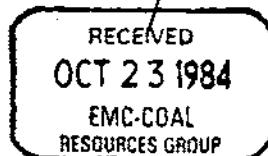


SWEENEY PROSPECT
104-14
CATZ QUALITY FILE

789

MEMORANDUM

ESSO RESOURCES CANADA LIMITED
RESEARCH DEPARTMENT



84 10 18
File: 2647

TO: D. C. D. Parker
A. R. Peach

FROM: J. Allan

RE: Defining Regional Trends in Coal Quality

Summary

Correlation of volatile matter and/or calorific value with reflectance shows that regional trends of coal quality can be defined in a prospect area. Definition of such trends can be useful for rapid prediction of quality as exploration work progresses and for identifying samples which give unusual analytical results, for whatever reason.

This report deals with high rank coals from the Sweeny prospect as an example, but the concept should be valid in other areas and for other ranks of coal. In the Alberta plains for example, it appears that calorific value and reflectance show a consistent relationship and can be used jointly as regional trend indicators. This approach is particularly useful where reliance has to be placed on outcrop samples in reconnaissance work.

Introduction

I have analyzed thirty coal samples for volatile matter and heating value, in addition to the reflectance analyses which were requested (Table 1). The purpose of this memo is to report this quality information and to demonstrate the value of cross-correlating analytical and reflectance data:

- a) to establish regional trends in specific prospects, and
- b) to identify those samples within a collection which give spurious coal quality results.

This approach is particularly applicable when outcrop samples are used for prospect assessment.

Volatile Matter and Reflectance

Figure 1 shows volatile matter (d.a.f.) plotted against the mean maximum reflectance of vitrinite. The regional trend band has been drawn in to enclose those samples which were identified under the microscope as being of acceptable quality, i.e. non to marginally weathered, and free of significant carbonate minerals. High ash samples (> 25 wt. %), as determined

789

by proximate analysis, have been indicated by a discrete identifying symbol as this is another factor which influences volatile matter.

The trend gives an immediate and clear view of the coal quality within the prospect area free of the influences of spurious samples, and demonstrates that a rational relationship exists between V.M. and R_{max} , as would be anticipated. If exploration and sampling was on-going, the trend could be used predictively through measurement of R_{max} , for rapid quality assessment.

A second point is that the quality of the spurious samples (in this case, spurious data are due mostly to weathering effects) can be estimated by re-plotting the data points, R_{max} being constant, within the regional trend zone. In the present suite, only two samples were found where R_{max} itself may be affected by weathering alteration.

Calorific Value and Reflectance

Figure 2 shows the relationship between calorific value and mean maximum reflectance. Once again, a regional trend is apparent, enclosing most of the samples verified by microscopy. In this case, only small differences exist in heating value in high rank coals, so the principal value of these data lies in estimating the true heating value of clean coal for the samples which are either weathered or contain excessive mineral matter.

Calorific Value and Volatile Matter

Figure 3 shows a crossplot of heating value and volatile matter, both on d.a.f. basis. The data here fall into two distinct fields, with weathering as the main factor in differentiating the two groups. However, as both C.V. and V.M. are in error for the altered samples, estimation of either property to an unaltered basis is not possible with the same resolution as can be achieved by using reflectance as an independent control.

Rank Assessment of Sweeny Coals

Using the A.S.T.M. classification, the regional trend of volatile matter shows that coal rank ranges from low-volatile bituminous to semi-anthracite. This conflicts quite strongly with the reflectance rank (semi-anthracite to anthracite) using reflectance correlations established for European coals. For comparison, I have shown on figure 1 a European reference curve of V.M. against R_{max} , and the divergence of Sweeny coals is very clear. Unfortunately, the reason isn't readily apparent. Possible explanations are geological - rapid burial under high geothermal gradients for Sweeny coals, or high maximum reflectances induced by shearing stresses. I intend to do more work on this, time permitting. I do not think this difference negates the idea of using reflectance for either defining regional quality trends or rank mapping because of the internal consistency, but for utilization potential I would suggest using the regional trend volatile matters for ranking these coals until an explanation is forthcoming.

cc: J. R. Rawling

FIGURE 1.

SWEENV PROSPECT - RELATIONSHIP BETWEEN
VOLATILE MATTER AND VITRINITE

REFLECTANCE

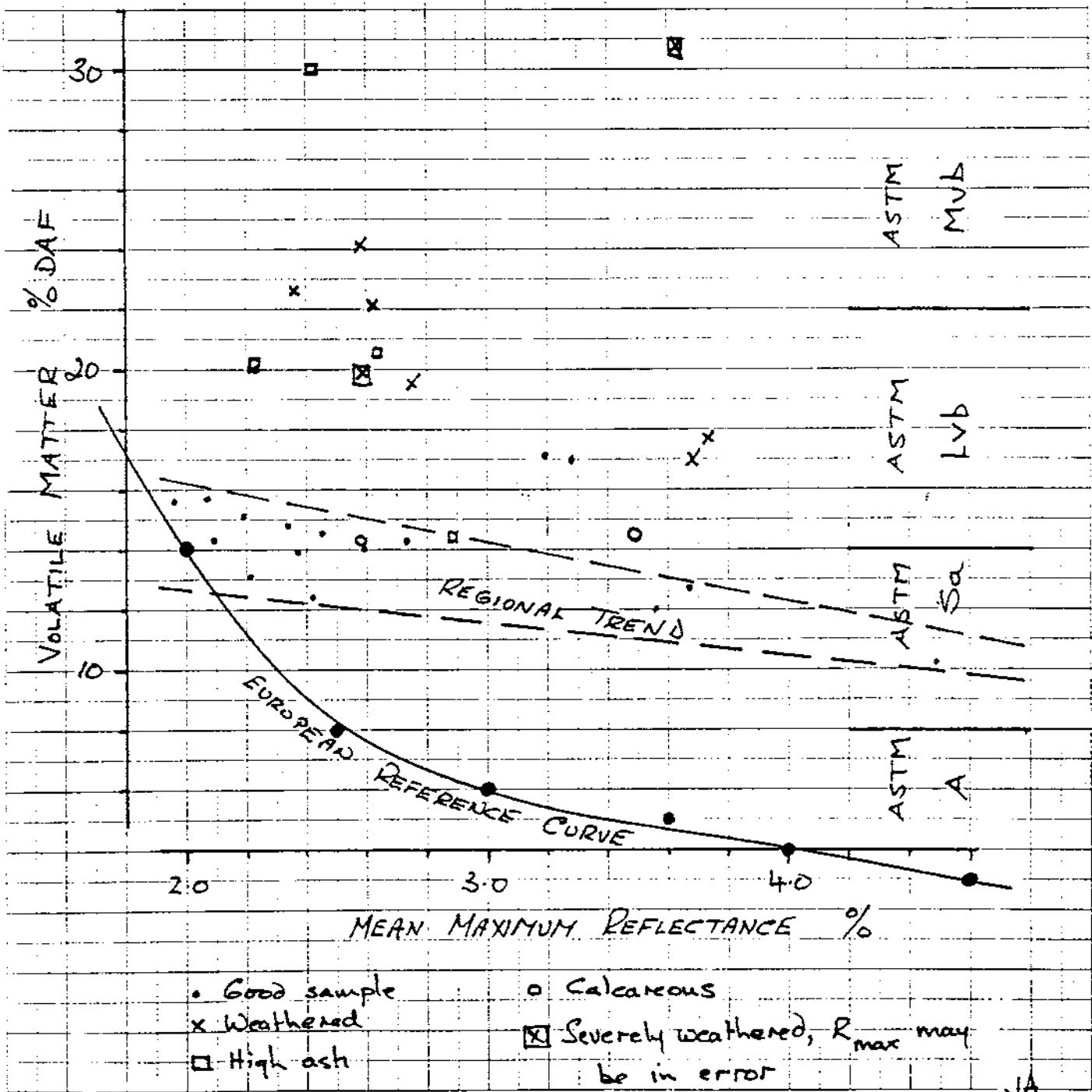


FIGURE 2

SWEENEY PROSPECT - RELATIONSHIP BETWEEN
HEATING VALUE AND VITRINITE
REFLECTANCE

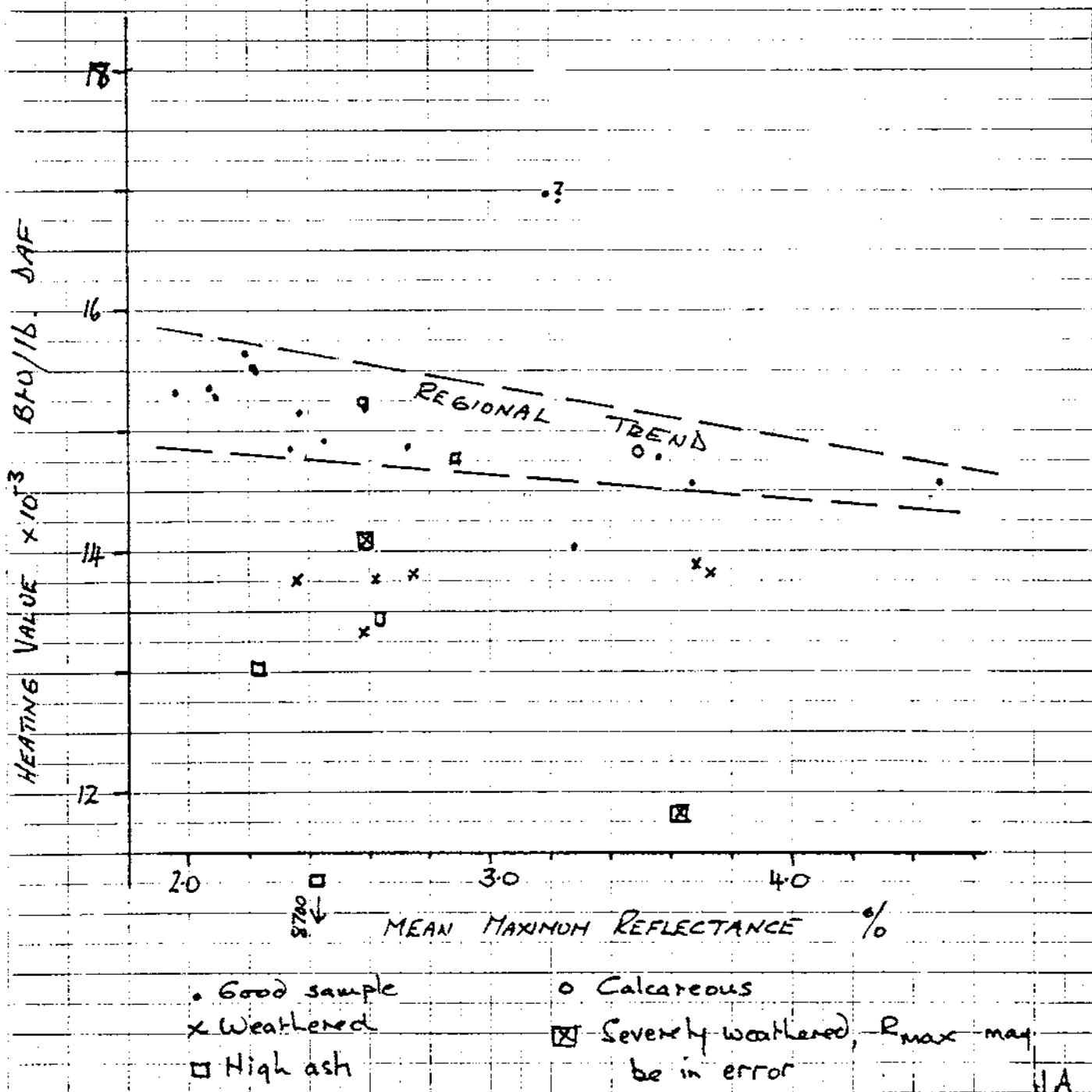


FIGURE 3

SWEENEY PROSPECT - RELATIONSHIP BETWEEN
HEATING VALUE AND VOLATILE
MATTER CONTENT

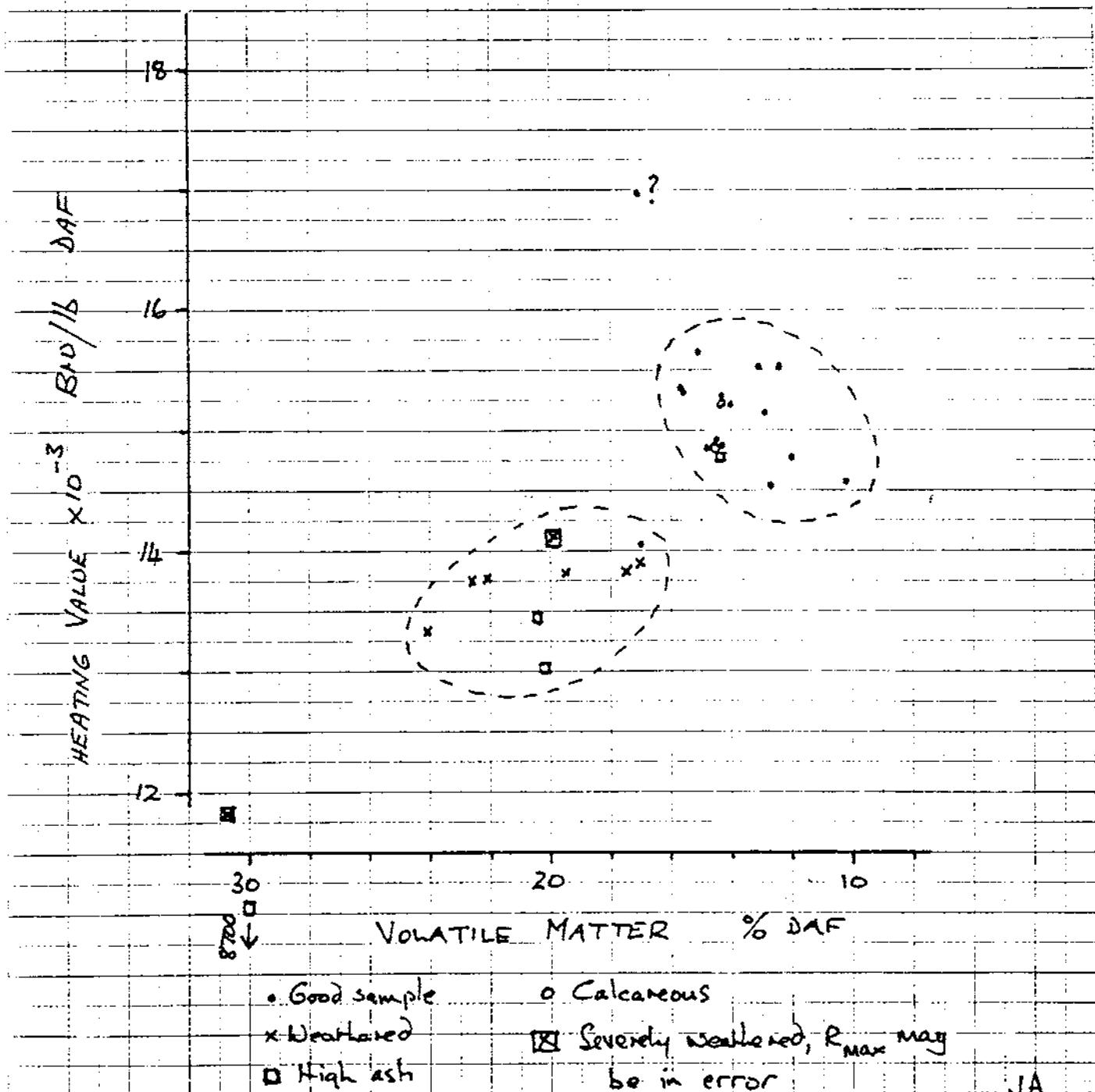


TABLE 1

SWEENEY PROSPECT - ANALYTICAL DATA

	<u>H₂O</u>	VOL %	ASH %	BTU/LB	VOL %	BTU/LB	P _{MAX}
		AS RECEIVED			DAF		
R253 /	0.69	13.08	7.77	13625	14.3	14884	2.73
R254 /	3.54	8.98	8.04	12894	10.2	14583	4.49
DK80	1.60	15.38	8.27	12661	17.0	14047	3.28
JD11 U	2.10	19.24	10.70	12010	22.1	13773	2.62
JS20	8.45	17.82	12.81	10830	22.6	13754	2.36
JS45	5.53	11.34	39.16	7439	20.5	13450	2.63
JS53 CHAN	1.33	10.41	26.17	10716	14.4	14781	2.88
JS63	2.95	12.71	6.04	13842	14.0	15209	2.59
JS78 CHAN	3.63	9.54	16.64	11792	12.0	14790	3.56
T84016	2.39	13.54	11.49	13233	15.7	15366	2.07
T84021	4.22	11.27	14.80	12275	13.0	15158	2.37
T84114	1.72	11.67	9.44	13801	13.1	15535	2.21
T84116 A	2.93	13.20	9.84	13655	15.1	15654	2.19
T84116 B	1.55	12.29	19.73	12056	15.6	15315	1.96
TB84005	14.88	19.20	22.71	7384	30.8	11831	3.63
B84002 AB	0.42	12.04	16.34	12412	14.5	14911	2.45
B84020	1.11	12.58	10.75	13483	14.3	15297	2.09
B84059	2.06	12.02	14.52	12336	14.5	14841	3.49
B84076B	3.67	10.88	42.47	7015	10.2	13025	2.22
IP84008	1.32	8.28	71.08	2400	30.0	8696	2.41
T84003	3.40	10.61	10.75	13329	12.4	15526	2.22
T84004	2.08	10.98	23.53	11049	14.8	14853	2.34
T84008	0.28	12.80	10.47	13599	14.3	15237	2.58
T84033	5.88	12.40	21.51	12329	17.1	16979	3.19
T84094	7.13	16.06	10.26	11396	19.5	13803	2.75
T84097	11.39	19.49	7.62	10804	24.1	13340	2.58
T84103	7.69	16.97	7.07	12024	19.9	14106	2.59
R175 CHAN	3.88	14.67	13.17	11473	17.7	13831	3.73
R177	2.69	11.25	8.43	12947	12.7	14567	3.67
K002 CHAN	3.52	13.59	16.68	11088	17.0	13895	3.68

M E M O R A N D U M

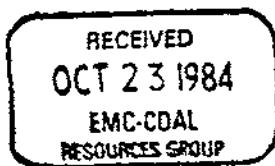
ESSO RESOURCES CANADA LIMITED
RESEARCH DEPARTMENT

Letter No: 45191

TO: A. R. Peach

FROM: J. Allan

RE: Sweeny Prospect - Reflectance Analysis



84 10 18
File: 2647

CC: ARP
GJO
Files

The reflectance data which you requested are attached. The quoted values of reflectance refer to mean maximum reflectance, and S is the standard error of the mean. A rank estimate is indicated based on reflectance, with a value of 2.5% taken as the boundary between semi-anthracite and anthracite. Two samples are flagged with an asterisk (*) - the reflectance values of these may be depressed because of severe weathering.

I have added comments, as applicable, on the microscopic fabrics or characteristics. When interpreting volatile matter data, samples indicated as weathered or shaly, or calcareous may have enhanced volatiles. The pyritic notation indicates syngenetic framboidal pyrite, which usually implies brackish influences at deposition.

I received two samples marked T84116, and T84115 was missing. I labelled the pair A and B. If you have ash data on T84115 and T84116, the lower ash sample (estimated 10%) is my sample T84116B.

I do not think there will be any point in doing maceral analysis. At such high ranks, the optical characteristics of individual macerals are often very similar and the coals appear rather homogeneous. Original sedimentary details are too strongly overwhelmed by the effects of the strong coalification.

The reflectance data cluster into two main groups: 21 samples fall in the range 1.9-2.9%, straddling the semi-anthracite - anthracite boundary. The second group of 8 samples are higher rank - in the range of 3.2 - 3.7%. One remaining sample (R254) is very high rank, and is the only one in the set to show such severe coalification.

Please supply me with a charge number for this work.

JA/mpa

MEAN MAXIMUM REFLECTANCE ANALYSIS

I.D.	<u>%R MAX.</u>	<u>S.D.</u>	<u>REFLECTANCE RANK</u>	<u>COMMENTS</u>
R253	2.73	0.02	Anthracite	
R254	4.49	0.06	Anthracite	
DK80	3.28	0.03	Anthracite	
JD11	2.62	0.02	Anthracite	SWStrongly weathered
JS20	2.36	0.01	Semi-anthracite	SWStrongly weathered
JS45	2.63	0.02	Anthracite	Shaley
JS53	2.88	0.015	Anthracite	FrFractured, mildly weathered Fr
JS63	2.59	0.015	Anthracite	Mildly weathered
JS78	3.56	0.025	Anthracite	
T84016	2.07	0.01	Semi-anthracite	FrFractured, folded, brecciated pyritic, minor calcite.
T84021	2.37	0.02	Semi-anthracite	FrFractured, folded, pyritic
T84114	2.21	0.01	Semi-anthracite	Minor pyrite
T84116A	2.19	0.02	Semi-anthracite	FrFractured, folded, pyritic, mildly weathered, minor calcite.
T84116B	1.96	0.02	Semi-anthracite	FrFractured, pyritic
*T884005	3.63	0.04	Anthracite	SWStrongly weathered
B84002	2.45	0.02	Semi-anthracite	
B84020	2.09	0.01	Semi-anthracite	
B84059	3.49	0.025	Anthracite	FrFractured, abundant calcite
B84076	2.22	0.02	Semi-anthracite	Shaley, pyritic, weathered
IP84008	2.41	0.035	Semi-anthracite	Carbonaceous shale
T84003	2.22	0.01	Semi-anthracite	FrFractured, pyritic
T84004	2.34	0.01	Semi-anthracite	Shaley
T84008	2.58	0.02	Anthracite	Common calcite
T84033	3.19	0.025	Anthracite	FrFractured, slightly weathered
T84094	2.75	0.015	Anthracite	Moderately weathered
T84097	2.58	0.025	Anthracite	Strongly weathered
*T84103	2.59	0.02	Anthracite	Strongly weathered
R175	3.73	0.03	Anthracite	Weathered
R177	3.67	0.03	Anthracite	
K002	3.68	0.05	Anthracite	Weathered

MEMORANDUM



DATE: 1984 09 21
TO: File
FROM: A.R. Peach
SUBJECT: Coal Rank on Sweeny

Twenty-three coal and non-coal samples were submitted to Loring Laboratories for coal quality analyses. These samples were crushed to pass 19 mm and then tested for proximate analyses, calorific value, sulphur and specific gravity. F.S.I. and Equilibrium Moisture % was conducted on 4 samples while H.G.I. was performed on 5 samples. The results are shown in the attached sheets from Loring.

To establish the rank according to A.S.T.M. standards, the data was manipulated using the Parr Formula and the Approximation Formula for D.M.M.F. Fixed Carbon as shown below:

Parr Formula:

$$D.M.M.F. \text{ Fixed Carbon} = ((FC - 0.15S) / [100 - (M + 1.08A + 0.55S)]) \times 100$$

Approximation Formula:

$$D.M.M.F. \text{ Fixed Carbon} = (FC / [100 - (M + 1.1A + 0.1S)]) \times 100$$

where:

Mm = Mineral Matter
F.C. = Fixed Carbon %
S = Sulphur %
M = Equilibrium Moisture %
A = Ash %

with all quantities based on the equilibrium moisture. The Volatile Matter on this basis is the complement of the Fixed Carbon. Using the samples for which I have obtained Equilibrium Moisture %, the Fixed Carbon and Volatile Matter (D.M.M.F.) were calculated and the rank determined and are listed in Table 1.

To further qualify the rank within the property, 30 samples have been sent to Jim Allan in Research for reflectance studies. These samples are randomly taken from both the fluvial and paralic coal zones and differences or similarities noted as part of a statistical study to be completed during the reporting stage. The results will be available mid-October.

ARP/cyg
3247K

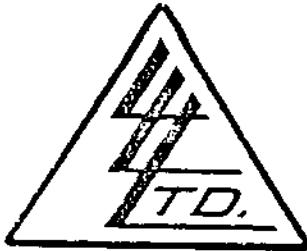
Encls.

A.R. Peach/CYJ

COAL RANK - SWEENEY

SAMPLE #.	FIXED CARBON (DMMF)		VOLATILE MATTER (DMMF)		COAL RANK
	Parr Fm.	Approximate Fm.	Parr Fm.	Approximate Fm.	
T84009 (Coal)	92.6	92.6	7.4	7.4	Anthracite
K002 (Coal)	86.5	86.8	13.5	13.2	Semi Anthracite
R175 (Coal)	91.0	91.1	9.0	8.9	Semi Anthracite
R176 (Coal)	91.1	91.19	8.9	8.81	Semi Anthracite

To: ESSO RESOURCES CANADA LIMITED
237 - 4th Avenue S.W.,
Calgary, Alberta T2P 0H6
Attn: A.R. Peach



File No. 26781
Date September 11, 1987
Samples Coal
P.O.# 02-100810

Certificate of
ASSAY BY
LORING LABORATORIES LTD.

Page # 5

SAMPLE No.	H.G.I (Air Dried)	EQUILIBRIUM MOISTURE
<u>Coal Analysis"</u>		
T 84009 Coal	57	2.0
T 84008 Coal	69	-
K 002 Coal	43	7.0
R 175 Coal	40	6.2
R 176 Coal	40	5.9

I HEREBY CERTIFY THAT THE ABOVE RESULTS ARE THOSE
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.

Pulps Retained one month
unless specific arrangements
made in advance.

A handwritten signature in black ink.

Assayer

ESSO RESOURCES CANADA LIMITED

Attn: G. Ockert

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

P.O. # 100144

FILE NO.: 25262

DATE: September 8, 1983

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY		REC'D % H ₂ O	% H ₂ O	% VOL MATTER	% ASH	% FIXED CARBON	% S	BTU /LB.	F.S.I.	
			SINK	FLOAT									
R-253					Air Dried	-	3.54	9.85	10.30	76.31	.55	12972	
					Dry Basis	-	-	10.21	10.68	79.11	.57	13448	
R-254					Air Dried	-	5.70	6.91	9.34	78.05	.38	12472	
					Dry Basis	-	-	7.33	9.90	82.77	.40	13226	
DK-80					Air Dried	-	6.68	9.55	6.78	76.99	.51	12504	
					Dry Basis	-	-	10.23	7.27	82.50	.55	13399	

ESSO RESOURCES CANADA LIMITED

Attn: A.R. Peach

LORING LABORATORIES, LTD P.O.# 02-100810

FILE NO. 26/81

CERTIFICATE of COAL TESTING Page # 4

DATE: September 1/84

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY		REC'D % H ₂ O	% H ₂ O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU /LB.	F.S.I.	SPECIFIC GRAVITY
			SINK	FLOAT									
R 175		Floor			As Received	8.61	-	7.85	71.61	11.93	.19	1174	2.14
					Air Dried	-	2.35	8.39	76.52	12.74	.20	1254	
					Dry Basis	-	-	8.59	78.36	13.05	.20	1284	
R 175		Coal			As Received	8.20	-	8.21	9.34	74.25	.41	11961	1.41
					Air Dried	-	2.97	8.68	9.87	78.48	.43	12642	
					Dry Basis	-	-	8.95	10.17	80.88	.44	13029	
R 175		Roof			As Received	7.39	-	4.98	84.86	2.77	.06	419	2.48
					Air Dried	-	1.69	5.29	90.08	2.94	.06	445	
					Dry Basis	-	-	5.38	91.63	2.99	.06	453	
R 175		Channel			As Received	11.55	-	10.18	12.94	65.33	.36	10663	-
					Air Dried	-	3.97	11.05	14.05	70.93	.39	11577	
					Dry Basis	-	-	11.51	14.63	73.86	.41	12056	
R		Floor			As Received	3.45	-	4.35	89.27	2.93	.04	931	2.47
					Air Dried	-	1.19	4.45	91.36	3.00	.04	441	
					Dry Basis	-	-	4.50	92.46	3.04	.04	446	
		Coal			As Received	7.68	-	8.20	9.01	75.11	.41	12186	1.41
					Air Dried	-	3.03	8.61	9.46	78.90	.43	12800	
					Dry Basis	-	-	8.88	9.76	81.36	.44	13200	

[Signature]

Weight	Wt. to	1.09	11.76	0.25	1.53	1.1	1.1
1.09	11.76	0.25	1.53	1.1	1.1	1.1	1.1

ESSC RESOURCES CANADA LIMITED

LORING LABORATORIES LTD P.O.# 02-100810

FILE NO.: 26781

DATE: September 11/84

Attn: A.R. Peach

CERTIFICATE of COAL TESTING Page # 3

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY		REC'D % H ₂ O	% H ₂ O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU /LB.	F.S.I.	SPECIFIC GRAVITY
			SINK	FLOAT									
B 84002	A COMBINED FOR B	Coal			As Received	3.88	-	7.92	18.80	69.40	.45	11716	1.49
					Air Dried	-	1.34	8.13	19.30	71.23	.46	12026	
					Dry Basis	-	-	8.24	19.56	72.20	.47	12189	
B 84002	B	Coal			As Received	3.62	-	8.03	12.82	75.53	.59	12790	1.43
					Air Dried	-	1.34	8.22	13.12	77.32	.60	13093	
					Dry Basis	-	-	8.33	13.30	78.37	.61	13271	
B 84002		Parting			As Received	3.52	-	4.61	90.32	1.55	.01	205	2.45
					Air Dried	-	1.53	4.70	92.18	1.59	.01	209	
					Dry Basis	-	-	4.77	93.61	1.62	.01	212	
B 84005 a	A	Coal			As Received	12.34	-	12.37	27.20	48.09	.30	8280	1.62
					Air Dried	-	4.70	13.45	29.57	52.28	.33	9002	
					Dry Basis	-	-	14.11	31.03	54.86	.35	9446	
B 84005 a	B	Coaly Shale			As Received	11.81	-	10.66	37.13	40.40	.26	6724	1.69
					Air Dried	-	2.69	11.76	40.97	44.58	.29	7419	
					Dry Basis	-	-	12.09	42.10	45.81	.30	7624	
B 84005 a	C	Coaly Shale			As Received	16.12	-	13.15	15.49	55.24	.36	9541	1.46
					Air Dried	-	4.89	14.91	17.56	62.64	.41	10818	
					Dry Basis	-	-	15.68	18.46	65.86	.43	11374	

ESSO RESOURCES CANADA LIMITED
Attn: A.R. Peach

LORING LABORATORIES LTD P.O. # 02-100810
CERTIFICATE of COAL TESTING Page # 2

FILE NO. 26781
DATE Septe 11/84

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY		REC'D % H ₂ O	% H ₂ O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU /LB.	F.S.I.	SPECIFIC GRAVITY
			SINK	FLOAT									
K 002		Floor			As Received	11.13	-	9.19	53.37	26.31	.27	4178	1.94
					Air Dried	-	2.53	10.08	58.53	28.86	.30	4582	
					Dry Basis	-	-	10.34	60.05	29.61	.31	4701	
K 002		Coal			As Received	9.60	-	11.70	9.52	69.18	.47	11461	1.42
					Air Dried	-	3.38	12.51	10.17	73.94	.50	12250	
					Dry Basis	-	-	12.95	10.53	76.52	.52	12679	
K 002		Channel			As Received	8.85	-	8.04	34.70	48.41	.27	7601	-
					Air Dried	-	3.29	8.53	36.82	51.36	.29	8065	
					Dry Basis	-	-	8.82	38.07	53.11	.30	8339	
K 001		Coal			As Received	10.87	-	7.83	8.81	72.49	.46	11681	1.41
					Air Dried	-	3.45	8.48	9.54	78.53	.50	12653	
					Dry Basis	-	-	8.78	9.88	81.34	.52	13105	
B 84002		Roof			As Received	4.74	-	4.88	80.89	9.49	.07	1387	2.30
					Air Dried	-	1.56	5.04	83.59	9.81	.07	1433	
					Dry Basis	-	-	5.12	84.91	9.97	.07	1456	
B 84002		Floor			As Received	10.03	-	3.22	85.34	1.41	.04	133	2.49
					Air Dried	-	1.15	3.54	93.76	1.55	.04	146	
					Dry Basis	-	-	3.58	94.85	1.57	.04	148	

ESSO RESOURCES CANADA

Attn: A.R. Peach

LORING LABORATORIES LTD P.O.# 02-100810

FILE NO.: 26781

CERTIFICATE of COAL TESTING Page # 1

DATE: September 11/84

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY		REC'D % H ₂ O	% H ₂ O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU /LB.	F.S.I.	SPECIFIC GRAVITY
			SINK	FLOAT									
T 84009		Coal			As Received	2.84	-	7.40	9.27	80.49	.59	13570	1.41
					Air Dried	-	1.16	7.53	9.43	81.88	.60	13805	
					Dry Basis	-	-	7.62	9.54	82.84	.61	13967	
B 84144		Coal			As Received	9.35	-	6.86	31.90	51.89	.18	7206	1.64
					Air Dried	-	6.42	7.08	32.93	53.57	.19	7439	
					Dry Basis	-	-	7.57	35.19	57.24	.20	7949	
T 84008		Coal			As Received	7.32	-	9.07	10.05	73.56	.47	12713	1.41
					Air Dried	-	.71	9.72	10.77	78.80	.50	13620	
					Dry Basis	-	-	9.79	10.85	79.36	.50	13717	
T 84008		Roof			As Received	1.71	-	8.52	89.62	0.15	.37	211	2.49
					Air Dried	-	.81	8.60	90.44	0.15	.37	213	
					Dry Basis	-	-	8.67	91.18	0.15	.37	215	
T 84008		Floor			As Received	5.01	-	7.44	85.23	2.32	.09	373	2.43
					Air Dried	-	1.56	7.71	88.33	2.40	.09	387	
					Dry Basis	-	-	7.83	89.73	2.44	.09	393	
K 002		Roof			As Received	4.26	-	5.72	88.47	1.55	.04	349	2.46
					Air Dried	-	1.23	5.90	91.27	1.60	.04	360	
					Dry Basis	-	-	5.97	92.41	1.62	.04	364	

KEYPUNCH REQUISITION

NAME: B. NOLAND
 PHONE #: 1355
 ROOM #: 658 ET

PAC #: HWC 0791
 PROG. #:

SPECIAL INSTRUCTIONS:

Serial qf 10

FOUR PHASE CONTROL

JOB NAME NOW BATCH NO 112

DATE RECEIVED _____

ENTERED BY MD

VERIFIED BY SK

DATE TRANSMITTED _____

DATE OUTPUT REQUIRED: _____

SPFADD INPUT SHEET

CARD COL.					
1	4	11	26	45	64
/ /	, 01, UTILS, 00), ,				' MSG LEVEL = 1, CLASS = A'

CARD COL.				
1	10	15		
/ / SPFADD EXEC SPFADD, USER = P , , NAME = 'PL40.ARQ.SWEENEY84..QUAL'				

NOTE: THE "NAME" PARAMETER MUST
BE ENCLOSED BY QUOT MARKS.

CARD COL.			
1	9	12	15
/ / INPUT DD DATA			

DATA HERE

```
***** SPF DATASET ONLY *****
* SPFADD ADD AN SPF DATASET IN BATCH
* USER = P ???
* NAME = 'XXXXXXX' SPF DATASET NAME
* PRIME = PP PRIMARY SPACE ALLOCATION (TRKS) (DEFAULT = 2)
* SECOND = SS SECONDARY SPACE ALLOC. (TRKS) (DEFAULT = 2)
*
* NOTE: IF THE DATASET IS TO BE CREATED FROM OTHER THAN CARDS,
* IE: TAPE, THEN OVER RIDE // INPUT TO POINT TO A TAPE
* DATASET.
*****
```

CARD COL.		
1		
/ *		

Sample II

K002 R

6

8 10 12 14 16 18 20 24 28

		Met	N.H.	Vol	BTU	Sulph	S.O.	F.I.
A AR		.	.	.	.	.	.	.
L AR	4.26	88.47	5.72	349.	.	.04	.	.
L AD	1.23	91.27	5.90	360.	.	.04	2.46	.
	1 3	8	13	18	23	27	31	33

	North	East	Elev
			22

Keep much

5 cards per observation (Sample II)

include ' .'s as these indicate missing data

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Page
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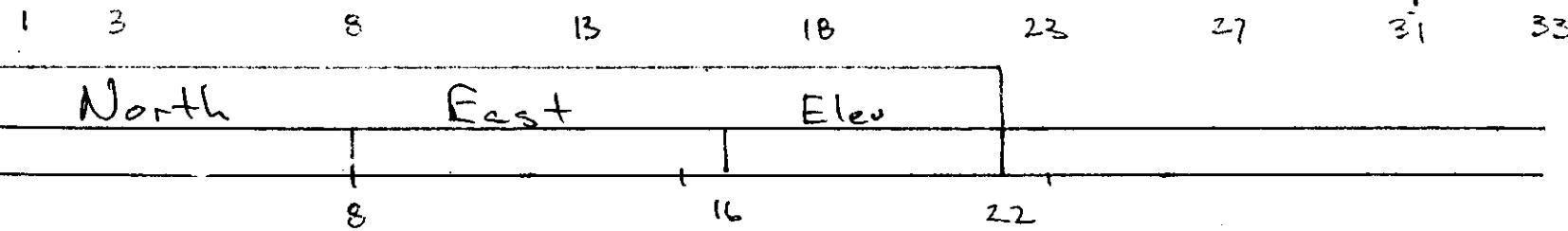
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71

Sample ID	Weathering	Shalliness	Fracturing	Struct Fract.	Calcare	R _o	Error	Rank	Dop Ewt
TB4000F					

Basis	Mot	Ach	Vol	BTU	Sulph	S.G.	FSTI
A AR	.	.	.	.	.	.	.
L AR	5.01	85.23	7.44	373.	.09	.	.
L AD	1.56	88.33	7.71	387.	.09	2.43	.



Kep much

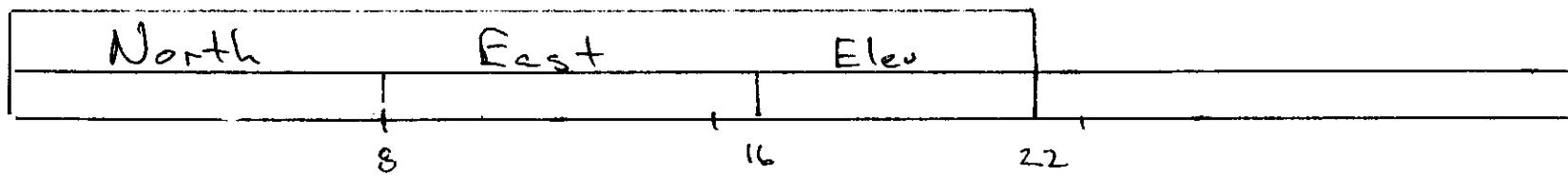
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering	Shallowness	Fracturing	Struc' ~	Fyrite	Calcite	Vol.	Erosn.	Rank	Dif	Env.
T84008R	-	-	-	-	-	-	01	-	-	-	-

<u>Per sq ft</u>	<u>Mst</u>	<u>Ash</u>	<u>Vol</u>	<u>BTU</u>	<u>Sulp</u>	<u>S.G.</u>	<u>FSI</u>
A AR	.	.	.	.	.	.	.
L AR	1.71	89.62	8.52	211.	.37	.	.
L AD	.81	90.44	8.60	213.	.37	2.49	.



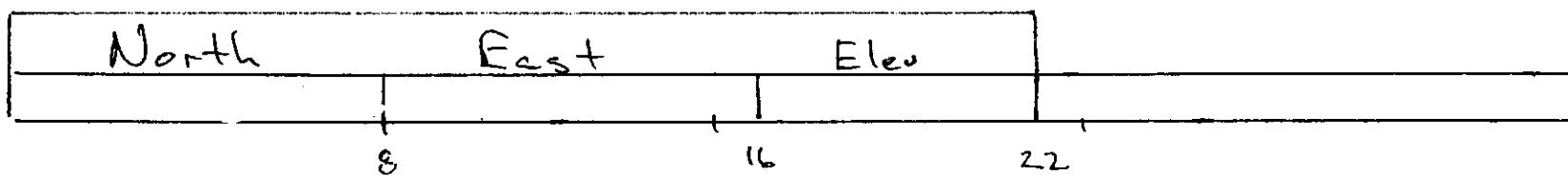
Kep uch

5 cards per observation (Sample ID)

include '.''s as these indicate missing data

Sample ID	Weathering	Shallow	Fracturing	Structure	Fayalite	Calcite	T	Fe con.	Rank	Dsp En.
BB4144	Wet	Shallow	Fracturing	Structure	Fayalite	Calcite	70	10%	1	En.

Basis	Mst	Ach	Vol	BTU	Sulp	S.G.	FSI
A AR	.	.	.	.	.	.	.
L AR	9.35	31.90	6.86	7206.	.18	.	.
L AD	6.42	32.43	7.08	7439.	.19	1.64	.
1	3	8	13	18	23	27	31



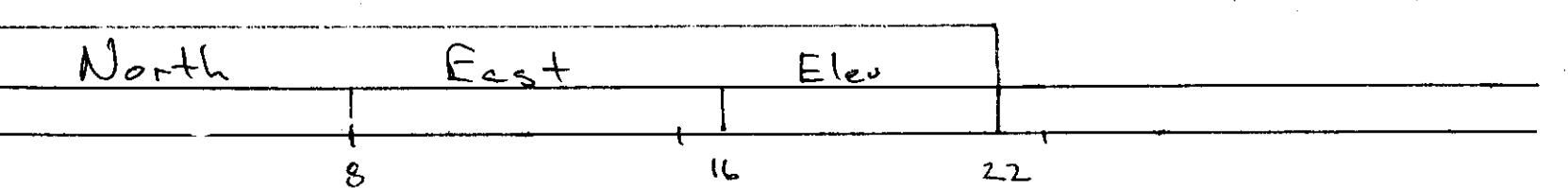
Kep uch

5 cards per observation (Sample ID)

include '·'s as these indicate missing data

Sample ID	Weathering	Shaliness	Fracturing	Stress	Frit	Calcite	R _o	Error	Rank	Dep	Env
TB4009	0	8	10	12	14	16	18	20	24	28	

L	Erosion	Met	Ach	Vol	BTU	Sulph	S.G.	FSI
A	AR	.	.	.	.	.	.	.
L	AR	2.84	9.27	7.40	13570	.59	.	.
L	AD	1.16	9.43	7.53	13805	.60	1.41	0



Kopouch

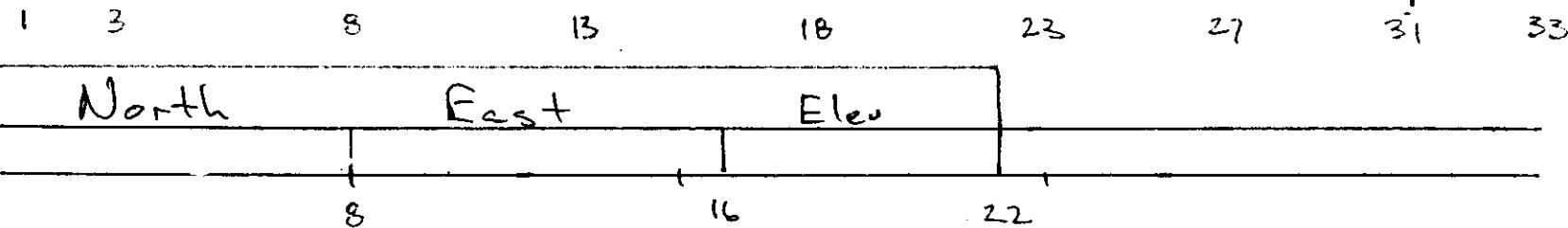
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

~~Notes~~

Sample ID	Weathering	Shalliness	Fracturing	Sieve	Fyrite	Calcite	R ₀	Error	Rank	Dep Env	Card #
B84002F	0	8	10	12	14	16	18	20	24	28	

Test	Mst	Ash	Vol	BTU	Sulf	S.G.	FSI
A AR	.	.	.	.	.	.	.
L AR	10.03	85.34	3.22	133.	.04	.	.
L AD	1.15	93.76	3.54	146.	.04	2.49	.



Kappovich

5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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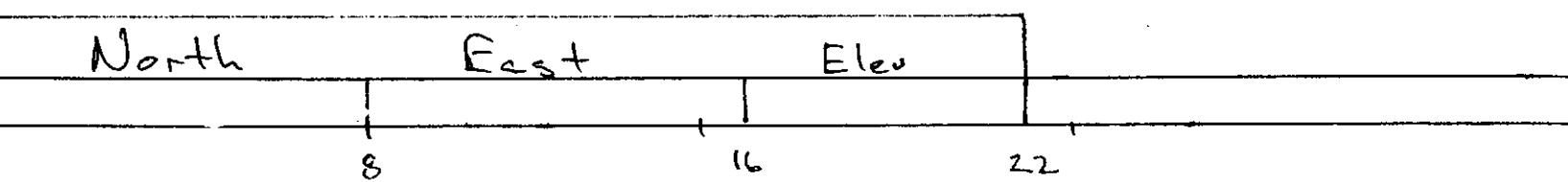
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Sample ID	Weathering	Shaliness	Fraction	Struc'	Pyrite	Calcite	R ₀	Error	Rank	Dep	Env
B84002R						

L	Basis	Met	Ach	Vol	BTU	Sulp	S.G.	FSI
A	AR	.	.	.	.	.	.	.
L	AR	4.74	80.89	4.88	1387.	.07	.	.
L	AD	1.56	83.59	5.04	1433.	.07	2.30	.



Kep much

5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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Card
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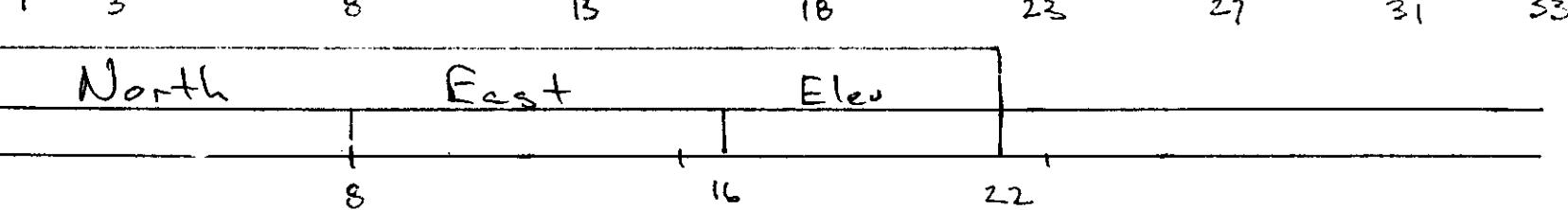
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717

Sample ID	Weathering	Shaliness	Fracturing	Struc'	Pyrite	Calcite	R _o	Error	Rank	Dep	Carb #
K001	0	8	10	12	14	16	18	20	24	28	

Basis	Mst	Ach	Vol	BTU	Sulp	S.G.	FSI
A AR	.	.	.	.	.	.	.
L AR	10.87	8.81	7.83	11681.	.46	.	.
L AD	3.45	9.54	8.48	12653	.50	1.41	.



Kappuch

5 cards per observation (Sample ID)

include '•'s as these indicate missing data

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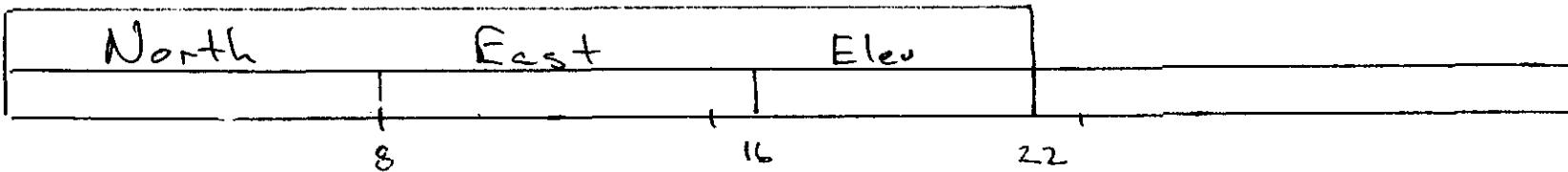
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717

Sample ID	Weathering	Shalliness	Fracturing	Struc'	Pyrite	Calcare	R _o	Error	Rank	Dep Env.	Card #
K002 COAL	8	10	12	14	16	18	20	.	.	.	1
0	24	28									

Basis	Met	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	.	.	.	.	.	.	.
A R	9.60	9.52	11.70	11461.	.47	.	.
A D	3.38	10.17	12.51	12250	.50	1.42	0

1 3 8 13 18 23 27 31 33



717

Keep much

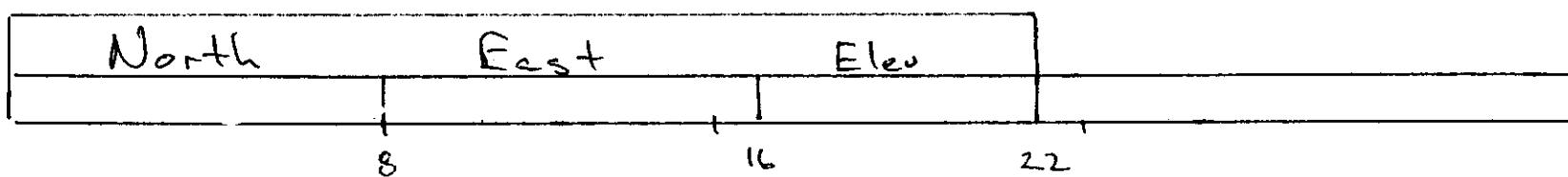
5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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Sample ID	Weathering	Shaliness	Fraction	Struct	Frits	Calcite	R _o	Error	Rank	Dep Env
K002 FL						

L	Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A	AR
L	AR	11.13	53.37	9.19	4478.	.27	.	.
L	AD	2.53	58.53	10.08	4582.	.30	1.94	.



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5 cards per observation (Sample ID)

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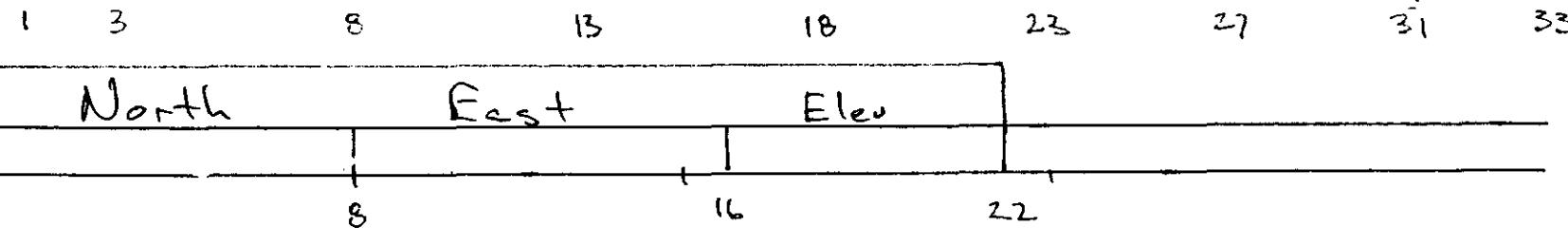
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Sample ID	Weathering	Shaliness	Fraction	Size	Pyritic	Calcare	R _o	Error	Rank	Depth Elev)	Card #
BB4005AC	8	10	12	14	16	18	20	.	.	28	1

Basis	Mot	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	.	.	.	.	.	.	.
L AR	16.12	13.15	13.15	9541.	.36	.	.
L AD	4.89	64.91	14.91	10816.	.41	1.46	.



Kappuch

5 cards per observation (Sample ID)

include '•'s as these indicate missing data

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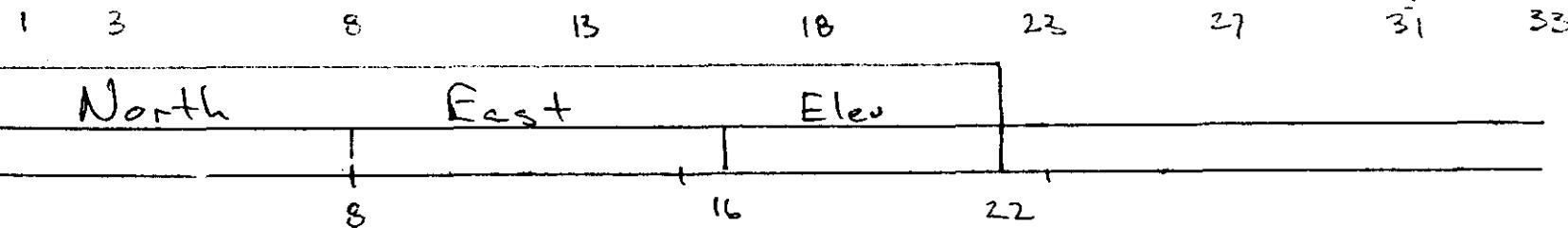
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Sample ID	Weathering	Shaliness	Fractioning	Struc'	Pyrite	Calcare	R_o	Error	Rank	Def Err	Card #
B84005AB	8	10	12	14	16	18	20	.	.	.	1

Lab No.	Met	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	.	.	.	.	.	.	.
L AR	11.81	37.13	10.66	6724.	.26	.	.
L AD	2.69	40.97	11.76	7419.	.29	1.69	.



Keep much

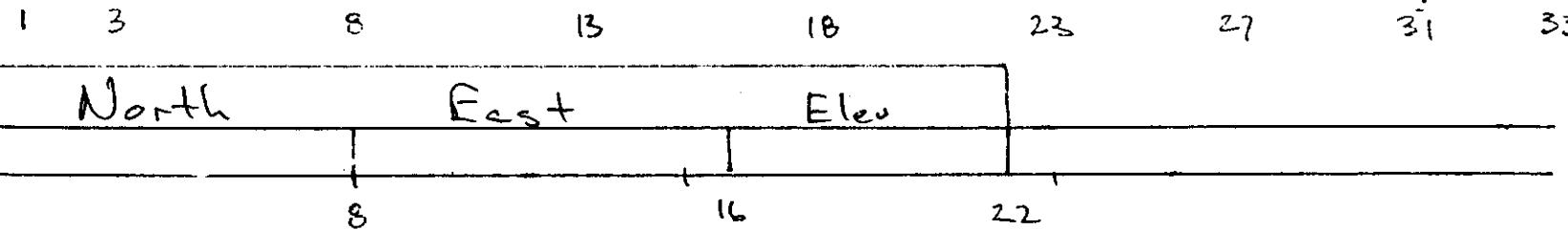
5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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Sample ID	Weathering	Shaliness	Fractionation	Structure	Pyrite	Calcite	R ₀	Error	Rank	Dep Env	Card #
BB4005AA	0	8	10	12	14	16	18	20	24	28	1

Specie	Basis	Mst	Ach	Vol	BTU	Sulph	S.G.	FSI
A	AR	.	.	.	.	.	.	.
L	AR	12.34	27.20	12.37	8280.	.30	.	.
L	AD	4.70	29.57	13.45	9002.	.33	1.62	.



Kappovich

5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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Sample ID	Weathering	Shaliness	Fraction	Struct	Fyrite	Calcite	R _o	Error	Rank	Dep Env	Car #
BB4002 BP	8	10	12	14	16	18	20	24	28		
1	Basis	Mgt	Ach.	Vol	BTU	Sulph	S.G.	FSI			
2	A AR	.	.	.	.	.	.	.
3	L AR	3.52	90.32	4.61	205	.01	.	.			
4	L AD	1.53	92.18	4.70	209.	.01	.	.			
	1	3	8	13	18	23	27	31	33		
	North	East		Ele.							
			8	16	22						

Kapp much

5 cards per observation (Sample ID)

include '•'s as these indicate missing data

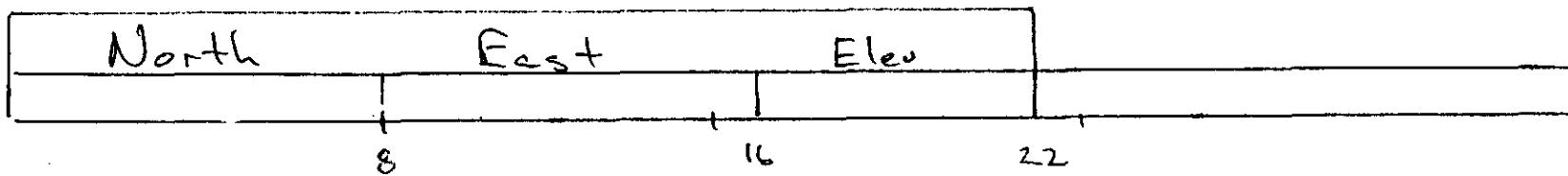
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Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyrite	Calcite	R1	Error	Rank	Dep Env
B84002B							2.45	.02	SA	

10 F	10 B	Mst	Ach	Vol	BTU	Sulp	S.G.	FSI
A	AR	3.62
L	AR	3.62	12.82	8.03	12790	.59 25	.	.
L	AD	1.34	13.12	8.22	13093	.60	1.43	.



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5 cards per observation (Sample I.D.)

include ' .'s as these indicate missing data

Sample ID	Weathering	Shaliness	Fraction	Struc	Pytite	Calcare	R _o	Error	Rank	Dep Env	Card #
R177 COAL	8	10	12	14	16	18	20	.	.	28	1
Basis	Met	Ash	Vol	BTU	Sulf	S.G.	FSI				
A AR	.	.	.	.	.	.	.				2
L AR	7.68	9.01	8.20	12185	.	.	.				3
L AD	3.03	9.46	8.61	12800	.	1.41	0				4
1	3	8	13	18	23	27	31	33			
North	East	Elev									5
		8	16	22							717

Keep much

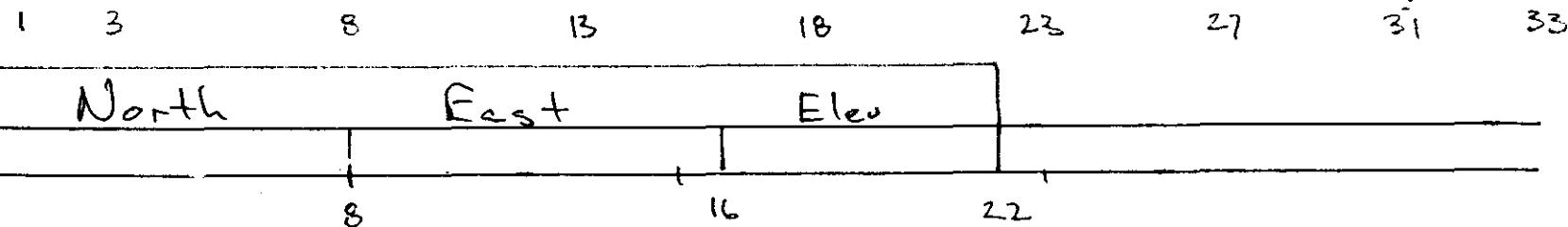
5 cards per observation (Sample ID)

include '•'s as these indicate missing data

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Sample ID	Weathering	Shalliness	Fracturing	Struc?	Fyrite	Calcare	R _o	Error	Rank	Dep End	Card #
R177 FL	0	8	10	12	14	16	18	20	24	28	1

Loc	Ecc%	Mot	Ach	Vol	BTU	Sulph	S.G.	FSI
A	AR	.	.	.	.	.	.	.
L	AR	3.45	89.27	4.35	931	.04	.	.
L	AD	1.19	91.36	4.45	441	.04	2.47	.



Kep much

5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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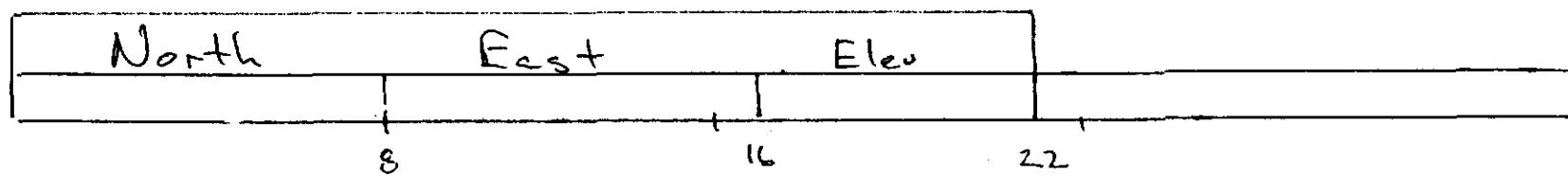
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717

Sample ID	Weathering	Shelliness	Fraction:	Struc?	Ridge	Calcare	R_0	Error	Rank	Dep En.	Card #
R175 CH											1

	Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI		
A	AR	.	.	.	.	.	.	.	2
F	AR	11.55	12.94	10.18	10663	.36	.	.	3	
L	AD	3.97	14.05	11.05	11577	.39	.	.	4	
	1	3	8	13	18	23	27	31	33	



Kep much

5 cards per observation (Sample I.D.)

include '•'s as these indicate missing data

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Sample ID	Weathering	Shaliness	Fraction	Silicate	Pyrite	Calcite	TOC	Error	Rank	Dep Env
R175RF	Wet	Shallow	Coarse	50%	0%	0%	0.1%	±0.05%	1	Marine

Mo	Met	Ach	Vol	BTU	Sulp	S.G.	FSI
A AR	..	-
L AR	7.39	84.86	4.98	419	.06	.	.
L AD	1.69	90.00	5.29	495	.06	2.48	.

North

East

Ele.

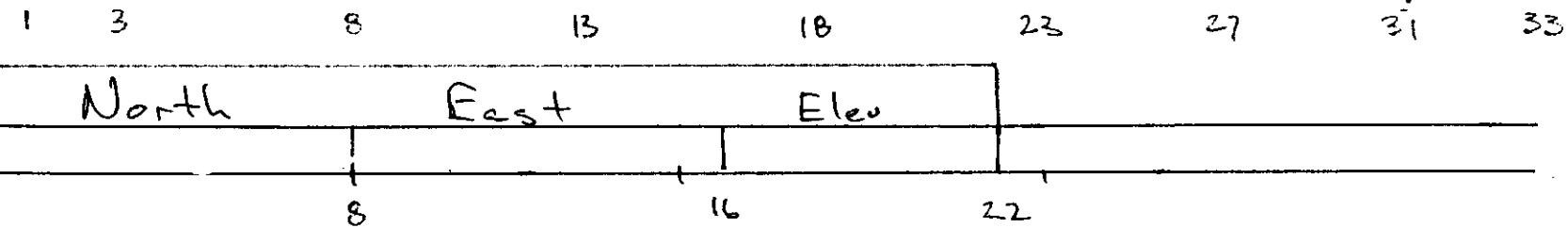
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5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

Sample ID	Weathering	Shaliness	Fracturing	Struct	Pyritic	Calcite	R _o	Error	Rank	Dep Err	Card #
R175 Coal	0	8	10	12	14	16	18	20	24	28	1

Basis	Met	Ash	Vol	BTU	Sulf	S.G.	FSI
A AR	.	.	.	.	.	.	.
L AR	8.20	9.34	8.21	11961	.41	.	.
L AD	2.97	9.87	8.68	12642	.43	1.41	0



Kappuch

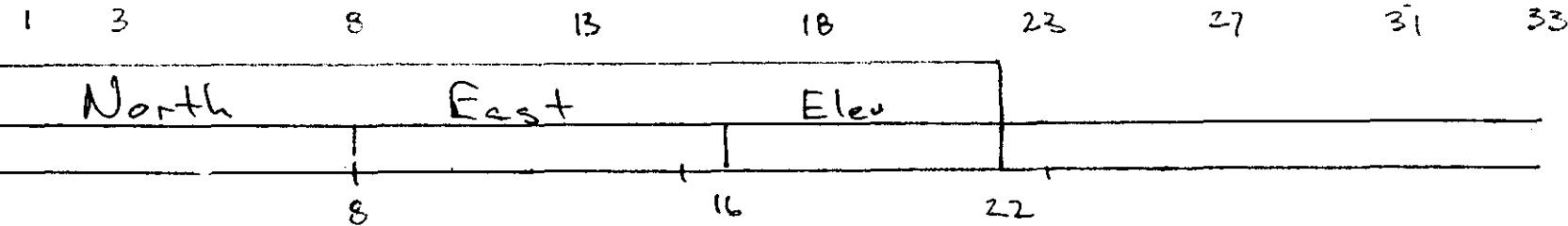
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering	Shalliness	Fracturing	Struct	Pyritic	Calcite	R _o	Error	Rank	Dep Env	Card #
R175FL	8	10	12	14	16	18	20	24	28		1

Basis	Met	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	.	.	.	.	.	.	.
L AR	8.61	71.61	7.85	1174	.19	.	.
L AD	2.35	76.52	8.39	.	.20	2.14	.



Kopunch

5 cards per observation (Sample I.D.)

include '.'s as these indicate missing data

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Card
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Sample ID	Weathering	Shaline	Fraction	Struct	Pyrite	Calcite	R_o	Error	Rank	Dep	Err	Card #
R253							2.73	.02	A			1
0	8	10	12	14	16	18	20	24	28			

Lab	Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI			
A	AR	.69	7.77	13.08	13625	.	.	.			
L	AR			
L	AD	3.54	4.85	10.30	12972	.55	.	.			
1	3	8	10.30	13	18	23	27	31	33		

North	East	Elev

8 16 22

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Kappuch

5 cards per observation (Sample ID)

include '.'s as these indicate missing data

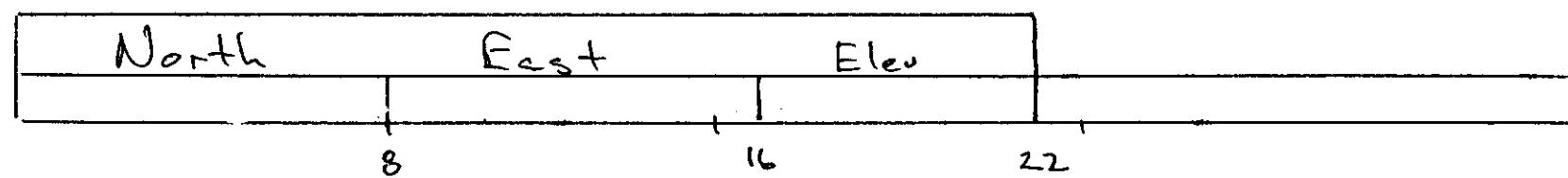
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Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyrite	Calcite	R_0	Error	Rank	Dep	Env	Card #
R254	0	8	10	12	14	16	18	20	24	28		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	3.54	8.04	8.98	12894	.	.	.
L AR
L AD	5.70	9.34	6.91	12472	.38	.	.



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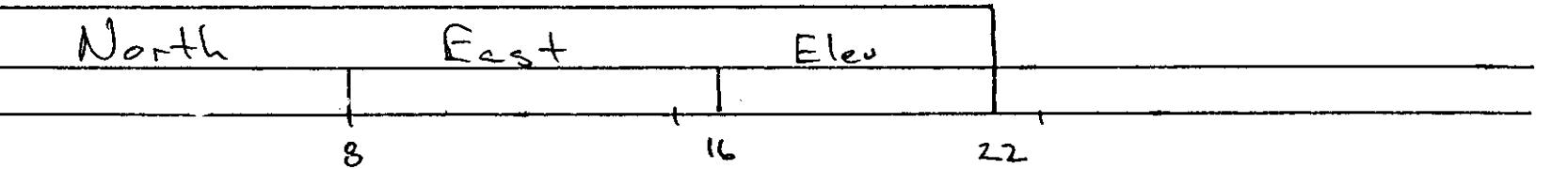
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

~~11111~~

Sample ID	Weathering	Shaliness	Fraction	Structure	Pyrite	Calcite	R ₁	Error	Rank	Dep	Error	Card #
DK80							3.28	.03	A			1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	1.60	8.27	15.38	12661	.	.	.
L AR	.	.	.	.	.	.	.
L AD	6.68	6.78	9.55	12504	.51	.	.



Kapp much

5 cards per observation (Sample ID)

include '.'s as these indicate missing data

~~RECORD~~

Card #

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7171

Sample ID	Weathering	Shelliness	Fracturing	Structure	Pyrite	Calcite	R ₁	Error	Rank	Dep Err	Card #
JDII	SW						2.62	.02	A		1

0 8 10 12 14 16 18 20 24 28

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	2.1	10.7	19.24	12010	.	.	.
L AR
L AD

1 3 8 13 18 23 27 31 33

North	East	Elev
8	16	22

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71 72

Kappuch

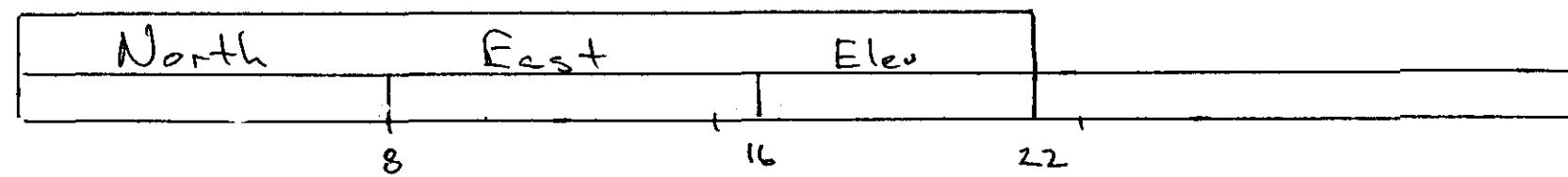
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

~~71 72~~

Sample ID	Weathering	Shaliness	Fraction	Structure	Pyrite	Calcite	R_0^1	Error	Rank	Dep Env	Card #
JS20	SW						2.36	.01	SA		1

0	8	10	12	14	16	18	20	24	28		
L	Basis	Mst	Ash	Vol	BTU		Sulp	S.G.	FSI		
A	AR	8.45	12.81	17.82	127.5	10830	2
L	AR	3
L	AD	4



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Keep much

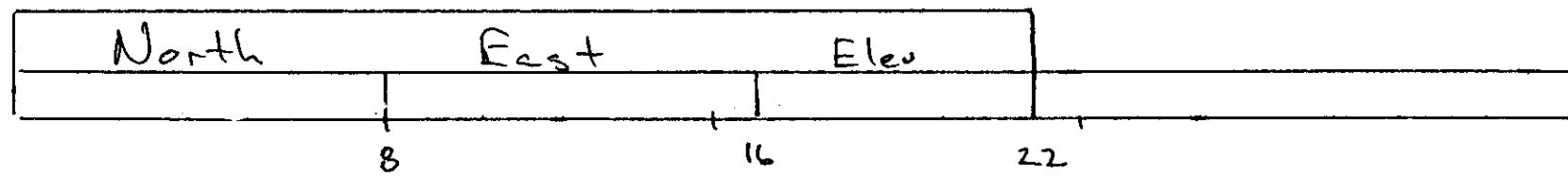
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering	Shelliness	Fracturing	Structure	Pyrite	Calcite	R ₁	Error	Rank	Dep Err	Card #
JS45	SH						2.63	.02	A		1

0	8	10	12	14	16	18	20	24	28		
Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI				
A AR	5.53	39.16	11.34	7439	.	.	.				2
L AR	.	.	.	.	.	.	.				3
L AD	.	.	.	.	.	.	.				4



Kapp much

5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

~~JS45~~

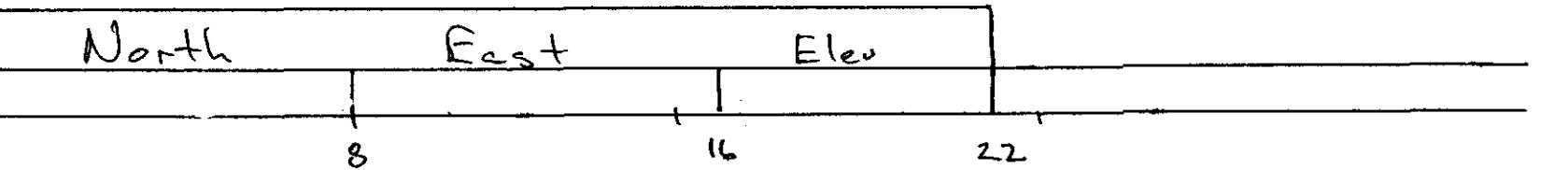
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Sample ID	Weathers ing	Shaliness	Fracturing	Structure	Pyrite	Calcite	R ₁	Error	Rank	Dep Eros	Card #
JS53	MW	FR					2.88	.045			1

Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A AR	1.33	26.17	10.41	10716	.	.	.
L AR
L AD



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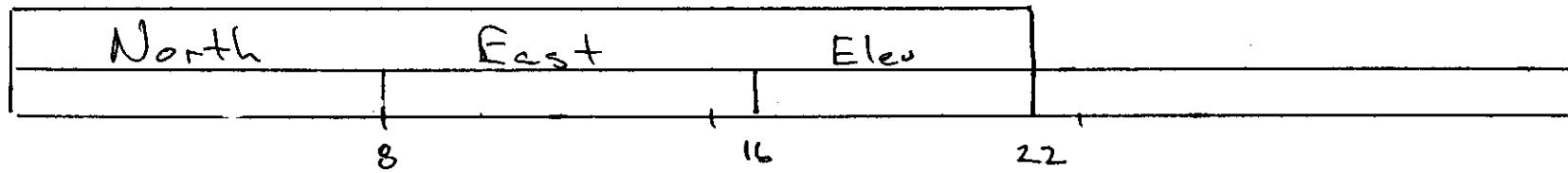
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering Shalliness	Fraction Structure	Pyrite	Calcite	R_o	Error	Rank	Dep Eros	Card #
JS 63	MW				2.59	.015	A		1

Lab	Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI	
A	AR	2.95	6.04	12.71	13842	.	.	.	2
L	AR	3
L	AD	4
1	3	8	13	18	23	27	31	33	



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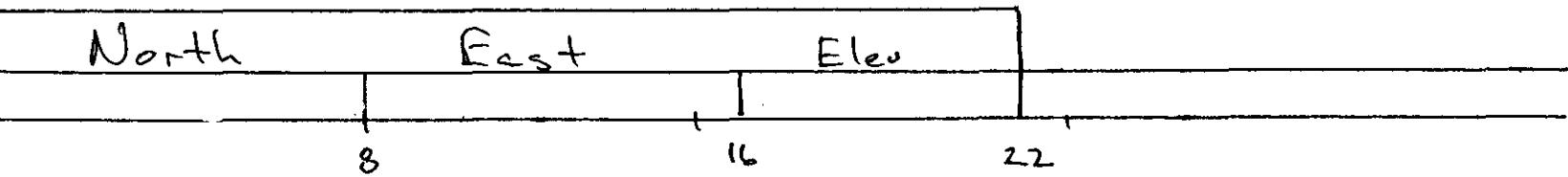
5 cards per observation (Sample ID)

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Sample ID	Weatherin	Shaliness	Fracturin	Structure	Pyritle	Calcite	R_o	Error	Rank	Dep Env	Card #
JS 78							3.56	.025	A		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	3.63	16.64	9.54	11792	.	.	.
L AR
L AD



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5 cards per observation (Sample ID)

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Sample ID	Weathers.	Shaliness	Fractures	Structure	Pyr.%	Calcite	R_1	Error	Rank	Dep Err	Card #
TB4016			FB	FD	PY	MC	2.07	.01	SA		1

0	8	10	12	14	16	18	20	24	28		
Lab Basis	Mst	Ash	Vol		BTU		Sulph	S.G.	FSI		
A AR	2.39	11.49	13.54	13233			.	.	.		2
L AR		3
L AD		4

North	East	Ele.
8	16	22

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5 cards per observation (Sample ID)

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~~RECORD~~

Sample ID	Weathering	Shaliness	Fracturing	Structure	Pyr.	Calcite	R_0^1	Error	Rank	Dep Err	Card #
TB4021	FR	FD	PY				2.37	.02	SA		1

L ^o Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	4.22	14.80	11.27	12275	.	.	.
L AR
L AD

North	East	Ele.
8	16	22

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5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering	Shelliness	Fracturing	Structure	Pyritization	Calcite	R_o	Error	Rank	Dep Env	Card #
T84114				MP			2.21	.01	SA		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	1.72	9.44	11.67	13801	.	.	.
L AR
L AD

North	East	Elev
8	16	22

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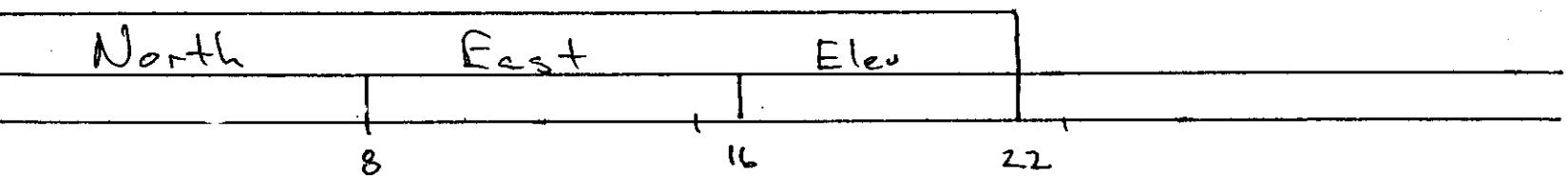
5 cards per observation (Sample ID)

include '.'s as these indicate missing data

~~RECORDS~~

Sample ID	Weathering	Shelliness	Fraction	Structure	Pyrite	Calcite	R_o	Error	Rank	Dep Err	Card #
TB4116A	MW	FR	FD	PY	MC	2.19	.02	SA			1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	2.93	9.84	13.20	13655	.	.	.
L AR
L AD



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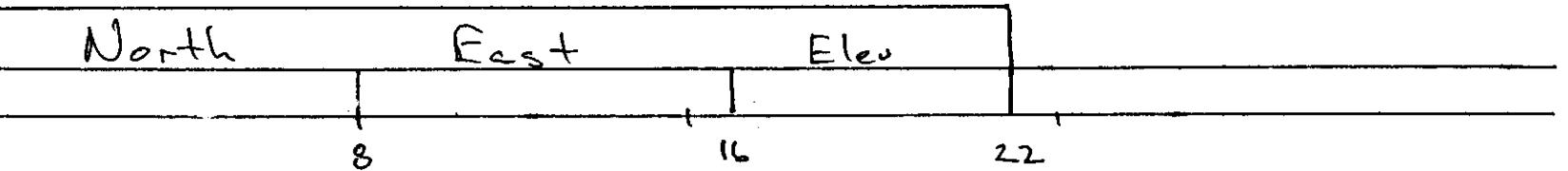
5 cards per observation (Sample ID)

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Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyr.	Calcite	R ₀	Error	Rank	Dep	Error	Card #
T84116B			FR		Py		1.96	.02	SA			1

Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A AR	1.55	9.84	13.20	13655	.	.	.
L AR
L AD



Card # 1

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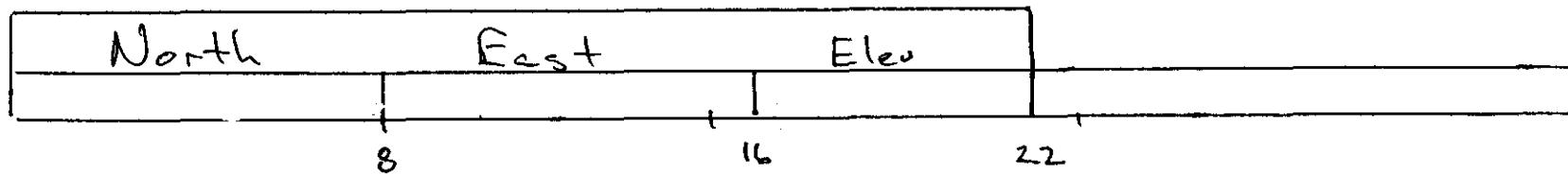
5 cards per observation (Sample ID)

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Sample ID	Weathering	Shalliness	Fraction	Structure	Pyrite	Calcite	R ₀	Error	Rank	Dep Env	Card #
TB 84005	SW						3.63	.04	A		1
0	8	10	12	14	16	18	20	24	28		

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	14.88	22.71	19.20	7384.	.	.	.
L AR
L AD
1	3	8	13	18	23	27	31



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5 cards per observation (Sample ID)

include '.'s as these indicate missing data

~~RECORD~~

Sample ID	Weathering	Shaliness	Fracturing	Structure	Pyrite	Calcite	R ₁ %	Error	Rank	Dep Env
B84002 A							2.45	.02	SA	

Card
#

Lbs Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	.42	18.34	12.04	12412	.	.	.
L AR	3.88	18.80	7.92	11716	.45	.	.
L AD	1.34	19.30	8.13	12026	.46	1.49	.

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North	East	Elev
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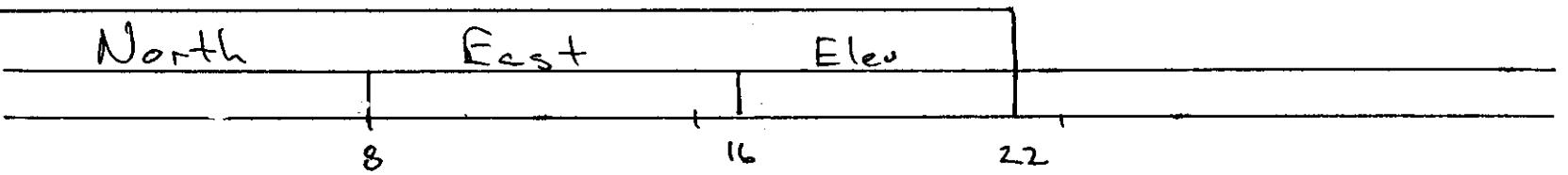
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Sample ID	Weathering	Shelving	Fracturing	Structure	Pyr.	Calcite	R ₀	Error	Rank	Dep Err	Card #
BB4020							2.09	.01	SA		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	1.11	10.75	12.58	13483	.	.	.
L AR
L AD



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5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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Sample ID	Weathering	Shaliness	Fracturing	Structure	Fayrite	Calcite	R_o	Error	Rank	Dep Env	Card #
BB4059			FR		CA	.	.	.	.	.	1
0	8	10	12	14	16	18	20	24	28		
Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI				
A AR	2.06	14.82	12.02	12336	.	.	.				2
L AR				3
L AD				4
1	3	8	13	18	23	27	31	33			
North	East	Elev									5
			8	16	22						71 72

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5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

~~BB4059~~

Sample ID	Weathering	Shallness	Fracturing	Structure	Pyrite	Calcite	R_o	Error	Rank	Dep Env	Card #
B84076	W	SH			Py		2.22	.02	SA		1
0	8	10	12	14	16	18	20	24	28		
Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI				
A AR	3.67	42.47	10.88	7015.	.	.	.				2
L AR				3
L AD				4
1	3	8	13	18	23	27	31	33			
North	East		Eleo								5
		8		16			22				71 72

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5 cards per observation (Sample ID)

include '.'s as these indicate missing data



Sample ID	Weathering	Shaliness	Fracturing	Structure	Pyrite	Calcite	R_0	Error	Rank	Dep Env	Card #
IP 84008	CS						2.41	.035	SA		1
0	8	10	12	14	16	18	20	24	28		
Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI				
A AR	1.32	71.08	8.28	2400.	.	.	.				2
L AR				3
L AD				4
1	3	8	13	18	23	27	31	33			
North	East	Elev									5
			8	16	22						71 72

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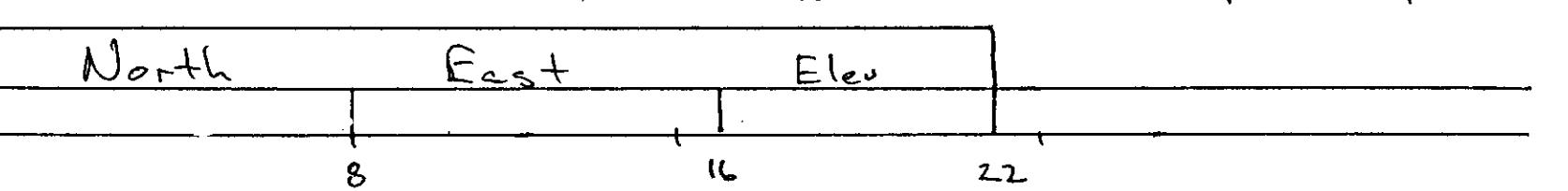
5 cards per observation (Sample ID)

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Sample ID	Weathering	Shalliness	Fractionation	Structure	Pyrite	Calcite	R_0	Error	Rank	Dep	Error	Card #
T84003			FR		PY		2.22	.01	SA			1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	3.40	10.61	10.61	13329	.	.	.
L AR
L AD



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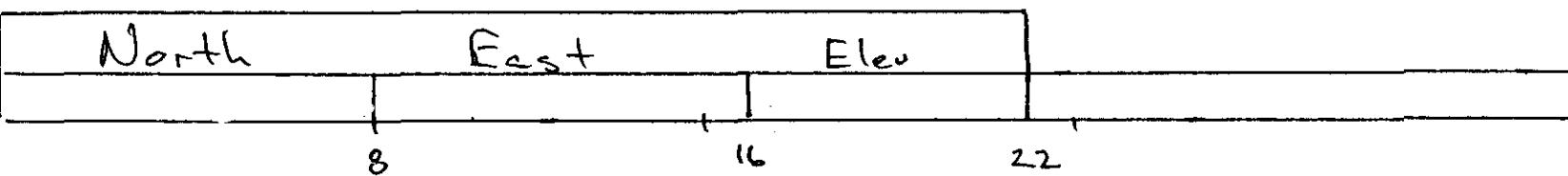
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Sample ID	Weathering	Shaliness	Fracturing	Structure	Pyr.	Calcite	R_o	Error	Rank	Dep Err	Card #
T84004	SH						2.30	.01	SA		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	2.08	23.53	10.98	11049.	.	.	.
L AR
L AD



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5 cards per observation (Sample ID)

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Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyr.	Calcite	R_o	Error	Rank	Dep Err	Card #
T84008					CA	2.58	.	.	A		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	0.28	10.47	12.80	13599	.	.	.
L AR	7.32	10.05	9.07	12713.	.47	.	.
L AD	.71	10.77	9.72	13620.	.50	1.41	.

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North	East	Elev	

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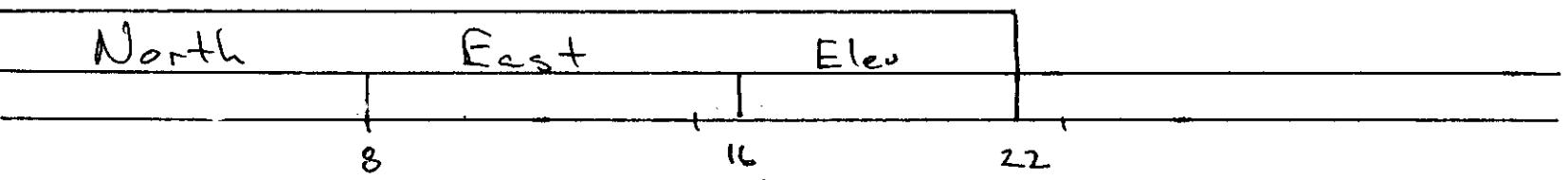
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Sample ID	Weathering	Shaliness	Fractionation	Structure	Pyrite	Calcite	R_0	Error	Rank	Dep Env	Card #
T84033	SW		FR				3.19	.025	A		1

Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A AR	5.88	21.51	12.40	12329	.	.	.
L AR
L AD



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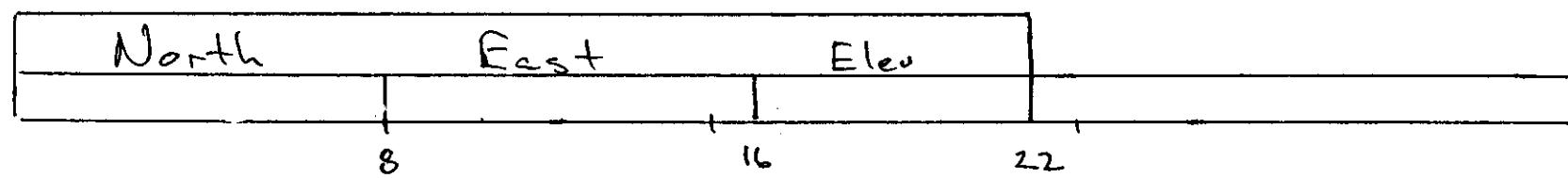
5 cards per observation (Sample ID)

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Sample ID	Weathering	Shaliness	Fraction	Structure	Pyrite	Calcite	R ₁	Error	Rank	Dep Err	Card #
T84094	MW						2.75	.015	A		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	7.18	10.26	16.06	11396.	.	.	.
L AR
L AD



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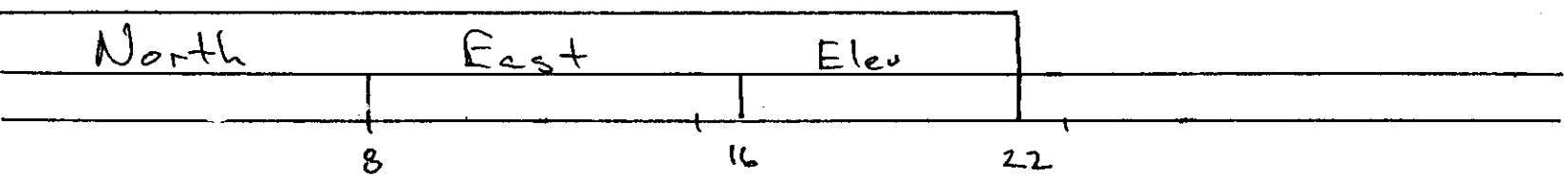
5 cards per observation (Sample ID)

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Sample ID	Weathering	Shaliness	Fracturing	Structure	Pyrite	Calcite	R ₁	Error	Rank	Dep Err	Card #
T84097	SW						2.58	.025	A		1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	11.39	7.62	19.49	10804.	.	.	.
L AR
L AD



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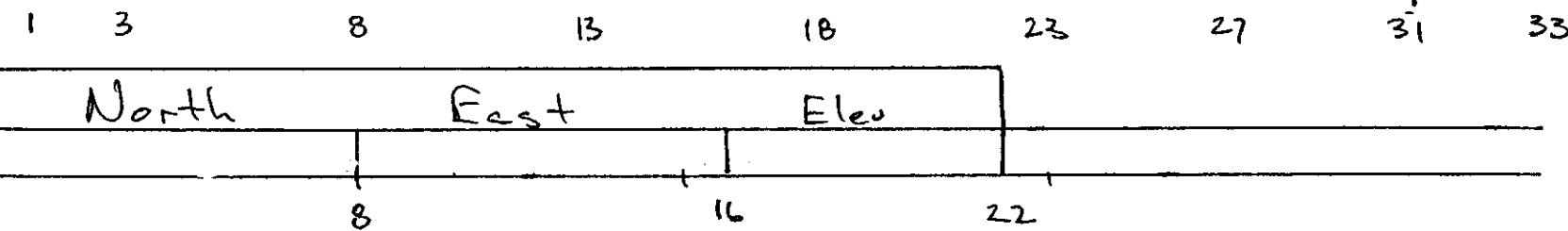
5 cards per observation (Sample ID)

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Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyrits	Calcite	R_0	Error	Rank	Dep	Error	Card #
T84 103	SW						2.59	.02	A			1

Lab Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	7.69	7.07	16.97	12024	.	.	.
L AR
L AD



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5 cards per observation (Sample ID)

include '•'s as these indicate missing data



Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyrite	Calcite	R_o	Error	Rank	Dep Err	Card #
R175	W						3.73	.03	A		1
0	8	10	12	14	16	18	20	24	28		
Lb Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI				
A AR	3.88	13.17	14.67	11473.	.	.	.				2
L AR	.	.	.	.	.	.	.				3
L AD	.	.	.	.	.	.	.				4
1	3	8	13	18	23	27	31	33			
North	East		Elev								5
		8		16		22					71 72

Kappuch

5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyrits	Calcare	R_1	Error	Rank	Dep Env	Card #
R177							3.67	.03	A		1
0	8	10	12	14	16	18	20	24	28		
Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI				
A AR	2.69	11.25	0.43	12947	.	.	.				2
T AR	.	.	.	.	.	.	.				3
L AD	.	.	.	.	.	.	.				4
1	3	8	13	18	23	27	31	33			
North	East	Elev									5
			8	16	22						71 72

Kappuch

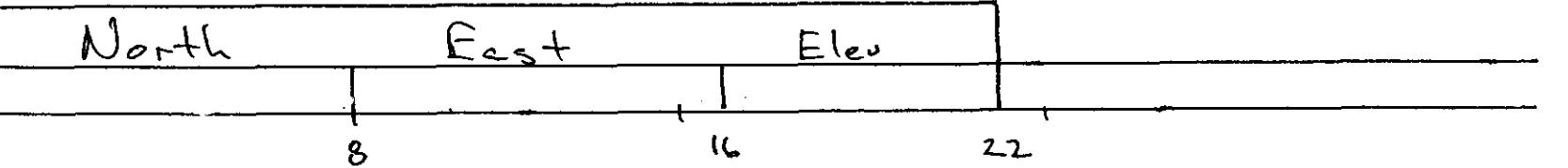
5 cards per observation (Sample ID)

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Sample ID	Weathering	Shalliness	Fractioning	Structure	Pyrite	Calcite	R_o	Error	Rank	Dep Err
K002	W						3.68	.05	A	

Lbs Basis	Mst	Ash	Vol	BTU	Sulph	S.G.	FSI
A AR	3.52	16.68	13.59	11088.	.	.	.
L AR	8.85	34.70	8.04	7601.	.27	.	.
L AD	3.29	36.02	8.53	8065.	.29	.	.



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Card

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Sample ID	Weathering	Shelliness	Fracturing	Structure	Pyrite	Calcite	R_o	Error	Rank	Dep	Env
0	8	10	12	14	16	18	20	24	28		

Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A AR
L AR
L AD

1 3 8 13 18 23 27 31 33

North	East	Elev

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Kappuch

5 cards per observation (Sample ID)

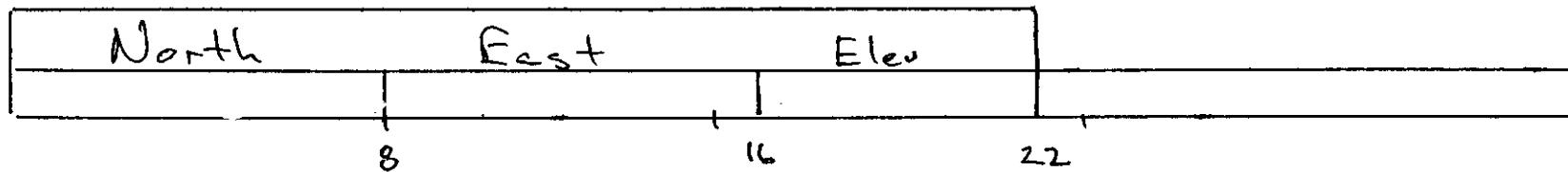
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Sample ID	Weathering	Shaliness	Fracturing	Structure	Pyritization	Calcite	R_o	Error	Rank	Dep Env
	8	10	12	14	16	18	20	24	28	

Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A AR
L AR
L AD

1 3 8 13 18 23 27 31 33



Card # 1

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Kappovich

5 cards per observation (Sample ID)

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Sample ID	Weathering	Shallness	Fracturing	Structure	Pyrite	Calcite	R_o	Error	Rank	Deep Env	Card #
0	8	10	12	14	16	18	20	24	28		1
L ^b Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI				2
A AR	3
L AR	4
L AD	5
1	3	8	13	18	23	27	31	33			71 72
North	East	Elev									
8		16		22							

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5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering	Shalliness	Fractioning	Structure	Pyrite	Calcite	R_0	Error	Rank	Dep Env	Card #
0	8	10	12	14	16	18	20	24	28		1
Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI				2
A AR	.	.	.	.	.	.	.				3
L AR	.	.	.	.	.	.	.				4
L AD	.	.	.	.	.	.	.				5
1	3	8	13	18	23	27	31	33			71 72
North	East	Elev									
8	16	22									

Kappuch

5 cards per observation (Sample ID)

include '.'s as these indicate missing data

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Sample ID	Weathering	Shaliness	Fracturing	Structure	Pyrite	Calcite	R_o	Error	Rank	Dep Env
0	8	10	12	14	16	18	20	24	28	

Lab Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A AR
L AR
L AD

1 3 8 13 18 23 27 31 33

North	East	Elev
8	16	22

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Kappuch

5 cards per observation (Sample ID)

include ' .'s as these indicate missing data

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Sample ID	Weathering	Shalliness	Fracturing	Structure	Pyrite	Calcite	R_o	Error	Rank	Dep	Env	Card #
0	8	10	12	14	16	18	20	24	28			1

Lob	Basis	Mst	Ash	Vol	BTU	Sulp	S.G.	FSI
A	AR
L	AR
L	AD

1 3 8 13 18 23 27 31 33

North	East	Eleo
8	16	22

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Kappuch

5 cards per observation (Sample ID)

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