COMINCO LTD.

EXPLORATION

NTS 94C3E, 2W

RD. LOG NO: ACTION:

FILE NO:

YEAR END ASSESSMENT REPORT - 1990

GEOLOGY - GEOCHEMISTRY

0F

PAR CLAIM GROUP

OMINECA MINING DISTRICT, B.C.

SUB-RECORDER RECEIVED APA 1 U 1991 M.R. # VANCOUVER, B.C.

D.L. CRAIG

WESTERN CANADA

LATITUDE: 56°05'N LONGITUDE: 125°00'W

WORK PERFORMED:

JUNE 21-23, SEPTEMBER 22-28, 1990

OWNER AND OPERATOR OF CLAIMS:

COMINCO LTD. 700-409 GRANVILLE STREET VANCOUVER, B.C. V6C 1T2

LLUGICAL BRANCH ASSESSMENT REPORT

JANUARY, 1991

ASSESSMENT REPORT - 1990

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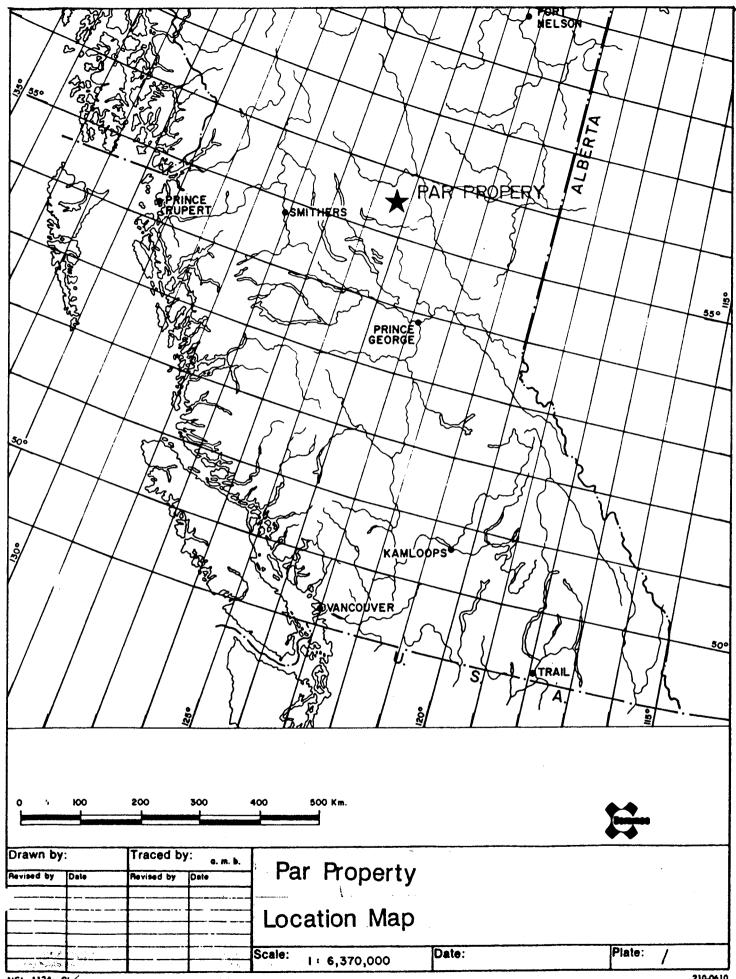
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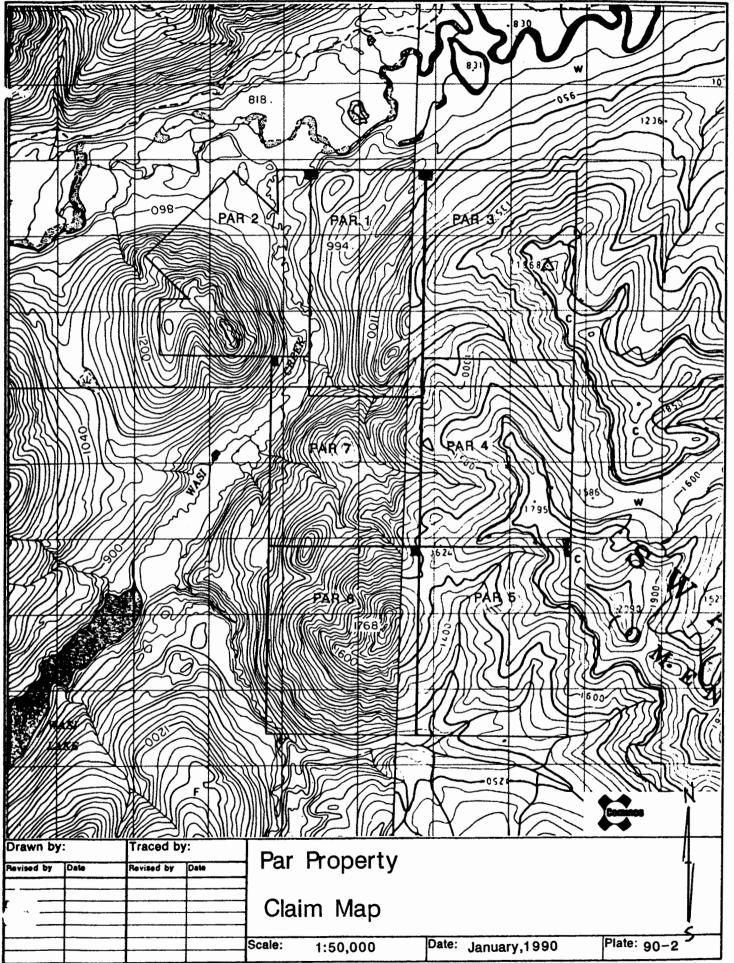
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EXPLORATION NTS 94C/3E-2W

WESTERN CANADA JANUARY 1990

ASSESSMENT REPORT PAR CLAIM GROUP GEOCHEMISTRY

1. INTRODUCTION

This report outlines the work performed on the Par Claims during the period June 21 -23 and September 22-28,1990. The Par 1 & 2 Claims were staked on June 21, 1990 to allow assessment of an old showing that had historically never been tested by soil geochemistry. Results indicated strike potential existed and the Par 3 - 7 claims were staked to cover the southward strike of the host stratigraphy. Further contour soil and stream sediment sampling was performed over the claims to delineate the anomalous area.

2. SUMMARY

The Par Property is located 35 kilometers northeast of Germansen Landing on the Osilinka River. Access is by logging road mainline from Mackenzie or Fort St. James. The ground (Par 1 -2, 48 units) was initially staked by Dunham Craig during 1990 reconnaissance work on the premises of an old showing that had never been tested by soil geochemistry. The old showing contained 1 - 3% Pb + Zn, was small in exposure and surrounded by extensive overburden. Recce type grid work was performed on strike and size potential indicated. A further 100 units were staked to the south (Par 3 - 7) on strike to the mineralized showing and grid. Further contour work was completed resulting in an area 3.5 x 4.3 km being anomalous in Pb/Zn soil and stream geochemical values.

Property geology consists of Silurian - Devonian limestones and dolomites of the Sandpile and McDame Group conformably overlain by Upper Devonian Shales of the Earn Group. The property resides on the western limb of a broad syncline with beds dipping ± 30° to the east. Reconnaissance work indicates that the mineralization is hosted within the Sandpile/McDame carbonate with the upslope soil geochemical anomaly cut off at the Earn Group shale contact. 736 contour soil and stream samples were taken delineating a 1.5 x 4.3 km area of >100 ppm Pb, >350 ppm Zn in soils. Within this broad anomaly a 1.1 km x .4 km area contains >700 to 8400 ppm Pb, > 2000 to 27300 ppm Zn here after called Anomaly "A". 1.4 km to the southeast of Anomaly A a second area 450 meters x 200 meters contains soil geochemical values of >500 ppm Pb, 500 ppm Zn here after called Anomaly "B".

Further work is recommended in the form of baseline control slashing followed by 1:5000 scale mapping, grid soils over anomalous regions and trenching.

3.0 PROPERTY

The property consists of 7 claims of 138 units: Upon acceptance of this report assessment work will be due in 1993.

Claims	<u>Units</u>	Record No.	Date recorded	Assessment work due		
PAR 1	18	12072	June 22/90	June 22/93		
PAR 2	20	12073	June 22/90	June 22/93		
PAR 3	20	12521	Sept 10/90	Sept 10/93		
PAR 4	20	12522	Sept 8/90	Sept 8/93		
PAR 5	20	12523	Sept 8/90	Sept 8/93		
PAR 6	20	12524	Sept 9/90	Sept 9/93		
PAR 7	20	12525	Sept 9/90	Sept 9/93		

4.0 OWNERSHIP

The Par Property consisting of 7 claims (138 units) is 100% owned by Cominco Ltd. 700 - 409 Granville St. Vancouver, B.C. V6C 1T2.

5.0 LOCATION, ACCESS & PHYSIOGRAPHY

The Par property is located 35 km northeast of Germansen Landing on the intersection of Wasi Creek and the Osilinka RIver. The property resides within the Omineca Mining District at latitude 56°05' and longitude 125°00' on map sheets NTS 94C/3E-2W.

Access is via Fort St. James or Mackenzie on well constructed logging roads. Prior to crossing the Osilinka Mainline Bridge #2 from Mackenzie, a left turn is taken on a spur road southwest. Four wheel drive access is available to the northern part of the claim group of which 10 hectares of clearcut logging has taken place.

The claims reside on the eastern side of the Wasi Creek watershed and extend from 950 to 1900 meters in elevation. Open alpine vegetation begins at the 1700 meter level with increased bedrock exposure. Below 1700 meters interior forest exists consisting of mature spruce ,pine and hemlock varying from 4 to 18 inches in diameter. Two burn areas are on the southern portion of the property which occurred from pre 1965 lighting strikes. Slopes are moderate to steep ranging from 10° to 35°. Underbrush is relatively open but often congested with numerous windfalls.

6.0 HISTORY AND DEVELOPMENT

On the western border of the Par 1 claim, a mineral showing of dolomite hosted galena and sphalerite grading 1 - 3% Pb + Zn resides along side a old packhorse trail. This showing, known as the Weber, is recorded in GSC Memoir #274. First staked by F. Weber in 1929 and restaked at intervals since, the showing received hand trenching and chip sampling over the years with the

best assay yielding 1.2% Pb, 3.6% Zn, 1.0 oz/t Ag and .02 oz/t Au over 17 feet. Subsequent restaking took place over the years as exploration interest was revitalized by drilling on the Beveley Claims located 4 kilometers to the north. The ground became open on May 1990 and was staked by Dunham Craig and crew for Cominco Ltd.

7.0 GEOLOGY

7.1 Regional (refer to Figure 1)

The property area lies along the western edge of the Omineca Belt which contains rocks of the Intermontaine Superterrain (accreted) and displaced North American rocks. Regionally, the superterrain is represented by volcanic and sedimentary rocks of the Quesnel and Slide Mountain terrains. Rocks of North American affinity are part of a Proterozoic to Mississippian miogeoclinal wedge of carbonates and siliciclastics that include the Ingenika to Earn groups. To the east, older parts of this sequence are highly metamorphosed to sillimanite grade and are incorporated within the Wolverine complex, one of several core complexes found along the length of the Omenica Belt.

North American affinity:

<u>Proterozoic:</u> The Ingenika Group is predominantly a clastic sequence with lesser amounts of carbonate. This package is in excess of 3.5 kilometers thick and composed of feldspathic and quartz wackes, siltstones, slates, sandstones, limestones and their higher grade metamorphic equivalents.

<u>Paleozoic</u>: The Kechika, Road River, Sandpile and McDame Groups are primarily a carbonate sequence with thin horizons of interbedded shales, argillites and coarse grained clastics conformably overlying basal orthoquartzites, siltstones, sandstones and shales of the Atan Group. At the top of the Paleozoic sequence resides the Earn Group shales, a 400 to 500 meter sequence of blue grey, grey or grey - black shales interbedded with minor sandstone siltstone beds.

Accreted Terrain (?):

Pennsylvanian - Mesozoic (allochthonous rocks?): Seven kilometers of Pennsylvanian - Permian Slide Mountain basalt, chert, argillite and gabbro enigmatically over lay the Paleozoic rocks. The shales and argillites of the Slide Mountain group appear be gradational with the Earn Group and evidence of thrust faulting is not present in the area. The basal section of the Slide Mountain group consists of off shelf fine grained siliciclastics composed of 200 to 300 meters of dark argillites while the upper section grades from light grey to green siliceous argillites interbedded with cherts and chert wackes. 5 km of massive and pillowed basalts, minor sediments and mafic sills

Quesnel Terrain	COLLATERNARY Call affulum TERTIARY TM BLUE LAKE VOLCANICS: massive baselt, voicenic breccis UPPER TRIASSIC TO LOWER JURIASSIC TACLA GROUP T.Ma arplitte, affastone, voicenic sendatone Y.Mb organic sendatone, augite porphyry baselte, egglomerate, minor alfastone, arglitte DEVONIAN TO TRIASSIC(V) PPIN JAMPER RANCH GROUP: arglitte, alfastone PENNSYLVANIAN TO PERMIAN SLOE MOUNTAIN GROUP UPPER DAYSION Massive and pilliowed baselt, voicenic breccis	
Accreted Intermontane	PPamula Chert, argittle and gebbro PPamula Ultramettle LOWER AND MIDDLE DIVISION PPamila Gebbro	
	PPamia Argillite at base, allicaous argillite, massive to ribbon chert, minor gabbro UPPER DEVONIAN TO MISSISSIPPIAN EARN GROUP; blue grey Rasile shale, argillite, minor sandstone MIDDLE DEVONIAN	
	Dried MCDAME GROUP; dark grey felid dolomile, grey dolomite and ilmestone, breccie ORDOVICIAN TO LOWER DEVONIAN CODerk SANDPILE, ROAD RIVER AND KECHIKA GROUPS: Sandpile Group: upper part is sandy dolomile, dolomite and mibror quartishe, lower massive to thickly bedded limestone to dolomitic limestone Road River Group: siste, calcareous state Kachike Group: dark grey argillaceous dolomite LOWER CAMBRIAN ATAN GROUP ON SELLA PORMATION: thickly bedded to play ilmestone	
North American affinity (para-autochthonous)	Cte BOYA FORMATION: basal orthoquarizite succeeded by olive green sitistones and shales, minor sandstone PROTEROZOIC INGENIKA GROUP Pin Undifferentiated; garnet - staurolite - sittimanite schist and gnets, marble and calcisilicate STELKUZ FORMATION: basal part is shale, sitistone grading up to sandstone and minor limestone Pee ESPEE FORMATION: massive to thinly bedded limestones and recrystalitized	
	Pts TSAYDIZ FORMATION: grey green slates, phydias, minor silistone, wackes and limestone limestone SWANNELL FORMATION: shale, phydiae, feldspelhic wecke, limestone, gambilerous schists, gnelss MINERAL ISOGRADS	
Drawn by: DLC Traced by: Revised by Date Revised by Date	PAR PROPERTY	Commiss
	REGIONAL STRATIGRAPHY	
	Scale: Date: Jan 1990.	Plate: ,Fig #1

NCI - 112A - CL

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complete the upper section.

The Harper Ranch Group and Takla Group are not within the claim area and the reader is referred to BCGS Paper 1990-1 for further description.

7.2 Local (refer to Plate 90-3)

The Par Property is underlain by a normal section of Ordovician to Devonian - Mississippian limestone, dolomite and shale of the Sandpile, McDame and Earn Group. Due to extensive overburden and heavy forest cover, no geological mapping has taken place on the property except 1:50,000 scale regional mapping by Ferri & Melville (BCGS Paper 1990-1) and E.F. Roots (GSC Memoir 274, 1954). This work is compiled on to Plate 90-3 (Property Geology and Pb/Zn Summary). The property resides on a ± 30° eastward dipping limb of a broad north trending syncline. North west trending, west side down normal faults intersect the property to form a wide spaced enechleon array through the limestones and shales. Geochemical analysis of contour soils on the property appear to support the regional fault trend.

Mineralization appears to be dolomite hosted and the Weber showing is of fracture filling and breccia infilling type. Some solution etching and replacement is evident. Small pods and lenses of cubic crystalline galena and red/brown sphalerite sporadically infill receptively prepared dolomite. At the Weber showing, the incidence of pyrite is low, ranging from 1-3% of mineralized sections.

8.0 GEOCHEMISTRY

Analysis: During 1990, 738 soil and stream sediment samples were taken on the Par Claims. All samples were run for Pb, Zn, Ag, Cu, Cd, As, Co, Ni and Fe. Samples were dried, sieved to -80 mesh and decomposed through aqua regia attack. A .5 gram subsample was taken and sequential ICP analysis was performed on all samples using the same instrument. All soil samples were taken with a steel spade in the B horizon, placed in a kraft envelope, dried and shipped to the Cominco Exploration Research Lab for analysis.

Rock samples were crushed, ground and a .5 gram subsample was taken for identical analysis as the soil samples.

All soil and silt elemental results are plotted at 1:10,000 scale topographical maps and included as attachment Plates 4 - 12.18

Statistical analysis was performed on the soil and silt results by grouping into a single data set and then performing a correlation matrix on all elements. Histograms and chi squared analysis were done on elements with greater than .65 correlation coefficient. Results are displayed in Appendix C (Summary Geochemistry Statistics).

<u>Discussion:</u> Contours are placed on elemental geochemistry maps as an aid to broad scale anomalies only. The wide spacing of the samples coupled with the lack of ground control leaves interpretation of results as a orientation guide for future detailed work.

Contour values are set based on statistical results and past experience with carbonate hosted mineralization.

The Par Property contains a large 3.5 x 4.5 km area of >100 ppm Pb in contour soil response. Within this area three more prominate multielement anomalies exist. These anomalies are titled "A", "B", and "C" and are displayed on Plate 90-3 with single element contours shown on Plates 90-4 to 90-8. The table below summarizes:

Anomaly	Size (km)	Anomalous Elements	Host Rock
Anomaly A	.4 x 1.4	500 - 10000 ppm Pb 2000 - 24100 ppm Zn 1.0 - 20.2 ppm Ag 5.0 - 23.30% Fe	Sandpile/Mcdame Carbonates
Anomaly B	.4 x .3	500 - 2112 ppm Pb 500 - 2380 ppm Zn	Sandpile/Mcdame Carbonates
Anomaly C	.4 x .4	500 - 1135 ppm Pb 500 - 2380 ppm Zn	Sandpile/Mcdame Carbonates

Zinc is coincident with lead in anomaly A with values > 2000 ppm but much less reduced in size and magnitude within anomaly B & C. Silver reflects lead and zinc in anomaly A but is greatly reduced in anomaly B and C. Iron is also coincident in anomaly A and reduced in anomaly B & C. Iron is also strongly present in the southern portion of the claims. This is thought to reflect the changing lithology from carbonate to shale and volcanics shown in the regional mapping. Arsenic has spot value highs, some of which cluster in anomaly A. As is strongly scavenged from solution in Fe-rich environments, either by formation of Fe compounds or by adsorption on Fe-oxides. The As values may reflect the strong presence of iron in anomaly A. Cd is coincident with strong Zn anomalies as is to be expected with this type of mineralization.

Ni, Co and Cu do not show a relational pattern to Pb/Zn anomalies. Ni and Co do display a grouping trend in areas hypothetically underlain by argillites and volcanics. These elements may be of future use in geological mapping of areas covered by overburden.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The Par Property contains three Pb/Zn/Ag contour soil anomalies within a large >100 ppm Pb region. The table below summarizes:

Anomaly	Size (km)	Anomalous Elements	Host Rock
Anomaly A	.4 x 1.4	500 - 10000 ppm Pb 2000 - 24100 ppm Zn 1.0 - 20.2 ppm Ag 5.0 - 23.30% Fe	Sandpile/Mcdame Carbonates
Anomaly B	.4 x .3	500 - 2112 ppm Pb 500 - 2380 ppm Zn	Sandpile/Mcdame Carbonates
Anomaly C	.4 x .4	500 - 1135 ppm Pb 500 - 2380 ppm Zn	Sandpile/Mcdame Carbonates

Further work is recommended on the Par Property. Due to the heavy forest cover of the area, grid baseline should be slashed to establish ground control. 1:5000 scale mapping over the claim group will determine structure and lithological identification of mineralized bedrock. A grid soil sampling program over anomalous areas defined by contour soils will identify positive location of targets and establish upslope geochemical cut off. Following compilation, a trenching program is recommended to expose mineralized bedrock.

Submitted by:

Dunham/L.

Geologist /

Approved for release by:

> Wolfe Manager, Exploration Western Canada

APPENDIX "A"

ASSESSMENT REPORT

PAR PROPERTY

STATEMENT OF EXPENDITURES

Salaries:	P.A. MacRobbie G.K. Graham M. Kolebaba M. Kolebaba G. Galbraith D. Jones D.L. Craig	7 days @ 7 days @ 7 days @ 2 days @ 2 days @	\$256/day \$241/day \$211/day \$211/day \$115/day \$115/day \$241/day	\$1,792 1,687 1,477 1,477 230 230 482	
	Dec. Oldig	1 day e	Ψ2+17 day		\$7,375.00
Communicat	ions				272.40
Geological	Equipment and Sup	plies			429.29
Geochemica	1 Analysis				5,077.75
Helicopter	•				9,223.10
Truck Rent	al				1,100.00
Airfares					1,500.00
Freight					495.86
Domicile			1,689.00		
Drafting			696.21		
Report Wri	ting - 4 days x \$2	241/day			964.00
TOTAL EXPE	NDITURES				\$28,822.61

APPENDIX "B"

IN THE MATTER OF THE B.C. MINERAL ACT AND IN THE MATTER OF GEOCHEMICAL AND GEOLOGICAL MAPPING CARRIED OUT ON THE LDP GROUP LOCATED IN THE OMINECA MINING DISTRICT OF THE PROVINCE OF BRITISH COLUMBIA.

AFFIDAVIT

- I, Dunham L. Craig, of the City of Richmond, in the province of British Columbia make oath and say:
- 1. THAT I am employed as a Geologist by Cominco Ltd. and as such have a personal knowledge of the facts to which I hereinafter depose.
- 2. THAT annexed hereto and marked as "Appendix "A" to this report is a true copy of expenditure of a geochemical and geological program carried out on the PAR property.
- 3. THAT the said expenditures incurred between June 21-23 and September 22-28, 1990 for the purpose of mineral exploration on the above noted property.

Dunham . Craig / B.Sc.

APPENDIX "B"

- I, Dunham L. Craig of the City of Richmond, British Columbia, hereby certify:
- THAT I am employed in British Columbia, with a business address at 700-409 Granville Street, Vancouver, B.C., V6C 1T2.
- * THAT I graduated with a B.Sc. in Geology from the University of British Columbia in 1988.
- * THAT I am a member of the Association of Exploration Geochemists.
- * THAT I have practiced geology with Cominco Ltd. from 1988 to the present.

Dated this 30th day of January, 1991 at Vancouver, B.C.

Dunham L. Craig, B.Sc.

APPENDIX "C" SUMMARY GEOCHEMISTRY STATISTICS

ABLE : PB WER PERCENT OF THE TOTAL SAMPLES	THIS CATEGORY	PERCENTAGE OF	PENER BOOK	180
(BED 10,0 20,0 30,0 40,0 50,0				
0.000 HIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	247	33.56	0.00	0.000
20.000	88	11.96	33.56	20.000
40.000 HHHHH	61	8.29	45.52	40.000
60.000 HIIII	44	5.98	53.80	60.000
80.000	29	3.94	59.78	80.000
00.000	25	3.40		100.000
20.000	19	2.58		120.000
40.000	31	4.21		140.000
60.000	14	1.90		160.000
80.000	20	2.72		180.000
00.000	16	2.17		200.000
20.000	4	0.54		220.000
40.000	4	0.54		240.000
60.000	9	1.22		260.000
80.000	7	0.95		280.000
00.000	8	1.09		300.00
20.000	8	1.09		320.00
40.000 i	7	0. 9 5	86.14	340.00
60.000 1			87.09	360.00
80.000 T	4	0.54	87.64	380.00
00.000	8	1.09	88.72	400.00
20.000 I	4	0.54	89.27	420.00
40.000 1 T	4	0.54	89.81	440.00
60.000	1	0.14	89.95	460.00
80.000	4	0.54	90.49	480.00
00.000}	5	0.68	91.17	500.00
20.000 1	2	0.27	91.44	520.00
40.000 1	1	0.14	91.58	540.00
60.000f.	0	0.00	91.58	560.00
80.000	4	0.54	92.12	580.00
00.000	0	0.00	92.12	600.00
20.000	4	0.54		620.00
11 40.000†.	1	0.14	92.80	640.00
60.000	4	0.54	93.34	660.00
	0	0.00	93.34	680.00
80.000†	3	0.41		700.00
00.000	2	0.27		720.00
20.000 1 40.000 1	1	0.14		740.00
60.000f.	1	0.14		760.00
<u> </u>	i	0.14	94.43	780.00
80.000	i	0.14	94.57	800.00
00.000	0	0.00		820.00
20.000	i	0.14	•	840.00
40.000	0	0.00		860.00
60.000	0	0.00		860.00 880.00
80.000	0	0.00		
00.000	0	0.00		900.000
20.000	2	0.27		920.00
40.000	0	0.00		940.00
60.000		0.14		960.00
90.000	1		95.11	980.00
<u> </u>	í	0.14		
OO.OOO DATA ABOVE RANGE OF HISTOGRAM			95.24 10	000.000
*****	35	4.76		

20.0

15.0 PERCENT OF THE TOTAL SAMPLES 25.0

ABLE : AG	PERCENT OF THE TOTAL SAMPLES	THIS CATEGORY	PERCENTAGE OF	PEONER BOOM	188
	20,0 40,0 60,0 80,0 100,0			0.00	A 400
0.400		597	81.11	81.11	0.400
0.900		71	9.65	90.76	
1.400		26	3.53	94.29	1.400
1.900		10	1.36	95.65	1.900
2.400		10	1.36	97.01	2.400
2.900		2	0.27	97.28	2.90
3.400		2	0.27		3.40
3.900		1	0.14	97.55	3.90
4.400		i	0.14	97.69	4.40
4.900		0	0.00	97.83	4.90
5.400		2	0.27	97.83	5.40
5.900		1	0.14	98.10	5.90
6.400		0	0.00	98.23	6.40
6.900		0	0.00	98.23	6.90
7.400 I		1	0.14	98.23	7.40
7.900 1 1		2	0.27	98.37	7.90
8.400 I		2	0.27	98.64	8.40
8.900 I			0.14	98.91	8.30
9.400 1		i		99.05	9.40
9.900		0	0.00	99.05	9.90
10.400		0	0.00	99.05	10.40
10.900		0	0.00	99.05	10.90
11.400		2	0.27	99.32	11.40
11.900		0	0.00	99.32	11.90
12.400		2	0.27	99.59	12.40
12.900		0	0.00	99.59	12.90
13.400		0	0.00	99.59	13.40
13.900		0	0.00	99.59	13.90
14.400		0	0.00	99.59	14.40
14.900		i	0.14	99.73	14.9
15.400		0	0.00	99.73	15.4
15.900		0	0.00	99.73	15.9
16.400		0	0.00	99.73	16.4
16.900		•	0.00	99.73	16.9
į		0	0.00	99.73	17.4
17.400		0	0.00	99.73	17.9
17.900		0	0.00	99.73	18.4
18.400		0	0.00	99.73	18.9
18.300		1	0.14	99.86	19.4
19.400		0	0.00	99.86	19.9
19.900		1	0.14	77.00	

THE SAME TRANSFURMATIONS AND SELECTIONS AS LAST RUN. WILL BE USED IN THIS RUN. DATA TITLE : PAR CLAIMS 1990 CONTOUR SOIL DATA VARIABLE : CB PERCENTAGE OF THIS CATEGORY LOWER PERCENT OF THE TOTAL SAMPLES 30,0 45,0 60,0 75,0 0.00 0.000 0.000 0 -0.00 1.000 0.00 1.000 479 65.08 2.000 65.08 2.000 HIII 60 8.15 3.000 73.23 3.000 42 5.71 4,000 78.94 4.000 24 3.26 5,000 82.20 5.000 23 3.12 85.33 6,000 6.000 21 2.85 88.18 7,000 7.000 16 2.17 90.35 8.000 8.000 9 1.22 91.58 9,000 9.000 1.22 92.80 10.000 10.000 5 0.68 93.48 11.000 11.000 0.95 94.43 12.000 12.000 0.54 94.97 13.000 13.000 0.54 95.52 14.000 14,000 0.14 95.65 15.000 15.000 0.14 95.79 16.000 16.000 0.27 2 96.06 17.000 17.000 0.00 0 18.000 96.06 18,000 2 0.27 96.33 19.000 19.000 2 0.27 96.60 20.000 20.000 ٥ 0.00 21.000 96.60 21.000 3 0.41 97.01 22.000 22.000 3 0.41 97.42 23.000 23.000 0.27 97.69 24.000 24.000 0.14 97.83 25.000 25.000 0.14 97.96 26.000 26.000 2 0.27 98.23 27.000 27.000 0.14 98.37 28.000 28,000 0.14 29.000 98.51 29.000 0.00 98.51 30,000 30,000 0 0.00 98.51 31,000 31.000 0.00 98.51 32,000 32.000 0.14 98.64 33.000 33.000 0.00 34,000 98.64 34.000 0.00 35.000 98.64 35.000 0.00 36,000 98.54 36.000 0.00 37.000 98.64 37,000 0.14 38.000 98.78 38.000 0.00 98.78 39.000 39.000 2 0.27 99.05 40.000 40.000 ٥ 0.00 99.05 41.000 41.000 0.00 99.05 42.000 42.000 0 0.00 99.05 43.000 43.000 0 0.00 44.000 99.05 44.000 0.14 1 45.000 99.18 45.000 0.00 0 46.000 46.000 39.18 0.00 0 47.000 99.18 47.000 0 0.00 48.000 99.18 48.000 0.00 0 49.000 99.18 49.000 0.14

99.32

0.68

5

50.000

DATA ABOVE RANGE OF HISTOGRAM

15.0 30.0 45.0 60.0 75.0

PERCENT OF THE TOTAL SAMPLES

PERCENT OF THE TOTAL SAMPLES

DATA TITLE : PAR CLAIMS 1990 CONTOUR SOIL DATA

PAR CLAIMS 1990 CONTOUR SOIL DATA

CORRELATION MATRIX: (99.0 INDICATES COEFFICIENT COULD NOT BE CALCULATED)

	A6	AS	CU	P B	ZN	CO	IX	CD	FE
AG	1.000	0.636	0.057	0.703	0.679	0.099	0.044	0.656	0.598
AS	0.636	1.000	0.113	0.483	0.559	0.324	0.376	0.521	0.625
CU	0.057	0.113	1.000	-0.023	0.037	0.528	0.442	0.033	0.154
PB	0.703	0.483	-0.023	1.000	0.521	0.075	0.040	0.471	0.463
ZN	0.679	0.559	0.037	0.521	1.000	0.213	0.169	0.858	0.481
CO	0.099	0.324	0.528	0.075	0.213	1.000	0.495	0.152	0.472
NI	0.044	0.376	0.442	0.040	0.169	0.495	1.000	0.234	0.149
CO	0.656	0.521	0.033	0.471	0.858	0.152	0.234	1.000	0.420
FE	0.598	0.625	0.154	0.463	0.481	0.472	0.149	0.420	1.000

PAR CLAIMS 1990 CONTOUR SOIL DATA

NUMBER OF SAMPLES PER VARIABLE PAIR

	AG	AS	CU	PB	ZN	CO	NI	CD	FE
AG	736	736	736	736	736	736	736	736	736
AS	736	736	736	736	736	736	736	736	736
CU	736	736	736	736	736	736	736	736	736
PB	736	736	736	736	736	736	736	736	736
ZN	736	736	736	736	736	736	736	736	736
CO	736	736	736	736	736	736	736	736	736
NI	736	736	736	736	736	736	736	736	736
CD	736	736	736	736	736	736	736	736	736
FE	736	736	736	736	736	736	736	736	736

VARTABLE	AG
NUMBER OF OBSERVATIONS:	736
MINIME:	0.400
MAXIMUM:	20.200
NEAM:	0.864
STANDARD ERROR OF MEAN:	0.061
STANDARD DEVIATION:	1.655
COEFFICIENT OF VARIATION:	191.427
SKEWNESS:	7.317
KURTOSIS:	64.142

CHI-SQUARE TEST FOR "GOODNESS OF FIT" WITH A NORMAL DISTRIBUTION

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VARIABLE : A6

CLASS BOUNDS		OBSERVED	EXPECTED	(OBS-EIP)	[(OBS-EXP)##2 / EXP]	
-INFINITY	TO	-1.256	0	73.6	-73.6	73.600
-1.256	TO	-0.528	0	73.6	-73.6	73.600
-0.528	TQ	-0.003	0	73.6	-73.6	73.600
-0.003	TO	0.445	460	73.6	386.4	2028.600
0.445	TO	0.864	118	73.6	44.4	26.785
0.864	TO	1.284	79	73.6	5.4	0.396
1.284	TO	1.732	29	73.6	-44.6	27.027
1.732	TO	2.257	17	73.6	-56.6	43.527
2.257	TO	2.985	11	73.6	-62.6	53.244
2.985	TO	+INFINITY	22	73.6	-51.6	36.176

CHI-SQUARED VALUE IS 2436.55. DEGREES OF FREEDOM ARE 7.

SIGNIFICANCE LEV	EL CHI-SO	PUARE VA	LUE
0.500		6.35	
0.750		9.04	
0.900	1	12.00	
0.950	1	14.10	
0.975	1	16.00	
0.990	1	18.50	
0.995		20.30	
***************************************	**********	******	***************************************
VAR!ABLE:	CD		
NUMBER OF OBSERVATIONS:	736		
MININUM:	1.000		
MAXIMUM:	78.000		
HEAM:	3.493		
STANDARD ERROR OF MEAN:	0.267		
STANDARD DEVIATION:	7.238		
COEFFICIENT OF VARIATION:	207.198		
SKEVNESS:	5.690		
KURTOSIS:	41.008		

CHI-SQUARE TEST FOR "GOODNESS OF FIT" WITH A NORMAL DISTRIBUTION

VARIABLE : CD

CLASS BOUNDS		OBSERVED	EXPECTED	(OBS-EXP)	[(OBS-EXP)##2 / EXP]	
-INFINITY	T9	-5.783	0	73.6	-73.6	73.600
-5.783	TO	-2.598	0	73.6	-73.6	73.600
-2.598	TO	-0.302	0	73.6	-73.6	73.600
-0.302	T0	1.660	479	73.6	405.4	2233.005
1.660	TO	3.493	102	73.6	28.4	10.959
3.493	TO	5.327	47	73.6	-26.6	9.614
5.327	TO	7.289	37	73.6	-36.6	18.201
7.289	TO	9.585	18	73.6	-55.6	42.002
9.585	to	12.769	16	73.6	-57.6	45.078
12.769	10	+INFINITY	37	73.6	-36.6	18.201

CHI-SQUARED VALUE IS 2597.86. DEGREES OF FREEDOM ARE 7.

SIGNIFICANCE LEVEL	CHI-SQUARE VALUE
0.500	6.35
0.750	9.04
0.900	12.00
0.950	14.10
0.975	16.00
0.990	18.50
0.995	20.30
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NUMBER OF OBSERVATIONS: NINIMUM: 4,000 KAXIMUM: 11825.000 HEAN: 242.736 STANDARD ERROR OF NEAN: 30.630 STANDARD DEVIATION: 830.967 COEFFICIENT OF VARIATION: 342,333 SKEWNESS: 9.269 KURTOSIS: 103.775

CHI-SQUARE TEST FOR "GOODNESS OF FIT" WITH A NORMAL DISTRIBUTION

VARIABLE : PB

CLASS BOUNDS		OBSERVED	EXPECTED	(OBS-EXP)	((OBS-EXP)##2 / EXP]	
-INFINITY	TO	-822.231	0	73.6	-73.6	73.600
-822.231	TO	-456.606	0	73.6	-73.6	73.600
-456.606	TO	-193.023	0	73.6	-73.6	73.600
-193.023	TO	32.252	314	73.6	240.4	785.220
32.252	10	242.736	286	73.6	212.4	612.959
242.736	TO	453.220	62	73.6	-11.6	1.828
453.220	TØ	678.496	25	73.6	-48.6	32.092
678.496	TO	942.079	12	73.6	-61.6	51.557
942.079	TO	1307.704	14	73.6	-59.6	48.263
1307.704	TO	+INFINITY	23	73.6	~50.6	34.787

CHI-SQUARED VALUE IS 1787.51. DEGREES OF FREEDOM ARE 7.

SIGNIFICANCE LEVEL	CHI-SQUARE	VALUE
0.500	6.35	
0.750	9.04	
0.900	12.00	
0.950	14.10	
0.975	16.00	
0.990	18.50	
0.995	20.30	

VARIABLE:	ZN
NUMBER OF OBSERVATIONS:	736
KINIHUN:	6.000
MAXIMUM:	22300.000
KEAN:	612.712
STANDARD ERROR OF MEAN:	60.355
STANDARD DEVIATION:	1637.381
COEFFICIENT OF VARIATION:	267.235
SKEWNESS:	7.837
KURTOSIS:	80.998

CHI-SQUARE TEST FOR "GOODNESS OF FIT" WITH A NORMAL DISTRIBUTION

VARIABLE : IN

CLASS BOUNDS		OBSERVED	EXPECTED	(OBS-EXP)	[(OBS-EXP)##2 / EXP3	
-INFINITY	TO	-1485.756	0	73.6	-73.6	73.600
-1485.756	TO	-765.308	0	73.6	-73.6	73.600
-765.308	TO	-245.931	0	73.6	-73.6	73.600
-245.931	TO	197.963	370	73.6	296.4	1193.654
197.963	TO	612.712	218	73.6	144.4	283.307
612.712	TO	1027.461	71	73.6	-2.6	0.092
1027.461	TO	1471.355	28	73.6	-45.6	28.252
1471.355	10	1990.732	6	73.6	-67.6	62.089
1990.732	TO	2711.180	14	73.6	-59.6	48.263
2711.180	TO	+INFINITY	29	73.6	-44.6	27.027

CHI-SQUARED VALUE IS 1863.48. DEGREES OF FREEDOM ARE 7.

SIGNIFICANCE LEVEL	CHI-SQUARE	VALUE
0.500	6.35	
0.750	9.04	
0.900	12.00	
0.950	14.10	
0.975	16.00	
0.990	18.50	
0.995	20.30	
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VARIABLE:	FE
NUMBER OF OBSERVATIONS:	736
NININUM:	0.010
MAXINUM:	23.300
NEAN:	2.965
STANDARD ERROR OF MEAN:	0.062
STANDARD DEVIATION:	1.685
COEFFICIENT OF VARIATION:	56.823
SKEWNESS:	3.608
KURTOSIS:	32.661

CHI-SQUARE TEST FOR "GOODNESS OF FIT" WITH A NORMAL DISTRIBUTION

VARIABLE : FE

CLASS BOUNDS		OBSERVED	EXPECTED	(OBS-EXP)	[(085-EXP)##2 / EXP]	
-INFINITY	10	0.806	28	73.6	-45.6	28.252
0.806	10	1.547	79	73.6	5.4	0.396
1.547	TO	2.081	99	73.6	25.4	8.766
2.081	TO	2.538	102	73.6	28.4	10.959
2.538	TO	2.965	96	73.6	22.4	6.817
2.965	TO	3.391	95	73.6	21.4	6.222
3.391	TO	3.848	94	73.6	20.4	5.654
3.849	TO	4.383	63	73.6	-10.6	1.527
4.383	TO	5.124	35	73.6	-38.6	20.244
5.124	TO	+INFINITY	45	73.6	-28.6	11.114

CHI-SQUARED VALUE IS 99.95. DEGREES OF FREEDOM ARE 7.

SIGNIFICANCE LEVEL	CHI-SQUARE VALUE
0.500	6.35
0.750	9.04
0.900	12.00
0.950	14.10
0.975	16.00
0.990	18.50
0.995	20.30

