

5522

92N/14E & 15W

92N/14E, 15W

CITIES SERVICE MINERALS CORPORATION

1974 REPORT

#5522

ON THE

"PIN" CLAIMS

TATLA LAKE PROJECT, B.C.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 5522 MAP

1974 GEOPHYSICAL REPORT

ON THE

PIN CLAIM GROUP (PIN 1 - 106)

LOCATED NEAR TATLA LAKE, BRITISH COLUMBIA

IN THE



CARIBOO

CLINTON MINING DIVISION

APPROXIMATELY

2½ MILES EAST OF PERKINS PEAK

AT COORDINATES 51°49' N. LAT. 125°02' W LONG.

OWNED BY

CITIES SERVICE MINERALS CORPORATION

WORK BY

MORRISON AND DEPAOLI

GEOPHYSICAL CONTRACTORS & CONSULTANTS

AND

J. W. MURTON, P. ENG.

TABLE OF CONTENTS

	<u>PAGES</u>
INTRODUCTION	1
LOCATION & ACCESS	1
GRID CONTROL	2
GENERAL GEOLOGY	2
INDUCED POLARIZATION SURVEY	2
Introduction & Theory	2 & 3
Instrument & Procedure	3 & 4
PRESENTATION OF DATA	4 & 5
RESULTS & INTERPRETATION	5 & 6
CONCLUSIONS	6
RECOMMENDATIONS	6
CERTIFICATIONS	7
ASSESSMENT DETAILS	
List of Claims	9
Work Summary	12
Personnel	13
Cost Statement	14

ILLUSTRATIONS -

Location Map	# 1 Figure 1	After Page 1
Claim Map	2 Figure 2	In Pocket
I.P. Pseudosection Profiles	Figure 3 (a-g)	After Page 14
Contoured Plan Resistivity N=2	3 Figure 4	In Pocket
Contoured Plan P.F.E. N=2	4 Figure 5	In Pocket
I.P. Interpretation Map N=2	5 Figure 6	In Pocket

# 1a CLAIM LOCATION MAP  
1b GRID LOCATION  
1c CLAIM LOCATION

INTRODUCTION -

The Pin Claim Group is located on the east side of the Coast Range Mountains approximately 160 miles west southwest of Williams Lake, British Columbia. The property consist of 106 mineral claims owned by Cities Service Minerals Corporation and is currently being investigated for the possibility of a copper deposit. During the period August 12-17, 1974, a total of 4.4 line miles of induced polarization/resistivity surveying were completed over the property. The following report describes the instrumentation field procedure and results obtained from the survey.

The work was executed by Morrison and DePaoli I.P. Surveys upon the request of Cities Service Minerals Corporation and under the direct supervision of G. Salazar, M.A. and J.W. Murton, P. Eng.

LOCATION AND ACCESS -

The Tatla Area is located 200 miles north 25° west from Vancouver, B.C. or 142 miles west southwest from Williams Lake. Access to the property is firstly via highway 20, a gravel road connecting Williams Lake to Bella Coola. Secondly, via Kleena Kleene Gold Mine private road which departs south from highway 20 approximately 17 miles west of Tatla Lake. Final Access to the property is by foot or helicopter to the base of Perkins Peak which lies 2 miles south of the Kleena Kleene Gold Mine Road.

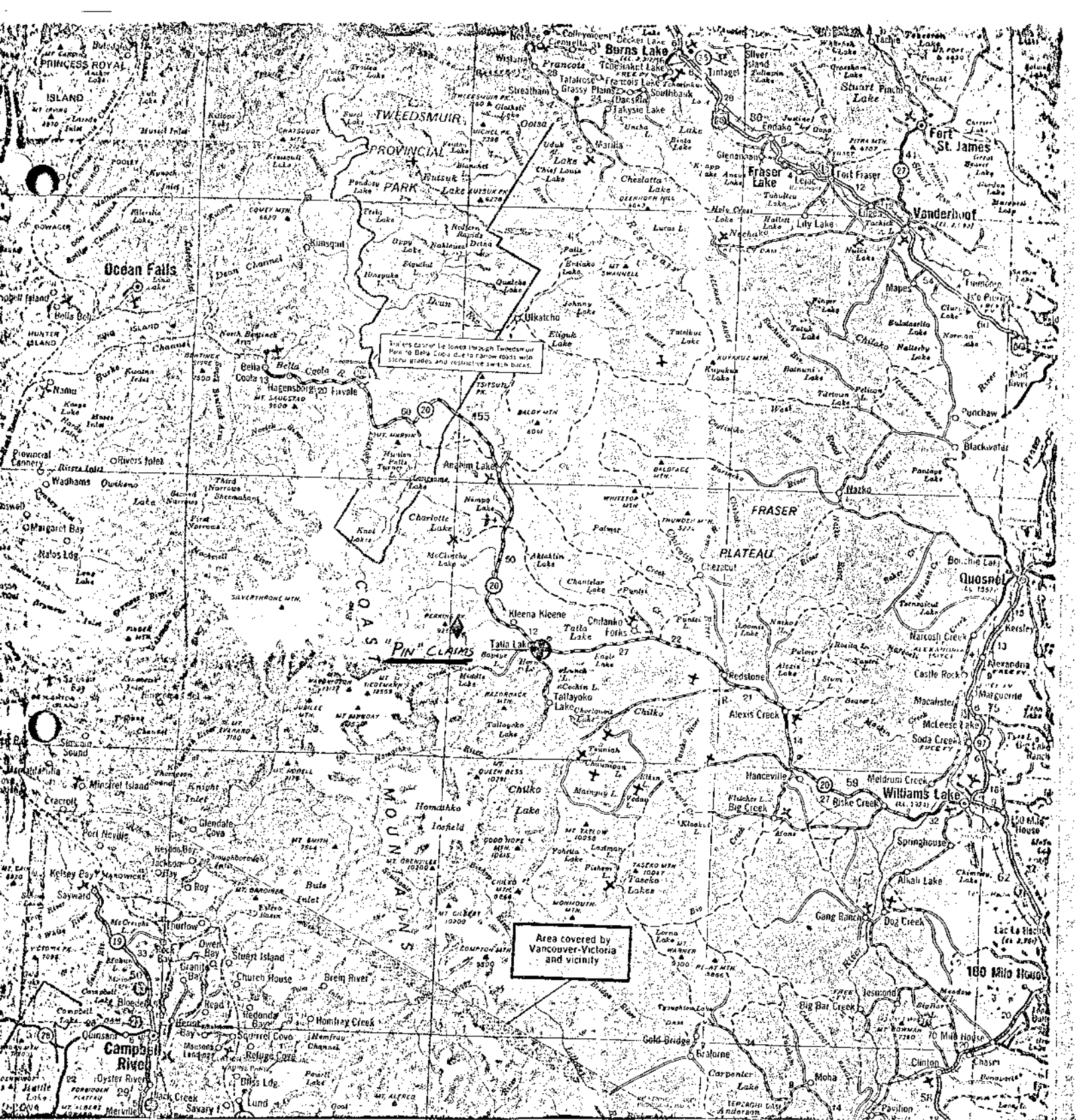


FIGURE No. 1: LOCATION MAP OF THE "PIN" GROUP OF CLAIMS

SCALE 1" = 34 Miles (Approximately)  
 Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 5522 MAP 1

5522  
MAP 1

TO EAST SE

70266	70267	70268	70269	70270	70271	70272	70273	70274	70275	70276	70277	70278	70279	70280
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

43	44	23	24	3	60274	60275	60276	60277	60278	60279	60280	60281	60282	60283	60284	60285	60286	60287	60288	60289	60290	60291	60292	60293	60294	60295	60296	60297	60298	60299	60300	
41	42	45	46	25	60294	60295	60296	60297	60298	60299	60300	60301	60302	60303	60304	60305	60306	60307	60308	60309	60310	60311	60312	60313	60314	60315	60316	60317	60318	60319	60320	
41	42	47	48	27	60311	60312	60313	60314	60315	60316	60317	60318	60319	60320	60321	60322	60323	60324	60325	60326	60327	60328	60329	60330	60331	60332	60333	60334	60335	60336	60337	60338

45602	45601	45600	45599	45598	45597	45596	45595	45594	45593	45592	45591	45590	45589	45588	45587	45586	45585	45584	45583	45582	45581	45580	45579	45578	45577	45576	45575	45574	45573	45572	45571	45570	45569	45568	45567	45566	45565	45564	45563	45562	45561	45560	45559	45558	45557	45556	45555	45554	45553	45552	45551	45550	45549	45548	45547	45546	45545	45544	45543	45542	45541	45540	45539	45538	45537	45536	45535	45534	45533	45532	45531	45530	45529	45528	45527	45526	45525	45524	45523	45522	45521	45520	45519	45518	45517	45516	45515	45514	45513	45512	45511	45510	45509	45508	45507	45506	45505	45504	45503	45502	45501	45500	45499	45498	45497	45496	45495	45494	45493	45492	45491	45490	45489	45488	45487	45486	45485	45484	45483	45482	45481	45480	45479	45478	45477	45476	45475	45474	45473	45472	45471	45470	45469	45468	45467	45466	45465	45464	45463	45462	45461	45460	45459	45458	45457	45456	45455	45454	45453	45452	45451	45450	45449	45448	45447	45446	45445	45444	45443	45442	45441	45440	45439	45438	45437	45436	45435	45434	45433	45432	45431	45430	45429	45428	45427	45426	45425	45424	45423	45422	45421	45420	45419	45418	45417	45416	45415	45414	45413	45412	45411	45410	45409	45408	45407	45406	45405	45404	45403	45402	45401	45400	45399	45398	45397	45396	45395	45394	45393	45392	45391	45390	45389	45388	45387	45386	45385	45384	45383	45382	45381	45380	45379	45378	45377	45376	45375	45374	45373	45372	45371	45370	45369	45368	45367	45366	45365	45364	45363	45362	45361	45360	45359	45358	45357	45356	45355	45354	45353	45352	45351	45350	45349	45348	45347	45346	45345	45344	45343	45342	45341	45340	45339	45338	45337	45336	45335	45334	45333	45332	45331	45330	45329	45328	45327	45326	45325	45324	45323	45322	45321	45320	45319	45318	45317	45316	45315	45314	45313	45312	45311	45310	45309	45308	45307	45306	45305	45304	45303	45302	45301	45300	45299	45298	45297	45296	45295	45294	45293	45292	45291	45290	45289	45288	45287	45286	45285	45284	45283	45282	45281	45280	45279	45278	45277	45276	45275	45274	45273	45272	45271	45270	45269	45268	45267	45266	45265	45264	45263	45262	45261	45260	45259	45258	45257	45256	45255	45254	45253	45252	45251	45250	45249	45248	45247	45246	45245	45244	45243	45242	45241	45240	45239	45238	45237	45236	45235	45234	45233	45232	45231	45230	45229	45228	45227	45226	45225	45224	45223	45222	45221	45220	45219	45218	45217	45216	45215	45214	45213	45212	45211	45210	45209	45208	45207	45206	45205	45204	45203	45202	45201	45200	45199	45198	45197	45196	45195	45194	45193	45192	45191	45190	45189	45188	45187	45186	45185	45184	45183	45182	45181	45180	45179	45178	45177	45176	45175	45174	45173	45172	45171	45170	45169	45168	45167	45166	45165	45164	45163	45162	45161	45160	45159	45158	45157	45156	45155	45154	45153	45152	45151	45150	45149	45148	45147	45146	45145	45144	45143	45142	45141	45140	45139	45138	45137	45136	45135	45134	45133	45132	45131	45130	45129	45128	45127	45126	45125	45124	45123	45122	45121	45120	45119	45118	45117	45116	45115	45114	45113	45112	45111	45110	45109	45108	45107	45106	45105	45104	45103	45102	45101	45100	45099	45098	45097	45096	45095	45094	45093	45092	45091	45090	45089	45088	45087	45086	45085	45084	45083	45082	45081	45080	45079	45078	45077	45076	45075	45074	45073	45072	45071	45070	45069	45068	45067	45066	45065	45064	45063	45062	45061	45060	45059	45058	45057	45056	45055	45054	45053	45052	45051	45050	45049	45048	45047	45046	45045	45044	45043	45042	45041	45040	45039	45038	45037	45036	45035	45034	45033	45032	45031	45030	45029	45028	45027	45026	45025	45024	45023	45022	45021	45020	45019	45018	45017	45016	45015	45014	45013	45012	45011	45010	45009	45008	45007	45006	45005	45004	45003	45002	45001	45000
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PIN CLAIM BOUNDARY

5522  
MAP 1A

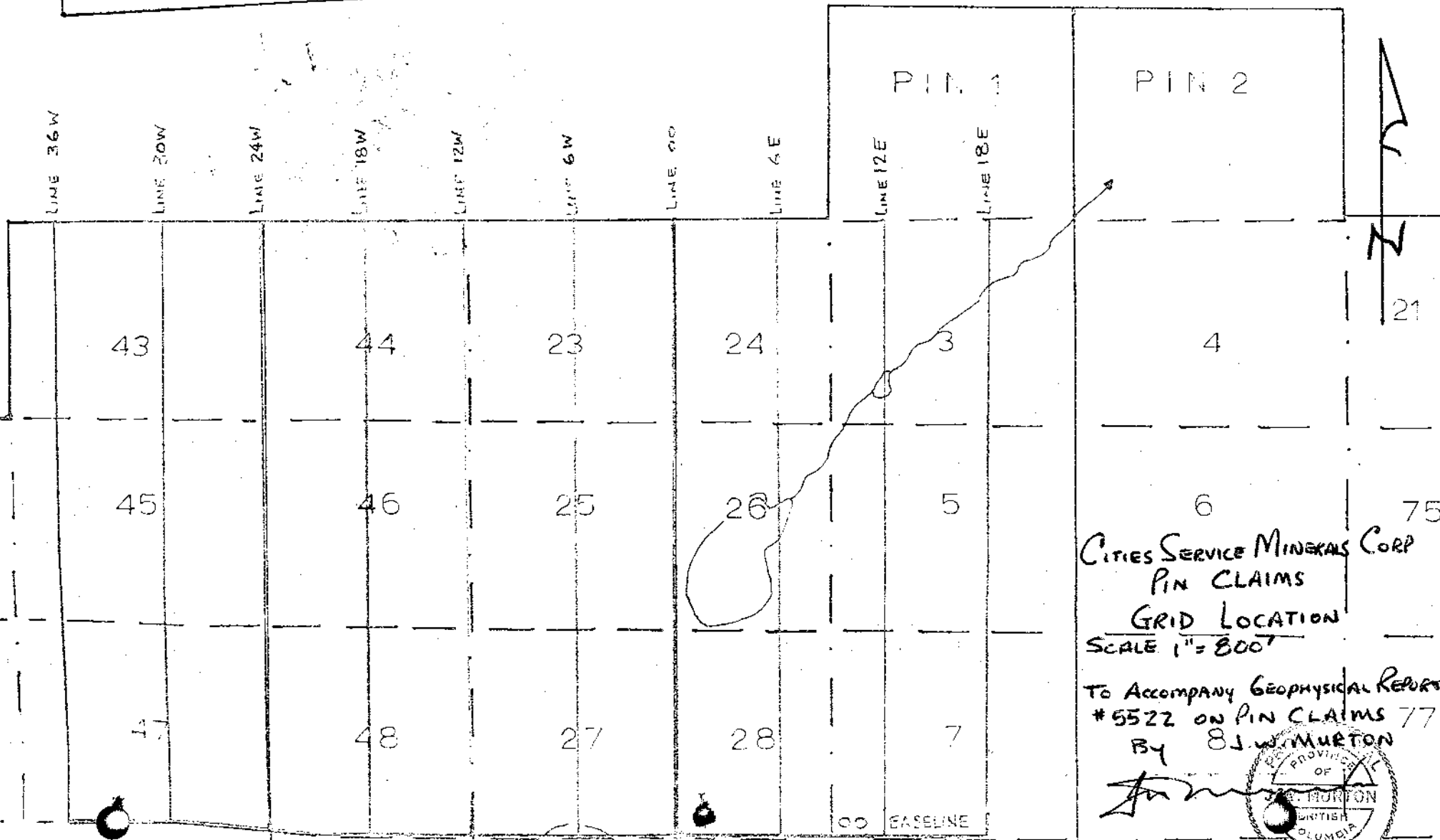
CITIES SERVICE MINERALS CORP  
 COPY FROM MTR MAP 92N 1A E  
 SHOWING ACTUAL LOCATION PIN CLAIMS  
 SCALE 1" = 5000' 1975  
 TO ACCOMPANY GEOPHYSICAL REPORT  
 BY J.W. MURTON P. ENG.

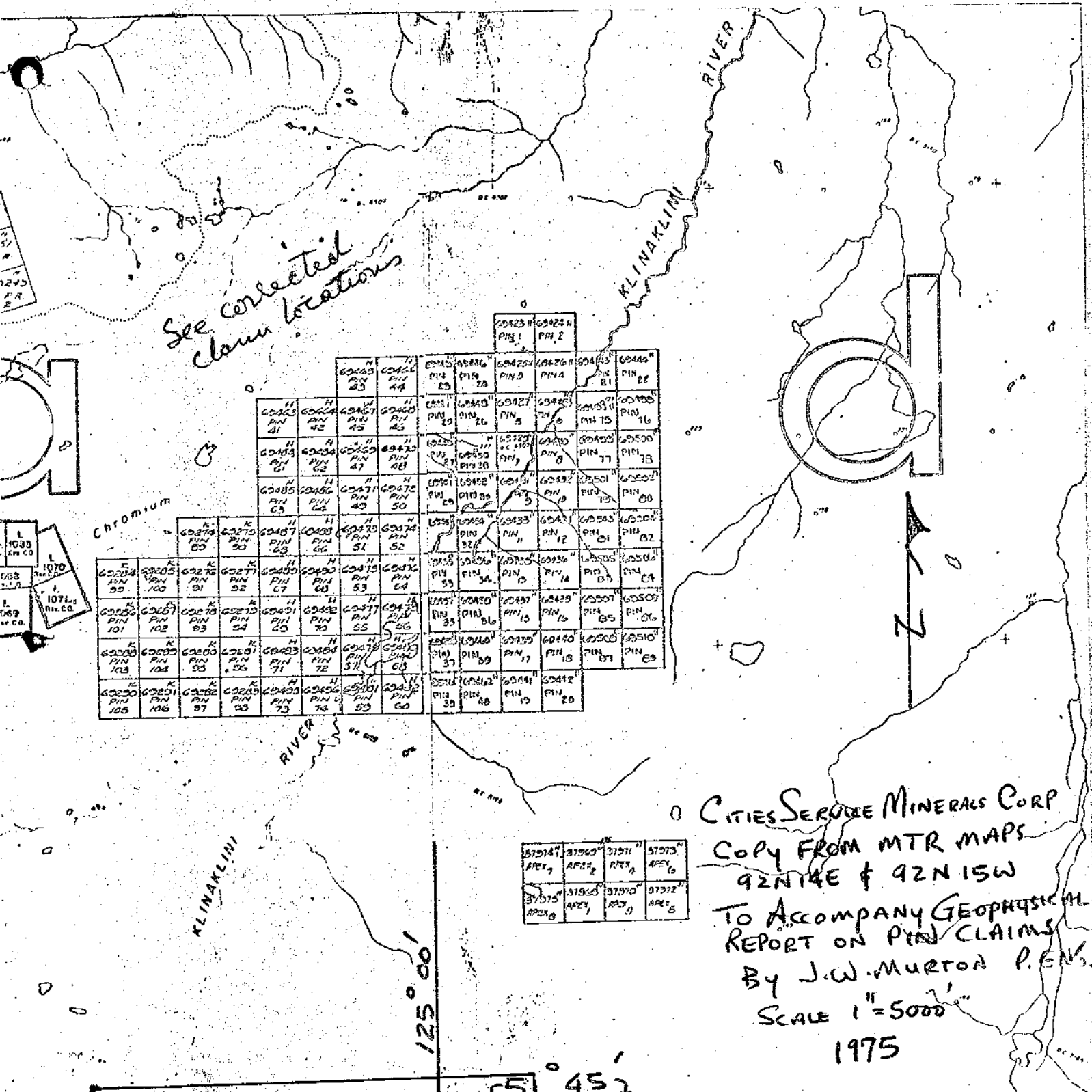


51° 46'  
125° 00'

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 5522 MAP 1b

5522  
 MAP 1B





See corrected  
claim locations

Chromium

60423 PIN 1	60424 PIN 2	60425 PIN 3	60426 PIN 4	60427 PIN 5	60428 PIN 6	60429 PIN 7	60430 PIN 8	60431 PIN 9	60432 PIN 10	60433 PIN 11	60434 PIN 12	60435 PIN 13	60436 PIN 14	60437 PIN 15	60438 PIN 16	60439 PIN 17	60440 PIN 18	60441 PIN 19	60442 PIN 20	60443 PIN 21	60444 PIN 22	60445 PIN 23	60446 PIN 24	60447 PIN 25	60448 PIN 26	60449 PIN 27	60450 PIN 28	60451 PIN 29	60452 PIN 30	60453 PIN 31	60454 PIN 32	60455 PIN 33	60456 PIN 34	60457 PIN 35	60458 PIN 36	60459 PIN 37	60460 PIN 38	60461 PIN 39	60462 PIN 40	60463 PIN 41	60464 PIN 42	60465 PIN 43	60466 PIN 44	60467 PIN 45	60468 PIN 46	60469 PIN 47	60470 PIN 48	60471 PIN 49	60472 PIN 50	60473 PIN 51	60474 PIN 52	60475 PIN 53	60476 PIN 54	60477 PIN 55	60478 PIN 56	60479 PIN 57	60480 PIN 58	60481 PIN 59	60482 PIN 60
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60483 PIN 61	60484 PIN 62	60485 PIN 63	60486 PIN 64	60487 PIN 65	60488 PIN 66	60489 PIN 67	60490 PIN 68	60491 PIN 69	60492 PIN 70	60493 PIN 71	60494 PIN 72	60495 PIN 73	60496 PIN 74	60497 PIN 75	60498 PIN 76	60499 PIN 77	60500 PIN 78	60501 PIN 79	60502 PIN 80	60503 PIN 81	60504 PIN 82	60505 PIN 83	60506 PIN 84	60507 PIN 85	60508 PIN 86	60509 PIN 87	60510 PIN 88	60511 PIN 89	60512 PIN 90
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CITIES SERVICE MINERALS CORP  
COPY FROM MTR MAPS  
92N14E & 92N15W  
TO ACCOMPANY GEOPHYSICAL  
REPORT ON PIN CLAIMS  
By J.W. MURTON P.E.N.S.  
SCALE 1" = 5000'  
1975

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 5522 MAP 1c

# 5522  
**5522**  
**MAP 1C**



GRID CONTROL -

The control grid consists of 5.8 miles of cut, chained and flagged lines. The southern baseline is 5400 feet long and strikes east-west. The six perpendicular cross lines are spaced at 1200 foot intervals except for line 36 west. The lines are fill-in lines which were added to an existing grid.

GENERAL GEOLOGY -

Most of the property is underlain by andesite, tuffaceous andesite, maroon agglomerate and tuff and rhyolite-dacite. All of the above rock types are thought to be Cretaceous in Age. Andesite and tuffaceous andesite are mostly greenish gray and fine grained. Many of the outcrops are chloritized and contain veinlets of epidote.

A prominent shear trending north 70° east with moderate dips southeast occurs in the southern portion of the property. Rocks along the shear have been intensely altered, sericitized and slightly silicified. Cubic cavities with limonite are noted in weathered rocks, but finely disseminated grains of pyrite were observed in fresh sheared rock.

Interest on the property is focused on the presence of copper bearing float. Chalcopyrite, chalcocite, bornite and considerable malachite staining is noted in float scattered throughout the property.

INDUCED POLARIZATION SURVEY -

a) Introduction & Theory -

In order to further delineate a known induced polarization anomaly six lines of induced polarization/resistivity surveying were completed over the Pin Claims.

The term induced polarization means the electrical separation (i.e. separation of charges) induced by an applied electric field. The cause of this polarization is changes in the mobilities of ions within a rock, at the interface between zones of different mobilities, excesses or deficiencies of ions occur; the concentration gradients developed oppose the current flow and cause a polarizing effect. When grains block the pore passages of rocks and a current is applied, a concentration of ions builds up at the electrolyte (water) - metal interface while awaiting an electrochemical reaction which must occur before the electric charge can be transferred from an ion in the electrolyte to a free electron in the metal. The forces which oppose the current flow are said to polarize the interface and the added voltage necessary to drive the current across this barrier is known as "over-voltage".

It takes a finite time to build up overvoltages and one finds that the impedances of these zones (Warburg Impedance) decreases with increasing frequency. In the frequency domain system that was employed the decrease in the Warburg Impedance was measured between current applied at 0.3 hertz (AC1) to current applied at 5.0 hertz (AC2).

b) Instrument & Procedure -

A multiple frequency McPhar Induced Polarization System, Model P660, was employed in measuring the polarization and resistivity parameters. The transmitter is a manually variable voltage source. The output current can be selected from both polarities and varies from direct current to automatically alternating output frequencies of 0.05, 0.1, 0.3, 1.25 and 5.0 hertz.

On this survey the low and high frequencies employed were 0.3 and 5.0 hertz. Power was obtained from a  $2\frac{1}{2}$  KW - 400 hertz motor generator. The maximum output current for the transmitting system is 5 amps while the maximum output voltage is 690 volts.

The receiver employed was the A.C. P660 model. This is a potentiometer type where the amplified and filtered signal is compared with a reference voltage. It is powered by six 8V alkaline transistor batteries and draws 7.5 ma. Total weight including carrying case and batteries is 5 pounds. An in line dipole-dipole array was employed in the survey. The dipole length was 200 feet and measurements were taken to 4 separation ( $N=1,2,3,4$ ). Survey procedure required the preparation of a "set-up" station near the center of each line. The transmitter and its motor generator power supply remained stationary at the set-up position and wires in increasing 200 foot intervals were strung out in both directions. Care was taken to ensure that the wires were well separated to prevent inductive coupling effects. The ends of the wires were connected to buried aluminum foil electrodes. Because of considerable talus and lack of soil some difficulty was encountered in transmitting currents. This was partially overcome by blasting electrode positions with dynamite, watering the site with a brine and burying heavy aluminum foil. Radio contact between the receiver and transmitter operators coordinated power "on" and "off" periods.

PRESENTATION OF DATA -

The data is plotted in seven pseudosections, Figure 3(a) - (g) after page 14. The pseudosections are vertical profile plots displaying apparent resistivities in  $\rho_a/2\pi$  ohm-feet, calculated metal

factors and percent frequency effect values. Contoured plan maps of the second separation ( $N=2$ ), apparent resistivity and percent frequency effect data have also been prepared in Figures 4 and 5 respectively. An interpretation of the data is presented in Figure 6.

#### RESULTS & INTERPRETATION -

The presence of a linear induced polarization anomaly was further defined and its continuity was confirmed. The anomaly trends north  $80^{\circ}$  west between lines 36 W and 6 W then bends near the small lake to north  $80^{\circ}$  east between lines 6E and 18E. The anomaly is characterized by P.F.E. values ranging between 7.5 and 15% and apparent resistivity values ranging between 400-750 ohm-feet. The width of the polarizable source causing the anomaly is interpreted to range between 500 to 200 feet as shown in Figure 6. The northern edge of the anomaly returns to background P.F.E. values quite abruptly while the southern edge of the anomaly dissipates more slowly. A possible interpretation of this imbalance is that the source is dipping to the south.

The intensity of the percent frequency effect values would indicate that the source contains 3-5% polarizable material by volume. One detailed 50 foot dipole-dipole array ( $n=1,2,3,4$ ) was carried out over the anomaly on line 18 W (Figure 3 (e)). This data would indicate that the intrinsic polarizability of the source is closer to 15-18% P.F.E. and that the source is 5% by volume of the mass. Depth to the source on line 18W is less than 50 feet.

A possible fault has been located on Figure 6 on the basis of the drainage and its coincidence with a airphoto linear.

CONCLUSIONS -

The induced polarization anomaly is not characterized by an apparent resistivity low. Resistivity values are usually higher than 500 ohm-feet and sometimes are over 1000 ohm-feet in the anomaly. This would indicate that the host rock containing polarizable mineralization is quite hard and possibly silicified.

Some discouragement is noted in the observations that most of the mineralization seen in the immediate talus appears to be fresh pyrite and that no coincident copper geochemical soil sample results were obtained near the induced polarization anomaly.

However, the interesting float contains impressive copper and gold values and is associated with quartz veins. Possibly this fact alone warrants drill testing of the anomaly.

RECOMMENDATIONS -

Should drill testing of the anomaly occur, a site at 18W, 24N is recommended. This position has been well defined by the detailed 50 foot dipole-dipole array and it is in the middle of the widest portion of the anomaly. A second possible site might be considered between lines 6W and 6E within the "hinge" of the anomaly. Attention in this area is focused on the possible intersection of a portion of the north 70° east shear zone with the anomaly.

Respectfully submitted,

G. M. DE PAOLI  
Geophysicist, B.Sc.

Tatla Lake  
August 19, 1974

C E R T I F C A T I O N

I, DENNIS F. MORRISON, of the City of Gravenhurst, in the Province of Ontario, hereby certify as follows:

1. That I have First Year University credits at the University of Waterloo, Waterloo Ontario.
2. That I was employed as an electronic technician during 1962-1966 for the Bell Telephone Company of Canada in Toronto.
3. That I was employed by McPhar Geophysics as an Induced Polarization Operator and Crew Chief during the period 1967-1971.
4. That I have been self-employed as an independent Induced Polarization Contractor from 1971-1974.
5. That I have comprehensive induced polarization operating experience in Newfoundland, Nova Scotia, Quebec, Ontario, Manitoba, B.C., Yukon Territories and Northwest Territories and Panama.
6. That I have no interest directly or indirectly in the Pin Claim Group nor do I expect to receive any.

D. F. MORRISON

Tatla Lake, B.C.  
August 18, 1974

C E R T I F I C A T I O N

I, GARRY M. DEPAOLI, of the City of Burnaby, in the Province of British Columbia, hereby certify as follows:

1. That I am a graduate of the University of British Columbia, Vancouver, British Columbia with a Bachelor of Science Degree in combined honours, Geophysics and Geology (1969).
2. That I have practiced my profession as a Geophysicist continuously for the past 5 years in Northern Ontario, Quebec, Manitoba, Western U.S.A., Yukon Territories and British Columbia.
3. That I am a member in good standing of the Society of Exploration Geophysicists, the Geological Association of Canada, The Canadian Institute of Mining and Metallurgy, and the B.C. Society of Exploration Geophysicists.
4. That I have no interest directly or indirectly in the Pin Claim Group nor do I expect to receive any.
5. That the information contained herein was compiled as a result of an Induced Polarization Survey conducted during the period August 12 to 17, 1974.

G. M. DePaoli  
Geophysicist, B.Sc.

Tatla Lake, B.C.  
August 18, 1974

PIN CLAIMS

PIN GROUP # 1

<u>Claim #</u>	<u>Record #</u>	<u>Assessment Due Dates</u>	<u>No. of Years Work Filed</u>
Pin 1	69423	July 27, 1975	
2	4	" "	
3*	5	" 1978	2
4*	6	" 1976	
5*	7	" 1978	2
6*	8	" 1976	
7*	9	" "	
8	30	" 1976	
9	31	" 1975	
10	2	" "	
11	3	" "	
12	4	" "	
13	5	" "	
14	6	" "	
15	7	" "	
16	8	" "	
17	9	" "	
18	40	" "	
19	1	" "	
20	2	" 1975	
21*	69443	" 1976	
22*	44	" "	
34	56	" 1975	
36	58	" "	
38	60	" "	
40	69462	" "	
75	67497	" 1976	
76	69498	" "	
77	99	" "	
78	500	" 1975	
79	01	" "	
80	02	" "	
81	03	" "	
82	04	" "	
83	05	" "	
84	06	" "	
85	07	" "	
86	08	" "	
87	09	" "	
88	10	" "	



PIN CLAIMS

PIN GROUP # 2

<u>Claim #</u>	<u>Record #</u>	<u>Assesment Due Date</u>	<u>No. of Years Work Filed</u>
Pin 23*	69445	July 27, 1976	
24*	6	" 1978	2
25*	7	" "	2
26*	8	" "	2
27*	9	" "	2
28*	50	" "	2
29	1	" 1975	2
30	2	" "	
31	3	" "	
32	4	" "	
33	5	" "	
35	7	" "	
37	9	" "	
39	61	" "	
44*	66	" 1978	2
46*	68	" 1978	2
48*	70	" "	2
50	72	" 1976	2
52	4	" "	
54	6	" 1975	
55	77	" "	
56	78	" "	
57	79	" "	
58	80	" "	
59	81	" "	
60	82	" "	
69	91	" "	
70	92	" "	
71	93	" "	
72	94	" "	
73	95	" "	
74	96	" "	
95	69280	Aug. 8, 1975	
96	81	" "	
97	82	" "	
98	83	" "	
103	88	" "	
104	89	" "	
105	90	" "	
106	91	" "	

PIN CLAIMS

PIN GROUP # 3

<u>Claim #</u>	<u>Record #</u>	<u>Assessment Due Date</u>	<u>No. of Years Work Filed</u>
Pin 41	69463	July 27, 1975	
42	64	" "	
43*	65	" 1978	2
45*	67	" "	2
47	69	" 1975	
49	71	" "	
51*	73	" 1976	
53*	75	" "	
61	69483	" 1975	
62	4	" "	
63	5	" "	
64	6	" "	
65	7	" 1976	
66	8	" "	
67	9	" "	
68	69490	" "	
89	74	Aug. 8, 1975	
90	5	" "	
91	6	" "	
92	7	" "	
93	8	" "	
94	9	" "	
99	84	" "	
100	85	" "	
101	86	" "	
102	87	" "	

\* Grouped as Pin Group No. 4 in April, 1975.

Note: "Assessment Due Dates" and "number of years work filed" are those in effect after filing and acceptance of this report in full.

WORK SUMMARY

4.4 Line miles of induced polarization surveying  
(August 12-17, 1974).

5.8 Line miles of line cutting and flagging (August 10-  
14, 1974).

PERSONNEL

Time (Days)

- |    |  |   |
|----|--|---|
| 1) | D. F. Morrison - I.P. Operator<br>Morrison & DePaoli I.P. Surveys<br>Box 418, Gravenhurst, Ontario | 7 |
| 2) | G. M. DePaoli - Geophysicist<br>Morrison & DePaoli I.P. Surveys<br>5305 E. Georgia, Burnaby, B.C.  | 7 |
| 3) | R. York - Geophysical Assistant<br>37C Miller Road<br>Truro, Nova Scotia                           | 7 |
| 4) | I. Cameron - Geophysical Assistant<br>3475 N. 20th Avenue<br>Vancouver, B.C.                       | 4 |
| 5) | J. Hasenohrl - Geophysical Assistant<br>Tatlayoka, B.C.  | 7 |
| 6) | N. Jorgensen - Geologist   | 5 |
| 7) | T. Osterstock - Geological Assistant   | 6 |
| 8) | G. Salazar - Geologist (Office & Supervision)<br>1866 W. 36th Avenue<br>Vancouver, B.C.            | 3 |
| 9) | J. W. Murton, P. Eng. (Office & Supervision)<br>405-1200 West Pender St.<br>Vancouver, B.C.        | 2 |

STATEMENT OF EXPENDITURES FOR I.P. SURVEY  
AT PIN CLAIMS

1) <u>Linecutting &amp; Chaining</u>	
N. Jorgensen - Geologist, 5 days @ \$50/day	\$250.00
T. Osterstock - Geological assistant, 5 days @ \$31/day	155.00
2) <u>I. P. Survey</u>	
Morrison & DePaoli I. P. Surveys	1,500.00
6 Operating Days @ \$250/day	200.00
2 Travel days @ \$100/day	
R. Yorke - Geophysical Assistant, 7 days @ \$28.40/day	198.80
I. Cameron - Geophysical Assistant, 4 days @ \$28.40/day	113.60
J Hasenohrl - Geophysical Assistant, 7 days @ \$28.40/day	198.80
G. Salazar, Geologist, Supervision, 3 days @ \$80/day	240.00
3) <u>Camp Costs</u>	
46 Man days @ \$15/man day	690.00
4) <u>Transportation</u>	
Truck Rental: 2 Trucks @ \$500/month (1000 x 7/30)	233.00
Gas & Oil:	28.00
Helicopter to property & return, 7.3 hours @ \$130/hr.	949.00
5) Report writing & Draughting - J.W. Murton, P.Eng.	<u>200.00</u>
Total	\$4,956.20 VVVVVVVV

Declared Before me in  
the City of Vancouver  
this \_\_\_\_\_ day of \_\_\_\_\_, 1975.

G. M. DePaoli

G. Salazar S. M.A.

J. W. Murton, P. Eng.



CERTIFICATION

I, J. W. Murton, of North Vancouver, British Columbia, do hereby  
certify that:

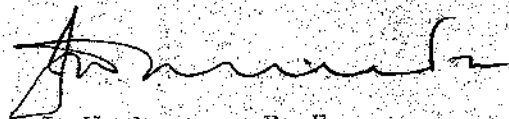
I am a member of the Association of Professional Engineers  
of the Province of British Columbia, registered in 1972,  
No. 8324.

I am a graduate of the University of Manitoba with a B.Sc.  
in Geology.

I have been a practising Engineer and Geologist since 1960  
in Manitoba, Saskatchewan, British Columbia, South Western  
U.S.A. and Alaska.

Vancouver, B. C.

April 22, 1975

  
J. W. Murton, P. Eng.



MORRISON & DEPAOLI I.P. SURVEYS  
GEOPHYSICAL CONTRACTORS & CONSULTANTS

VANCOUVER (604) 299-4961  
TORONTO (705) 837-7000  
AUGUST 20, 1974.

CITIES SERVICE MINERALS CORP.,  
#405 - 1200 WEST PENDER STREET,  
VANCOUVER, B.C.

RE: Induced Polarization Survey over the PIN CLAIM GROUP near  
Tatla Lake, B.C.

6 Operating Days at \$250.00 per day	..... \$1,500.00
2 Travel Days at \$100.00 per day	..... \$200.00
Total Amount now due and payable	..... \$1,700.00

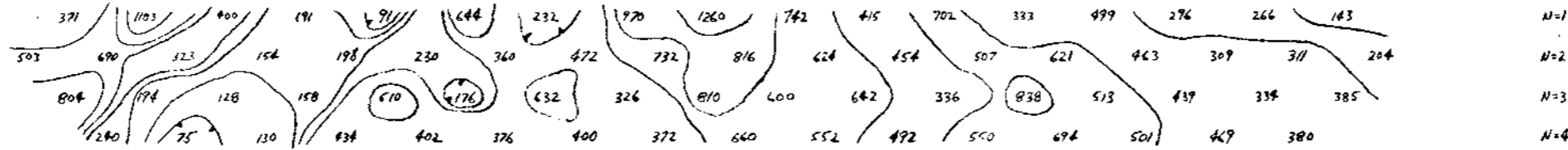
*DM*  
581 H-1  
Copy by [unclear]

Yours very truly,  
*[Signature]*  
D.F. MORRISON

DFM/gmd

LINE 18E

0N 2N 4N 6N 8N 10N 12N 14N 16N 18N 20N 22N 24N 26N 28N 30N 32N 34N 36N 38N 40N 42N

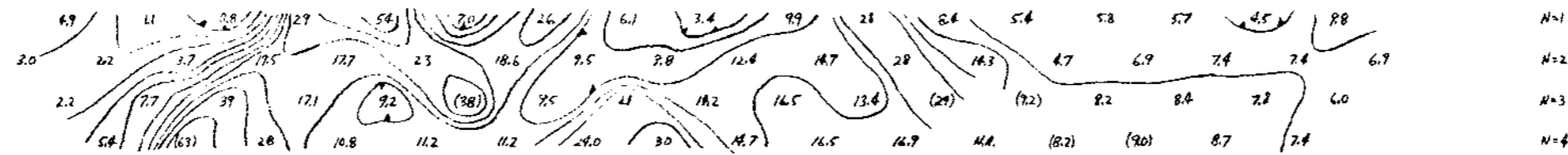


$\frac{\rho_{ax}}{2\pi}$   
OHM FEET

CITIES SERVICE MINERALS CORP  
TATLA LAKE AREA  
PIN CLAIMS

P-660 FREQUENCY DOMAIN I.P.  
DIPOLE - DIPOLE ARRAY  
0.3 + 5.0 HZ  
OPERATORS: MORRISON + DEPAOLI

SCALE: 1" = 400'  
DATE: AUG. 12, 17 1974

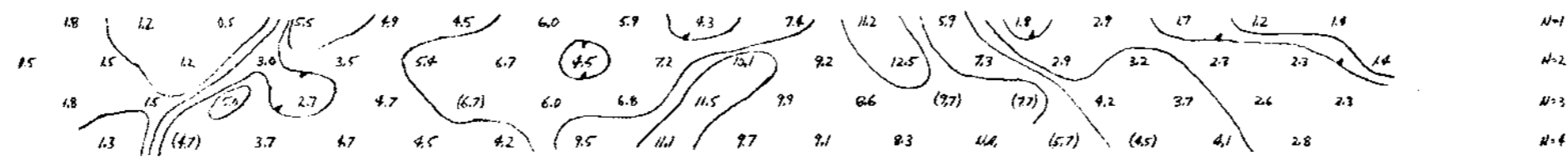


M.F.

LINE 18E.

FIGURE 3(a)

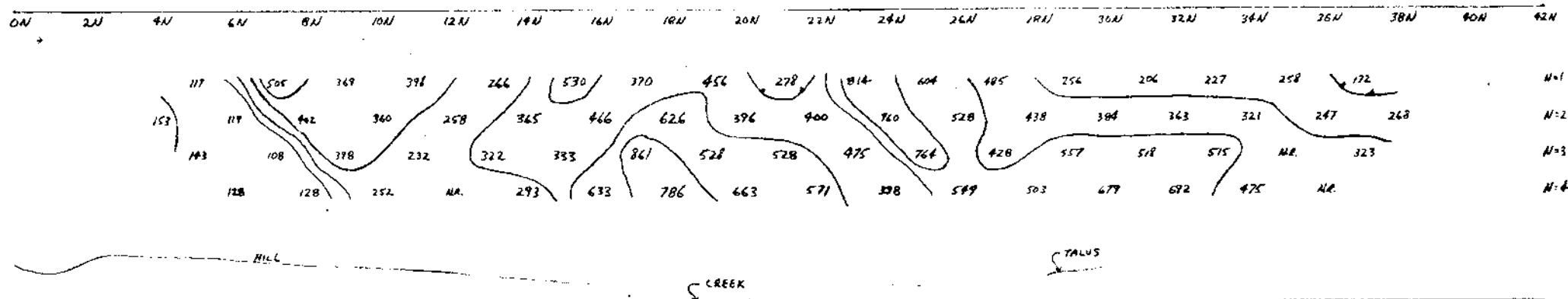
Fig: 3(a)



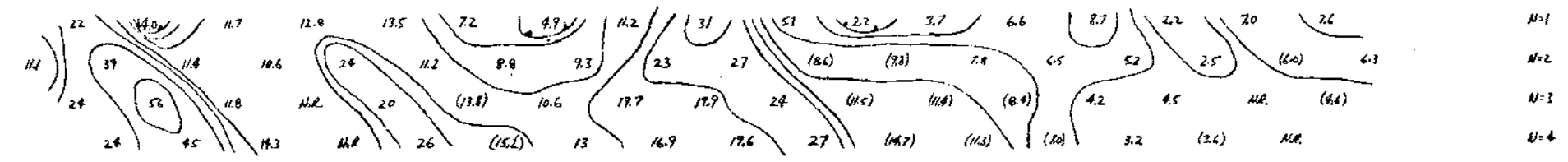
F.E.



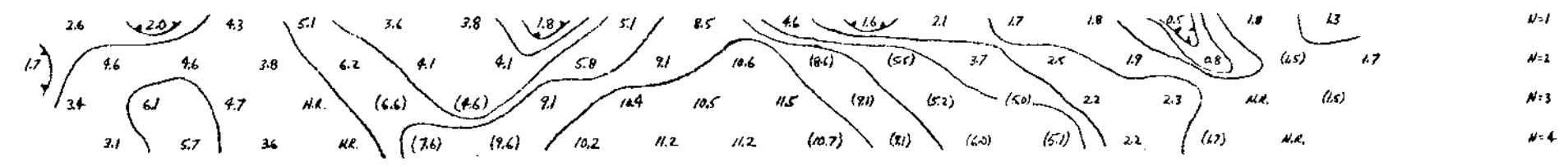
LINE 6E



CITIES SERVICE MINERALS CORP.  
 TATLA LAKE AREA  
 PIN CLAIMS  
 P-660 FREQUENCY DOMAIN I.P.  
 DIPOLE - DIPOLE ARRAY  
 0.3 + 5.0 HZ.  
 OPERATORS: MORRISON + DEPAOLI  
 SCALE: 1" = 400'  
 DATE: AUG. 13, 17 1974



M.F.  
 LINE 6E

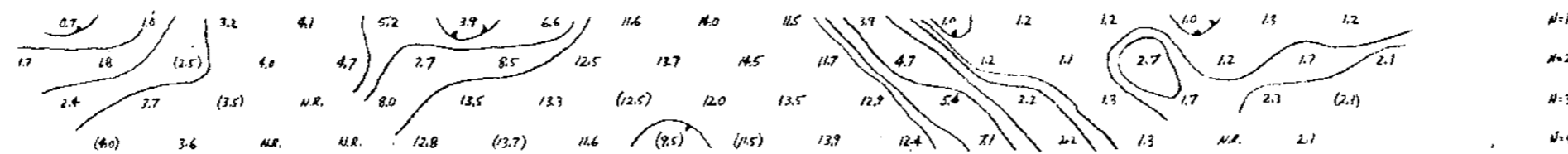
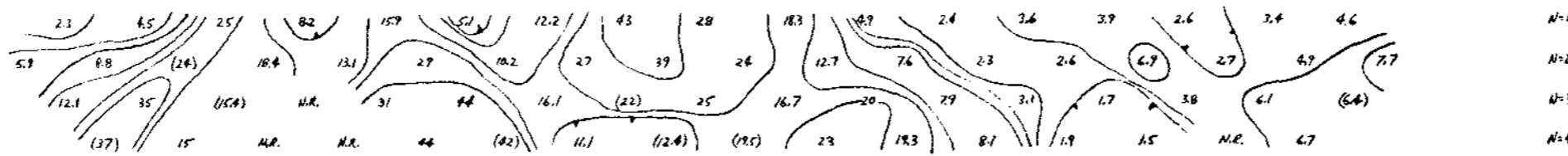
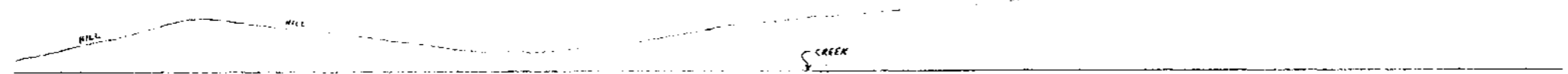
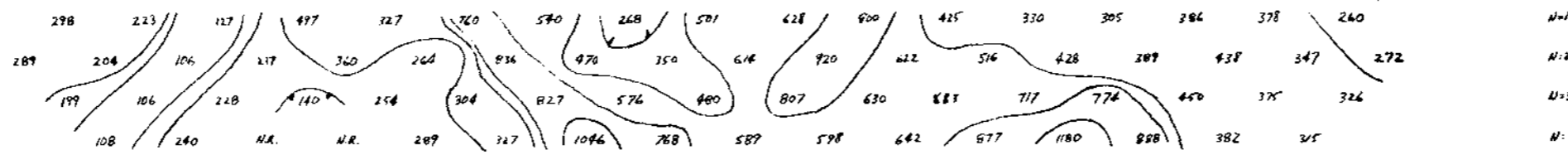


F.E.

FIGURE 3(b)  
 FIG: 3(b)

LINE GW

0N 2N 4N 6N 8N 10N 12N 14N 16N 18N 20N 22N 24N 26N 28N 30N 32N 34N 36N 38N 40N 42N



CITIES SERVICE MINERALS CORP.  
TATLA LAKE AREA  
PIN CLAIMS  
P-660 FREQUENCY DOMAIN I.P.  
DIPOLE - DIPOLE ARRAY  
0.3 + 5.0 HZ  
OPERATORS: MORRISON + DEPAOLI  
SCALE 1" = 400'  
DATE: AUG. 13, 1974

$\frac{P}{2\pi}$   
OHM FEET

M.F.

LINE GW

FIGURE 3(c)

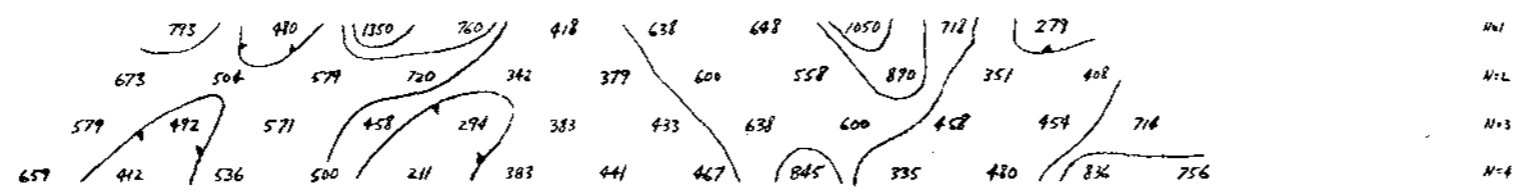
FE

FIG: 3(c)



LINE 18W DETAIL

19+50N 20N 20+50N 21N 21+50N 22N 22+50N 23N 23+50N 24N 24+50N 25N 25+50N 26N 26+50N 27N 27+50N 28N 28+50N



N=1  
N=2  
N=3  
N=4

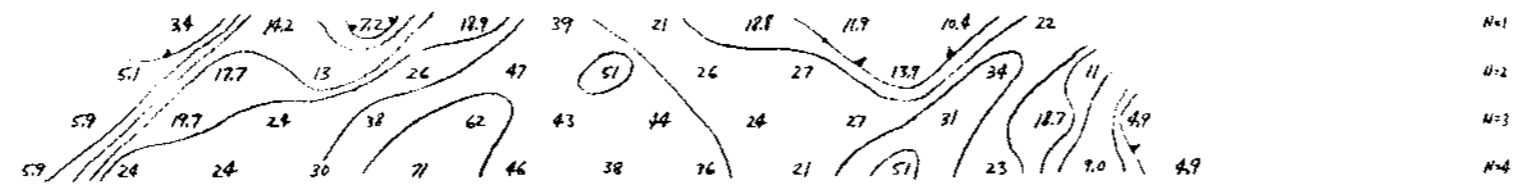
$\frac{P}{2\pi}$   
OHM FEET

CITIES SERVICE MINERALS CORP.  
TATLA LAKE AREA  
PIN CLAIMS

P-660 FREQUENCY DOMAIN I.P.  
DIPOLE - DIPOLE ARRAY  
0.3 & 5.0 HZ.  
OPERATORS: MORRISON & DEPAOLI

SCALE: 1" = 100'  
DATE: AUG. 16, 1974

CREEK

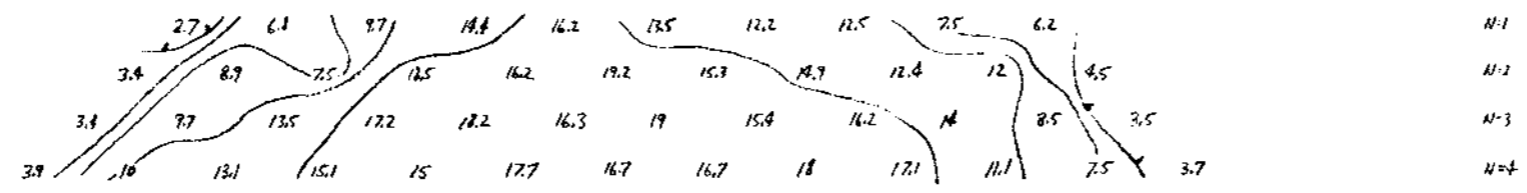


N=1  
N=2  
N=3  
N=4

M.F.

LINE 18W DETAIL

FIGURE 3(e)



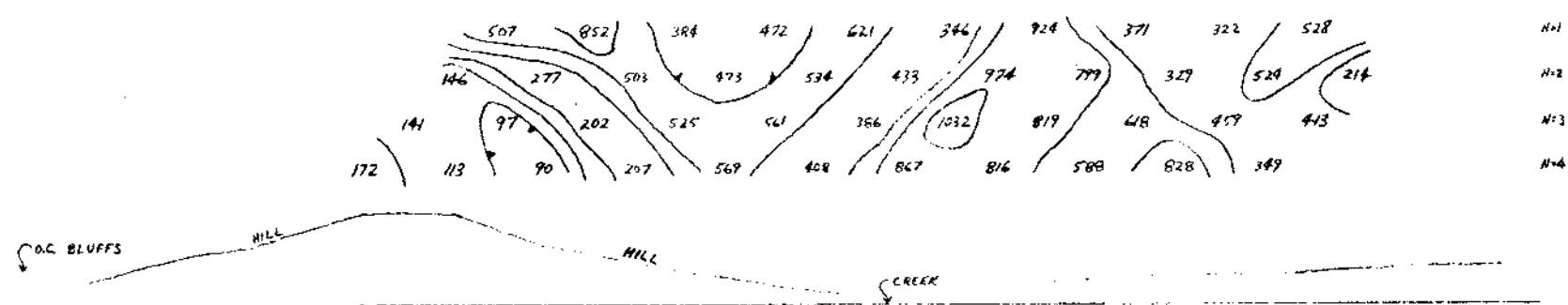
N=1  
N=2  
N=3  
N=4

F.E.

FIG: 3(e)

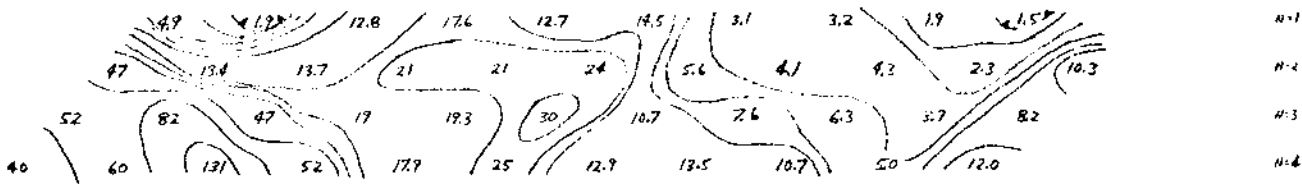
LINE 30W

10N 12N 14N 16N 18N 20N 22N 24N 26N 28N 30N 32N 34N 36N 38N 40N 42N



$\frac{P_{11}}{2\pi}$   
OHM FEET

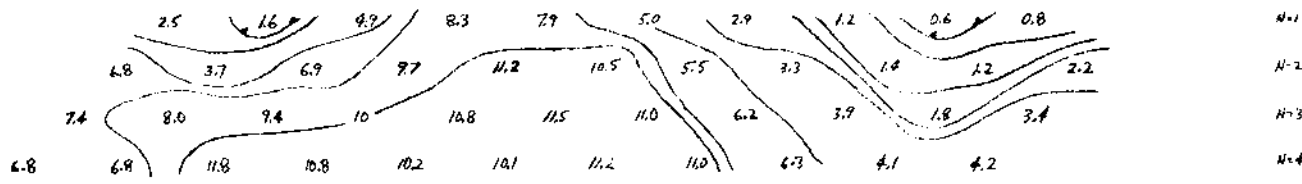
CITIES SERVICE MINERALS CORP.  
 TATLA LAKE AREA  
 PIN CLAIMS  
 P-660 FREQUENCY DOMAIN I.P.  
 DIPOLE - DIPOLE ARRAY  
 0.3 + 5.0 HZ  
 OPERATORS: MORRISON + DEPAOLI  
 SCALE: 1" = 400'  
 DATE: AUG. 15, 1974



M.F.

LINE 30 W

FIGURE 3 (f)

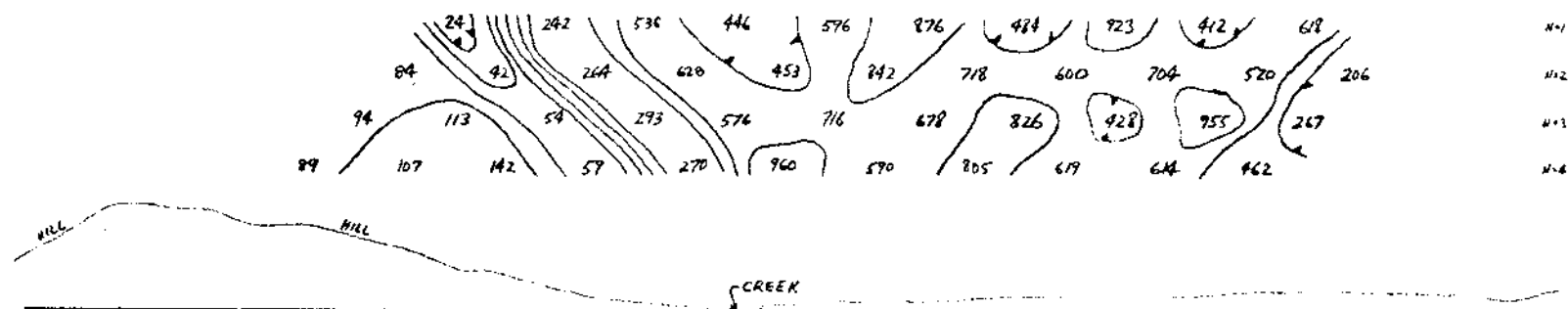


F.E.

FIG: 3(f)

LINE 36W

10N 12N 14N 16N 18N 20N 22N 24N 26N 28N 30N 32N 34N 36N 38N 40N 42N



$\frac{P_{100}}{2\pi}$   
OHM FEET

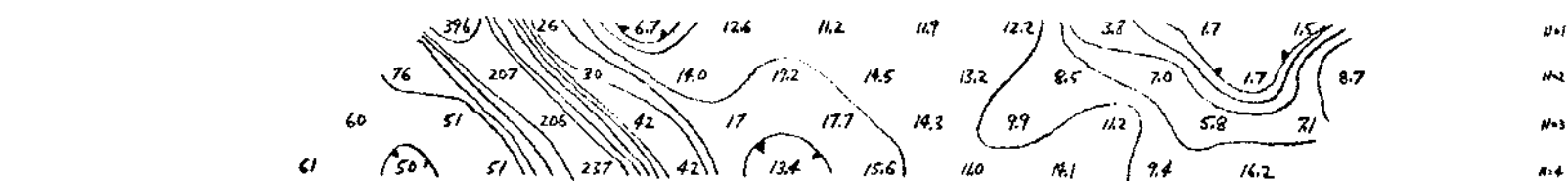
CITIES SERVICE MINERALS CORP  
TATLA LAKE AREA  
PIN CLAIMS

P-660 FREQUENCY DOMAIN I.P.  
DIPOLE - DIPOLE ARRAY  
0.3 + 5.0 HZ

OPERATORS: MORRISON + DEPAOLI

SCALE: 1" = 400'

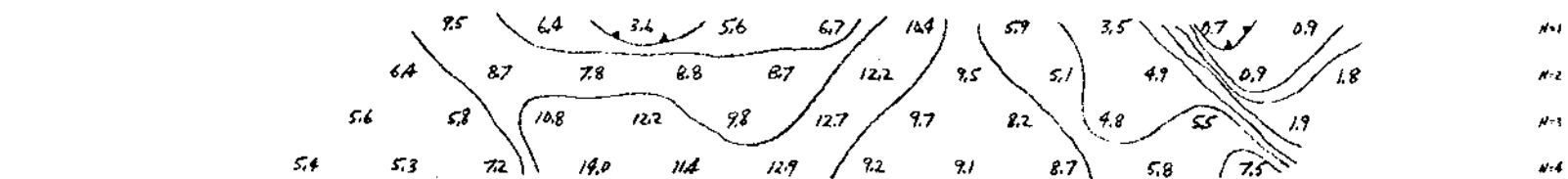
DATE: AUG. 15, 1974



M.F

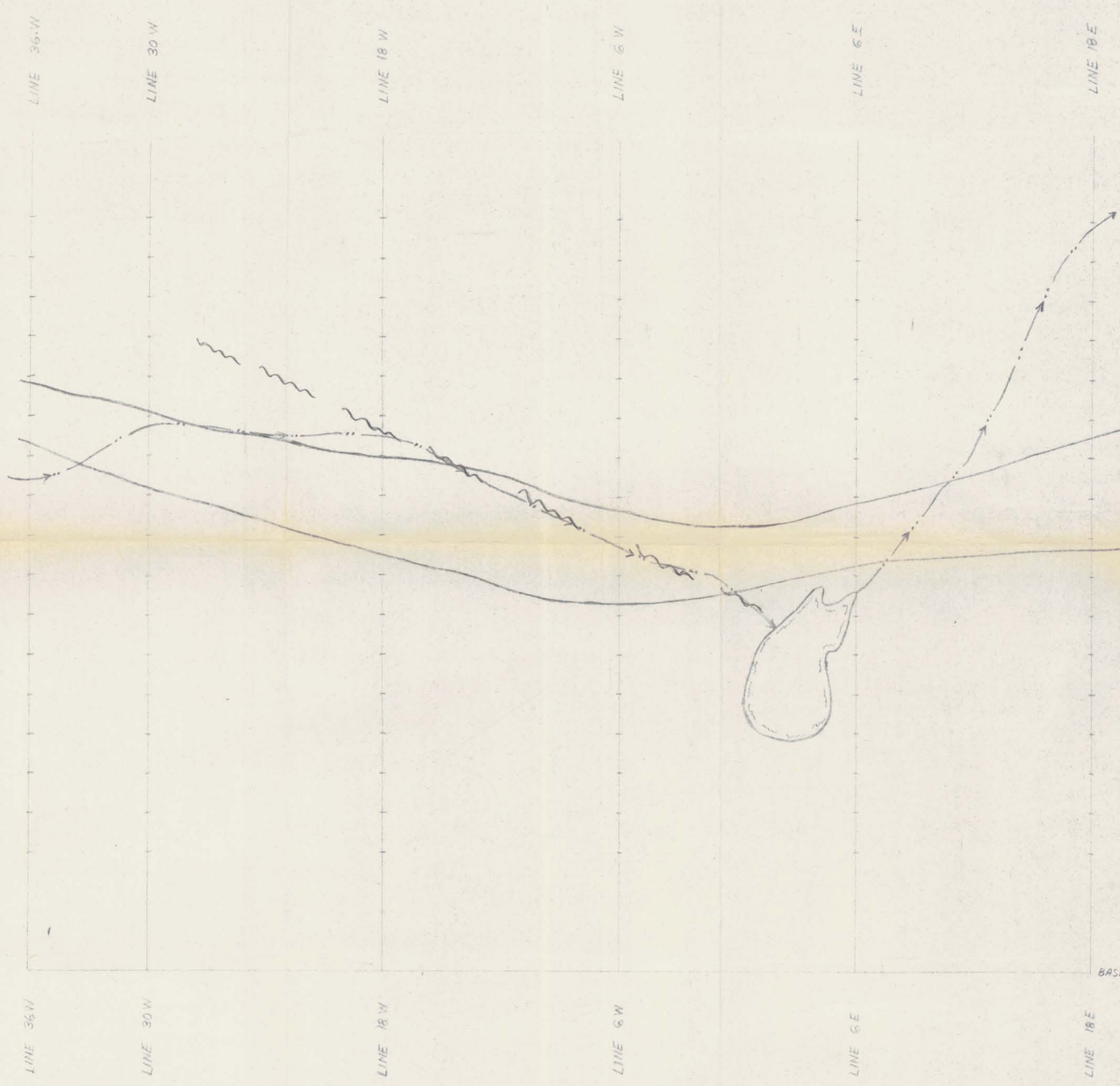
LINE 36W

FIGURE 3(g)



F.E.

FIG: 3(g)



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 5522 MAP 5

LEGEND

- + — CUT AND FLAGGED LINE
- CENTRAL OUTLINE OF P.E. ANOMALY INTERPRETED TO REFLECT 3.0-5.0% TOTAL SULPHIDES BY VOLUME
- ~ POSSIBLE FAULT
- - - CREEK
- P-660 FREQUENCY DOMAIN I.P. DIPOLE - DIPOLE ARRAY 0.3 + 5.0 HZ OPERATORS: MORRISON + DEPAOLI

To accompany Geophysical Report on the PIN CLAIMS, Cariboo M.D.  
By: J.W. Hurton P.Eng.  
G. DePaoli B.Sc.  
Dated: April 21/75

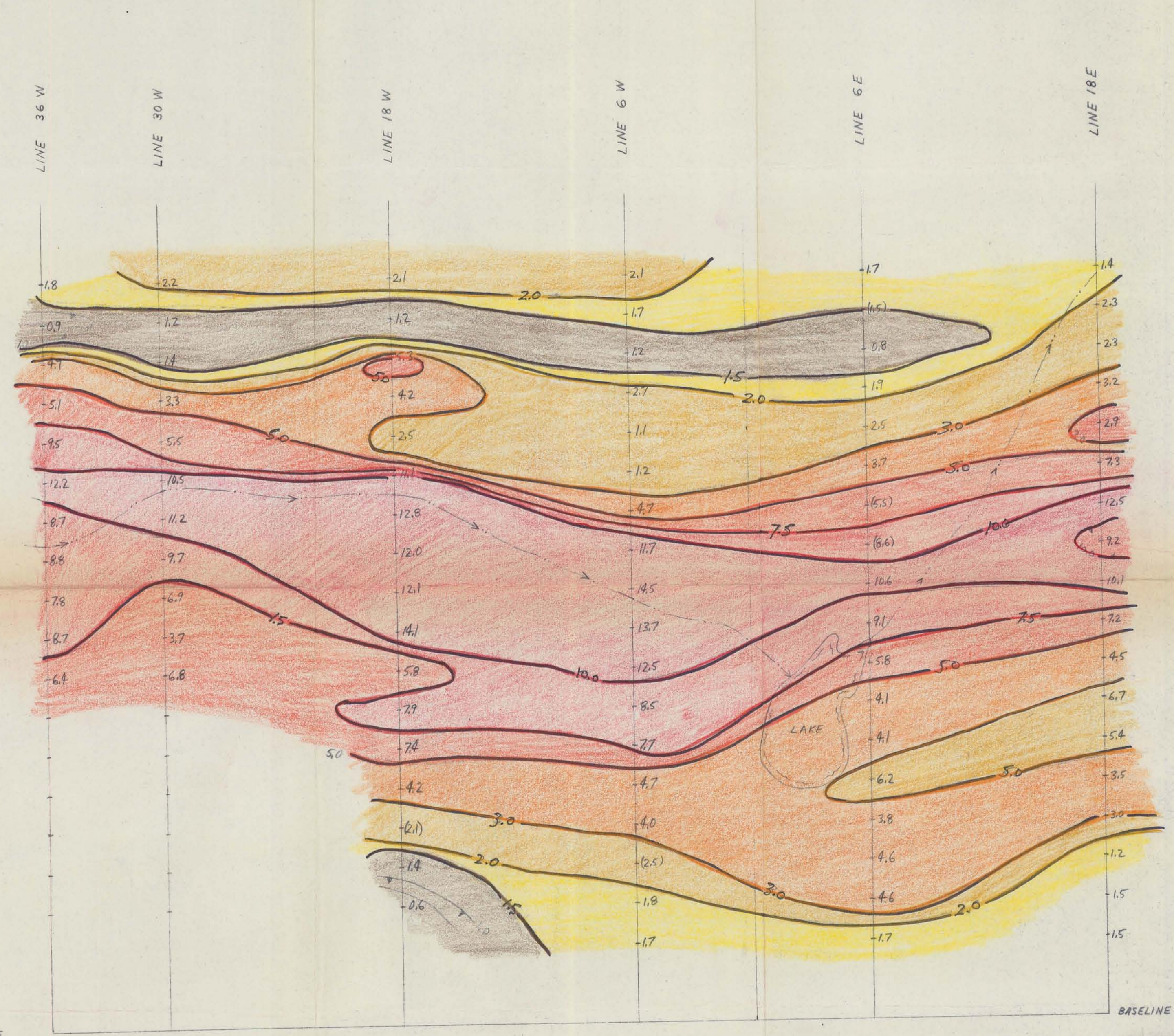


CITIES SERVICE MINERALS CORP.  
VANCOUVER B.C. CANADA

PIN CLAIMS - TATLA LAKE AREA  
I.P. INTERPRETATION MAP N=2

SCALE IN FEET	0 200 400 600
DATE: AUGUST, 1974	N.T.S. No.: 92 N 14E
DRAWN BY: G.M.D.	DRAWING No.: FIGURE 6
REVISION:	TO ACCOMPANY 1974 GEOPHYSICAL REPORT BY: G. DEPAOLI + J.W. HURTON

5522  
MAP 5



LEGEND

- +— CUT AND FLAGGED LINE
- PERCENT FREQUENCY EFFECT
- 5.0— PERCENT FREQUENCY EFFECT CONTOURS C.I. - 1, 1.5, 2, 3, 5, 7.5, 10
- +— CREEK
- P-660 FREQUENCY DOMAIN I.P. DIPOLE - DIPOLE ARRAY 0.3 + 50 HZ. OPERATORS: MORRISON + DEPAOLI

To accompany Geophysical report on the PIN CLAIMS, CARIBOO M.D.

By: J.W. Murton P.Eng.  
G. De Paoli B.Sc.

Dated: April 21/75



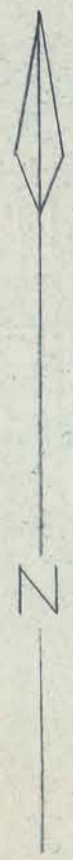
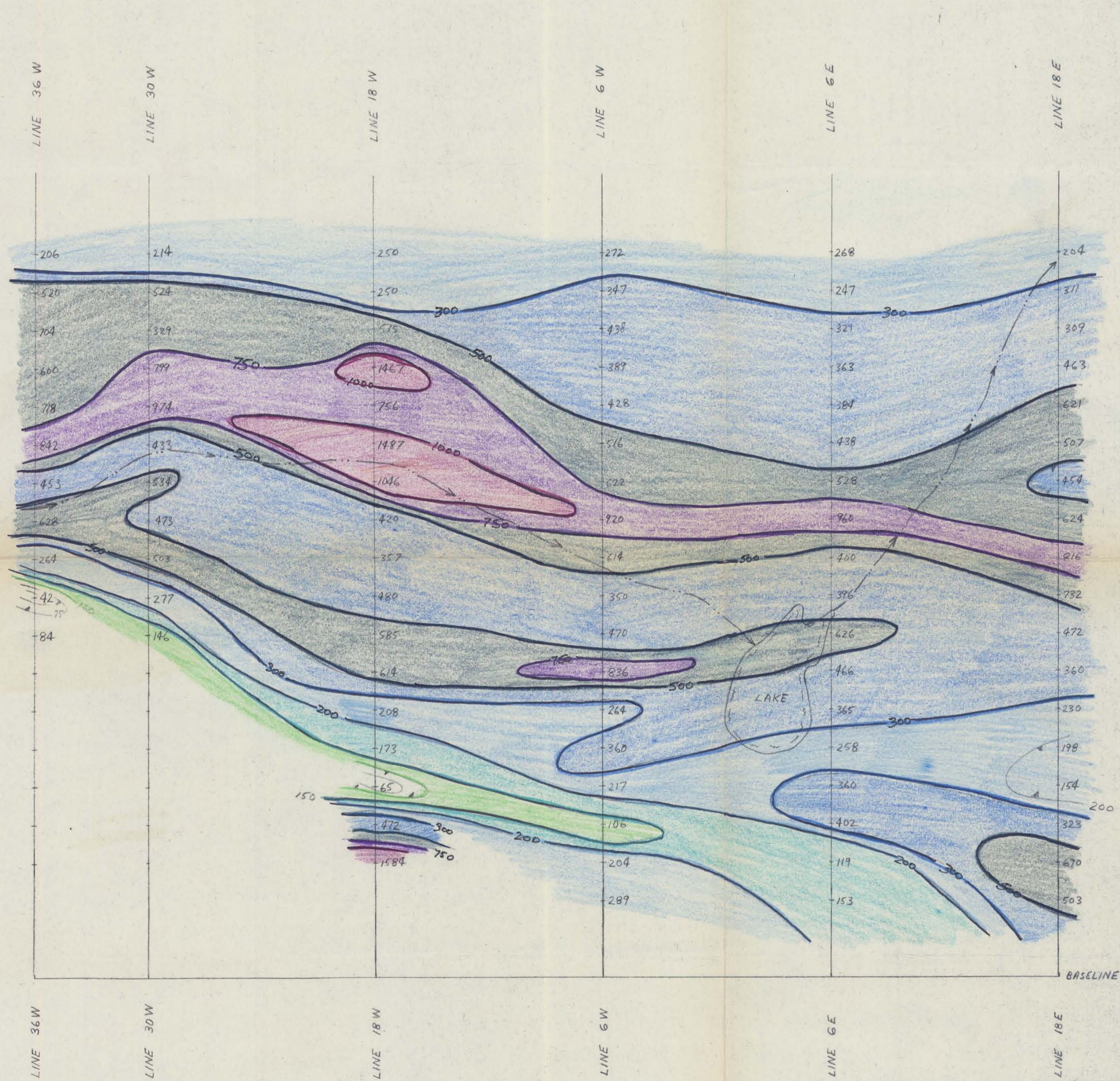
**CITIES SERVICE MINERALS CORP.**  
VANCOUVER B.C. CANADA

PIN CLAIMS - TATLA LAKE AREA  
CONTOURED PLAN P.F.E. N=2

SCALE IN FEET 0 200 400 800

DATE: AUGUST, 1974	N.T.S. No.: 92 N 14E
DRAWN BY: G.M.D.	DRAWING No.: FIGURE 5
REVISION:	TO ACCOMPANY 1974 GEOPHYSICAL REPORT BY: G. DEPAOLI + J.W. MURTON





LEGEND

- +— CUT AND FLAGGED LINE
- APPARENT RESISTIVITY IN  $\frac{\rho_a}{2L}$  OHM FEET
- 500— APPARENT RESISTIVITY CONTOURS  
C.I. - 1, 1.5, 2, 3, 5, 7.5, 10, 15, 20, 30, 50, 75, 100
- +— CREEK
- P-660 FREQUENCY DOMAIN I.P.  
DIPOLE - DIPOLE ARRAY  
0.3 + 5.0 HZ.  
OPERATORS: MORRISON + DEPAOLI

To accompany Geophysical Report on the  
PIN CLAIMS, Cariboo, M.D.

By: J.W. Murton P.Eng.  
G. Depaoli B.Sc.

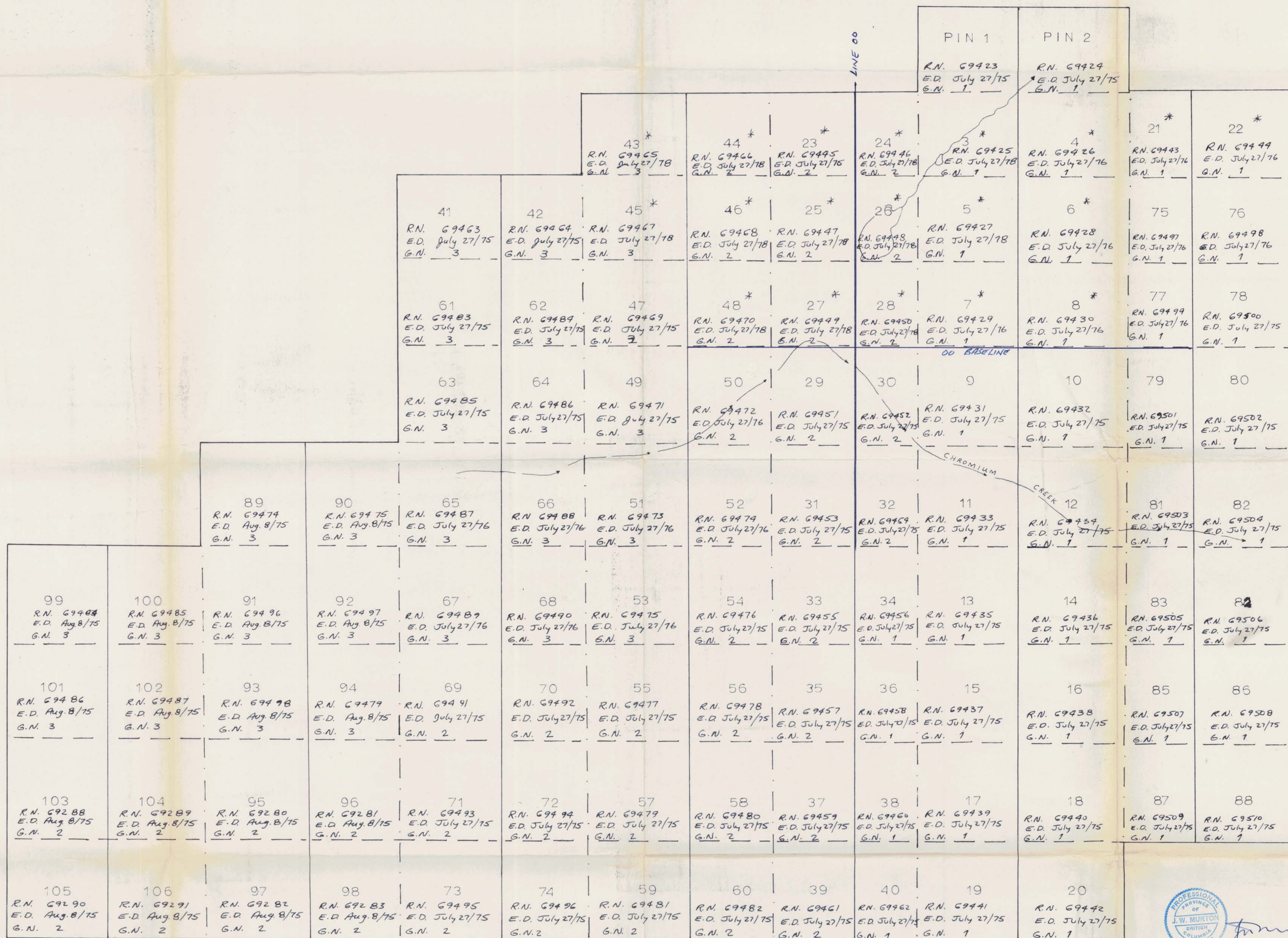
Dated: April 21/75



CITIES SERVICE MINERALS CORP.  
VANCOUVER BC. CANADA

PIN CLAIMS - TATLA LAKE AREA  
CONTOURED PLAN RESISTIVITY N=2

SCALE IN FEET 0 200 400 800	
DATE: AUGUST, 1974	N.T.S. No.: 32 N 14 E
DRAWN BY: G.M.D.	DRAWING No.: FIGURE 4
REVISION:	TO ACCOMPANY 1974 GEOPHYSICAL REPORT BY: G. DEPAOLI + J.W. MURTON



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 5522 MAP 2



5522  
MAP 2

CITIES SERVICE MINERALS CORP.  
VANCOUVER BC. CANADA

PIN CLAIM GROUP  
TATLA LAKE AREA

SCALE IN 1" = 800' 800 400 0 800 1600

DATE: NOVEMBER 1973 N.T.S. No: 92N-14E  
DRAWN BY: WBL DRAWING No: 2  
REVISION:

Updated to include as-  
essment work filed  
with this report

To accompany Geophysical report  
on the PIN CLAIMS, GAREIBOO A.D.

BY: J.W. MURTON P.Eng.  
G. De Paoli B.Sc.

\* Grouped as PIN GROUP  
# 4 in April, 1975.

Dated: April 21/75