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จุฬาลงกรณ์มหาวิทยาลัย

Appendix A

DATA RECORDING

The field data is encoded on a standard data card. The data recorded on the card is punched onto an 80-column IBM data card for computer processing, storage and retrieval. Even if no computing facility were available it would be desirable to record data in this form because in this way the samples are forced to record the desired information in a standard format and the data is always ready for keypunching at a later date.

The geochemical drainage sample card is used for surveys of stream sediments, water or other material, carried out in the drainage channels of a region.

The data card has a heading strip, and positions to record data for five samples: The various fields are defined on the heading and are shaded alternately dark and light for easy recognition. The first 27 columns are taken up with map sheet and sample number and sample location co-ordinates. These are essential items of information which must accompany every sample. Column 28 defines the type of sample taken during the drainage survey.

The physical environment of the sample site is described in card columns 29 to 44, and includes observations on geology, stream regime and landform. Card column 45 to 50 describe the sample itself in terms of grain size distribution. The presence of contamination is noted in column 51. This is concerned with contamination due to human activities which would be reflected in the sample analysis. Card columns 52 to 56 are reserved for recording pH and temperature of the

PROJECT: AREA: AIR PHOTO NO. SAMPLERS: DATE:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
RELIEF	MAP	MAP	MAP	PPT.	G.S.	F.S.	SILT.	CLAY	DRG.	CONT.	P	H	TEMP.	SC	INT.	LAND	USE	NORTH	TYPE	GEOLOG.	UNIT	WIDTH	DEPTH	FLOW	LEVEL	POSIT.	STANS												
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

GEOCHEMICAL DRAINAGE SURVEY CARD

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

PROGRAMME: AREA: MAP NO. SAMPLER: DATE:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
MAP	MAP	MAP	MAP	L.U.	VEG.	SOIL	HOR.	DEPTH	COL.	ZONE	MOIS.	DR.	SIZE	COMP.	S	C	O	P.M.	SPEC.	FEAT.	NORTH	TYPE	LINE	STATION															
SLOPE	L.U.	VEG.	SOIL	HOR.	DEPTH	COL.	MOIS.	DR.	SIZE	COMP.	S	C	O	P.M.	SPEC.	FEAT.	NORTH	TYPE	LINE	STATION																			
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

GEOCHEMICAL SOIL CARD

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

REMARKS:

water if these are measured.

At every sample site a scintillometer reading is taken. The reading is recorded in card columns 57 to 59 to a maximum reading of 999. However, in this investigation card columns 52 to 59 are ignored because the pH of water, temperature and scintillometer reading are not operated in the field.

In card column 60 land use is recorded, to allow recognition of those areas. In a more general way, this data might be of use, in conjunction with the metal values, to agriculturalists, finally, card columns 76 to 80 are devoted to a data record code. The year of data collection is recorded in card column 76 and 77, the initials of the agency carrying out the survey are recorded in card columns 78 and 79, card column 80 records the type of data file-number 1 in this column means a drainage sample record of field observations. These five columns permit the formation of a data storage and retrieval system which could, if desired, be expanded into a national system for all types of earth science data.

Coding Form of Geochemical Drainage Sample Card

CC 1 to 12: Sample Number: The sample number is in two parts. The four numbers are the topographic map sheet number (1: 50,000 scale) within which the sample is located. This is entered in CC. 1-5. CC. 6 is left blank. CC. 7-12 are the sample numbers. The last digit of the number always goes in CC.12. It is not necessary to enter zeros before the actual number. Thus sample number 22 could be entered simply as 22 in CC. 11 and 12, or as 000022 in CC. 7-12.

CC. 13 to 27: Sample Location: Sample locations are recorded in the UTM (Universal Transverse Mercator) Grid System, which is printed on new editions of the topographic maps. The location includes a zone number (CC. 13 and 14); an easting of six digits (CC. 15-20); and a northing of seven digits (CC. 21-27).

28: Sample Type: Enter the appropriate number in CC. 28.

1. = Water; lake or pond
2. = Water; stream
3. = Water; spring or well or drillhole
4. = Water; swamp or marsh
5. = Sediment; stream
6. = Sediment; stream, heavy mineral concentrate
7. = Sediment; swamp or marsh
8. = Soil (bank)
9. = Bedrock

29 to 30: Geological Unit: To be entered in field office by geological supervisor. This refers to geological unit underlying sample point.

31 to 33: Width of Stream: In meters, estimate to nearest 10th of a meter, or meter, depending on width. The decimal point to be added when necessary.

34 to 36: Depth of Stream: To nearest 0.1 meter. Greater than 9.9 If dry (CC. 38 = 0) leave blank.

CC 37: Rate of Flow at Sample Point:

0. = stagnant
1. = slow
2. = moderate
3. = fast
4. = torrent (very fast)

38: Water Level:

0. = dry
1. = low
2. = normal
3. = high
4. = flood

39: Sample position - looking down stream: Locate position of sample point in the stream or river.

1. = right bank (soil)
2. = right bank (sediment or water)
3. = centre
4. = left bank (sediment or water)
5. = left bank (soil)

40: Nature of banks:

1. = alluvial - banks are older stream channel deposits
2. = colluvial- banks are soil covered slopes
3. = dilluvial- flood plain material
4. = rocks - banks are rock outcrops
5. = elluvial - banks are residual soil

CC. 41: Relief: General relief in area of sample point

0. = flat 0-10 meters
1. = low 10-30 meters
2. = moderate 30-100 meters
3. = high 100-300 meters
4. = mountainous 300 meters and greater

42: Color of Water:

0. = clear
1. = white
2. = yellow
3. = red
4. = brown
5. = black
6. = buff
7. = grey

43: Color of Sediment:

1. = white
2. = grey
3. = yellow
4. = buff
5. = red
6. = brown
7. = black
8. = sandy (yellow/orange)

CC. 44: Presence of precipitate or stain on stream deposit:

- 0 = none
- 1 = Iron (red or brown)
- 2 = Manganese (black)
- 3 = Carbonate (white)
- 4 = Sulphur (yellow)
- 5 = Organic (dark brown or black - distinguished
from Manganese)

45 to 50: Size Composition of Sediment Sample: If sample is water, leave blank. The size classes are:

- Gravel (CC. 45)
- Coarse Sand (CC. 46)
- Fine Sand (CC. 47)
- Silt (CC. 48)
- Clay (CC. 49)
- Organic (CC. 50)

A visual estimate is required of the grain size composition of the sample. **Estimate** to the nearest 10 %.

The total recorded in CC. 45-50 is therefore 10 which equals 100%. If a sample is entirely of one size class, enter 9 in that column and leave the rest blank.

51: Contamination: Note the presence of known or suspected contamination from old mine workings, dumps, slag piles, agricultural sprays or other human agencies. Always note in the remarks section what the contamination is thought to be.

CC

- 0 = none
- 1 = possible
- 2 = probable
- 3 = definite

52 to 54: pH of water - to be recorded here if measured.

55 to 56: Temperature of water in C. if measured

57 to 59: Scintillometer reading (in CPS) - Average background of area around sample site, holding the scintillometer at knee level and avoiding as far as possible mass effect of cliffs and overhanging rocks.

Note :

60: Land Use:

- 0 = mountainous
- 1 = grazing
- 2 = forestry
- 3 = arable
- 4 = orchards
- 5 = vineyards
- 6 = habitation

76 to 80: Agency Code:

76-77 - Year of sample collection.

78-79 - Initials of organization carrying out sampling programme .

80 - Type of data collected. This card, card No. 1, is recognized as a field data

card for drainage surveys. As other types of data cards are developed they will be given other numbers.

Coding Form of Geochemical Soil Card

- CC 1 to 27 This area is identical to that on the drainage card and is to be filled out in the same way.
- 28 Sample type: Three numbers might be entered here to define the sample type:
- 7 = sediment, swamp or marsh
 - 8 = soil
 - 9 = bed rock
- 29 to 34 Line and Station: The location of the sample on the sample
- 35 to 40 Sample on the sample grid is entered here. Lines and stations are numbered from an arbitrary origin in meters and will normally be disposed N-S and E-W. Line 100 N is 100 meters north of the origin and would be entered as 100 N. Station 400 E is 400 meters east of the origin and would be entered 400 E.
- 41 to 44 Slope: Slope is measured in degrees with the clinometer on your compass. The downslope direction is recorded as N, NE, E, etc. A slope might be recorded 10 N with the last space blank, or 10 NE using all four spaces.

CC 45 Landuse: As in the drainage card:

- 0 = mountainous, little grazing
- 1 = grazing
- 2 = forestry
- 3 = cultivated, if land has been plowed
- 4 = orchards
- 5 = vineyards
- 6 = habitation

46 Vegetation:

- 0 = plowed land
- 1 = grass
- 2 = grass and low bushes
- 3 = bushes
- 4 = sparse trees, bushes and/or grass
- 5 = forest
- 6 = burnt forest

47 Soil type: Classify the soil into this simple grouping:

- 0 = no soil profile recognizable
- 1 = poor profile development, Band C just recognizable
- 2 = good profile - A horizons recognizable
- 3 = gleysol-poorly drained soil, usually grey but may have mottling, usually reduced Fe
- 4 = humic soil-thick organic soil to normal sample depth

CC 48 Horizon sampled:

- 0 = A₀ humus layer
- 1 = A₂ leached horizon
- 2 = B red oxidized, enriched in Fe
- 3 = B-C mixed
- 4 = C weathered parent material
- 5 = R underlying consolidated bedrock

49 to 50 Depth samples: Record in centimeters to the nearest 5 cm., from bottom of auger

51 to 52 Color : See Color chart

- | | |
|------------------|----------------|
| 0 = white | 5 = red |
| 2 = buff | 6 = brown |
| 3 = yellow | 7 = dark brown |
| 4 = yellow brown | 8 = black |
| 5 = red brown | 9 = grey |

53 Moisture:

- 0 = dry
- 1 = damp (moderately dry)
- 2 = moist
- 3 = wet

54 Drainage:

- 0 = poorly drained
- 1 = moderately drained
- 2 = well drained
- 3 = excessively drained

CC 55 to 59 Texture (particle size composition)

Column 55	= gravel	}	estimate to the nearest 10 % Total of these = 10
56	= sand		
57	= silt		
58	= clay		
59	= organic		

60 Parent Material:

0 = bedrock
1 = colluvial
2 = alluvial

61 to 62 Special Features: Note here the presence of such features as CaCO_3 , Mn or Fe crusts etc.
as follows:

01 - calcium carbonate crust
02 - iron crust
03 - manganese crust
04 - silica crust
05 - particularly hard or impervious clay layers
06 -

Note: this section will be expanded as needed.

63 Contamination: Note here contamination due to the activity of man-as in the drainage card.

0 = none
1 = possible

CC

2 = probable

3 = definite

- 64 to 67 Radioactivity: Radioactivity reading taken with the Srat SPP-2 or equivalent scintillometer
- 68 to 70 Radon: Record here the net counts per minute calculated on the Radon sheet
- 74 to 75 Anomaly: Record here the code letters of the anomaly block being investigated, e.g. SR = Serrai
- 78 to 79 Year: Year of sampling.

The card columns 64 to 70 are not recorded because they are not treated in the field operation.

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Appendix B

Chemical analysis for Cr, Ni, Co and Cu in stream sediments,
Amphoe Wang Nam Yen, Changwat Prachin Buri

Sample number	Values in pmm			
	Cr	Ni	Co	Cu
5436 III - 1	168	152	39	18
" 2	141	162	57	13
" 3	220	145	96	16
" 4	215	111	46	21
" 5	122	143	43	17
" 6	210	155	39	16
" 7	192	150	39	18
" 8	242	158	32	23
" 9	263	212	43	17
" 10	9	6	18	8
" 11	9	6	14	8
" 12	6	6	nil	5
" 13	9	6	nil	2
" 14	50	10	7	8
" 15	90	90	18	24
" 16	102	75	21	23
" 17	63	82	32	21
" 18	85	67	37	48
" 19	80	45	87	34
" 20	49	48	17	35

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 21	53	42	25	36
" 22	87	47	33	27
" 23	56	67	28	15
" 24	69	72	25	32
" 25	32	75	25	25
" 26	67	68	22	20
" 27	87	67	22	21
" 28	288	212	41	18
" 29	298	311	28	24
" 30	420	410	44	13
" 31	508	359	38	14
" 32	508	371	56	26
" 33	95	115	97	39
" 34	67	112	31	21
" 35	4286	4100	148	14
" 36	3294	4110	124	9
" 37	2240	2050	172	24
" 38	2100	1412	140	20
" 39	978	720	104	14
" 40	1542	921	112	29
" 41	1121	768	148	20
" 42	479	550	100	27
" 43	507	512	72	31
" 44	800	518	60	20
" 45	720	508	108	32

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 46	497	256	36	23
" 47	120	68	44	27
" 48	131	72	24	18
" 49	110	178	24	29
" 50	105	112	16	21
" 51	110	81	100	22
" 52	110	112	35	13
" 53	88	105	51	21
" 54	112	141	32	13
" 55	47	62	24	18
" 56	62	71	30	13
" 57	39	52	30	15
" 58	478	352	51	27
" 59	700	115	111	16
" 60	1412	1310	95	23
" 61	1352	1750	149	23
" 62	2615	2215	159	18
" 63	2532	1450	119	13
" 64	1252	1335	205	18
" 65	4175	2410	146	12
" 66	4278	1350	141	12
" 67	7125	4210	192	8
" 68	375	850	79	13
" 69	472	412	59	31
" 70	534	615	64	15

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 71	110	81	21	10
" 72	62	25	13	11
" 73	75	68	18	17
" 74	80	50	23	15
" 75	52	41	21	17
" 76	81	51	23	20
" 77	76	22	21	18
" 78	92	15	28	18
" 79	60	65	23	22
" 80	169	205	44	23
" 81	650	305	59	20
" 82	507	412	38	16
" 83	529	315	56	18
" 84	400	312	38	17
" 85	392	261	43	26
" 86	310	212	46	31
" 87	572	410	89	31
" 88	715	515	71	28
" 89	972	360	60	21
" 90	859	308	89	35
" 91	802	311	37	21
" 92	1470	1058	146	16
" 93	1612	1100	111	23
" 94	1715	1515	109	12
" 95	2900	2210	149	12

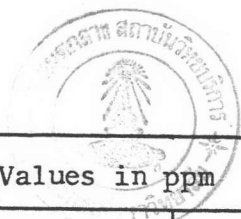
Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 96	1977	2015	83	15
" 97	110	111	46	14
" 98	95	151	49	16
" 99	156	360	200	21
" 100	167	220	43	23
" 101	151	252	65	17
" 102	150	210	52	14
" 103	153	205	39	19
" 104	150	218	52	28
" 105	165	218	58	30
" 106	211	257	42	31
" 107	2512	3110	197	13
" 108	1100	1950	190	18
" 109	1400	1900	171	23
" 110	1154	1215	129	17
" 111	962	578	52	23
" 112	874	928	152	30
" 113	895	425	77	20
" 114	630	557	97	16
" 115	605	458	61	21
" 116	621	412	55	21
" 117	440	310	48	21
" 118	420	561	84	29
" 119	315	368	55	13
" 120	311	250	58	31

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 121	317	251	29	19
" 122	110	85	19	34
" 123	166	116	35	14
" 124	168	125	35	21
" 125	157	120	45	22
" 126	872	578	39	17
" 127	1050	727	55	15
" 128	1195	615	35	19
" 129	991	420	45	24
" 130	1210	910	48	21
" 131	1570	1425	87	24
" 132	224	327	145	62
" 133	121	315	48	31
" 134	150	213	42	41
" 135	110	250	103	36
" 136	106	148	35	31
" 137	6170	4210	174	9
" 138	4958	4165	113	10
" 139	5110	3870	90	7
" 140	6100	4125	132	12
" 141	4750	4125	112	12
" 142	5740	6110	645	19
" 143	2175	3875	242	19
" 144	1750	1560	97	22
" 145	1570	2914	165	16

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 146	1100	975	74	17
" 147	1766	2872	77	16
" 148	1800	1310	68	19
" 149	3570	4120	190	13
" 150	4850	3578	113	10
" 151	5853	2570	130	7
" 152	972	510	68	22
" 153	2155	675	43	10
" 154	4152	1880	76	12
" 155	3571	2110	184	13
" 156	2200	1456	127	16
" 157	2285	1872	151	12
" 158	1412	1550	149	17
" 159	1215	650	84	23
" 160	950	680	62	13
" 161	678	451	54	18
" 162	672	585	78	17
" 163	670	720	100	29
" 164	515	720	68	22
" 165	658	515	49	14
" 166	540	650	68	22
" 167	514	1150	141	20
" 168	495	1270	100	20
" 169	210	268	37	33
" 170	215	240	51	20

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 171	160	89	31	19
" 172	165	251	57	28
" 173	212	311	60	17
" 174	310	805	29	16
" 175	209	315	43	22
" 176	165	110	37	22
" 177	117	62	43	23
" 178	180	62	37	19
" 179	95	115	46	23
" 180	112	120	57	17
" 181	180	120	51	22
" 182	126	150	49	30
" 183	65	141	17	15
" 184	67	105	26	20
" 185	49	42	20	20
" 186	35	48	26	16
" 187	24	42	51	20
" 188	57	61	46	17
" 189	71	51	34	23
" 190	47	55	49	17
" 191	398	505	91	33
" 192	605	410	77	30
" 193	494	245	60	22
" 194	1450	1218	77	18
" 195	1455	1578	97	14

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 196	4110	4100	160	10
" 197	3550	3350	120	13
" 198	1100	398	40	32
" 199	3220	3572	263	15
" 200	4610	5910	234	10
" 201	2250	2110	87	14
" 202	2150	1150	55	12
" 203	1675	755	39	21
" 204	1455	810	63	18
" 205	2470	2810	161	23
" 206	2211	1205	61	18
" 207	1875	1310	79	19
" 208	2896	2100	84	18
" 209	3500	3520	116	18
" 210	5470	5531	226	12
" 211	3225	4915	116	12
" 212	3810	4110	153	7
" 213	4895	7558	1053	11
" 214	6117	6050	463	12
" 215	6125	6514	508	7
" 216	5980	6115	532	7
" 217	6742	6824	484	4
" 218	6274	7058	261	11
" 219	5012	3810	163	11
" 220	6570	3715	168	7



Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 221	7100	4100	200	10
" 222	5150	5675	258	7
" 223	6632	3512	121	7
" 224	612	614	68	11
" 225	810	940	87	16
" 226	1670	1810	187	19
" 227	2214	3605	129	11
" 228	2955	3078	153	12
" 229	2946	1874	147	9
" 230	2458	2100	134	9
" 231	2375	3110	163	11
" 232	2470	2724	121	11
" 233	4875	3615	168	12
" 234	1700	5270	484	11
" 235	1972	2315	89	11
" 236	2100	2215	103	7
" 237	2230	2540	126	9
" 238	3515	2080	137	12
" 239	87	61	37	21
" 240	57	49	18	33
" 241	36	30	26	47
" 242	9	25	16	19
" 243	62	25	29	18
" 244	52	45	13	18
" 245	57	61	42	21

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 246	110	98	29	19
" 247	49	29	21	26
" 248	29	51	29	19
" 249	48	61	42	16
" 250	39	72	11	21
" 251	48	45	30	37
" 252	21	32	30	19
" 253	24	31	33	21
" 254	21	45	27	22
" 255	32	45	15	28
" 256	9	50	21	24
" 257	30	50	27	24
" 258	32	41	21	21
" 259	9	45	33	31
" 260	38	45	39	31
" 261	48	55	36	21
" 262	4250	2040	191	26
" 263	6110	4110	206	15
" 264	3375	1375	176	22
" 265	7160	5770	409	17
" 266	3572	5210	109	11
" 267	6970	5535	176	22
" 268	5176	5045	224	19
" 269	8570	5980	382	24
" 270	12700	12100	1273	19

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 271	5172	4270	373	22
" 272	3872	2100	124	28
" 273	2110	1225	203	31
" 274	3956	4570	248	17
" 275	6217	6010	727	15
" 276	6750	3845	73	20
" 277	3815	2770	152	11
" 278	2600	1500	191	22
" 279	1710	1100	88	15
" 280	1500	1675	145	19
" 281	1950	3615	727	33
" 282	578	490	52	20
" 283	612	267	70	19
" 284	323	550	55	18
" 285	3410	3315	188	7
" 286	2950	4568	221	12
" 287	3497	5210	358	13
" 288	4610	6215	212	11
" 289	4110	5960	367	9
" 290	3780	4670	376	13
" 291	4950	6125	336	9
" 292	5470	2990	212	4
" 293	72	115	39	30
" 294	41	51	45	35
" 295	67	108	55	17

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 296	1350	1300	130	22
" 297	1400	2812	145	17
" 298	20	37	36	10
" 299	19	41	36	9
" 300	41	35	24	17
" 301	22	41	18	20
" 302	46	32	15	17
" 303	39	45	33	13
" 304	95	151	36	17
" 305	1100	205	61	33
" 306	972	155	48	22
" 307	2500	2710	179	30
" 308	972	1100	73	18
" 309	550	615	45	28
" 310	618	921	103	28
" 311	69	68	18	14
" 312	160	1375	39	13
" 313	875	512	118	15
" 314	1500	110	170	11
" 315	756	470	100	22
" 316	312	215	52	20
" 317	123	372	100	17
" 318	432	415	96	22
" 319	191	178	52	27
" 320	92	160	30	27

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III- 321	195	115	22	7
" 322	61	120	52	18
" 323	31	69	13	20
" 324	27	71	22	16
" 325	41	41	13	7
" 326	61	32	26	7
" 327	41	51	17	11

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

Chemical analysis for Cr, Ni, Co and Cu in right bank soils,
Amphoe Wang Nam Yen, Changwat Prachin Buri

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 1R	80	78	43	18
" 2R	85	89	21	17
" 3R	123	72	32	20
" 4R	157	110	39	23
" 5R	215	121	43	23
" 6R	250	154	36	21
" 7R	122	115	104	36
" 8R	257	251	64	26
" 9R	310	210	50	20
" 10R	9	9	18	5
" 11R	9	9	11	14
" 12R	9	9	nil	3
" 13R	9	9	nil	13
" 14R	59	15	14	12
" 15R	110	86	32	21
" 16R	130	110	111	35
" 17R	85	61	21	21
" 18R	67	59	29	29
" 19R	95	58	25	23
" 20R	67	60	25	33
" 21R	64	68	21	33
" 22R	56	75	37	38

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 23R	59	65	34	17
" 24R	54	70	44	33
" 25R	59	72	28	17
" 26R	104	81	174	45
" 27R	103	67	103	39
" 28R	147	90	69	48
" 29R	123	112	75	23
" 30R	512	420	47	23
" 31R	297	252	72	33
" 32R	236	115	44	30
" 33R	108	120	81	23
" 34R	142	121	68	39
" 35R	9212	20500	3240	27
" 36R	1932	11275	272	15
" 37R	1100	950	92	33
" 38R	3945	2657	276	18
" 39R	972	463	128	32
" 40R	2472	1975	416	26
" 41R	448	411	136	21
" 42R	472	325	160	33
" 43R	350	218	76	20
" 44R	754	617	88	33
" 45R	1100	525	84	27
" 46R	980	453	76	26
" 47R	150	612	144	52

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 48R	141	68	20	21
" 49R	150	678	176	55
" 50R	89	62	28	20
" 51R	140	111	54	28
" 52R	130	67	59	18
" 53R	72	82	32	20
" 54R	117	53	35	17
W 55R	52	47	11	10
" 56R	32	35	16	15
" 57R	41	80	27	22
" 58R	535	425	76	32
" 59R	1624	832	78	22
" 60R	1850	1050	89	23
" 61R	2117	1800	154	30
" 62R	2972	1450	181	23
" 63R	979	480	41	15
" 64R	427	290	27	37
" 65R	1910	1350	154	23
" 66R	7212	3678	114	15
" 67R	8970	6415	272	6
" 68R	542	270	46	11
" 69R	627	610	64	28
" 70R	426	478	154	32
" 71R	60	60	8	5
" 72R	62	72	38	17

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 73R	69	51	23	23
" 74R	52	55	21	22
" 75R	69	22	18	12
" 76R	56	30	23	23
" 77R	76	17	36	18
" 78R	81	60	36	38
" 79R	85	61	28	22
" 80R	115	355	136	42
" 81R	320	310	36	18
" 82R	295	179	51	22
" 83R	285	510	164	32
" 84R	272	378	74	31
" 85R	197	160	40	28
" 86R	190	215	60	34
" 87R	679	510	49	23
" 88R	695	318	51	28
" 89R	428	322	69	32
" 90R	619	800	100	57
" 91R	408	215	51	35
" 92R	675	416	71	20
" 93R	672	950	97	35
" 94R	763	1415	100	15
" 95R	3270	1376	117	14
" 96R	3295	4100	280	17
" 97R	62	65	34	22

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 98R	128	151	49	19
" 99R	139	212	51	25
" 100R	201	310	51	22
" 101R	197	215	65	17
" 102R	144	224	45	23
" 103R	165	212	48	23
" 104R	192	230	81	26
" 105R	198	230	55	36
" 106R	187	358	65	33
" 107R	1950	3110	294	13
" 108R	1100	1380	116	17
" 109R	1710	1485	123	21
" 110R	1615	1510	216	19
" 111R	732	270	90	18
" 112R	608	510	158	41
" 113R	511	365	77	18
" 114R	872	516	87	21
" 115R	405	457	65	17
" 116R	328	270	74	23
" 117R	282	415	39	16
" 118R	367	355	55	28
" 119R	325	412	77	18
" 120R	398	215	81	28
" 121R	268	252	65	18
" 122R	68	91	39	34

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 123R	139	110	26	21
" 124R	95	108	26	17
" 125R	137	100	35	17
" 126R	1115	732	52	21
" 127R	1380	978	110	24
" 128R	938	956	74	22
" 129R	1215	550	77	28
" 130R	1446	961	55	22
" 131R	352	106	42	38
" 132R	116	210	68	38
" 133R	243	268	58	36
" 134R	135	172	90	52
" 135R	97	95	29	24
" 136R	81	90	13	22
" 137R	6720	15200	255	17
" 138R	6872	7110	329	17
" 139R	6872	4880	174	18
" 140R	8864	8900	500	19
" 141R	6959	6112	174	13
" 142R	4210	4774	245	12
" 143R	2850	2850	161	24
" 144R	1775	2110	119	22
" 145R	1922	2450	165	19
" 146R	1442	1870	400	19
" 147R	2447	3540	200	21

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 148R	2872	2512	239	22
" 149R	6956	3578	61	14
" 150R	5156	5610	213	12
" 151R	6150	3975	157	9
" 152R	450	155	73	16
" 153R	2900	1100	168	17
" 154R	6951	2872	78	14
" 155R	3578	1346	208	19
" 156R	4782	3115	373	23
" 157R	2472	1673	108	19
" 158R	478	463	62	51
" 159R	1100	852	168	28
" 160R	1217	510	51	20
" 161R	712	1210	162	35
" 162R	694	786	89	23
" 163R	695	790	100	23
" 164R	617	685	70	22
" 165R	620	650	62	17
" 166R	514	1100	108	23
" 167R	282	350	54	26
" 168R	215	378	37	33
" 169R	205	125	89	38
" 170R	142	212	57	32
" 171R	110	80	31	25
" 172R	180	318	114	28

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 173R	186	113	40	16
" 174R	110	150	49	13
" 175R	134	175	49	38
" 176R	100	165	60	30
" 177R	120	90	51	22
" 178R	112	45	89	21
" 179R	142	63	49	29
" 180R	122	115	46	23
" 181R	170	112	51	28
" 182R	97	105	23	26
" 183R	49	112	31	18
" 184R	57	78	37	18
" 185R	67	80	34	23
" 186R	28	52	34	16
" 187R	24	61	51	17
" 188R	38	75	9	14
" 189R	39	55	17	35
" 190R	87	90	49	35
" 191R	472	505	71	28
" 192R	629	450	54	25
" 193R	978	1050	86	17
" 194R	1880	1340	86	17
" 195R	1875	678	86	12
" 196R	7952	3915	123	14
" 197R	4875	6550	149	22

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 198R	1115	445	51	41
" 199R	2957	5110	43	57
" 200R	5110	5500	529	13
" 201R	2756	2700	211	14
" 202R	1478	675	71	21
" 203R	1876	1310	121	21
" 204R	1112	1100	71	18
" 205R	2724	2115	129	23
" 206R	1718	478	189	18
" 207R	782	180	32	12
" 208R	1125	1210	50	33
" 209R	5620	7856	495	14
" 210R	3826	6100	245	11
" 211R	2172	5765	229	14
" 212R	4115	8510	279	7
" 213R	7595	3100	763	7
" 214R	22570	6954	974	12
" 215R	9170	8910	139	9
" 216R	10100	7985	553	9
" 217R	9982	6857	339	11
" 218R	12500	3972	105	7
" 219R	9895	5100	192	17
" 220R	8170	3578	111	14
" 221R	8964	11000	174	9
" 222R	6455	5800	242	11

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 223R	6270	5150	132	7
" 224R	715	1350	97	21
" 225R	432	478	89	33
" 226R	1224	1432	74	19
" 227R	3950	5475	187	12
" 228R	3670	5890	500	12
" 229R	4254	2575	789	14
" 230R	2210	4110	155	11
" 231R	4100	7250	632	12
" 232R	5874	6140	921	9
" 233R	4278	3315	111	12
" 234R	3110	2178	61	11
" 235R	3972	2059	124	11
" 236R	3238	2110	76	9
" 237R	5020	4700	316	11
" 238R	10570	11500	2289	15
" 239R	65	43	16	16
" 240R	41	25	11	18
" 241R	36	25	16	32
" 242R	27	24	16	42
" 243R	75	30	13	14
" 244R	61	50	13	16
" 245R	41	61	8	16
" 246R	92	62	61	19
" 247R	38	40	18	18

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 248R	32	55	16	23
" 249R	60	48	26	21
" 250R	51	48	11	16
" 251R	38	42	30	24
" 252R	9	35	33	19
" 253R	22	45	18	26
" 254R	26	61	55	26
" 255R	38	61	15	35
" 256R	31	30	30	37
" 257R	35	35	36	24
" 258R	27	35	42	39
" 259R	27	48	30	26
" 260R	32	31	27	33
" 261R	41	50	55	16
" 262R	3957	3150	294	37
" 263R	12350	9700	606	22
" 264R	5375	3112	115	24
" 265R	9780	8115	606	17
" 266R	6485	3472	133	7
" 267R	6352	6200	194	15
" 268R	6854	4910	270	33
" 269R	16700	6815	909	20
" 270R	14570	6010	545	13
" 271R	3860	3330	303	24
" 272R	4112	2512	412	24

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 273R	2950	1753	158	22
" 274R	4976	6114	264	20
" 275R	10600	24000	1030	15
" 276R	8975	15100	788	9
" 277R	4976	4080	158	9
" 278R	2155	2611	455	26
" 279R	2954	2600	188	17
" 280R	2730	2050	112	19
" 281R	2112	1550	88	26
" 282R	712	958	91	30
" 283R	788	510	52	22
" 284R	600	554	303	18
" 285R	3320	4510	115	9
" 286R	3270	2674	194	14
" 287R	4676	6115	382	9
" 288R	4567	11100	173	11
" 289R	5566	5310	291	7
" 290R	5710	6080	348	9
" 291R	7500	3856	109	7
" 292R	12150	11120	2121	11
" 293R	59	71	24	35
" 294R	45	36	30	35
" 295R	41	65	18	22
" 296R	650	415	73	37
" 297R	1120	10100	255	24

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 298R	28	40	36	13
" 299R	51	35	21	7
" 300R	37	42	21	13
" 301R	39	25	12	26
" 302R	37	25	15	33
" 303R	44	41	33	18
" 304R	110	105	58	13
" 305R	2010	200	64	26
" 306R	750	310	70	35
" 307R	2995	4970	330	28
" 308R	2250	2350	200	17
" 309R	610	312	33	28
" 310R	1450	712	239	37
" 311R	68	48	15	13
" 312R	2458	3976	61	20
" 313R	2415	6700	258	26
" 314R	315	115	258	20
" 315R	662	815	485	35
" 316R	483	249	73	39
" 317R	175	115	39	22
" 318R	421	168	78	22
" 319R	97	112	52	36
" 320R	180	108	74	38
" 321R	112	110	43	24
" 322R	91	121	48	19

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 323R	27	51	35	22
" 324R	31	92	43	16
" 325R	61	61	39	7
" 326R	72	39	13	16
" 327R	72	45	30	22



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Chemical analysis for Cr, Ni, Co and Cu in left bank soils,
Amphoe Wang Nam Yen, Changwat Prachin Buri

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 1L	172	211	61	26
" 2L	162	123	18	20
" 3L	115	142	121	23
" 4L	267	178	14	23
" 5L	122	160	32	15
" 6L	220	151	54	19
" 7L	275	143	39	24
" 8L	162	149	500	61
" 9L	185	150	39	23
" 10L	9	6	7	8
" 11L	9	9	14	10
" 12L	6	9	nil	2
" 13L	9	9	14	16
" 14L	42	12	11	11
" 15L	122	110	61	42
" 16L	141	85	64	35
" 17L	72	76	36	24
" 18L	42	64	33	18
" 19L	95	60	46	26
" 20L	95	71	29	27
" 21L	76	79	25	39
" 22L	75	82	87	44
" 23L	59	75	44	32

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 24L	69	62	22	27
" 25L	69	51	59	32
" 26L	95	72	34	24
" 27L	82	64	31	17
" 28L	236	156	50	24
" 29L	275	162	34	24
" 30L	420	310	38	20
" 31L	514	415	34	24
" 32L	217	160	131	37
" 33L	112	110	169	24
" 34L	87	118	48	32
" 35L	7900	8150	1200	14
" 36L	2951	7565	288	12
" 37L	2519	2015	376	30
" 38L	3150	3918	420	23
" 39L	545	450	156	14
" 40L	600	852	60	53
" 41L	1030	448	88	35
" 42L	654	622	236	35
" 43L	250	316	118	36
" 44L	1118	40	68	30
" 45L	1514	325	156	39
" 46L	1200	816	252	33
" 47L	120	60	24	27
" 48L	129	510	324	23

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 49L	128	212	76	44
" 50L	73	89	20	17
" 51L	120	421	230	45
" 52L	80	61	30	18
" 53L	98	72	16	22
" 54L	42	81	8	15
" 55L	42	61	11	12
" 56L	47	45	19	15
" 57L	48	48	38	23
" 58L	190	110	46	37
" 59L	1210	615	54	20
" 60L	955	290	51	32
" 61L	1118	650	41	35
" 62L	2850	870	105	13
" 63L	3320	3050	303	18
" 64L	785	650	103	22
" 65L	4470	2910	89	18
" 66L	3900	6370	178	12
" 67L	8317	7515	543	8
" 68L	224	415	46	16
" 69L	112	180	38	45
" 70L	570	512	62	20
" 71L	75	60	21	14
" 72L	69	75	23	20
" 73L	75	49	51	31

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 74L	67	61	13	22
" 75L	52	14	15	12
" 76L	45	15	28	21
" 77L	85	29	26	22
" 78L	79	31	18	14
" 79L	90	60	18	20
" 80L	112	110	52	26
" 81L	370	248	41	23
" 82L	280	210	31	17
" 83L	297	315	36	23
" 84L	315	326	49	24
" 85L	220	250	103	38
" 86L	143	205	34	25
" 87L	312	215	57	42
" 88L	1072	322	83	42
" 89L	879	461	66	34
" 90L	1114	212	51	28
" 91L	375	305	37	26
" 92L	1635	715	69	23
" 93L	1500	510	51	25
" 94L	850	448	91	17
" 95L	1110	535	80	18
" 96L	1800	990	140	17
" 97L	75	81	23	17
" 98L	128	110	31	22

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 99L	122	100	60	31
" 100L	192	162	49	23
" 101L	112	89	29	20
" 102L	168	215	35	23
" 103L	122	220	55	21
" 104L	190	255	71	26
" 105L	198	412	100	34
" 106L	95	268	65	26
" 107L	1478	4110	100	11
" 108L	1315	3985	335	18
" 109L	1850	1690	177	31
" 110L	1272	715	74	21
" 111L	1118	255	106	26
" 112L	756	616	81	26
" 113L	631	570	142	23
" 114L	975	651	110	23
" 115L	429	478	55	21
" 116L	432	260	58	28
" 117L	295	510	90	21
" 118L	315	325	52	29
" 119L	272	350	65	16
" 120L	309	175	110	31
" 121L	262	208	55	29
" 122L	97	73	26	34
" 123L	142	110	23	22

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 124L	115	158	35	21
" 125L	112	108	52	21
" 126L	979	972	58	22
" 127L	1418	756	48	22
" 128L	1270	810	77	21
" 129L	873	155	65	41
" 130L	1112	975	58	24
" 131L	1494	2010	268	31
" 132L	652	1445	116	24
" 133L	432	856	103	62
" 134L	135	161	32	36
" 135L	97	79	26	26
" 136L	92	110	35	33
" 137L	11220	9110	435	9
" 138L	7254	7860	542	13
" 139L	6950	9175	326	16
" 140L	8275	13500	568	19
" 141L	7210	5872	94	17
" 142L	11550	8015	290	16
" 143L	2215	4870	248	19
" 144L	1450	5110	129	29
" 145L	1965	2100	148	21
" 146L	615	1250	400	57
" 147L	1950	2976	142	16
" 148L	3150	1390	35	22

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 149L	3955	4450	161	17
" 150L	3270	7115	219	10
" 151L	5072	3772	149	9
" 152L	600	214	35	45
" 153L	2876	2115	54	12
" 154L	5744	2850	84	9
" 155L	2111	1345	157	12
" 156L	3951	1674	178	14
" 157L	1975	1210	122	18
" 158L	1650	850	89	19
" 159L	1470	910	103	20
" 160L	1115	260	62	17
" 161L	912	455	76	25
" 162L	735	710	105	17
" 163L	771	2100	481	42
" 164L	435	750	162	39
" 165L	658	1415	246	33
" 166L	615	1372	170	26
" 167L	470	550	73	23
" 168L	210	310	29	32
" 169L	270	68	57	16
" 170L	191	215	77	28
" 171L	129	115	69	18
" 172L	224	250	83	23
" 173L	197	120	51	14

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 174L	112	125	43	14
" 175L	215	353	89	29
" 176L	140	115	40	35
" 177L	129	78	17	23
" 178L	110	62	29	22
" 179L	321	412	237	41
" 180L	131	110	49	21
" 181L	156	151	71	42
" 182L	179	112	74	23
" 183L	31	123	29	21
" 184L	63	61	31	25
" 185L	48	43	31	39
" 186L	38	52	60	22
" 187L	29	55	60	20
" 188L	42	78	11	23
" 189L	61	50	29	35
" 190L	39	75	46	14
" 191L	376	490	89	41
" 192L	576	358	49	25
" 193L	510	110	26	23
" 194L	1672	1250	71	21
" 195L	1974	780	71	14
" 196L	8750	6115	206	91
" 197L	3212	3270	123	7
" 198L	955	278	60	55

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 199L	3755	7910	440	22
" 200L	7115	8100	529	16
" 201L	1700	1350	63	18
" 202L	852	1210	79	21
" 203L	672	160	45	16
" 204L	976	515	87	35
" 205L	2915	2443	142	18
" 206L	3170	1875	84	16
" 207L	2750	1018	242	15
" 208L	1875	295	45	21
" 209L	7696	1450	24	21
" 210L	6971	8100	221	16
" 211L	3468	7800	321	16
" 212L	4210	6015	368	4
" 213L	5540	3476	187	12
" 214L	9890	11100	974	12
" 215L	7010	5100	76	7
" 216L	5130	5112	284	7
" 217L	8875	5100	205	4
" 218L	8110	4175	103	9
" 219L	7517	4210	163	12
" 220L	11100	5110	142	12
" 221L	9272	5150	174	7
" 222L	9112	9110	711	16
" 223L	8750	5885	208	5

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 224L	712	590	79	19
" 225L	805	915	113	21
" 226L	3300	3210	358	14
" 227L	4110	7900	632	16
" 228L	3670	4175	321	14
" 229L	4627	2272	684	12
" 230L	3210	3654	137	5
" 231L	3972	11100	1553	11
" 232L	4951	7155	1000	11
" 233L	6678	9170	816	12
" 234L	2412	2420	47	11
" 235L	3810	2150	10	11
" 236L	3722	2100	76	9
" 237L	8750	7115	789	9
" 238L	6950	8300	763	14
" 239L	91	51	24	17
" 240L	72	40	13	39
" 241L	32	35	18	21
" 242L	9	28	18	16
" 243L	52	60	16	12
" 244L	41	45	11	14
" 245L	57	49	34	15
" 246L	55	98	16	16
" 247L	39	31	37	14
" 248L	36	65	32	18

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 249L	46	50	50	18
" 250L	36	48	24	12
" 251L	35	45	48	31
" 252L	19	30	33	31
" 253L	21	35	39	35
" 254L	24	39	39	24
" 255L	35	60	42	43
" 256L	9	35	24	33
" 257L	35	41	39	21
" 258L	29	41	33	28
" 259L	21	50	45	37
" 260L	38	28	42	30
" 261L	39	45	30	28
" 262L	2170	1478	197	31
" 263L	5988	7100	545	20
" 264L	1586	1010	273	24
" 265L	6270	3254	209	17
" 266L	5975	4375	221	13
" 267L	7170	4850	139	15
" 268L	6372	3641	139	15
" 269L	9110	6578	554	17
" 270L	11150	3710	118	15
" 271L	3570	2657	252	24
" 272L	2755	5110	85	24
" 273L	1972	1015	58	24

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 274L	4175	4871	230	15
" 275L	12700	9421	3515	17
" 276L	13728	7587	1939	19
" 277L	4270	3180	145	9
" 278L	2110	1510	221	24
" 279L	2450	1578	161	22
" 280L	2910	3756	576	23
" 281L	1950	1190	127	24
" 282L	1010	678	106	44
" 283L	1012	259	45	39
" 284L	479	612	130	27
" 285L	4150	4178	297	9
" 286L	4278	3110	209	16
" 287L	4750	7856	909	11
" 288L	8472	4872	173	4
" 289L	3956	6430	270	11
" 290L	5110	3470	176	13
" 291L	6270	4775	306	9
" 292L	8756	8210	1151	13
" 293L	57	78	24	13
" 294L	45	49	42	39
" 295L	52	78	24	19
" 296L	1170	300	36	48
" 297L	1250	4412	267	28
" 298L	35	41	21	9

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 299L	41	51	24	7
" 300L	52	42	27	20
" 301L	41	45	18	28
" 302L	42	30	15	20
" 303L	39	35	24	17
" 304L	85	108	45	13
" 305L	975	211	70	30
" 306L	615	320	76	35
" 307L	2910	2662	155	37
" 308L	1400	756	45	33
" 309L	590	514	61	30
" 310L	915	2810	148	26
" 311L	79	38	21	17
" 312L	2420	4250	36	18
" 313L	4250	1610	1242	52
" 314L	110	67	348	24
" 315L	616	378	76	26
" 316L	418	250	79	30
" 317L	175	278	70	19
" 318L	220	310	96	31
" 319L	112	150	39	36
" 320L	190	200	113	36
" 321L	221	210	87	33
" 322L	71	98	35	20
" 323L	27	69	35	22

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 FII - 324L	31	80	17	20
" 325L	49	62	61	7
" 326L	65	49	26	17
" 327L	61	45	22	22



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Appendix C

List of the high metal values for Cr, Ni, Co and Cu that are excluded primarily from statistical treatment.

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
<u>Stream sediments</u>				
5436 III - 67	7125	—	—	—
" 142	—	—	645	—
" 213	—	7558	1053	—
" 214	—	—	463	—
" 215	—	6514	508	—
" 216	—	—	532	—
" 217	6742	6824	484	—
" 220	6570	—	—	—
" 221	7100	—	—	—
" 223	6632	—	484	—
" 265	7160	—	409	—
" 267	6970	—	—	—
" 269	8570	—	—	—
" 270	12700	12100	1273	—
" 275	6517	6010	727	—
" 276	6750	—	—	—
" 281	—	—	727	—

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
<u>Right bank soils</u>				
5436 III = 35R	9212	20500	3240	—
" 36R	11275	—	—	—
" 67R	8970	—	—	—
" 137R	—	15200	—	—
" 140R	8864	8900	500	—
" 212R	—	8510	—	—
" 213R	—	—	763	—
" 214R	22570	—	974	—
" 215R	9170	8910	—	—
" 216R	10100	—	553	—
" 217R	9982	—	—	—
" 218R	12500	—	—	—
" 219R	9895	—	—	—
" 220R	8170	—	—	—
" 221R	8964	11000	—	—
" 228R	—	—	500	—
" 229R	—	—	789	—
" 231R	—	—	632	—
" 232R	—	—	921	—
" 238R	10570	11500	2289	—
" 263R	12350	9700	606	—
" 265R	9780	8115	606	—
" 269R	16700	—	909	—
" 270R	14500	—	545	—

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 288R	—	11100	—	—
" 292R	12150	11120	2121	—
" 297R	—	10100	—	—
<u>Left bank soils</u>				
5436 III - 8L	—	—	500	—
" 35L	—	8150	1200	—
" 67L	8317	—	543	—
" 133L	—	—	—	62
" 137L	11220	9110	—	—
" 138L	—	—	542	—
" 139L	—	9175	—	—
" 140L	8275	13500	568	—
" 142L	11550	8015	—	—
" 196L	8750	—	—	91
" 200L	—	8100	529	—
" 210L	—	8100	—	—
" 214L	9890	11100	974	—
" 217L	8875	—	—	—
" 218L	8110	—	—	—
" 220L	11100	—	—	—
" 221L	9272	—	—	—
" 222L	9112	9110	711	—
" 223L	8750	—	—	—
" 227L	—	—	632	—
" 229L	—	—	684	—

Sample number	Values in ppm			
	Cr	Ni	Co	Cu
5436 III - 231L	—	11100	—	—
" 232L	—	—	1000	—
" 233L	—	9170	—	—
" 237L	8750	—	—	—
" 238L	—	8300	763	—
" 263L	—	—	545	—
" 269L	9110	—	554	—
" 270L	11150	—	—	—
" 275L	12700	9421	3515	—
" 276L	13728	—	1939	—
" 280L	—	—	576	—
" 287L	—	—	909	—
" 288L	8472	—	—	—
" 292L	8756	8210	1151	—
" 313L	—	—	1242	—

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Biography

Mr. Pinit Kunavat was born in Nakorn Nayok, Thailand, on February 9, 1947. He graduated with a B.Sc. in Geology from Department of Geological Science, Faculty of Science, Chiang Mai University in 1970. Then he started his career with Economic Geology Division, Department of Mineral Resources as exploration geologist. In 1972-1975, he was assigned to work on the exploration of heavy minerals in the southern Thailand, oil shale at Mae Sot, Tak, rock salt and potash salt in the northeastern. From 1976 to present, he was assigned to work as geochemical exploration geologist dealing with geochemical exploration both regional and detailed scales. In the last few years, his task concentrated on the regional geochemical investigation in the western Thailand. He participated in several workshops and training programme, i.e. training on using computer for science and technology in September 1981 at Chulalongkorn University, training on evaluation with computer in March 1983 at the National Statistics Office.

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