73	M
26	123,392	61.696	.16	3.20	197.43	SP
27	122,030	61.015	.59	11.80	719.98	M
28	129,142	64.571	.534	10.60	684.50	M
29	124,324	62.162	.592	11.80	733.51	M
	3,018,906	1,509.453			8,845.77	
			Settlement at 0.2026		8,833.28	

Amount received for 8,833.28 lbs. U_3O_8 ..... $48,371.70

Application for bonus 7,484.313 lbs. U_3O_8 ..... $26,195.10

SP—Stock pile.
M—Mined Ore.

DIAMOND DRILL HOLE LOGS

Probing with Dabbel Counter

HOLE "C"

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
105	.08	156	.05
106	.08	157	.05
107	.08	170	.05
108	.08	184	.06
109		185	.10
110	.04	186	.05
		187	.10
126	.15	192	.06
127	.15	193	.06
128	.15	194	.12
129	.10	195	.10
130	.09	196	.20
141	.08	197	.08
142	.06	198	.06
143	.06	199	.04
144	.12	200	.10
145	.12	201	.10
146	.06	202	.10
147	.04	203	.10
148	.04	204	.10
149	.06	205	.08
150	.09	206	.06
151	.08	207	.05
152	.06	208	.04
153	.05	209	.03
154	.05	210	.02
155	.03	250	.02

HOLE "D"

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
96	.02	130	.18
97	.03	131	.16
98	.03	132	.18
99	.03	133	.22
100	.05	134	.24
101	.05	135	.16
102	.06	136	.16
103	.05	137	.16
104	.05	138	.16
105	.05	139	.20
106	.06	140	.28
107	.06	141	.36
108	.06	142	.38
109	.06	143	.30
110	.06	144	.32
111	.08	145	.32
112	.10	146	.30
113	.12	147	.26
114	.12	148	.20
115	.10	149	.25
116	.12	150	.24
117	.14	151	.22
118	.18	152	.20
119	.18	153	.20
120	.15	154	.20
121	.15	155	.20
122	.15	156	.24
123	.20	157	.24
124	.16	158	.28
125	.16	159	.20
126	.14	160	.30
127	.12	161	.20
128	.14	162	.20
129	.14	163	.26

HOLE "D" (Continued)

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
164	.28	174	.36
165	.35	175	.36
166	.35	176	.20
167	.30	177	.20
168	.30	178	.16
169	.30	179	.16
170	.28	180	.12
171	.26	181	.12
172	.08	182	.14
173	.30		

HOLE "E"

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
105	.11	153	.26
106	.11	154	.40
		155	.36
110	.18	156	.24
112	.30	157	.16
113	.00	158	.24
114	.26	159	.16
115	.22	160	.20
116	.20	161	.16
117	.20	162	.12
118	.20	163	.20
119	.14	164	.32
120	.10	165	.12
121	.10	166	.14
122	.14	167	.14
123	.12	168	.22
124	.12	169	.28
125	.10	170	.32
126	.12	171	.32
127	.28	172	.40
128	.28	173	.44
129	.16	174	.36
130	.16	175	.24
131	.28	176	.18
132	.20	177	.18
133	.16	178	.36
134	.16	179	.38
135	.18	180	.20
136	.18	181	.14
137	.18	182	.12
138	.24	183	.12
139	.26	184	.12
140	.12	185	.12
141	.08	186	.18
142	.10	187	.26
143	.08	188	.40
144	.10	189	.30
145	.16	190	.60
146	.22	191	.40
147	.30	191.5	.12
148	.20	192	.08
149	.10	193	.08
150	.10	194	.08
151	.08	195	.20
152	.10	196	.22
		197	.12

Diamond Drill Hole Logs (Continued)

Probing with Dabbel Counter

HOLE "F"

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
58	.08	152	.12
59	.08	153	.10
		154	.08
63	.08	155	.08
		156	.08
140	.12	157	.08
141	.10	158	.08
142	.08	159	.08
143	.08	160	.08
144	.08	161	.02
145	.16	162	.02
146	.16	163	.02
147	.14	164	.02
148	.12	165	.02
149	.14		
150	.16	170	.02
151	.12		

HOLE "H"

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
100	.16	130	.05
101	.18	131	.04
102	.05	to	
103	.20	143	.04
104	.20	144	.05
105	.20	146	.08
106	.22	147	.08
107	.24	148	.04
108	.20	148.5	1.08
109	.26	149	.04
110	.30	149.5	1.68
111	.20	150	1.44
112	.09	150.5	1.42
113	.14	151	1.17
114	.36	151.5	1.20
114.5	.40	152.5	1.42
115	.35	153	1.48
116	.28	153.5	1.88
117	.28	154	1.62
118	.30	154.5	1.08
119	.18	155	1.80
120	.22	156	1.56
121	.14	156.5	1.56
122	.22	157	1.00
123	.20	158	.21
124	.43	159	.06
125	.28	160	.06
126	.10	160	
127	.10	to	
128	.07	175	.05
129	.06		

HOLE "I"

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
77	.03	125	.06
78	.03	to	
79	.03	130	.06
80	.03	131	.05
81	.03	132	.20
82	.03	132.5	.56
83	.03	133	1.20
84	.04	133.5	1.20
85	.04	134	1.62
86	.03	134.5	.86
87	.04	135	1.20
88	.04	135.5	.90
89	.03	136	.43
90	.06	137	.22
to		138	.17
94	.06	139	.10
95	.08	140	.10
96	.07	141	.08
97	.05	142	.10
98	.03	143	.10
99	.05	144	.08
100	.05	145	.07
101	.06	146	.06
102	.10	147	.03
103	.20	148	
104	.16	to	
105	.17	156	.04
106	.20	157	.05
107	.08	158	
108	.06	to	
109	.10	160	.04
110	.06	161	
111	.09	to	
112	.10	165	.05
113	.09		
114	.07		
115	.07		
116	.09		
117	.06		
118	.04		
119	.04		
120	.04		
121	.04		
122	.05		
123	.05		
124	.05		

HOLE "J"

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
129	.04	143	.15
130	.20	144	.30
130.5	1.14	145	.30
131	1.11	146	.34
131.5	.87	147	.08
132	.54	164	
132.5	.28	to	
133	.15	215	.01
134	.13		
135 to			
142	.10		

Diamond Drill Hole Logs (Continued)

Probing with Dabbel Counter

HOLE "K"

Depth Feet	% U.O.	Depth Feet	% U.O.
96	.03	171	.12
		172	.10
98 to 100	.03	173	.30
		174	.08
		175	.08
		176	.18
106	.12	177	.10
107	.14	178	.06
108	.14	179 to 183	.05
109	.08	184	.10
110	.06	185	.10
111	.06	186	.12
117	.07	186.5	.50
118	.07	187	.06
147	.10	187.5	.53
148	.12	188	.20
149	.20	189	.10
150	.20	190	.15
151	.31	191	.12
152	.25	192	.12
153	.42	193	.22
154	.41	194 to 196	.03
155	.08	197 to 203	.05
156	.23		
157	.15		
158	.14		
159	.00		
160	.09		
161	.09		
162	.08		
163	.06		
164	.09		
165	.16		
166	.10		
167	.26		
168	.23		
169	.12		
170	.12		

HOLE "M"

Depth Feet	% U.O.	Depth Feet	% U.O.
108	.15	119	.14
109	.26	120	[illegible]
110	.30	121	[illegible]
111	.34	122	[illegible]
112	.32	123	[illegible]
113	.30	124	[illegible]
114	.32	125	[illegible]
115	.28	126	.26
116	.26	127	.20
117	.20	128	.14
118	.14	129	.12

HOLE "N"

Depth Feet	% U.O.	Depth Feet	% U.O.
117	.12	131	.28
118	.18	132	.18
119	.30	133	.06
120	.30	134	.10
121	.34	135	.12
122	.32	136	.16
123	.36	137	.16
124	.36	138	.18
125	.42	139	.14
126	.32	140	.14
127	.20	141	.16
128	.24	142	.18
129	.26	143	.20
130	.34	144	.14

HOLE "L"

Depth Feet	% U.O.	Depth Feet	% U.O.
92	.05	134	.10
93	.05	135 to 143	.08
94	.04	144	.38
95	.04	145	.68
108	.02	146	1.20
109	.05	147	.60
110	.05	148	.60
111	.05	149	.64
112	.06	150	.40
113	.20	151	.50
114	.30	152	.20
115	.34	153	.14
116	.18	154	.14
117	.30	155	.14
118	.38	156	.14
119	.38	157	.26
120	.62	158	.22
121	.90	159	.14
122	.62	160 to 166	.06
123	.46	167	.18
124	.44	168	.20
125	.46	169	1.24
126	.36	170	1.24
127	.24	171	.26
128	.13	172	.26
129	.20	173	.16
130	.22		
131	.20		
132	.20		
133	.14		

HOLE NUMBER ONE

Depth Feet	% U.O.	Depth Feet	% U.O.
40	.08	78	.70
41	.08	79	.70
42	.02	80	.26
43	.09	81	.10
44	.10	82	.06
45	.12	83	.04
46	.08	84	.06
47	.05	85	.06
48	.06	86	.06
49	.12	87	.06
50	.16	88	.10
51	.20	89	.08
52	.28	90	.08
53	.34	91	.09
54	.15	92	.08
55	.18	93	.12
56	.12	94	.22
57	.10	95	.18
58	.15	96	.14
59	.15		
60	.18		
61	.22		
62	.18		
63	.35		
64	.90		
65	.52		
66	.28		
67	.22		
68	.20		
69	.24		
70	.20		
71	.14		
72	.14		
73	.14		
74	.20		
75	.14		
76	.20		
77	.48		

Diamond Drill Hole Logs (Continued)

Probing with Babbel Counter

HOLE NUMBER TWO

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
17	.12	90	.12
18	.18	91	.10
19	.10	to	
20	.10	98	.10
21		99	.08
56		100	.10
58	.08	101	.10
59	.14	102	.08
60	.10	103	.08
61	.10	104	
62	.24	to	
63	.38	107	.10
64	.32	108	.08
65	.42	109	.10
66	.20	110	.06
67	.20	111	.08
68	.26	112	
69	.36	to	
70	.34	115	.06
71	.44	116	.08
72	.28	117	.06
73	.40		
74	1.56		
75	.76		
76	1.08		
77	.50		
78	.24		
79	.26		
80	.26		
81	.26		
82	.20		
83	.20		
84	.22		
85	.22		
86	.20		
87	.18		
88	.18		
89	.12		

HOLE NUMBER THREE

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
18	.10	39	.14
19	.21	40	.18
20	.16	41	.16
21	.20	42	.12
25	.18	43	.18
26	.12	44	.16
27	.12	45	.20
28	.10	46	.26
29	.10	47	.30
30	.16	48	1.02
31	.10	49	1.08
32	.10	50	.70
33	.10	51	.34
34	.12	52	.32
35	.12	53	.32
36	.14	54	.26
37	.12	55	.22
38	.14	56	.18
39	.14	57	.20
40	.14	58	.24
41	.14		

HOLE NUMBER FOUR

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
63	.12	70	.12
64	.12	71	.08
65	.34	72	.08
66	.18	73	.08
67	.10	74	.08
68	.10	75	.22
69	.10	76	.10

HOLE NUMBER FIVE

Depth Feet	% U_3O_8	Depth Feet	% U_3O_8
50	.10	60	.08
51	.10	61	.08
52	.08	76	.14
		77	.08

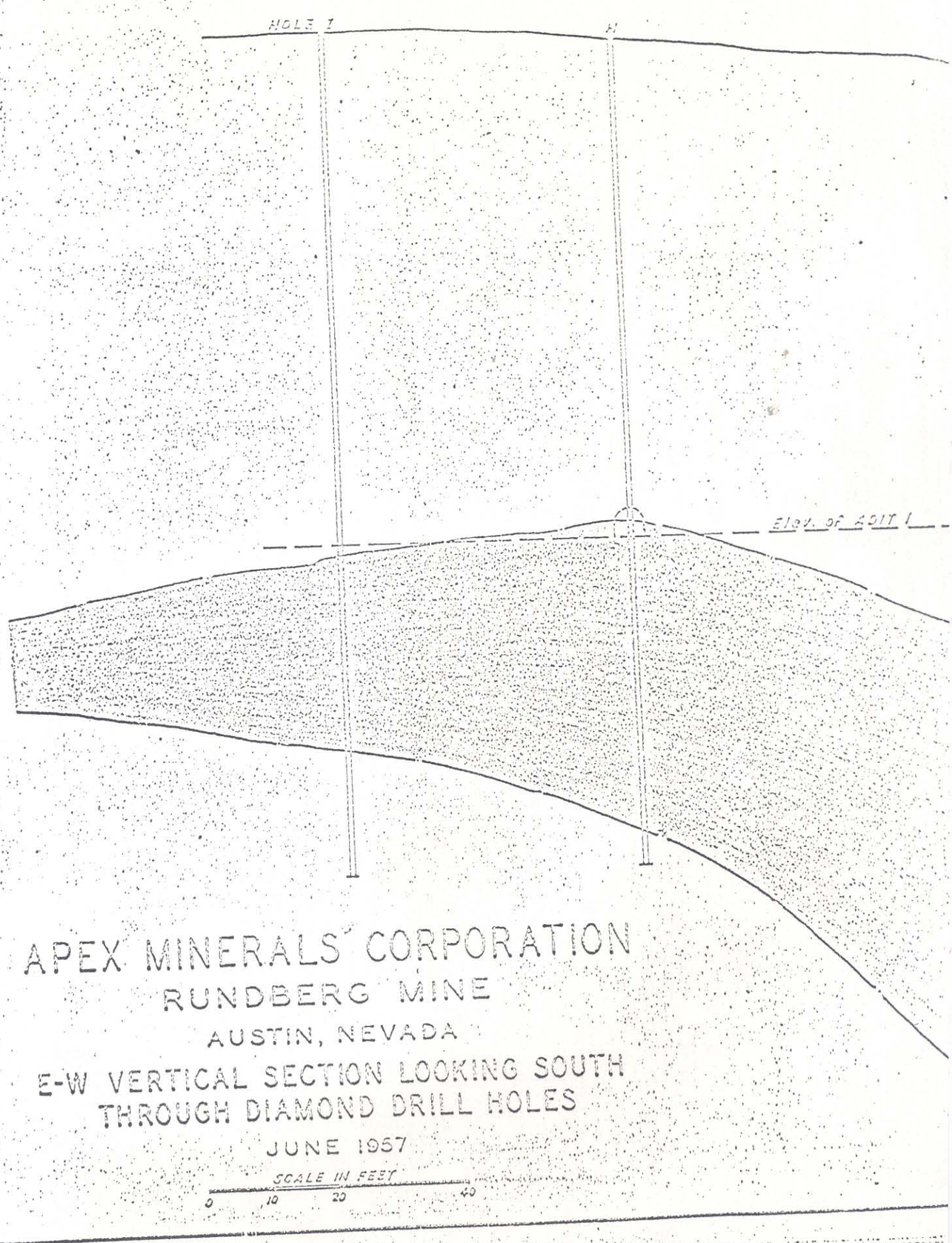
SAMPLING

Sample Number	% U_3O_8	Recut % U_3O_8	Sample Number	% U_3O_8	Recut % U_3O_8	Sample Number	% U_3O_8	Recut % U_3O_8	Sample Number	% U_3O_8
H-1	.11		H-29	.13	.84	H-57	.18		H-81	.15
H-2	.10		H-30	.06		H-58	.37		H-82	.14
H-3	.15		H-31	.14	.17	H-59	.08		H-83	.18
H-4	.48		H-32	.04		H-60	.13		H-84	.10
H-5	.10		H-33	.39	.58	H-61	.26		H-85	.22
H-6	.15		H-34	.01		H-62	.05		H-86	.28
H-7	.08	.08	H-35	.55		H-63	.08		H-87	.27
H-8	.05	.04	H-36	.03		H-64	.12		H-88	.06
H-9	.21		H-37	.05		H-65	.13		H-89	.11
H-10	.09	.08	H-38	.06		H-66	.13		H-90	.06
H-11	.10	.06	H-39	.20		H-67	.10		H-91	.09
H-12	.06	.05	H-40	.23		H-68	.04		H-92	.03
H-13	.14		H-41	.52		H-69	.14		H-93	.06
H-14	.03		H-42	.15		H-70	.15		H-94	.04
H-15	.03		H-43	.30		H-71	.25		H-95	.09
H-16	.03		H-44	.15	.14	H-72	.75		H-96	.05
H-17	.05		H-45	.22	.22	H-73	.18		H-97	.12
H-18	.31		H-46	.08		H-74	.22		H-98	.07
H-19	.22		H-47	.08		H-75	.75		H-99	.12
H-20	.11	.13	H-48	.10		H-76	.28		H-100	.31
H-21	.09	.43	H-49	.16		H-77	.06		H-101	.07
H-22	.36	.44	H-50	.25		H-78	.13		H-102	.10
H-23	.22	.30	H-51	.26		H-79	.06		H-103	.14
H-24	.06		H-52	.25		H-80	.22			
H-25	.05		H-53	.07						
H-26	.09		H-54	.47						
H-27	.08	.12	H-55	.11						
H-28	.05	.04	H-56	.28						

H-104 to H-11 are grab samples

from stockpiled ore..... .13

Grab from ore in bin..... 1.23



APEX MINERALS CORPORATION

RUNDBERG MINE

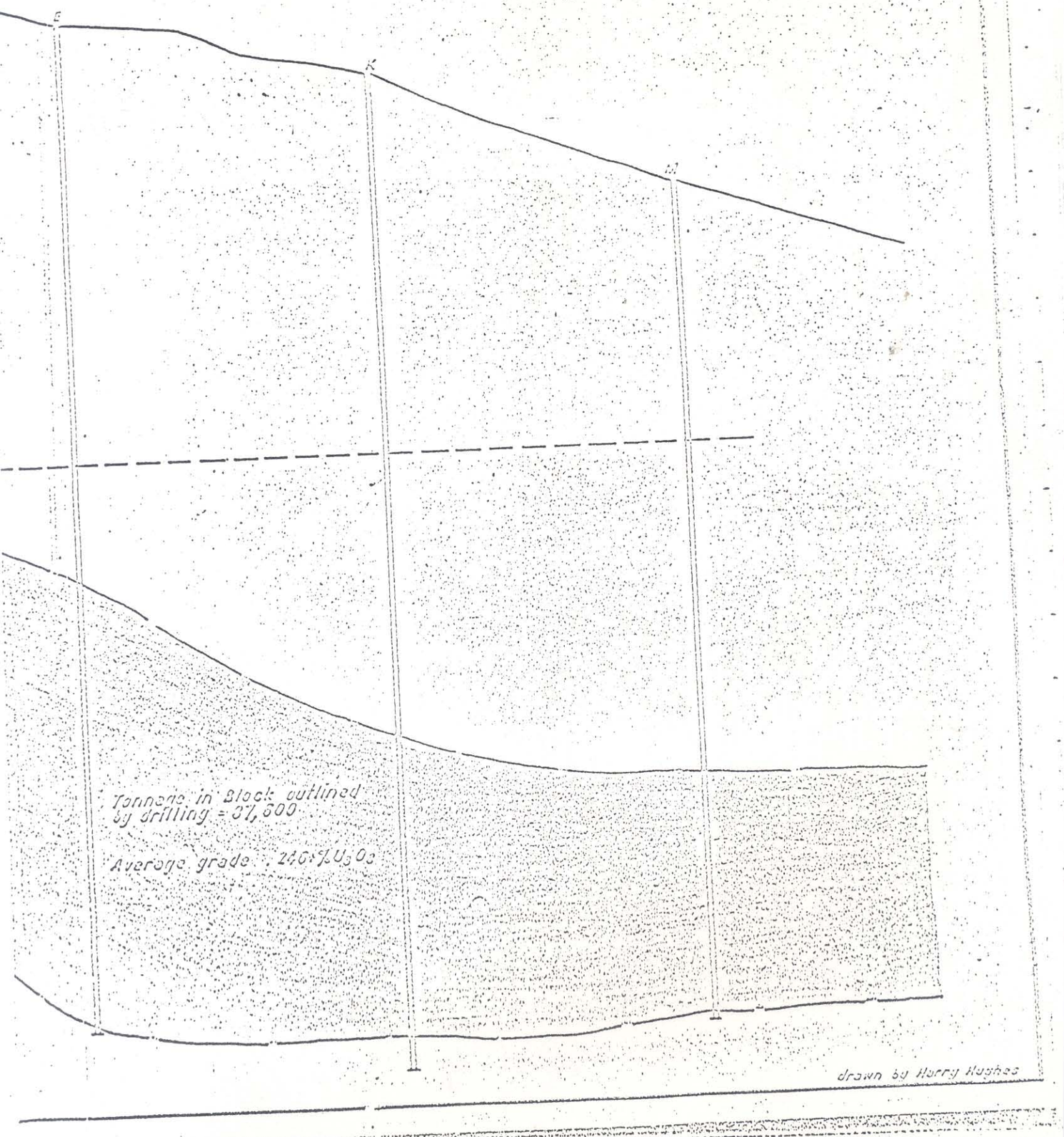
AUSTIN, NEVADA

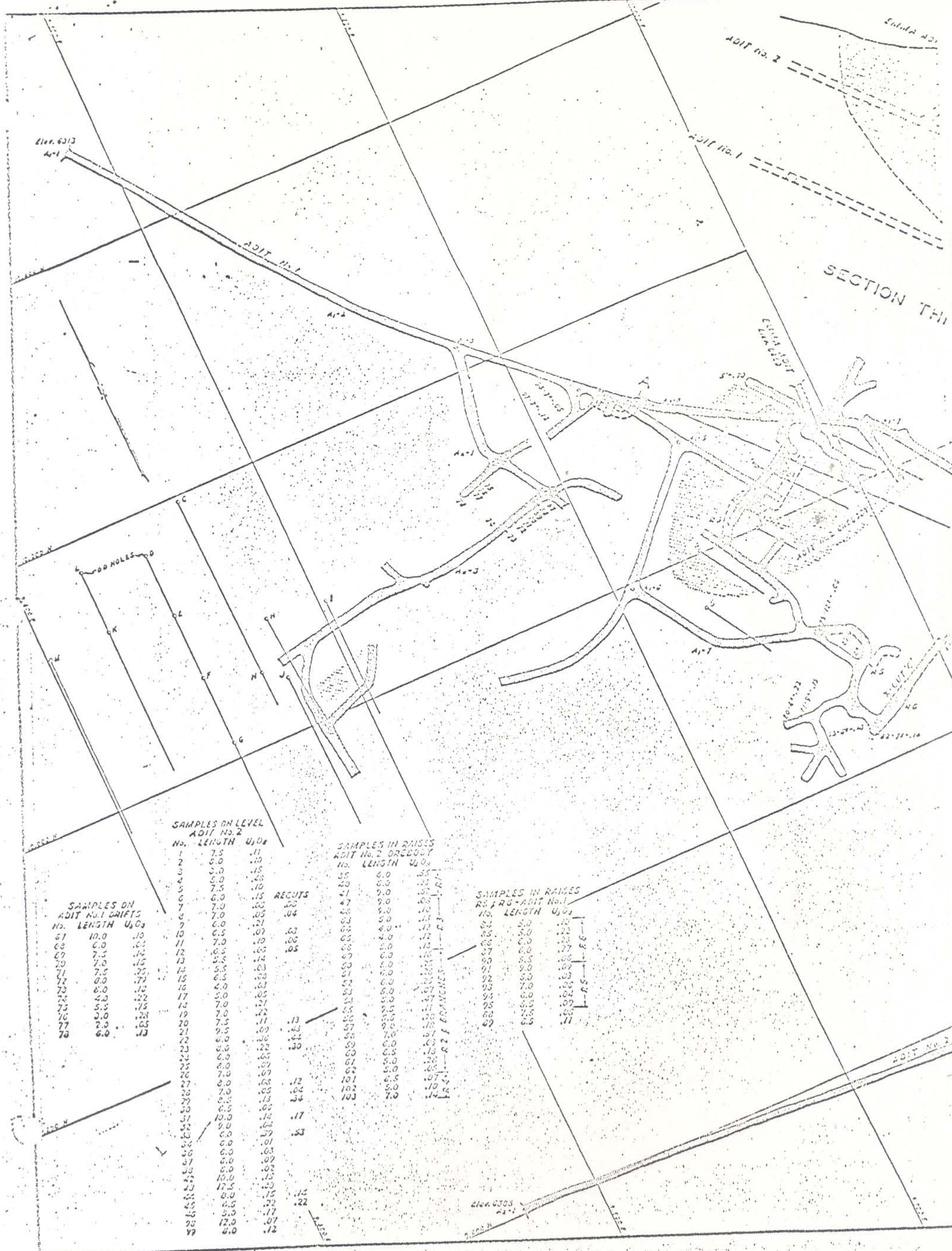
E-W VERTICAL SECTION LOOKING SOUTH
THROUGH DIAMOND DRILL HOLES

JUNE 1957

SCALE IN FEET

0 10 20 40


E
K
M
Tonnage in Block outlined by drilling = 37,600
Average grade = 2.46% U_3O_8
drawn by Harry Hughes



SAMPLES ON ADIT No. 1 DRIFTS

No.	LENGTH	U_3O_8
67	10.0	.10
68	6.0	.64
69	7.5	.14
70	7.0	.15
71	7.5	.75
72	8.0	.77
73	6.0	.10
74	4.0	.22
75	5.5	.15
76	3.0	.28
77	7.0	.05
78	6.0	.13

SAMPLES ON LEVEL ADIT No. 2

No.	LENGTH	U_3O_8	RECUTS
1	7.5	.11	
2	6.0	.10	
3	5.0	.15	
4	5.0	.28	
5	7.5	.10	
6	6.0	.15	
7	7.0	.03	.05
8	7.0	.05	.04
9	6.0	.21	
10	6.5	.07	.03
11	7.0	.10	.06
12	6.5	.05	.05
13	5.5	.14	
14	5.5	.03	
15	6.5	.03	
16	4.0	.03	
17	5.0	.05	
18	7.0	.21	
19	7.0	.22	
20	7.5	.11	.13
21	9.5	.09	.43
22	6.0	.36	.24
23	6.0	.22	.30
24	6.0	.05	
25	8.0	.07	
26	7.0	.07	
27	6.0	.08	.12
28	7.0	.05	.04
29	6.5	.13	.34
30	6.5	.05	
31	10.0	.14	.17
32	9.0	.04	
33	6.0	.29	.53
34	6.0	.01	
36	6.0	.03	
37	6.0	.09	
38	6.0	.02	
42	10.0	.15	
43	17.5	.30	
44	8.0	.15	.12
45	6.5	.22	.22
46	5.0	.17	
98	12.0	.07	
99	8.0	.12	

SAMPLES IN RAISES ADIT No. 2 OREBODY

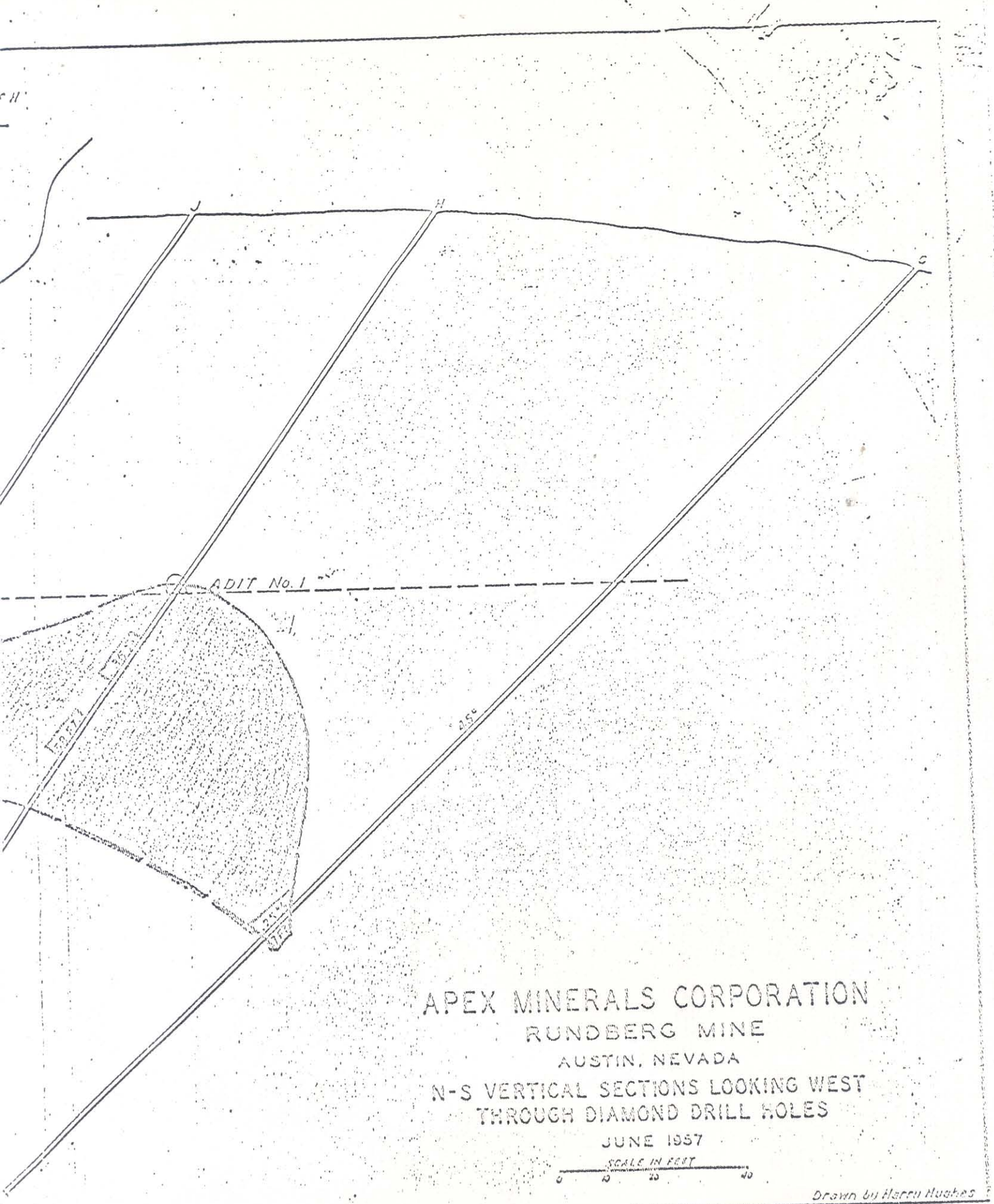
No.	LENGTH	U_3O_8
35	6.0	.55
40	6.0	.18
41	9.0	.32
47	9.0	.05
48	9.0	.10
63	5.0	.13
64	4.0	.13
65	4.0	.12
66	6.0	.13
49	6.0	.16
50	6.0	.25
51	6.0	.26
52	6.0	.25
53	6.0	.07
54	5.0	.47
55	9.5	.11
56	5.5	.20
57	9.0	.18
58	7.0	.51
59	6.0	.63
60	6.5	.13
61	5.0	.26
62	5.0	.06
101	6.5	.07
102	5.0	.10
103	7.0	.14

R1 — R3 — R2 & BRANCHES — R4

SAMPLES IN RAISES R5 & R6 - ADIT No. 1

No.	LENGTH	U_3O_8
84	5.0	.10
85	5.0	.22
86	6.0	.23
87	6.0	.27
90	5.5	.06
91	9.0	.07
92	5.0	.03
93	7.0	.05
94	6.0	.04
95	5.5	.07
88	7.5	.06
89	6.5	.11

R6 — R5



APEX MINERALS CORPORATION

RUNDBERG MINE

AUSTIN, NEVADA

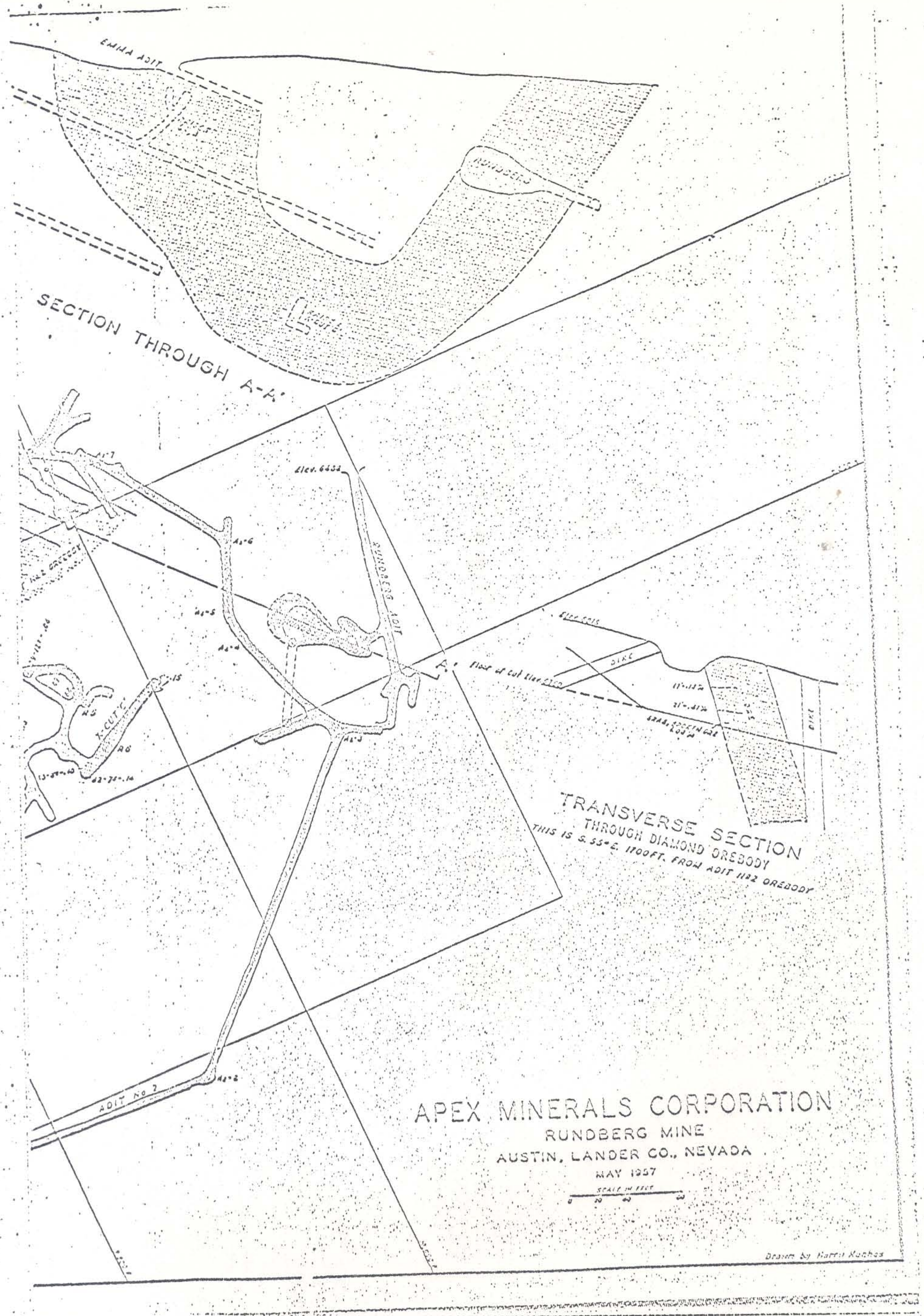
N-S VERTICAL SECTIONS LOOKING WEST
THROUGH DIAMOND DRILL HOLES

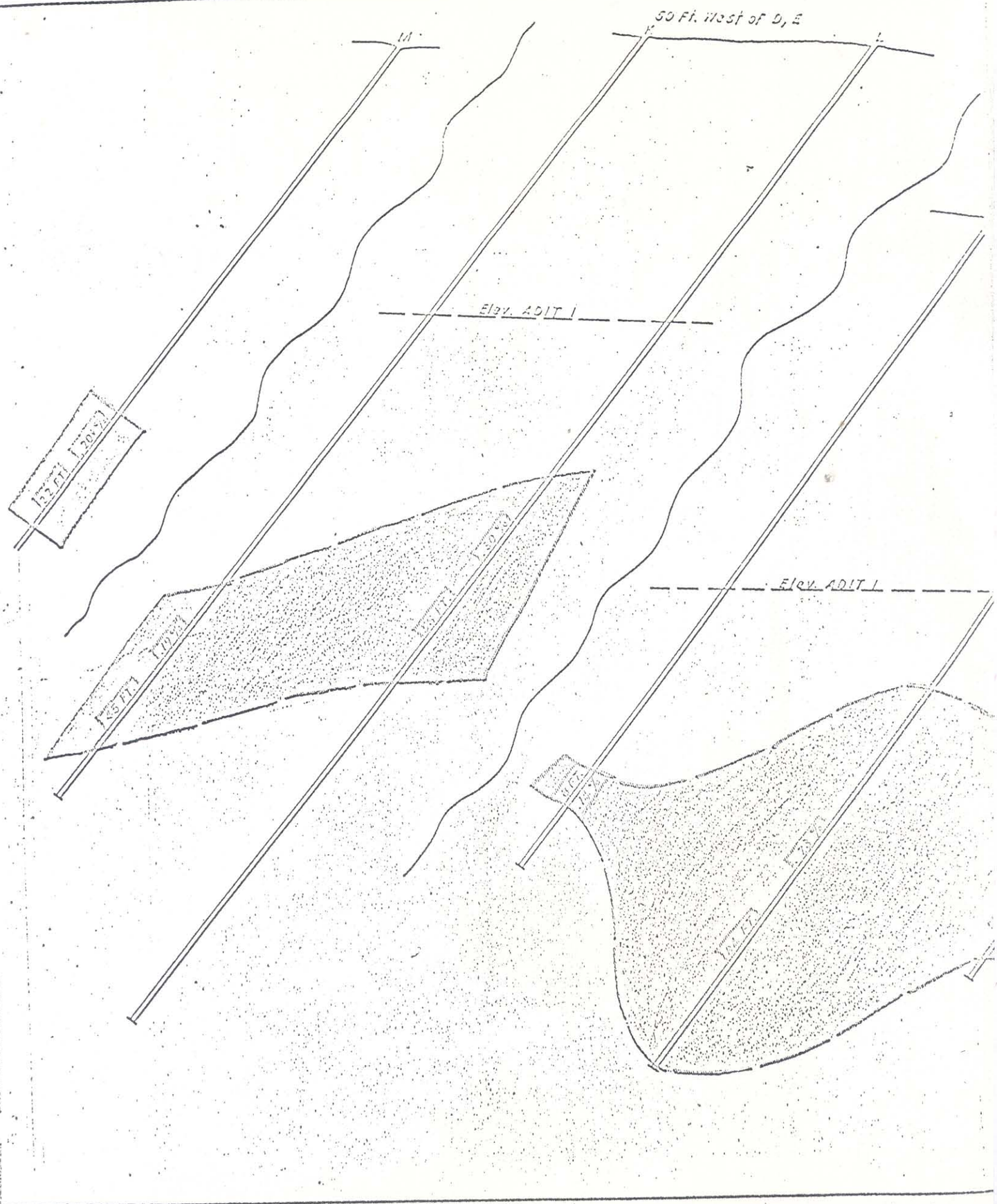
JUNE 1957

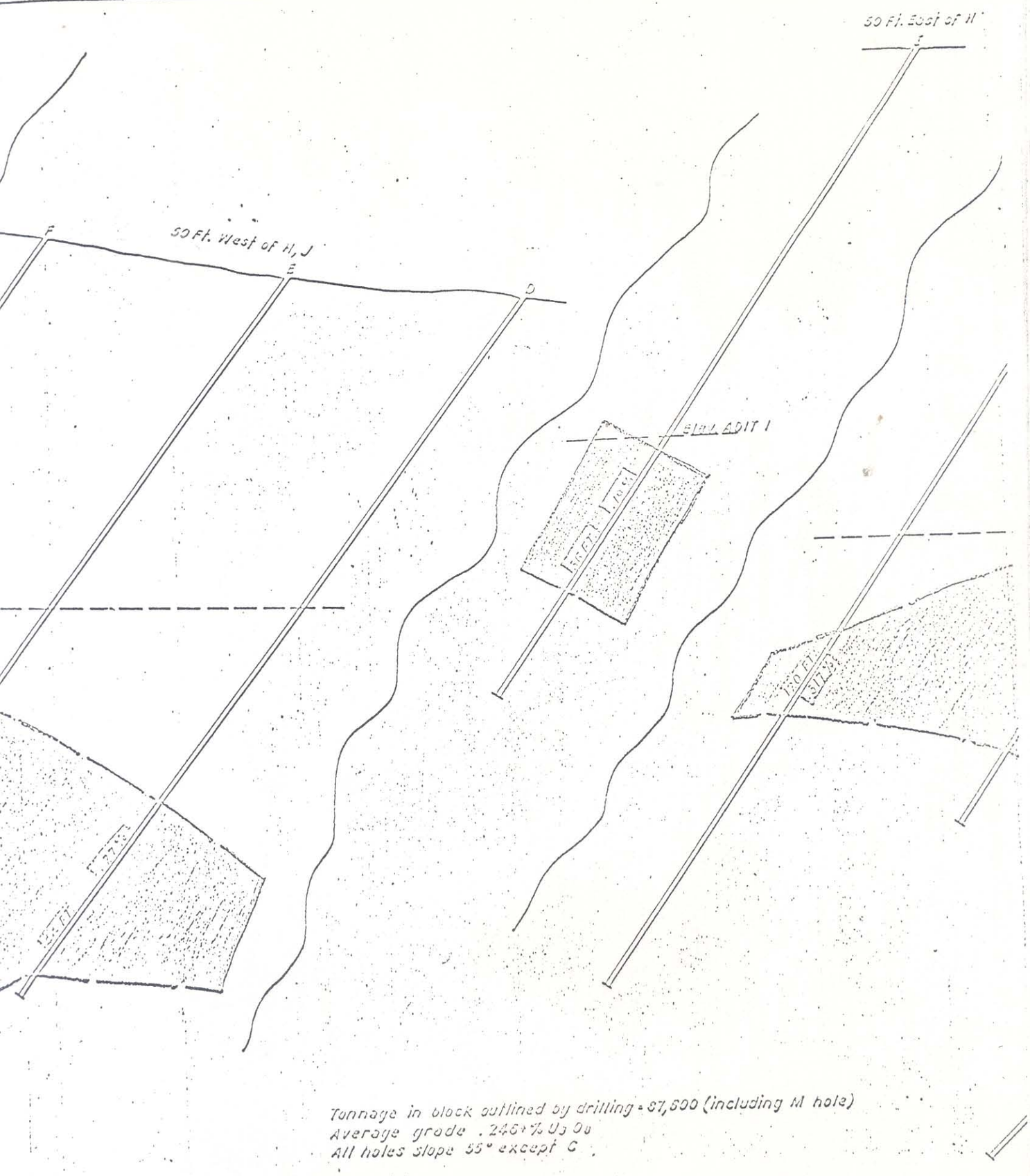
SCALE IN FEET

0 15 25 50

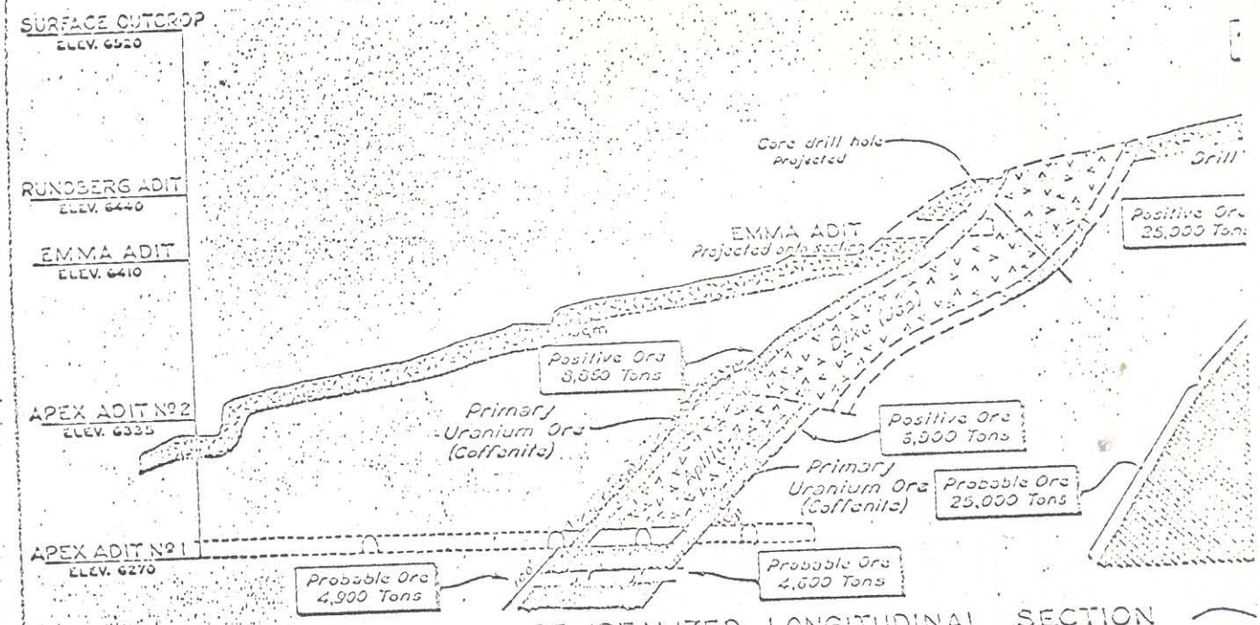
Drawn by Harry Hughes


EMMA ADIT
RUNDBERG
SECTION THROUGH A-A'
Elev. 6434
RUNDBERG ADIT
X-CUT
TRANSVERSE SECTION
THROUGH DIAMOND OREBODY
THIS IS S. 55° E. 1700 FT. FROM ADIT 1182 OREBODY
ADIT No. 2
APEX MINERALS CORPORATION
RUNDBERG MINE
AUSTIN, LANDER CO., NEVADA
MAY 1957
SCALE IN FEET

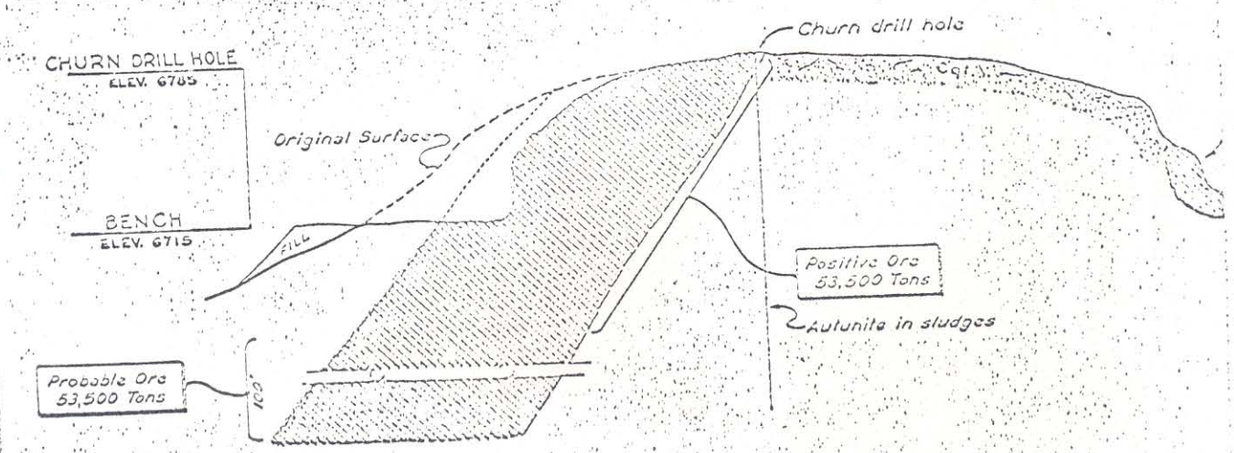

50 Ft. West of D, E
M
K
L
Elev. ADIT 1
Elev. ADIT 1



Tonnage in block outlined by drilling = 87,500 (including M hole)
Average grade .246% U3O8
All holes Slope 55° except C .

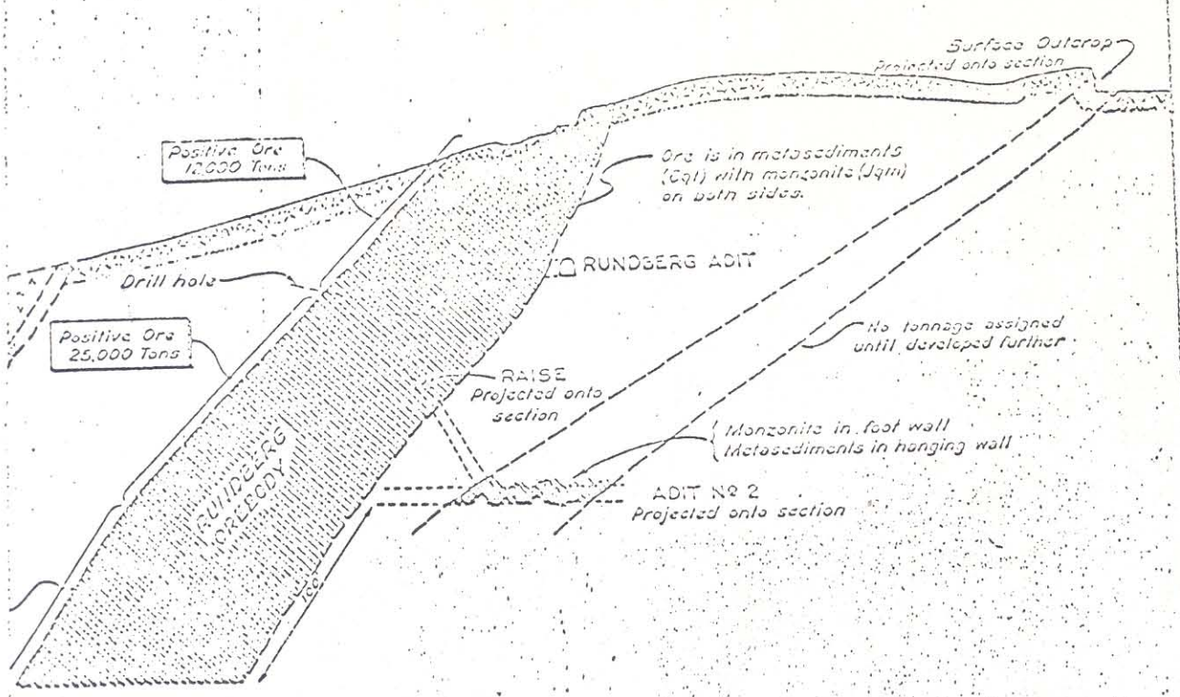


NW~SE IDEALIZED LONGITUDINAL SECTION
AT OR NEAR PRINCIPAL CONTACT
SHOWING OREBODIES IN ADITS No 1, No 2, EMMA



NW~SE LONGITUDINAL SECTION
LOOKING NE THROUGH DIAMOND OREBODY

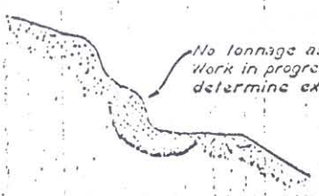
MAP 2



ION ~ LOOKING NORTHEAST

AL CONTACT ZONE

o 2, EMMA, RUNDBERG AND SURFACE OUTCROPS



SCALE IN FEET

50 0 50 100 150

GEOLOGIC SECTIONS

TO ACCOMPANY

REPORT BY HARRY H. HUGHES

ON

RUNDBERG MINE

OF

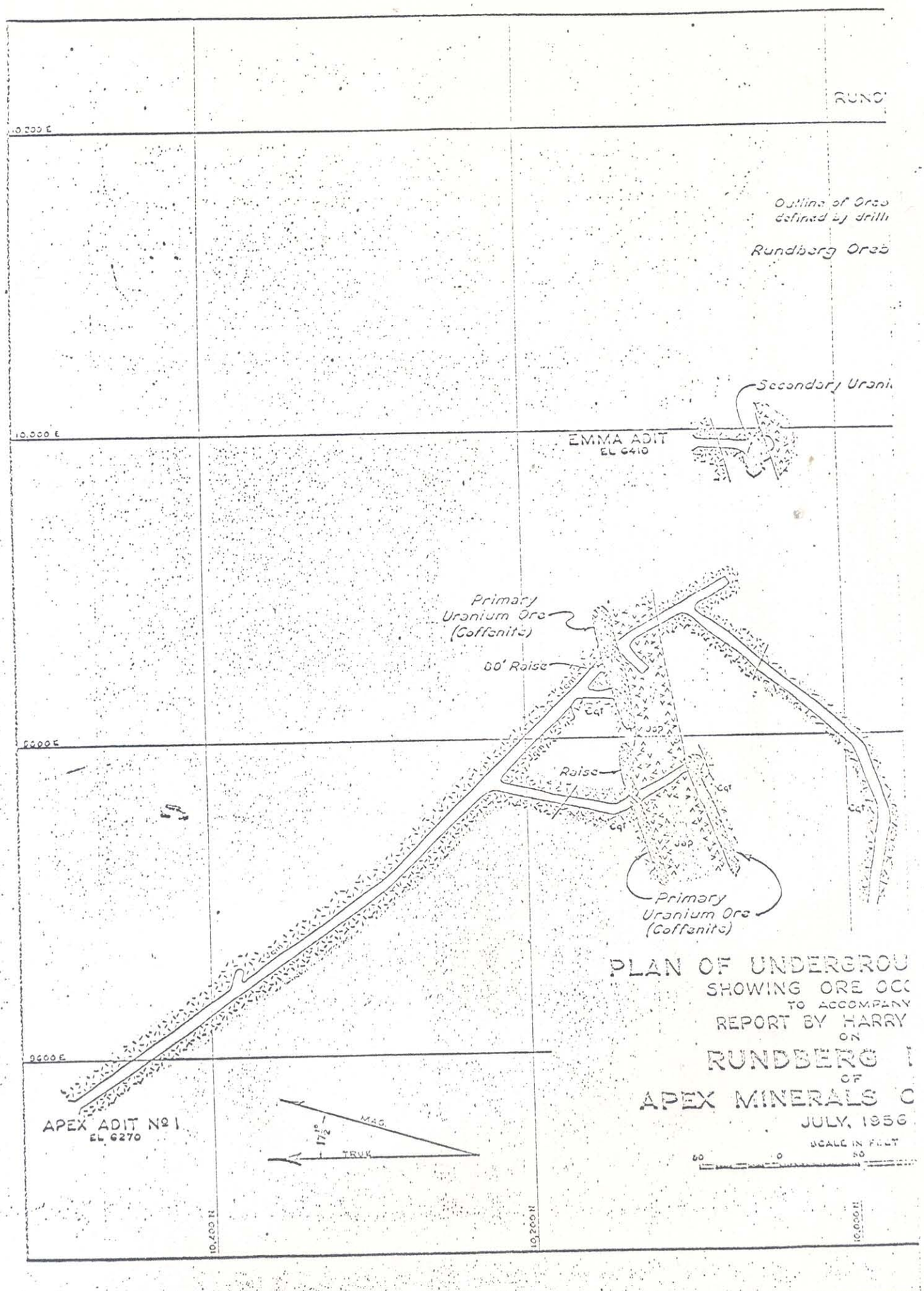
APEX MINERALS CORPORATION

JULY, 1956

NOTE: See plan for legend

Drawn by Harry H. Hughes

Traced by Sherd W. Baker


RUND
10,200 E
Outline of Ore
defined by drill
Rundberg Ore
Secondary Uran
10,000 E
EMMA ADIT
EL 6410
Primary
Uranium Ore
(Coffinite)
60' Raise
Cgt
Jsp
9800 E
Raise
Cgt
Jsp
Primary
Uranium Ore
(Coffinite)
PLAN OF UNDERGROU
SHOWING ORE OC
TO ACCOMPANY
REPORT BY HARRY
ON
RUNDBERG
OF
APEX MINERALS C
JULY, 1956
SCALE IN FEET
50 0 50
9600 E
APEX ADIT No 1
EL 6270
17½°
MAG.
TRUE
10,400 N
10,200 N
10,000 N

MAP 1

NDSBERG ADIT
EL 6440

Orebody
Drilling
rebody

ranium Ore

LEGEND

Aplite Dike

Quartz Monzonite — Jurassic

Carbonaceous Quartzite — Cambrian(?)

Uranium Ore

Strike and Dip of Fault or Contact

Top of Raise

Bottom of Raise

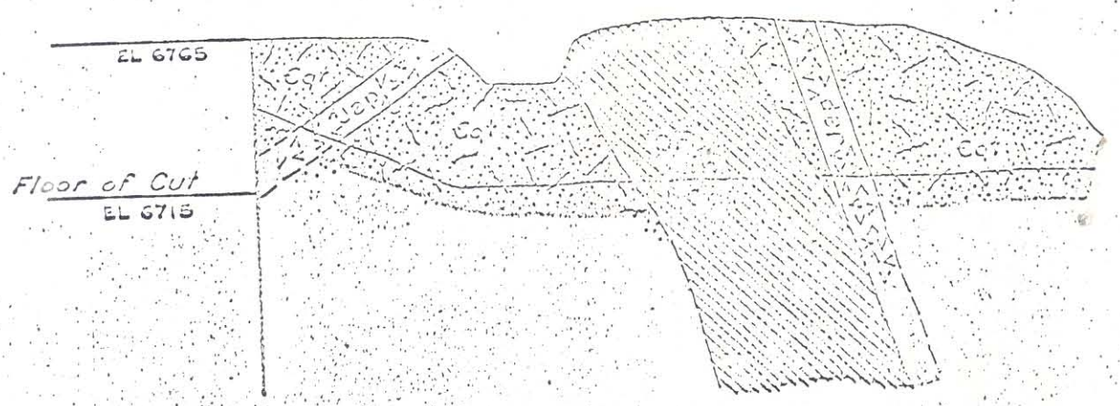
ROUND WORKINGS
OCCURENCES
PANY
RRY H. HUGHES
MINE
CORPORATION
056
FEET
100 150

APEX ADIT No 2
EL 6335

9200 N

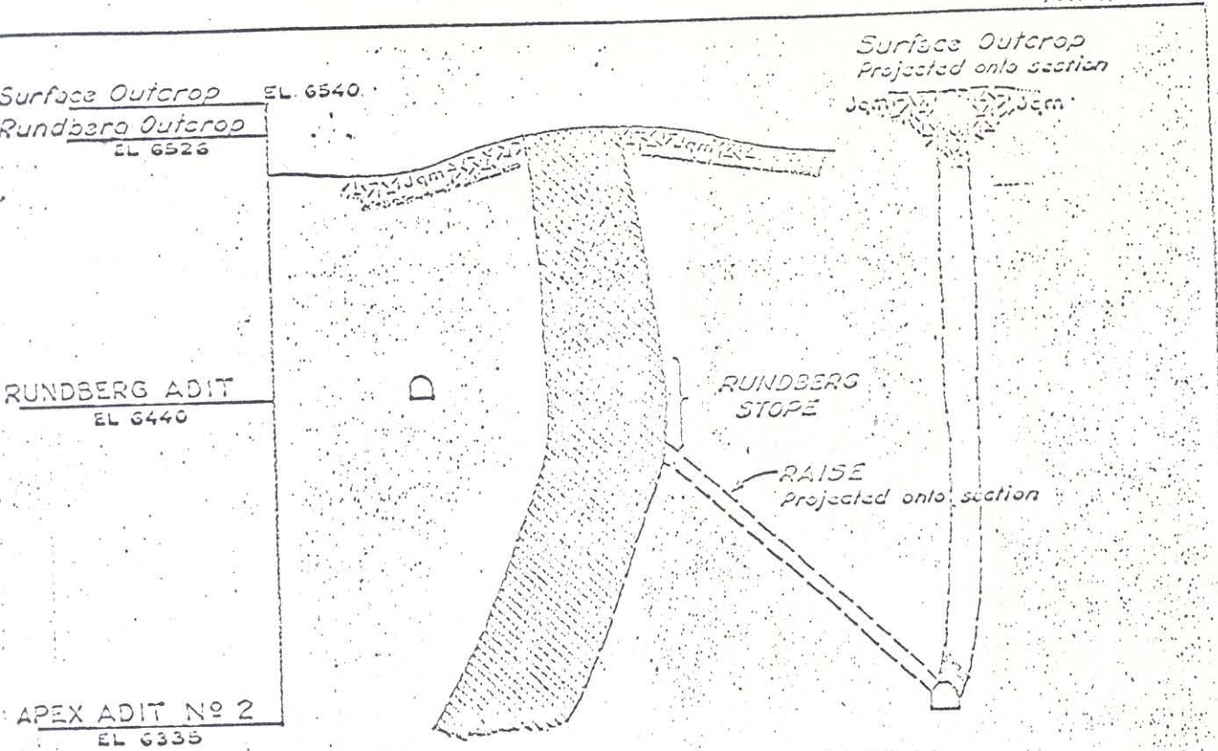
9150 N

Traced by Sherd M. Baker



TRANSVERSE SECTION
THROUGH DIAMOND ORESODY

MAP 3



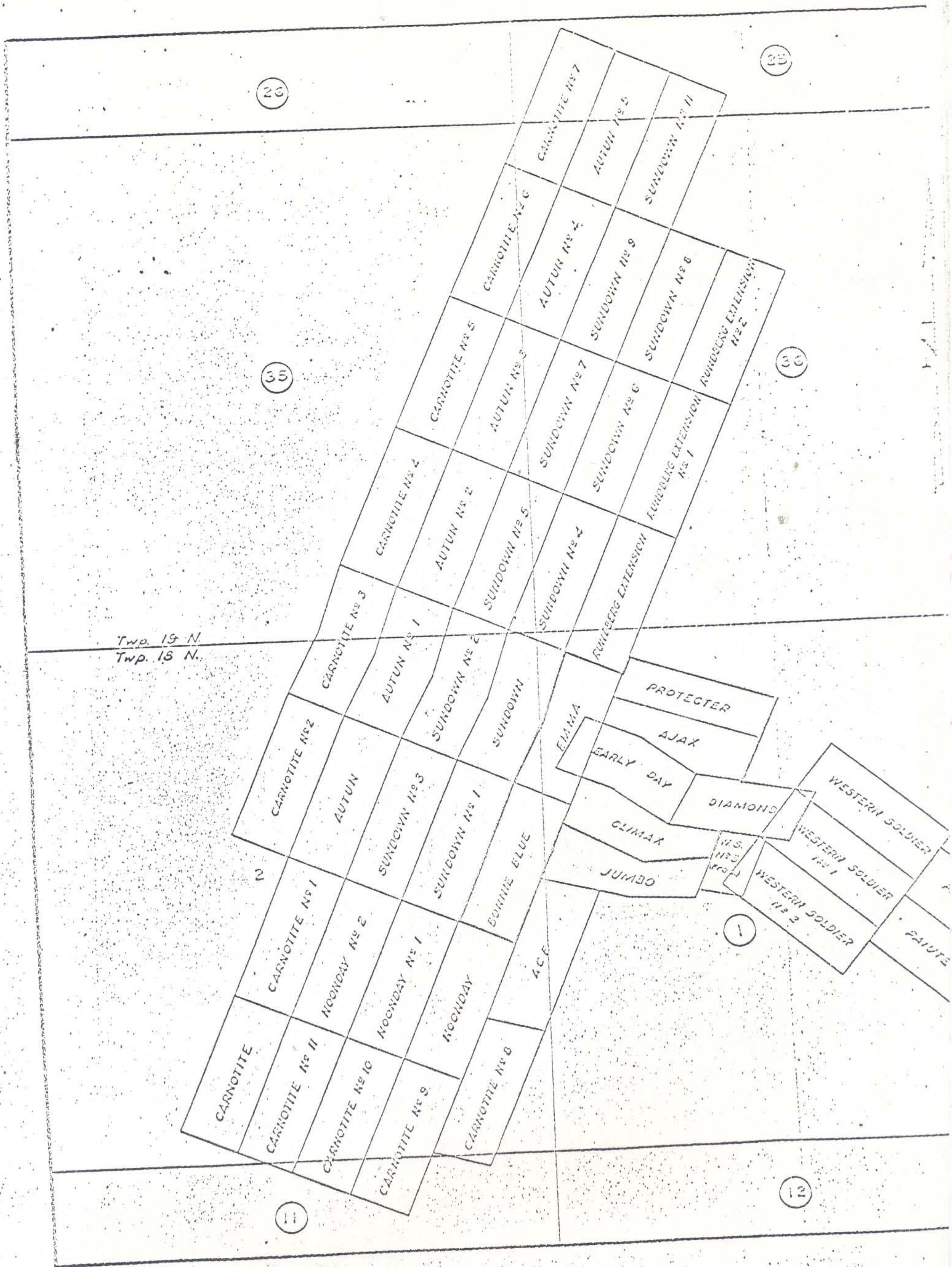
TRANSVERSE SECTION
LOOKING SE THROUGH RUNDBERG OREBODY

GEOLOGIC SECTIONS

TO ACCOMPANY
REPORT BY HARRY H. HUGHES
ON
RUNDBERG MINE
OF
APEX MINERALS CORPORATION
JULY, 1956

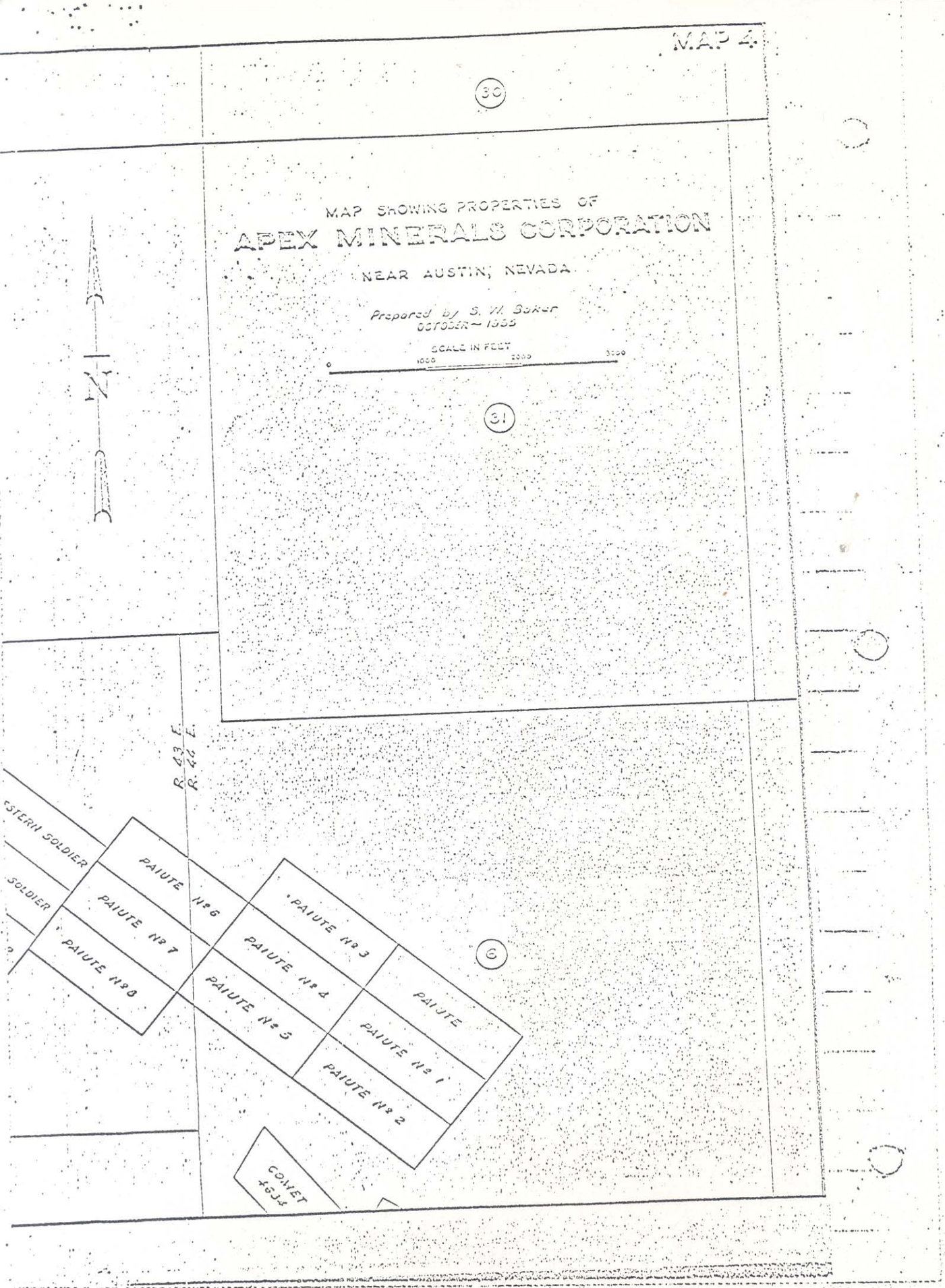
NOTE: See plan for legend

SCALE IN FEET
50 0 50 100 150



26
25
35
36
2
1
11
12
Twp. 19 N.
Twp. 18 N.
CARNOTITE Nº 7
AUTUN Nº 5
SUNDOWN Nº 11
CARNOTITE Nº 6
AUTUN Nº 4
SUNDOWN Nº 9
SUNDOWN Nº 8
RUNDBERG EXTENSION Nº 2
CARNOTITE Nº 5
AUTUN Nº 3
SUNDOWN Nº 7
SUNDOWN Nº 6
RUNDBERG EXTENSION Nº 1
CARNOTITE Nº 4
AUTUN Nº 2
SUNDOWN Nº 5
SUNDOWN Nº 4
RUNDBERG EXTENSION
CARNOTITE Nº 3
AUTUN Nº 1
SUNDOWN Nº 2
SUNDOWN
EMMA
PROTECTER
AJAX
EARLY DAY
DIAMOND
CLIMAX
JUMBO
WESTERN SOLDIER
WESTERN SOLDIER Nº 1
WESTERN SOLDIER Nº 2
PAIUTE
CARNOTITE Nº 2
AUTUN
SUNDOWN Nº 3
SUNDOWN Nº 1
BONNIE BLUE
CARNOTITE Nº 1
NOONDAY Nº 2
NOONDAY Nº 1
NOONDAY
ACE
CARNOTITE
CARNOTITE Nº 11
CARNOTITE Nº 10
CARNOTITE Nº 9
CARNOTITE Nº 8

MAP 4.


30
MAP SHOWING PROPERTIES OF
APEX MINERALS CORPORATION
NEAR AUSTIN, NEVADA
Prepared by S. W. Baker
OCTOBER - 1955
SCALE IN FEET
0
1000
2000
3000
31
R. 43 E.
R. 44 E.
ESTERN SOLDIER
SOLDIER
PAIUTE No 6
PAIUTE No 7
PAIUTE No 8
PAIUTE No 3
PAIUTE No 4
PAIUTE No 5
PAIUTE
PAIUTE No 1
PAIUTE No 2
6
COMET
4634

REESE RIVER COPPER PROPERTY

Apex Minerals Corporation entered into an agreement to purchase a copper property which is located in Section 31, T. 12 N., R. 10 E., N. D. M. (unsurveyed). The property consists of seven claims held by possessory title known as: Sue, Sue No. 1, Sue No. 2, Sue No. 3, Blue Rock, Blue Rock No. 1, and Blue Rock No. 2.

Copper is found on the surface over an area 3,000 feet long by hundreds of feet wide. The copper occurs as oxides and carbonates. It is found as stringers in an oxidized iron gossan. The gangue rock is limestone most of which has been replaced by the iron and copper, with subsequent leaching of the copper.

This is a typical example of a leached copper outcrop and most of the large copper mines of the world had these surface characteristics; many with no commercial values at the surface.

The sequence of events, geologically, is: solutions carrying copper and iron ascend and circulate through the country rock, replacing it and precipitating as iron and copper sulphides. Leaching and weathering oxidize both the iron and copper, with formation of sulphuric acid. The copper, being more soluble, is carried down in solution to be re-precipitated as secondary sulphides at or near the water table leaving the iron oxides behind. Where the copper re-precipitates is called the "zone of secondary enrichment," and is always richer than either the surface residual or the primary ores.

At your Reese River property a surface cut has been bulldozed at both ends of the exposure mentioned above to depths of 35 feet. These are still in the gossan iron, with streaks of high grade copper which have been assayed from 8% to 21.4%. Arrangements have been made to put down churn drill holes at each end to prospect for the secondary enrichment. The depth at which this will be found is, of course, indeterminable at this time, but should occur at about 100 feet. However, it is recommended that the holes be drilled 200 feet, if necessary, or until the permanent water table is reached. When this water table is reached it is confidently expected that there will be an important concentration of the copper in the zone of secondary enrichment.

Harry H. Hughes

Harry H. Hughes

for the ore in depth, and the probable ore will increase in the same proportion. This is by far the largest orebody found so far in the area and as yet its magnitude is not known.

Possibly one of the reasons for the Diamond orebody being of such great size is the fact that it lies between two of the dikes, as shown on Map No. 3. The ore itself is, of course, in the quartzite. Development by drilling (now in progress) will determine the plunge of this orebody. Surface evidence now available indicates the plunge as shown on the map. This orebody lies parallel to a very steep hillside, with an excellent tunnel site at the bottom of Veatch canyon, which would give 450 feet of backs when driven into the orebody.

The probable ore mentioned previously will develop rapidly in the near future. The recommendations listed below are based on making positive ore out of this probable ore.

RECOMMENDATIONS

1. Adit No. 1 - Footwall ore
   (a) Raise on ore, and continue drifting along ore zone at both ends.
   (b) Sink winze in ore.
2. Adit No. 1 - Hanging wall ore
   (a) Continue raise in ore to surface.
3. Rundberg Orebody
   (a) Continue crosscut in Adit No. 2 to contact, and drift on contact to dike.
4. Diamond Orebody
   (a) Continue surface open cut as is presently being done.
   (b) Put down additional churn drill holes to outline extent of orebody.
   (c) Drive tunnels at 100-foot (vertical) intervals down hillside for extraction of ore.

GENERAL

2.5 miles of gravelled road have been built to connect the mine roads with U. S. Highway No. 50 and all mine roads have been gravelled permitting year-around all weather hauling and operations.

Apex Minerals Corporation has ample equipment and tools to carry on its operations as presently conducted at the Apex properties.

These consist of:

2 - 315 cubic feet per minute air compressors
1 - 500 cubic feet per minute air compressor
1 - 33½ KVA Diesel-electric generator
10 - "Swede" air drills, with accessories and air legs
2 - "Swede" air drills with stoper legs
1 - "Swede" Cobra long hole drill outfit with 50 feet of drill rods
1 - Caterpillar shovel loader
2 - Jeeps
1 - 4-wheel drive truck, 1½ tons
1 - Eimco air locomotive
4 - Granby type side dump mine cars 1½ tons
5 - End dump mine cars
1 - "Tugger" air hoist
2 - Eimco mechanical muckers
1 - Chrysler 300 amp. arc welder
1 - Screw cutting lathe
1 - Power drill press
1 - Shaking screen
Miscellaneous small tools

length and slope distances given above, a positive tonnage of 8,800 tons is indicated. Projecting the ore 100 feet down the dip below the No. 1 adit, using the same width and length as above, indicates 4,000 tons of probable ore. For each additional 100 feet of depth there should be added 4,000 tons.

Judging from the strength of the mineralization in the vein and dike the writer is willing to state that the ore will make downward for at least one thousand feet.

At the time when the primary ore was first found in Adit No. 1 the writer gave as an opinion that it was sooty pitchblende. Later the AEC stated that it is coffinite (a silicate of uranium). When Mr. Hess, who is mentioned previously, visited the mine in July he took with him a sample of the primary ore. In a letter from Mr. Hess dated July 21, 1953, to Mr. Hugh Cameron, superintendent of the Rundberg mine, he stated:

"One of the ore samples we have, which we obtained when we examined the mine last Saturday, July 14, is very definitely streaked with pitchblende.

"This is not just my own opinion, also the opinion of a couple of geologists good in their field. In other words, this is good news for your mine."

A crosscut was driven through the aplite dike and at the footwall contact a fine body of the primary ore was cut. This has been developed along the strike for the length shown on Map No. 1 and will continue for undetermined but considerable added lengths, as well as up and down the dip. This ore has maintained a width of six feet. As stated above, the downward extension will be as great in this orebody as that in the hanging wall ore. There is a good location in the footwall orebody to sink a winze to open the ore in depth. This ore will also extend upward to the surface. A diamond drill hole being drilled as this is written (to further outline the Rundberg orebody) has passed through ten feet of very good ore (in the quartzite) in the footwall of the dike. This proves positively the upward extension of this footwall orebody. In addition to the ten feet of ore mentioned above, there are 16 feet of ore disseminated through the dike. This drill hole is shown on Map No. 2. As in the case of the hanging wall ore the tonnage will increase by 4,600 tons for each 100 feet of depth and in all probability considerably more.

Rundberg Orebody

This was the original discovery of uranium at the Rundberg mine. The orebody has been opened as shown on Maps No. 1 and No. 2, and the extensions outlined by long-hole drilling as indicated. This outlining of ore by drilling is standard practice. In fact, a very large tonnage of the uranium ore reserves on the Colorado Plateau are "blocked" in this manner, and accepted by the AEC.

The Rundberg orebody itself is in the quartzite but both walls are of the monzonite.

Both drifting and drilling are being carried on at this time from the No. 2 Adit to open the orebody further.

Diamond Orebody

The Diamond orebody is on top of the mountain almost two thousand feet southeast of the Adit No. 1 primary orebodies (see Maps No. 2 and 3).

On the surface (where first discovered) the width of ore was twelve feet. Excavating and bulldozing a cut from this surface outcrop has exposed the face of an orebody fifty-eight feet wide and fifty feet high. A churn drill hole put down 180 feet back from the face shows autunite, in most of the sludge samples, to a depth of 180 feet. In addition to this exposure bulldozing has cut a continuation of the same ore, along the strike 200 feet to the southeast.

The 53,500 tons of positive ore shown for this orebody is quite conservative and the writer is certain that this figure will be vastly increased when the orebody is fully developed. This development is being pushed as rapidly as possible. The same is true

face, driving tunnels, raising and drilling have opened three large orebodies of uranium ore, with another possible orebody as yet undeveloped.

PROPERTY

Claims held by Apex Minerals Corporation are 37 in number. Of these, 7 are in the Rundberg group and are held under a 20-year lease and an option to purchase from the Rundbergs. These are the Emma, Early Day, Diamond, Ajax, Protector, Climax, and Bonnie Blue. The claims are shown on Map No. 4 at the end of this report.

The company acquired outright the Jumbo, Paiute, Paiute Nos. 1 through 8, Western Soldier, and Western Soldier Nos. 1, 2 and 3.

The Carnotite, Carnotite Nos. 1 through 11, Noonday, Noonday Nos. 1 and 2, Ace, Autun, Autun Nos. 1 through 3, Sundown, Sundown Nos. 1 through 9, Sundown No. 11, Rundberg Extension and Rundberg Extension Nos. 1 and 2 are held by Apex Minerals Corporation under a lease and option to purchase agreement.

GEOLOGY

The claims of Apex Minerals Corporation are near the southwest border of the quartz monzonite pluton which is the core of the Reese River mining district in which is located the famous old silver mining camp of Austin.

In the area of these claims the quartz monzonite has intruded a series of (presumably) paleozoic shales and quartzites, indurating and altering the shales almost to slates and schists. Locally, in the area of the Apex claims, the metasediments consist almost entirely of the quartzites, many of them being carbonaceous. In several places in the vicinity of the orebodies, the writer has found streaks of pure graphite, one of which is 4 inches thick. The carbonaceous material is quite significant since all authorities on uranium agree that presence of carbon is required to precipitate the uranium minerals from their solutions.

The quartz monzonite-quartzite contact strikes northwest-southeast generally and can be followed for a distance of about 9,000 feet on the Apex claims. Along the contact the quartzites have been greatly folded, crumpled and kaolinized, resulting in crushed zones which have afforded excellent channels for the uranium solutions to circulate and precipitate.

In spite of the generally consistent NW-SE strike of the contact there are many local irregularities along it with small noses and embayments of the monzonite intruding the quartzites.

Also, throughout the area of the Apex Minerals Corporation claims there are numerous aplite dikes of varying thickness which cut across the monzonite-quartzite contact. They cut the contact varying from almost right angles to almost parallel. The dikes are later than the monzonite intrusion into the quartzites, and the intrusive action of the dikes further shattered the quartzites making even better channels for the circulation of the ascending uranium solutions. To put it in plainer terms, it is clear that a solution will pass through a bed of gravel easier than through a mass of rock only slightly cracked.

Therefore, I am certain today that the aplite dikes are the structural control for the uranium mineralization.

For the sake of brevity no further discussion of the general geology is given here, but additional details are given below for the separate orebodies.

ORE DEPOSITS

Apex No. 1 Adit

On the hanging wall side of the aplite dike where the primary ore was first found, the cofinite has been opened for a length of 180 feet horizontally, and raises have been made in two places; one to a height of 80 feet and the other to 40 feet. The slope distance up the dike from the No. 1 adit to the surface is 160 feet (see Maps No. 1 and No. 2). The width of ore is variable but will average at least four feet. Using this width, and the

The writer is assigning these positive tonnages to the various orebodies because of experience in developing. All areas have always filled in with ore where expected during the various development drives. Because, as stated previously, the shipment of 1,500.15 tons was taken from all over the property, it is considered that it constitutes the best sampling possible—much better than any number of cut samples—so that the average grade of all ore should be not less than .25% U_3O_8. Future shipments should average this or more.

Further discussion of possible ore extensions is given under the headings of the separate orebodies.

Metallurgy of the ores will be important to Apex Minerals Corporation. The Company has filed its "intent" to build a mill with the Atomic Energy Commission, and application was made to the State Engineer of Nevada to appropriate water for milling. A consulting metallurgist, Albert Silver, one of the outstanding metallurgists of this area, has been employed to work out the proper flow sheet. Average samples of the mixed coffinite and autunite ores (as they will be mined) are now at the Colorado School of Mines at Golden, Colorado, where the most economical flow sheet for extracting the uranium oxide is being worked out under the direction of Mr. Silver.

In view of the very great advantage to Apex Minerals Corporation in the price which would be received for uranium oxide over the price paid for crude ore shipped to a custom mill, the writer strongly recommends that Apex Minerals Corporation erect a mill to treat its own ores.

On a recent trip to Grand Junction, Colorado, where the AEC office was visited, the writer was informed that the price for uranium oxide will be determined by negotiation. This price is determined by the size and type of the orebodies in relation to the size of the mill and may be as high as $11.00 per pound of uranium oxide. This holds until 1962. Between 1962 and December 31, 1966 the price has been set at a minimum of $8.00 per pound, but may be higher under certain conditions.

In conclusion the writer would like to say that he is retained by the Apex Minerals Corporation as consulting geologist. He has been in constant association with the entire operations since July, 1954 and is now devoting a minimum of half his time to the development campaign.

In my thirty-five years experience in mining from Canada to Brazil I have never seen a property develop from a prospect to a mine of such magnitude in so short a time. For this reason, it has been a pleasure to write the foregoing and following positive, enthusiastic statements.

LOCATION AND ACCESSIBILITY

The Apex Minerals Corporation mines are located near Austin, the County seat of Lander County, Nevada. The mines are three miles in an air line southerly, or 7½ miles by road from Austin. Of the road distance, 5 miles are over U. S. Highway 50; the remaining 2½ miles are over a graded and maintained gravel road. From the mines to Battle Mountain, a distance of 97 miles (and the closest rail head) there are 2½ miles of gravelled road just mentioned plus 94½ miles of oiled State Highway 8-A. Ore is trucked from the mines to Battle Mountain (a town on The Western Pacific Railroad) and goes from there by rail to the mill of the Vitro Uranium Company near Salt Lake City, Utah, being sampled en route by the Utah Ore Sampling Company.

HISTORY

Uranium was discovered in September, 1953 by Joe and Rudy Rundberg on the ground now held by Apex Minerals Corporation. They drove 118 feet of tunnel which cut a corner of the Rundberg orebody. On November 1, 1955, Apex Minerals Corporation acquired a 20-year lease and an option to purchase the Rundberg group from Uranium Mines, Inc. Since that time an intensive development campaign of bulldozing on the sur-

REPORT ON MINES OF APEX MINERALS CORPORATION
AUSTIN, NEVADA

SUMMARY AND CONCLUSIONS

As long as two years ago this writer gave as an opinion that the secondary ores in the Rundberg mine would make primary ores at shallow depths and, that the mines of Apex Minerals Corporation would be important producers of uranium. These and other predictions and opinions were given at a time when there was considerable controversy among engineers as to the possibility of them coming true. To date every opinion expressed and every prediction made has turned out to be correct. This is not to be construed as bragging, but rather is mentioned to establish the writer's right to make the positive statements which will be made in this report.

Mr. Marty Hess, engineer-educator, who formerly conducted a mobile uranium prospecting school under the auspices of the Nevada State Vocational Education Department recently visited the Apex Minerals Corporation mine. Shortly before his visit uranophane had been recognized in surface workings on the Diamond orebody where bulldozing was in progress.

Mr. Hess was so enthused over this showing, as well as that of your primary ores that, unknown to any of the Apex officials or personnel, and entirely on his own, he wrote an article for the Nevada State Journal, a Reno newspaper. This appeared in the July 29, 1956 issue. Among a number of other enthusiastic statements, Hess said: "It's not just a uranium mine, it's THE uranium mine in continental United States" . . . "The world's richest uranium discoveries in the Belgian Congo and Great Bear Lake in Canada were also found on uranophane and gummite outcrops" . . . and, "I've seen nothing to compare with Austin's coffinite discovery, not even in Gilpin County, Colorado, the pitchblende district of America. Orebodies in this Austin (Apex) property show width, massiveness and consistency on a regular vein formation that I have not seen in any other continental U. S. uranium mine." It is certainly very gratifying to have a disinterested outside authority agree with my estimate of the mine.

To date four orebodies have been found and partially developed on the Apex Minerals Corporation claims. In developing these orebodies a total of 2,600 feet of underground drifting, crosscutting and raising have been done. In addition to the underground development a great deal of surface stripping with bulldozer has been done and is being carried on currently.

The orebodies of major importance are the Rundberg, Adit No. 1 (coffinite), and Diamond. In addition to these there is the one shown in the map as the "Surface Outcrop." This will in time develop into an orebody of size, but at this time insufficient work has been done to be able to estimate any definite tonnage for it.

In addition to the orebodies mentioned above, aerial reconnaissance of the ground (southeast of the Diamond workings) on the Western Soldier and Paiute claims has disclosed a definite anomaly. Experience has shown that, without exception, where scintillator readings are had and subsequently dug on, ore is found. It was from such scintillator readings that the tremendous Diamond orebody was opened up.

Since June 16, 1956, twenty-four cars of ore have been shipped to the Vitro Uranium Company's mill near Salt Lake City, Utah. These totaled 1,509.45 dry tons, with an average assay of .29265% U_3O_8, containing 8,834.76 pounds of U_3O_8 according to my calculations.

The following is a tabulation of ore tonnages:

	Tons Positive Ore	Tons Probable Ore	Tons Possible Ore
Adit No. 1 (Primary Ore)			
(a) hanging wall orebody	8,860	4,900	44,100
(b) foot wall orebody	6,900	4,600	41,400
Rundberg orebody	37,000	25,000	225,000
Diamond orebody	53,500	53,500	200,000*
TOTALS	106,260	88,000	510,500

*Diamond ore projected only to Veatch Canyon elevation.

NOTES

(1) Holes → O, P, C9, 10, 17, Vent 1-4 are not there on Hughes' map

(2) Holes M, N — the logs by Cenard oil company does not match with bobble counter readings listed in the report (Hughes' readings) Chances are, these holes different from the Hughes' M, and N holes. The location of these holes look into our map.

(3) Holes, C, J, D, H, 3 and 2 matches very close to the readings of bobble counter (Hughes' readings). However there is a difference of 4 - 6 ft discrepancy in the footage between the two.

(4) We don't have the recent logs of holes, L, K, E, G, I ~~Vent~~ 1, 4, 5 and ofcourse M and N (original ones according to Hughes).
These are either caved in and blocked or Cannot find them in the field, perhaps are covered by the soil.

LOGS OF APEX PROPERTY

HOLE NO	TOTAL DEPTH ~~LOGGED~~	THICKNESS OF ORE OR MINERALIZATION	% U_3O_8	FORMATION	REMARKS.
Vent 4	180 ft.	5 ft	0.062	Metasediments	Mineralization at 110–115 ft.
"	"	20 ft	0.03	"	" at 131–150 ft.
Vent 1	182 ft	9 ft	0.039	"	" at 113–122 ft
"	"	14 ft	0.11	"	" at 126–14 ft.
"	"	40 ft	0.38	"	One at 140–182 ft. Hole ends in one itself. One ~~might~~ ~~at~~ extends to 10 ft more atleast.
Vent 2	117 ft	11 ft	0.062	"	Mineralization at 96–107 ft
"	"	6 ft	0.098	"	" at 113–117 ft
				"	Mineralization might extend to 6 ft more atleast.
Vent 3	165 ft	3 ft	0.06	"	Mineraligat at 115–115 ft.
"	"	4 ft	0.17	"	one at 120–124 ft
"	"	4 ft	0.14	"	One at 126–130 ft.

Vent 3	165 ft	10 ft	0.085	Meta sediments	Mineralization at 130 - 140 ft.
"	"	6 ft	0.099	"	" " 154 - 160 ft.
→ O	115 ft.	3 ft	0.11	"	" at 96 - 99 ft
"	"	3 ft	0.03	"	" at 108 - 111 ft
"	"	2 ft	0.082	"	" at 113 - 115 ft
→ P	182 ft	2 ft	0.03		Mineralization does not end. Good indication of an ore zone below.
"	"	3 ft	0.058	"	Mineralization at 79½ - 81½ ft
"	"	2 ft	0.03	"	" at 82 - 85 ft
"	"	2 ft	0.035	"	" at 90 - 92 ft
"	"	4 ft	0.04	"	" at 93 - 95 ft
					" at 98 - 102 ft.
"	"	3 ft	0.23	"	one at 102 - 105 ft
"	"	4 ft	0.18	"	one at 106 - 110 ft.

✓N		151 ft.	5ft	0.13	Meta sediments	one at 86–91ft.
"		"	4ft	0.03	"	Mineralization at 118–122ft
✓M		176 ft.	7ft	0.31	"	one zone at 139–146ft
"		"	3ft	0.033	"	Mineralization at 167–170ft.
"		"	4ft	0.099	"	" at 172–176ft.
✓C9		240ft	3ft	0.33	"	one at 77–80ft.
"		"	4ft	0.125	"	" at 80–84ft
"		"	5ft	0.33	"	" at 97–102ft
"		"	6ft	0.195	"	" at 111–117ft
"		"	7ft	0.099	"	Mineralization at 117ft–124ft
✓K C	259ft	196	3ft	0.071	"	" at 133–136ft.
"		"	3ft	0.072	"	" at 140–143ft.

DH C	259ft	196	4 ft	0.16	Meta sediments	Ore at 192 – 196 ft. Bottoms in the ore. Probably extends atleast for another 5 ft.
DH 10		74 ft	—	—	" —	—
DH J	215ft	142ft	3ft	0.86	"	Ore at 124 – 127 ft
"		"	3ft	0.27	"	Ore at 139 – 142 ft. Hole ends in ore itself. Probably extends for another 10ft atleast.
DH 17		138ft	4ft	0.25	"	Ore at 88 – 92 ft.
"		"	3ft	0.04	"	Mineralization at 92 – 95ft.
"		"	3ft	0.03	"	" at 102 – 105ft.
DH D	182ft	143ft	3ft	0.03	"	" at 109 – 112ft.
"		"	3ft	0.033	"	" at 120 – 123ft.
"		"	3ft	0.03	"	" at 126 – 129ft.
"		"	13	0.084	"	Strong mineralization from 129ft to the bottom of the hole

	Total depth drilled					
DH	160ft	83ft	3ft	0.10	Meta sediments	Strong mineralization at from 80 ft to the bottom of the hole. Might extend to 5ft more.
D.3	58ft	57ft	4ft	0.86	"	one at 46–50ft.
"		"	2ft	0.11	"	Strong mineralization at 51–53ft.
"		"	2ft	0.07	"	Mineralization from 56ft to the bottom of the hole.
D2	117ft	67ft	2ft	0.14	"	one at 61–63ft.
"		"	1ft	0.058	"	Mineralization at 64–65ft.
"		"	2ft	0.058	"	" at from 65ft to the bottom of the hole.

6000 0269 (3890)

Century Geophysical Corporation
Tulsa, Oklahoma

C-366-D

COMPANY: CENARD OIL & GAS CORP
BORE HOLE: C-9
AREA: AUSTIN
COUNTY: LANDER
STATE: NEV.
SECTION:
TOWNSHIP: 14N
RANGE: 43E
LOG MEASURED FROM: G.L.

DATE:

HOLE NO: C-9
SEC. / TWP. / RANGE:
AREA:
COUNTY:
STATE:
COMPANY:
DATE:
TOTAL FEET LOGGED: 240'

T. D. DRILLED: Ft.
BIT SIZE: 4 3/4 In.
CASING:
BORE HOLE FLUID:
DENSITY:
VISCOSITY:
RESISTIVITY:
OPERATOR: JOHNSON
UNIT NO: 7196
LOCATION: GRANTS, N.M.
DRIVE: Hrs.
TIME IN:
STANDBY: Hrs.
TIME OUT:
LOGGING: .5 Hrs.
TOTAL: .5 Hrs.
ROUNDTRIP MILEAGE:
CHARGEABLE STANDBY: Hrs.

INITIAL RUN	GAMMA RERUNS (Initial run offscale)		
T. D. LOGGED: 240 Ft.	SCALE: 1/4 Cps.	SCALE: Cps.	SCALE: Cps.
GAMMA (FULL SCALE): 1K cps	T. C.: 2 Sec. / LOGGING SPEED: 4 Ft./Min.	T. C.: Sec. / LOGGING SPEED: Ft./Min.	T. C.: Sec. / LOGGING SPEED: Ft./Min.
TIME CONSTANT: 2 Sec.	FROM: Ft.	FROM: Ft.	FROM: Ft.
LOGGING SPEED: 10 Ft./Min.	TO: Ft.	TO: Ft.	TO: Ft.
CALIBRATION	TOTAL	TOTAL	TOTAL
SOURCE NO: 967-1 / SOURCE VALUE: 620			
PROBE SIZE: H-165 1 3/8 In.			
RES. FULL SCALE: ohms.			
S. P. Mv/In.			

FOOTAGE OFF 5 FOOT GOING UP HOLE.

SELF POTENTIAL

— 0 MV 5 +

CALIPER

NATURAL GAMMA RAY

RESISTIVITY

6000 0269 (3890)

Century Geophysical Corporation
Tulsa, Oklahoma

C 366 D

DATE 7-25-70

COMPANY CENARD OIL & GAS

BORE HOLE N.

AREA AUSTIN

COUNTY LANDER STATE NEV.

SECTION | TOWNSHIP 14N | RANGE 43E | LOG MEASURED FROM G.L.

HOLE NO.

T. D. DRILLED Ft

SEC. | TWP. | RANGE

BIT SIZE 4 4 In. | CASING

AREA

BORE HOLE FLUID

COUNTY

DENSITY | VISCOSITY

STATE

RESISTIVITY

COMPANY

OPERATOR JOHNSON

DATE

UNIT NO 7196

TOTAL FEET LOGGED 151'

LOCATION GRANTS N.M.

DRIVE Hrs. | TIME IN

STANDBY Hrs. | TIME OUT

LOGGING .5 Hrs.

TOTAL .5 Hrs.

ROUNDTRIP MILEAGE Miles

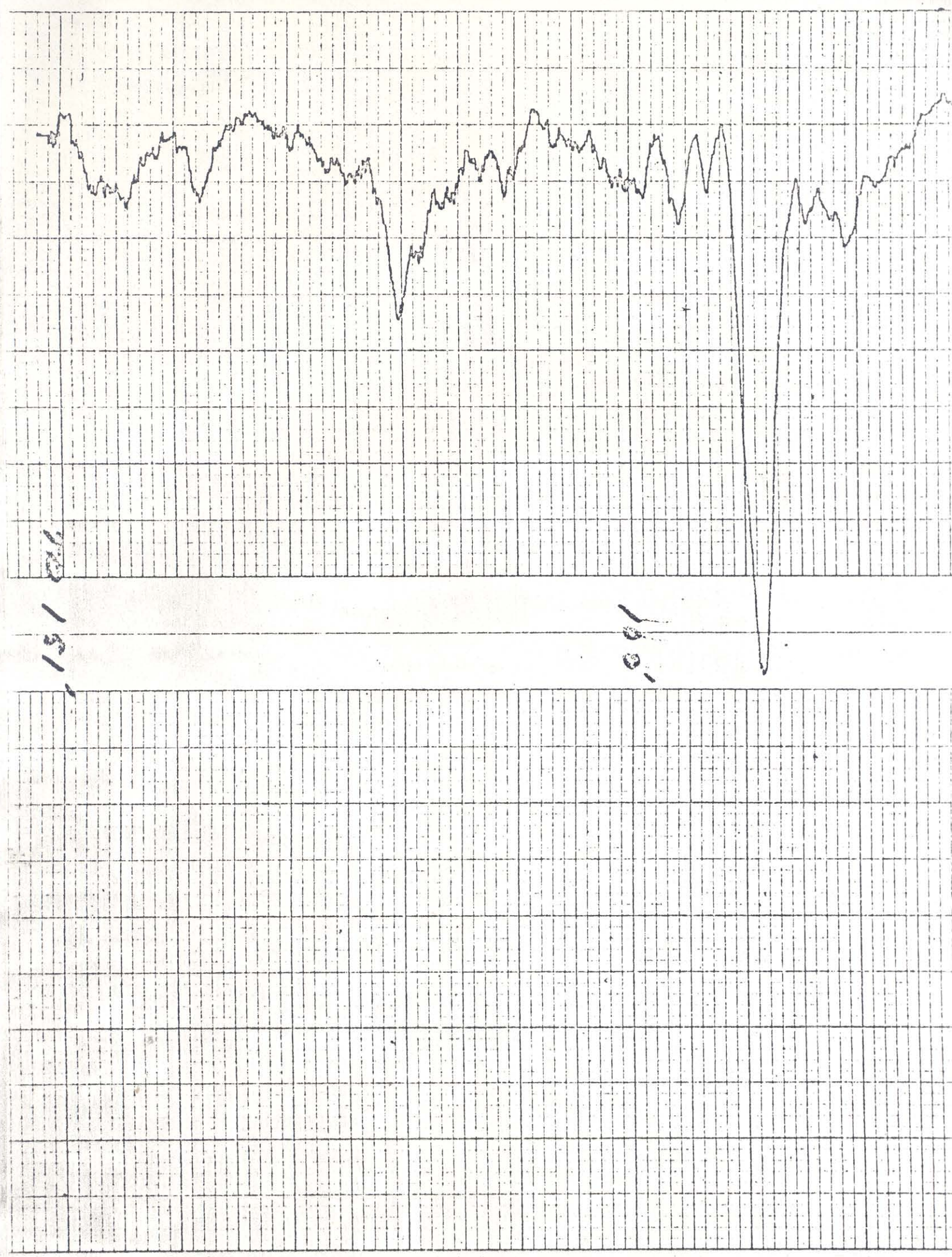
CHARGEABLE STANDBY Hrs.

INITIAL RUN	GAMMA RERUNS (Initial run offscale		
T. D. LOGGED 151 Ft.	SCALE Cps.	SCALE Cps.	SCALE Cps.
GAMMA (FULL SCALE) 500 Cps.	T. C. Sec. / LOGGING SPEED Ft./Min.	T. C. Sec. / LOGGING SPEED Ft./Min.	T. C. Sec / LOGGING SPEED Ft./Min.
TIME CONSTANT 2 Sec.	FROM Ft.	FROM Ft.	FROM Ft.
LOGGING SPEED 4 Ft./Min.	TO Ft.	TO Ft	TO Ft.
CALIBRATION	TOTAL	TOTAL	TOTAL
SOURCE NO. 969-1 / SOURCE VALUE 62.0			
PROBE SIZE H-165 / 1 5/8 In.			
RES. (FULL SCALE) ohms.			
S. P. Mv/In.			

SELF POTENTIAL

— | 0 | MV | +

CALIPER



GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK No. TCI 2123

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Century Geophysical Corporation
Tulsa, Oklahoma

C 166 D

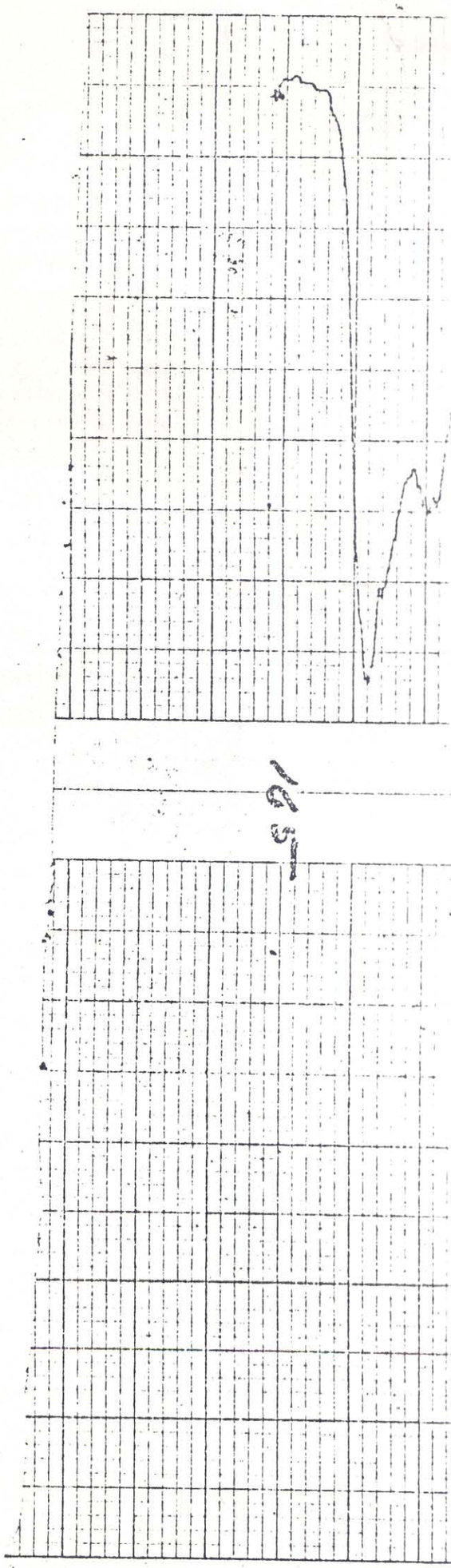
DATE 7-25-70

COMPANY CENARD			HOLE NO	T. D DRILLED Ft.	
BORE HOLE VENT 3			SEC / TWP. / RANGE	BIT SIZE 5 In	CASING 6
AREA AUSTIN			AREA	BORE HOLE FLUID	
COUNTY LANDER	STATE NEV.		COUNTY	DENSITY	VISCOSITY
SECTION	TOWNSHIP 14N	RANGE 43E	LOG MEASURED FROM G. L.	STATE	RESISTIVITY
			TOTAL FEET LOGGED 195'	COMPANY	OPERATOR JOHNSON
				DATE	UNIT NO 7191
					LOCATION GRANTS N.M.

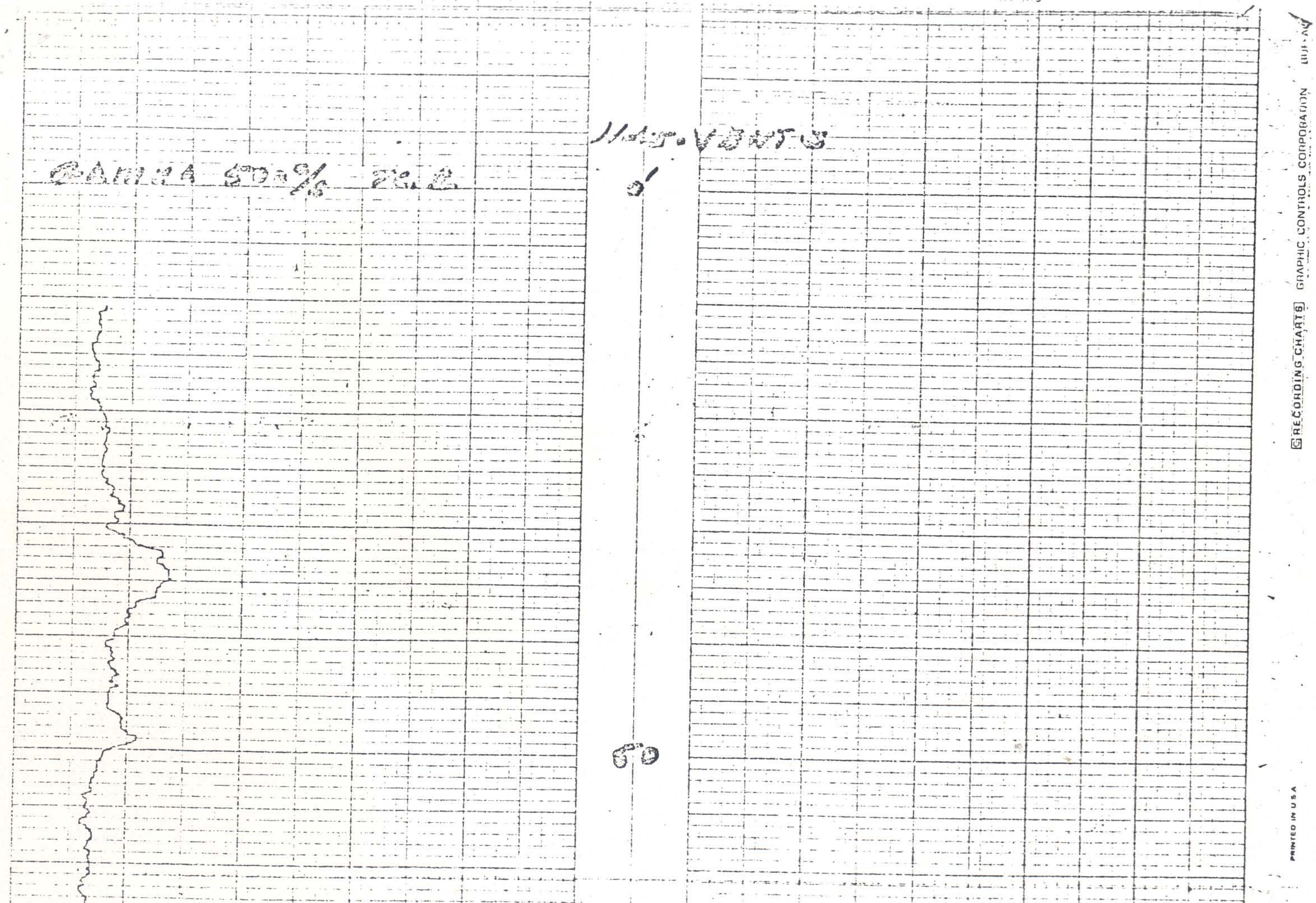
INITIAL RUN	GAMMA RERUNS (Initial run offscale				
T. D. LOGGED 165 Ft.	SCALE 1K Cps	SCALE Cps	SCALE Cps	DRIVE Hrs.	TIME IN
GAMMA FULL SCALE 500 Cps.	T. C. 2 Sec. / LOGGING SPEED 4 Ft./Min.	T. C. Sec. / LOGGING SPEED Ft./Min.	T. C. Sec. / LOGGING SPEED Ft./Min.	STANDBY Hrs.	TIME OUT
TIME CONSTANT 2 Sec.	FROM 145 Ft.	FROM Ft.	FROM Ft.	LOGGING 1.5 Hrs.	
LOGGING SPEED 10 Ft./Min.	TO 115 Ft.	TO Ft.	TO Ft.	TOTAL 1.5 Hrs.	
CALIBRATION	TOTAL 30	TOTAL	TOTAL	ROUNDTRIP MILEAGE Miles	
SOURCE NO. 967-1 / SOURCE VALUE 620				CHARGEABLE STANDBY Hrs.	
PROBE SIZE H-165 1 3/8 In.					
RES. FULL SCALE ohms.					
S. P. Mv/In.					

SELF POTENTIAL

CALIPER



CONTROLS CORPORATION BUFFALO, NEW YORK



RECORDING CHARTS
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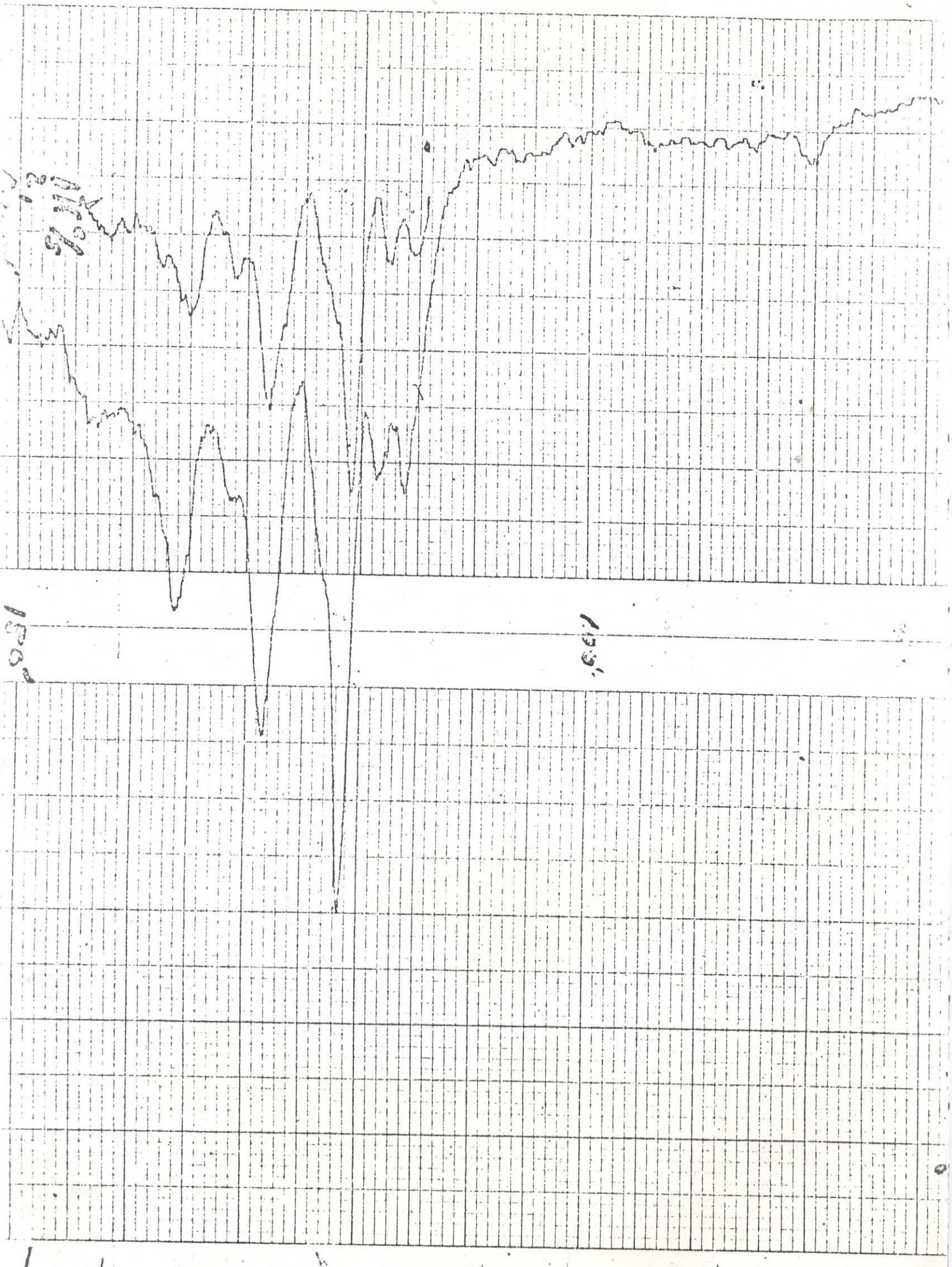

No. TCI 2123

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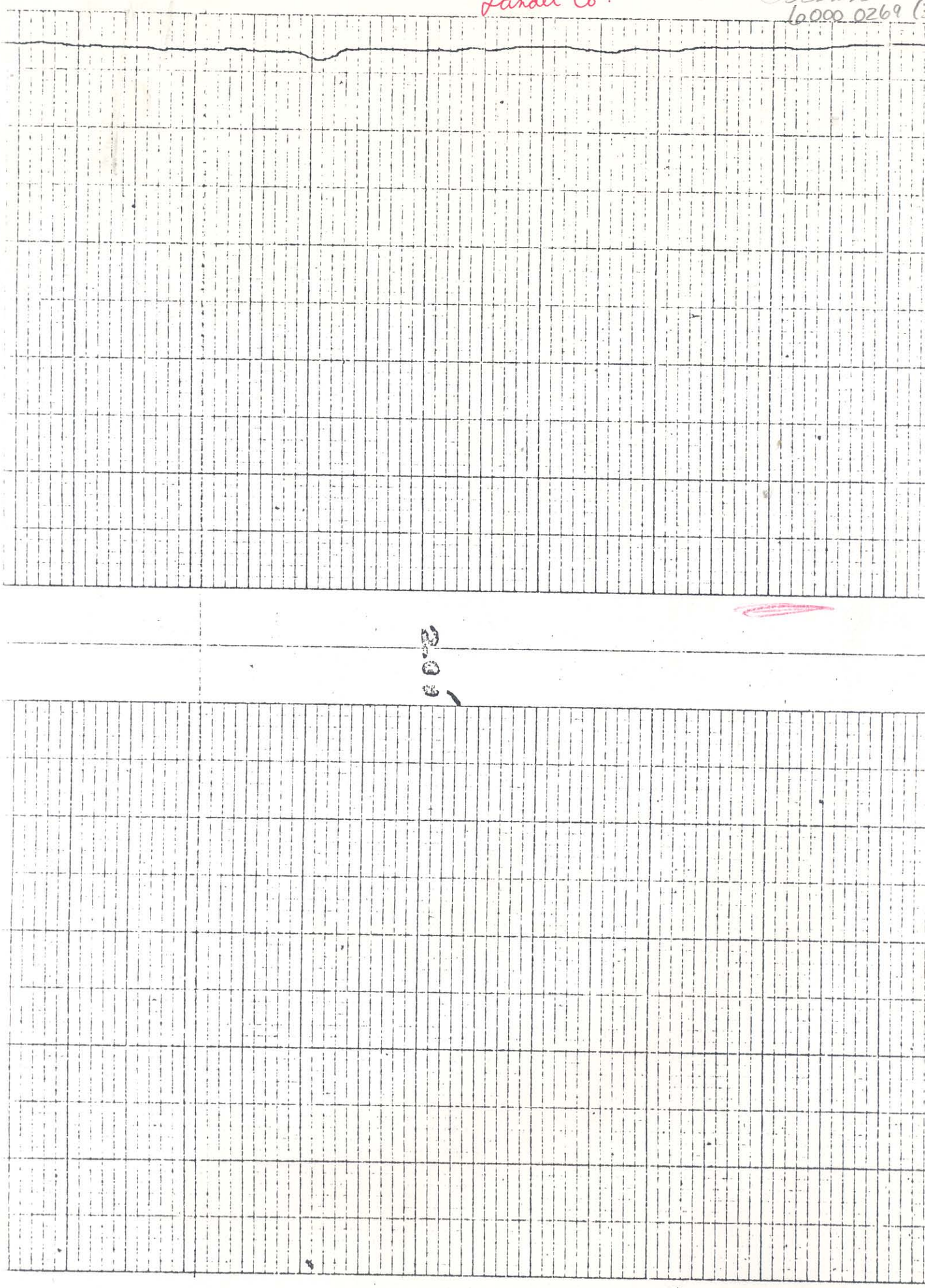

RECORDING CHARTS] GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK

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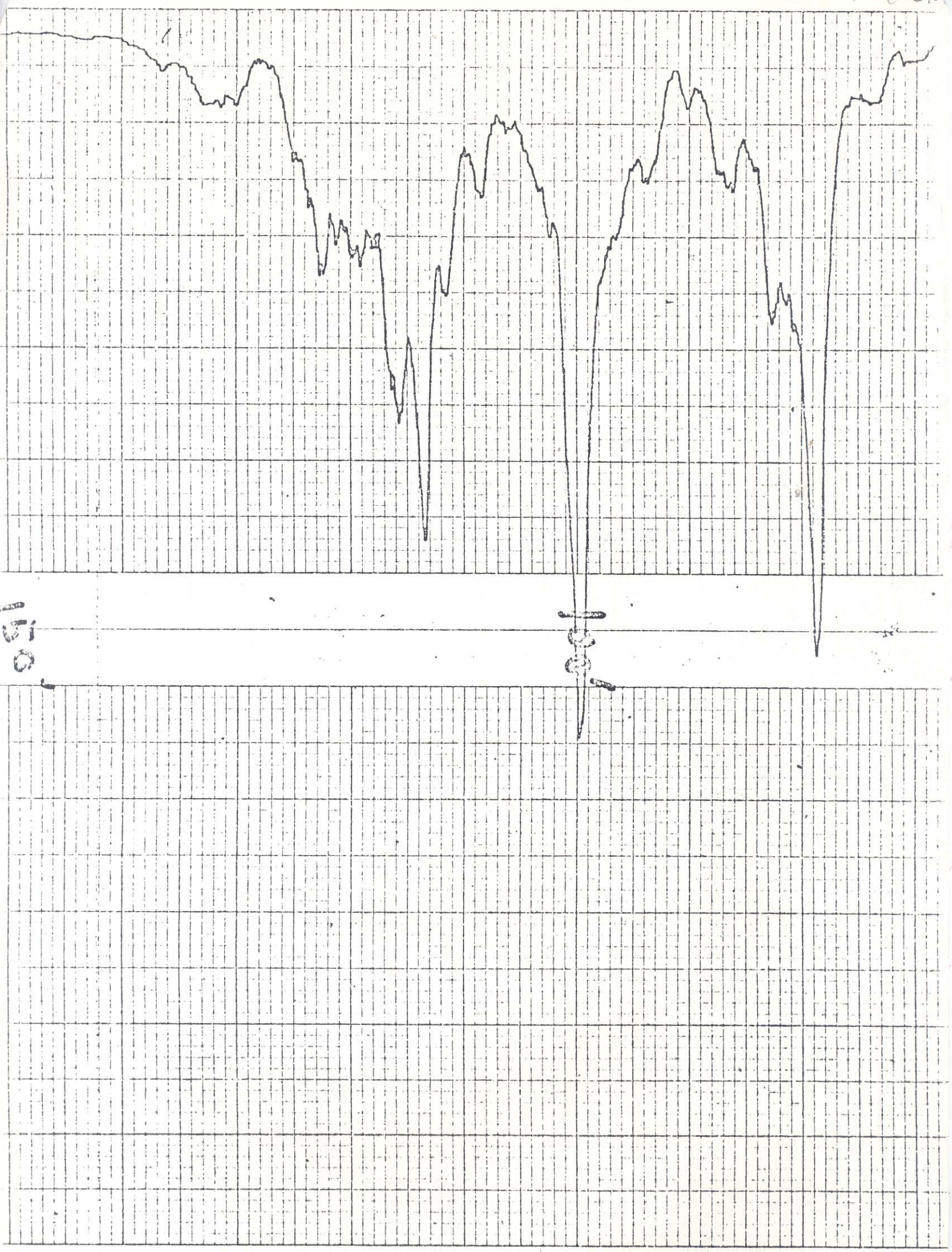

No. TCI 2123

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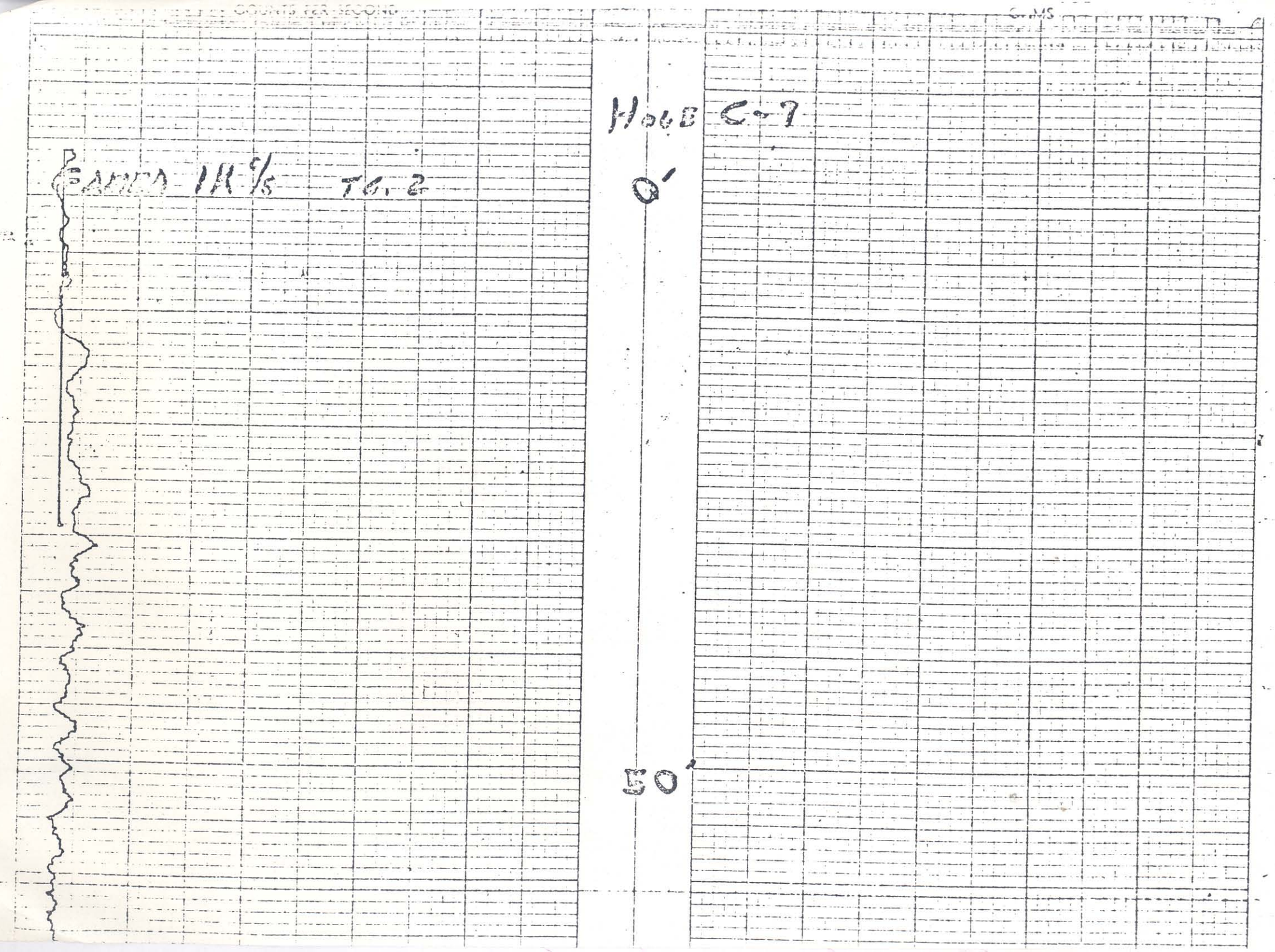

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