

9644

GREAT WESTERN PETROLEUM CORPORATION

GEOLOGICAL AND GEOCHEMICAL REPORT

GWP 1-9 CLAIMS

OMINECA MINING DIVISION

BRITISH COLUMBIA

NTS: 94E/6E, 7W
57⁰20'N
127⁰00'W

OWNER: GREAT WESTERN PETROLEUM CORPORATION

AUTHOR: L.K. ECCLES

L. Eccles

DATE: September 29, 1981

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INTRODUCTION

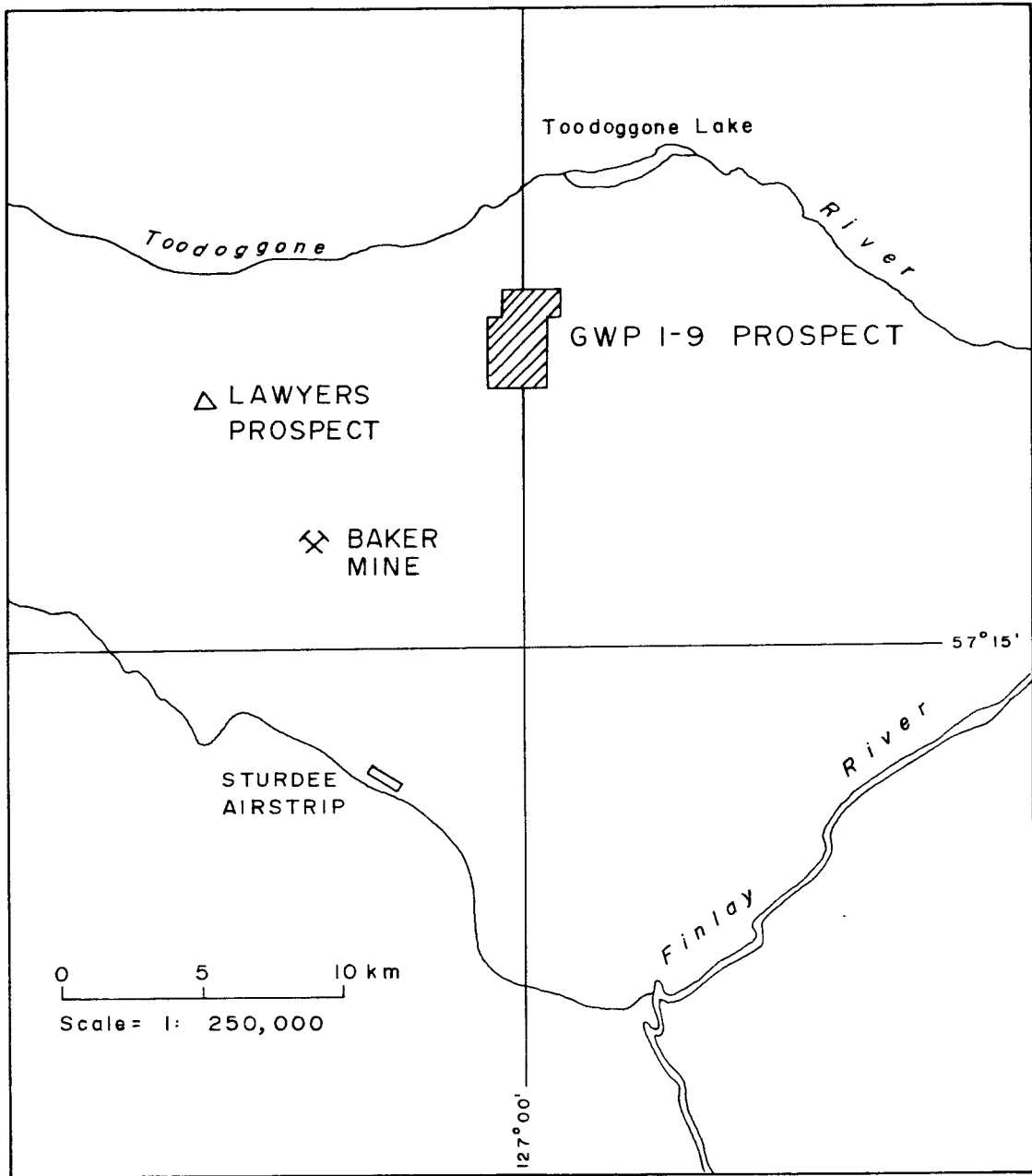
The GWP 1-9 claims are located 6 km. southwest of Toodoggone Lake, approximately 300 km. due north of Smithers, B.C. (Figure T-81-1).

Access to the property is usually by fixed wing aircraft from Smithers or Terrace to Sturdee Valley airstrip and by helicopter from there.

The area is mountainous with elevations ranging between 1500 meters and 2100 meters. Steep slopes and cliffs occur in the cirque headwalls and active talus and felsenmeer prevents vegetation from growing on some hillsides.

Spruce trees and willow buckbrush grow on the lower, more gentle slopes below 1100 meters. Alpine vegetation consists of moss and grasses.

Work done on the claims in June 1981 consisted of geological mapping and geochemical grid sampling.



NTS 93E 6E/7W

L. Neale

Figure. T-81-1 LOCATION OF GWP 1-9 PROSPECT

PROPERTY DEFINITION

HISTORY

The area north of Toodoggone River has a history of gold placer mining dating back to the 1920's. In the 1960's interest in porphyry copper and molybdenum deposits spurred companies to explore the widespread gossan zones that exist over much of the region.

Cordilleran Engineering Limited undertook a geological and geochemical survey for Quebec Cartier Mining Company in 1969 on the Spartan Claims which covered much of the area concerned with in this report. These claims were staked on a copper geochemical anomaly in a creek draining the claims' area. Remnants of the old camp and trenches can be seen in the vicinity of the main copper showing on the property and evidence of diamond drilling exists near the showing. Interest was in the copper mineralization at that time and results proved to be insignificant and the claims were dropped at a later date.

In July 1980 the GWP 1-9 claims were staked to cover the gossan and copper showing on the previous Spartan claims to determine the precious metal potential.

LIST OF CLAIMS

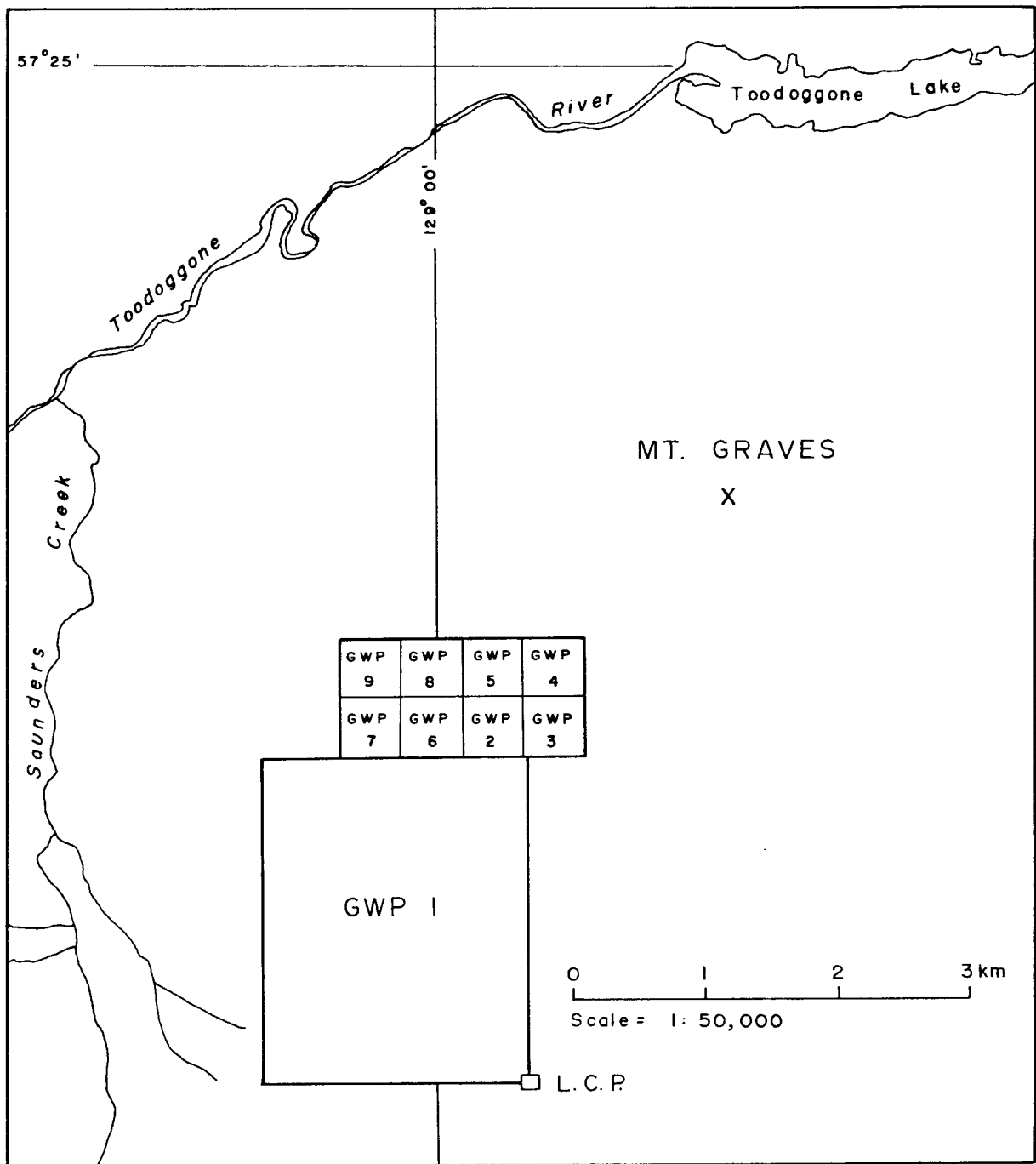
<u>CLAIM NAME</u>	<u>RECORD NO.</u>	<u>UNITS</u>	<u>DATE RECORDED</u>
GWP 1	2870	20	July 8, 1980
GWP 2	2871	1 (2 post)	" " "
GWP 3	2872	1 " "	" " "
GWP 4	2873	" " "	" " "
GWP 5	2874	" " "	" " "
GWP 6	2875	" " "	" " "
GWP 7	2876	" " "	" " "
GWP 8	2877	" " "	" " "
GWP 9	2878	" " "	" " "

OWNER AND OPERATOR

The claims are currently owned and operated by Great Western Petroleum Corporation.

ECONOMIC ASSESSMENT OF THE PROPERTY

An extensive gossan developed in silicified and clay altered Toodoggone volcanic rocks shows some anomalous base and precious metal values in soils and rocks that could possibly be reflecting an upper level of zoning above a precious metal deposit associated with the volcanic rocks.



NTS 93E 6E/7W

A. K. K. K.

Figure. T-81-2 LOCATION OF GWP 1-9 MINERAL CLAIMS

GEOCHEMICAL SURVEY

SAMPLE COLLECTION AND PREPARATION

For control, a 100 meter x 100 meter grid was surveyed over the GWP 1-9 claims using the eastern most claim line of the GWP 1 Claim as the base line. The legal corner post of that claim marked the 0+00N/0+00W Station on the baseline. As the grid was mostly above treeline, wooden pickets marking sample locations were flagged and labelled and placed at 100 meter intervals.

All lines were run using hip chains, compasses and altimeters for control.

Soil horizons are poorly developed over most of the area. Where possible, samples were collected from the 'B' horizon using stone mason's hammers, from a depth of 5 to 20 cm, and placed into gusseted, high strength, brown paper sample bags.

Samples were allowed to partially air-dry before shipping to Min-En Labs in North Vancouver.

A base map at a scale of 1:5,000 was compiled for plotting sample results. The total area sampled was about 7.35 square kilometers.

Silt samples were collected from creeks and dry gullies whenever they were encountered on the grid lines. Rock samples were collected from areas where there was no soil cover and also from certain areas between the grid lines by geologists during the course of mapping.

A total of 547 soil, 15 silt and 137 rock samples were collected and geochemically analyzed for copper, molybdenum, lead, zinc, silver and gold.

ANALYTICAL PROCEDURES

Samples are processed by Min-En Laboratories Ltd. in North Vancouver employing the following procedures:

After drying the samples at 95⁰C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO₃ and HC10₄ mixture.

After cooling samples are diluted to standard volume. The solutions are analyzed by Atomic Absorption Spectrophotometers.

Copper, Lead, Zinc and Silver are analyzed using the CH₂H₂-Air flame combination but the Molybdenum determination is carried out by C₂H₂-N₂O gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

For gold geochemical samples, a suitable weight 5.0 or 10.0 grams are pretreated with HNO₃ and HC10₄ mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

At this stage of the procedure copper, silver and zinc can be analyzed from suitable aliquot, by Atomic Absorption Spectrophotometric procedure.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solutions, gold is analyzed by Atomic Absorption instruments. The obtained detection limit is 5 ppb.

INTERPRETATION

Values for gold, silver, lead, zinc, copper and molybdenum are plotted on figures T81-2 to 8, located in the pocket of this report. Generally speaking, the gossanous area was the most anomalous on the geochemical grid and the area of granitic rocks yielded the least anomalous values.

The following tabulation indicates background, weakly, moderately and highly anomalous values for the soil sample results obtained from the GWP 1-9 claims.

<u>Element</u>	<u>Background</u>	<u>Weakly Anomalous</u>	<u>Moderately Anomalous</u>	<u>Highly Anomalous</u>
Au (ppb)	10	20-40	41-80	> 80
Ag (ppm)	1.0	2.0-4.0	4.1-8.0	> 8.0
Mo (ppm)	2	4-8	9-16	> 16
Cu (ppm)	20	40-80	81-160	> 160
Pb (ppm)	31	62-124	125-250	> 250
Zn (ppm)	70	140-280	281-560	> 560

In some cases, samples show up as highly anomalous in either Cu, Mo, Pb, Ag or Au, but these are generally individual, isolated samples.

A cluster of moderately to highly anomalous molybdenum values is located in the central area of the grid around a knob of resistant silicified pyritic, Toodoggone Volcanic rocks and extend over the area of the old Spartan copper showing.

Moderately to highly anomalous copper values are associated with the old Spartan copper showing as well as with other isolated copper showings on the property. Zinc soil values over the entire property are consistently low.

Many of the highly anomalous gold values in soils are closely associated with outcrop of silicified, pyritic Toodoggone volcanic rocks.

GEOLOGICAL FIELD WORK

Geological mapping was done in conjunction with the soil geochemistry. The geochemical grid, airphoto mosaics and topographic maps at a scale of 1:10,000 served as controls for the mapping. Geology was plotted at a scale of 1:5,000 and is shown on Figure T-81-9 in the pocket of this report.

The presence of an abundant amount of felsenmeer and lack of outcrop hampered the mapping efforts to some extent.

GEOLOGY

The GWP 1 group, lying within the eastern margin of the Intermontaine Belt is mainly underlain by acidic Omineca Intrusive rocks and the Middle and Lower units of the Toodoggone Volcanic Assemblage, all of Jurassic age.

Younger mafic dykes, believed to be of Tertiary age, cut the Toodoggone volcanic rocks on the property.

A total of 8 distinct rock types have been mapped, 6 of those being various phases within the Middle and Lower Units of the Toodoggone Volcanic Assemblage.

An impressive gossan covers a northwesterly trending belt of rocks that underlie the GWP 1-9 claims. This gossan reflects the Middle Unit of the Toodoggone Volcanic Assemblage and serves to differentiate it from the relatively unaltered Lower Toodoggone unit to the west and granitic rocks of the Omineca intrusions on the east.

DETAILED GEOLOGY

TOODOGGONE ASSEMBLAGE

Lower Unit

The lower unit of the Toodoggone volcanic group of rocks is composed of lavender and green to grey crystal tuffs. Although at times these two rock types can be easily distinguished from one another and mapped as separate entities it is concluded that they are completely transitional and should be regarded as a single unit.

Lavender Crystal Tuff - These rocks have a fine grained lavender groundmass (hence the name) with 3mm phenocrysts of hornblende altering to chlorite. Outcrops are often highly fractured and riddled with veinlets of laumontite, calcite and epidote. These rocks form cliffs tens of meters high with blocky talus at the base.

Green to Grey Crystal Tuff - The green to grey groundmass of these rocks is composed mainly of hornblende and chlorite. Fragments or phenocrysts of feldspar up to 3mm stand out against the darker groundmass. Fragments of quartz are occasionally seen in the groundmass. These rocks are often weakly magnetic.

Middle Unit

The middle Toodoggone Volcanic unit is composed of silicified pyritic volcanic rocks, rhyolite, quartz feldspar porphyry and a green hornblende - feldspar crystal tuff. These rocks, except for the rhyolite, are probably closely related to each other and represent different phases of the same parent magma. No actual contacts were observed to separate the phases into definite units.

Green Hornblende Feldspar Crystal Tuff

These rocks are commonly dark green with pink to orange phenocrysts of feldspar measuring up to 3mm. Mafic minerals in this rock (hornblende and minor biotite) were commonly seen to be altered to chlorite and/or epidote.

Quartz Feldspar Porphyry - This rock, originally thought to be an intrusive phase of the Toodoggone Volcanics, is now regarded as another phase of the above unit. In hand specimens these rocks appear distinctive. Field relationships indicate gradational contacts.

These rocks usually have a pink groundmass although in some cases a green groundmass (or variations between pink and green) were noted. Hornblende, altering to chlorite and epidote, often stands out against the pink groundmass.

Silicified, Pyritic Volcanic Rocks

These rocks are often fine grained and altered, obliterating phenocrysts, and this phase is believed to be an intense alteration product of both the two rock units mentioned above. These rocks display intense limonite (goethite and jarosite) staining and contain abundant disseminated pyrite. Occasionally the groundmass is greenish grey with "ghosts" of brownish orange feldspar phenocrysts still visible, however, usually the rock is white and quite bleached. Arsenopyrite, as disseminations and in small clots, is common.

This rock weathers readily and mainly occurs as felsenmeer, rather than in outcrop.

Rhyolite

The rhyolite occurs as dykes and is present only in the most altered and silicified areas of the gossan area. Unlike the other phases, this unit is believed to be separate from the middle Toodoggone volcanic unit.

The rock exhibits a yellow/orange weathered surface but is blue-grey to white or pink on fresh surface. Pyrite and arsenopyrite occurs as blebs and disseminations and remnant boxwork textures are common.

Quartz eyes, 1 mm. or less in diameter, are usually present.

GRANITIC ROCKS

In the northeast corner of the claims a fresh, unaltered granitic rock outcrops along a ridge and is abundant as blocky talus.

This rock is pink to green depending on the degree of propylitization, and is of granitic to quartz monzonite composition with abundant grey quartz and white and pink feldspars. Mafic minerals, often partly altered to chlorite, include hornblende and biotite.

The rock is medium to coarse grained and magnetic and is part of the Omineca Intrusions.

MAFIC DYKES

Mafic dykes were seen to cut the Toodoggone volcanic assemblage in several locations. These rocks are fine grained, dark green, slightly magnetic and usually highly fractured. The dykes show local limonite and minor malachite staining in places.

STRUCTURE

Stratification is not easily distinguishable in the volcanic rocks but the general bedding attitude appears to be striking northwest and dipping moderately (between 20° and 40°) to the southeast. No major faults or shears were mapped but the presence of the large gossanous area suggests a major structure in this area.

MINERALIZATION

A major gossan on the claims lies between lines 12+00 and 21+00 North and 0+00 and 0+08 west. The volcanic rocks in this area are silicified and argillized and contain abundant pyrite and arsenopyrite. Limonite and hematite staining is widespread. One location, previously trenched by Cordilleran Engineering, shows abundant malachite staining. Widely scattered massive blebs of cuprite up to 5 cm. across are associated with the Lower Unit Toodoggone volcanics.

CONCLUSIONS AND RECOMMENDATIONS

Geochemistry and geological mapping indicate two target areas warranting further work. The most obvious zone is the main gossan that exists in highly silicified pyritic Toodoggone volcanics of the "Middle Unit" between Lines 12+00N and 21+00N and 5+00W and 8+00W. The second area, also within the "Middle Unit" of the Toodoggone volcanic pile, is located between L5+00 and L8+00 North at approximately 5+00 west. Detailed geochemical and rock chip sampling has been carried out at 25 meter spacings over these areas but results are not recorded in this report.

Trenching over these areas is recommended to test the precious metal potential below the highly oxidized rocks.

COST STATEMENT - GWP 1-9 Claims

Geochemical Surveys and Mapping

1. Wages

<u>Name</u>	<u>Per diem rate</u>	<u>Specific Dates</u>	<u>No. Days</u>	<u>Amount</u>
N.C. Carter (geologist)	\$200.00	June 9	1	\$200.00
L.K. Eccles (geologist)	\$116.58	June 9, 11, 13, 15, 16	5	\$582.90
D. Forster (geologist)	\$ 93.73	June 9, 12, 13, 14, 15	5	\$468.65
N. Caira	\$ 83.51	June 9, 10, 11, 12, 13 14, 15	7	\$584.57
R. Green	\$ 52.85	June 10, 13, 14, 15, 16, 17, 18	7	\$369.95
I. Hribar	\$ 66.38	June 9, 11, 13, 15 16	5	\$331.90
K. Hudson	\$ 52.85	June 9, 12, 13, 14	4	\$211.40
C. Leupold	\$ 57.96	June 10, 12, 13, 14	4	\$231.84
R. Reidel	\$ 57.96	June 9, 10, 12, 13, 14,	5	\$289.80
L. Tamaki	\$52.85	June 9, 10, 13, 14, 15	5	\$264.25
L. Connolly	\$73.28	June 15	1	73.28
		Work days =	49	\$3608.54

2. <u>Transportation</u>	
A. <u>Mobilization</u>	
Air Fares (4 crew only - Whitehors - P. George)	\$691.00
Charter Aircraft Smithers-Sturdee strip (mobilization charges split between other Toodoggone properties)	\$648.27
B. <u>Helicopter support</u>	
10.6 hours - Viking Helicopter (June 9, 10, 11, 12, 13, 14, 15, 16, 17, 18) at \$428.00/hour including fuel)	\$4536.80
3. <u>Camp Costs</u>	
49 man days at \$50.00/day (including all or parts of June 9-18)	\$2450.00
Packets - 3 bundles at \$15.00	\$45.00
4. <u>Geochemical Analysis</u>	
562 soil and silt samples analyzed for Mo, Cu, Pb, Zn, Ag and Au at \$11.45 per sample (Invoice Nos. 8181 and 8195 - Min-En Laboratories Ltd.)	\$6434.90
137 rock samples analyzed for Mo, Cu, Pb, Zn, Ag and Au at \$12.85 per sample (Invoice Noz. 8181 and 8195 - Min-En Laboratories Ltd.)	\$1760.45
Sample shipping costs (Invoice Nos. 8139, 8165 - Min-En Laboratories Ltd.)	196.94
5. <u>Report Preparation</u>	\$408.64
(LKE - 2 days @ \$116.58) = \$233.16	
Draughting, reproduction <u>\$175.48</u>	
	<hr/>
	\$17,172.00
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SUMMARY OF COSTS

1. Wages	-	\$3608.54
2. Transportation:		
- Mobilization	\$691.00	
- Aircraft	648.27	
- Helicopter	<u>\$4536.80</u>	\$5876.07
3. Camp Costs	-	\$2495.00
4. Geochemical Analysis		\$8392.29
5. Report Preparation		<u>408.64</u>
	Total =	<u><u>\$20,780.54</u></u>

QUALIFICATIONS

I, LOUISE K. ECCLES, do hereby certify that:

1. I am a geologist residing at 782 West 22nd Avenue, Vancouver, British Columbia and am employed by Great Western Petroleum Corporation.
2. I am a graduate of the University of British Columbia with a B.Sc. (Honors) degree in geology.
3. I have practised my profession in geology continuously for the past four years in British Columbia, Ontario, Yukon and Northwest Territories.
4. Between June 9 and 19th, I directed a field programme on the GWP 1-9 claims on behalf of Great Western Petroleum Corporation.

L. Eccles
L.K. Eccles
September 1980

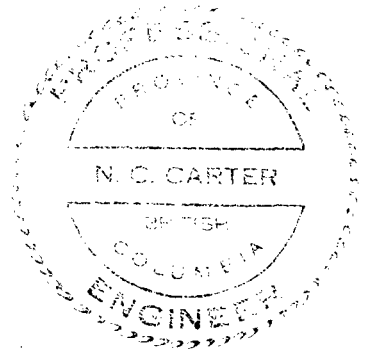
ATTESTATION

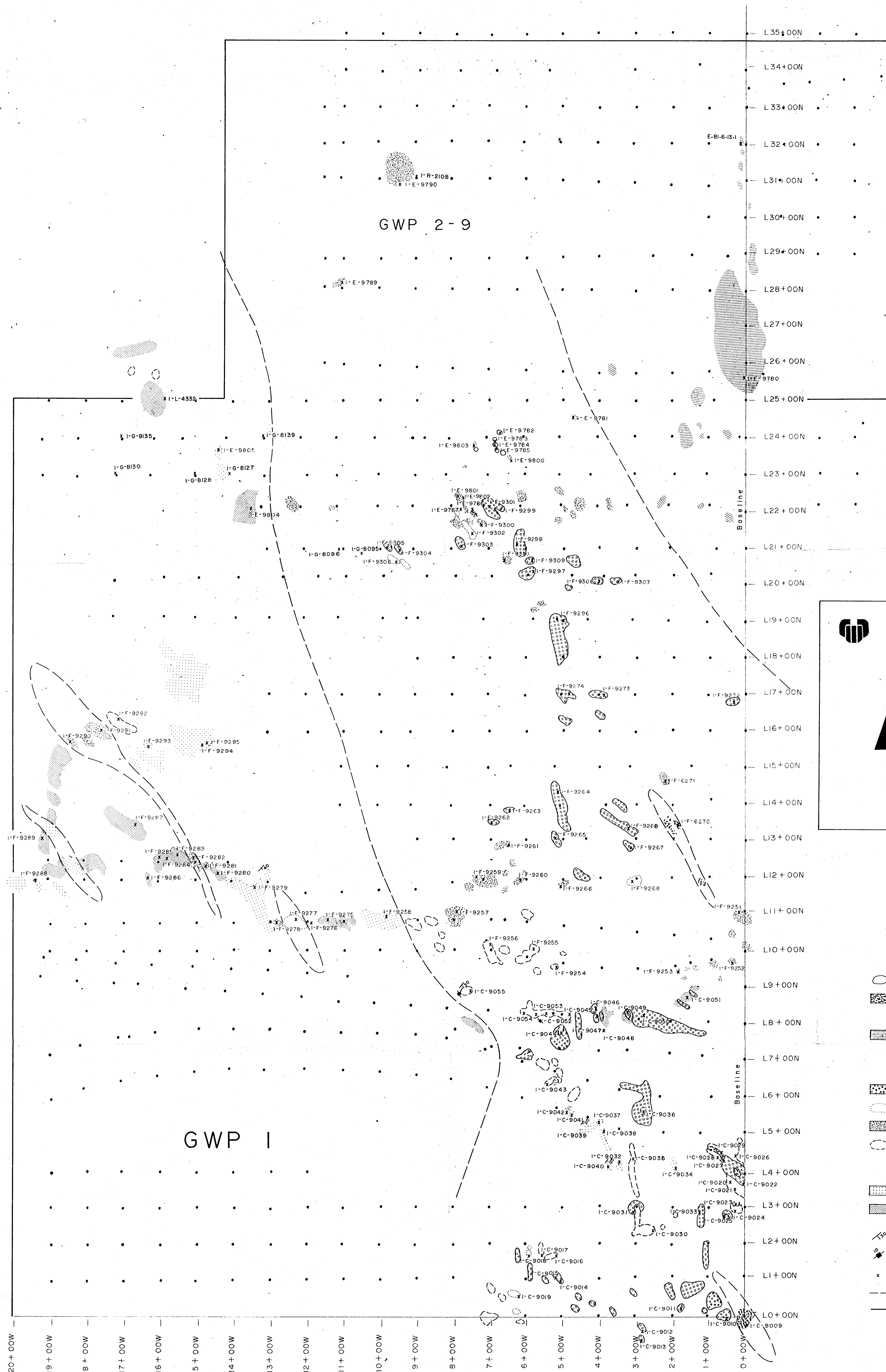
I, Nicholas C. Carter of Victoria, British Columbia, do hereby certify that:


1. I am a practising geologist, registered with the Association of Professional Engineers of British Columbia since 1966;
2. I am a graduate of the University of New Brunswick with B.Sc. (1960); Michigan Technological University with M.S. (1962) and the University of British Columbia with Ph.D. (1974).
3. I have practised my profession in British Columbia and Eastern Canada and the Western United States for the past 21 years.
4. I personally oversaw the geological and geochemical program carried out by Ms. Eccles on the GWP 1-9 Claims and will attest to the authenticity of data contained in this report.

N.C. Carter Ph.D. P.Eng

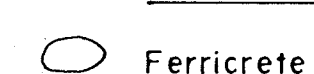
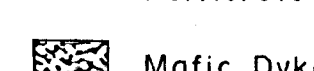
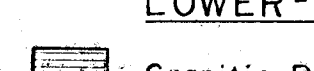
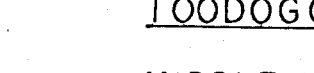

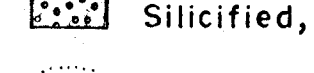
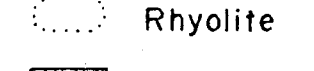
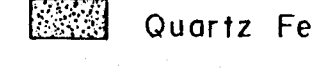
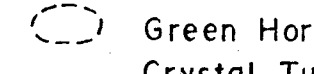
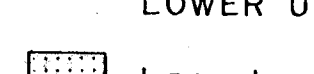
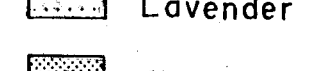
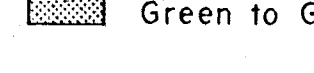
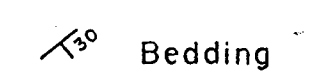

N.C. Carter
Ph.D., P.Eng.

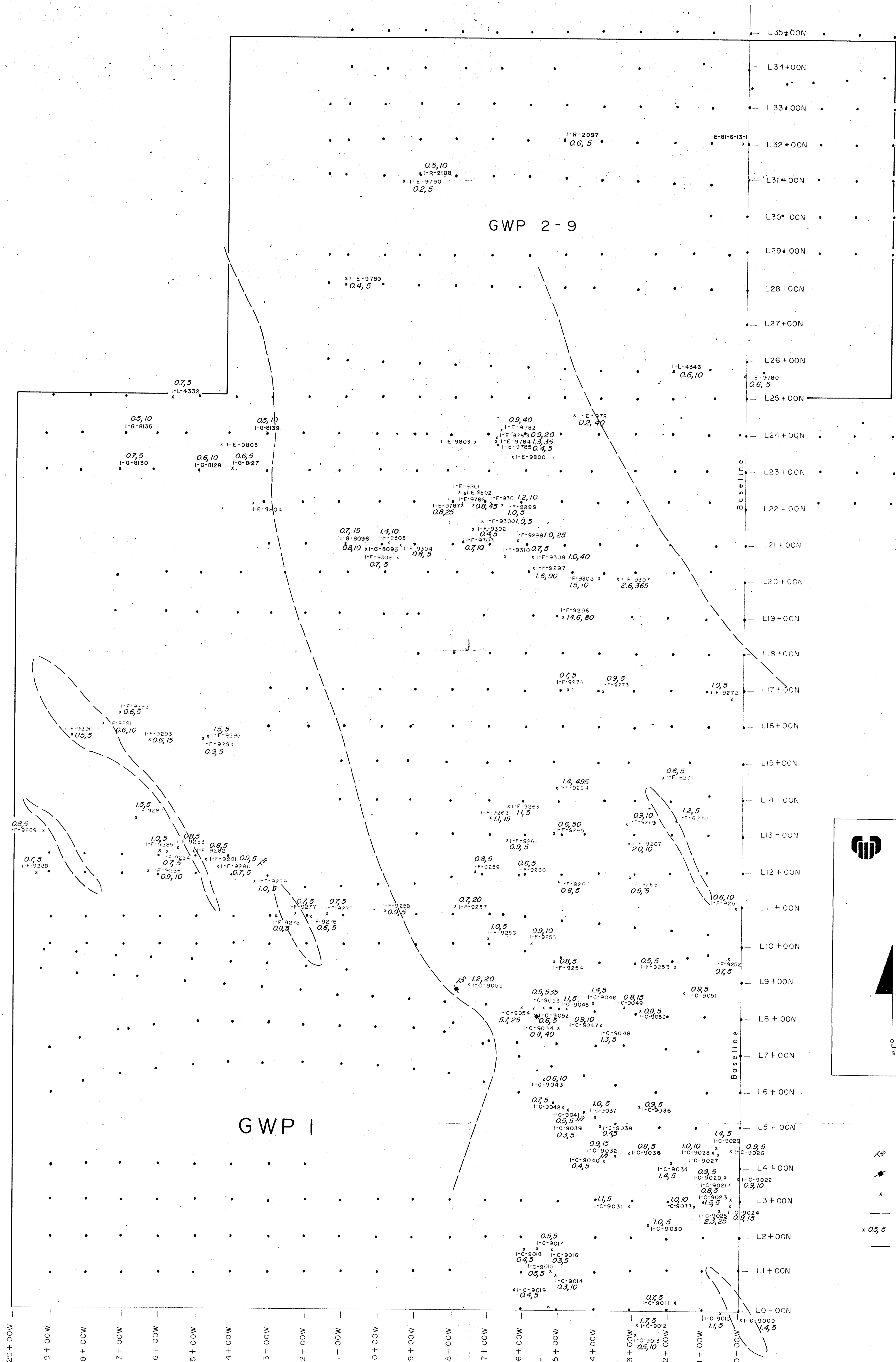





GREAT WESTERN PETROLEUM CORPORATION
 GWP 1-9
GEOLOGY Figure T-81-9
 Scale - 1:5,000
 0 100 200 300 400 meters

9644

- LEGEND**
- TERTIARY**
-  Ferricrete
 -  Mafic Dykes
- LOWER-MIDDLE JURASSIC**
-  Granitic Rocks
- TOODOGGONE FORMATION**
- MIDDLE UNIT**
-  Silicified, Pyritic Volcanic Rocks
 -  Rhyolite
 -  Quartz Feldspar Porphyry
 -  Green Hornblende - Feldspar Crystal Tuff
- LOWER UNIT**
-  Lavender Crystal Tuff
 -  Green to Grey Crystal Tuff
- Other Symbols:**
-  Bedding
 -  Joints
 -  Sample Locations
 -  Geologic Contact
 -  Claim Boundary



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GREAT WESTERN PETROLEUM CORPORATION

GWP 1-9

ROCK GEOCHEMISTRY

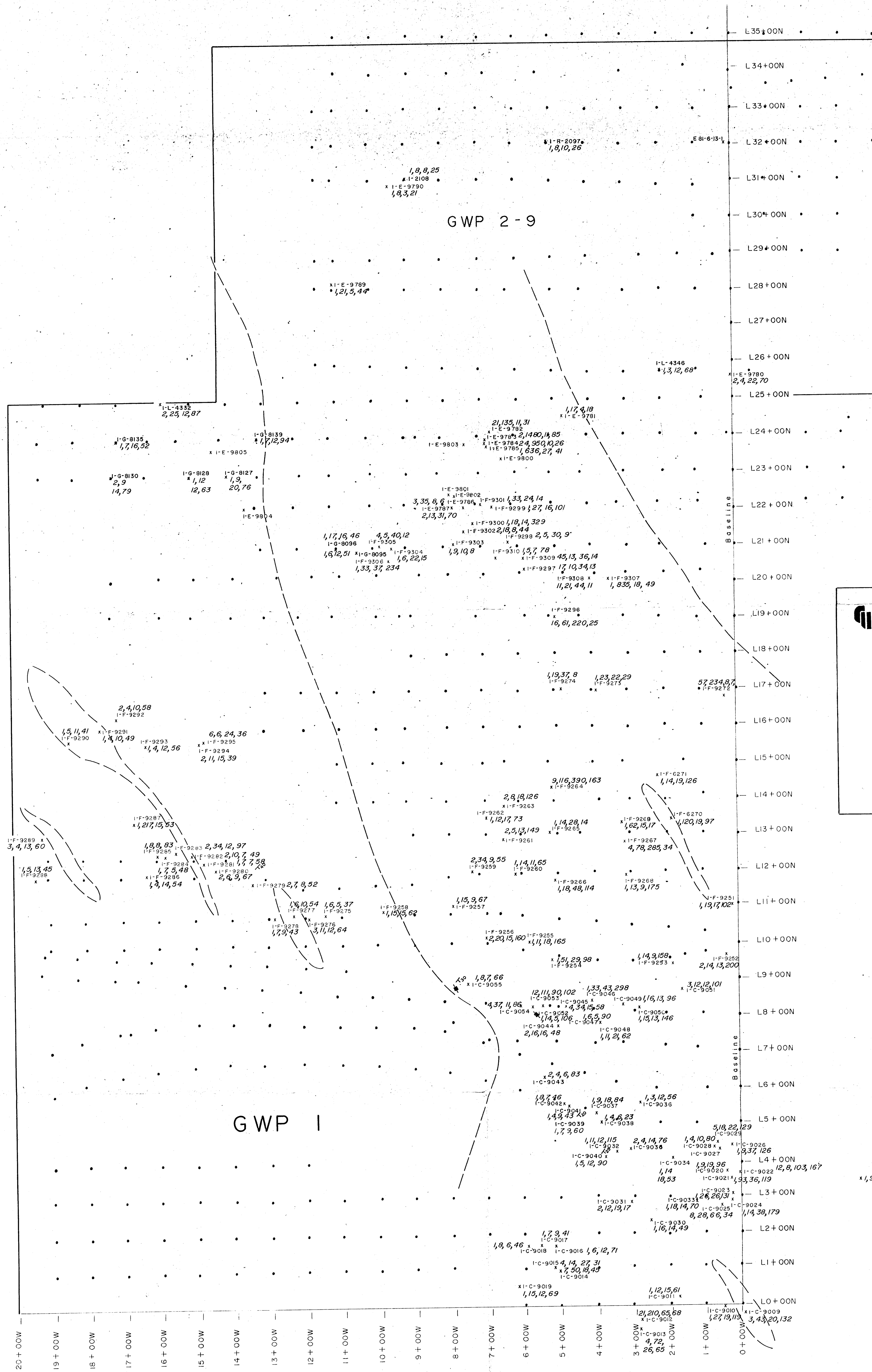
Silver, Gold
(ppm) (ppb)

Figure. T-81-8

Scale: 1:5,000

J. Nelson

- LEGEND**
- Bedding
 - Joints
 - Sample Locations
 - Geologic Contact
 - Silver, Gold
 - Claim Boundary



GREAT WESTERN PETROLEUM CORPORATION

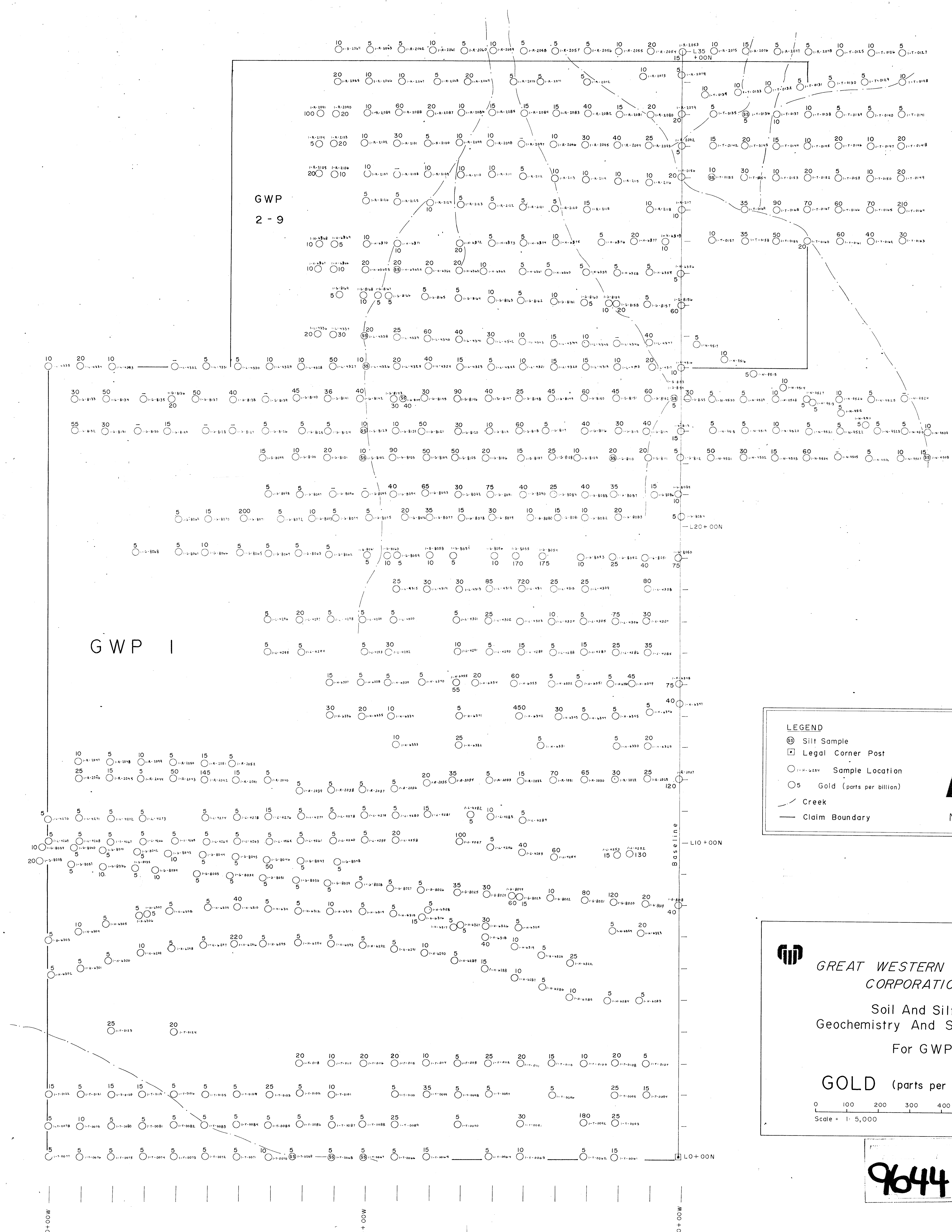
**GWP 1-9
ROCK GEOCHEMISTRY
MOLYBDENUM, COPPER,
LEAD, ZINC, (ppm)**

Figure T-81-7

0 100 200 300 400 meters
Scale = 1:5,000

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- LEGEND**
- ⊗ Bedding
 - ✱ Joints
 - x Sample Locations
 - Geologic Contact
 - ⊗, ⊙, ⊕, ⊚ Mo, Cu, Pb, Zn (ppm)
 - Claim Boundary



LEGEND

- ⊗ Silt Sample
- ⊠ Legal Corner Post
- Sample Location
- 5 Gold (parts per billion)
- Creek
- Claim Boundary

GWP

GREAT WESTERN PETROLEUM CORPORATION

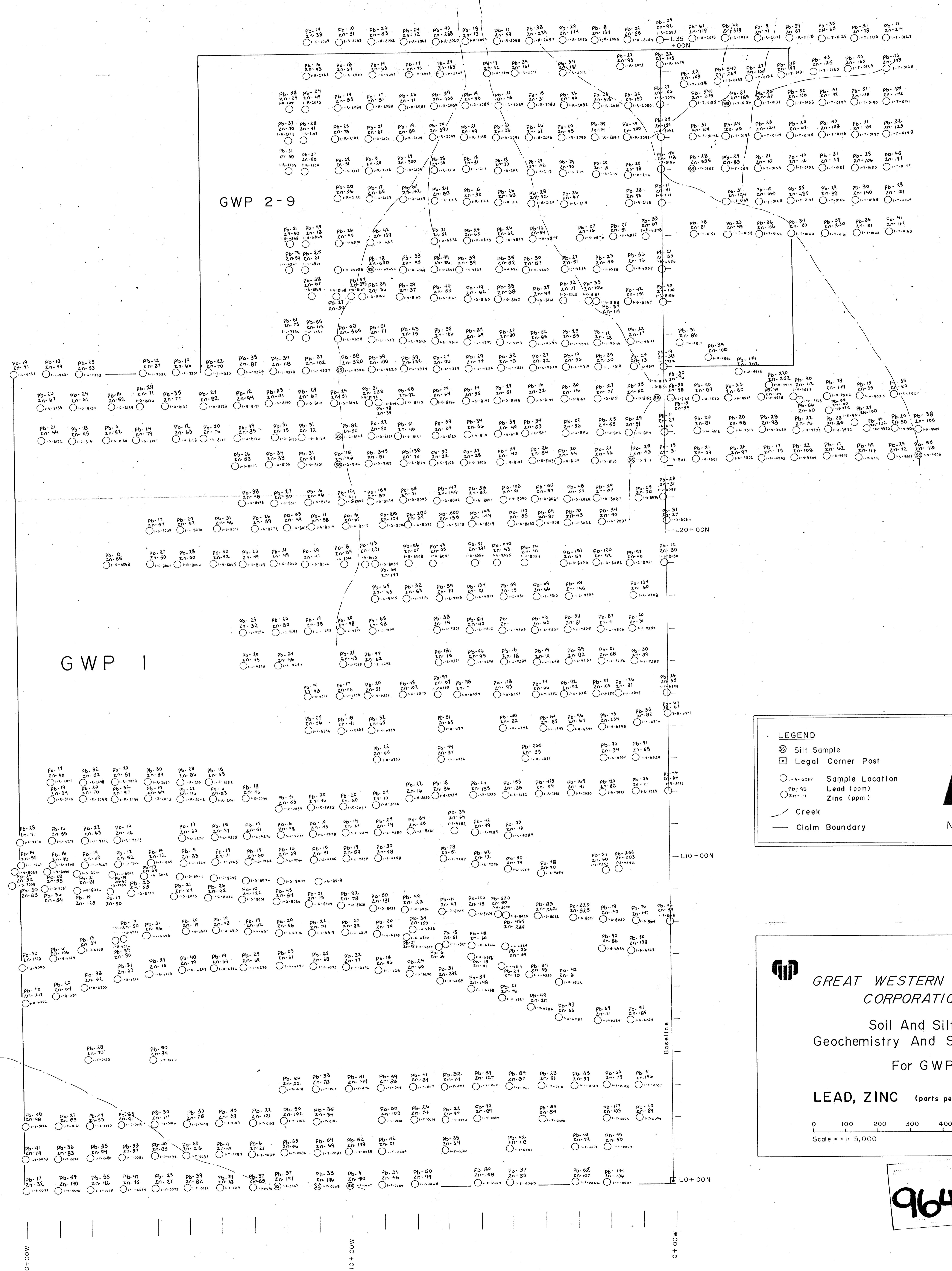
Soil And Silt
Geochemistry And Sample Locations
For GWP 1-9

GOLD (parts per billion) Figure. T-81-4

0 100 200 300 400 500 meters
Scale = 1:5,000

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L. Hoels



GWP 2-9

GWP 1

LEGEND

- ⊗ Silt Sample
- ⊠ Legal Corner Post
- (with Zn-10) Sample Location
- (with Pb-10) Lead (ppm)
- (with Zn-11) Zinc (ppm)
- ~ Creek
- Claim Boundary

N

GWP

GREAT WESTERN PETROLEUM CORPORATION

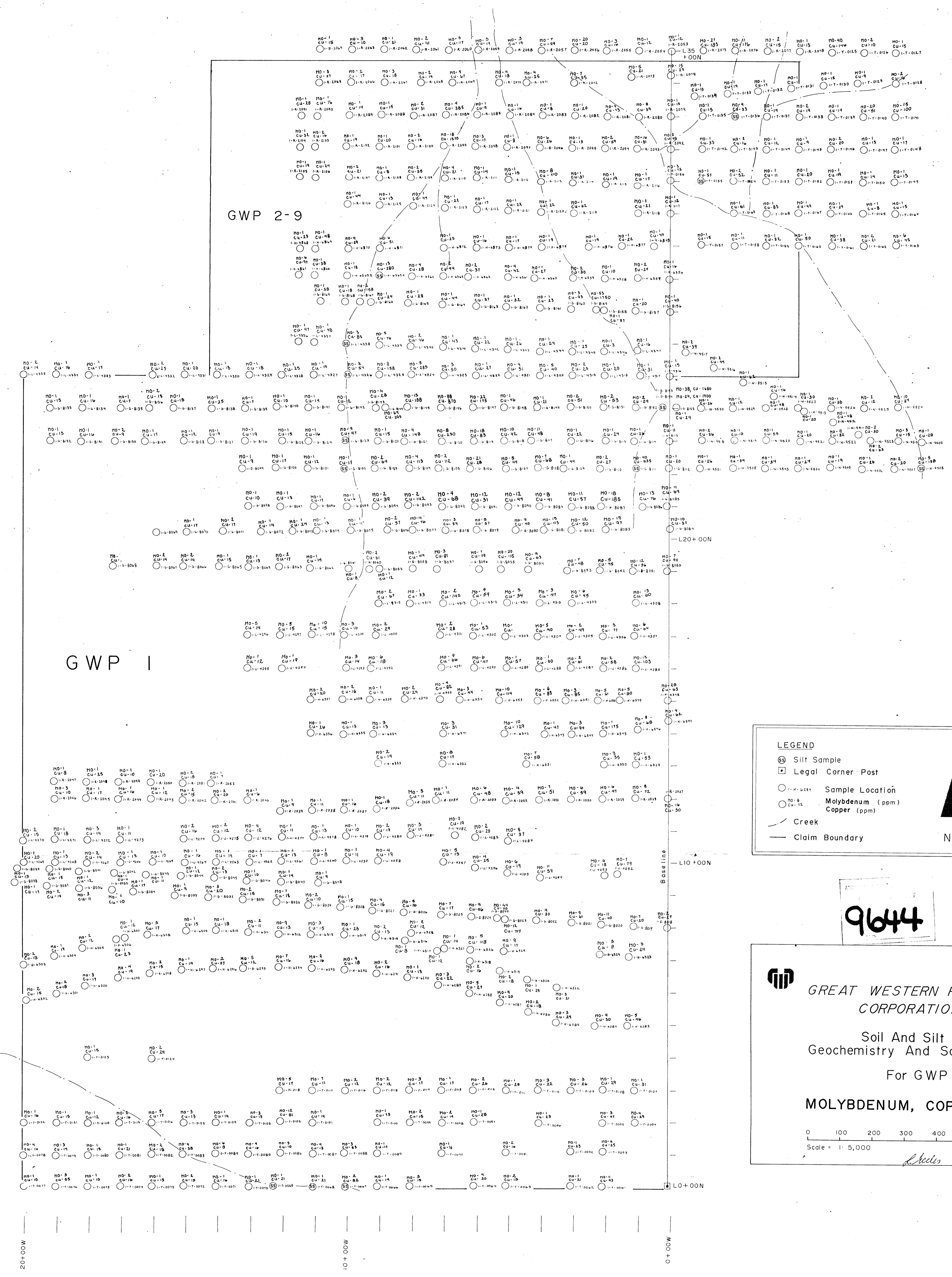
Soil And Silt
Geochemistry And Sample Locations
For GWP 1-9

LEAD, ZINC (parts per million)

0 100 200 300 400 500 meters
Scale = 1:5,000

Figure T-81-6

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GWP 2-9

GWP 1

LEGEND

- ⊗ Silt Sample
- Legal Corner Post
- Sample Location
- Molybdenum (ppm)
- Copper (ppm)
- Creek
- Claim Boundary

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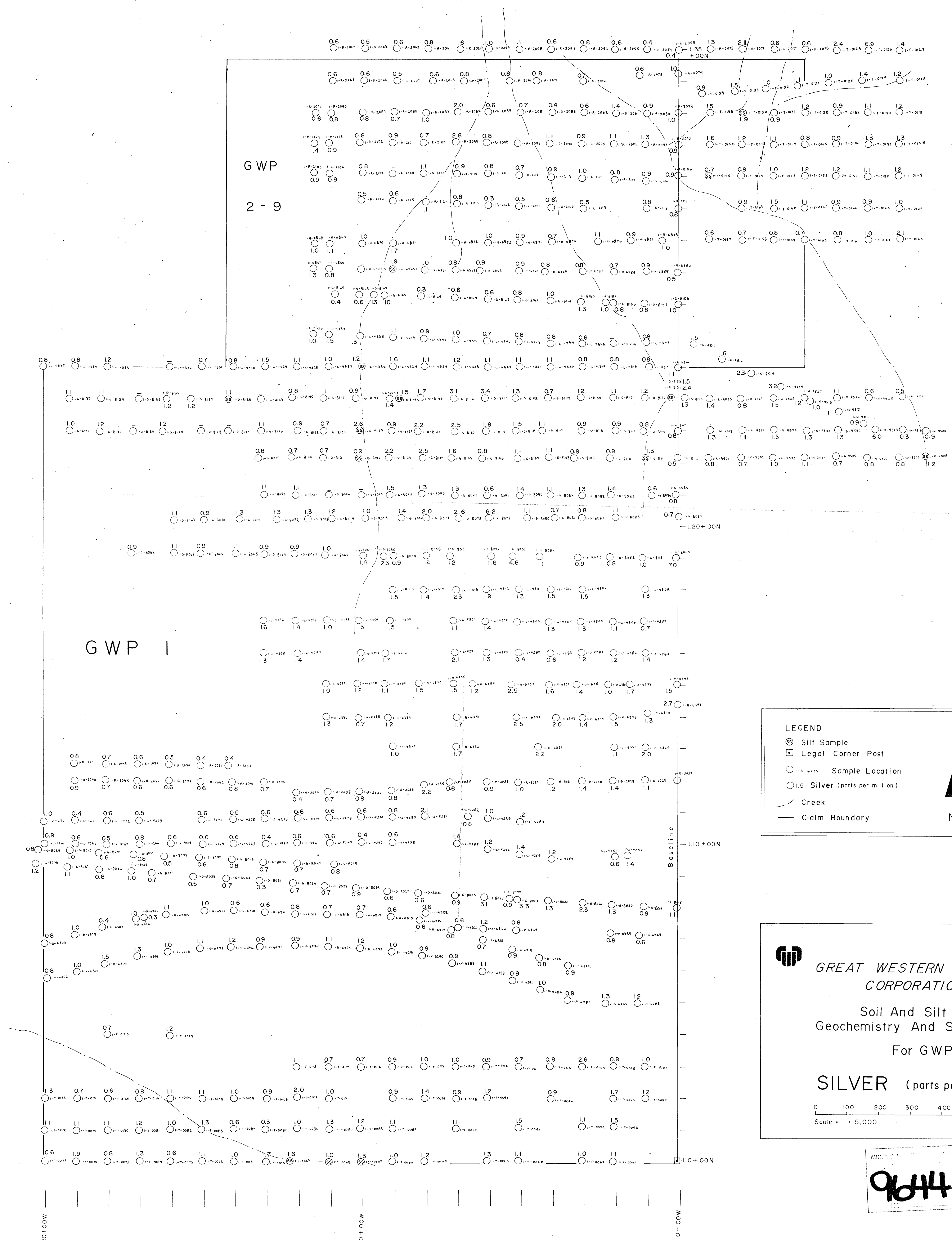
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Soil And Silt
Geochemistry And Sample Locations
For GWP 1-9

MOLYBDENUM, COPPER (ppm)

0 100 200 300 400 500 meters
Scale = 1:5,000

Figure T-81-5



LEGEND

- ⊙ Silt Sample
- ⊠ Legal Corner Post
- Sample Location
- 1.5 Silver (parts per million)
- - - Creek
- Claim Boundary

GWP

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Soil And Silt
Geochemistry And Sample Locations
For GWP 1-9

SILVER (parts per million)

Figure T-BI-3

0 100 200 300 400 500 meters
Scale = 1:5,000

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