

BOOK 1 OF 6

K-ELK RIVER 77(4)B  
CORE SAMPLES  
ANALYSES.

DH-1 TO DH-20

276

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-1-1 Lab. No. 8652 DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	23.0	15.6	60.8	0.59	79	Air Dried Basis
	23.1	15.7	61.2	0.59	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	87.3	0.7	23.5	0.58	87.3	23.5	0.58	A.D.B.
	87.3		23.7	0.58	87.3	23.7	0.58	D.B.
65M x 0	12.7	0.8	18.6	0.71	100.0	22.9	0.60	A.D.B.
	12.7		18.8	0.72	100.0	23.1	0.60	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	43.7	0.8	6.5	17.9	74.8	0.68	43.7	6.5	A.D.B.
	43.7		6.6	18.0	75.4	0.69	43.7	6.6	D.B.
1.40-1.50	17.1	0.6	17.8	15.5	66.1	0.57	60.8	9.7	A.D.B.
	17.1		17.9	15.6	66.5	0.57	60.8	9.8	D.B.
1.50-1.60	14.0	0.6	29.6	X	X	X	74.8	13.4	A.D.B.
	14.0		29.8				74.8	13.5	D.B.
+1.60	25.2	0.7	51.4	X	X	X	100.0	23.0	A.D.B.
	25.2		51.8				100.0	23.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)					G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
4 1/2	0.05	410	---	19% @ 460°	---	---	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8652 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-1-1

Starting Temperature °C: 320

Softening Temperature °C: 410

Max. Dilatation Temp. °C: - 460

250

Contraction %: 19

Dilatation %: - 19

Final Temperature °C: ---

G. Factor: ---

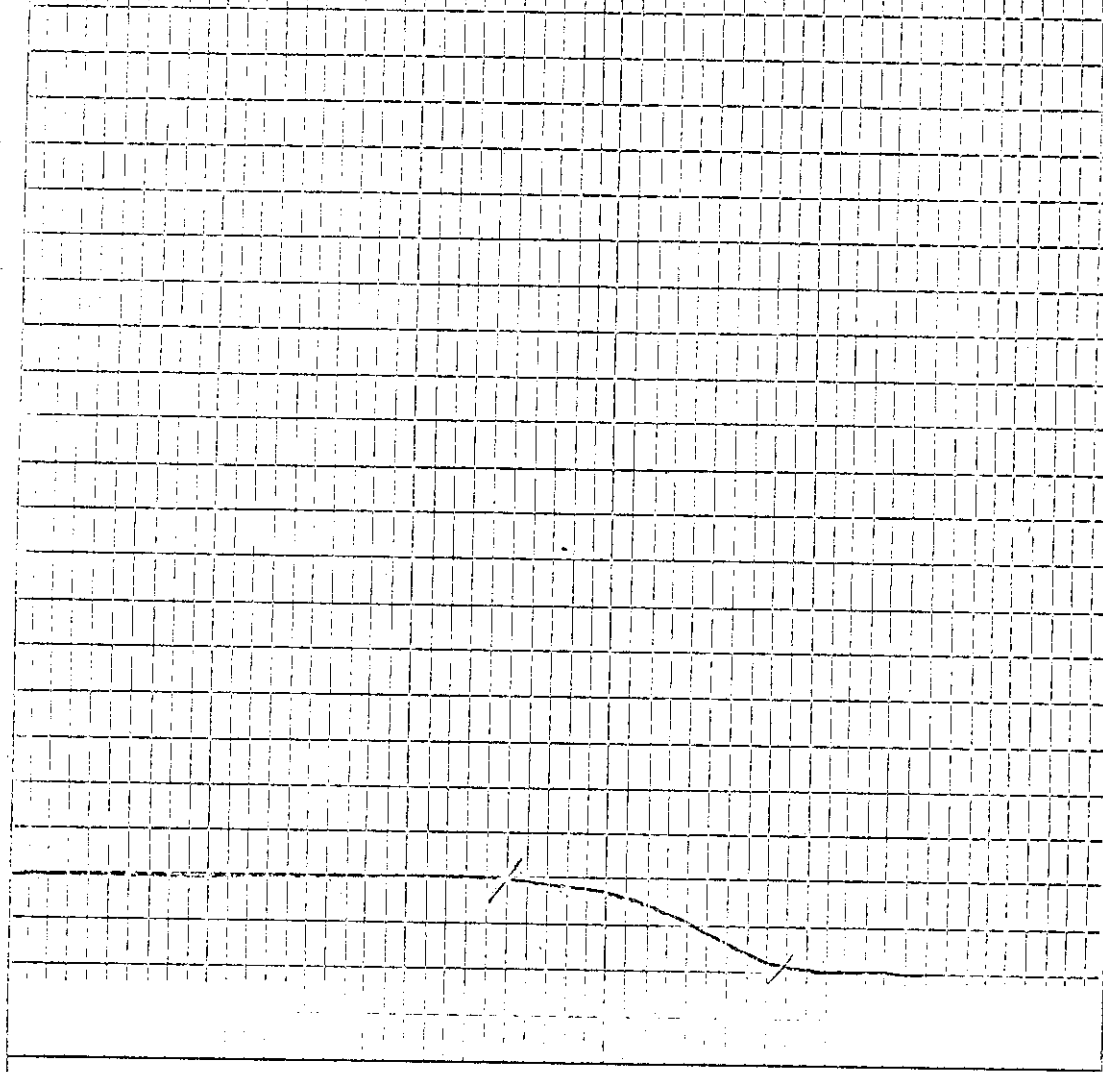
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-1-2 Lab. No. 8653 DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	42.3	13.8	43.1	0.58	93	Air Dried Basis
	42.6	13.9	43.5	0.58	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.2	0.9	43.2	0.56	94.2	43.2	0.56	A.D.B.
	94.2		43.6	0.57	94.2	43.6	0.57	D.B.
65M x 0	5.8	0.5	20.9	0.91	100.0	41.9	0.58	A.D.B.
	5.8		21.0	0.91	100.0	42.3	0.59	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	30.6	0.7	5.3	19.8	74.2	0.86	30.6	5.3	A.D.B.
	30.7		5.3	19.9	74.8	0.87	30.7	5.3	D.B.
1.40-1.50	10.1	0.7	18.3	16.6	64.4	0.75	40.7	8.5	A.D.B.
	10.1		18.4	16.7	64.9	0.76	40.8	8.5	D.B.
1.50-1.60	3.8	0.8	29.5				44.5	10.3	A.D.B.
	3.8		29.7				44.6	10.3	D.B.
+1.60	55.5	1.1	68.7				100.0	42.7	A.D.B.
	55.4		69.5				100.0	43.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.03	396	477	22	85	1.058

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 1 - 3      Lab. No.: 77 - 4001      Date: April 21, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	36.2	15.6	47.6	0.60	96.2	Air Dried Basis
--	36.4	15.7	47.9	0.60	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	83.7	0.6	38.9	0.56	83.7	38.9	0.56	A.D.B.
	83.7	--	39.1	0.56	83.7	39.1	0.56	D.B.
65 x 0	16.3	0.5	26.3	0.76	100.0	36.8	0.59	A.D.B.
	16.3	--	26.4	0.76	100.0	37.0	0.59	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	30.7	0.9	6.0	20.4	72.7	0.73	30.7	6.0	A.D.B.
	30.7	--	6.1	20.6	73.3	0.74	30.7	6.1	D.B.
1.40-1.50	7.8	1.2	17.2	18.8	62.8	0.61	38.5	8.3	A.D.B.
	7.8	--	17.5	19.0	63.5	0.62	38.5	8.4	D.B.
1.50-1.60	8.2	1.2	27.7	--	--	--	46.7	11.7	A.D.B.
	8.2	--	28.1	--	--	--	46.7	11.9	D.B.
+1.60	53.3	1.2	62.6	--	--	--	100.0	38.8	A.D.B.
	53.3	--	63.3	--	--	--	100.0	39.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.012					

I Lab. No. 77 - 4001 Date May 30, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 1 - 3

Starting Temperature °C: 360 °C

Softening Temperature °C: 416 °C

Max. Dilatation Temp. °C: 486 °C

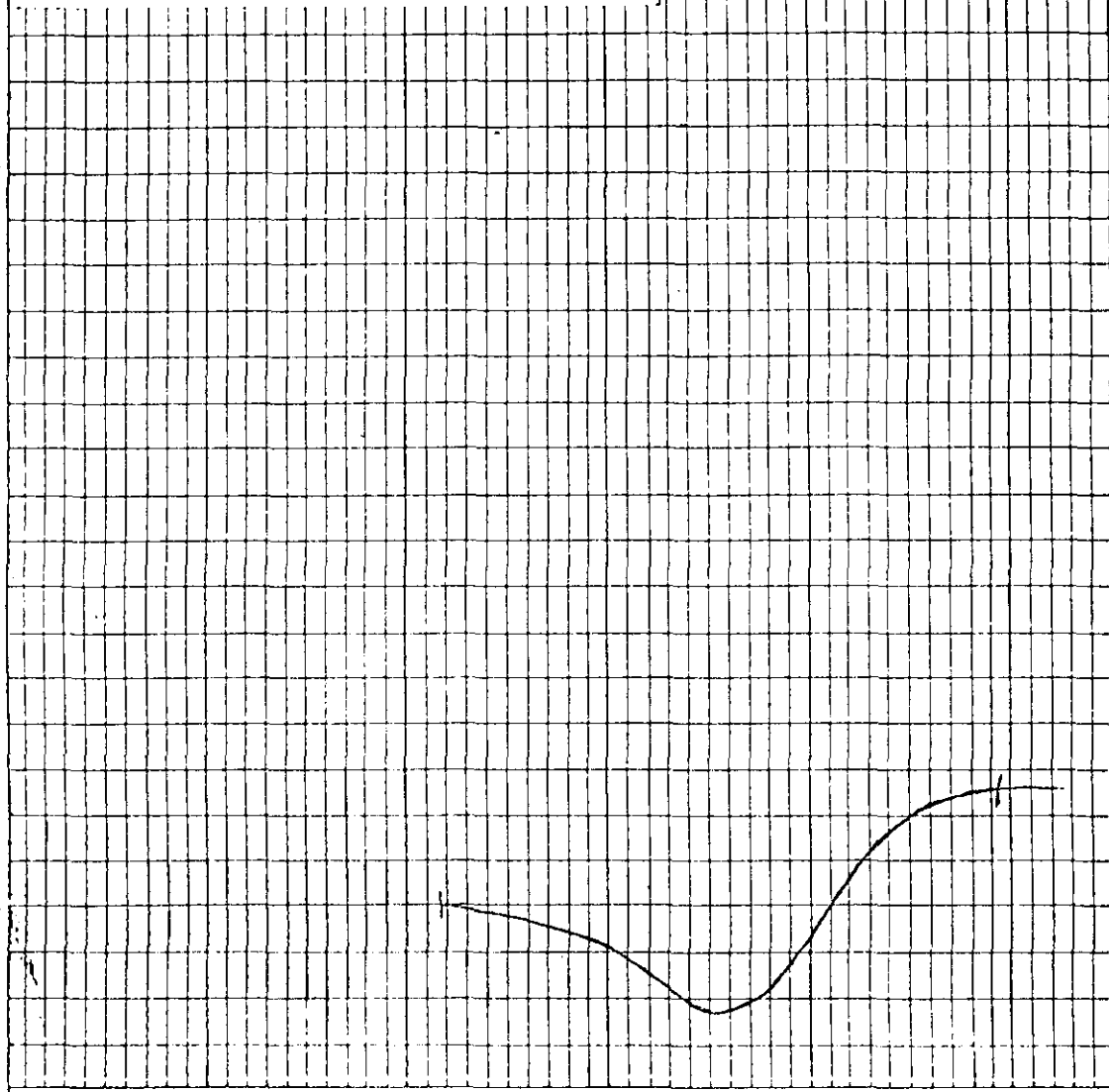
Contraction %: 23%

Dilatation %: 25%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.003

%  
300  
250  
200  
150  
100  
50  
0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 1 - 4      Lab. No.: 77 - 4002      Date: April 21, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.4	15.6	18.4	65.2	0.59	120.4	Air Dried Basis
--	15.7	18.5	65.5	0.59	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.0	0.4	15.1	0.56	90.0	15.1	0.56	A.D.B.
	90.0	--	15.2	0.56	90.0	15.2	0.56	D.B.
65 x 0	10.0	0.4	13.7	0.53	100.0	15.0	0.56	A.D.B.
	10.0	--	13.8	0.53	100.0	15.1	0.56	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	68.7	1.5	5.9	20.9	71.7	0.56	68.7	5.9	A.D.B.
	68.7	--	6.0	21.3	72.7	0.57	68.7	6.0	D.B.
1.40-1.50	15.2	1.3	14.8	18.9	65.0	0.47	83.9	7.5	A.D.B.
	15.2	--	15.0	19.2	65.8	0.48	83.9	7.6	D.B.
1.50-1.60	4.2	1.0	24.1	--	--	--	88.1	8.3	A.D.B.
	4.2	--	24.3	--	--	--	88.1	8.4	D.B.
+1.60	11.9	1.0	65.7	--	--	--	100.0	15.1	A.D.B.
	11.9	--	66.3	--	--	--	100.0	15.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8	0.038					

I  
 Lab. No. 77 - 4002 Date May 30, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 1 - 4  
 Starting Temperature °C: 360°C  
 Softening Temperature °C: 422°C  
 Max. Dilatation Temp. °C: 487°C  
 Contraction %: 17%  
 Dilatation %: - 6%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 0.877

%  
300

250

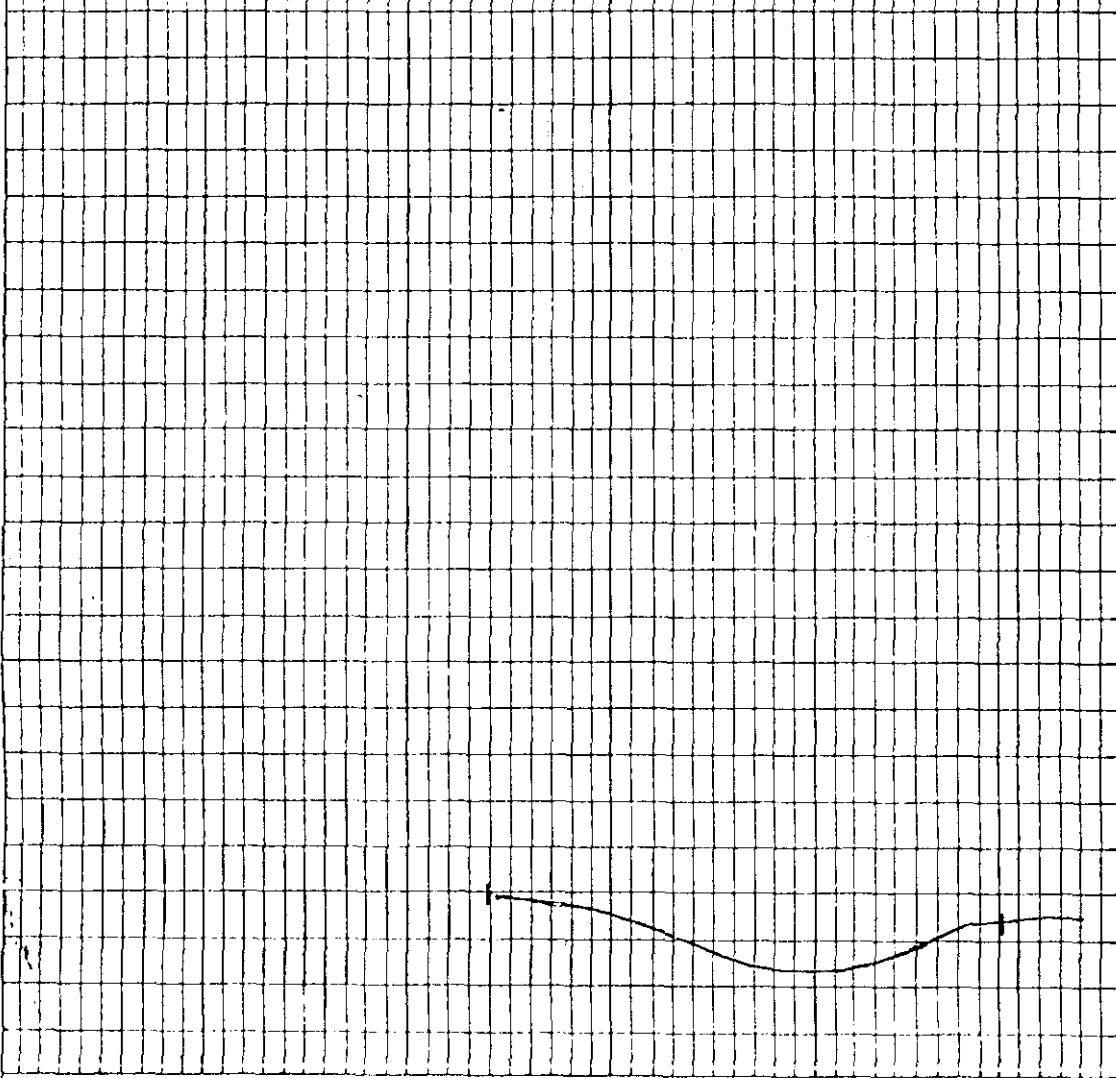
200

150

100

50

0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title RUHR DILATOMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 1 - 5      Lab. No.: 77 - 4003      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.4	15.1	18.0	66.5	0.70	115.6	Air Dried Basis
--	15.1	18.0	66.9	0.70	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	82.3	0.4	14.0	0.65	82.3	14.0	0.65	A.D.B.
	82.3	--	14.0	0.65	82.3	14.0	0.65	D.B.
65 x 0	17.7	0.5	17.6	0.69	100.0	14.6	0.66	A.D.B.
	17.7	--	17.7	0.69	100.0	14.6	0.66	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	67.6	1.2	7.2	19.8	71.8	0.62	67.6	7.2	A.D.B.
	67.6	--	7.3	20.1	72.6	0.63	67.6	7.3	D.B.
1.40-1.50	15.9	1.1	15.4	17.3	66.2	0.56	93.5	8.8	A.D.B.
	15.9	--	15.5	17.5	67.0	0.57	83.5	8.9	D.B.
1.50-1.60	5.2	1.1	23.6	--	--	--	88.7	9.6	A.D.B.
	5.2	--	23.9	--	--	--	88.7	9.7	D.B.
+1.60	11.3	1.3	46.6	--	--	--	100.0	13.8	A.D.B.
	11.3	--	47.2	--	--	--	100.0	14.0	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
g	0.006					

Lab. No. 77 - 4003 Date May 30, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 1 - 5

Starting Temperature °C: 340°C

Softening Temperature °C: 406°C

Max. Dilatation Temp. °C: 479°C

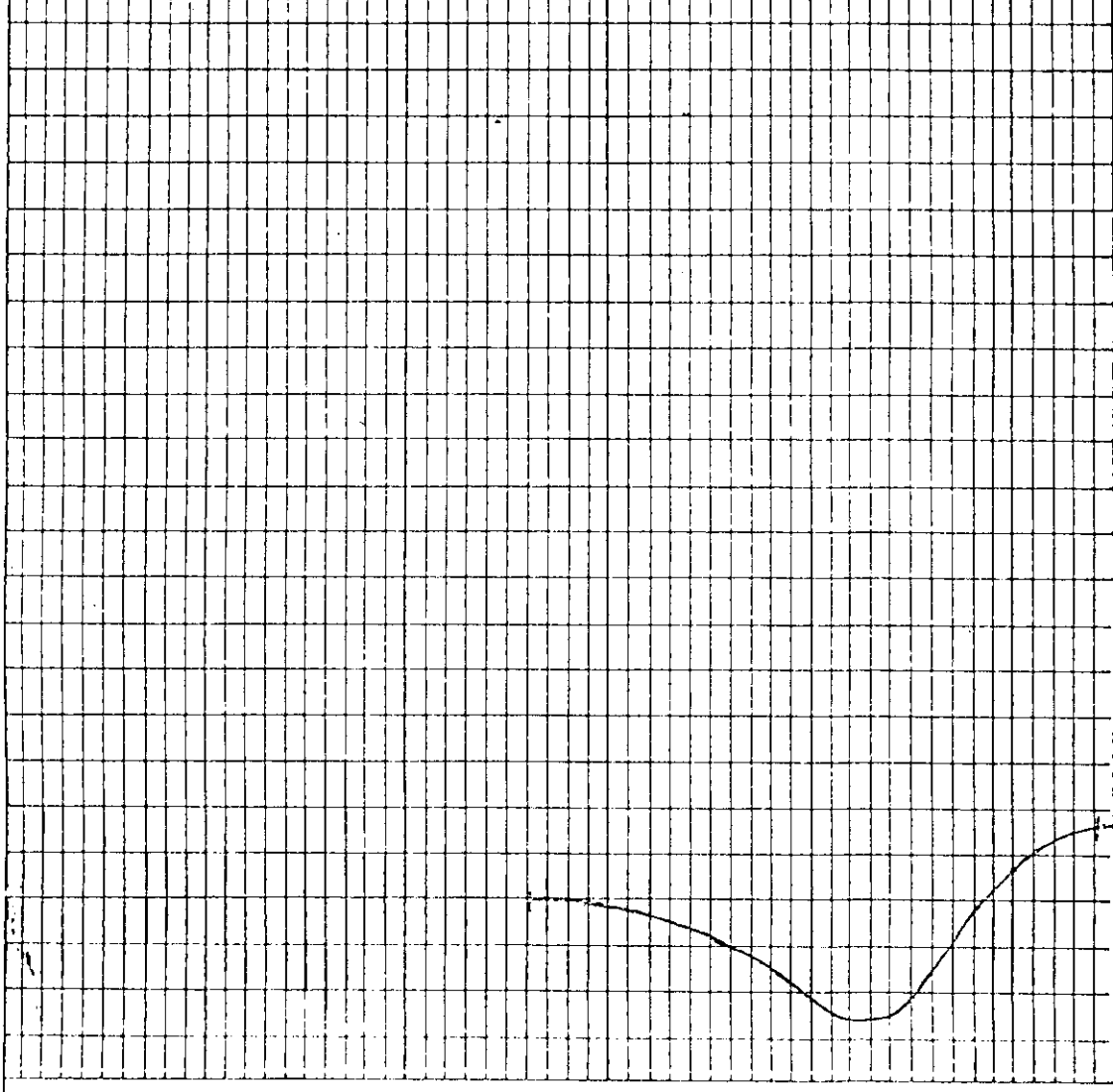
Contraction %: 27%

Dilatation %: 18%

Final Temperature °C:

G. Factor: .983

%  
300  
250  
200  
150  
100  
50  
0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-1

Lab. No. 8808

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.3	26.7	16.8	55.2	0.44	80	Air Dried Basis
	27.1	17.0	55.9	0.45	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	88.2	0.9	27.4	0.41	88.2	27.4	0.41	A.D.B.
	88.3		27.6	0.41	88.3	27.6	0.41	D.B.
65M x 0	11.8	1.9	21.3	0.65	100.0	26.7	0.44	A.D.B.
	11.7		21.7	0.66	100.0	26.9	0.44	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	54.1	0.9	6.5	19.1	73.5	0.55	54.1	6.5	A.D.B.
	54.2		6.6	19.3	74.1	0.55	54.2	6.6	D.B.
1.40-1.50	10.8	0.9	13.7	18.1	67.3	0.53	64.9	7.7	A.D.B.
	10.8		13.8	18.3	67.9	0.53	65.0	7.8	D.B.
1.50-1.60	4.0	0.9	22.3				68.9	8.5	A.D.B.
	4.0		22.5				69.0	8.6	D.B.
+1.60	31.1	1.3	67.6				100.0	26.9	A.D.B.
	31.0		68.5				100.0	27.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
4	0.09	409	---	18% @ 466°C	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8808 Date April 14, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-2-1

Starting Temperature °C: 320

Softening Temperature °C: 409

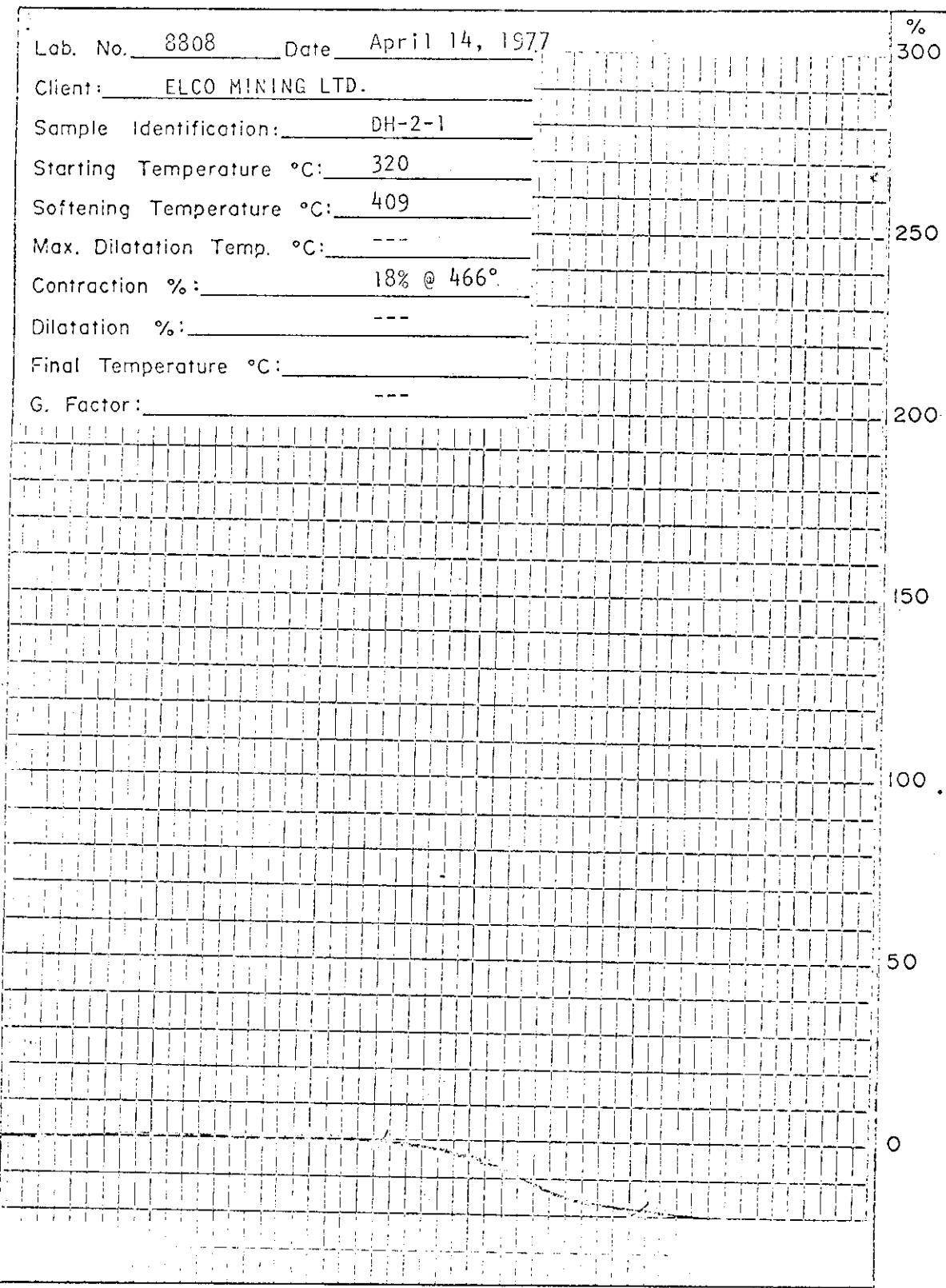
Max. Dilatation Temp. °C: ---

Contraction %: 18% @ 466°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-2

Lab. No. 8859

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	39.8	13.6	45.8	0.55	72	Air Dried Basis
	40.1	13.7	46.2	0.55	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	88.2	0.9	41.0	0.57	88.2	41.0	0.57	A.D.B.
	88.2		41.4	0.58	88.2	41.4	0.58	D.B.
65M x 0	11.8	0.9	26.9	0.67	100.0	39.3	0.58	A.D.B.
	11.8		27.1	0.68	100.0	39.7	0.59	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	25.6	0.8	8.1	19.2	71.9	0.87	25.6	8.1	A.D.B.
	25.6		8.2	19.4	72.4	0.88	25.6	8.2	D.B.
1.40-1.50	10.8	0.9	20.1	16.3	62.7	0.67	36.4	11.7	A.D.B.
	10.8		20.3	16.4	63.3	0.68	36.4	11.8	D.B.
1.50-1.60	8.7	1.3	28.7				45.1	14.9	A.D.B.
	8.7		29.1				45.1	15.1	D.B.
+1.60	54.9	1.0	61.5				100.0	40.5	A.D.B.
	54.9		62.1				100.0	40.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8	0.06	403	478	22	26	1.007	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8859 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-2-2

Starting Temperature °C: 320

Softening Temperature °C: 403

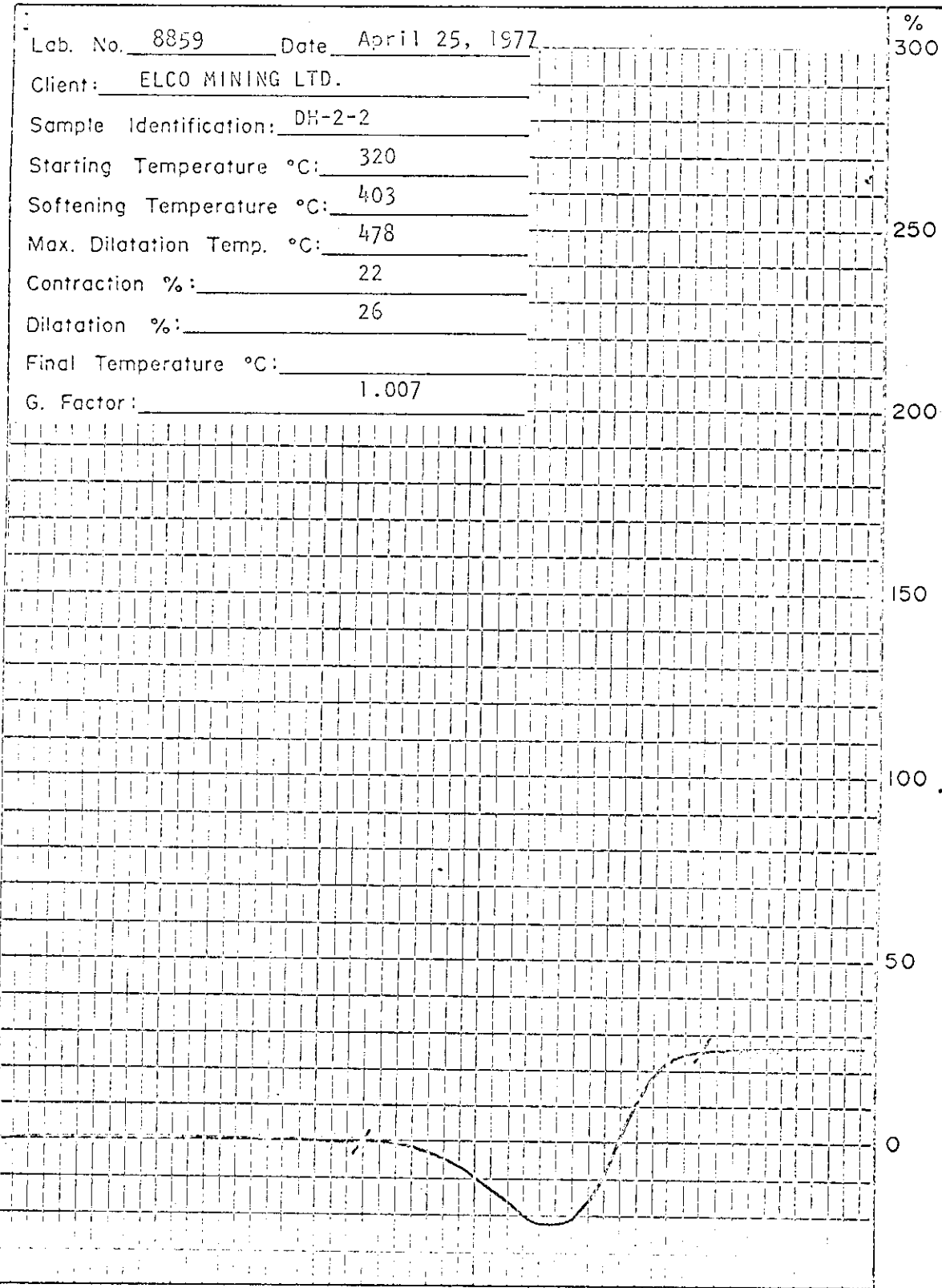
Max. Dilatation Temp. °C: 478

Contraction %: 22

Dilatation %: 26

Final Temperature °C:

G. Factor: 1.007



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-3      Lab. No. 8860      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	31.9	14.6	52.9	0.57	82	Air Dried Basis
	32.1	14.7	53.2	0.57	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.5	0.6	33.1	0.56	89.5	33.1	0.56	A.D.B.
	89.5		33.3	0.56	89.5	33.3	0.56	D.B.
65M x 0	10.5	0.7	20.3	0.69	100.0	31.8	0.57	A.D.B.
	10.5		20.4	0.69	100.0	31.9	0.57	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	45.3	1.1	6.2	17.6	75.1	0.78	45.3	6.2	A.D.B.
	45.2		6.3	17.8	75.9	0.79	45.2	6.3	D.B.
1.40-1.50	13.2	0.8	17.9	15.5	65.8	0.63	58.5	8.8	A.D.B.
	13.2		18.0	15.6	66.4	0.64	58.4	8.9	D.B.
1.50-1.60	7.3	0.8	27.6				65.8	10.9	A.D.B.
	7.4		27.8				65.8	11.1	D.B.
+1.60	34.2	0.7	75.6				100.0	33.0	A.D.B.
	34.2		76.1				100.0	33.3	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
3 1/2	0.02	406	---	18% @ 486°C	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8860 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-2-3

Starting Temperature °C: 320

Softening Temperature °C: 406

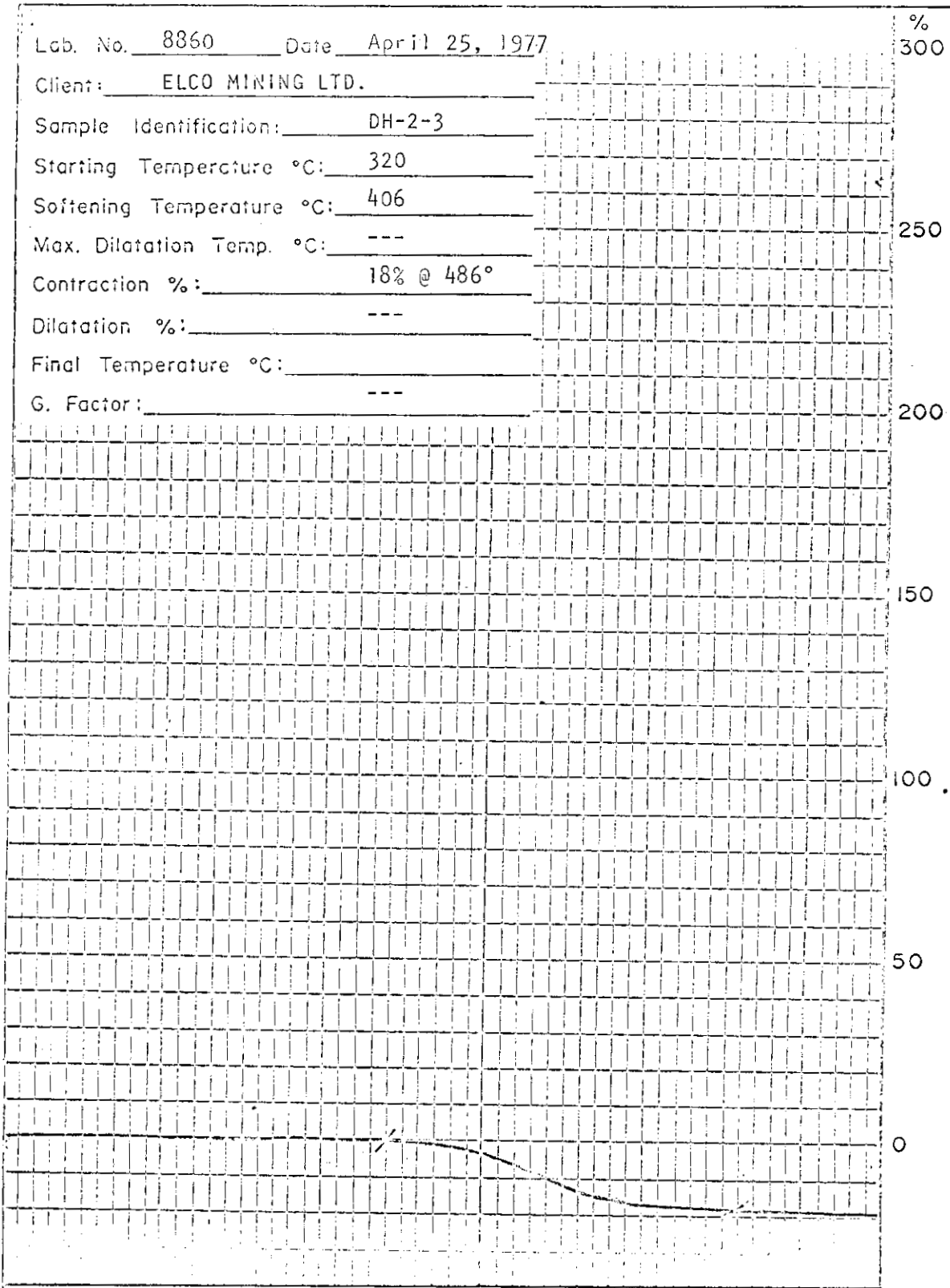
Max. Dilatation Temp. °C: ---

Contraction %: 18% @ 486°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-4

Lab. No. 8861

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	22.5	15.3	61.5	0.64	82	Air Dried Basis
	22.7	15.4	61.9	0.64	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	90.7	0.7	23.5	0.59	90.7	23.5	0.59	A.D.B.
	90.7		23.7	0.59	90.7	23.7	0.59	D.B.
65M x 0	9.3	0.9	11.7	0.80	100.0	22.4	0.61	A.D.B.
	9.3		11.8	0.81	100.0	22.6	0.61	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	60.0	0.6	6.0	17.4	76.0	0.76	60.0	7.0	A.D.B.
	70.0		7.0	17.5	76.5	0.76	60.0	6.0	D.B.
1.40-1.50	8.4	1.0	14.9	17.0	67.1	0.73	68.4	7.1	A.D.B.
	8.4		15.1	17.2	67.7	0.74	68.4	7.1	D.B.
1.50-1.60	6.6	0.8	27.1				75.0	8.9	A.D.B.
	6.6		27.3				75.0	8.9	D.B.
+1.60	25.0	0.7	67.5				100.0	23.5	A.D.B.
	25.0		68.0				100.0	23.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
3	0.02	406	---	17% @ 460°C	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8861 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-2-4

Starting Temperature °C: 320

Softening Temperature °C: 406

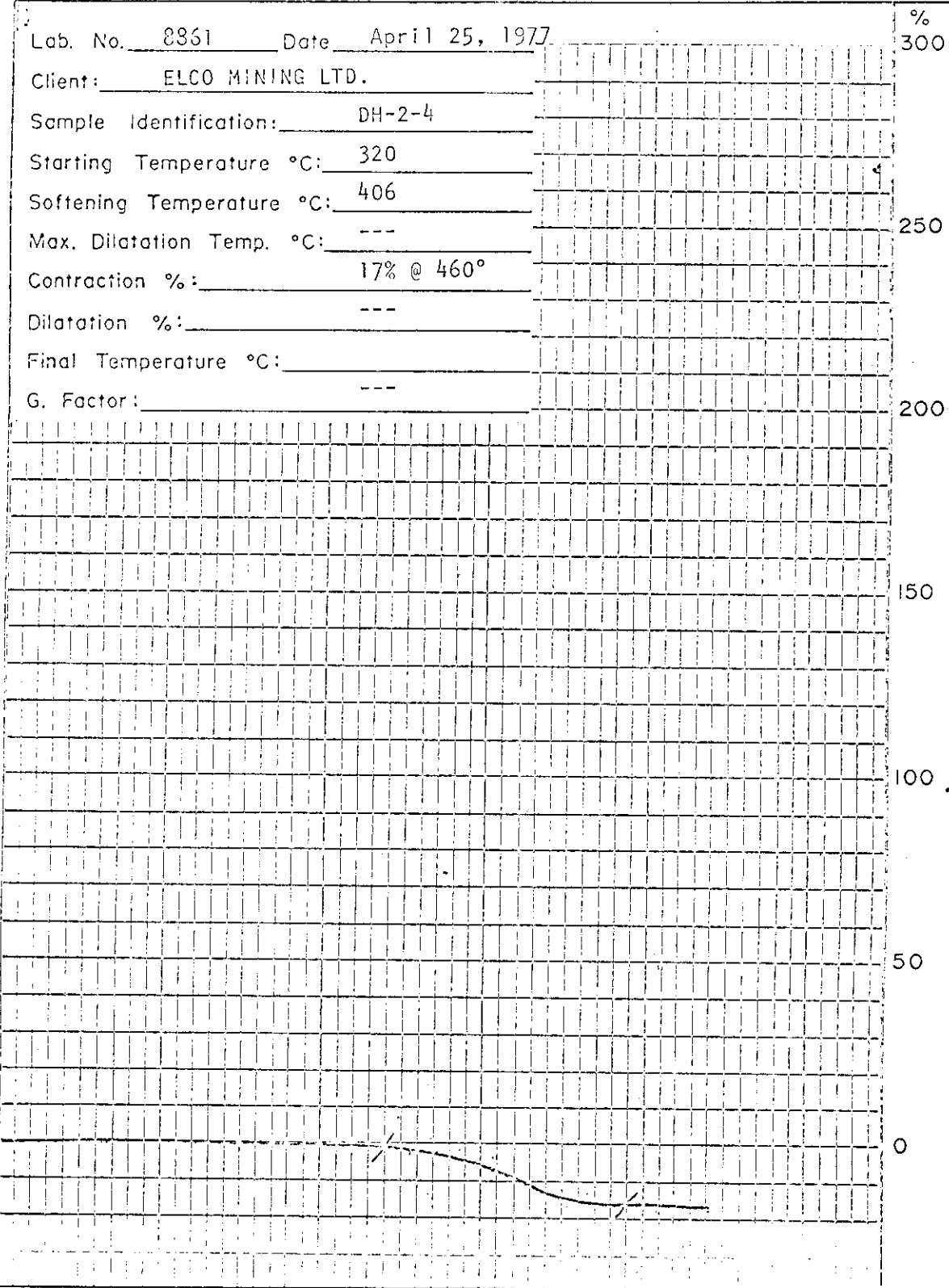
Max. Dilatation Temp. °C: ---

Contraction %: 17% @ 460°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-5

Lab. No. 8862

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.5	27.2	14.7	57.6	0.63	86	Air Dried Basis
	27.3	14.8	57.9	0.63	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.3	0.5	27.4	0.61	92.3	27.4	0.61	A.D.B.
	92.3		27.5	0.61	92.3	27.5	0.61	D.B.
65M x 0	7.7	0.5	16.5	0.69	100.0	26.6	0.62	A.D.B.
	7.7		16.6	0.69	100.0	26.7	0.62	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	53.8	0.9	5.1	18.2	75.8	0.78	53.8	5.1	A.D.B.
	53.8		5.1	18.4	76.5	0.79	53.8	5.1	D.B.
1.40-1.50	13.2	0.9	16.7	16.0	66.4	0.71	67.0	7.4	A.D.B.
	13.1		16.9	16.1	67.0	0.72	66.9	7.4	D.B.
1.50-1.60	5.0	0.7	27.8				72.0	8.8	A.D.B.
	5.0		28.0				71.9	8.8	D.B.
+1.60	28.0	0.7	74.8				100.0	27.3	A.D.B.
	28.1		75.3				100.0	27.5	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
3	0.07	403	---	18% @ 457°C	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8862 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-2-5

Starting Temperature °C: 320

Softening Temperature °C: 403

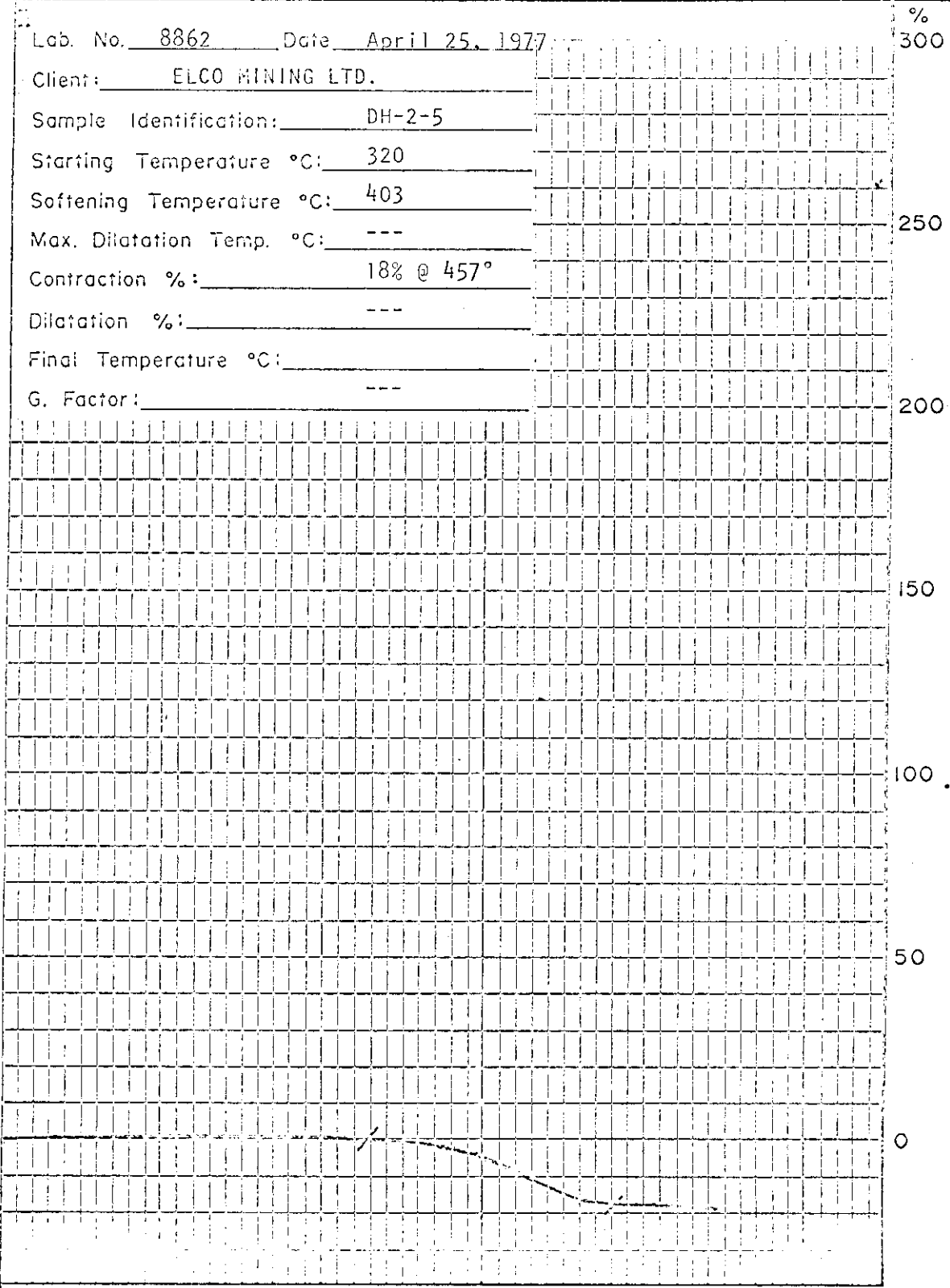
Max. Dilatation Temp. °C: ---

Contraction %: 18% @ 457°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



SIRTLEY ENGINEERING (CANADA) LTD.

Title RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-6

Lab. No. 8863

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	61.7	9.0	28.6	0.39	68	Air Dried Basis
	62.1	9.1	28.8	0.39	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.9	0.7	65.7	0.33	89.9	65.7	0.33	A.D.B.
	89.9		66.2	0.33	89.9	66.2	0.33	D.B.
65M x 0	10.1	0.6	32.9	0.58	100.0	62.4	0.36	A.D.B.
	10.1		33.1	0.58	100.0	62.9	0.36	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	6.2	0.9	8.3	18.2	72.6	0.79	6.2	8.3	A.D.B.
	6.2		8.4	18.4	73.2	0.80	6.2	8.4	D.B.
1.40-1.50	6.6	1.0	15.0	15.9	68.1	0.74	12.8	11.8	A.D.B.
	6.6		15.2	16.1	68.7	0.75	12.8	11.9	D.B.
1.50-1.60	5.9	1.0	22.3				18.7	15.1	A.D.B.
	5.9		22.5				18.7	15.2	D.B.
+1.60	81.3	0.7	77.3				100.0	65.7	A.D.B.
	81.3		77.8				100.0	66.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
4	0.07	406	---	22% @ 468°C	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8863 Date April 25, 1977

Client: ELCO KINING LTD.

Sample Identification: Drl-2-6

Starting Temperature °C: 320

Softening Temperature °C: 406

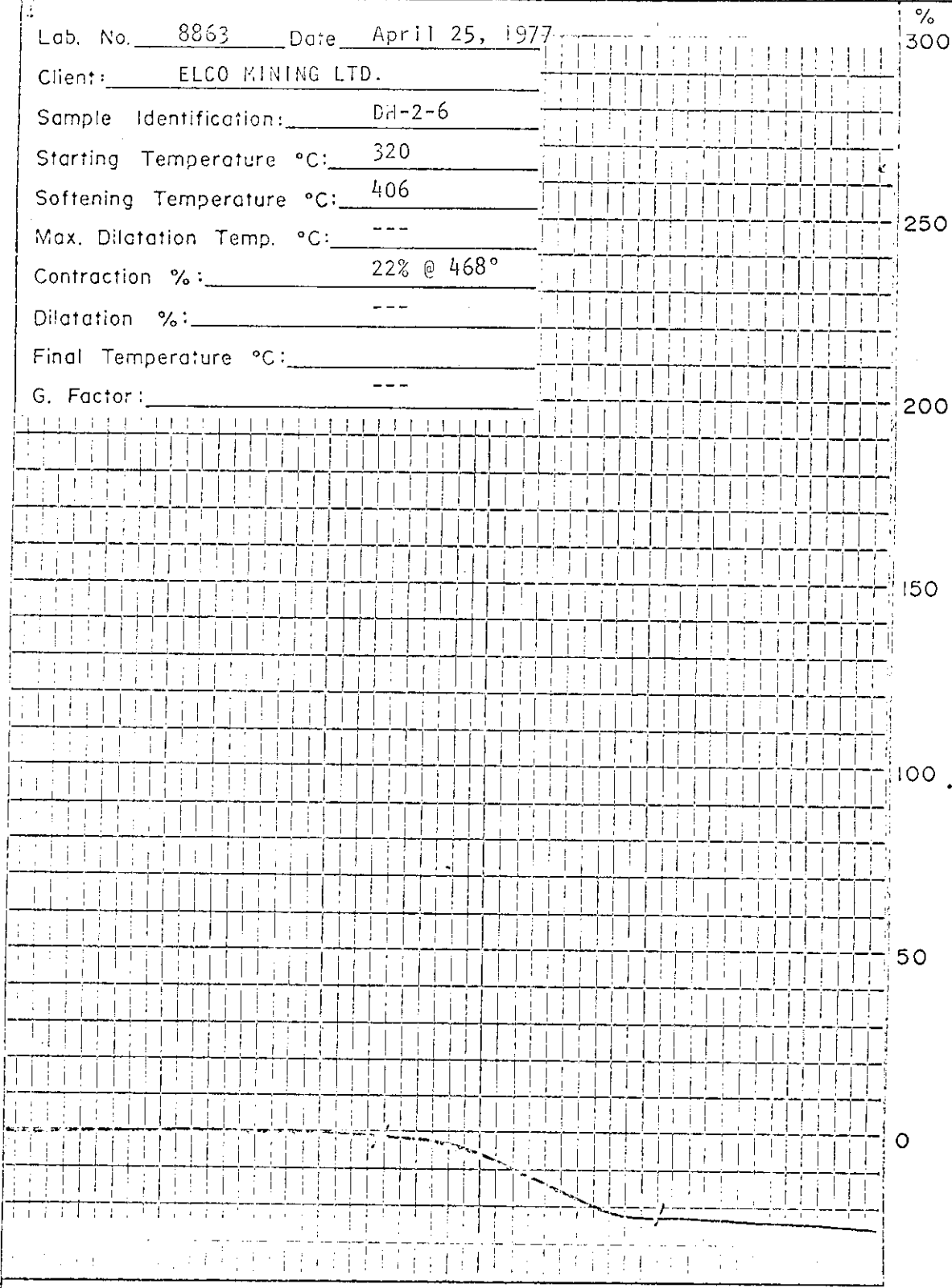
Max. Dilatation Temp. °C: ---

Contraction %: 22% @ 468°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-7

Lab. No. 8864

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	26.1	15.2	58.1	0.53	113	Air Dried Basis
	26.3	15.3	58.4	0.53	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	73.7	0.7	29.9	0.51	73.7	29.9	0.51	A.D.B.
	73.7		30.1	0.51	73.7	30.1	0.51	D.B.
65M x 0	26.3	0.6	18.5	0.54	100.0	26.9	0.52	A.D.B.
	26.3		18.6	0.54	100.0	27.1	0.52	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	58.1	0.6	6.7	18.2	74.5	0.61	58.1	6.7	A.D.B.
	58.1		6.7	18.3	75.0	0.61	58.1	6.7	D.B.
1.40-1.50	4.5	1.0	14.6	16.7	67.7	0.52	62.6	7.3	A.D.B.
	4.5		14.7	16.9	68.4	0.53	62.6	7.3	D.B.
1.50-1.60	3.4	1.0	22.2				66.0	8.0	A.D.B.
	3.4		22.4				66.9	8.1	D.B.
+1.60	34.0	0.6	74.8				100.0	30.7	A.D.B.
	34.0		75.3				100.0	30.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
2	0.02	414	---	13% @ 482°C	---	---	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8864 Date April 25, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-2-7

Starting Temperature °C: 320

Softening Temperature °C: 414

Max. Dilatation Temp. °C: ---

Contraction %: 13% @ 482°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---

250

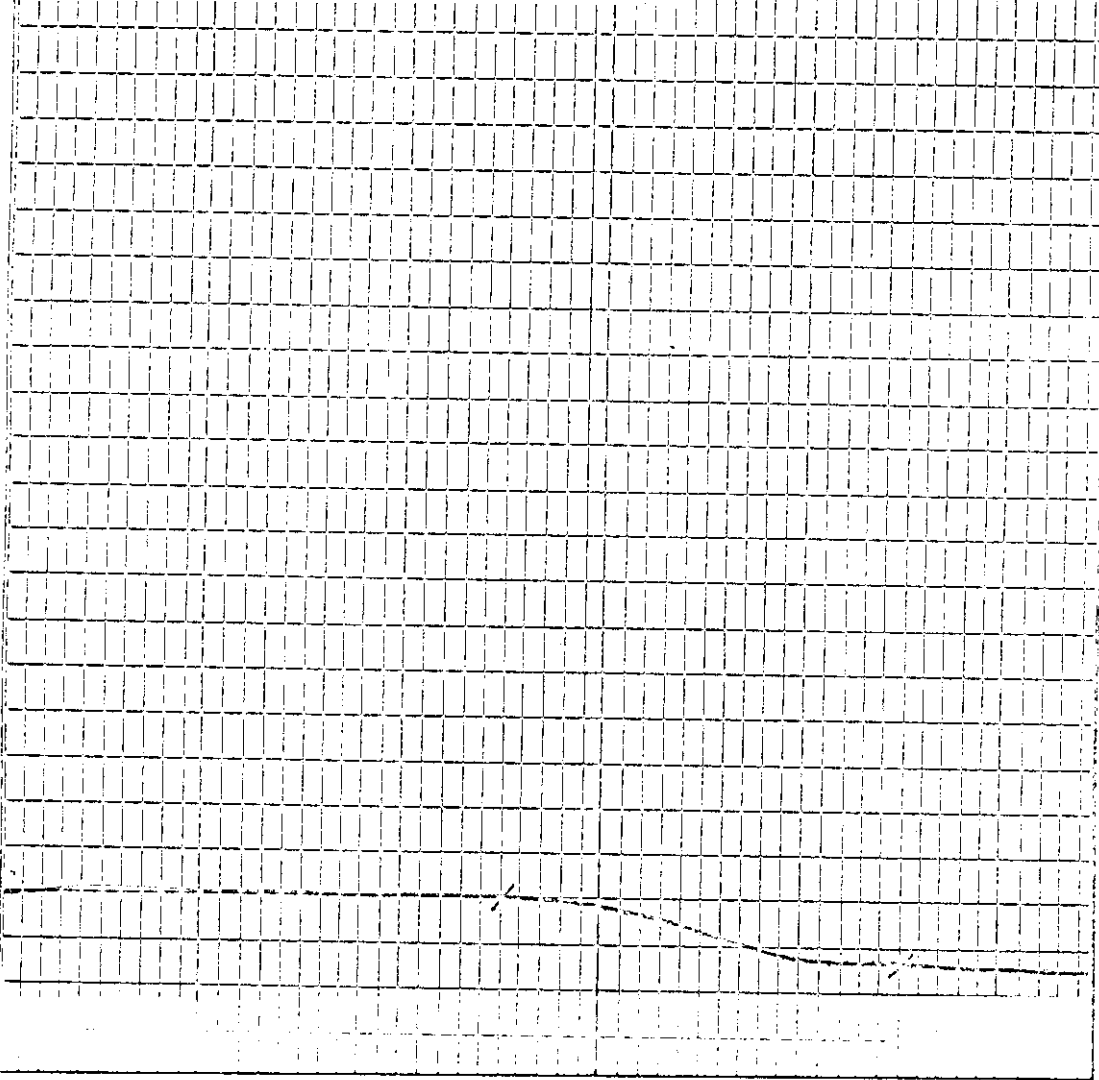
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-2-8                      Lab. No. 8865                      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	26.6	15.5	57.3	0.39	95	Air Dried Basis
	26.8	15.6	57.6	0.39	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.0	0.7	27.9	0.40	92.0	27.9	0.40	A.D.B.
	92.0		28.1	0.40	92.0	28.1	0.40	D.B.
65M x 0	8.0	0.6	20.8	0.57	100.0	27.3	0.41	A.D.B.
	8.0		20.9	0.57	100.0	27.5	0.41	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	53.1	0.6	5.0	19.7	74.7	0.52	53.1	5.0	A.D.B.
	53.2		5.0	19.8	75.2	0.52	53.2	5.0	D.B.
1.40-1.50	9.4	0.9	15.7	17.0	66.4	0.50	62.5	6.6	A.D.B.
	9.3		15.8	17.2	67.0	0.50	62.5	6.6	D.B.
1.50-1.60	6.4	1.0	23.0				68.9	8.1	A.D.B.
	6.4		23.2				68.9	8.1	D.B.
+1.60	31.1	0.8	74.0				100.0	28.6	A.D.B.
	31.1		74.6				100.0	28.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP. (°C)	MAX. DIL. TEMP. (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.04	396	471	22	23	1.002

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8865 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-2-8

Starting Temperature °C: 320

Softening Temperature °C: 396

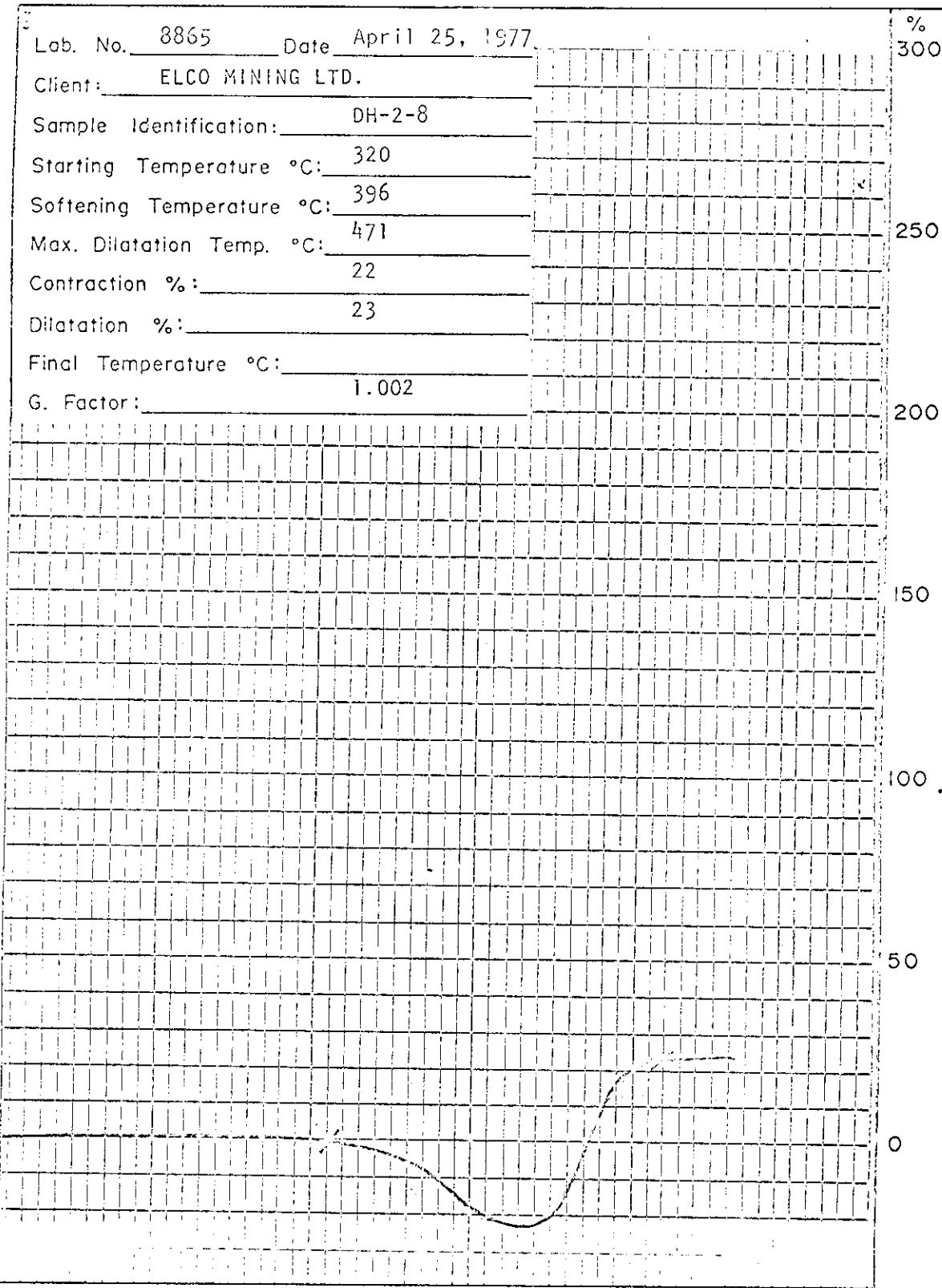
Max. Dilatation Temp. °C: 471

Contraction %: 22

Dilatation %: 23

Final Temperature °C:

G. Factor: 1.002



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3-1 Lab. No.: 77 - 4004 Date: April 20, 1977

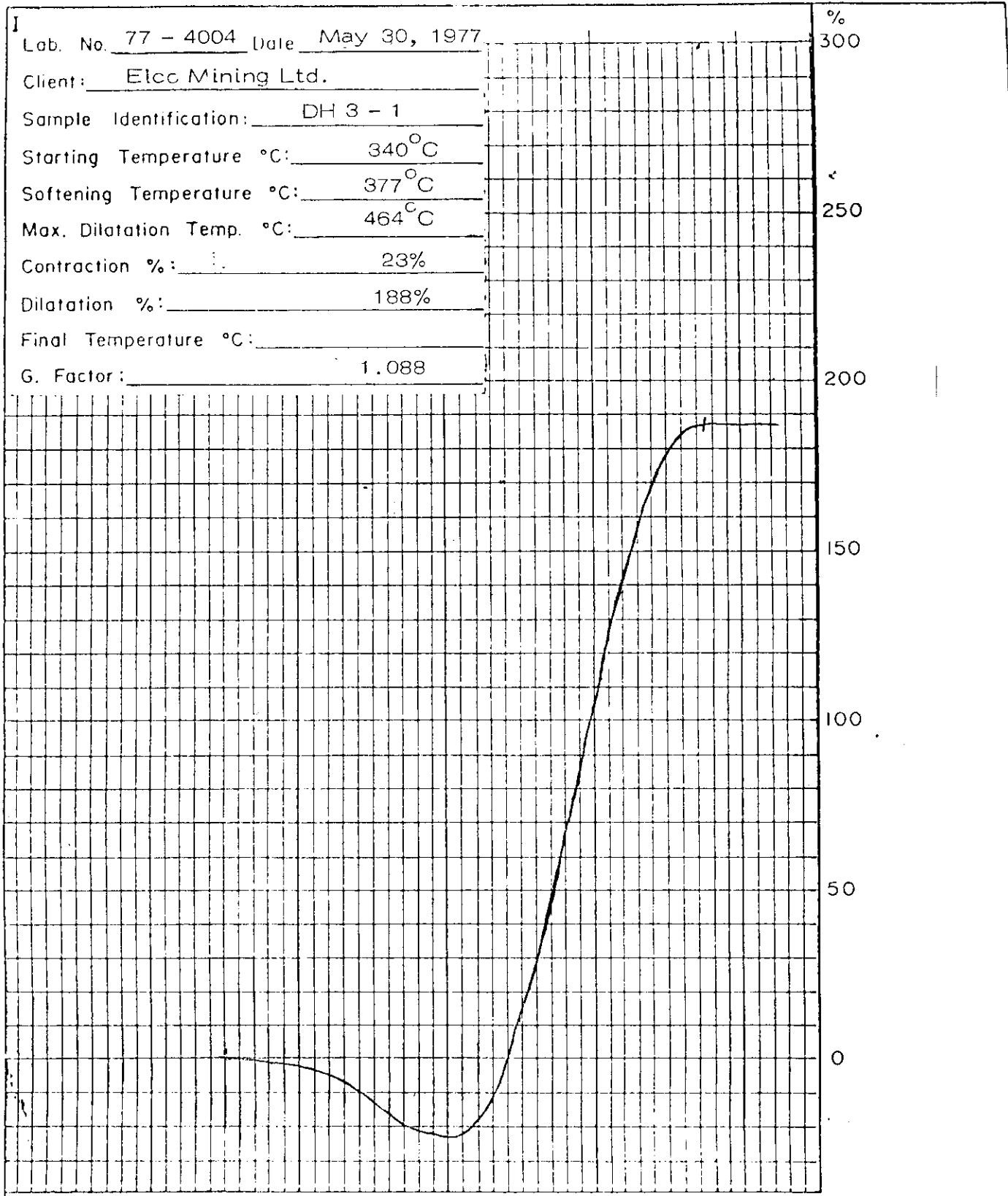
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	59.3	16.1	23.7	0.62	68.4	Air Dried Basis
--	59.8	16.2	24.0	0.63	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	86.7	0.8	62.0	0.59	86.7	62.0	0.59	A.D.B.
	86.7	--	62.5	0.59	86.7	62.5	0.59	D.B.
65 x 0	13.3	0.7	46.6	0.80	100.0	60.0	0.62	A.D.B.
	13.3	--	46.9	0.81	100.0	60.4	0.62	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	11.9	1.1	4.5	27.3	67.1	0.86	11.9	4.5	A.D.B.
	11.9	--	4.6	27.6	67.8	0.87	11.9	4.6	D.B.
1.40-1.50	3.3	0.9	17.8	22.3	59.0	0.81	15.2	7.4	A.D.B.
	3.3	--	18.0	22.5	59.5	0.82	15.2	7.5	D.B.
1.50-1.60	2.7	1.2	28.1	--	--	--	17.9	10.5	A.D.B.
	2.7	--	28.5	--	--	--	17.9	10.7	D.B.
+1.60	82.1	1.2	73.9	--	--	--	100.0	62.6	A.D.B.
	82.1	--	74.8	--	--	--	100.0	63.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.007					

I  
 Lab. No. 77 - 4004 Date May 30, 1977  
 Client: Elcc Mining Ltd.  
 Sample Identification: DH 3 - 1  
 Starting Temperature °C: 340°C  
 Softening Temperature °C: 377°C  
 Max. Dilatation Temp. °C: 464°C  
 Contraction %: 23%  
 Dilatation %: 188%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.088



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 2      Lab. No.: 77 - 4005      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	45.1	16.4	37.9	0.60	103.1	Air Dried Basis
--	45.4	16.5	38.1	0.60	---	Dry Basis

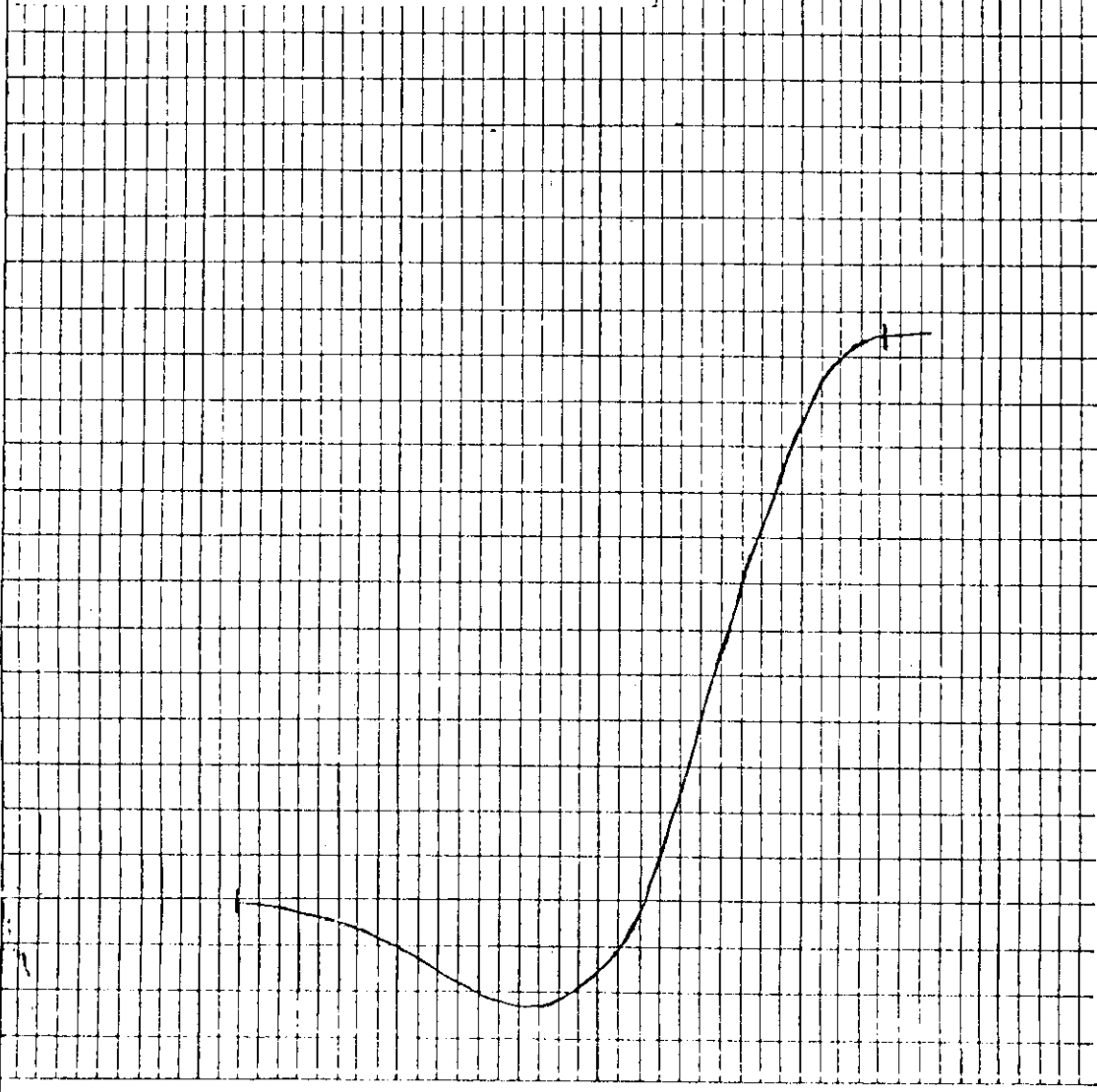
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	86.4	0.6	45.0	0.64	86.4	45.0	0.64	A.D.B.
	86.4	--	45.3	0.64	86.4	45.3	0.64	D.B.
65 x 0	13.6	0.7	41.2	0.72	100.0	44.5	0.65	A.D.B.
	13.6	--	41.4	0.72	100.0	44.8	0.65	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	41.7	0.8	4.8	27.4	67.0	0.73	41.7	4.8	A.D.B.
	41.7	--	4.9	27.6	67.5	0.74	41.7	4.9	D.B.
1.40-1.50	2.7	1.0	17.2	24.7	57.1	0.72	44.4	5.6	A.D.B.
	2.7	--	17.4	24.9	57.7	0.73	44.4	5.7	D.B.
1.50-1.60	1.3	1.1	23.8	--	--	--	45.7	6.1	A.D.B.
	1.3	--	24.0	--	--	--	45.7	6.2	D.B.
+1.60	54.3	0.9	76.9	--	--	--	100.0	44.5	A.D.B.
	54.3	--	77.6	--	--	--	100.0	45.0	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
9	0.014					

Lab. No. 77 - 4005 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 2  
 Starting Temperature °C: 360°C  
 Softening Temperature °C: 390°C  
 Max. Dilatation Temp. °C: 474°C  
 Contraction %: 23%  
 Dilatation %: 125%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.072

%  
 300  
 250  
 200  
 150  
 100  
 50  
 0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title  
 RUHR DILATOMETER TEST

Date  
 Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: CH 3 - 3      Lab. No.: 77 - 4006      Date: April 21, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	22.9	22.7	53.9	0.77	123.9	Air Dried Basis
--	23.0	22.8	54.2	0.77	---	Dry Basis

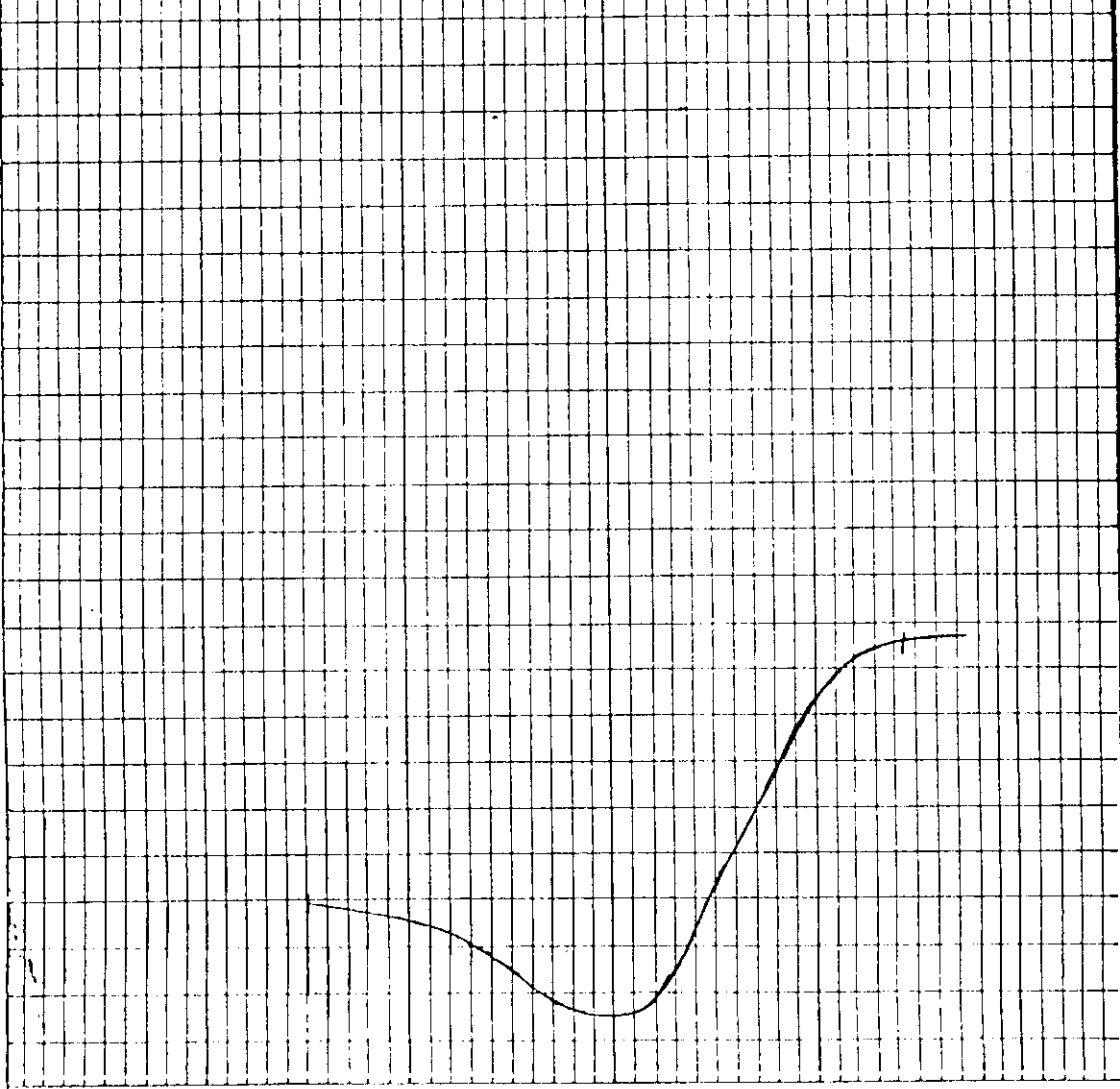
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	84.4	0.5	23.8	0.75	84.4	23.8	0.75	A.D.B.
	84.4	--	24.0	0.75	84.4	24.0	0.75	D.B.
65 x 0	15.6	0.6	20.2	0.71	100.0	23.2	0.74	A.D.B.
	15.6	--	20.3	0.71	100.0	23.4	0.74	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	65.4	1.3	4.7	23.4	70.6	0.74	66.4	4.7	A.D.B.
	66.4	--	4.8	23.7	71.5	0.75	66.4	4.8	D.B.
1.40-1.50	5.2	1.2	15.9	21.2	61.7	0.63	71.6	5.5	A.D.B.
	5.2	--	16.1	21.4	62.5	0.64	71.6	5.6	D.B.
1.50-1.60	2.9	1.1	23.9	--	--	--	74.5	6.2	A.D.B.
	2.9	--	24.2	--	--	--	74.5	6.3	D.B.
+1.60	25.5	1.1	72.7	--	--	--	100.0	23.2	A.D.B.
	25.5	--	73.5	--	--	--	100.0	23.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G. No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
e	0.020					

I  
 Lab. No. 77 - 4006 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 3  
 Starting Temperature °C: 360°C  
 Softening Temperature °C: 392°C  
 Max. Dilatation Temp. °C: 467°C  
 Contraction %: 25%  
 Dilatation %: 57%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.035

%  
 300  
 250  
 200  
 150  
 100  
 50  
 0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 4      Lab. No.: 77 - 4007      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	27.4	20.7	51.4	0.75	114.9	Air Dried Basis
--	27.6	20.8	51.6	0.75	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	85.1	0.6	28.4	0.71	85.1	28.4	0.71	A.D.B.
	85.1	--	28.6	0.71	85.1	28.6	0.71	D.B.
65 x 0	14.9	0.6	24.8	0.75	100.0	27.9	0.72	A.D.B.
	14.9	--	25.0	0.75	100.0	28.1	0.72	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	61.7	0.9	6.5	23.5	69.1	0.83	61.7	6.5	A.D.B.
	61.7	--	6.5	23.7	69.8	0.84	61.7	6.5	D.B.
1.40-1.50	6.7	0.9	16.0	21.8	61.3	0.69	68.4	7.4	A.D.B.
	6.7	--	16.1	22.0	61.9	0.70	68.4	7.4	D.B.
1.50-1.60	2.8	1.2	23.7	--	--	--	71.2	8.1	A.D.B.
	2.8	--	24.0	--	--	--	71.2	8.1	D.B.
+1.60	28.8	1.0	77.5	--	--	--	100.0	28.1	A.D.B.
	28.8	--	78.2	--	--	--	100.0	28.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
		8½	0.053			

I Lab. No. 77 - 4007 Date May 30, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 3 - 4

Starting Temperature °C: 340°C

Softening Temperature °C: 396°C

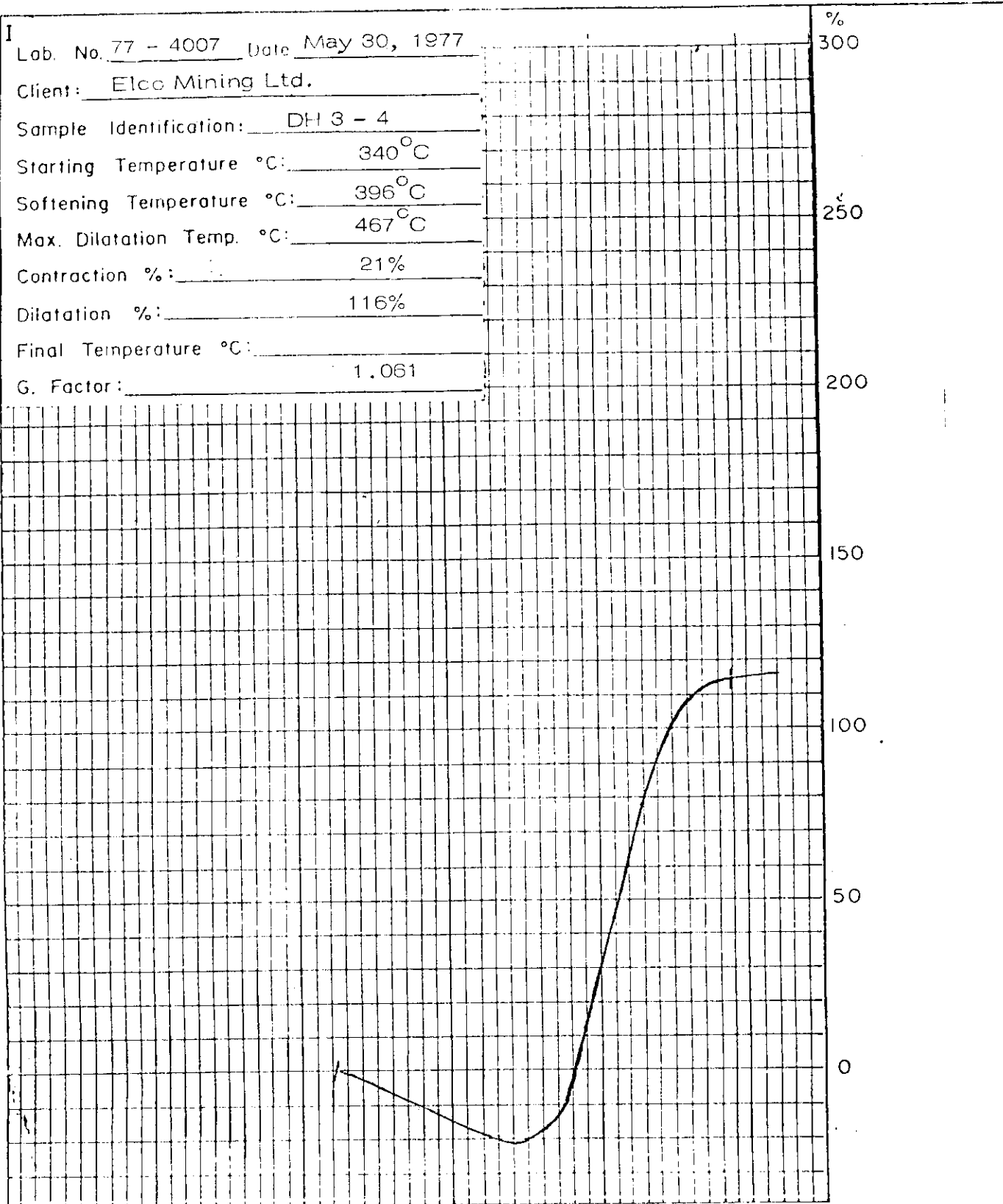
Max. Dilatation Temp. °C: 467°C

Contraction %: 21%

Dilatation %: 116%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.061



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 5      Lab. No.: 77 - 4008      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	18.9	20.4	60.1	0.81	128.0	Air Dried Basis
--	19.0	20.6	60.4	0.82	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	86.7	0.6	17.0	0.77	86.7	17.0	0.77	A.D.B.
	86.7	--	17.0	0.77	86.7	17.0	0.77	D.B.
65 x 0	13.3	0.6	25.8	0.81	100.0	18.2	0.78	A.D.B.
	13.3	--	26.0	0.82	100.0	18.2	0.78	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	77.7	1.3	4.1	24.1	70.5	0.83	77.7	4.1	A.D.B.
	77.7	--	4.2	24.4	71.4	0.84	77.7	4.2	D.B.
1.40-1.50	3.4	1.2	13.4	22.6	62.8	0.64	81.1	4.5	A.D.B.
	3.4	--	13.6	22.8	63.6	0.65	81.1	4.6	D.B.
1.50-1.60	1.2	1.0	18.7	--	--	--	82.3	4.7	A.D.B.
	1.2	--	18.9	--	--	--	82.3	4.8	D.B.
+1.60	17.7	1.3	71.2	--	--	--	100.0	16.5	A.D.B.
	17.7	--	72.2	--	--	--	100.0	16.7	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8	0.069					

I Lab. No. 77 - 4008 Date May 30, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 3 - 5

Starting Temperature °C: 360°C

Softening Temperature °C: 404°C

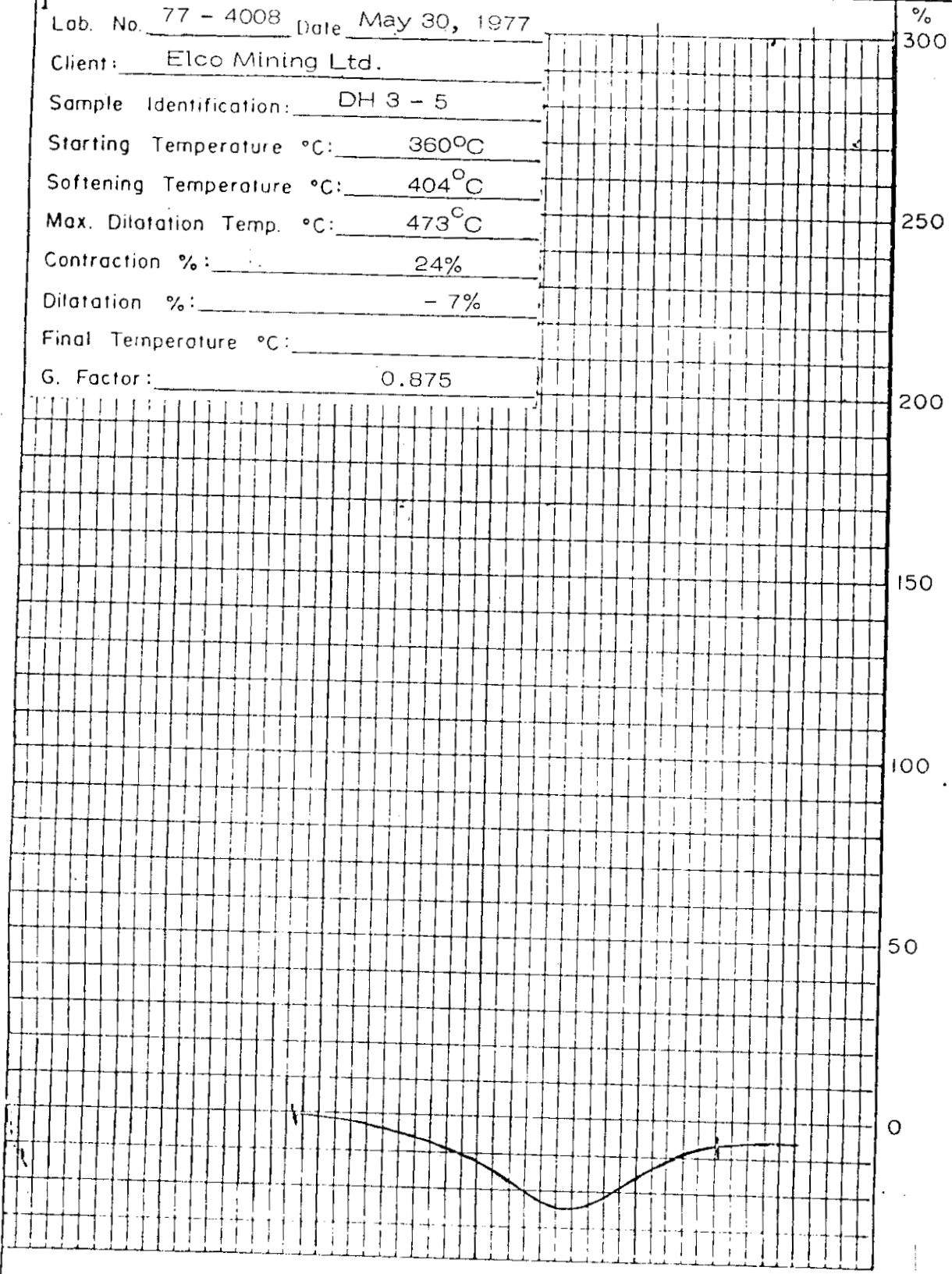
Max. Dilatation Temp. °C: 473°C

Contraction %: 24%

Dilatation %: - 7%

Final Temperature °C: \_\_\_\_\_

G. Factor: 0.875



WARNOCK HERSEY PROFESSIONAL SERVICES

Title <p style="text-align: center;">RUHR DILATOMETER TEST</p>	Date
	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 6      Lab. No.: 77 - 4009      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	7.1	25.8	66.5	1.36	141.9	Air Dried Basis
--	7.1	25.9	67.0	1.37	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	84.4	0.5	7.7	1.36	84.4	7.7	1.36	A.D.B.
	84.4	--	7.8	1.37	84.4	7.8	1.37	D.B.
65 x 0	15.6	0.6	3.6	0.96	100.0	7.1	1.30	A.D.B.
	15.6	--	3.6	0.97	100.0	7.2	1.31	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	88.0	1.1	2.7	24.4	71.8	1.04	88.0	2.7	A.D.B.
	88.0	--	2.7	24.6	72.7	1.05	88.0	2.7	D.B.
1.40-1.50	2.1	0.9	11.2	23.0	64.9	0.69	90.1	2.9	A.D.B.
	2.1	--	11.3	23.2	65.5	0.70	90.1	2.9	D.B.
1.50-1.60	0.8	0.9	19.6	--	--	---	90.9	3.0	A.D.B.
	0.8	--	19.8	--	--	---	90.9	3.0	D.B.
+1.60	9.1	0.7	60.1	--	--	--	100.0	8.2	A.D.B.
	9.1	--	60.6	--	--	--	100.0	8.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max.Dil.	Maximum	Maximum	G.No.
		Temp.(°C)	Temp.(°C)	Contr.%	Dil. %	
9	0.027					

Lab. No. 77 - 4009 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 3 - 6

Starting Temperature °C: 360°C

Softening Temperature °C: 410°C

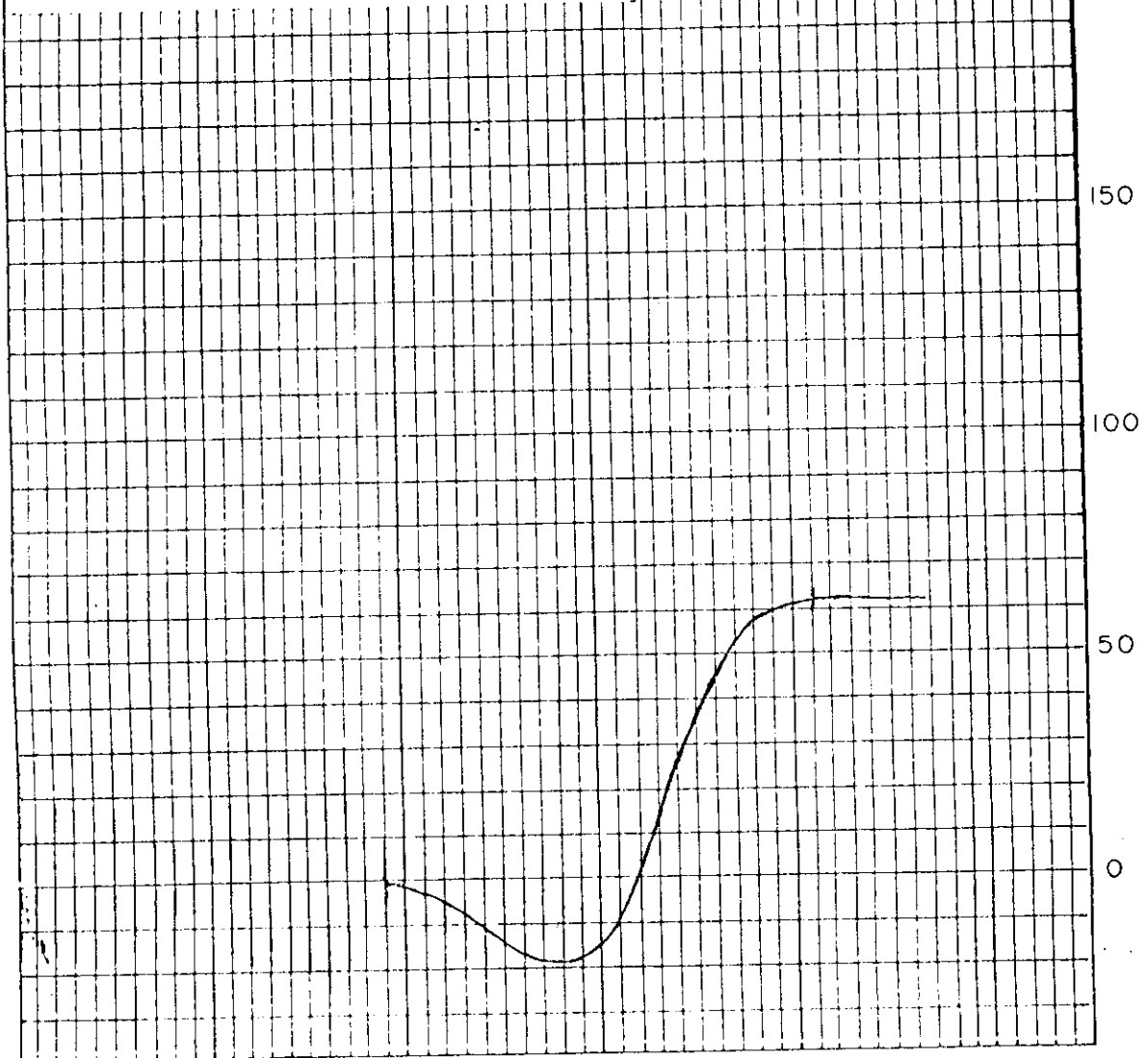
Max. Dilatation Temp. °C: 467°C

Contraction %: 19%

Dilatation %: 62%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.036



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 7

Lab. No.: 77 - 4010

Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	10.7	21.0	67.8	2.72	107.9	Air Dried Basis
--	10.8	21.0	68.2	2.73	--	Dry Basis

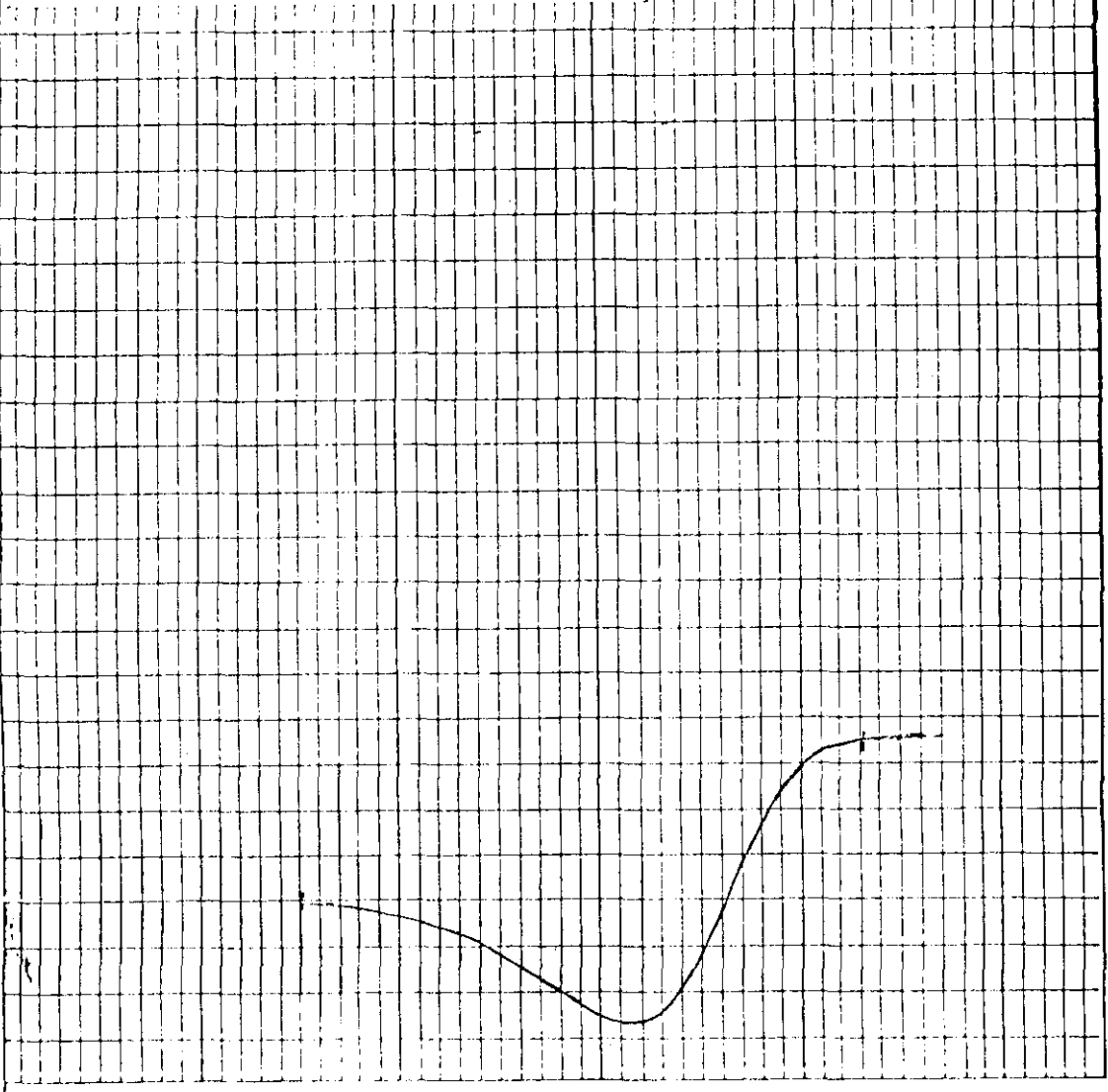
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.2	0.5	10.8	3.09	91.2	10.8	3.09	A.D.B.
	91.2	--	10.8	3.10	91.2	10.8	3.10	D.B.
65 x 0	8.8	0.5	8.4	1.94	100.0	10.6	2.98	A.D.B.
	8.8	--	8.4	1.95	100.0	10.6	2.99	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	82.2	0.8	4.2	22.6	72.4	0.93	82.2	4.2	A.D.B.
	82.2	--	4.2	22.8	73.0	0.94	82.2	4.2	D.B.
1.40-1.50	5.6	0.8	15.1	21.0	63.1	0.78	87.8	4.9	A.D.B.
	5.6	--	15.2	21.2	63.6	0.79	87.8	4.9	D.B.
1.50-1.60	2.1	0.9	24.2	--	--	--	89.9	5.3	A.D.B.
	2.1	--	24.4	--	--	--	89.9	5.4	D.B.
+1.60	10.1	0.5	57.6	--	--	--	100.0	10.6	A.D.B.
	10.1	--	57.8	--	--	--	100.0	10.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.091					

Lab. No 77 - 4010 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 7  
 Starting Temperature °C: 360°C  
 Softening Temperature °C: 397°C  
 Max. Dilatation Temp. °C: 470°C  
 Contraction %: 26%  
 Dilatation %: 35%  
 Final Temperature °C:  
 G. Factor: 1.013

%  
 300  
 250  
 200  
 150  
 100  
 50  
 0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title  
 RUHR DILATOMETER TEST

Date  
 Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 8

Lab. No.: 77 - 4011

Date: April 20, 1977

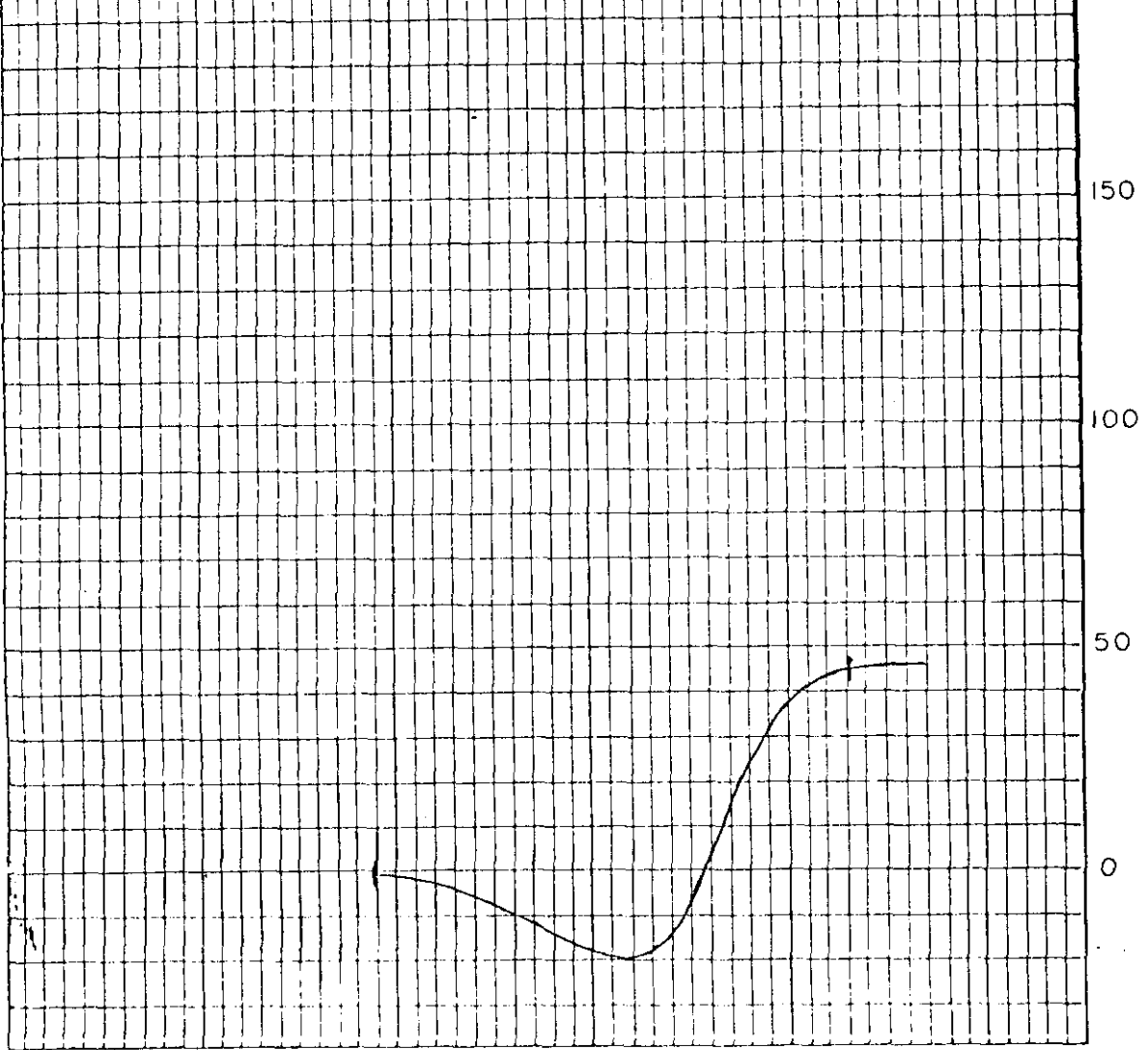
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	24.5	17.6	57.3	0.74	98.9	Air Dried Basis
--	24.6	17.7	57.7	0.74	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.5	0.6	24.5	0.68	90.5	24.5	0.68	A.D.B.
	90.5	--	24.7	0.68	90.5	24.7	0.68	D.B.
65 x 0	9.5	0.5	17.4	0.73	100.0	23.8	0.68	A.D.B.
	9.5	--	17.5	0.73	100.0	24.0	0.68	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	58.4	0.8	5.7	23.0	70.5	0.72	58.4	5.7	A.D.B.
	58.4	--	5.8	23.2	71.0	0.73	58.4	5.8	D.B.
1.40-1.50	6.3	0.7	20.4	18.9	60.0	0.61	64.7	7.1	A.D.B.
	6.3	--	20.5	19.0	60.5	0.61	64.7	7.2	D.B.
1.50-1.60	6.6	1.0	26.5	--	--	--	71.3	8.9	A.D.B.
	6.6	--	26.8	--	--	--	71.3	9.0	D.B.
+1.60	28.7	0.8	65.0	--	--	--	100.0	25.0	A.D.B.
	28.7	--	65.6	--	--	--	100.0	25.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.045					

I  
 Lab. No. 77 - 4011 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 8  
 Starting Temperature °C: 360°C  
 Softening Temperature °C: 407°C  
 Max. Dilatation Temp. °C: 470°C  
 Contraction %: 20%  
 Dilatation %: 45%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.028



WARNOCK HERSEY PROFESSIONAL SERVICES

Title <p style="text-align: center;">RUHR DILATOMETER TEST</p>	Date
	Drawn

# Warnock Hersey Professional Services Ltd.

## ELCO MINING LTD. CORE SAMPLE ANALYSIS

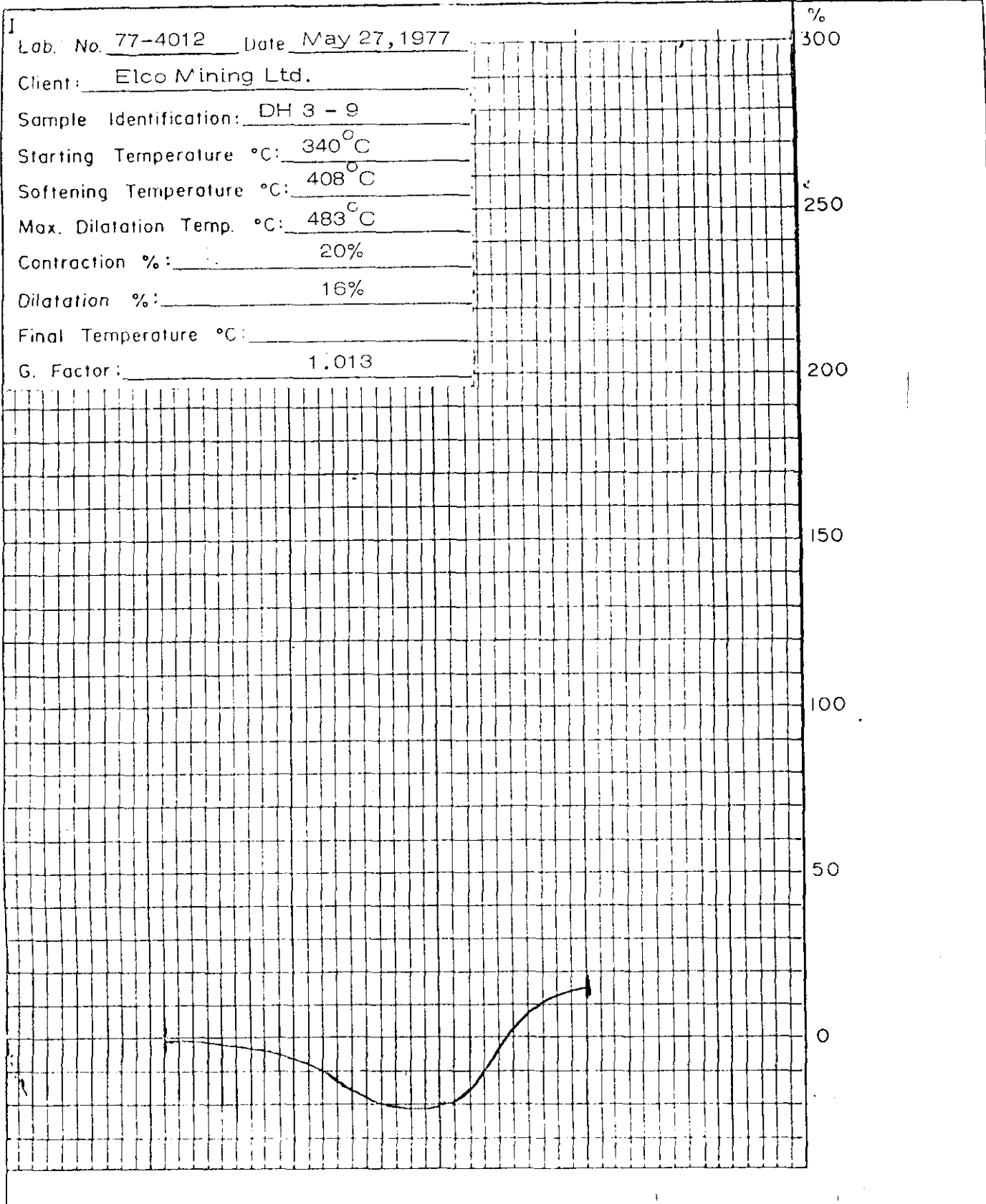
Hole No.: DH 3 - 9      Lab. No.: 77 - 4012      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	45.8	13.8	39.7	0.61	88.5	Air Dried Basis
--	46.2	13.9	39.9	0.61	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.3	0.6	48.8	0.58	88.3	48.8	0.58	A.D.B.
	88.3	--	49.1	0.58	88.3	49.1	0.58	D.B.
65 x 0	11.7	0.6	33.8	0.71	100.0	47.0	0.60	A.D.B.
	11.7	--	34.0	0.71	100.0	47.3	0.60	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	30.6	0.7	4.5	20.9	73.9	0.85	30.6	4.5	A.D.B.
	30.6	--	4.5	21.1	74.4	0.86	30.6	4.5	D.B.
1.40-1.50	6.5	0.5	15.4	19.1	65.0	0.74	37.1	6.4	A.D.B.
	6.5	--	15.5	19.2	65.3	0.74	37.1	6.4	D.B.
1.50-1.60	4.1	0.8	25.4	--	--	--	41.2	8.3	A.D.B.
	4.1	--	25.6	--	--	--	41.2	8.3	D.B.
+1.60	58.8	0.7	78.3	--	--	--	100.0	49.4	A.D.B.
	58.8	--	78.8	--	--	--	100.0	49.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.028					



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 10 Lab. No.: 77 - 4013 Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	25.5	17.8	56.1	0.69	94.1	Air Dried Basis
--	25.6	17.9	56.5	0.69	- - -	Dry Basis

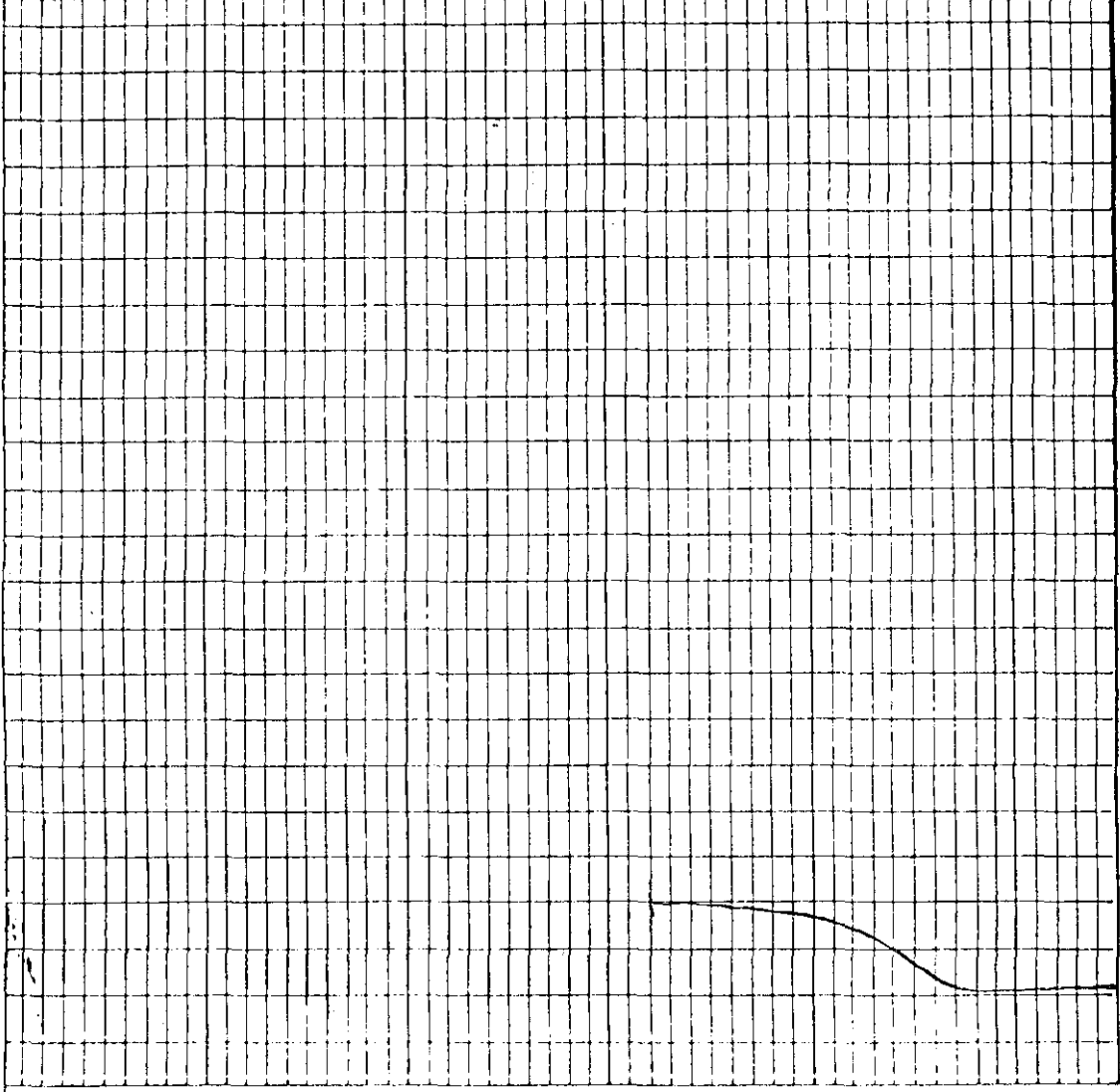
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.8	0.6	25.5	0.68	89.8	25.5	0.68	A.D.B.
	89.8	--	25.6	0.68	89.8	25.6	0.68	D.B.
65 x 0	10.2	0.5	17.9	0.74	100.0	24.7	0.69	A.D.B.
	10.2	--	18.0	0.74	100.0	24.8	0.69	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	59.9	0.6	4.3	20.6	74.5	0.77	59.9	4.3	A.D.B.
	59.9	--	4.4	20.7	74.9	0.78	59.9	4.4	D.B.
1.40-1.50	8.2	0.6	16.5	19.2	63.7	0.68	68.1	5.8	A.D.B.
	8.2	--	16.6	19.3	64.1	0.68	68.1	5.9	D.B.
1.50-1.60	4.7	0.6	27.2	--	--	--	72.8	7.2	A.D.B.
	4.7	--	27.4	--	--	--	72.8	7.3	D.B.
+1.60	27.2	0.7	72.9	--	--	--	100.0	25.0	A.D.B.
	27.2	--	73.4	--	--	--	100.0	25.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8	0.023					

I  
 Lab. No. 77 - 4013 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 10  
 Starting Temperature °C: 340°C  
 Softening Temperature °C: 424°C  
 Max. Dilatation Temp. °C: ---  
 Contraction %: 19%  
 Dilatation %: ---  
 Final Temperature °C: ---  
 G. Factor: ---

%  
 300  
 250  
 200  
 150  
 100  
 50  
 0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title  
 RUHR DILATOMETER TEST

Date  
 Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3- 11

Lab. No.: 77 - 4014

Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	36.4	17.1	46.0	0.65	89.2	Air Dried Basis
--	36.6	17.2	46.2	0.65	---	Dry Basis

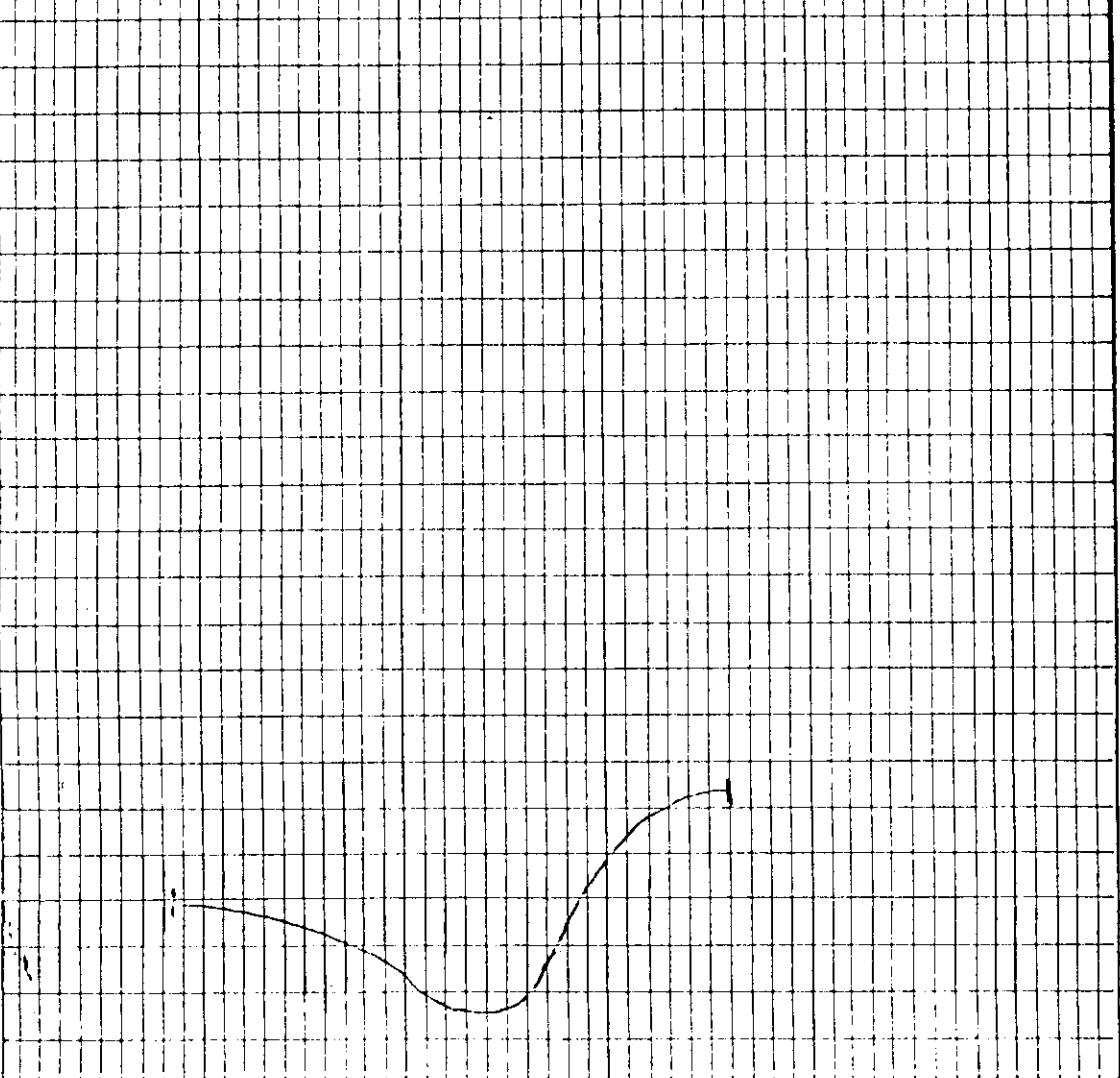
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	87.3	0.5	36.8	0.66	87.3	36.8	0.66	A.D.B.
	87.3	--	37.0	0.66	87.3	37.0	0.66	D.B.
65 x 0	12.7	0.5	28.1	0.67	100.0	35.7	0.66	A.D.B.
	12.7	--	28.2	0.67	100.0	35.9	0.66	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	44.5	0.6	4.7	20.8	73.9	0.80	44.5	4.7	A.D.B.
	44.5	--	4.7	21.0	74.3	0.80	44.5	4.7	D.B.
1.40-1.50	8.1	0.6	17.9	18.6	62.9	0.65	52.6	6.7	A.D.B.
	8.1	--	18.0	18.7	63.3	0.65	52.6	6.7	D.B.
1.50-1.60	4.1	0.8	28.8	--	--	--	56.7	8.3	A.D.B.
	4.1	--	29.1	--	--	--	56.7	8.4	D.B.
+1.60	43.3	0.7	73.3	--	--	--	100.0	36.5	A.D.B.
	43.3	--	73.9	--	--	--	100.0	36.7	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.090					

Lab. No. 77-4014 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 11  
 Starting Temperature °C: 340<sup>C</sup>  
 Softening Temperature °C: 409<sup>C</sup>  
 Max. Dilatation Temp. °C: 480<sup>C</sup>  
 Contraction %: 22%  
 Dilatation %: 25%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.0048

%  
 300  
 250  
 200  
 150  
 100  
 50  
 0



Title  
 RUHR DILATOMETER TEST

Date  
 Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 12      Lab. No.: 77 - 4015      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	49.2	12.1	37.9	0.62	80.9	Air Dried Basis
--	49.6	12.2	38.2	0.62	--	Dry Basis

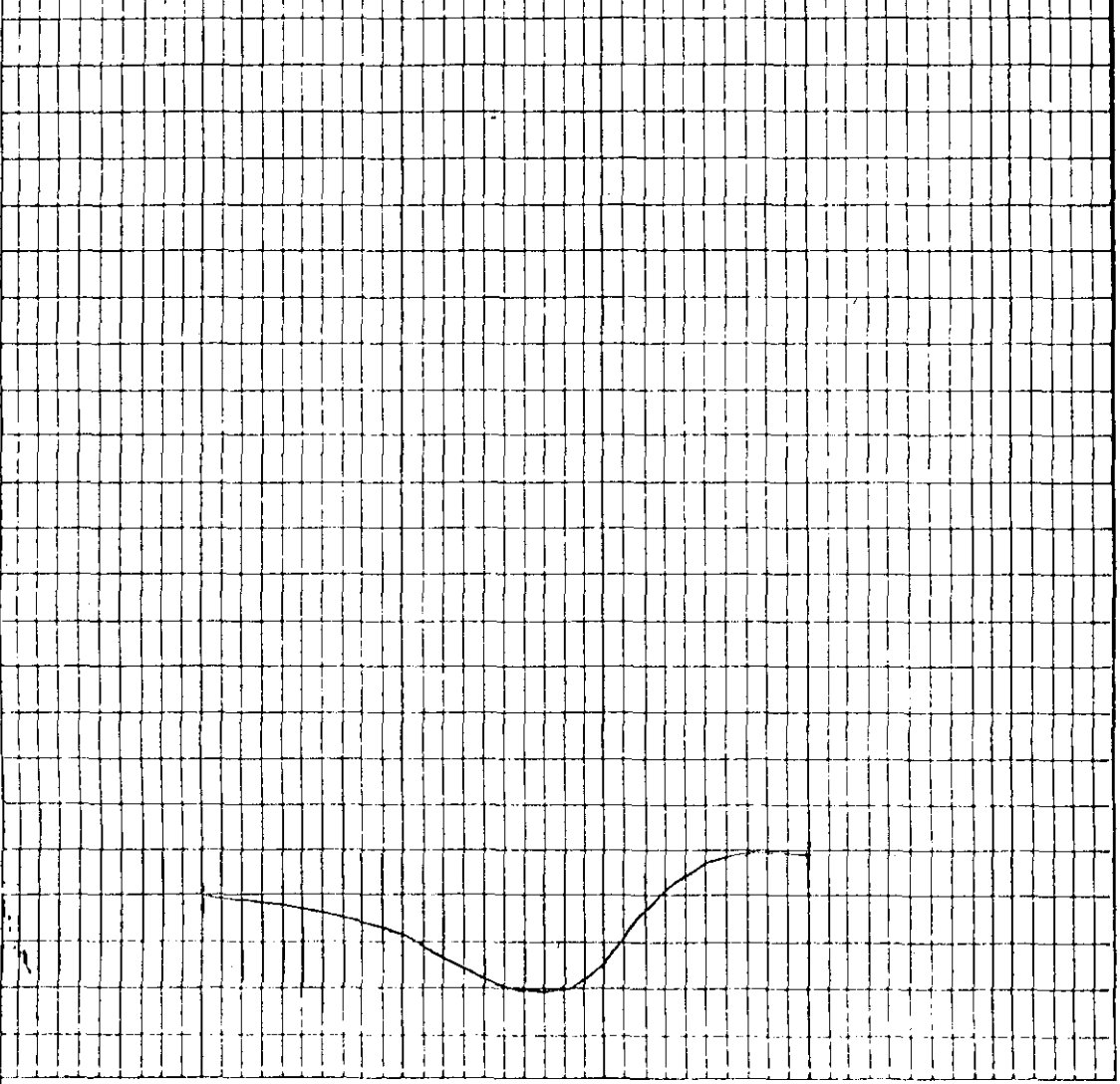
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.2	0.7	48.9	0.61	91.2	48.9	0.61	A.D.B.
	91.2	--	49.3	0.61	91.2	49.3	0.61	D.B.
65 x 0	8.8	0.5	37.0	0.75	100.0	47.8	0.62	A.D.B.
	8.8	--	37.2	0.75	100.0	48.2	0.62	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	34.7	0.5	4.5	20.0	75.0	0.86	34.7	4.5	A.D.B.
	34.7	--	4.5	20.1	75.4	0.86	34.7	4.5	D.B.
1.40-1.50	4.0	0.6	16.7	18.3	64.4	0.78	38.7	5.7	A.D.B.
	4.0	--	16.8	18.4	64.8	0.78	38.7	5.8	D.B.
1.50-1.60	3.0	0.7	28.3	--	--	--	41.7	7.4	A.D.B.
	3.0	--	28.5	--	--	--	41.7	7.4	D.B.
+1.60	58.3	1.0	80.7	--	--	--	100.0	50.1	A.D.B.
	58.3	--	81.6	--	--	--	100.0	50.7	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
9	0.021					

Lab. No. 77-4015 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 12  
 Starting Temperature °C: 340°C  
 Softening Temperature °C: 399°C  
 Max. Dilatation Temp. °C: 477°C  
 Contraction %: 21%  
 Dilatation %: 9%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: .8145

%  
 300  
 250  
 200  
 150  
 100  
 50  
 0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 13 Lab. No.: 77 - 4016 Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	23.6	17.1	58.8	0.55	87.8	Air Dried Basis
--	23.7	17.2	59.1	0.55	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.6	0.5	23.2	0.57	91.6	23.2	0.57	A.D.B.
	91.6	--	23.3	0.57	91.6	23.3	0.57	D.B.
65 x 0	8.4	0.4	16.8	0.66	100.0	22.7	0.58	A.D.B.
	8.4	--	16.9	0.66	100.0	22.8	0.58	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	62.2	0.7	5.4	19.8	74.1	0.69	62.2	5.4	A.D.B.
	62.2	--	5.4	19.9	74.7	0.70	62.2	5.4	D.B.
1.40-1.50	9.3	0.5	18.0	17.9	63.6	0.58	71.5	7.0	A.D.B.
	9.3	--	18.0	18.0	64.0	0.58	71.5	7.0	D.B.
1.50-1.60	6.1	0.5	31.0	--	--	--	77.6	8.9	A.D.B.
	6.1	--	31.1	--	--	--	77.6	8.9	D.B.
+1.60	22.4	0.6	71.8	--	--	--	100.0	23.0	A.D.B.
	22.4	--	72.3	--	--	--	100.0	23.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
7½	0.012					

Lab. No. 77-4016 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 3-13

Starting Temperature °C: 340 °C

Softening Temperature °C: 410 °C

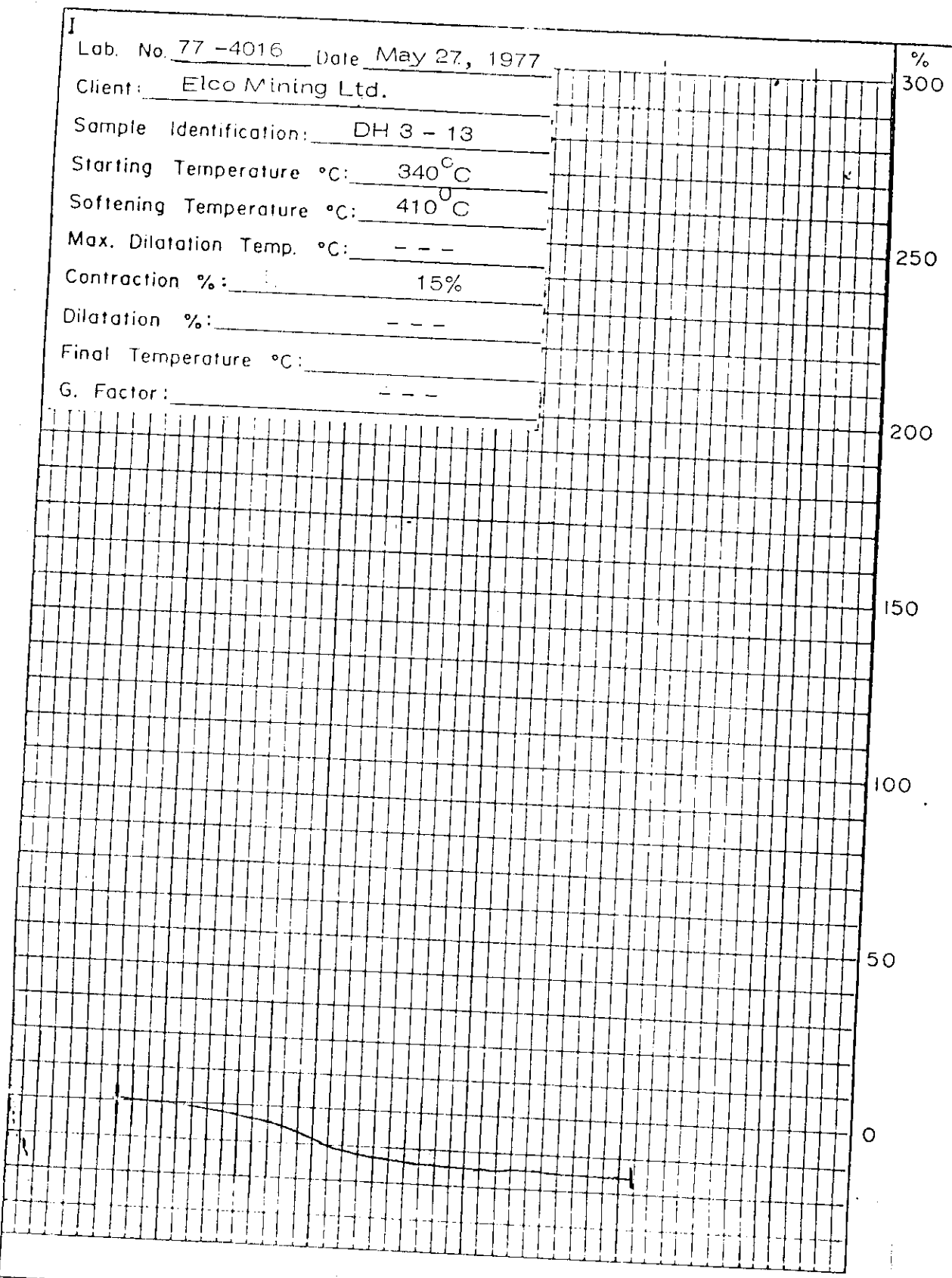
Max. Dilatation Temp. °C: ---

Contraction %: 15%

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



WARNCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 14

Lab. No.: 77 - 4017

Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	22.2	17.4	59.9	0.52	84.4	Air Dried Basis
--	22.4	17.5	60.1	0.52	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	87.0	0.6	22.5	0.48	87.0	22.5	0.48	A.D.B.
	87.0	--	22.6	0.48	87.0	22.6	0.48	D.B.
65 x 0	13.0	0.6	16.0	0.55	100.0	21.7	0.49	A.D.B.
	13.0	--	16.1	0.55	100.0	21.8	0.49	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	55.2	0.7	6.1	19.9	73.3	0.57	55.2	6.1	A.D.B.
	55.2	--	6.1	20.0	73.9	0.57	55.2	6.1	D.B.
1.40-1.50	13.2	0.6	17.3	18.0	64.1	0.50	68.4	8.3	A.D.B.
	13.2	--	17.4	18.1	64.5	0.50	68.4	8.3	D.B.
1.50-1.60	7.5	0.6	27.6	--	--	--	75.9	10.2	A.D.B.
	7.5	--	27.8	--	--	--	75.9	10.2	D.B.
+1.60	24.1	0.7	61.2	--	--	--	100.0	22.5	A.D.B.
	24.1	--	61.6	--	--	--	100.0	22.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
4½	0.023					

Lab. No. 77-4017 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 3 - 14

Starting Temperature °C: 340°C

Softening Temperature °C: 415°C

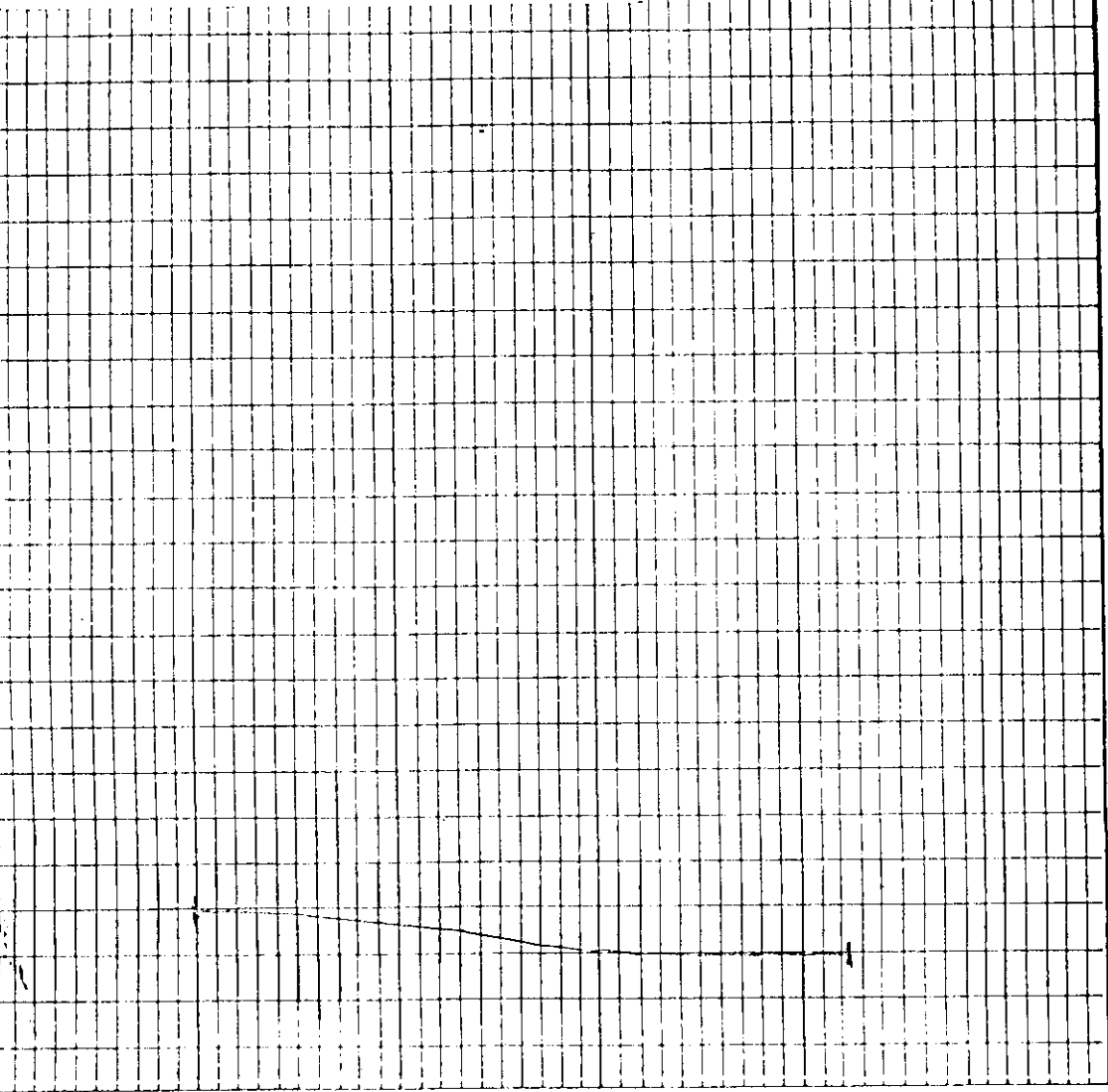
Max. Dilatation Temp. °C: ---

Contraction %: 10%

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 3 - 15 Lab. No.: 77 - 4018 Date: April 20, 1977

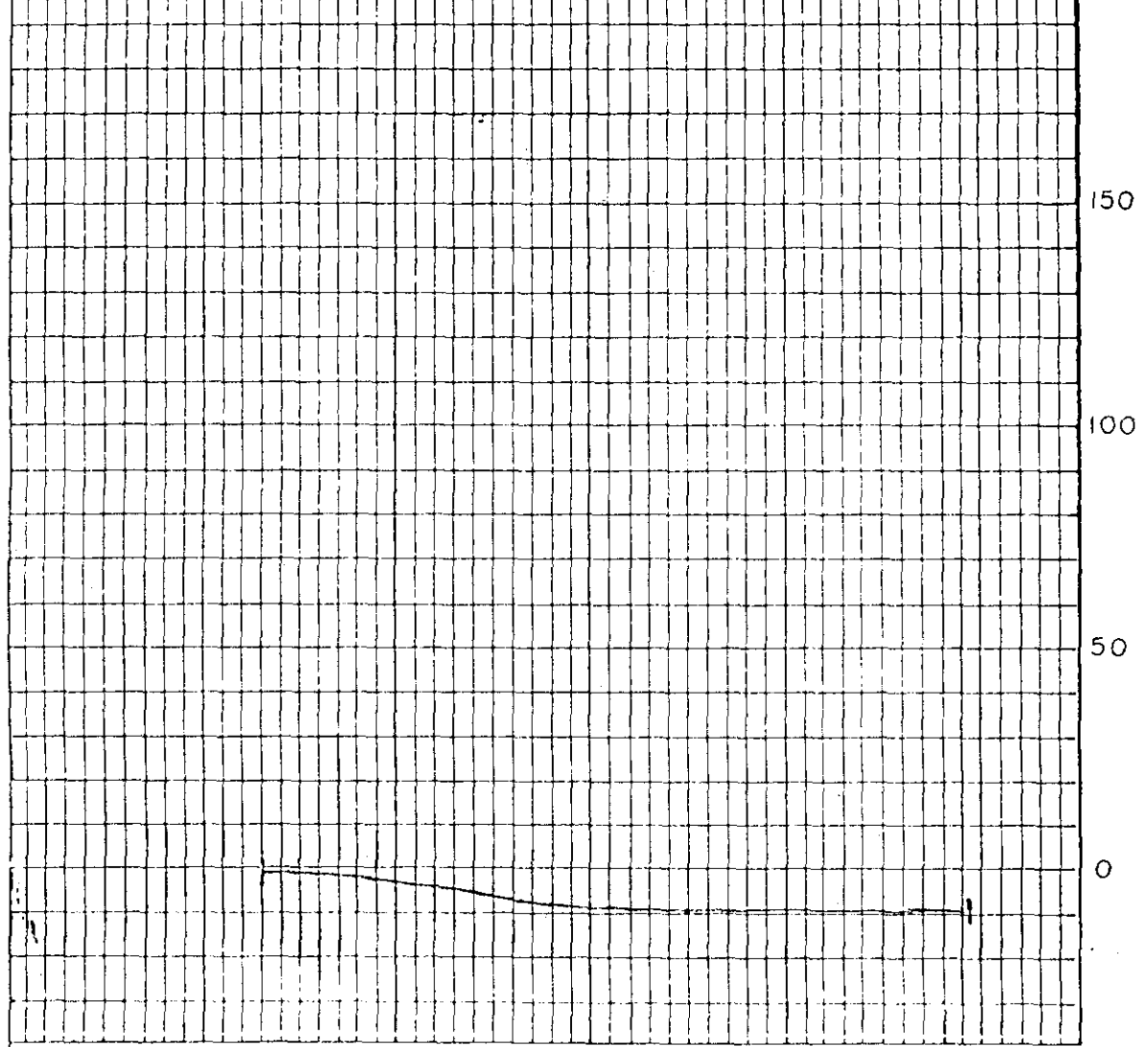
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	40.3	14.8	44.3	0.40	96.2	Air Dried Basis
--	40.5	14.9	44.6	0.41	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	84.7	0.6	43.8	0.35	84.7	43.8	0.35	A.D.B.
	84.7	--	44.1	0.35	84.7	44.1	0.35	D.B.
65 x 0	15.3	0.5	26.1	0.44	100.0	41.1	0.36	A.D.B.
	15.3	--	26.2	0.44	100.0	41.4	0.36	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	38.0	1.2	5.8	19.7	73.3	0.57	38.0	5.8	A.D.B.
	38.1	--	5.9	19.9	74.2	0.58	38.1	5.9	D.B.
1.40-1.50	7.8	0.8	16.3	17.7	65.2	0.46	45.8	7.6	A.D.B.
	7.8	--	16.4	17.8	65.8	0.46	45.9	7.7	D.B.
1.50-1.60	6.3	0.9	24.0	--	--	--	52.1	9.6	A.D.B.
	6.3	--	24.2	--	--	--	52.2	9.7	D.B.
+1.60	47.9	0.6	79.4	--	--	--	100.0	43.0	A.D.B.
	47.8	--	79.9	--	--	--	100.0	43.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
3½	0.062					

Lab. No. 77 - 4018 Date May 27., 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 3 - 15  
 Starting Temperature °C: 340°C  
 Softening Temperature °C: 426°C  
 Max. Dilatation Temp. °C: ---  
 Contraction %: 9%  
 Dilatation %: ---  
 Final Temperature °C: ---  
 G. Factor: ---



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-1 Lab. No. 8809 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.5	11.3	22.6	64.6	0.63	103	Air Dried Basis
	11.5	22.9	65.6	0.64	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.2	1.0	11.0	0.64	91.2	11.0	0.64	A.D.B.
	91.2		11.1	0.65	91.2	11.1	0.65	D.B.
65M x 0	8.8	1.4	19.7	0.58	100.0	11.8	0.63	A.D.B.
	8.8		20.0	0.59	100.0	11.9	0.64	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	79.9	1.0	3.6	25.0	70.4	0.63	79.9	3.6	A.D.B.
	79.9		3.6	25.3	71.1	0.64	79.9	3.6	D.B.
1.40-1.50	5.8	1.0	13.1	22.4	63.5	0.63	85.7	4.2	A.D.B.
	5.8		13.2	22.6	64.2	0.64	85.7	4.2	D.B.
1.50-1.60	1.9	1.0	26.3				87.6	4.7	A.D.B.
	1.9		26.6				87.6	4.7	D.B.
+1.60	12.4	0.9	61.2				100.0	11.7	A.D.B.
	12.4		61.8				100.0	11.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8 1/2	0.04	381	460	25	35	1.016	

\* S.T. & M.D.T. corrected with factor 6/5

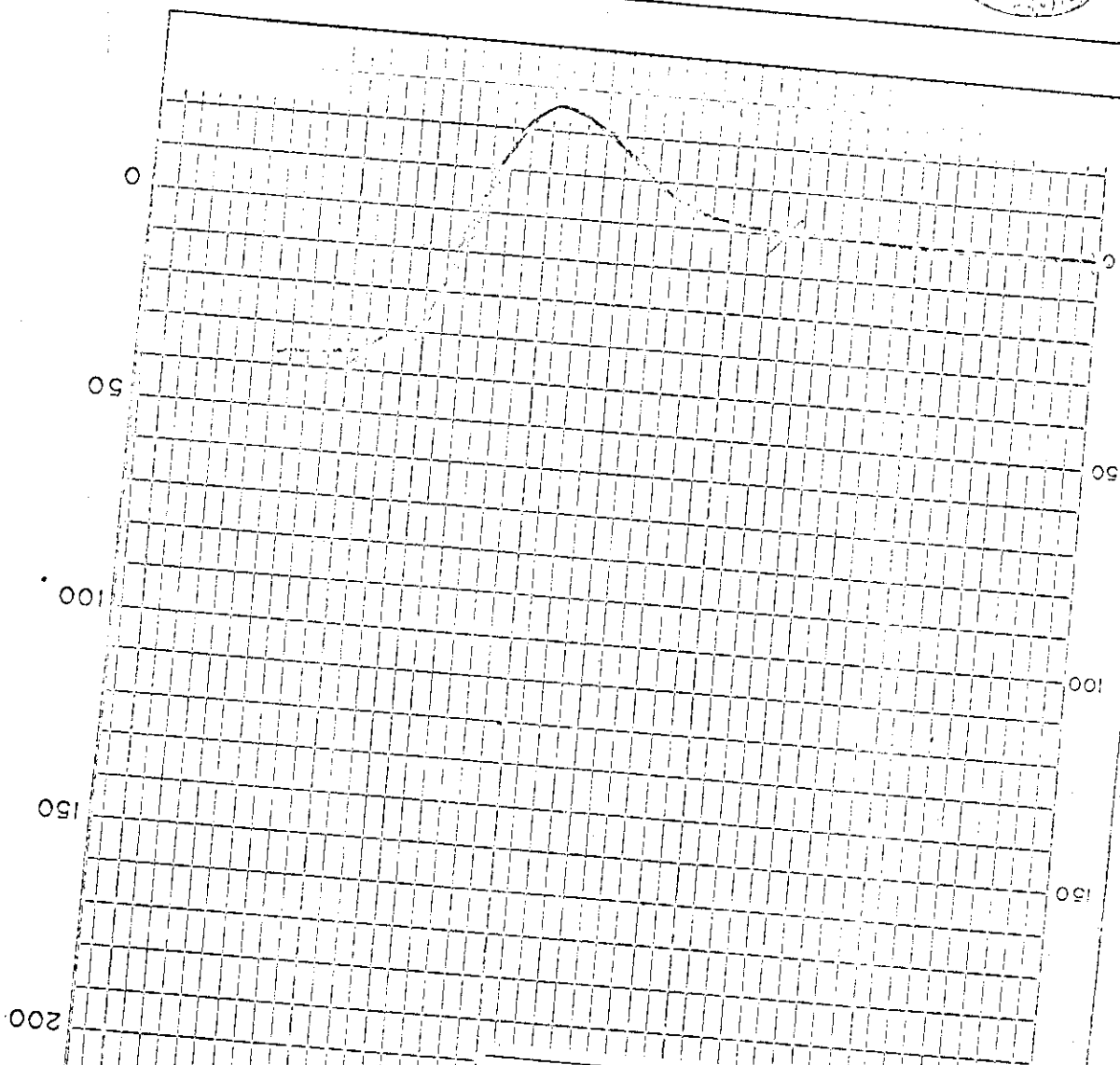
# RUHR DILATOMETER TEST

Drawn

Date

Title

BIRLEY ENGINEERING (CANADA) LTD.



Lab. No.	8809
Date	April 14, 1977
Client	ELCO MINING LTD.
Sample Identification	DH-4-1
Starting Temperature °C	320
Softening Temperature °C	381
Max. Dilatation Temp. °C	460
Contraction %	25
Dilatation %	35
Final Temperature °C	
G. Factor	1.016

300 %

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-2

Lab. No. 8810

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.2	39.1	17.7	42.0	0.69	75	Air Dried Basis
	39.6	17.9	42.5	0.70	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.4	1.2	40.7	0.65	89.4	40.7	0.65	A.D.B.
	89.4		41.2	0.66	89.4	41.2	0.66	D.B.
65M x 0	10.6	1.2	26.1	0.82	100.0	39.2	0.67	A.D.B.
	10.6		26.4	0.83	100.0	39.6	0.68	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	47.2	1.0	4.0	25.3	69.7	0.86	47.2	4.0	A.D.B.
	47.1		4.0	25.6	70.4	0.87	47.1	4.0	D.B.
1.40-1.50	4.2	0.7	19.2	22.3	57.8	0.71	51.4	5.2	A.D.B.
	4.2		19.3	22.5	58.2	0.72	51.3	5.3	D.B.
1.50-1.60	2.0	0.8	29.1				53.4	6.1	A.D.B.
	2.0		29.3				53.3	6.2	D.B.
+1.60	46.6	0.6	78.9				100.0	40.0	A.D.B.
	46.7		79.4				100.0	40.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)					G. NO.
		SOFTENING TEMP. * (°C)	MAX. DIL. TEMP. * (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8	0.04	374	457	29	137	1.069	

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

Lab. No. 8810 Date April 14, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-4-2

Starting Temperature °C: 320

Softening Temperature °C: 374

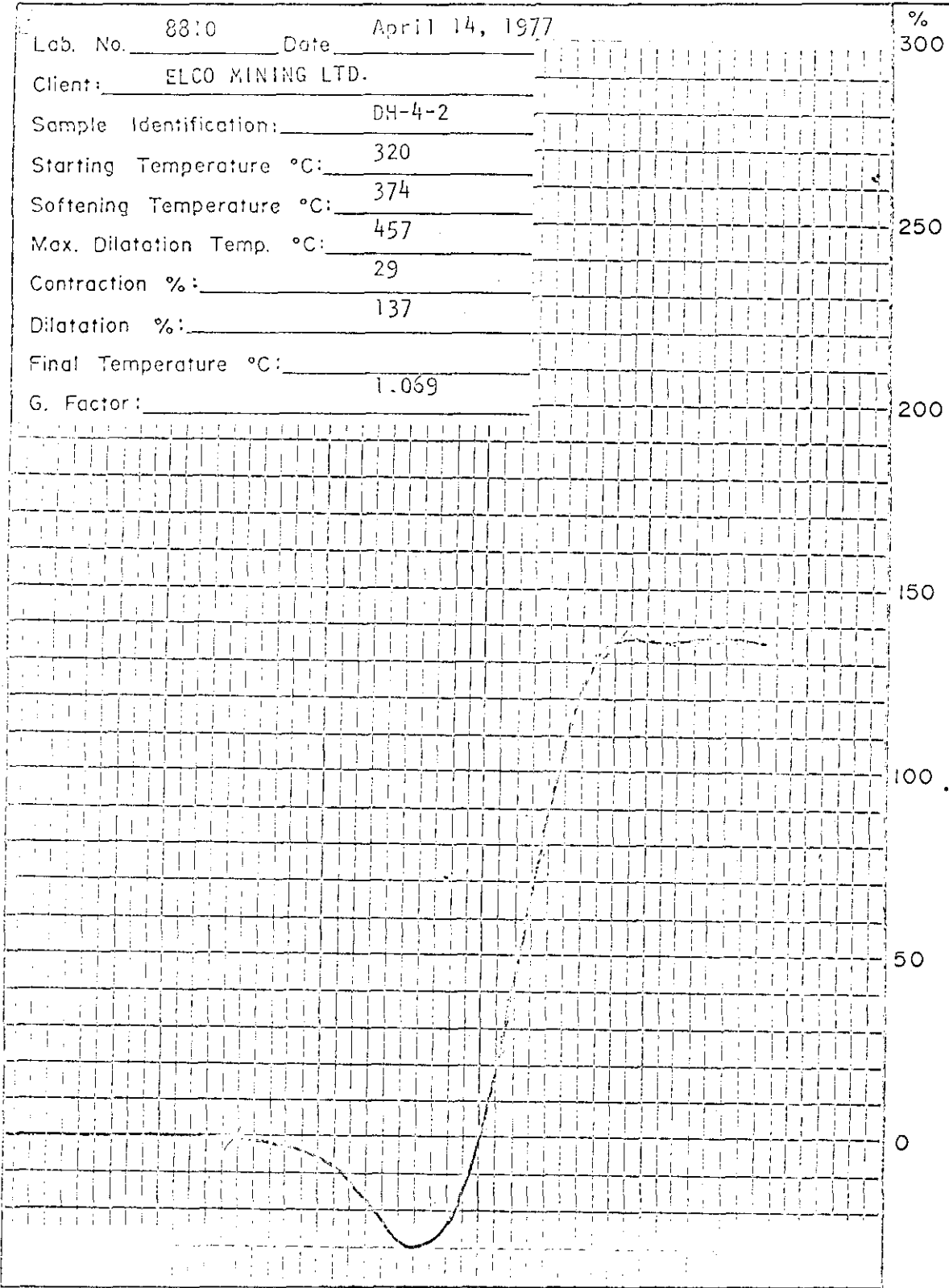
Max. Dilatation Temp. °C: 457

Contraction %: 29

Dilatation %: 137

Final Temperature °C: 1069

G. Factor: 1.069



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-3

Lab. No. 8811

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	37.1	17.1	44.8	0.69	78	Air Dried Basis
	37.5	17.3	45.2	0.70	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.7	1.0	38.5	0.71	94.7	38.5	0.71	A.D.B.
	94.7		38.9	0.72	94.7	38.9	0.72	D.B.
65M x 0	5.3	0.9	20.0	0.84	100.0	37.5	0.72	A.D.B.
	5.3		20.2	0.85	100.0	37.9	0.73	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	47.8	0.6	4.8	24.5	70.1	0.93	45.8	4.8	A.D.B.
	47.8		4.8	24.6	70.6	0.94	47.8	4.8	D.B.
1.40-1.50	4.2	0.6	22.3	20.5	56.6	0.78	52.0	6.2	A.D.B.
	4.2		22.4	20.6	57.0	0.78	52.0	6.2	D.B.
1.50-1.60	3.7	0.6	34.6				55.7	8.1	A.D.B.
	3.7		34.8				55.7	8.1	D.B.
+1.60	44.3	0.7	76.3				100.0	38.3	A.D.B.
	44.3		76.8				100.0	38.5	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.05	373	464	25	153	1.085

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

Subsidiary of Great West Steel Industries

Lab. No. 8811 Date April 14, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-4-3

Starting Temperature °C: 320

Softening Temperature °C: 373

Max. Dilatation Temp. °C: 464

Contraction %: 25

Dilatation %: 153

Final Temperature °C:

G. Factor: 1.085

250

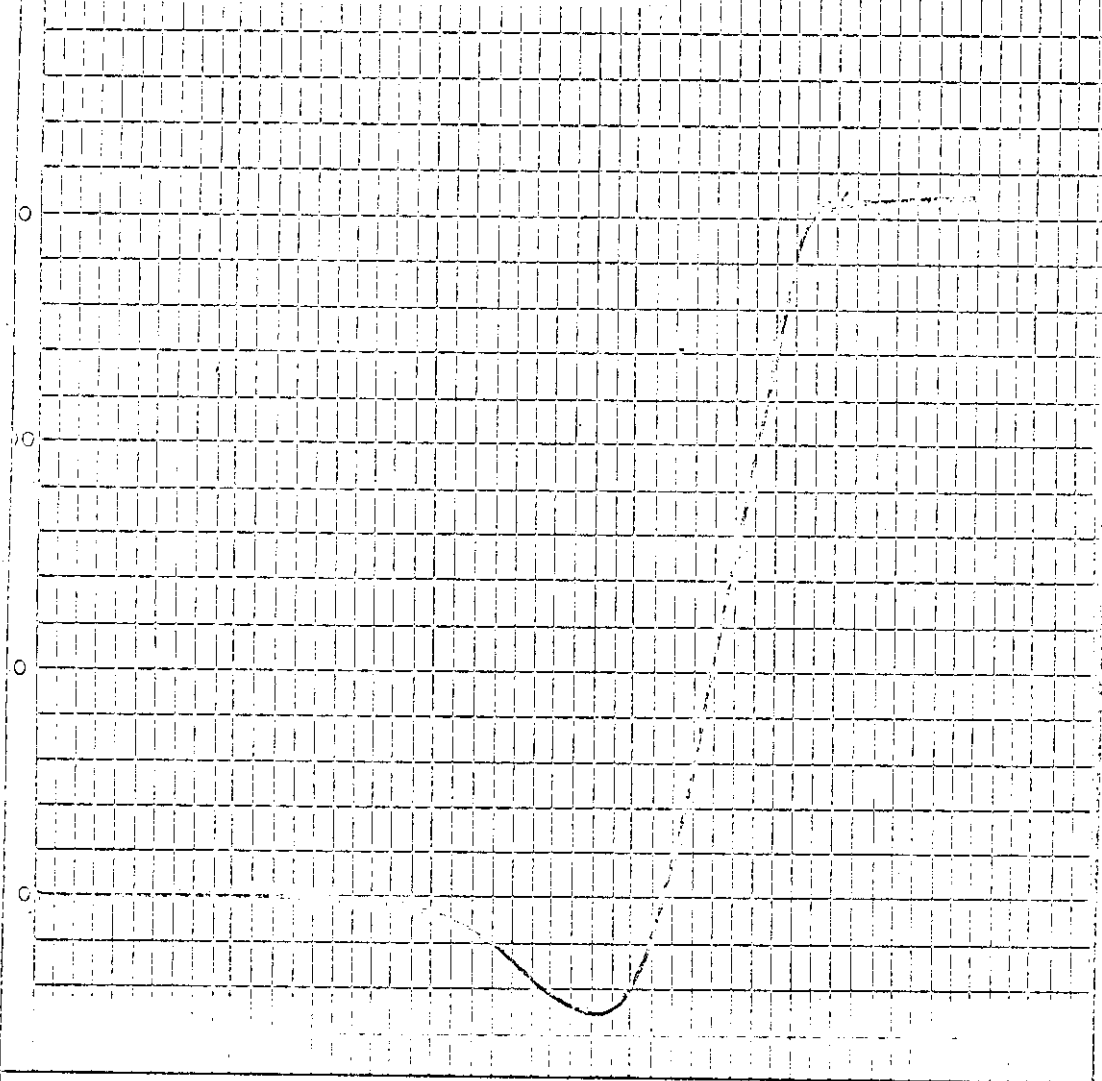
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-4

Lab. No. 8812

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	23.0	21.0	55.0	0.82	93	Air Dried Basis
	23.2	21.2	55.6	0.83	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.4	0.9	22.8	0.86	93.4	22.8	0.86	A.D.B.
	93.4		23.0	0.87	93.4	23.0	0.87	D.B.
65M x 0	6.6	1.0	14.8	0.78	100.0	22.3	0.85	A.D.B.
	6.6		14.9	0.79	100.0	22.5	0.86	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	68.0	0.9	5.9	24.6	68.6	0.82	68.0	5.9	A.D.B.
	68.0		6.0	24.8	69.2	0.83	68.0	6.0	D.B.
1.40-1.50	5.5	0.9	19.9	21.8	57.4	0.74	73.5	6.9	A.D.B.
	5.5		20.1	22.0	57.9	0.75	73.5	7.1	D.B.
1.50-1.60	2.5	0.9	29.4				76.0	7.7	A.D.B.
	2.5		29.7				76.0	7.8	D.B.
+1.60	24.0	0.9	68.3				100.0	22.2	A.D.B.
	24.0		68.9				100.0	22.5	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP. (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.09	374	450	28	118	1.060	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8812 Date April 14, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-4-4

Starting Temperature °C: 320

Softening Temperature °C: 374

Max. Dilatation Temp. °C: 450

250

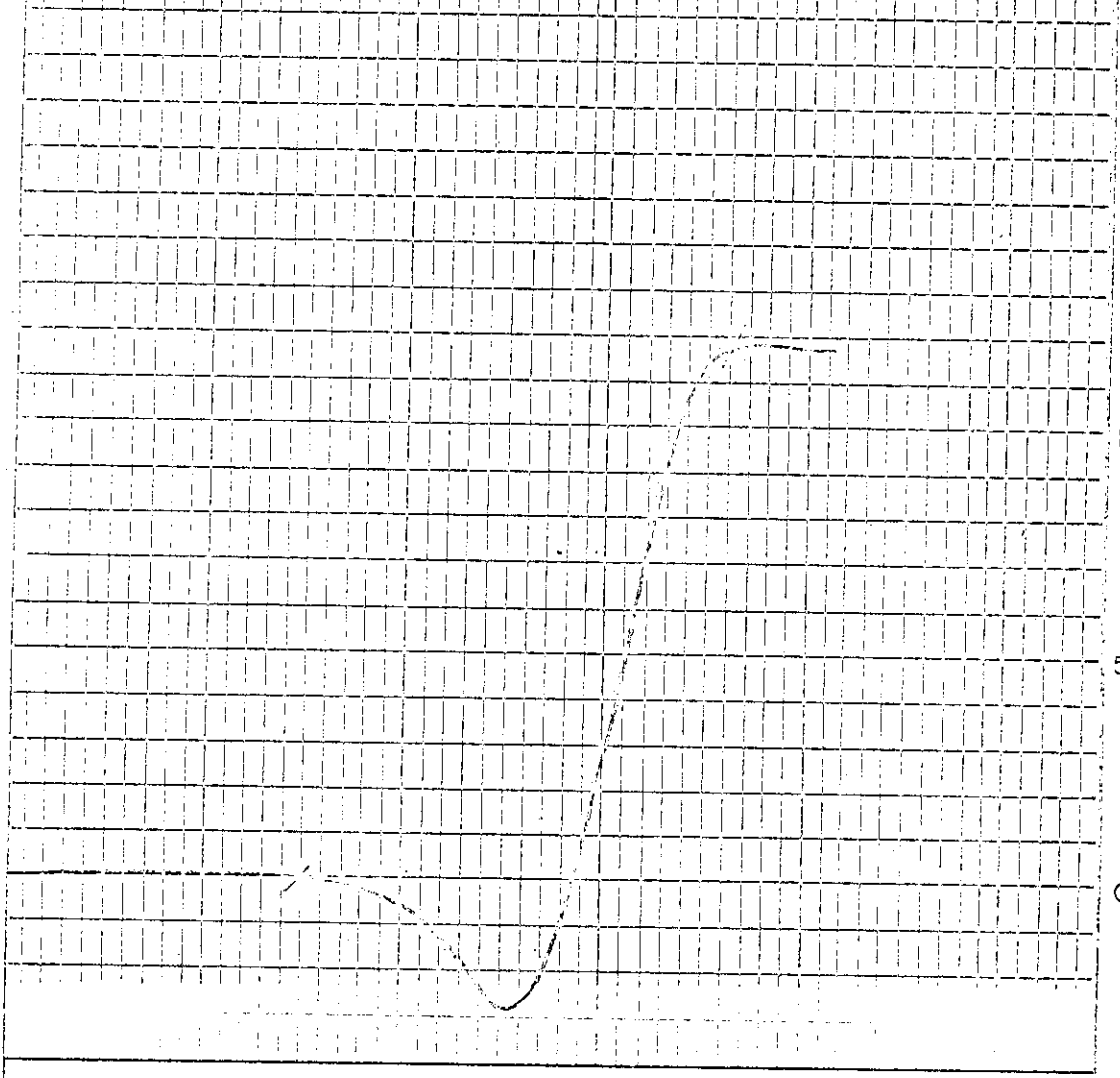
Contraction %: 28

Dilatation %: 118

Final Temperature °C:

G. Factor: 1.060

200



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-5 Lab. No. 8813 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	26.2	20.3	52.5	0.78	82	Air Dried Basis
	26.5	20.5	53.0	0.79	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.1	0.7	26.9	0.78	92.1	26.9	0.78	A.D.B.
	92.1		27.1	0.79	92.1	27.1	0.79	D.B.
65M x 0	7.9	0.9	21.7	0.74	100.0	26.5	0.78	A.D.B.
	7.9		21.9	0.75	100.0	26.7	0.79	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	52.7	0.6	5.7	24.2	69.5	0.80	52.7	5.7	A.D.B.
	52.8		5.7	24.3	70.0	0.80	52.8	5.7	D.B.
1.40-1.50	9.9	0.9	18.2	21.6	59.3	0.69	62.6	7.7	A.D.B.
	9.8		18.4	21.9	59.7	0.70	62.6	7.7	D.B.
1.50-1.60	4.4	0.9	28.8				67.0	9.1	A.D.B.
	4.4		29.1				67.0	9.1	D.B.
+1.60	33.0	0.9	63.2				100.0	26.9	A.D.B.
	33.0		63.8				100.0	27.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
9	0.08	370	460	27	232	1.094

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8813 Date April 14, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-4-5

Starting Temperature °C: 320

Softening Temperature °C: 370

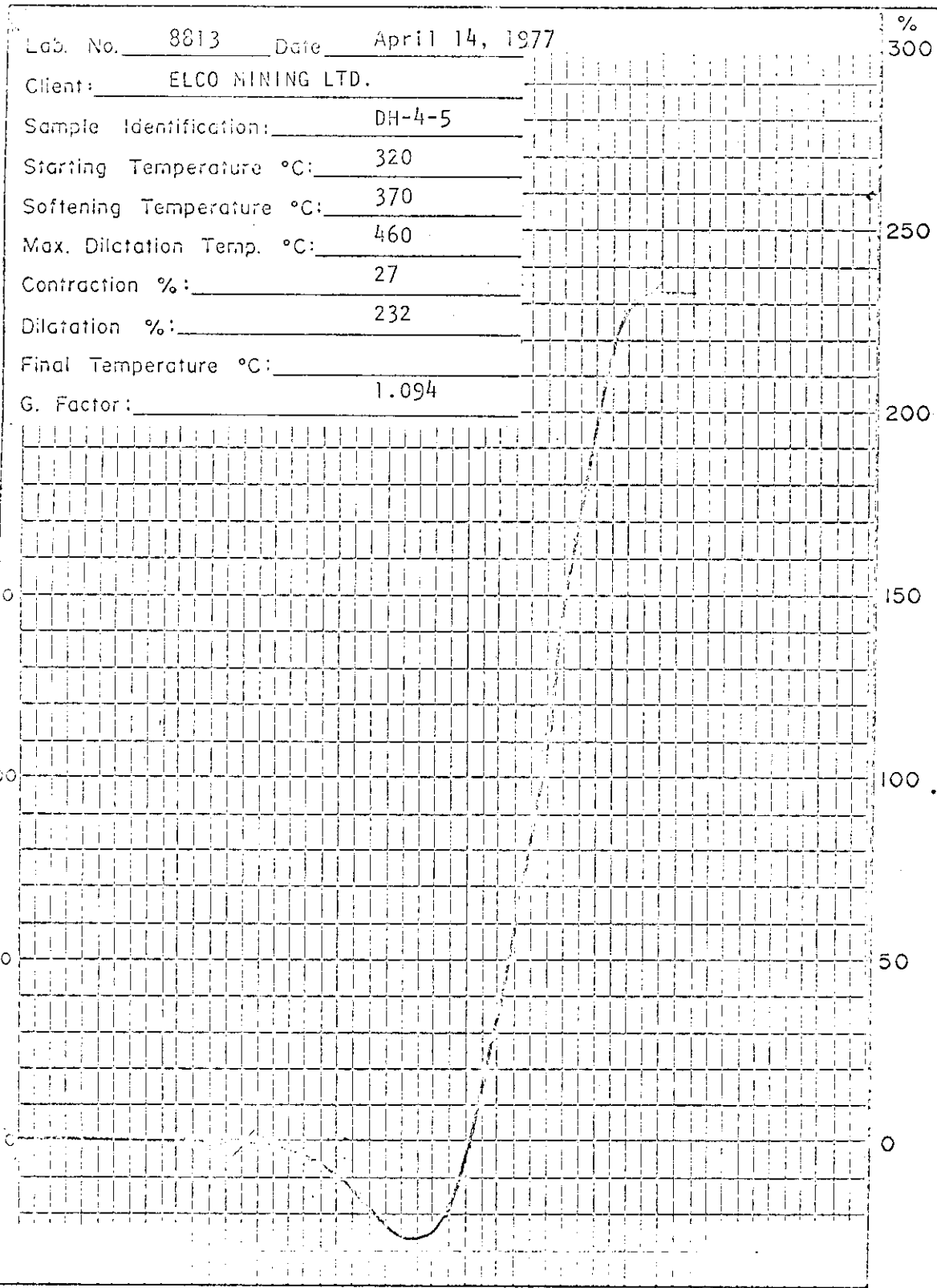
Max. Dilatation Temp. °C: 460

Contraction %: 27

Dilatation %: 232

Final Temperature °C:

G. Factor: 1.094



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-6      Lab. No. 8814      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	37.2	17.3	44.6	0.65	79	Air Dried Basis
	37.5	17.5	45.0	0.66	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	95.7	0.7	37.5	0.67	95.7	37.5	0.67	A.D.B.
	95.7		37.8	0.67	95.7	37.8	0.67	D.B.
65M x 0	4.3	0.8	27.6	0.75	100.0	37.1	0.67	A.D.B.
	4.3		27.8	0.76	100.0	37.4	0.67	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	46.7	0.5	6.6	23.8	69.1	0.81	46.7	6.6	A.D.B.
	46.8		6.6	23.9	69.5	0.81	46.8	6.6	D.B.
1.40-1.50	2.1	0.7	23.0	20.4	55.9	0.69	48.8	7.3	A.D.B.
	2.1		23.2	20.5	56.3	0.69	48.9	7.3	D.B.
1.50-1.60	3.4	1.0	29.5	X	X	X	52.2	8.8	A.D.B.
	3.4		29.8				52.3	8.8	D.B.
+1.60	47.8	0.9	69.0	X	X	X	100.0	37.5	A.D.B.
	47.7		69.6				100.0	37.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.04	378	464	24	200	1.087

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8814 Date April 15, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-4-6

Starting Temperature °C: 320

Softening Temperature °C: 378

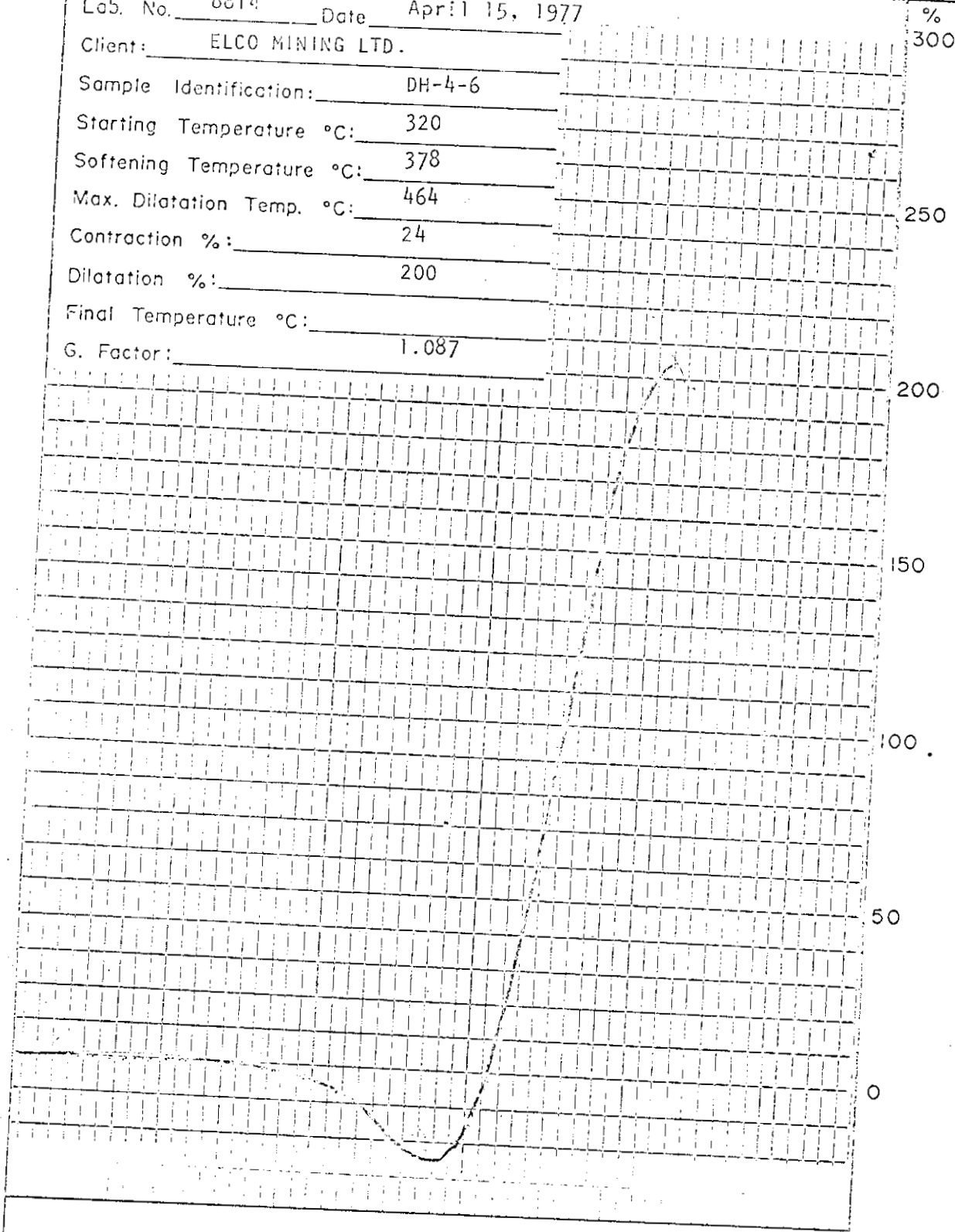
Max. Dilatation Temp. °C: 464

Contraction %: 24

Dilatation %: 200

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.087



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-7

Lab. No. 8815

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	25.3	19.2	54.8	0.71	97	Air Dried Basis
	25.5	19.3	55.2	0.72	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.3	0.7	26.2	0.74	94.3	26.2	0.74	A.D.B.
	94.3		26.4	0.75	94.3	26.4	0.75	D.B.
65M x 0	5.7	0.7	23.3	0.73	100.0	26.0	0.74	A.D.B.
	5.7		23.5	0.74	100.0	26.2	0.75	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	53.9	0.7	6.7	23.4	69.2	0.80	53.9	6.7	A.D.B.
	54.0		6.7	23.6	69.7	0.81	54.0	6.7	D.B.
1.40-1.50	8.2	0.7	17.2	20.4	61.7	0.74	62.1	8.1	A.D.B.
	8.2		17.3	20.5	62.2	0.75	62.2	8.1	D.B.
1.50-1.60	4.0	1.0	29.0				66.1	9.4	A.D.B.
	4.0		29.3				66.2	9.4	D.B.
+1.60	33.9	1.0	59.1				100.0	26.2	A.D.B.
	33.8		59.7				100.0	26.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.04	388	466	10	70	1.074	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8815 Date April 15, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-4-7

Starting Temperature °C: 320

Softening Temperature °C: 388

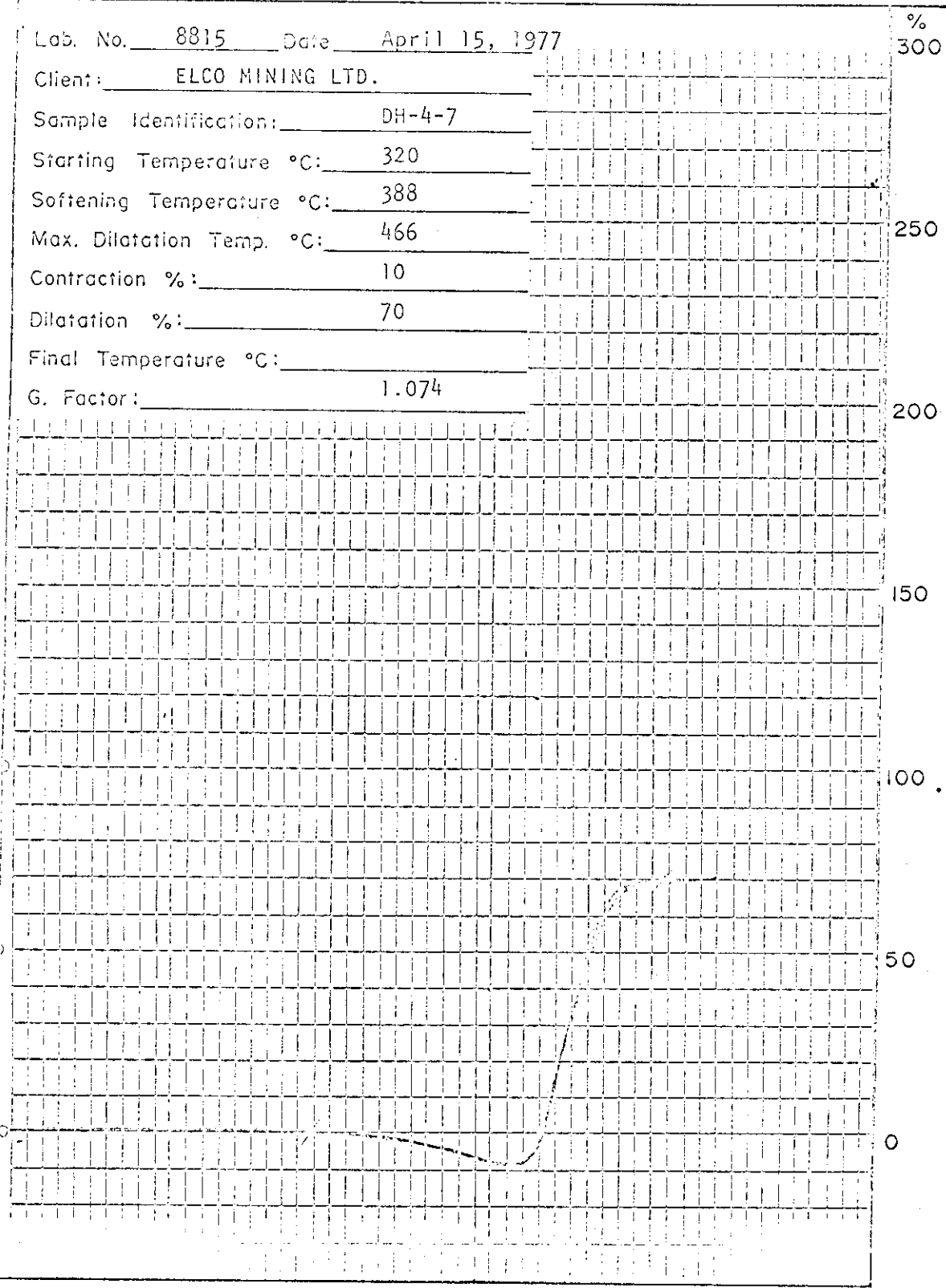
Max. Dilatation Temp. °C: 466

Contraction %: 10

Dilatation %: 70

Final Temperature °C:

G. Factor: 1.074



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-8 Lab. No. 8816 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	47.2	15.7	36.1	0.69	84	Air Dried Basis
	47.7	15.9	36.4	0.70	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.7	0.9	49.0	0.67	91.7	49.0	0.67	A.D.B.
	91.7		49.4	0.68	91.7	49.4	0.68	D.B.
65M x 0	8.3	1.0	28.4	0.87	100.0	47.3	0.69	A.D.B.
	8.3		28.7	0.88	100.0	47.7	0.70	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	35.3	0.9	4.5	24.1	70.5	0.96	35.3	4.5	A.D.B.
	35.3		4.5	24.3	71.2	0.97	35.3	4.5	D.B.
1.40-1.50	5.5	0.9	13.8	21.4	63.9	0.97	40.8	5.8	A.D.B.
	5.5		13.9	21.6	64.5	0.98	40.8	5.8	D.B.
1.50-1.60	2.7	1.0	28.0				43.5	7.1	A.D.B.
	2.7		28.3				43.5	7.2	D.B.
+1.60	56.5	0.8	80.6				100.0	48.6	A.D.B.
	56.5		81.3				100.0	49.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP. (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8 1/2	0.04	368	453	25	39	1.023	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8816 Date April 15, 1977  
 Client: ELCO MINING LTD.  
 Sample Identification: DH-4-8  
 Starting Temperature °C: 320  
 Softening Temperature °C: 368  
 Max. Dilatation Temp. °C: 453  
 Contraction %: 25  
 Dilatation %: 39  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.023

%  
300

250

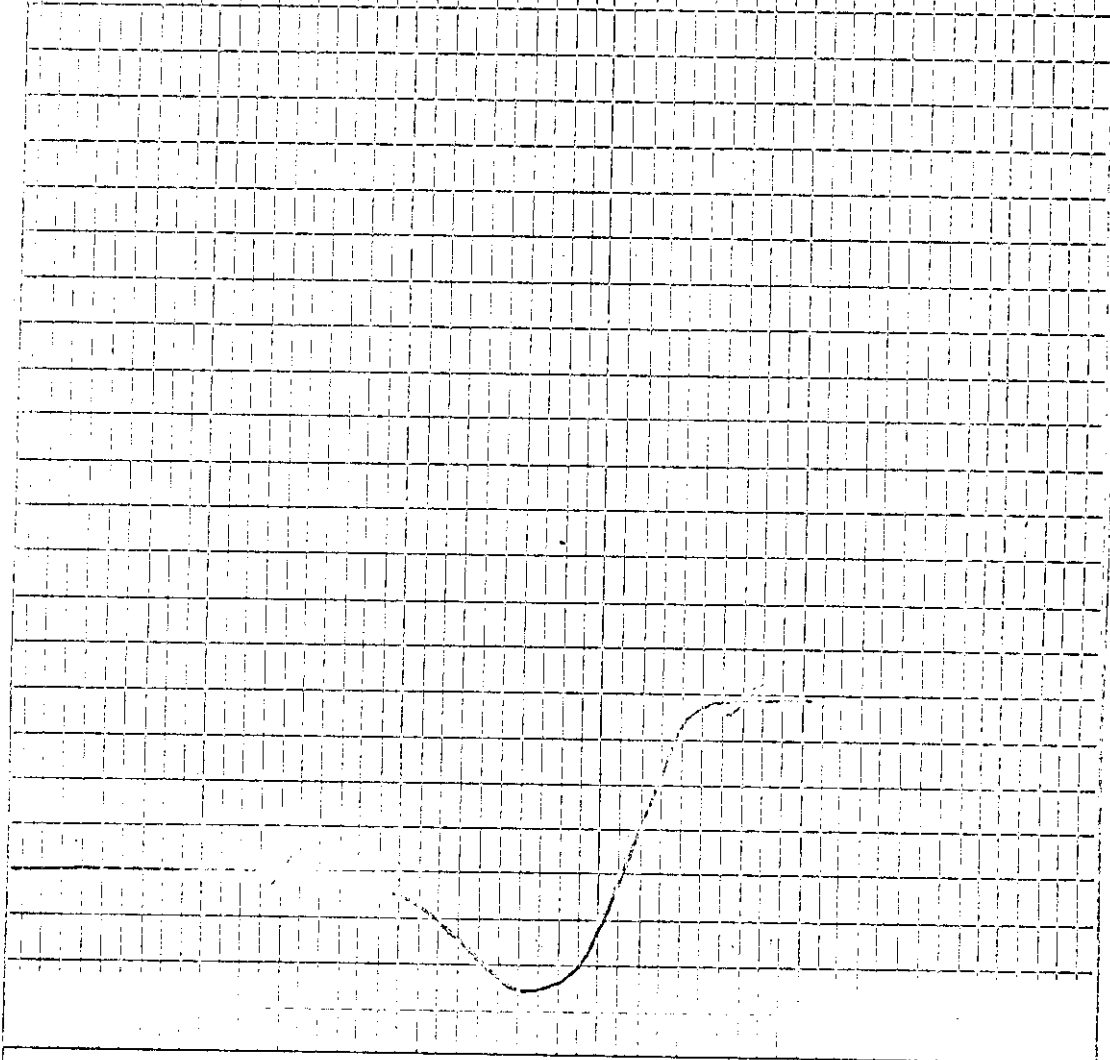
200

150

100

50

0



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title RUHR DILATOMETER TEST

Date \_\_\_\_\_

Drawn \_\_\_\_\_



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-9 Lab. No. 8817 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS*
0.9	12.3	21.6	65.2	1.13	100	Air Dried Basis
	12.4	21.8	65.8	1.14	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.0	0.8	12.8	1.15	89.0	12.8	1.15	A.D.B.
	89.0		12.9	1.16	89.0	12.9	1.16	D.B.
65M x 0	11.0	0.9	11.0	0.93	100.0	12.6	1.13	A.D.B.
	11.0		11.1	0.94	100.0	12.7	1.14	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	80.4	0.8	4.8	23.8	70.6	0.86	80.4	4.8	A.D.B.
	80.4		4.8	24.0	71.2	0.87	80.4	4.8	D.B.
1.40-1.50	7.5	0.9	13.0	21.1	65.0	0.80	87.9	5.5	A.D.B.
	7.5		13.1	21.3	65.6	0.81	87.9	5.5	D.B.
1.50-1.60	1.5	1.0	25.6	X			89.4	5.8	A.D.B.
	1.5		25.9				89.4	5.9	D.B.
+1.60	10.6	1.0	66.1	X			100.0	12.2	A.D.B.
	10.6		66.8				100.0	12.3	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.03	376	454	24	63	1.044

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8817 Date April 15, 1977  
 Client: ELCO MINING LTD.  
 Sample Identification: DH-4-9  
 Starting Temperature °C: 320  
 Softening Temperature °C: 376  
 Max. Dilatation Temp. °C: 454  
 Contraction %: 24  
 Dilatation %: 63  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.044

%  
300

250

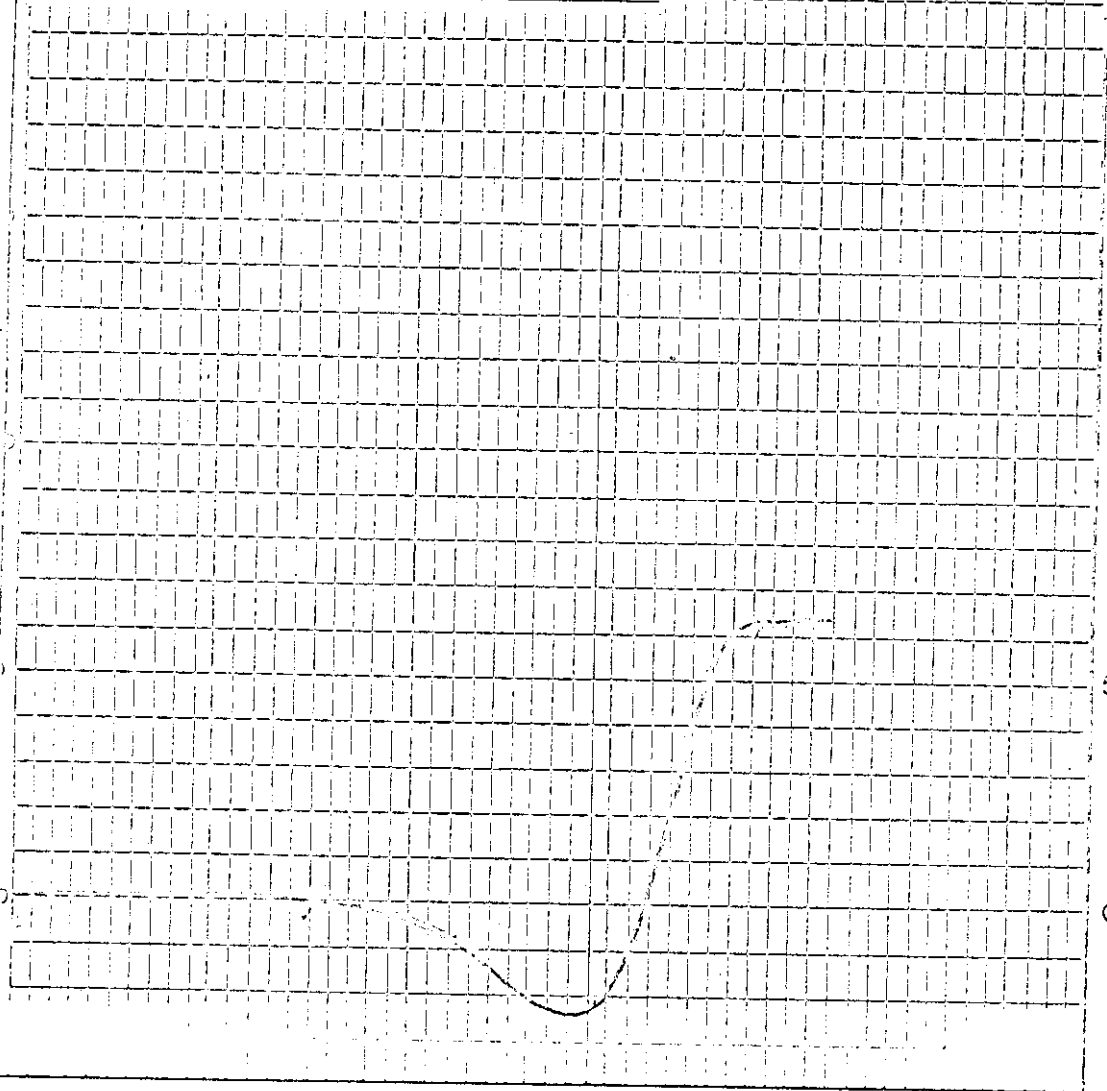
200

150

100

50

0



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-10

Lab. No. 8818

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	22.5	18.5	58.1	0.63	82	Air Dried Basis
	22.7	18.7	58.6	0.64	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.9	0.9	22.9	0.61	92.9	22.9	0.61	A.D.B.
	92.9		23.1	0.62	92.9	23.1	0.62	D.B.
65M x 0	7.1	0.8	15.8	0.69	100.0	22.4	0.62	A.D.B.
	7.1		15.9	0.70	100.0	22.6	0.63	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	59.4	0.6	7.0	21.8	70.6	0.74	59.4	7.0	A.D.B.
	59.4		7.0	21.9	71.1	0.74	59.4	7.0	D.B.
1.40-1.50	9.7	0.7	19.4	19.1	60.8	0.69	69.1	8.7	A.D.B.
	9.7		19.5	19.2	61.3	0.69	69.1	8.8	D.B.
1.50-1.60	5.8	0.8	30.1				74.9	10.4	A.D.B.
	5.8		30.3				74.9	10.4	D.B.
+1.60	25.1	0.8	60.2				100.0	22.9	A.D.B.
	25.1		60.7				100.0	23.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP.*(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.07	388	464	18	96	1.065

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8318 Date April 15, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-4-10

Starting Temperature °C: 320

Softening Temperature °C: 388

Max. Dilatation Temp. °C: 464

250

Contraction %: 18

Dilatation %: 96

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.065

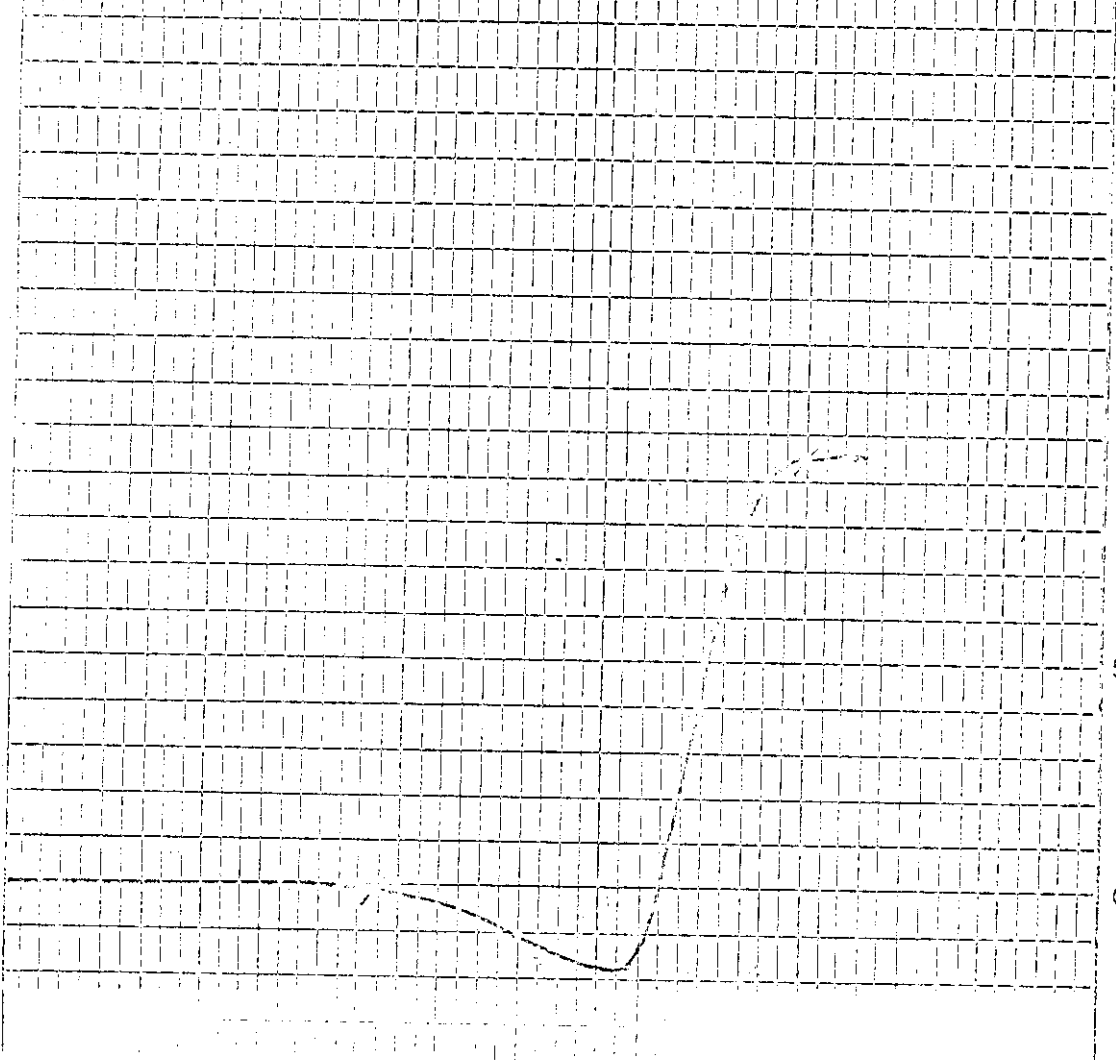
200

150

100

50

0



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-11 Lab. No. 8819 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	29.9	16.7	52.5	0.63	81	Air Dried Basis
	30.2	16.9	52.9	0.64	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.5	0.8	31.3	0.62	94.5	31.3	0.62	A.D.B.
	94.5		31.6	0.63	94.5	31.6	0.63	D.B.
65M x 0	5.5	0.8	15.1	0.96	100.0	30.4	0.64	A.D.B.
	5.5		15.2	0.97	100.0	30.7	0.65	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	53.8	0.7	5.1	21.1	73.1	0.88	53.8	5.1	A.D.B.
	53.8		5.1	21.2	73.7	0.89	53.8	5.1	D.B.
1.40-1.50	7.2	0.6	16.9	18.3	64.2	0.74	61.0	6.5	A.D.B.
	7.2		17.0	18.4	64.6	0.74	61.0	6.5	D.B.
1.50-1.60	4.3	0.7	29.3				65.3	8.0	A.D.B.
	4.3		29.5				65.3	8.0	D.B.
+1.60	34.7	0.7	72.9				100.0	30.5	A.D.B.
	34.7		73.4				100.0	30.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8 1/2	0.06	385	468	22	23	1.002	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8819 Date April 15, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-4-11

Starting Temperature °C: 320

Softening Temperature °C: 385

Max. Dilatation Temp. °C: 468

Contraction %: 22

Dilatation %: 23

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.002

150

100

50

0

%  
300

250

200

150

100

50

0



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-12

Lab. No. 8820

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	9.2	20.6	69.3	0.73	89	Air Dried Basis
	9.3	20.8	69.9	0.74	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.2	0.8	10.0	0.74	94.2	10.0	0.74	A.D.B.
	94.2		10.1	0.75	94.2	10.1	0.75	D.B.
65M x 0	5.8	0.8	6.6	0.76	100.0	9.8	0.74	A.D.B.
	5.8		6.7	0.77	100.0	9.9	0.75	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	82.1	0.8	5.2	20.6	73.4	0.81	82.1	5.2	A.D.B.
	82.1		5.2	20.8	74.0	0.82	82.1	5.2	D.B.
1.40-1.50	7.0	0.9	16.0	19.1	64.0	0.71	89.1	6.0	A.D.B.
	7.0		16.1	19.3	64.6	0.72	89.1	6.1	D.B.
1.50-1.60	3.3	0.9	24.4				92.4	6.7	A.D.B.
	3.3		24.6				92.4	6.7	D.B.
+1.60	7.6	0.9	45.4				100.0	9.6	A.D.B.
	7.6		45.8				100.0	9.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
7 1/2	0.04	392	---	23% @ 453°C	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8820 Date April 15, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-4-12

Starting Temperature °C: 320

Softening Temperature °C: 392

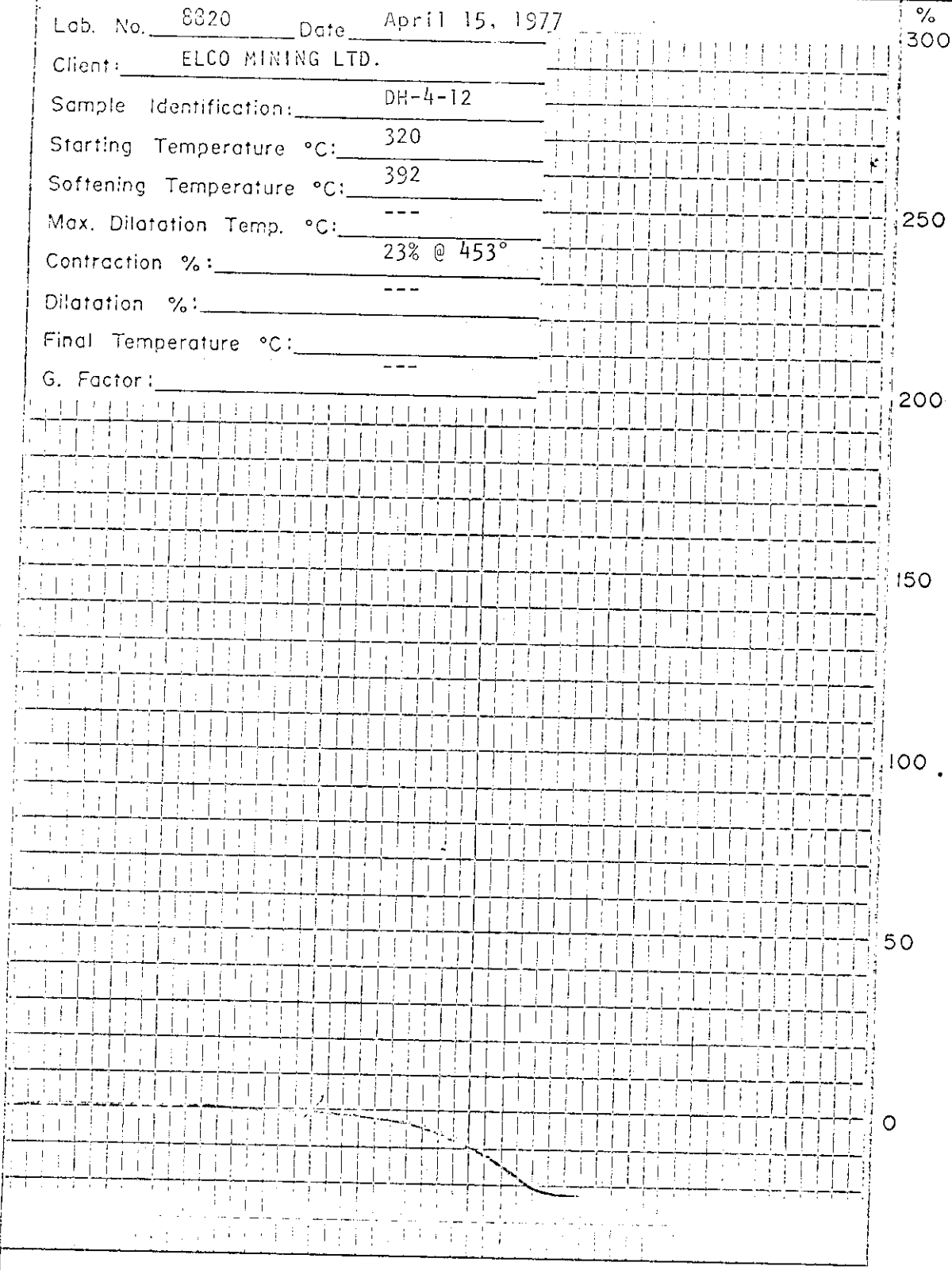
Max. Dilatation Temp. °C: ---

Contraction %: 23% @ 453°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



SIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-13

Lab. No. 8866

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	36.5	18.2	44.7	0.53	76	Air Dried Basis
	36.7	18.3	45.0	0.53	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.6	0.6	37.1	0.54	93.6	37.1	0.54	A.D.B.
	93.6		37.3	0.54	93.6	37.3	0.54	D.B.
65M x 0	6.4	0.8	25.2	0.69	100.0	36.3	0.55	A.D.B.
	6.4		25.4	0.70	100.0	36.5	0.55	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	40.5	0.7	5.4	19.5	74.4	0.80	40.5	5.4	A.D.B.
	40.5		5.4	19.6	75.0	0.81	40.5	5.4	D.B.
1.40-1.50	8.4	0.6	19.4	18.0	62.0	0.74	48.9	7.8	A.D.B.
	8.4		19.5	18.1	62.4	0.74	48.9	7.8	D.B.
1.50-1.60	3.9	0.6	29.8				52.8	9.4	A.D.B.
	3.9		30.0				52.8	9.5	D.B.
+1.60	47.2	0.5	68.0				100.0	37.1	A.D.B.
	47.2		68.3				100.0	37.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP. (°C)	MAX. DIL. TEMP. (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.12	396	477	22	6	0.950

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8866 Date April 25, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-4-13

Starting Temperature °C: 320

Softening Temperature °C: 396

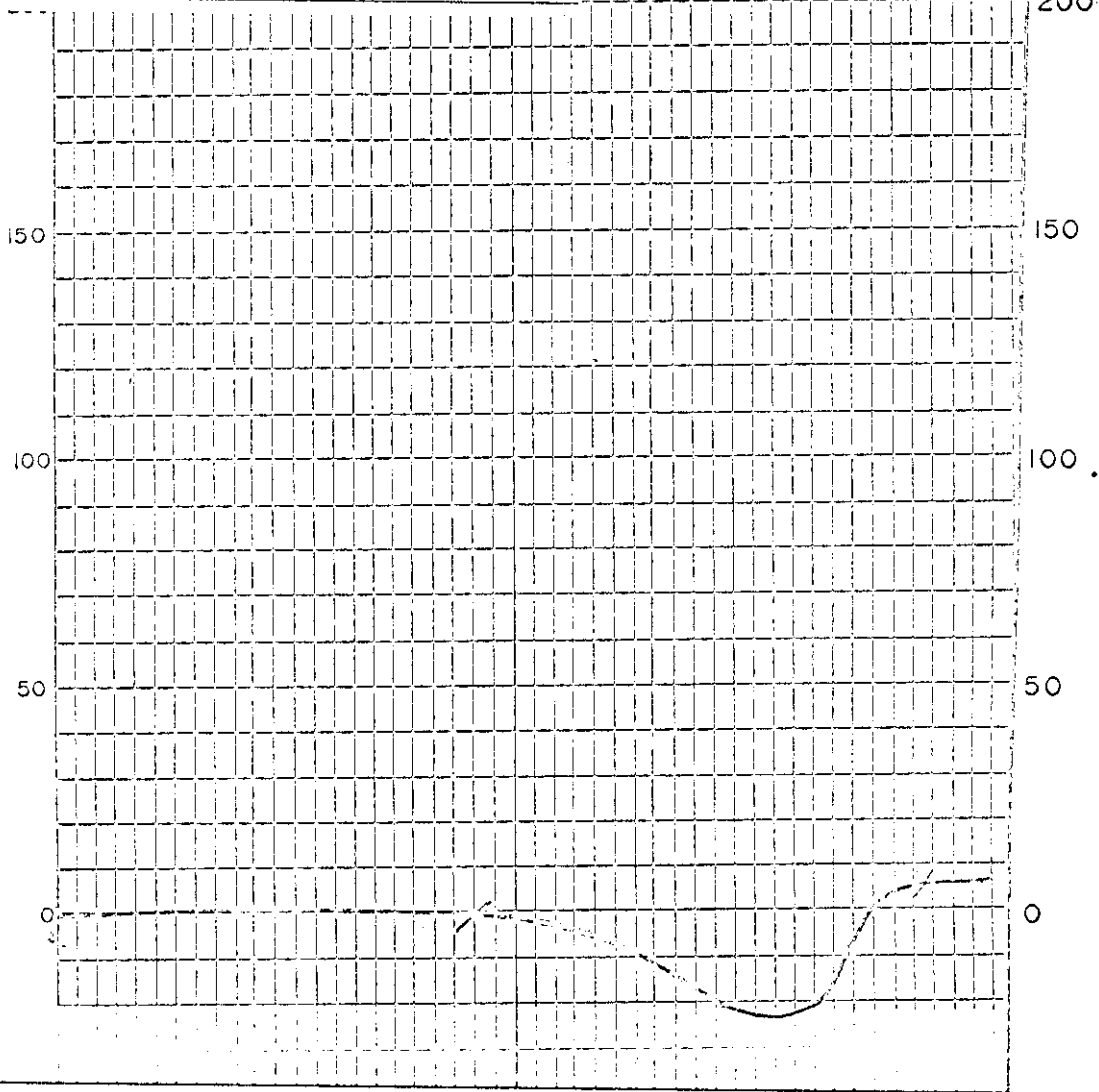
Max. Dilatation Temp. °C: 477

Contraction %: 22

Dilatation %: 6

Final Temperature °C: \_\_\_\_\_

G. Factor: 0.950



**SIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-4-14 Lab. No. 8867 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	21.4	17.8	60.1	0.56	78	Air Dried Basis
	21.6	17.9	60.5	0.56	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.9	0.7	22.1	0.55	92.9	22.1	0.55	A.D.B.
	92.9		22.3	0.55	92.9	22.3	0.55	D.B.
65M x 0	7.1	0.8	12.5	0.63	100.0	21.4	0.56	A.D.B.
	7.1		12.6	0.64	100.0	21.6	0.56	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	58.3	0.6	6.4	18.9	74.1	0.64	58.3	6.4	A.D.B.
	58.4		6.4	19.0	74.6	0.64	58.4	6.4	D.B.
1.40-1.50	7.9	0.9	18.9	17.2	63.0	0.57	66.2	7.9	A.D.B.
	7.9		19.1	17.4	63.5	0.58	66.3	7.9	D.B.
1.50-1.60	7.5	0.9	27.2				73.8	9.9	A.D.B.
	7.5		27.4				72.8	10.0	D.B.
+1.60	26.3	0.8	55.9				100.0	22.0	A.D.B.
	26.2		56.4				100.0	22.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
3 1/2	0.03	399	---	16% @ 460°C	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8867 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-4-14

Starting Temperature °C: 320

Softening Temperature °C: 399

Max. Dilatation Temp. °C: ---

Contraction %: 16% @ 460°

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---

%  
300

250

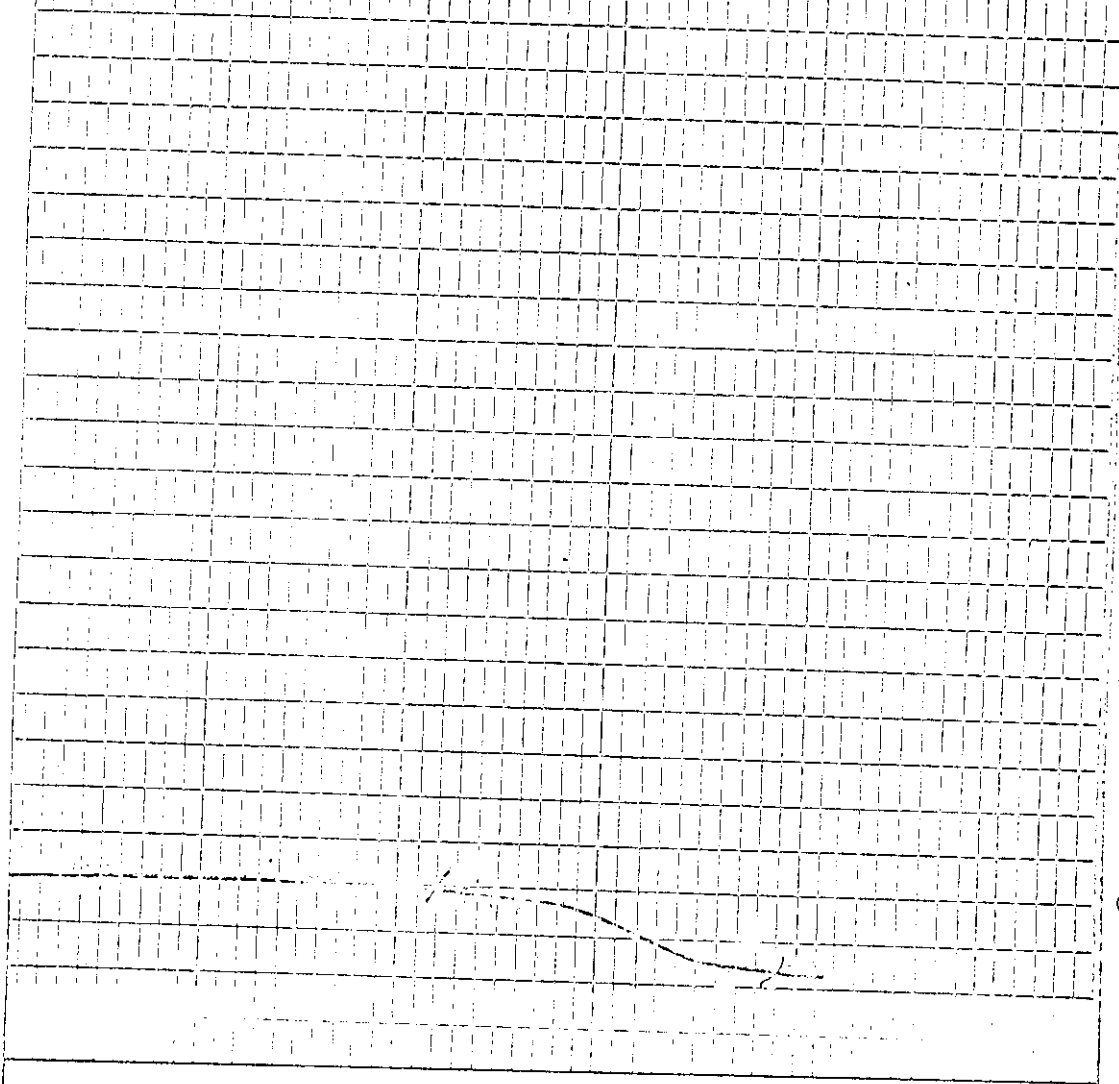
200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-1 Lab. No. 8868 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	27.3	20.4	51.6	0.63	68	Air Dried Basis
	27.5	20.5	52.0	0.63	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	96.4	0.7	27.3	0.63	96.4	27.3	0.63	A.D.B.
	96.4		27.5	0.63	96.4	27.5	0.63	D.B.
65M x 0	3.6	0.8	22.2	0.71	100.0	27.1	0.63	A.D.B.
	3.6		22.4	0.72	100.0	27.3	0.63	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	59.4	0.7	5.2	26.1	68.0	0.70	59.4	5.2	A.D.B.
	59.4		5.2	26.3	68.5	0.70	59.4	5.2	D.B.
1.40-1.50	7.4	0.6	22.0	20.2	57.2	0.60	66.8	7.1	A.D.B.
	7.4		22.1	20.3	57.6	0.60	66.8	7.1	D.B.
1.50-1.60	4.7	0.7	32.0				71.5	8.7	A.D.B.
	4.7		32.2				71.5	8.7	D.B.
+1.60	28.5	0.6	73.9				100.0	27.3	A.D.B.
	28.5		74.3				100.0	27.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
6 1/2	0.09	352	452	22	75	1.073

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lcb. No. 8868 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-5-1

Starting Temperature °C: 320

Softening Temperature °C: 352

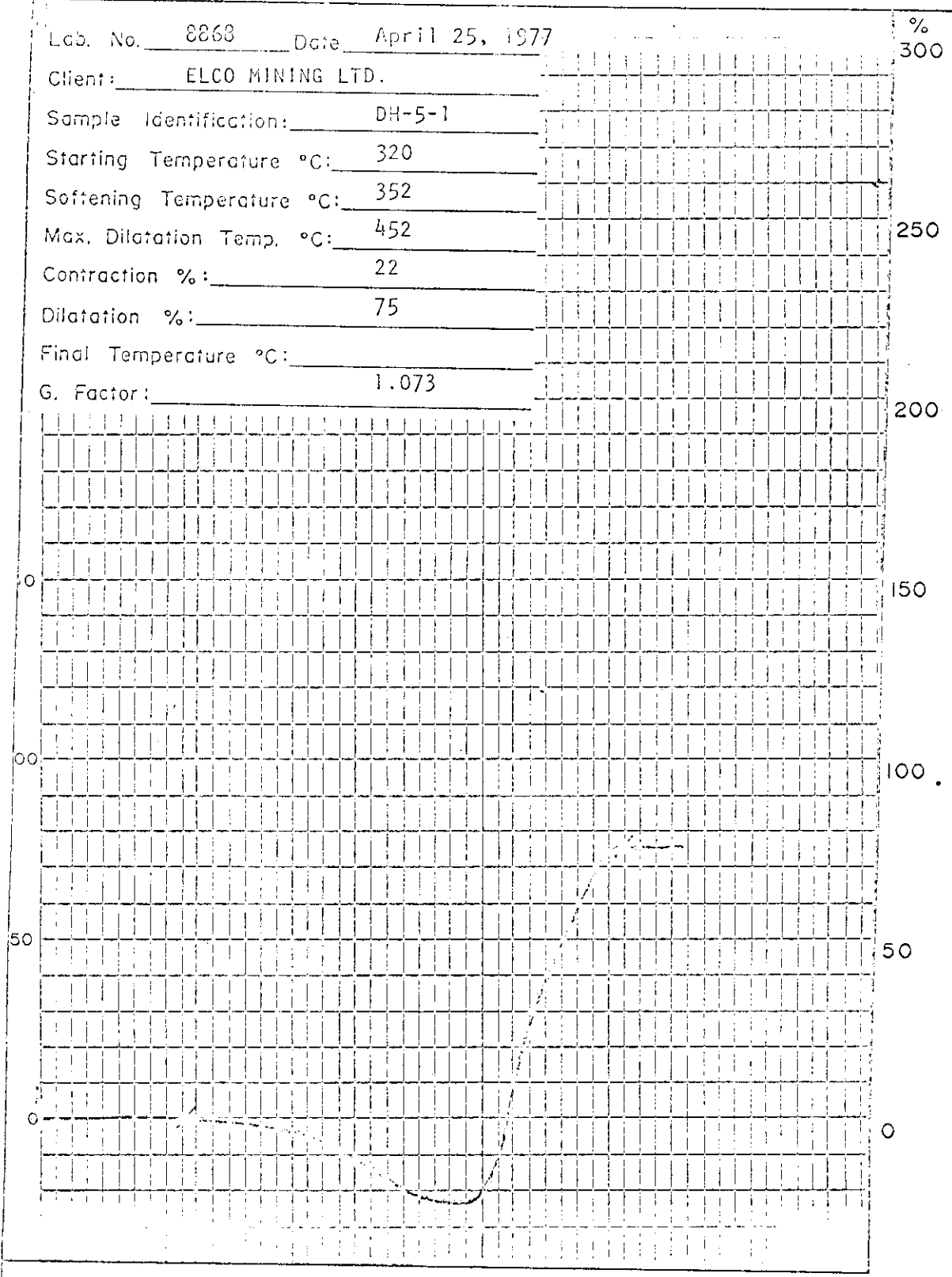
Max. Dilatation Temp. °C: 452

Contraction %: 22

Dilatation %: 75

Final Temperature °C:

G. Factor: 1.073



DIXLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: SH-5-2

Lab. No. 8869

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	33.5	21.9	43.8	0.62	71	Air Dried Basis
	33.8	22.1	44.1	0.63	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.8	0.8	33.9	0.63	91.8	33.9	0.63	A.D.B.
	91.8		34.2	0.64	91.8	34.2	0.64	D.B.
65M x 0	8.2	0.9	20.6	0.78	100.0	32.8	0.64	A.D.B.
	8.2		20.8	0.79	100.0	33.1	0.65	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	50.8	0.7	5.7	28.1	65.5	0.80	50.8	5.7	A.D.B.
	50.8		5.7	28.3	66.0	0.81	50.8	5.7	D.B.
1.40-1.50	3.7	0.8	16.0	25.4	57.8	0.74	54.5	6.4	A.D.B.
	3.7		16.1	25.6	58.3	0.75	54.5	6.4	D.B.
1.50-1.60	3.7	0.9	27.6				58.2	7.7	A.D.B.
	3.8		27.9				58.3	7.8	D.B.
+1.60	41.8	1.0	70.2				100.0	33.9	A.D.B.
	41.7		70.9				100.0	34.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP. * (°C)	MAX. DIL. TEMP. * (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.12	352	454	27	222	1.110

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8869 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-5-2

Starting Temperature °C: 320

Softening Temperature °C: 352

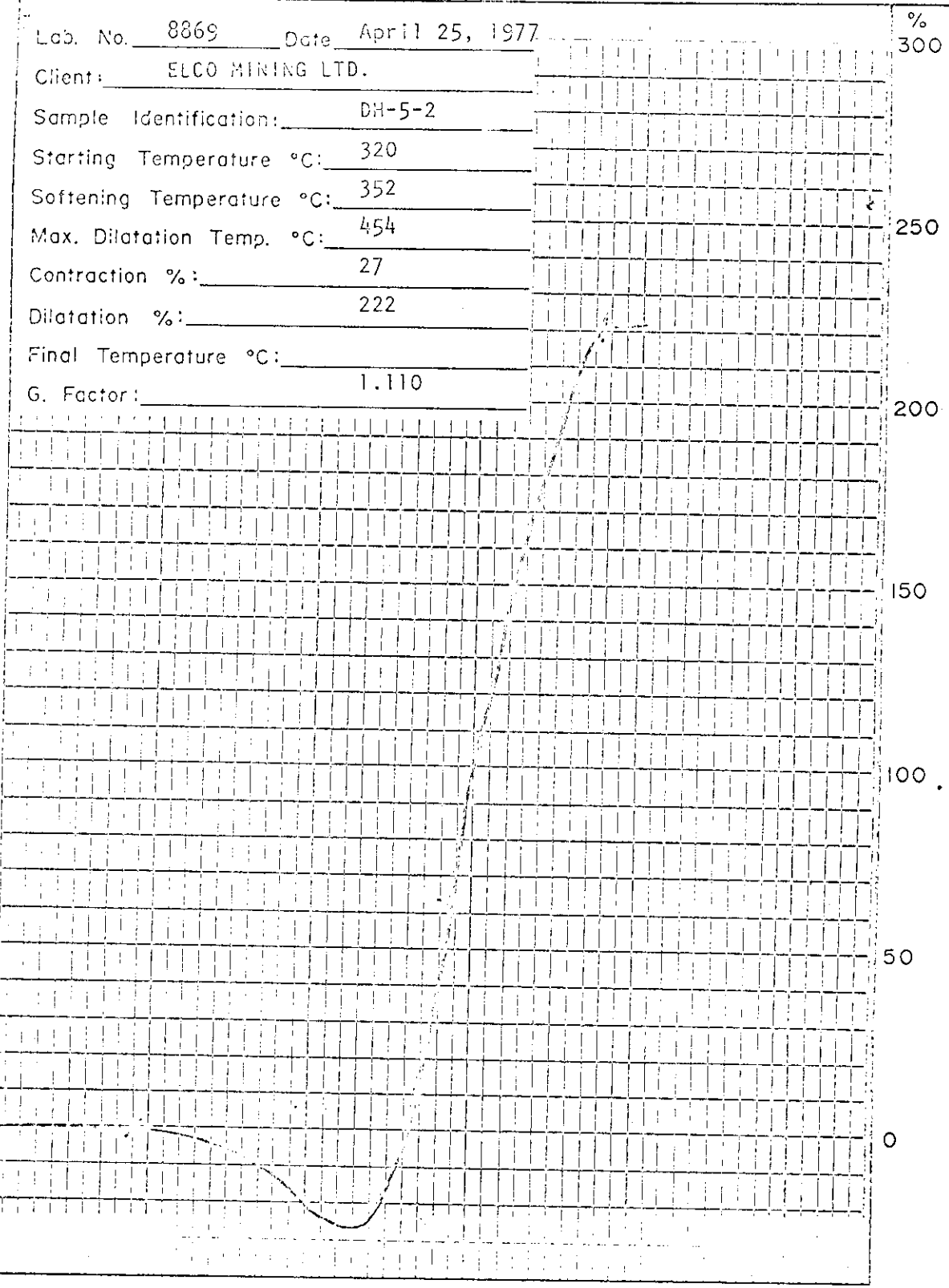
Max. Dilatation Temp. °C: 454

Contraction %: 27

Dilatation %: 222

Final Temperature °C:

G. Factor: 1.110



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-3

Lab. No. 8870

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	8.3	27.2	63.8	0.88	N.S.S.	Air Dried Basis
	8.4	27.4	64.2	0.89	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	82.5	0.7	8.7	0.92	82.5	8.7	0.92	A.D.B.
	82.5		8.8	0.93	82.5	8.8	0.93	D.B.
65M x 0	17.5	0.8	4.9	0.86	100.0	8.0	0.91	A.D.B.
	17.5		4.9	0.87	100.0	8.1	0.92	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	84.8	0.7	4.2	27.8	67.3	0.97	84.8	4.2	A.D.B.
	84.8		4.2	28.0	67.8	0.98	84.8	4.2	D.B.
1.40-1.50	6.3	0.9	11.2	N.S.S.	---	0.93	91.1	4.7	A.D.B.
	6.3		11.3	---	---	0.94	91.1	4.7	D.B.
1.50-1.60	2.5	0.7	16.5				93.6	5.0	A.D.B.
	2.5		16.6				93.6	5.0	D.B.
+1.60	6.4	0.7	54.3				100.0	8.2	A.D.B.
	6.4		54.7				100.0	8.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.06	364	450	29	66	1.043

\* S.T. & M.D.T. corrected with factor 6/5  
N.S.S. = not sufficient sample

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8870 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-5-3

Starting Temperature °C: 320

Softening Temperature °C: 364

Max. Dilatation Temp. °C: 458

Contraction %: 29

Dilatation %: 66

Final Temperature °C:

G. Factor: 1.043

%  
300

250

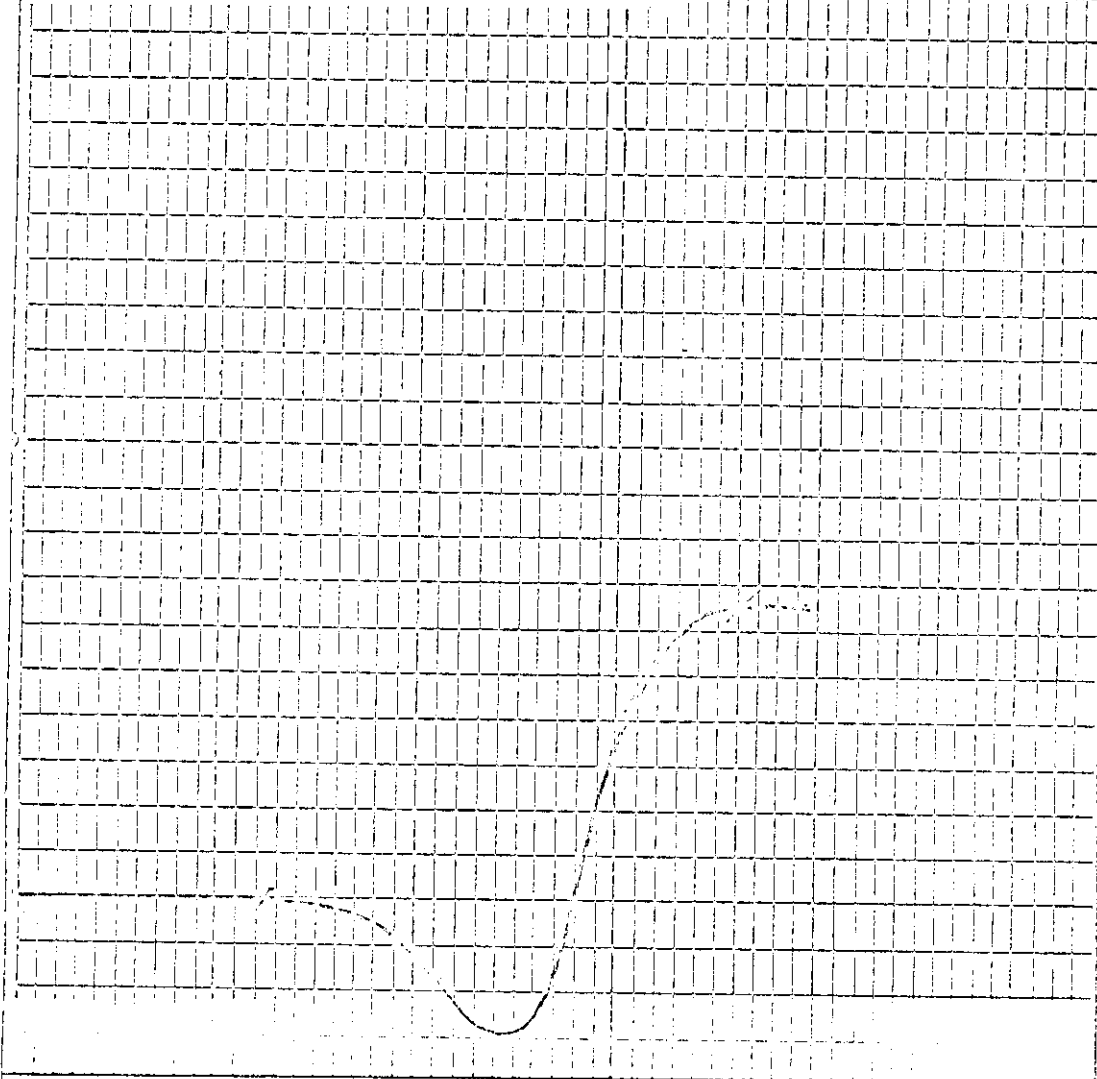
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-4 Lab. No. 8871 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	18.6	24.0	56.6	0.61	79	Air Dried Basis
	18.8	24.2	57.0	0.61	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	90.5	0.8	18.9	0.63	90.5	18.9	0.63	A.D.B.
	90.5		19.1	0.64	90.5	19.1	0.64	D.B.
65M x 0	9.5	0.9	17.3	0.57	100.0	18.7	0.62	A.D.B.
	9.5		17.5	0.58	100.0	18.9	0.63	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	74.3	1.1	3.5	27.3	68.1	0.69	74.3	3.5	A.D.B.
	74.2		3.5	27.6	68.9	0.70	74.2	3.5	D.B.
1.40-1.50	2.8	0.9	21.7	23.1	54.3	0.55	77.1	4.2	A.D.B.
	2.8		21.9	23.3	54.8	0.55	77.0	4.2	D.B.
1.50-1.60	2.1	0.9	29.4				79.2	4.8	A.D.B.
	2.1		29.7				79.1	4.8	D.B.
+1.60	20.8	0.9	72.6				100.0	18.9	A.D.B.
	20.9		73.3				100.0	19.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.08	360	453	27	189	1.094

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8871 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-5-4

Starting Temperature °C: 320

Softening Temperature °C: 360

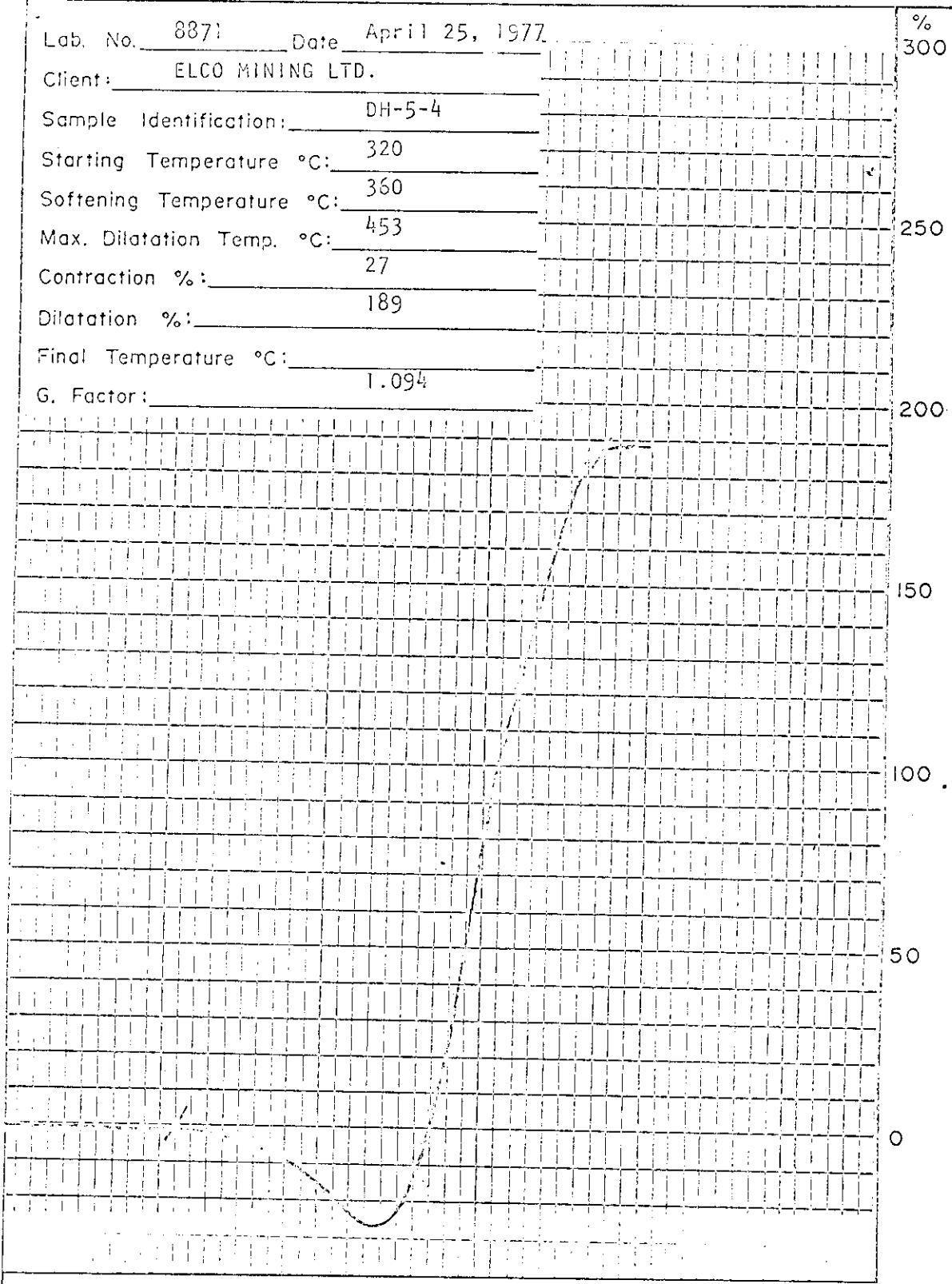
Max. Dilatation Temp. °C: 453

Contraction %: 27

Dilatation %: 189

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.094



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-5

Lab. No. 8872

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.5	26.2	22.0	51.3	0.78	78	Air Dried Basis
	26.3	22.1	51.6	0.78	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.8	0.5	26.7	0.78	93.8	26.7	0.78	A.D.B.
	93.8		26.8	0.78	93.8	26.8	0.78	D.B.
65M x 0	6.2	0.7	18.4	0.84	100.0	26.2	0.78	A.D.B.
	6.2		18.5	0.85	100.0	26.3	0.78	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	62.3	0.4	4.1	27.5	68.0	0.96	62.3	4.1	A.D.B.
	62.3		4.1	27.6	68.3	0.96	62.3	4.1	D.B.
1.40-1.50	4.7	0.5	18.3	22.9	58.3	0.81	67.0	5.1	A.D.B.
	4.7		18.4	23.0	58.6	0.81	67.0	5.1	D.B.
1.50-1.60	2.2	0.5	29.4				69.2	5.9	A.D.B.
	2.2		29.5				69.2	5.9	D.B.
+1.60	30.8	0.5	73.4				100.0	26.7	A.D.B.
	30.8		73.8				100.0	26.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.08	356	457	27	207	1.106

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8372 Date April 25, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-5-5

Starting Temperature °C: 320

Softening Temperature °C: 356

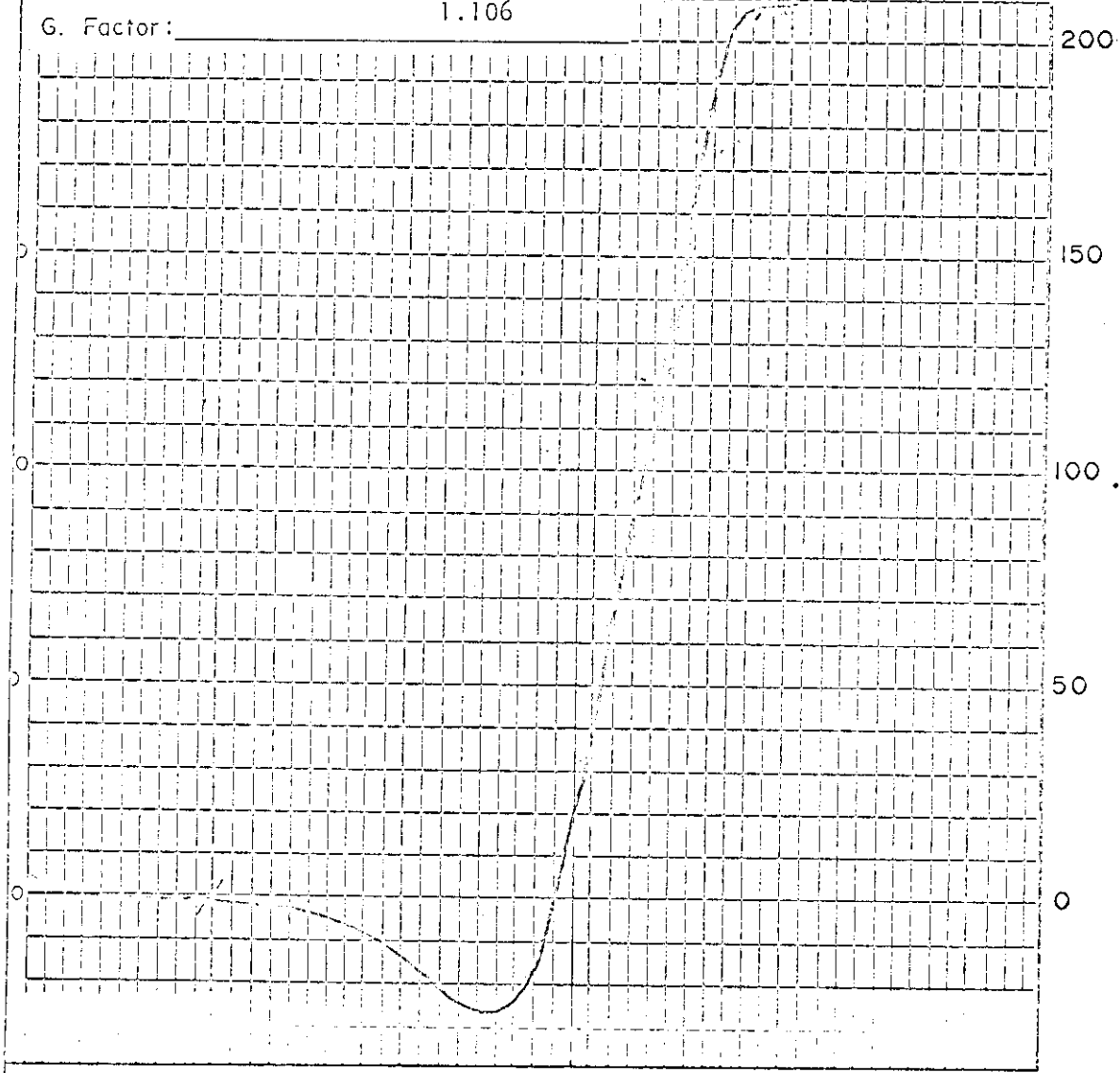
Max. Dilatation Temp. °C: 457

Contraction %: 27

Dilatation %: 207

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.106



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-6

Lab. No. 8873

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	24.0	20.1	55.1	0.59	85	Air Dried Basis
	24.2	20.3	55.5	0.59	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.6	0.9	25.3	0.57	91.6	25.3	0.57	A.D.B.
	91.6		25.5	0.58	91.6	25.5	0.58	D.B.
65M x 0	8.4	0.7	15.5	0.61	100.0	24.5	0.57	A.D.B.
	8.4		15.6	0.61	100.0	24.7	0.58	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	62.3	0.9	4.3	25.4	69.4	0.63	62.3	4.3	A.D.B.
	62.3		4.3	25.6	70.1	0.64	62.3	4.3	D.B.
1.40-1.50	3.7	1.1	14.0	22.9	62.0	0.61	66.0	4.8	A.D.B.
	3.7		14.2	23.2	62.6	0.62	66.0	4.9	D.B.
1.50-1.60	2.5	0.6	24.9				68.5	5.6	A.D.B.
	2.5		25.1				68.5	5.6	D.B.
+1.60	31.5	0.9	69.9				100.0	25.8	A.D.B.
	31.5		70.5				100.0	26.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.04	370	453	26	88	1.058

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8873 Date April 25, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-5-6

Starting Temperature °C: 320

Softening Temperature °C: 370

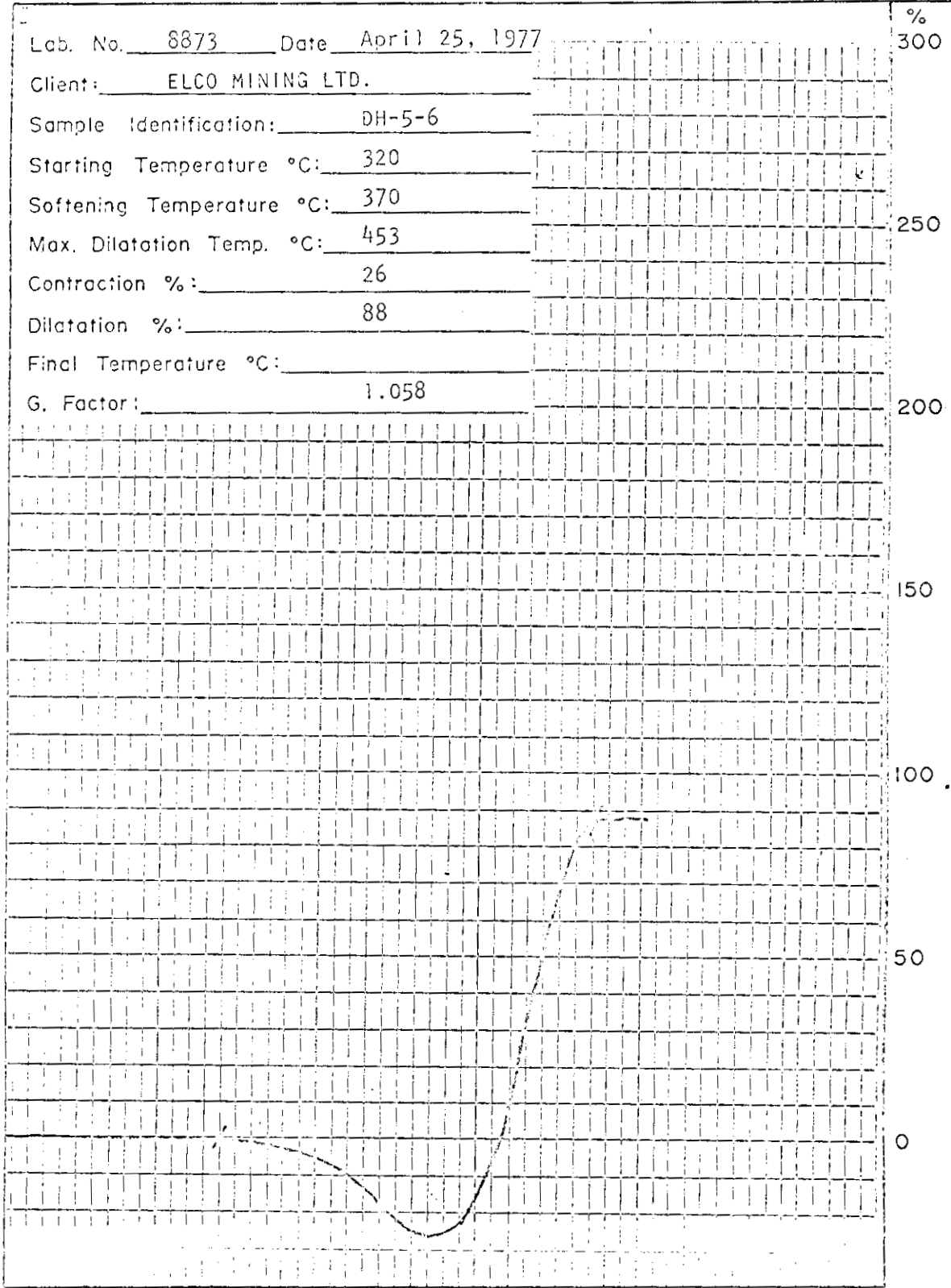
Max. Dilatation Temp. °C: 453


Contraction %: 26

Dilatation %: 88

Final Temperature °C:

G. Factor: 1.058



 BIRTLEY ENGINEERING (CANADA) LTD.

Title	Date
RUHR DILATOMETER TEST	
	Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-7 Lab. No. 8874 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	12.8	23.3	63.1	0.73	97	Air Dried Basis
	12.9	23.5	63.6	0.74	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.8	0.8	13.4	0.72	89.8	13.4	0.72	A.D.B.
	89.8		13.5	0.73	89.8	13.5	0.73	D.B.
65M x 0	10.2	0.9	8.6	0.78	100.0	12.9	0.73	A.D.B.
	10.2		8.7	0.79	100.0	13.0	0.74	D.B.

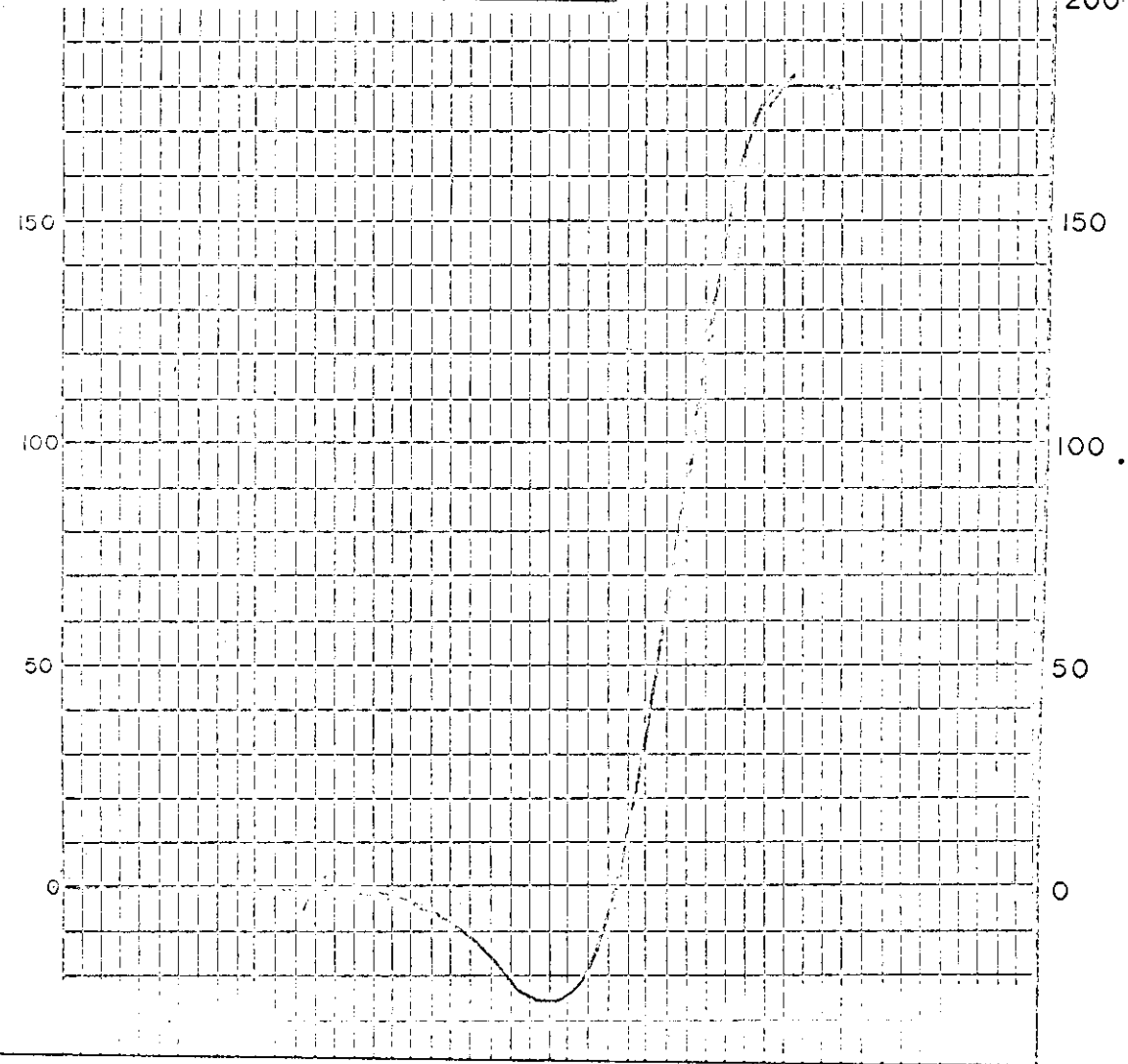
SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	79.8	0.9	5.2	25.3	68.6	0.82	79.8	5.2	A.D.B.
	79.9		5.2	25.5	69.3	0.83	79.9	5.2	D.B.
1.40-1.50	5.6	0.8	21.3	20.5	57.4	0.69	85.4	6.3	A.D.B.
	5.6		21.5	20.7	57.8	0.70	85.5	6.3	D.B.
1.50-1.60	3.1	0.9	31.5				88.5	7.1	A.D.B.
	3.1		31.8				88.6	7.2	D.B.
+1.60	11.5	1.3	61.8				100.0	13.4	A.D.B.
	11.4		62.6				100.0	13.5	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.13	367	453	26	179	1.085

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8874 Date April 25, 1977  
 Client: ELCO MINING LTD.  
 Sample Identification: DH-5-7  
 Starting Temperature °C: 320  
 Softening Temperature °C: 367  
 Max. Dilatation Temp. °C: 453  
 Contraction %: 26  
 Dilatation %: 179  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.085

%  
300



**SIRTLEY ENGINEERING (CANADA) LTD.**

Title  <p style="text-align: center;">RUHR DILATOMETER TEST</p>	Date
	Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-8

Lab. No. 8875

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	28.3	19.7	51.4	0.71	79	Air Dried Basis
	28.5	19.8	51.7	0.71	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.4	0.6	28.7	0.68	94.4	28.7	0.68	A.D.B.
	94.4		28.9	0.68	94.4	28.9	0.68	D.B.
65M x 0	5.6	0.5	17.8	0.76	100.0	28.1	0.68	A.D.B.
	5.6		17.9	0.76	100.0	28.3	0.68	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	52.8	0.5	6.6	23.8	69.1	0.87	52.8	6.6	A.D.B.
	52.9		6.6	23.9	69.5	0.87	52.9	6.6	D.B.
1.40-1.50	6.5	1.0	21.3	19.6	58.1	0.67	59.3	8.2	A.D.B.
	6.5		21.5	19.8	58.7	0.68	59.4	8.2	D.B.
1.50-1.60	4.4	0.9	29.8				63.7	9.7	A.D.B.
	4.4		30.1				63.8	9.7	D.B.
+1.60	36.3	1.0	62.0				100.0	28.7	A.D.B.
	36.2		62.6				100.0	28.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.08	370	460	23	161	1.089

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

Lab. No. 8875 Date April 26, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-5-8

Starting Temperature °C: 320

Softening Temperature °C: 370

Max. Dilatation Temp. °C: 460

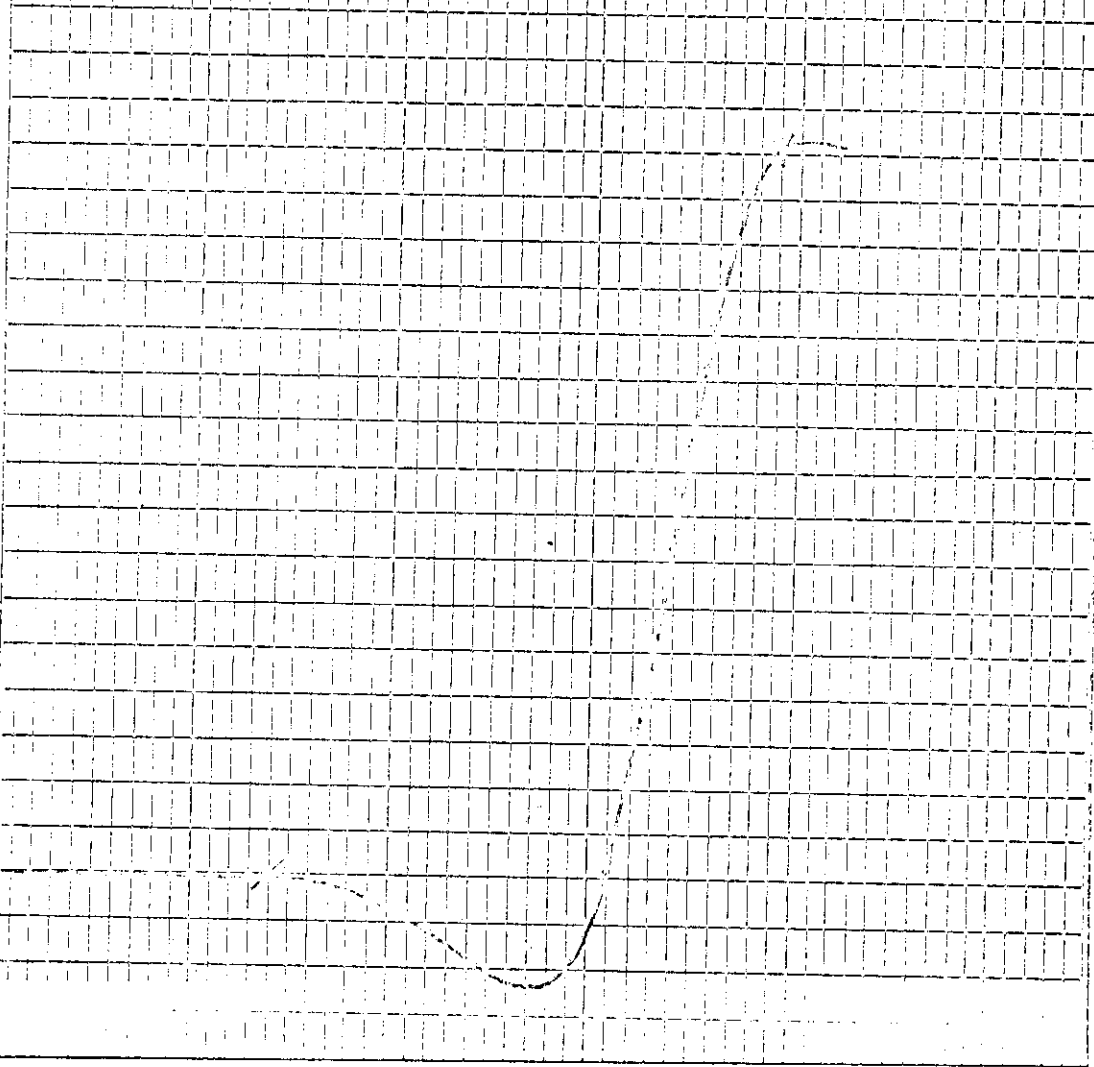
Contraction %: 23

Dilatation %: 161

Final Temperature °C:

G. Factor: 1.089

300  
250  
200  
150  
100  
50  
0



DITTELEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-9 Lab. No. 8876 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	43.0	16.6	39.8	0.52	65	Air Dried Basis
	43.3	16.7	40.0	0.52	--	Dry Basis

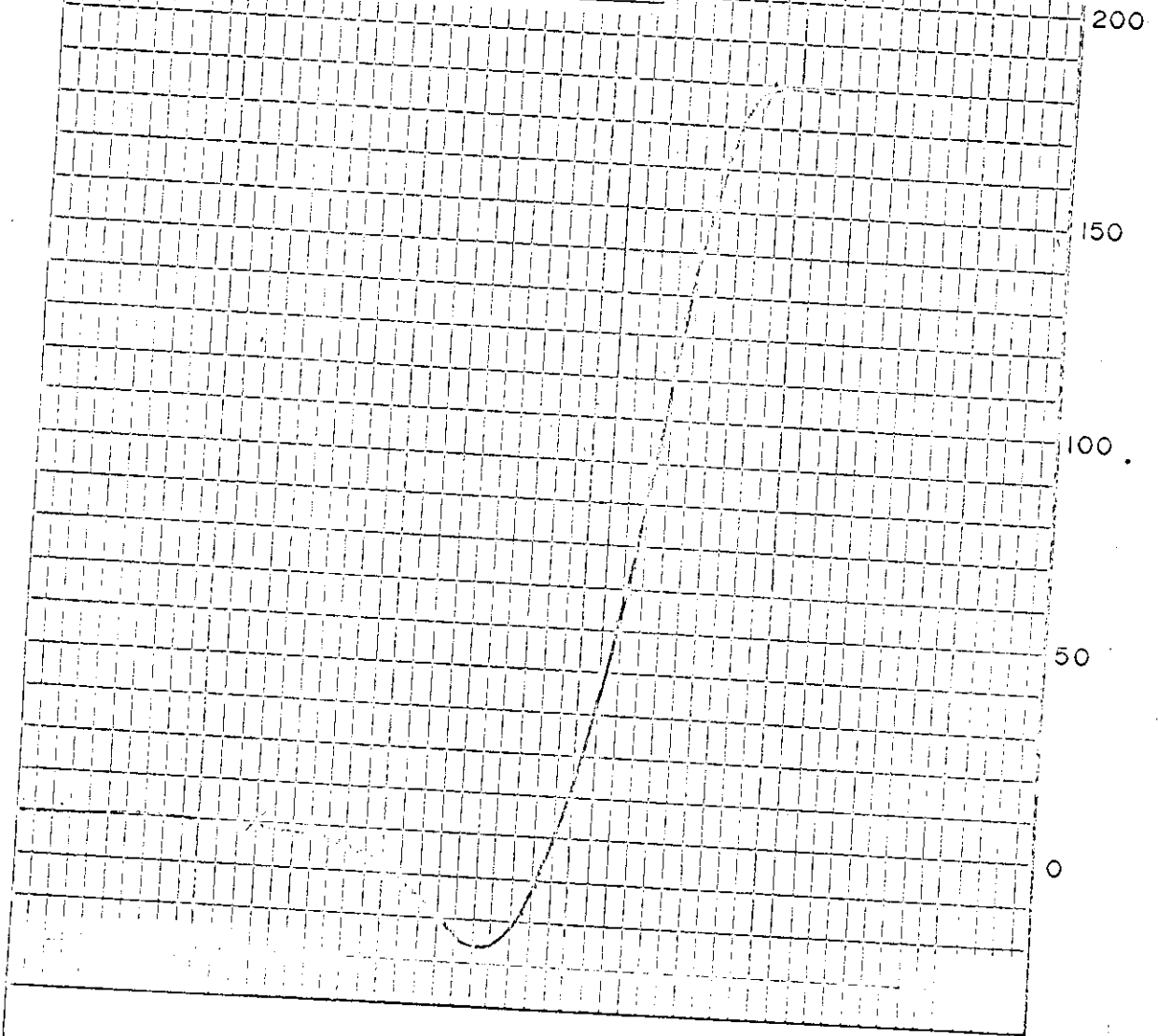
SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	95.2	0.6	43.6	0.53	95.2	43.6	0.53	A.D.B.
	95.2		43.9	0.53	95.2	43.9	0.53	D.B.
65M x 0	4.8	0.6	31.2	0.73	100.0	43.0	0.54	A.D.B.
	4.8		31.4	0.73	100.0	43.3	0.54	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	26.5	0.5	9.0	23.9	66.6	0.90	26.5	9.0	A.D.B.
	26.6		9.0	24.0	67.0	0.90	26.6	9.0	D.B.
1.40-1.50	4.5	0.6	18.4	20.3	60.7	0.78	31.0	10.4	A.D.B.
	4.5		18.5	20.4	61.1	0.78	31.1	10.4	D.B.
1.50-1.60	7.0	0.7	29.0				38.0	13.8	A.D.B.
	7.0		29.2				38.1	13.8	D.B.
+1.60	62.0	0.7	61.8				100.0	43.6	A.D.B.
	61.9		62.2				100.0	43.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.03	367	458	27	179	1.089	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8876 Date April 26, 1977 %  
 Client: ELCO MINING LTD. 300  
 Sample Identification: DH-5-9  
 Starting Temperature °C: 320  
 Softening Temperature °C: 367  
 Max. Dilatation Temp. °C: 458 250  
 Contraction %: 27  
 Dilatation %: 179  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.089 200



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-10

Lab. No. 8877

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	24.0	18.6	56.7	0.82	86	Air Dried Basis
	24.2	18.7	57.1	0.83	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	90.9	0.7	24.7	0.82	90.9	24.7	0.82	A.D.B.
	90.9		24.9	0.83	90.9	24.9	0.83	D.B.
65M x 0	9.1	0.7	17.0	0.80	100.0	24.0	0.82	A.D.B.
	9.1		17.1	0.81	100.0	24.2	0.83	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	57.1	0.6	6.0	23.2	70.2	0.96	57.1	6.0	A.D.B.
	57.2		6.0	23.3	70.7	0.97	57.2	6.0	D.B.
1.40-1.50	11.5	0.5	18.4	17.5	63.6	0.65	68.6	8.1	A.D.B.
	11.5		18.5	17.5	63.9	0.65	68.7	8.1	D.B.
1.50-1.60	3.6	0.7	27.6				72.2	9.1	A.D.B.
	3.6		27.8				72.3	9.1	D.B.
+1.60	27.8	1.0	65.2				100.0	24.7	A.D.B.
	27.7		65.9				100.0	24.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.= 320 °C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.04	381	457	26	81	1.049

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

Lab. No. 8877 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-5-10

Starting Temperature °C: 320

Softening Temperature °C: 381

Max. Dilatation Temp. °C: 457

250

Contraction %: 26

Dilatation %: 81

Final Temperature °C:

G. Factor: 1.049

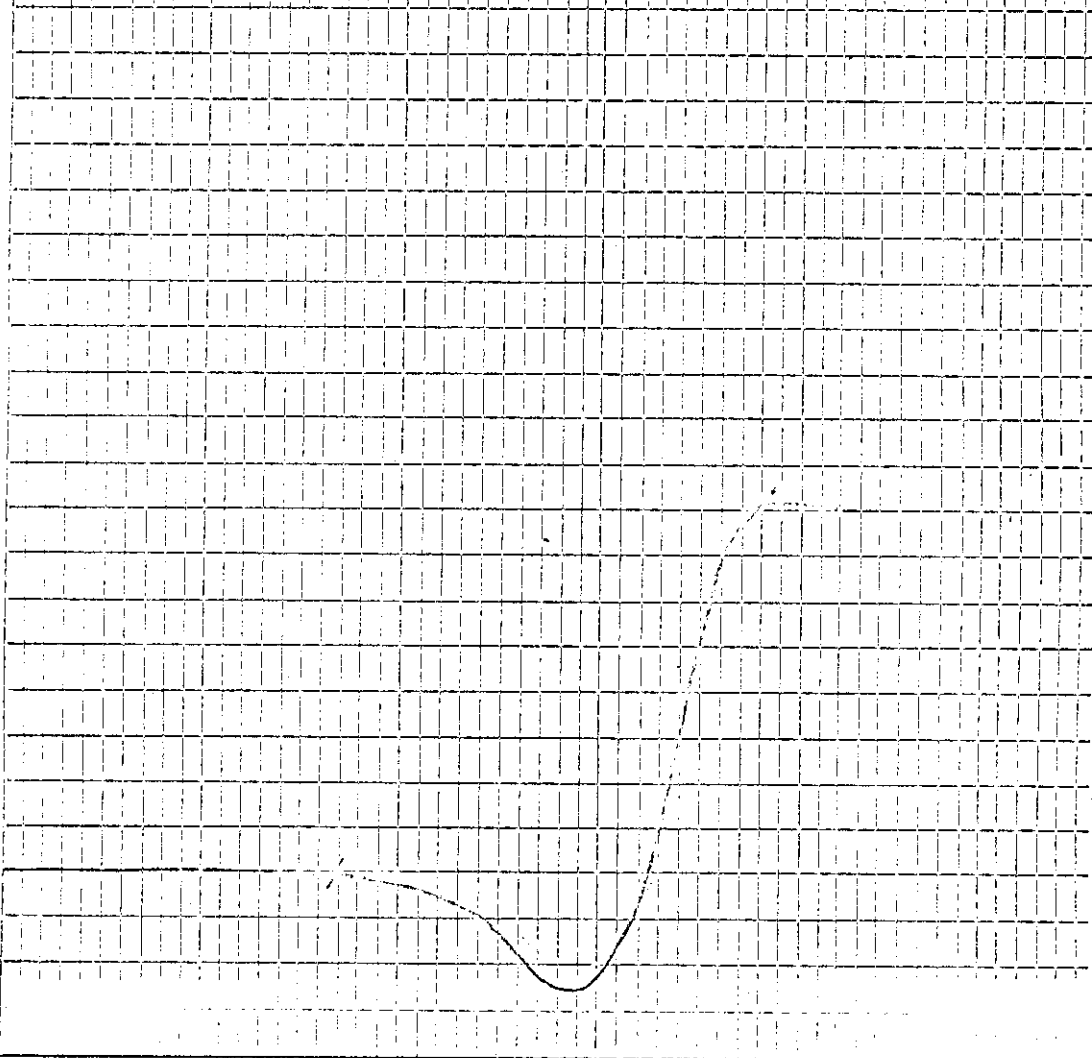
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-5-11

Lab. No. 8878

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	13.2	21.6	64.4	0.84	112	Air Dried Basis
	13.3	21.8	64.9	0.85	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	88.8	0.8	12.6	0.84	88.8	12.6	0.84	A.D.B.
	88.8		12.7	0.85	88.8	12.7	0.85	D.B.
65M x 0	11.2	0.9	10.9	0.81	100.0	12.4	0.84	A.D.B.
	11.2		11.0	0.82	100.0	12.5	0.85	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	84.3	0.8	3.7	23.5	72.0	0.93	84.3	3.7	A.D.B.
	84.3		3.7	23.7	72.6	0.94	84.3	3.7	D.B.
1.40-1.50	3.5	0.8	15.5	21.0	62.7	0.77	87.8	4.2	A.D.B.
	3.5		15.6	21.2	63.2	0.78	87.8	4.2	D.B.
1.50-1.60	1.1	1.0	25.5	<del>          </del>	<del>          </del>	<del>          </del>	88.9	4.4	A.D.B.
	1.1		25.8	<del>          </del>	<del>          </del>	<del>          </del>	88.9	4.4	D.B.
+1.60	11.1	1.0	77.7	<del>          </del>	<del>          </del>	<del>          </del>	100.0	12.6	A.D.B.
	11.1		78.5	<del>          </del>	<del>          </del>	<del>          </del>	100.0	12.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.05	381	457	24	28	1.007

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8878 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-5-11

Starting Temperature °C: 320

Softening Temperature °C: 381

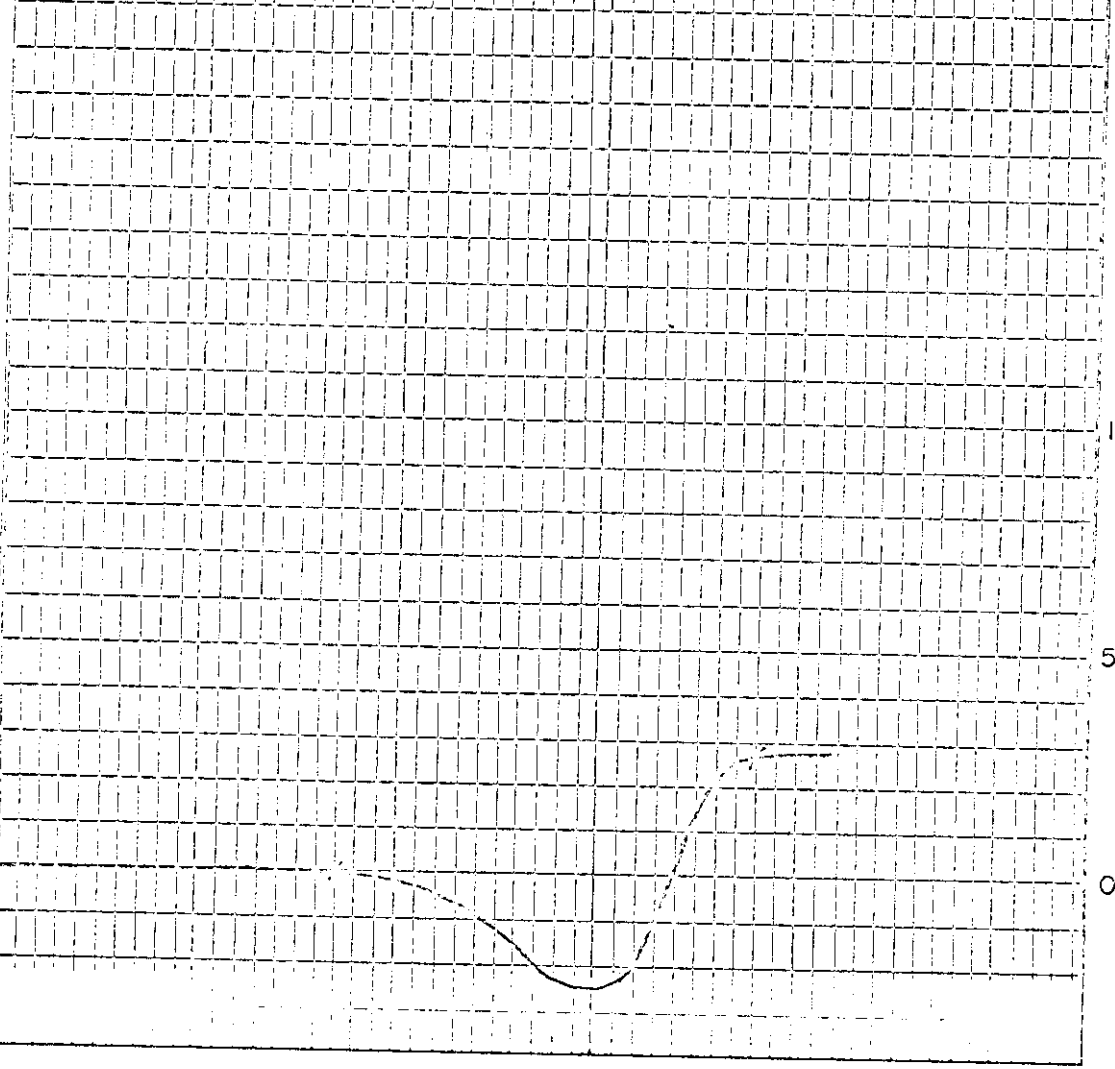
Max. Dilatation Temp. °C: 457

Contraction %: 24

Dilatation %: 28

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.007



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-6-1      Lab. No. 8879      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	14.0	32.0	53.0	1.43	83	Air Dried Basis
	14.1	32.3	53.6	1.45	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	79.3	1.0	15.6	1.57	89.3	15.6	1.57	A.D.B.
	79.3		15.8	1.59	79.3	15.8	1.59	D.B.
65M x 0	20.7	1.0	7.8	0.88	100.0	14.0	1.43	A.D.B.
	20.7		7.9	0.89	100.0	14.2	1.45	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	79.7	1.0	5.9	33.4	59.7	0.82	79.7	5.9	A.D.B.
	79.7		6.0	33.7	60.3	0.83	79.7	6.0	D.B.
1.40-1.50	3.8	1.0	9.8	N.S.S.	---	N.S.S.	83.5	6.1	A.D.B.
	3.8		9.9	---	---		83.5	6.2	D.B.
1.50-1.60	0.9	0.9	18.8	X			84.4	6.2	A.D.B.
	0.9		19.0				84.4	6.3	D.B.
+1.60	15.6	1.1	66.3	X			100.0	15.6	A.D.B.
	15.6		67.0				100.0	15.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.05	352	446	27	161	1.092

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8879 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DII-6-1

Starting Temperature °C: 320

Softening Temperature °C: 352

Max. Dilatation Temp. °C: 446

250

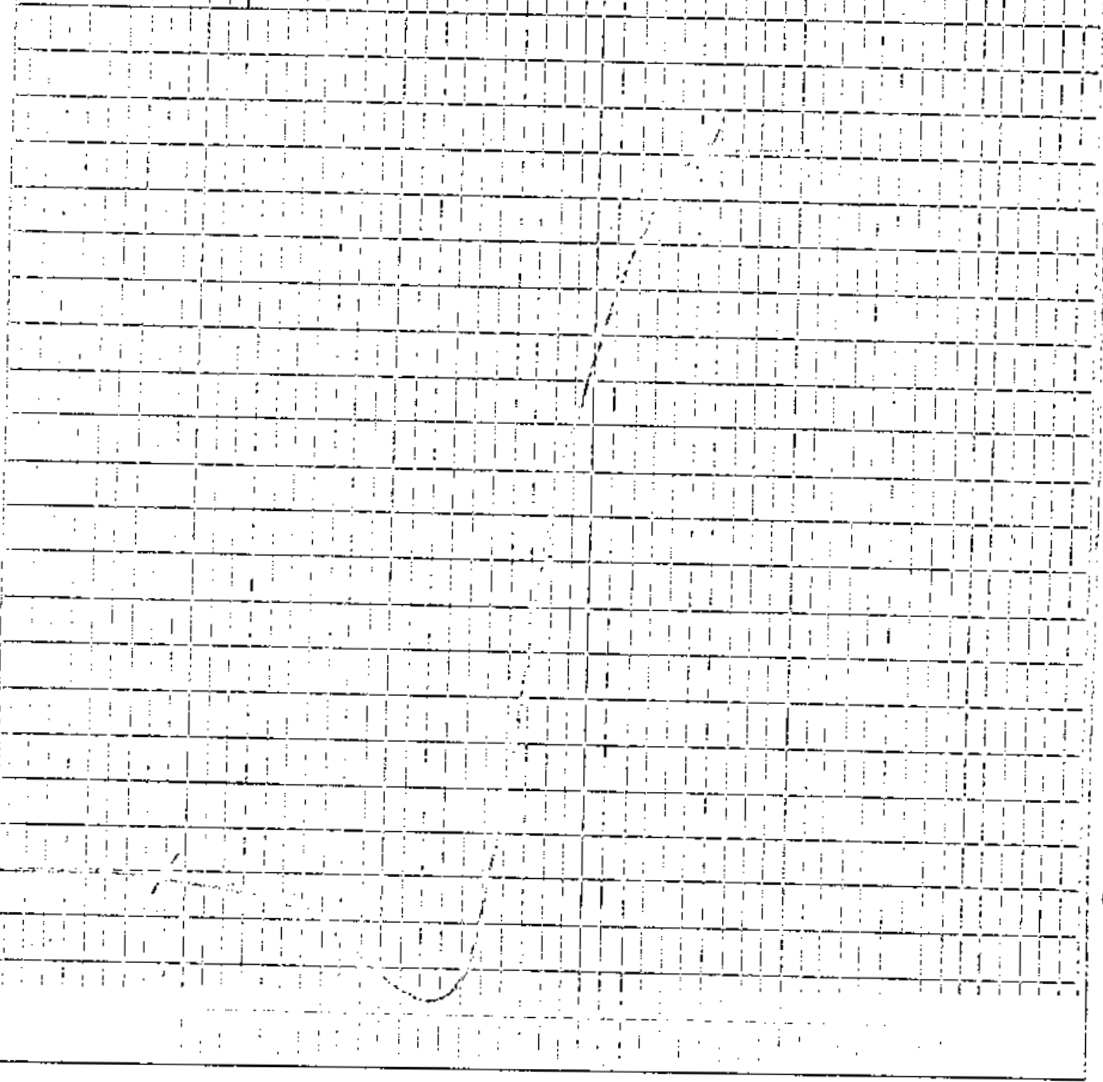
Contraction %: 27

Dilatation %: 161

Final Temperature °C:

G. Factor: 1.092

200



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-6-2      Lab. No. 8880      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	26.7	24.3	48.0	0.74	66	Air Dried Basis
	27.0	24.5	48.5	0.75	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.1	1.0	26.4	0.77	93.1	26.4	0.77	A.D.B.
	93.1		26.7	0.78	93.1	26.7	0.78	D.B.
65M x 0	6.9	1.0	31.0	0.73	100.0	26.7	0.77	A.D.B.
	6.9		31.3	0.74	100.0	27.0	0.78	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	62.7	1.0	6.9	32.2	59.9	0.90	62.7	6.9	A.D.B.
	62.7		7.0	32.5	60.5	0.91	62.7	7.0	D.B.
1.40-1.50	8.0	1.0	19.4	28.6	51.0	0.83	70.7	8.3	A.D.B.
	8.0		19.6	28.9	51.5	0.84	70.7	8.4	D.B.
1.50-1.60	2.5	0.9	24.9	X	X	X	73.2	8.9	A.D.B.
	2.5		25.1				73.2	9.0	D.B.
+1.60	26.8	0.9	74.4	X	X	X	100.0	26.4	A.D.B.
	26.8		75.1				100.0	26.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)					G. NO.
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
7 1/2	0.16	346	450	26	182	1.109	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8230 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-6-2

Starting Temperature °C: 320

Softening Temperature °C: 346

Max. Dilatation Temp. °C: 450

Contraction %: 26

Dilatation %: 182

Final Temperature °C:

G. Factor: 1.109

250

200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-6-3

Lab. No. 8881

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	40.5	22.3	36.3	0.67	62	Air Dried Basis
	40.9	22.5	36.6	0.68	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.9	0.9	40.8	0.63	91.9	40.8	0.63	A.D.B.
	91.9		41.2	0.64	91.9	41.2	0.64	D.B.
65M x 0	8.1	1.1	37.1	0.77	100.0	40.5	0.64	A.D.B.
	8.1		37.5	0.78	100.0	40.9	0.65	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	32.7	1.0	7.3	30.9	60.8	0.90	32.7	7.3	A.D.B.
	32.7		7.4	31.2	61.4	0.91	32.7	7.4	D.B.
1.40-1.50	5.2	1.3	17.9	27.3	53.5	0.82	37.9	8.8	A.D.B.
	5.2		18.1	27.7	54.2	0.83	37.9	8.9	D.B.
1.50-1.60	10.0	0.8	34.7				47.9	14.2	A.D.B.
	10.0		35.0				47.9	14.3	D.B.
+1.60	52.1	0.9	65.3				100.0	40.8	A.D.B.
	52.1		65.9				100.0	41.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.01	345	450	29	170	1.103

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8881 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-6-3

Starting Temperature °C: 320

Softening Temperature °C: 345

Max. Dilatation Temp. °C: 450

Contraction %: 29

Dilatation %: 170

Final Temperature °C:

G. Factor: 1.103

250

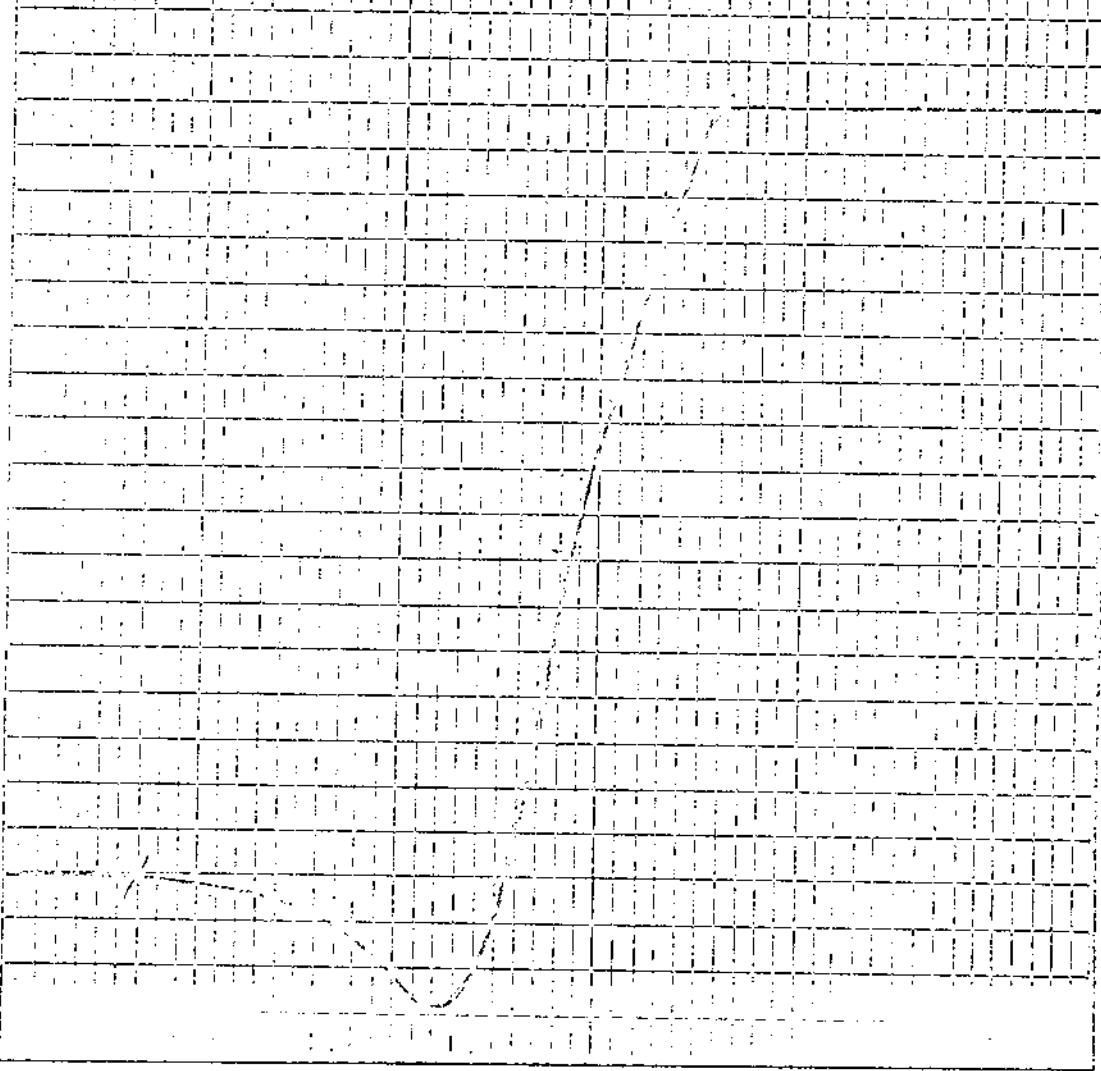
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title  
RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-6-4      Lab. No. 8882      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	15.4	27.0	56.9	0.98	69	Air Dried Basis
	15.5	27.2	57.3	0.99	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.6	0.7	15.4	0.98	93.6	15.4	0.98	A.D.B.
	93.6		15.5	0.99	93.6	15.5	0.99	D.B.
65M x 0	6.4	0.8	15.8	1.03	100.0	15.4	0.98	A.D.B.
	6.4		15.9	1.04	100.0	15.5	0.99	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	71.4	0.7	4.8	31.2	63.3	1.02	71.4	4.8	A.D.B.
	71.4		4.8	31.4	63.8	1.03	71.4	4.8	D.B.
1.40-1.50	9.2	0.6	20.1	19.6	59.7	0.69	80.6	6.5	A.D.B.
	9.2		20.2	19.7	60.1	0.69	80.6	6.6	D.B.
1.50-1.60	5.0	0.9	33.6				85.6	8.1	A.D.B.
	5.0		33.9				85.6	8.1	D.B.
+1.60	14.4	0.8	58.3				100.0	15.4	A.D.B.
	14.4		58.8				100.0	15.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
7 1/2	0.01	345	450	28	159	1.102	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8882 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-6-4

Starting Temperature °C: 320

Softening Temperature °C: 345

Max. Dilatation Temp. °C: 450

250

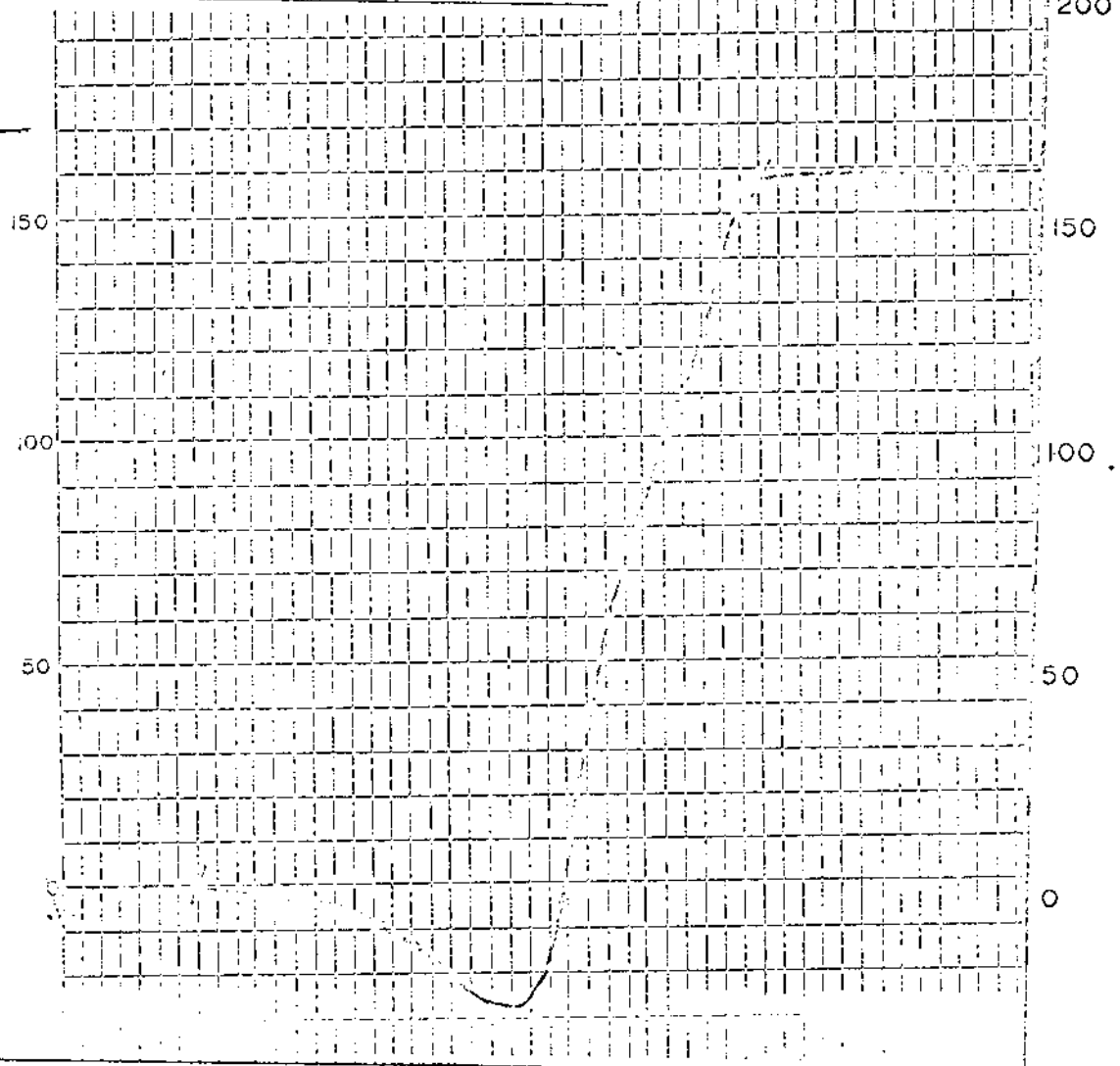
Contraction %: 28

Dilatation %: 159

Final Temperature °C:

G. Factor: 1.102

200



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-6-5 Lab. No. 8883 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	28.9	24.8	45.5	0.98	65	Air Dried Basis
	29.1	25.0	45.9	0.99	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.6	0.8	29.2	0.98	92.6	29.2	0.98	A.D.B.
	92.7		29.4	0.99	92.7	29.4	0.99	D.B.
65M x 0	7.4	1.1	24.5	0.94	100.0	28.9	0.98	A.D.B.
	7.3		24.8	0.95	100.0	29.1	0.99	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	60.0	0.8	5.0	31.3	62.9	1.09	60.0	5.0	A.D.B.
	60.0		5.0	31.6	63.4	1.10	60.0	5.0	D.B.
1.40-1.50	3.5	1.0	18.0	26.1	54.9	1.14	63.5	5.7	A.D.B.
	3.5		18.2	26.4	55.4	1.15	63.5	5.7	D.B.
1.50-1.60	3.4	0.8	33.2				66.9	7.1	A.D.B.
	3.4		33.5				66.9	7.1	D.B.
+1.60	33.1	0.8	73.8				100.0	29.2	A.D.B.
	33.1		74.4				100.0	29.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.07	352	457	27	190	1.108

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8883 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-6-5

Starting Temperature °C: 320

Softening Temperature °C: 352

Max. Dilatation Temp. °C: 457

250

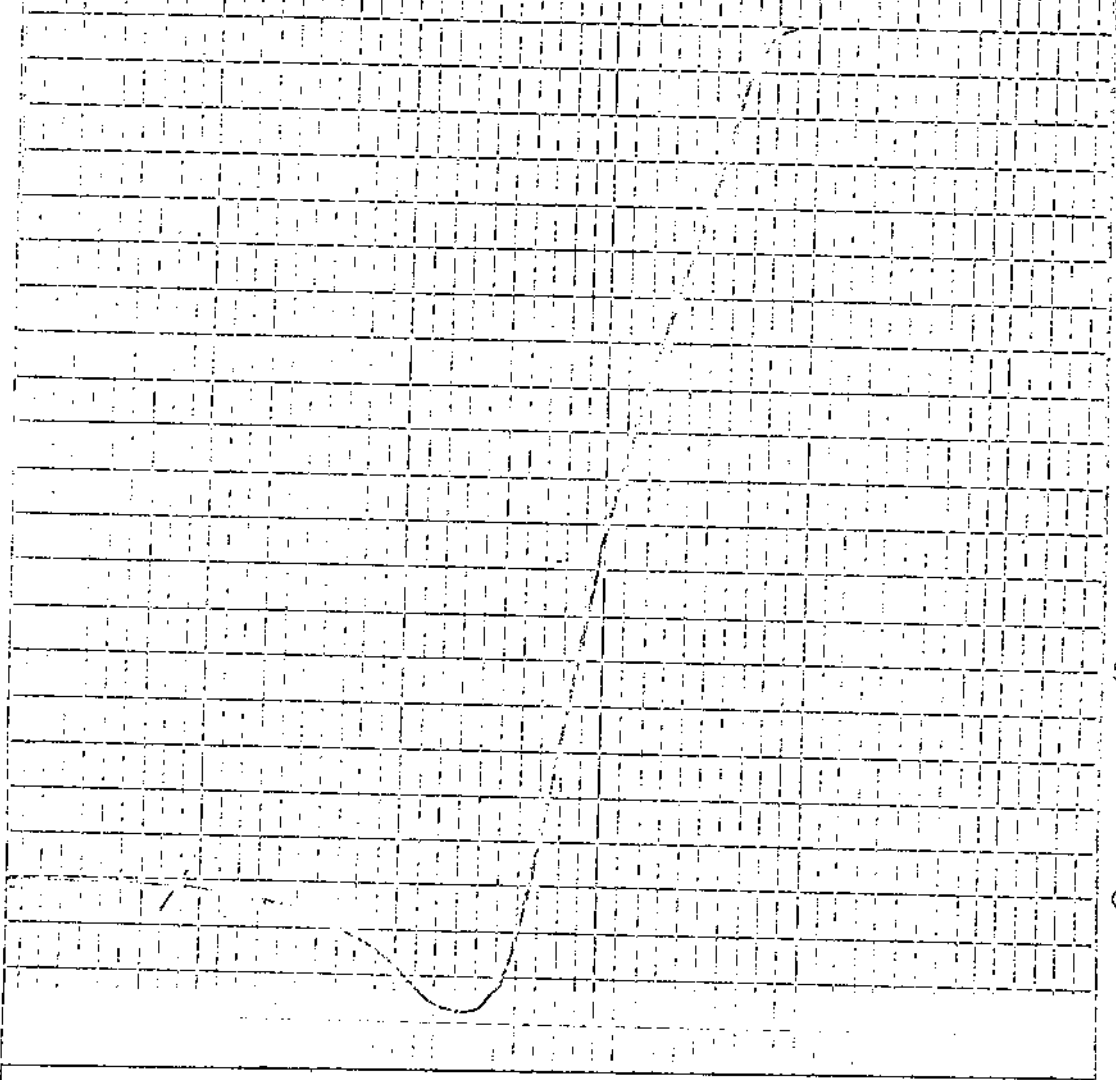
Contraction %: 27

Dilatation %: 190

Final Temperature °C:

G. Factor: 1.108

200



BIRTLEY ENGINEERING (CANADA) LTD.

Title  
RUHR DILATOMETER TEST

Date  
Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-6-6 Lab. No. 8884 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	7.5	30.8	60.8	0.63	92	Air Dried Basis
	7.6	31.1	61.3	0.64	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	88.9	0.9	6.4	0.65	88.9	6.4	0.65	A.D.B.
	88.9		6.5	0.66	88.9	6.5	0.66	D.B.
65M x 0	11.1	1.0	11.2	0.61	100.0	6.9	0.65	A.D.B.
	11.1		11.3	0.62	100.0	7.0	0.66	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	93.4	0.9	3.7	30.9	64.5	0.70	93.4	3.7	A.D.B.
	93.4		3.7	31.2	65.1	0.71	93.4	3.7	D.B.
1.40-1.50	1.4	1.0	16.3	28.7	54.0	0.67	94.8	3.9	A.D.B.
	1.4		16.5	29.0	54.5	0.68	94.8	3.9	D.B.
1.50-1.60	1.2	1.0	24.4	X	X	X	96.0	4.1	A.D.B.
	1.2		24.6				96.0	4.1	D.B.
+1.60	4.0	0.9	60.5	X	X	X	100.0	6.4	A.D.B.
	4.0		61.0				100.0	6.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.03	360	454	29	138	1.082

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8284 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-6-6

Starting Temperature °C: 320

Softening Temperature °C: 360

Max. Dilatation Temp. °C: 454

250

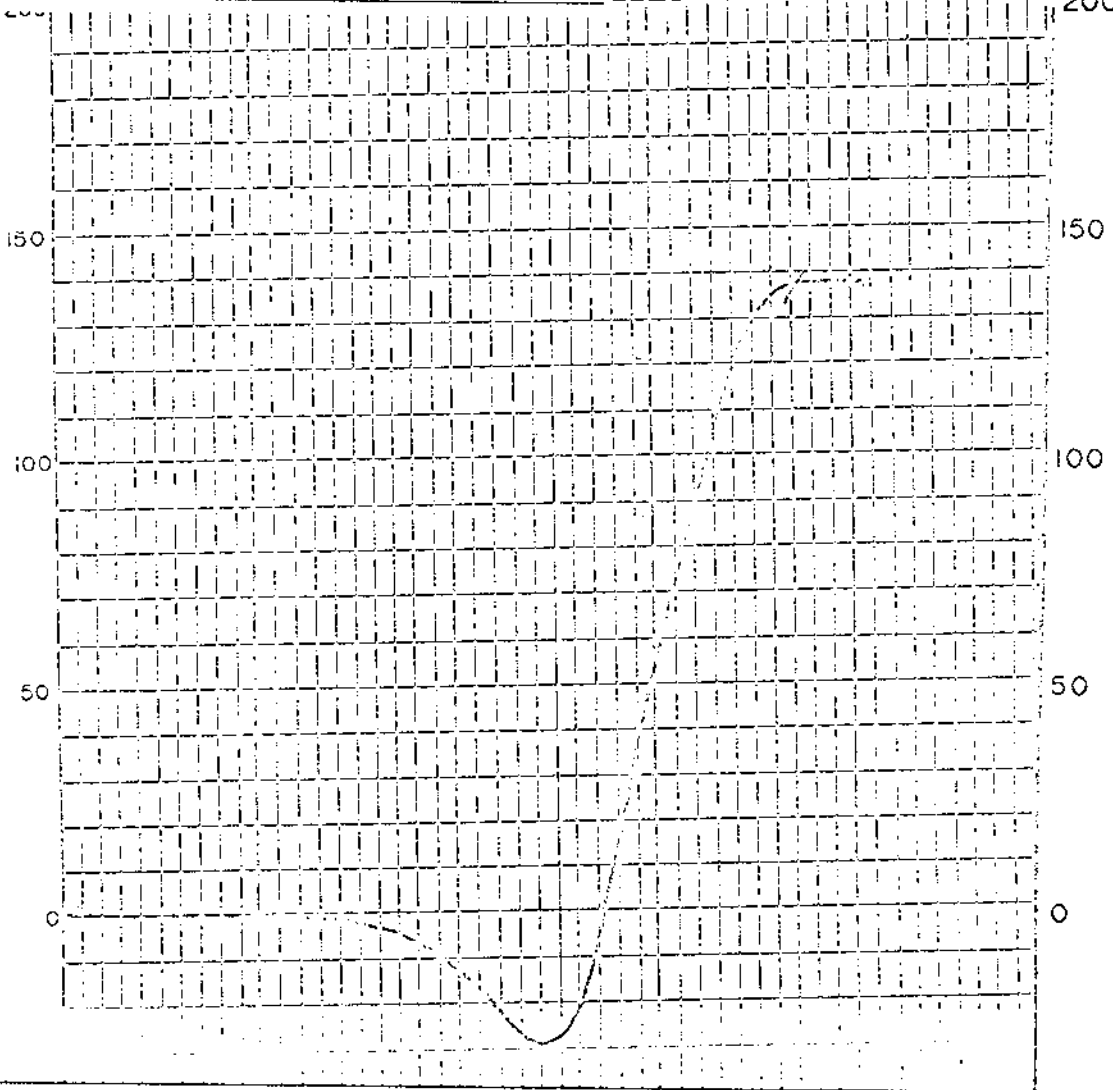
Contraction %: 29

Dilatation %: 138

Final Temperature °C:

G. Factor: 1.082

200



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 6 - 7      Lab. No.: 77 - 4283      Date: May 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	6.6	26.8	65.8	0.50	93.4	Air Dried Basis
--	6.6	27.1	66.3	0.50	---	Dry Basis

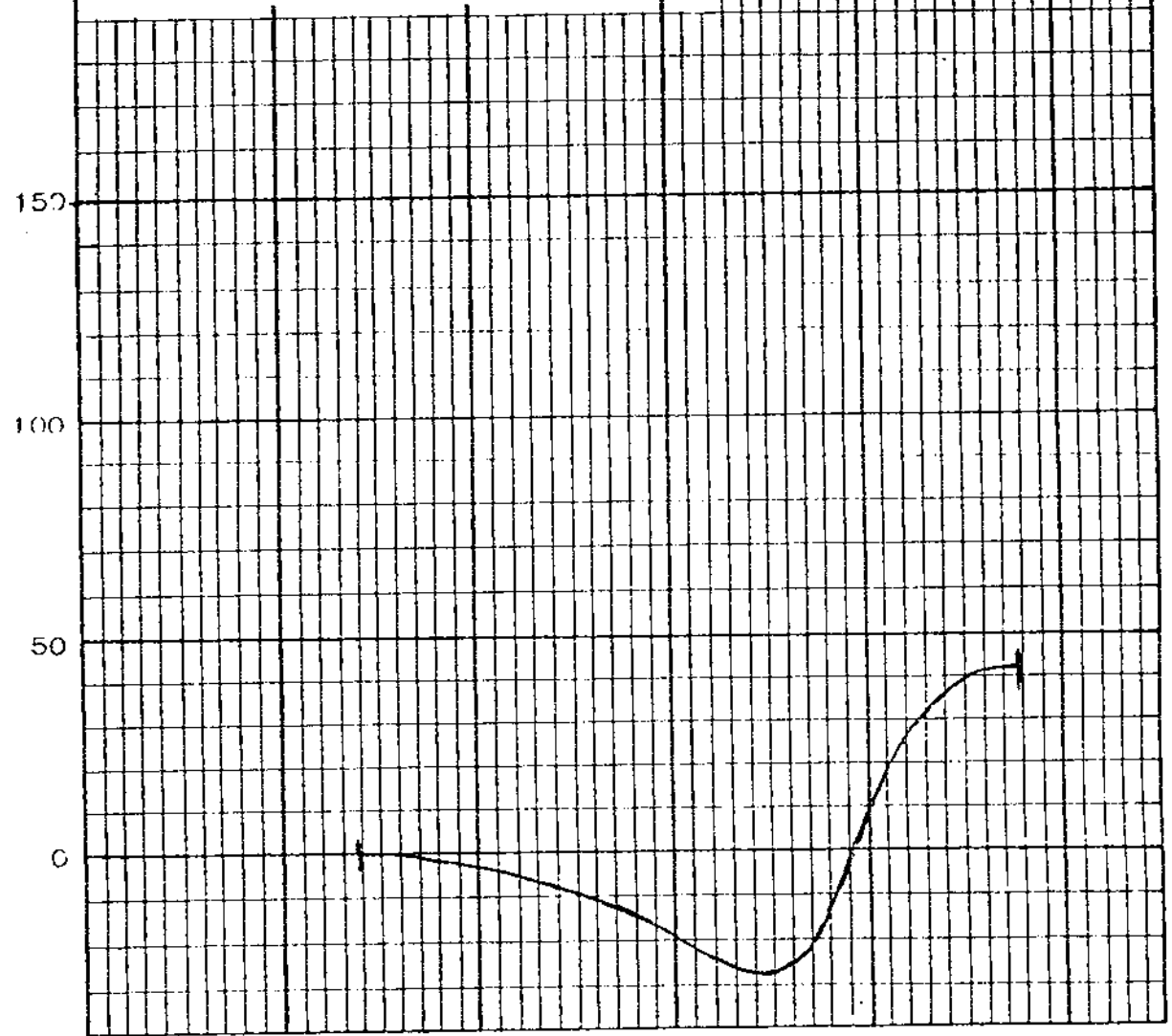
SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	90.8	0.7	7.1	0.49	90.8	7.1	0.49	A.D.B.
	90.8	--	7.2	0.49	90.8	7.2	0.49	D.B.
65 x 0	9.2	1.0	8.3	0.51	100.0	7.2	0.49	A.D.B.
	9.2	--	8.4	0.51	100.0	7.3	0.49	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	88.9	1.0	3.7	31.2	64.1	0.49	88.9	3.7	A.D.B.
	88.9	--	3.7	31.5	61.1	0.49	88.9	3.7	D.B.
1.40-1.50	5.2	0.9	15.8	25.0	58.3	0.43	94.1	4.4	A.D.B.
	5.2	--	16.0	25.3	58.7	0.43	94.1	4.4	D.B.
1.50-1.60	1.4	0.7	21.1	--	--	--	95.5	4.6	A.D.B.
	1.4	--	21.2	--	--	--	95.5	4.6	D.B.
+1.60	4.5	0.7	53.0	--	--	--	100.0	6.8	A.D.B.
	4.5	--	53.3	--	--	--	100.0	6.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.048					

% Lab. No. 77-4283 Date: July 6/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 6 - 7  
Starting Temperature °C: 370  
Softening Temperature °C: 383  
250 Max. Dilatation Temp. °C: 464  
Contraction %: 26%  
Dilatation %: 42%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.06



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 6 - 8

Lab. No.: 77 - 4284

Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	11.6	29.3	58.3	0.53	79.5	Air Dried Basis
--	11.7	29.5	58.8	0.53	---	Dry Basis

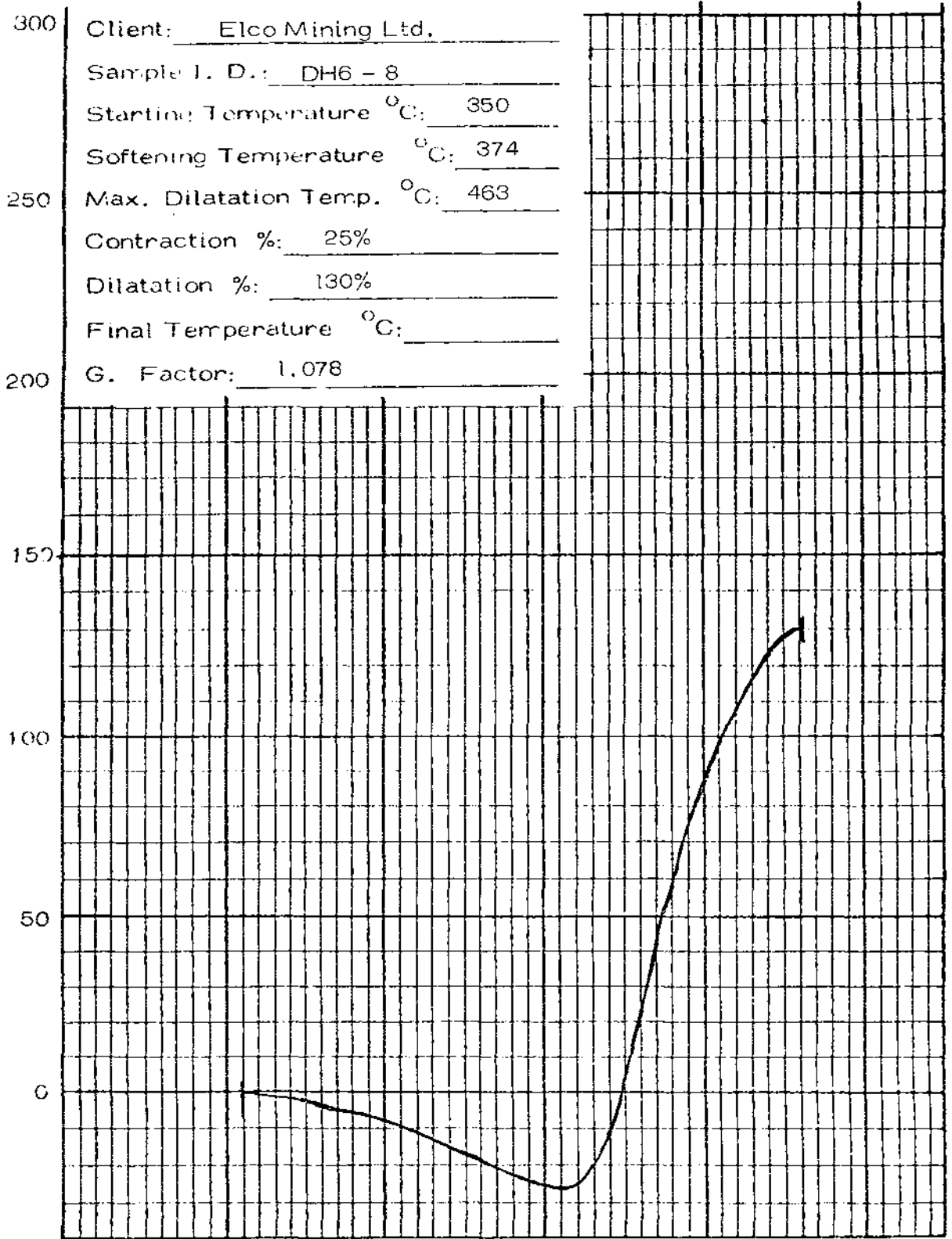
SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	91.9	0.7	11.3	0.55	91.9	11.3	0.55	A.D.B.
	91.9	--	11.4	0.55	91.9	11.4	0.55	D.B.
65 x 0	8.1	0.8	9.8	0.57	100.0	11.2	0.55	A.D.B.
	8.1	--	9.8	0.57	100.0	11.3	0.55	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash%	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash%	
-1.40	82.6	1.0	3.0	32.6	63.4	0.52	82.6	3.0	A.D.B.
	82.6	--	3.1	32.9	64.0	0.52	82.6	3.1	D.B.
1.40-1.50	2.5	1.0	16.9	26.5	55.6	0.48	85.1	3.4	A.D.B.
	2.5	--	17.1	26.8	56.1	0.48	85.1	3.5	D.B.
1.50-1.60	1.7	0.8	25.7	--	--	--	86.8	3.8	A.D.B.
	1.7	--	25.9	--	--	--	86.8	3.9	D.B.
+1.60	13.2	0.7	63.2	--	--	--	100.0	11.7	A.D.B.
	13.2	--	63.6	---	--	--	100.0	11.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.028					

Lab. No. 77-4284 Date: July 6/77

Client: Elco Mining Ltd.  
Sample I. D.: DH6 - 8  
Starting Temperature °C: 350  
Softening Temperature °C: 374  
Max. Dilatation Temp. °C: 463  
Contraction %: 25%  
Dilatation %: 130%  
Final Temperature °C: \_\_\_\_\_  
G. Factor: 1.078



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 6 - 9      Lab. No.: 77 - 4285      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	17.9	23.9	57.5	0.61	83.7	Air Dried Basis
--	18.1	24.1	57.8	0.61	---	Dry Basis

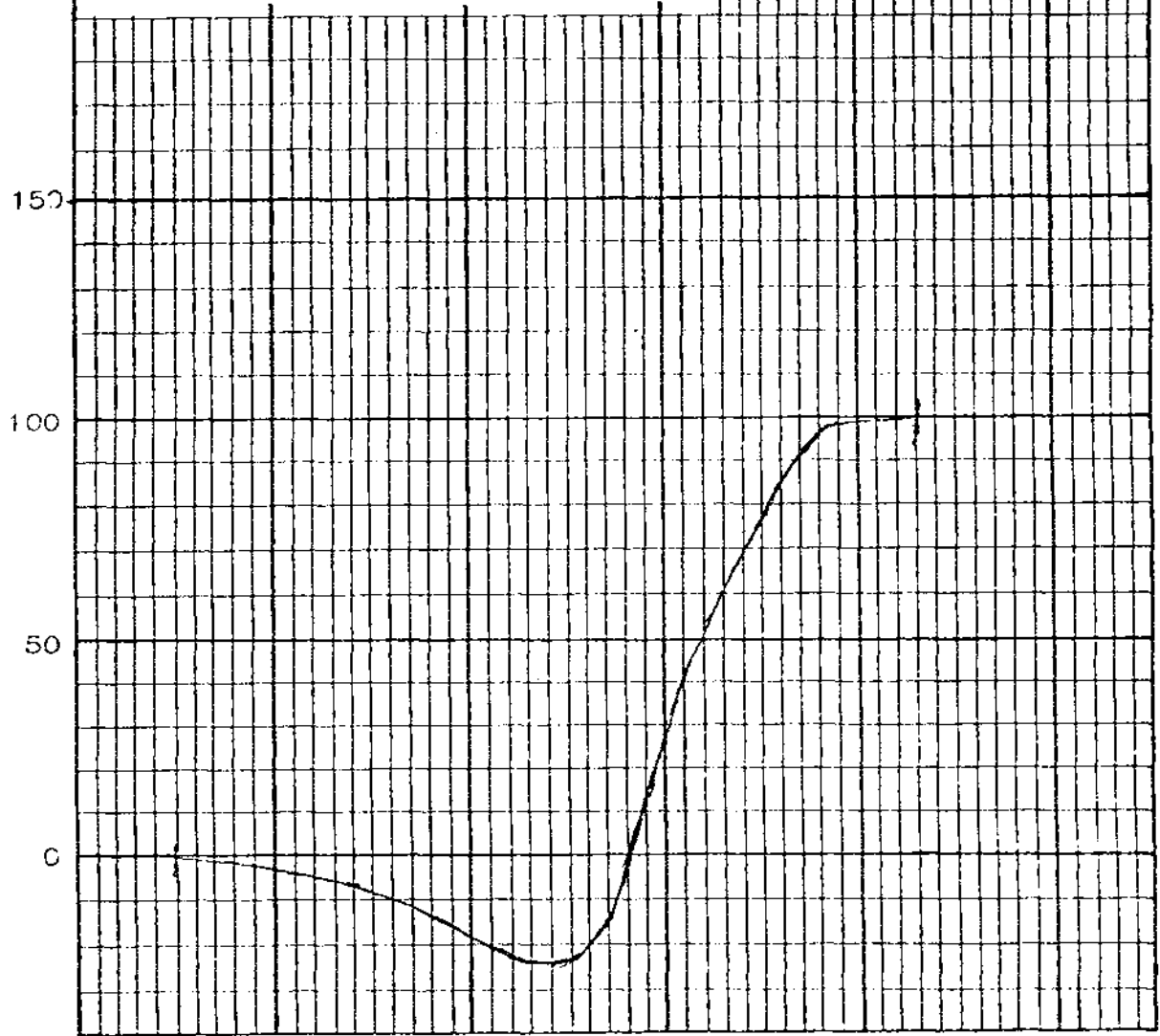
SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	89.1	0.6	17.8	0.64	89.1	17.8	0.64	A.D.B.
	89.1	--	17.9	0.64	89.1	17.9	0.64	D.B.
65 x 0	10.9	0.7	14.3	0.62	100.0	17.4	0.64	A.D.B.
	10.9	--	14.4	0.62	100.0	17.5	0.64	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash%	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash%	
-1.40	70.0	0.8	4.5	29.8	64.9	0.67	70.0	4.5	A.D.B.
	70.0	--	4.6	30.1	65.3	0.67	70.0	4.6	D.B.
1.40-1.50	9.5	0.8	21.4	23.9	53.9	0.54	79.5	6.5	A.D.B.
	9.5	--	21.5	24.1	54.3	0.54	79.5	6.6	D.B.
1.50-1.60	3.5	0.6	26.8	--	--	--	83.0	7.4	A.D.B.
	3.5	--	27.0	--	--	--	83.0	7.5	D.B.
+1.60	17.0	0.7	71.6	--	--	--	100.0	18.3	A.D.B.
	17.0	--	72.1	--	--	--	100.0	18.5	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8	0.045					

% Lab. No. 77-4285 Date: July 6/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 6 - 9  
Starting Temperature °C: 350  
Softening Temperature °C: 377  
250 Max. Dilatation Temp. °C: 473  
Contraction %: 23%  
Dilatation %: 100%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.076



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 6 - 10 Lab. No.: 77 - 4286 Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	16.8	26.9	55.6	0.58	80.2	Air Dried Basis
--	16.9	27.1	56.0	0.58	---	Dry Basis

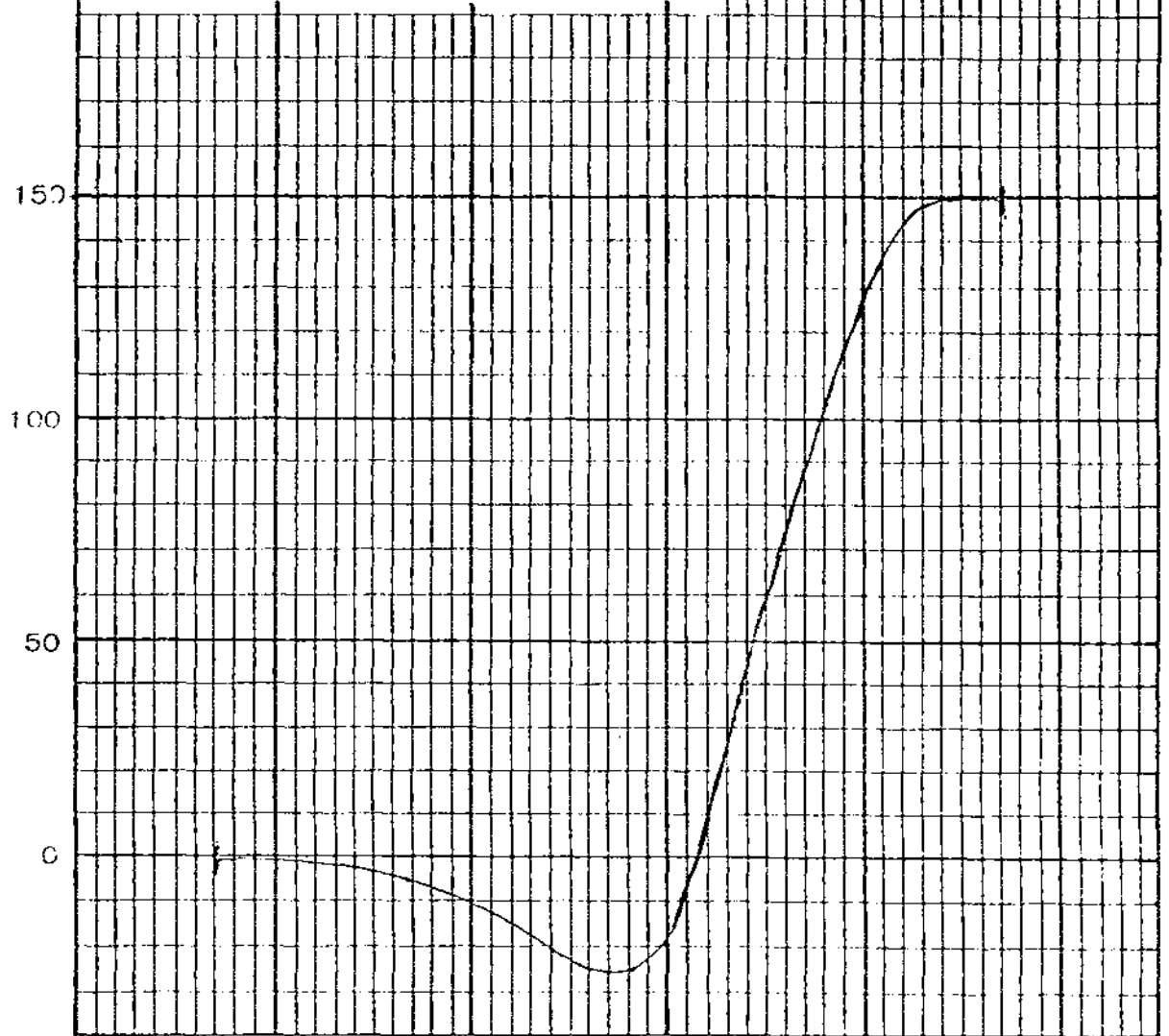
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.6	0.6	17.4	0.61	91.6	17.4	0.61	A.D.B.
	91.6	--	17.5	0.61	91.6	17.5	0.61	D.B.
65 x 0	8.4	0.7	14.6	0.66	100.0	17.2	0.61	A.D.B.
	8.4	--	14.7	0.66	100.0	17.3	0.61	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	70.3	0.9	4.6	30.2	64.3	0.70	70.3	4.6	A.D.B.
	70.3	--	4.6	30.5	64.9	0.71	70.3	4.6	D.B.
1.40-1.50	6.3	0.9	17.8	24.7	56.6	0.58	76.6	5.7	A.D.B.
	6.3	--	17.9	24.9	57.2	0.58	76.6	5.7	D.B.
1.50-1.60	3.5	0.7	23.8	--	--	--	80.1	6.5	A.D.B.
	3.5	--	24.0	--	--	--	80.1	6.5	D.B.
+1.60	19.9	0.7	63.2	--	--	--	100.0	17.8	A.D.B.
	19.9	--	63.7	--	--	--	100.0	17.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.041					

% Lab. No. 77-4286 Date: July 7/77

300 Client: Elco Mining Ltd.  
Sample I. D.: TDH 6 - 30  
Starting Temperature °C: 350  
Softening Temperature °C: 366  
250 Max. Dilatation Temp. °C: 472  
Contraction %: 26%  
Dilatation %: 150%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.098



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 6 - 11 Lab. No.: 77 - 4287 Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	13.1	25.0	61.2	0.72	107.9	Air Dried Basis
--	13.2	25.2	61.6	0.72	--	Dry Basis

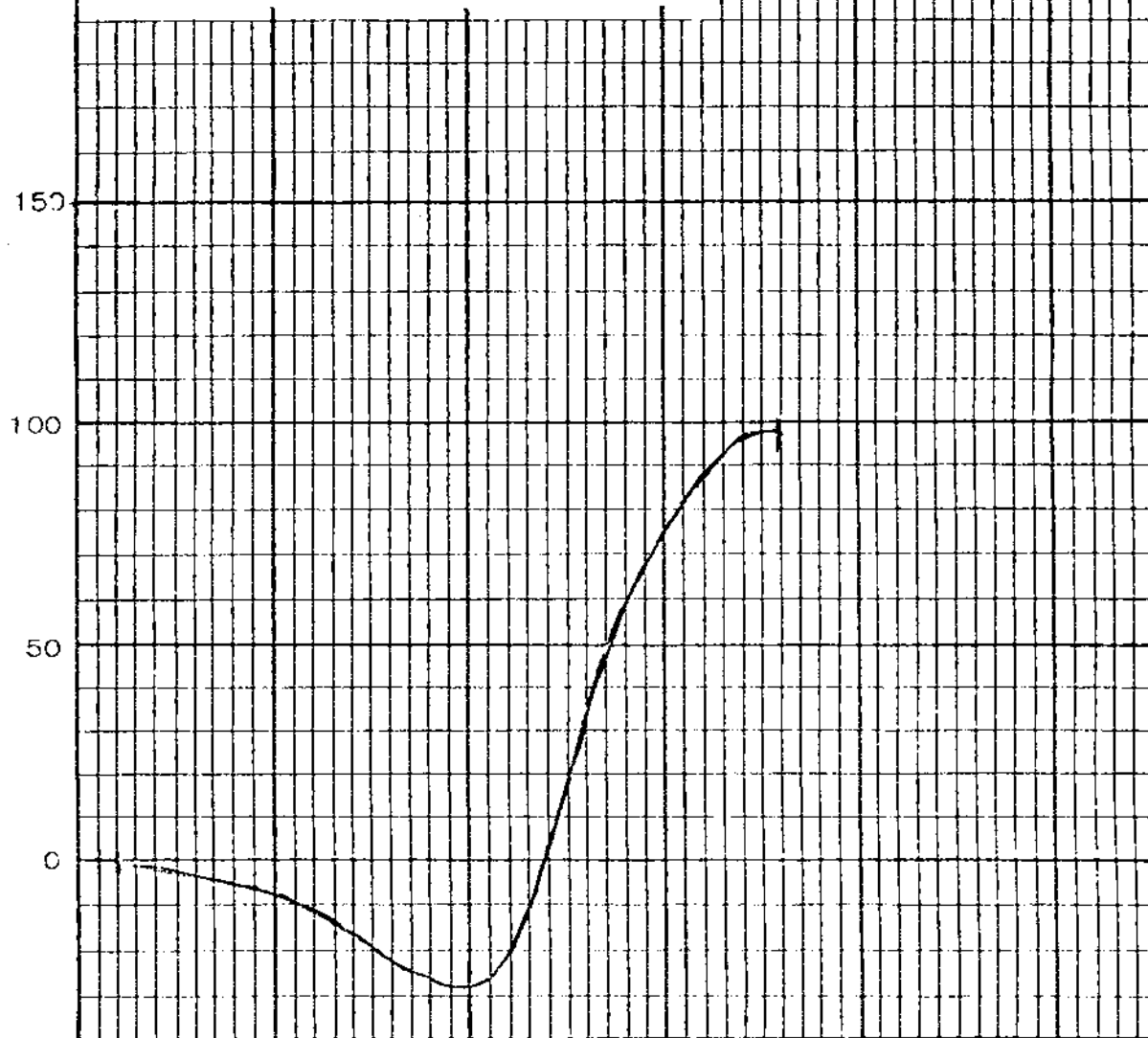
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.9	0.6	13.2	0.70	89.9	13.2	0.70	A.D.B.
	89.9	--	13.3	0.70	89.9	13.3	0.70	D.B.
65 x 0	10.1	0.8	10.7	0.74	100.0	12.9	0.70	A.D.B.
	10.1	--	10.8	0.75	100.0	13.0	0.70	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	75.3	1.0	5.4	30.9	62.7	0.77	75.3	5.4	A.D.B.
	75.3	--	5.5	31.2	63.3	0.78	75.3	5.5	D.B.
1.40-1.50	8.7	0.9	20.1	24.4	54.6	0.62	84.0	6.9	A.D.B.
	8.7	--	20.2	24.5	55.3	0.63	84.0	7.0	D.B.
1.50-1.60	2.6	0.6	27.4	--	--	--	86.6	7.5	A.D.B.
	2.6	--	27.6	--	--	--	86.6	7.6	D.B.
+1.60	13.4	0.7	52.2	--	--	--	100.0	13.5	A.D.B.
	13.4	--	52.6	--	--	--	100.0	13.7	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp.(°C)	Max. Dil. Temp.(°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8%	0.056					

% Lab. No. 77-4287 Date: July 7/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 6 - 11  
Starting Temperature °C: 350  
Softening Temperature °C: 380  
250 Max. Dilatation Temp. °C: 467  
Contraction %: 28%  
Dilatation %: 98%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.062



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 1 Lab. No.: 77 - 4288 Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M. %	Ash %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	18.4	30.2	50.6	0.82	69.8	Air Dried Basis
--	18.5	30.5	51.0	0.83	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	86.0	0.8	16.8	0.82	86.0	16.8	0.82	A.D.B.
	86.0	--	16.9	0.83	86.0	16.9	0.83	D.B.
65 x 0	14.0	0.8	29.6	0.72	100.0	18.6	0.81	A.D.B.
	14.0	--	29.8	0.73	100.0	18.7	0.82	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash%	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash%	
-1.40	78.1	1.0	3.5	35.7	59.8	0.91	78.1	3.5	A.D.B.
	78.1	--	3.6	36.0	60.4	0.92	78.1	3.6	D.B.
1.40-1.50	1.6	1.1	13.0	31.8	54.1	0.77	79.7	3.7	A.D.B.
	1.6	--	13.1	32.1	54.8	0.78	79.7	3.8	D.B.
1.50-1.60	0.8	1.1	19.1	--	--	--	80.5	3.8	A.D.B.
	0.8	--	19.3	--	--	--	80.5	3.9	D.B.
+1.60	19.5	1.3	64.0	--	--	--	100.0	15.6	A.D.B.
	19.5	--	64.8	--	--	--	100.0	15.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8	0.0161					

% Lab. No. 77-4288 Date: July 7/77

300 Client: Elco Mining Ltd.

Sample I. D.: DH 7 - 1

Starting Temperature °C: 330

Softening Temperature °C: 355

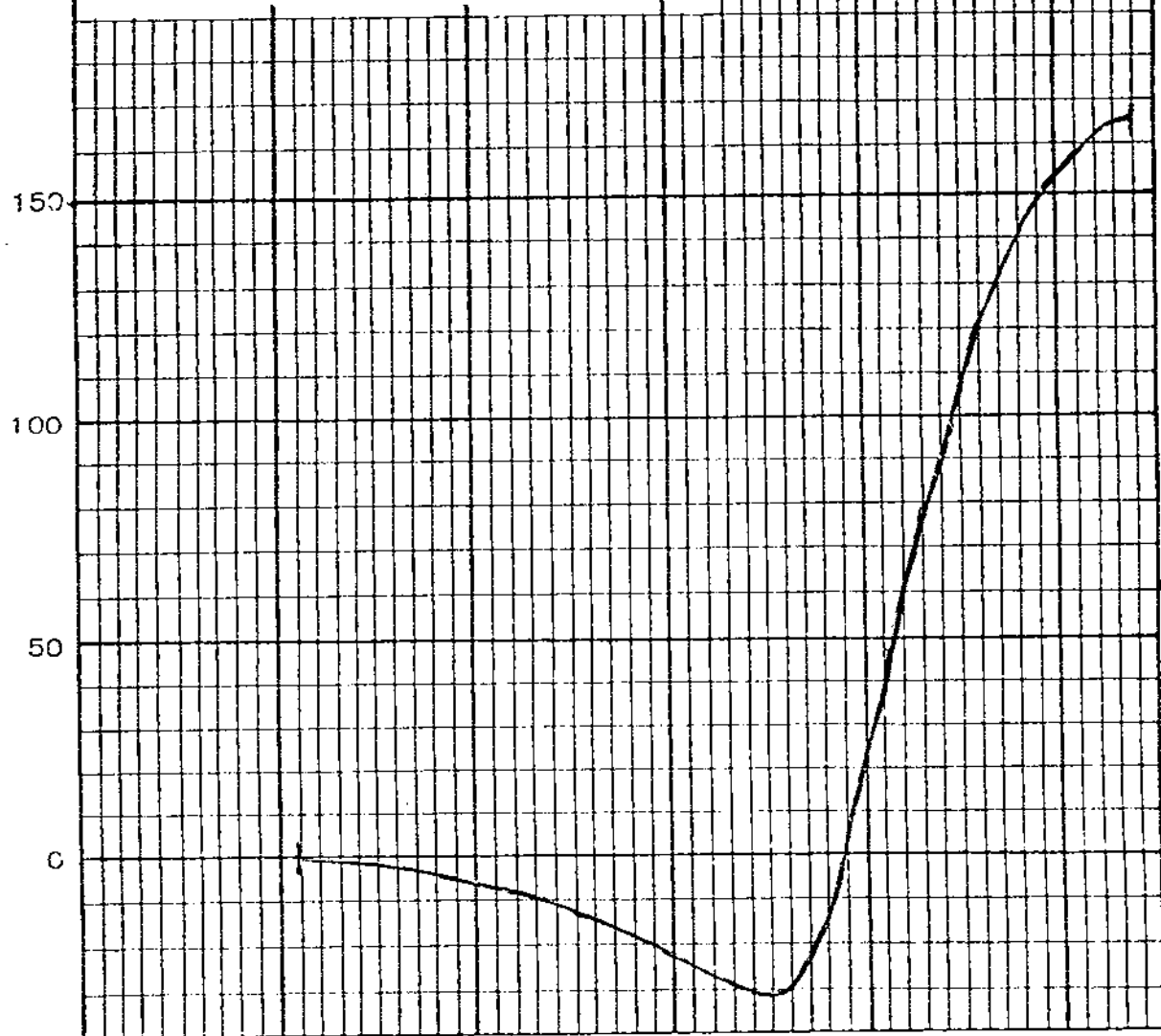
250 Max. Dilatation Temp. °C: 465

Contraction %: 32%

Dilatation %: 165%

Final Temperature °C: \_\_\_\_\_

200 G. Factor: 1.000



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 2      Lab. No.: 77 - 4289      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	26.7	29.2	43.2	0.61	89.9	Air Dried Basis
--	27.0	29.5	43.5	0.61	---	Dry Basis

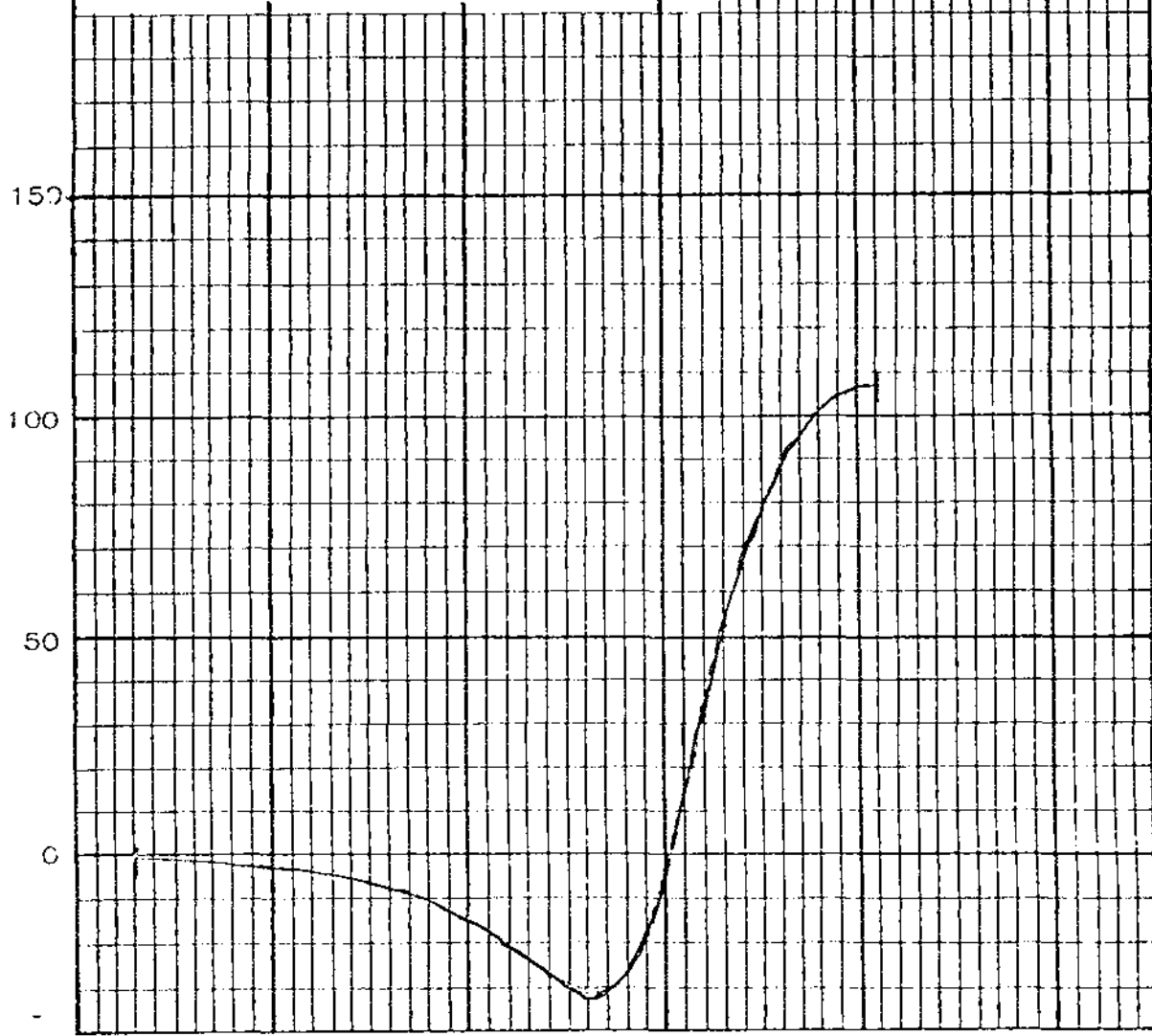
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.9	0.8	26.6	0.64	88.9	26.6	0.64	A.D.B.
	88.9	--	26.8	0.64	88.9	26.8	0.64	D.B.
65 x 0	11.1	1.0	21.3	0.67	100.0	26.0	0.64	A.D.B.
	11.1	--	21.6	0.68	100.0	26.2	0.64	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	60.1	1.3	5.1	35.2	58.4	0.77	60.1	5.1	A.D.B.
	60.2	--	5.2	35.6	59.2	0.78	60.1	5.2	D.B.
1.40-1.50	4.0	1.1	20.2	30.2	48.5	0.73	64.1	6.1	A.D.B.
	4.0	--	20.5	30.5	49.0	0.74	64.1	6.2	D.B.
1.50-1.60	1.7	1.5	26.2	--	--	--	65.8	6.6	A.D.B.
	1.7	--	26.6	--	--	--	65.8	6.7	D.B.
+1.60	34.2	1.0	63.8	--	--	--	100.0	26.1	A.D.B.
	34.2	--	64.4	--	--	--	100.0	26.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
9	0.032					

% Lab. No. 77-4289 Date: July 7/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 7 - 2  
Starting Temperature °C: 320  
Softening Temperature °C: 360  
250 Max. Dilatation Temp. °C: 456  
Contraction %: 32%  
Dilatation %: 107%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.061



Warnock Hersey Professional Services Ltd.

RLHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 3 Lab. No.: 77 - 4290 Date: May 25, 1977

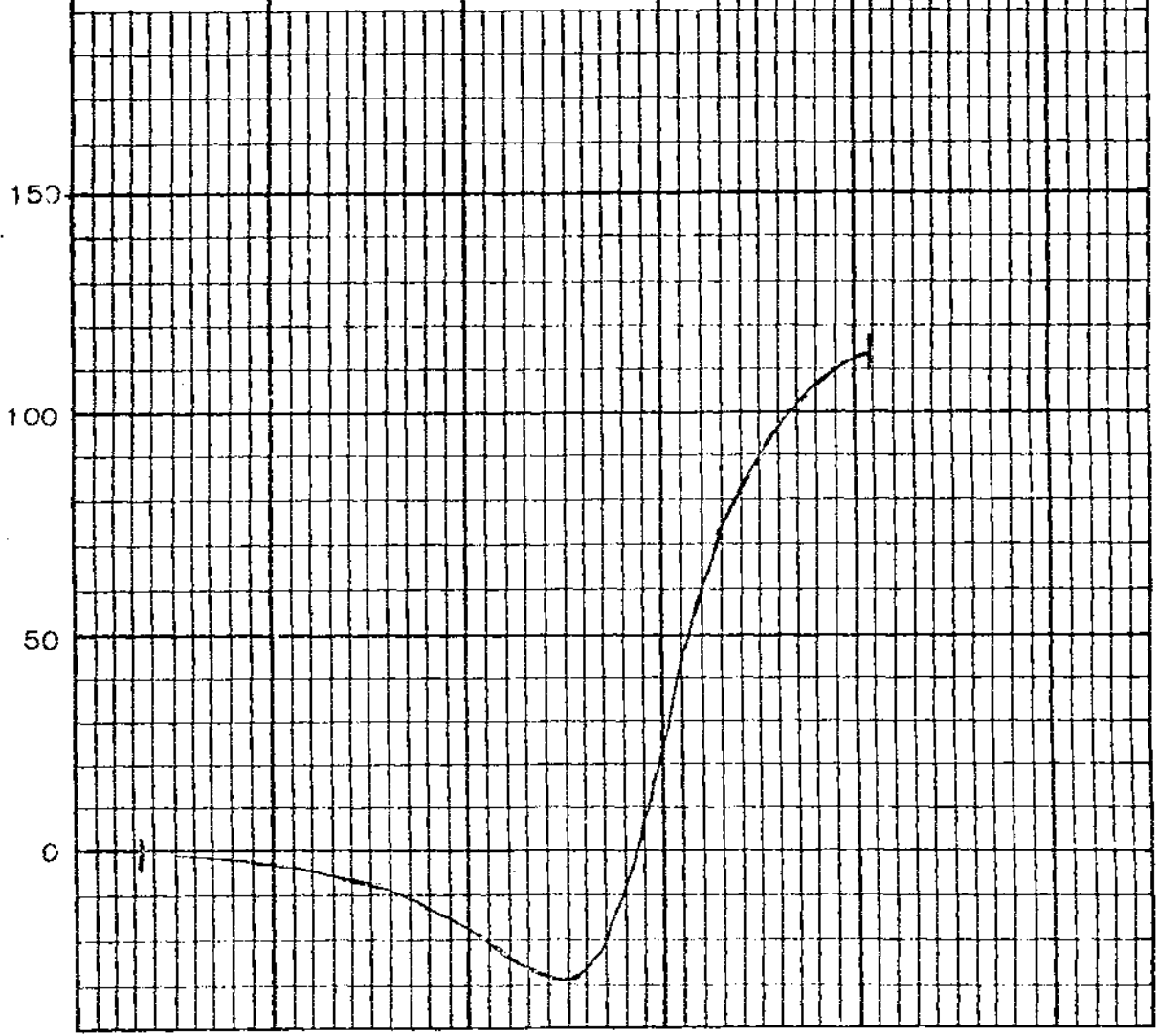
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	19.1	28.4	51.7	0.72	66.4	Air Dried Basis
--	19.3	28.7	52.0	0.73	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.3	0.7	19.0	0.74	91.3	19.0	0.74	A.D.B.
	91.3	--	19.1	0.74	91.3	19.1	0.74	D.B.
65 x 0	8.7	0.9	18.8	0.74	100.0	19.0	0.74	A.D.B.
	8.7	--	18.9	0.75	100.0	19.1	0.74	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	67.9	1.0	7.1	32.2	59.7	0.80	67.9	7.1	A.D.B.
	67.9	--	7.2	32.6	60.2	0.81	67.9	7.2	D.B.
1.40-1.50	6.8	1.0	23.7	26.4	48.9	0.70	74.7	8.6	A.D.B.
	6.8	--	23.9	26.6	49.5	0.71	74.7	8.7	D.B.
1.50-1.60	2.5	0.7	31.6	--	--	--	77.2	9.4	A.D.B.
	2.5	--	31.8	--	--	--	77.2	9.5	D.B.
+1.60	22.8	0.7	50.8	--	--	--	100.0	18.8	A.D.B.
	22.8	--	51.2	--	--	--	100.0	19.0	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp.(°C)	Temp.(°C)	Contr.%	Dil. %	
8	0.031					

% Lab. No. 77-4290 Date: July 7/77  
 Client: Elco Mining Ltd.  
 Sample I. D.: DH 7 - 3  
 Starting Temperature °C: 320  
 Softening Temperature °C: 361  
 250 Max. Dilatation Temp. °C: 454  
 Contraction %: 29%  
 Dilatation %: 113%  
 Final Temperature °C: \_\_\_\_\_  
 200 G. Factor: 1.072 1.072



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 4 Lab. No.: 77 - 4291 Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	14.6	31.5	53.2	1.01	77.5	Air Dried Basis
--	14.7	31.8	53.5	1.02	--	Dry Basis

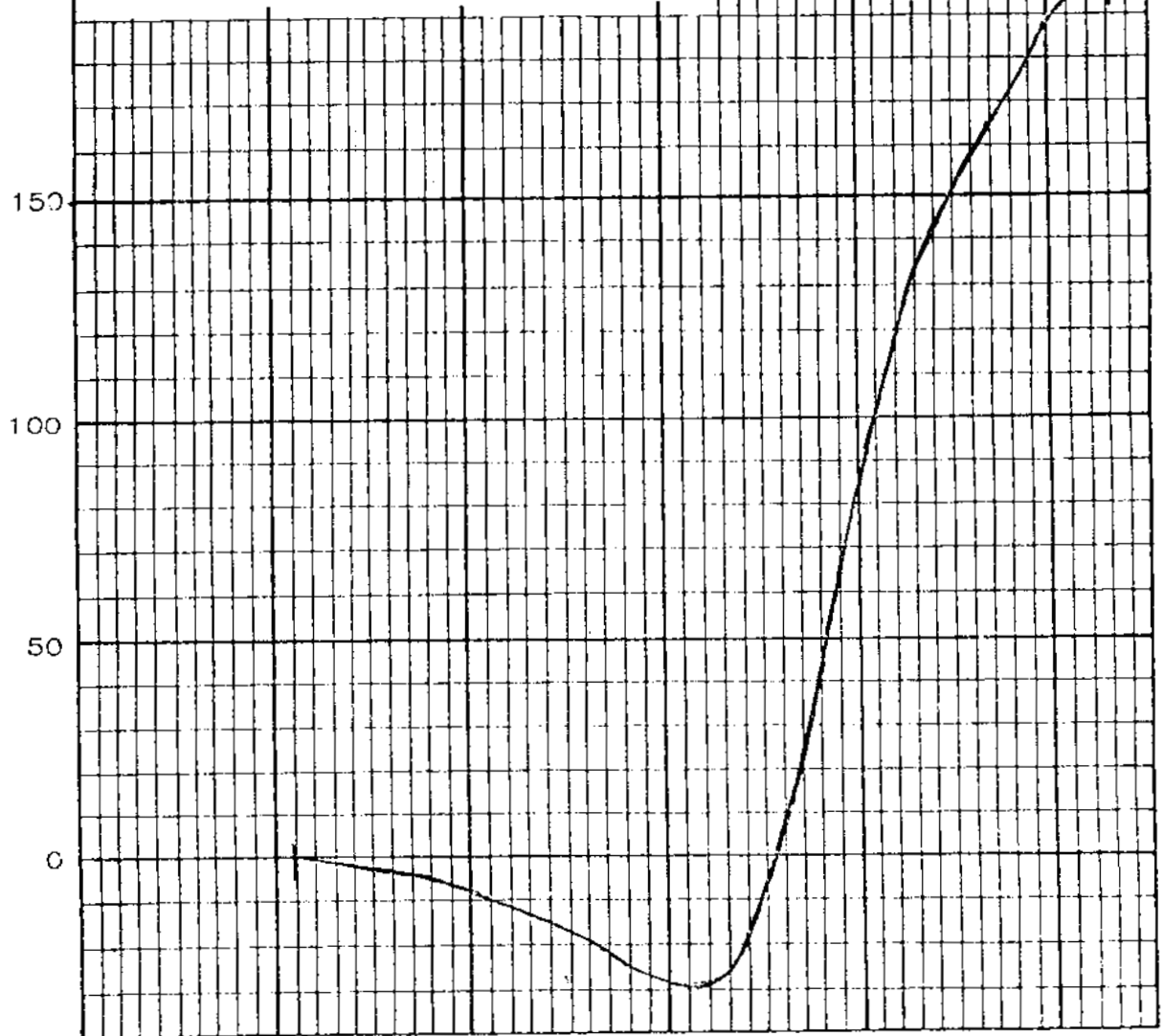
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.3	0.6	15.1	1.06	91.3	15.1	1.06	A.D.B.
	91.3	--	15.2	1.07	91.3	15.2	1.07	D.B.
65 x 0	8.7	0.7	22.7	0.92	100.0	15.8	1.05	A.D.B.
	8.7	--	22.9	0.93	100.0	15.9	1.06	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	81.4	0.9	5.9	33.7	59.5	1.06	81.4	5.9	A.D.B.
	81.4	--	6.0	33.9	60.1	1.07	81.4	6.0	D.B.
1.40-1.50	2.0	0.9	13.5	31.4	54.2	1.04	83.4	6.1	A.D.B.
	2.0	--	13.6	31.7	54.7	1.05	83.4	6.2	D.B.
1.50-1.60	1.0	0.7	28.3	--	--	--	84.4	6.3	A.D.B.
	1.0	--	28.5	--	--	--	84.4	6.4	D.B.
+1.60	15.6	0.8	59.9	--	--	--	100.0	14.7	A.D.B.
	15.6	--	60.3	--	--	--	100.0	14.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8	0.0051					

% Lab. No. 77-4291 Date: July 7/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 7 - 4  
Starting Temperature °C: 330  
Softening Temperature °C: 356  
250 Max. Dilatation Temp. °C: 462  
Contraction %: 30%  
Dilatation %: 196%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.104



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 5      Lab. No.: 77 - 4292      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M. %	Ash %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	24.6	25.3	49.3	1.20	71.9	Air Dried Basis
--	24.8	25.5	49.7	1.21	---	Dry Basis

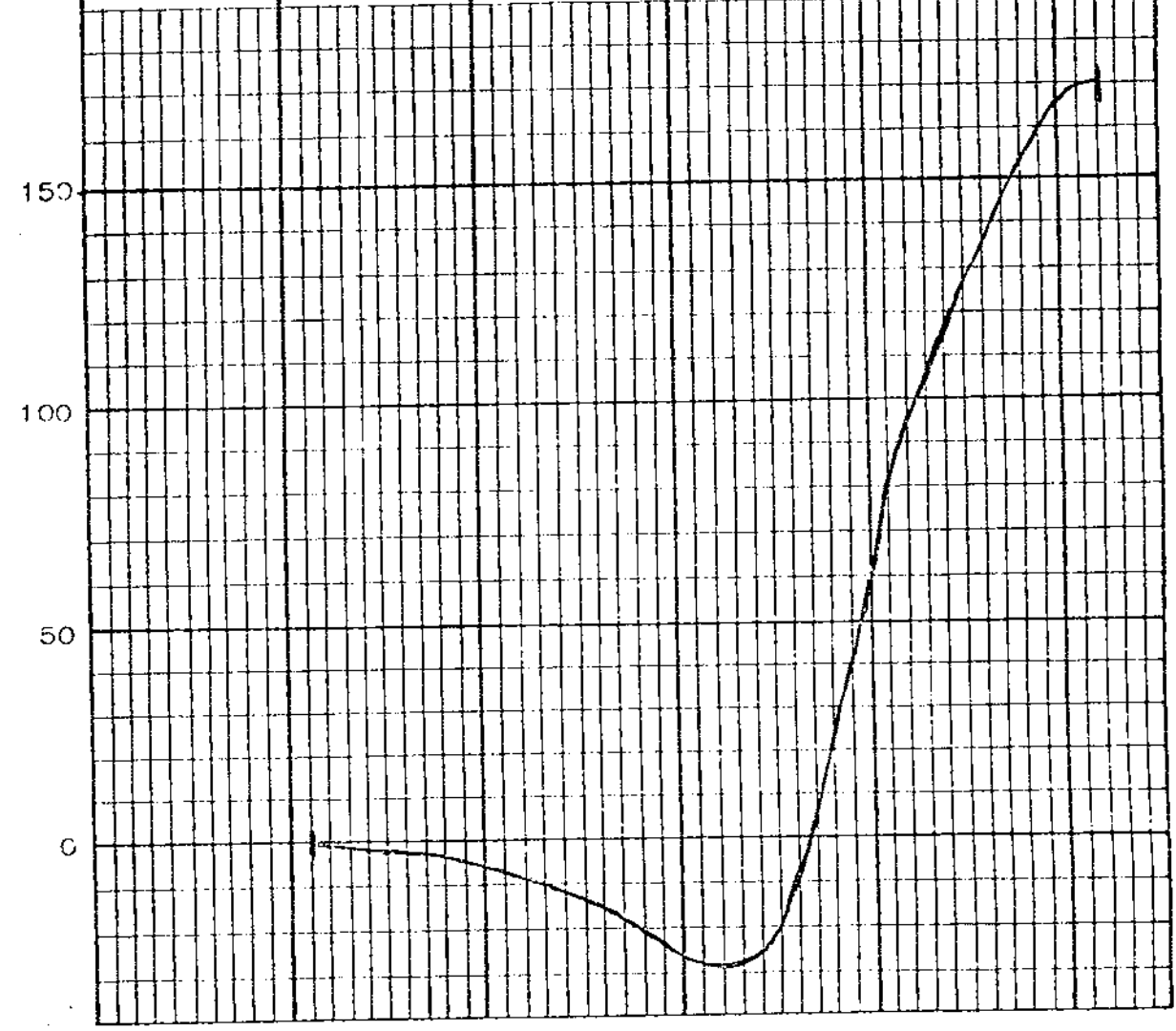
SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	90.3	0.7	25.7	1.18	90.3	25.7	1.18	A.D.B.
	90.3	--	25.9	1.19	90.3	25.9	1.19	D.B.
65 x 0	9.7	0.8	23.0	1.45	100.0	25.4	1.21	A.D.B.
	9.7	--	23.2	1.46	100.0	25.6	1.22	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	60.4	0.9	5.2	30.1	63.8	1.20	60.4	5.2	A.D.B.
	60.4	--	5.2	30.3	64.5	1.21	60.4	5.2	D.B.
1.40-1.50	4.9	1.0	22.5	25.8	50.7	1.79	65.3	6.4	A.D.B.
	4.9	--	22.7	26.1	51.2	1.81	65.3	6.5	D.B.
1.50-1.60	3.5	0.7	30.7	--	--	--	68.8	7.7	A.D.B.
	3.5	--	30.9	--	--	--	68.8	7.8	D.B.
+1.60	31.2	0.7	63.9	--	--	--	100.0	25.2	A.D.B.
	31.2	--	64.4	--	--	--	100.0	25.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.039					

% Lab. No. 7-4202 Date: July 7/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 7 - 5  
Starting Temperature °C: 330  
Softening Temperature °C: 356  
250 Max. Dilatation Temp. °C: 459  
Contraction %: 28%  
Dilatation %: 170%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.100



Warnock Hersey Professional Services Ltd.

RUHR DILATOMETER TEST

Date
Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 6      Lab. No.: 77 - 4293      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	5.5	31.6	61.9	0.53	97.6	Air Dried Basis
--	5.6	32.0	62.4	0.53	---	Dry Basis

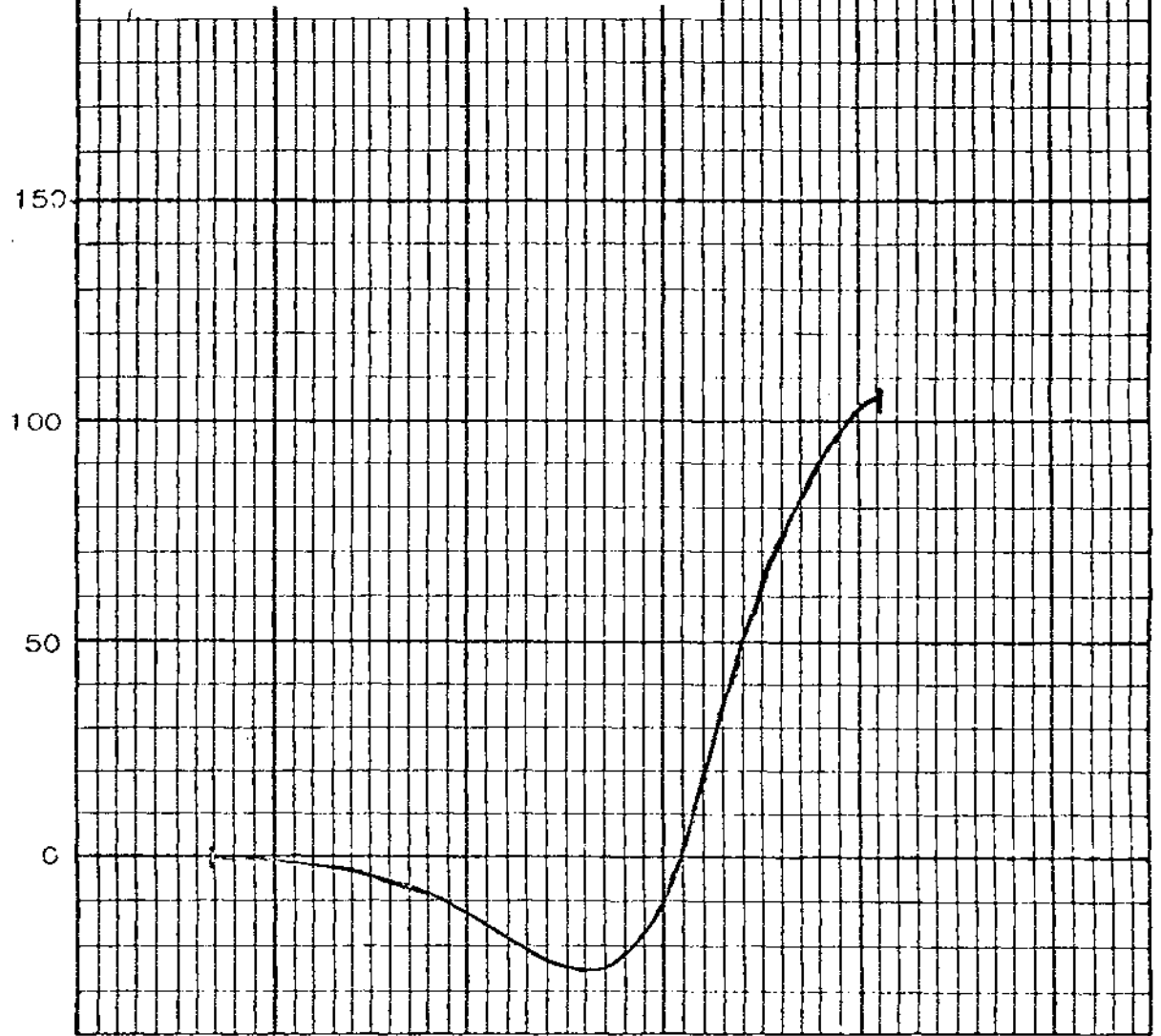
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	86.8	0.7	5.3	0.56	86.8	5.3	0.56	A.D.B.
	86.8	--	5.3	0.56	86.8	5.3	0.56	D.B.
65 x 0	13.2	1.0	5.2	0.57	100.0	5.3	0.56	A.D.B.
	13.2	--	5.3	0.58	100.0	5.3	0.56	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	95.8	1.2	3.4	32.4	63.0	0.62	95.8	3.4	A.D.B.
	95.9	--	3.4	32.7	63.9	0.63	95.9	3.4	D.B.
1.40-1.50	1.4	1.4	12.2	28.1	58.3	0.49	97.2	3.5	A.D.B.
	1.3	--	12.4	28.4	59.2	0.50	97.2	3.5	D.B.
1.50-1.60	0.6	1.0	22.1	--	--	--	97.8	3.6	A.D.B.
	0.6	--	22.3	--	--	--	97.8	3.6	D.B.
+1.60	2.2	0.8	67.6	--	--	--	100.0	5.0	A.D.B.
	2.2	--	68.1	--	--	--	100.0	5.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.024					

% Lab. No. 77-4293 Date: July 7/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 7 - 6  
Starting Temperature °C: 330  
Softening Temperature °C: 371  
250 Max. Dilatation Temp. °C: 457  
Contraction %: 25%  
Dilatation %: 105%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.068



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date
Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 7      Lab. No.: 77 - 4294      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	16.8	29.1	53.3	0.75	87.8	Air Dried Basis
--	16.9	29.4	53.7	0.76	---	Dry Basis

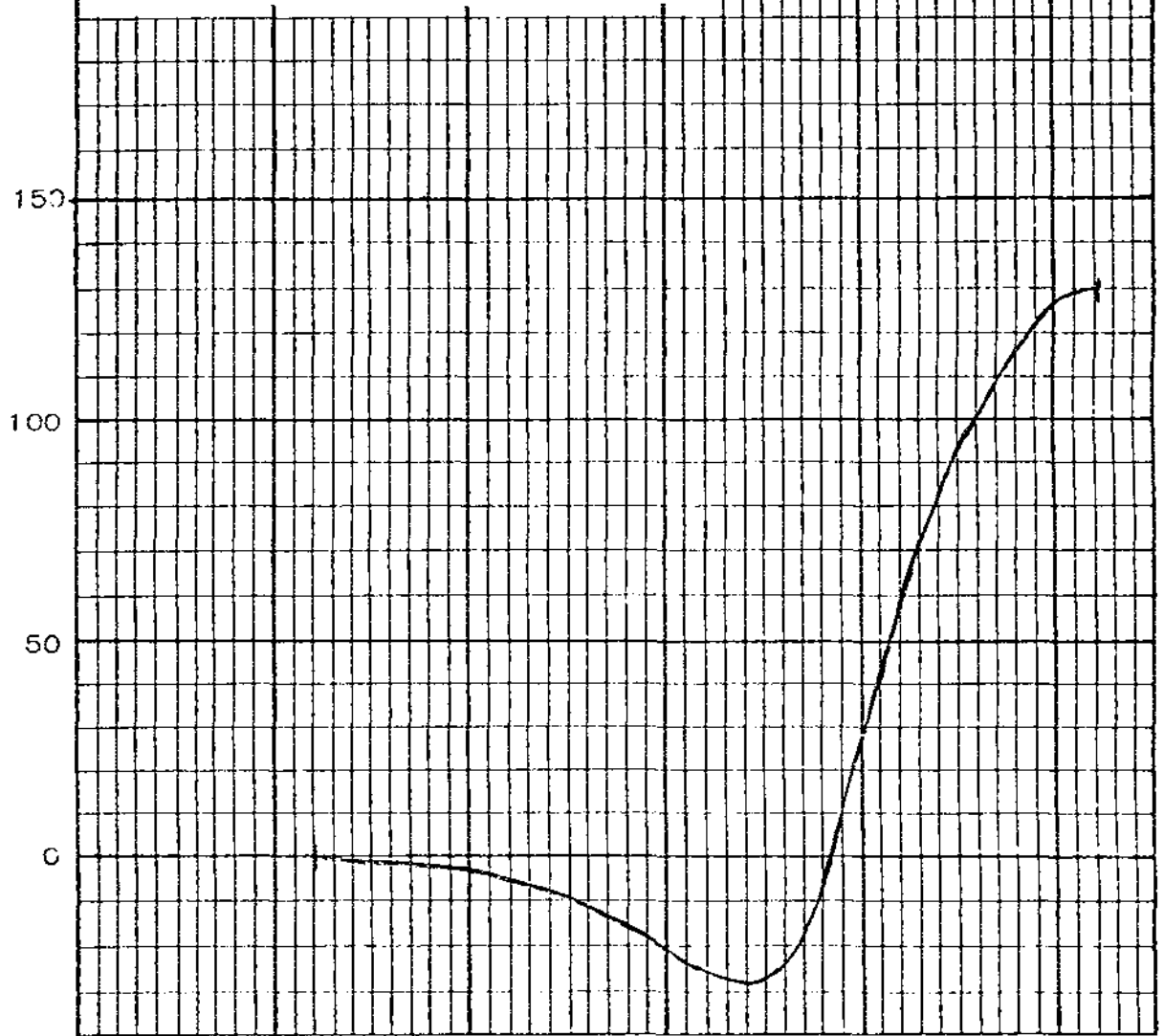
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.4	0.7	17.2	0.80	88.4	17.2	0.80	A.D.B.
	88.4	-	17.3	0.80	88.4	17.3	0.80	D.B.
65 x 0	11.6	0.8	12.4	0.81	100.0	16.6	0.80	A.D.B.
	11.6	-	12.5	0.82	100.0	16.7	0.80	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	64.3	1.0	6.0	31.8	61.2	0.84	64.3	6.0	A.D.B.
	64.3	--	6.0	32.1	61.9	0.85	64.3	6.0	D.B.
1.40-1.50	13.9	1.1	24.5	26.0	48.4	0.68	78.2	9.3	A.D.B.
	13.9	-	24.8	26.3	48.9	0.69	78.2	9.3	D.B.
1.50-1.60	6.1	0.7	34.0	--	--	--	84.3	11.1	A.D.B.
	6.1	--	34.2	--	--	--	84.3	11.1	D.B.
+1.60	15.7	0.9	50.7	--	--	--	100.0	17.3	A.D.B.
	15.7	--	51.2	--	--	--	100.0	17.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.006					

% Lab. No. 77-4294 Date: July 7/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 7 - 7  
Starting Temperature °C: 330  
Softening Temperature °C: 359  
250 Max. Dilatation Temp. °C: 461  
Contraction %: 28%  
Dilatation %: 129%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.087



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 7 - 8      Lab. No.: 77 - 4295      Date: May 25, 1977

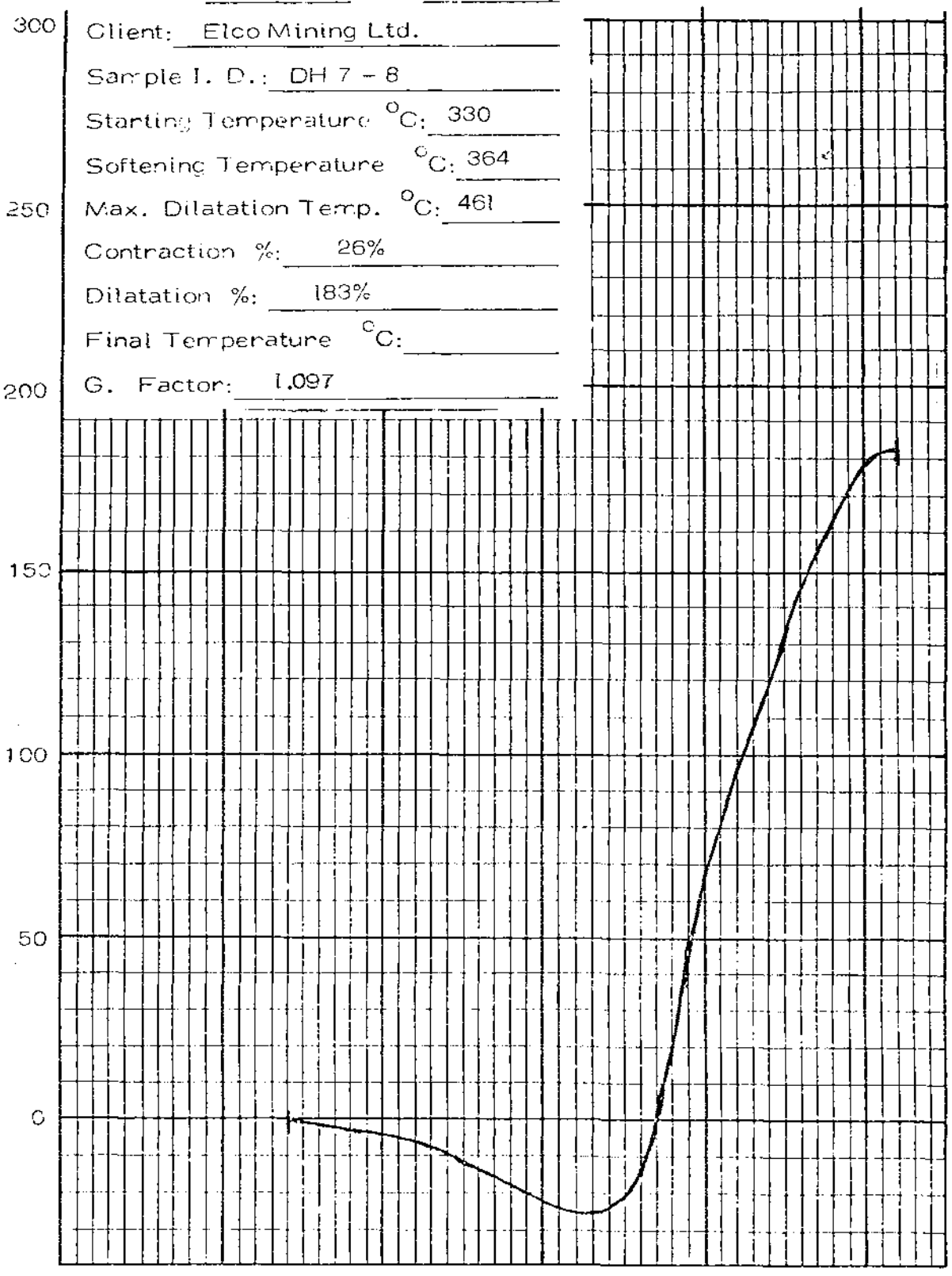
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	12.1	30.2	57.0	0.79	76.1	Air Dried Basis
--	12.2	30.4	57.4	0.80	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	90.0	0.7	11.9	0.83	90.0	11.9	0.83	A.D.B.
	90.0	--	12.0	0.84	90.0	12.0	0.84	D.B.
65 x 0	10.0	0.5	10.4	0.84	100.0	11.8	0.83	A.D.B.
	10.0	--	10.4	0.84	100.0	11.8	0.84	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	83.2	0.9	4.6	31.5	63.0	0.87	83.2	4.6	A.D.B.
	83.2	--	4.6	31.8	63.6	0.88	83.2	4.6	D.B.
1.40-1.50	2.5	0.9	17.3	27.6	54.2	0.72	85.7	5.0'	A.D.B.
	2.5	--	17.4	27.9	54.7	0.73	85.7	5.0	D.B.
1.50-1.60	1.7	0.6	25.3	--	--	--	87.4	5.4	A.D.B.
	1.7	--	25.4	--	--	--	87.4	5.4	D.B.
+1.60	12.6	0.6	55.9	--	--	--	100.0	11.7'	A.D.B.
	12.6	--	56.3	--	--	--	100.0	11.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coat	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G. No.
9	0.002					

% Lab. No. 77-4295 Date: July 11/77  
 Client: Elco Mining Ltd.  
 Sample I. D.: DH 7 - 8  
 Starting Temperature °C: 330  
 Softening Temperature °C: 364  
 250 Max. Dilatation Temp. °C: 461  
 Contraction %: 26%  
 Dilatation %: 183%  
 Final Temperature °C: \_\_\_\_\_  
 200 G. Factor: 1.097



Warnock Hersey Professional Services Ltd.

RUHR DILATOMETER TEST

Date
Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 8 - 1      Lab. No.: 77 - 4296      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.2	31.6	26.6	40.6	0.86	58.1	Air Dried Basis
--	32.0	26.9	41.1	0.87	--	Dry Basis

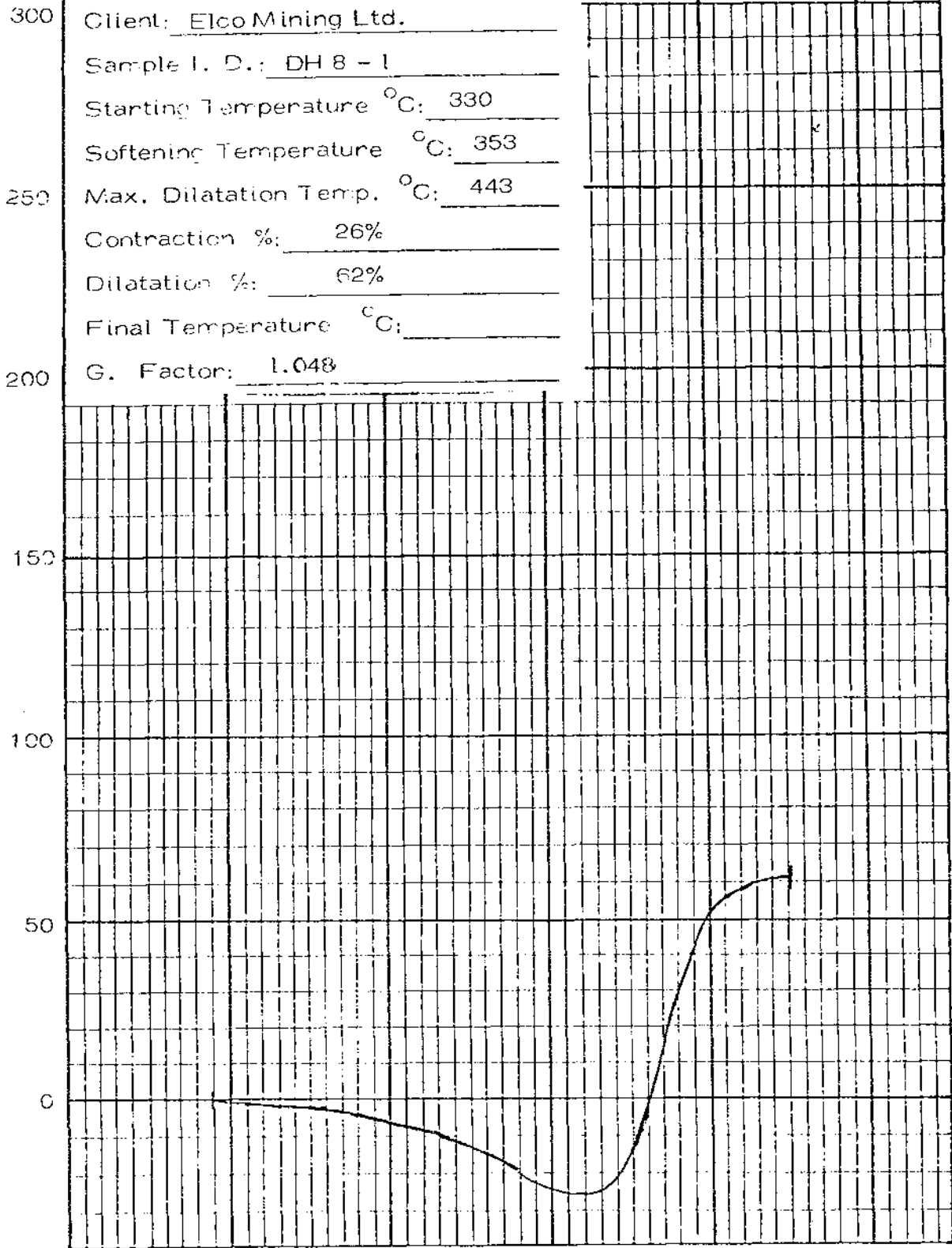
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.0	0.7	32.1	0.83	91.0	32.1	0.83	A.D.B.
	91.0	--	32.2	0.84	91.0	32.2	0.84	D.B.
65 x 0	9.0	1.1	26.2	1.08	100.0	31.6	0.85	A.D.B.
	9.0	--	26.5	1.09	100.0	31.7	0.86	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	45.9	1.2	10.0	33.2	55.6	0.96	45.9	10.0	A.D.B.
	46.0	--	10.1	33.6	56.3	0.97	46.0	10.1	D.B.
1.40-1.50	15.0	1.1	28.3	28.9	41.7	0.92	60.9	14.5	A.D.B.
	15.0	--	28.5	29.2	42.3	0.93	61.0	14.6	D.B.
1.50-1.60	3.0	0.7	32.9	--	--	--	63.9	15.4	A.D.B.
	3.0	--	33.1	--	--	--	64.0	15.5	D.B.
+1.60	36.1	0.8	64.4	--	--	--	100.0	33.1	A.D.B.
	36.0	--	64.9	--	--	--	100.0	33.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
7	0.015					

Lab. No. 77-4296 Date: July 11/77

Client: Elco Mining Ltd.  
Sample I. D.: DH 8 - 1  
Starting Temperature °C: 330  
Softening Temperature °C: 353  
Max. Dilatation Temp. °C: 443  
Contraction %: 26%  
Dilatation %: 62%  
Final Temperature °C: \_\_\_\_\_  
G. Factor: 1.048



Warnock Hersey Professional Services Ltd.

RUPR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 8 - 2 Lab. No.: 77 - 4297 Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	44.1	22.1	32.8	0.88	62.9	Air Dried Basis
--	44.5	22.3	33.2	0.89	---	Dry Basis

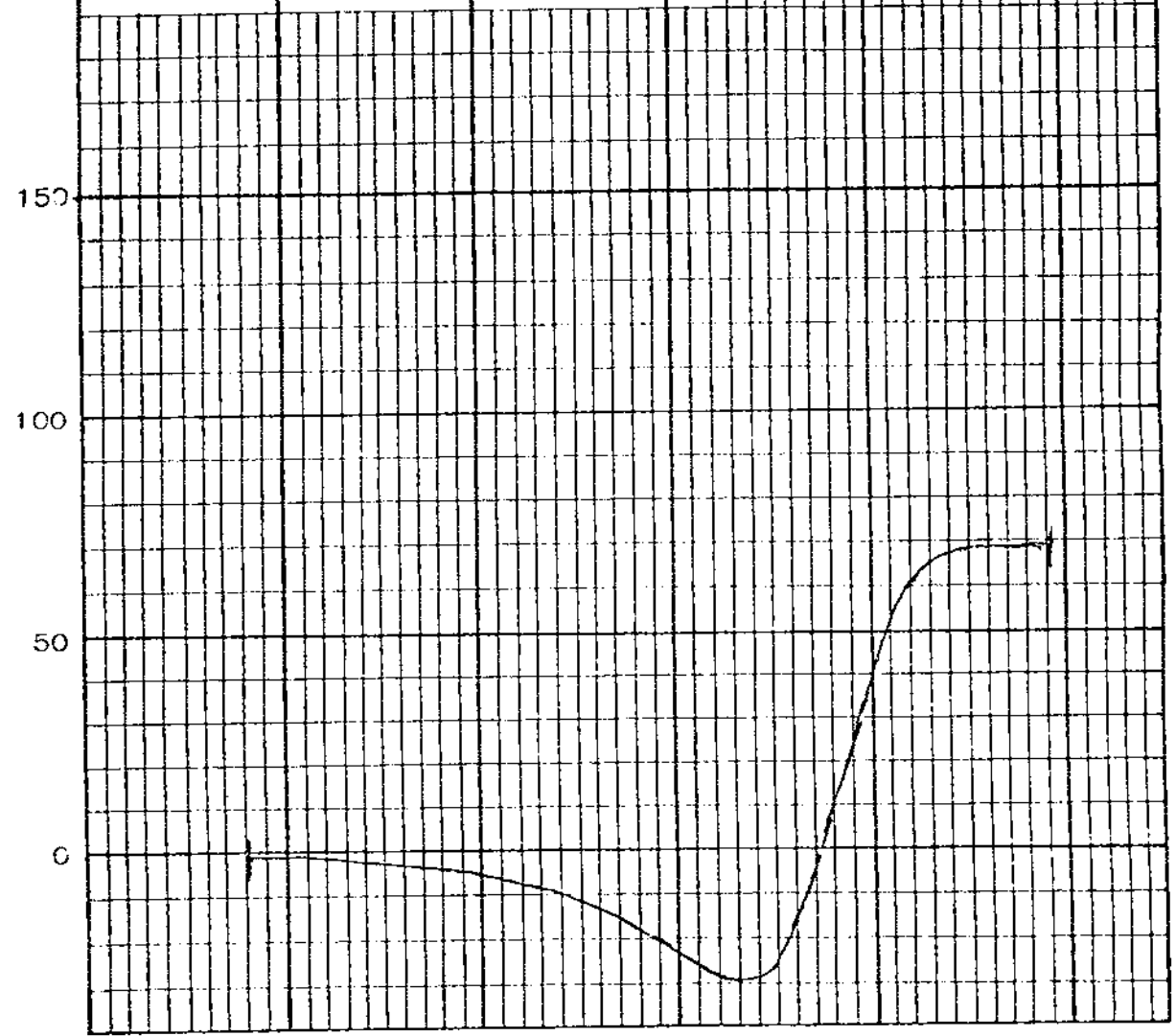
SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	86.8	0.9	45.7	0.86	86.8	45.7	0.86	A.D.B.
	86.8	--	46.1	0.87	86.8	46.1	0.87	D.B.
65 x 0	13.2	1.1	36.1	0.86	100.0	44.4	0.86	A.D.B.
	13.2	--	36.5	0.87	100.0	44.8	0.87	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	35.2	1.4	6.6	34.4	57.6	1.05	35.2	6.6	A.D.B.
	35.3	--	6.6	34.9	58.5	1.06	35.3	6.6	D.B.
1.40-1.50	3.7	1.2	23.3	28.8	46.7	0.84	38.9	8.2	A.D.B.
	3.7	--	23.5	29.2	47.3	0.85	39.0	8.2	D.B.
1.50-1.60	2.6	0.8	30.8	--	--	--	41.5	9.6	A.D.B.
	2.6	--	31.1	--	--	--	41.6	9.6	D.B.
+1.60	58.5	0.8	70.4	--	--	--	100.0	45.2	A.D.B.
	58.4	--	70.9	--	--	--	100.0	45.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.006					

% Lab. No. 77-4297 Date: July 11/77

300 Client: Elco Mining Ltd.  
Sample I. D.: DH 8 - 2  
Starting Temperature °C: 330  
Softening Temperature °C: 350  
250 Max. Dilatation Temp. °C: 446  
Contraction %: 29%  
Dilatation %: 68%  
Final Temperature °C: \_\_\_\_\_  
200 G. Factor: 1.05f



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 8 - 3

Lab. No.: 77 - 4298

Date: May 25, 1977

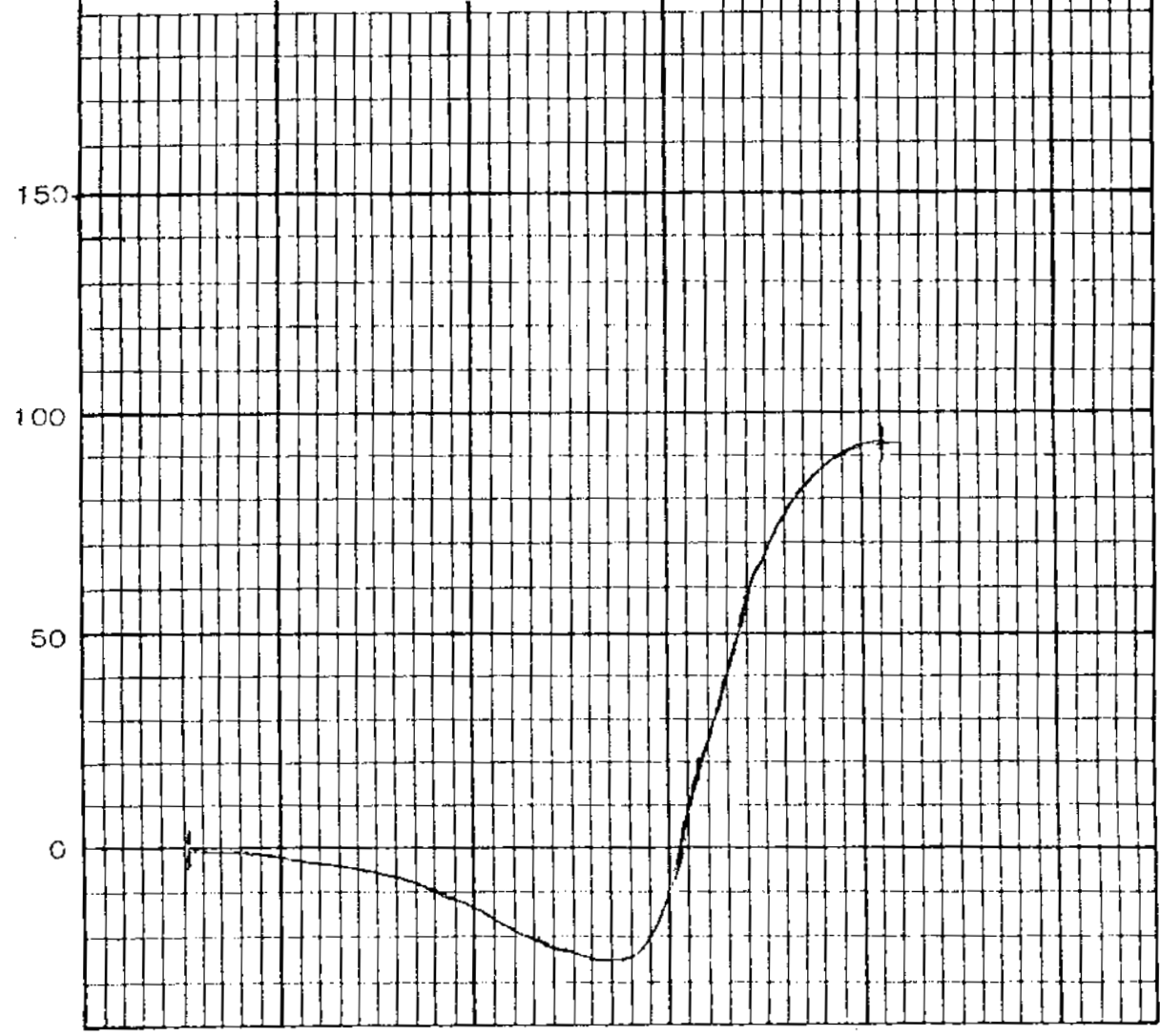
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	35.4	26.2	37.5	0.96	60.1	Air Dried Basis
--	35.7	26.4	37.9	0.97	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.3	0.8	36.7	0.92	89.3	36.7	0.92	A.D.B.
	89.3	--	37.0	0.93	89.3	37.0	0.93	D.B.
65 x 0	10.7	1.0	28.7	1.05	100.0	35.8	0.93	A.D.B.
	10.7	--	29.0	1.06	100.0	36.1	0.94	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	45.0	1.2	9.0	34.5	55.3	1.25	45.0	9.0	A.D.B.
	45.1	--	9.1	34.9	56.0	1.26	45.1	9.1	D.B.
1.40-1.50	6.1	1.1	23.8	28.7	46.4	1.08	51.1	10.9	A.D.B.
	6.1	--	24.1	29.0	46.9	1.09	51.2	10.9	D.B.
1.50-1.60	3.1	0.8	34.6	--	--	--	54.2	12.1	A.D.B.
	3.1	--	34.8	--	--	--	54.3	12.2	D.B.
+1.60	45.8	0.8	65.8	--	--	--	100.0	36.7	A.D.B.
	45.7	--	66.3	--	--	--	100.0	37.0	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.006					

% Lab. No. 77-4298 Date: July 11/77  
 Client: Elco Mining Ltd.  
 Sample I. D.: DH 8 - 3  
 Starting Temperature °C: 330  
 Softening Temperature °C: 353  
 250 Max. Dilatation Temp. °C: 446  
 Contraction %: 26%  
 Dilatation %: 94%  
 Final Temperature °C: \_\_\_\_\_  
 200 G. Factor: 1.071



Warnock Hersey Professional Services Ltd.

RUHR DILATCMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-8-4

Lab. No. 9029

DATE: May/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS.
0.9	25.9	27.7	45.5	0.81	69	Air Dried Basis
	26.1	28.0	45.9	0.82	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.4	1.0	27.0	0.83	94.4	27.0	0.83	A.D.B.
	94.4		27.3	0.84	94.4	27.3	0.84	D.B.
65M x 0	5.6	1.2	20.4	0.85	100.0	26.6	0.83	A.D.B.
	5.6		20.6	0.86	100.0	26.9	0.84	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	53.5	0.9	9.3	32.4	57.4	0.94	53.5	9.3	A.D.B.
	53.5		9.4	32.7	57.9	0.95	53.5	9.4	D.B.
1.40-1.50	13.1	0.9	26.0	27.5	45.6	0.80	66.6	12.6	A.D.B.
	13.1		26.2	27.7	46.1	0.81	66.6	12.7	D.B.
1.50-1.60	4.9	1.0	33.1				71.5	14.0	A.D.B.
	4.9		33.4				71.5	14.1	D.B.
+1.60	28.5	1.1	61.8				100.0	27.6	A.D.B.
	28.5		62.5				100.0	27.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
7	0.02	353	443	31	86	1.056	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 9029 Date May 18, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-8-4

Starting Temperature °C: 320

Softening Temperature °C: 353

Max. Dilatation Temp. °C: 443

250

Contraction %: 31

Dilatation %: 86

Final Temperature °C:

G. Factor: 1.056

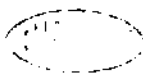
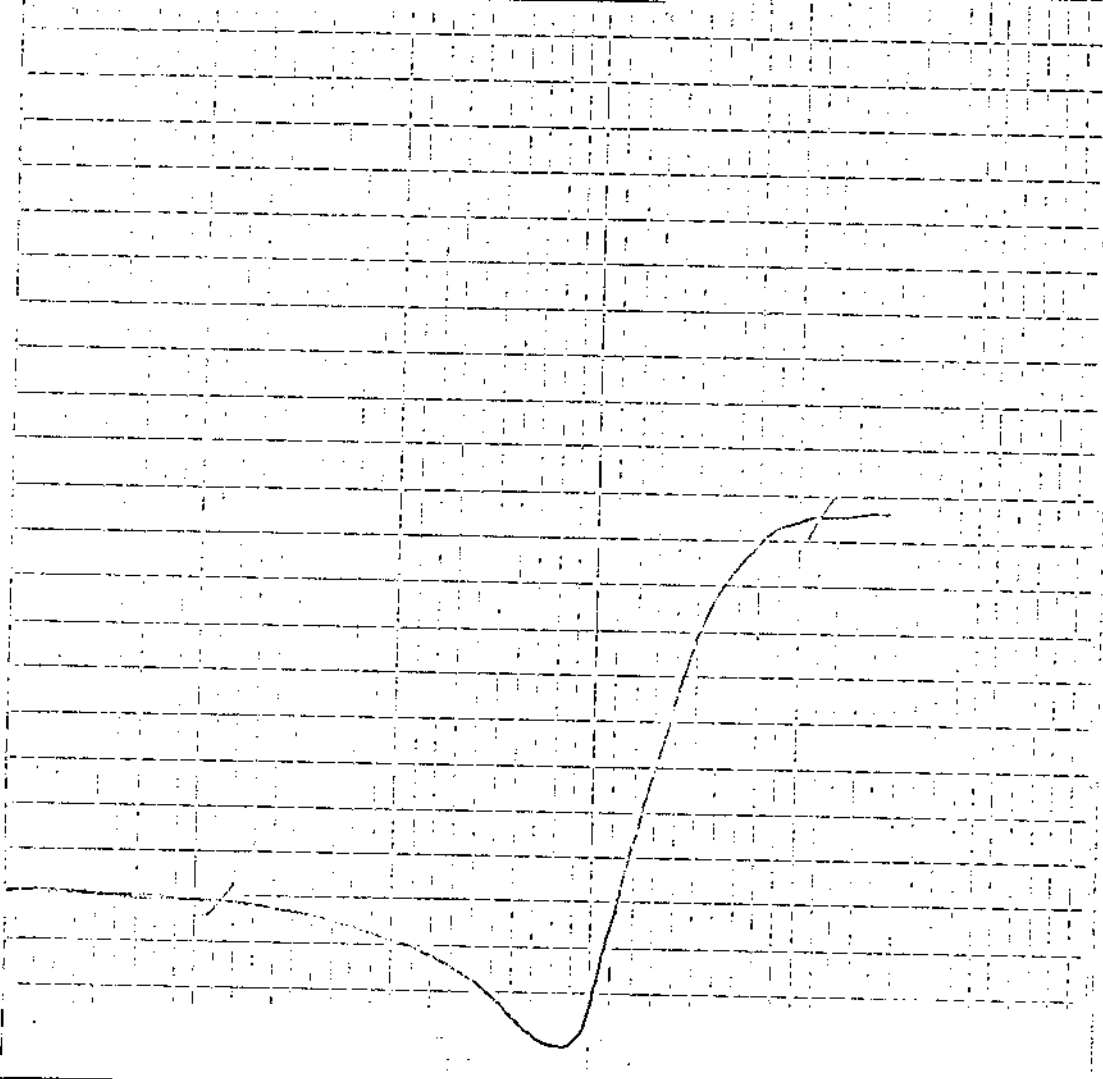
200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-8-5 Lab. No. 9030 DATE: May/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	37.7	24.2	37.2	0.76	56	Air Dried Basis
	38.0	24.4	37.6	0.77	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	97.4	0.9	37.7	0.73	97.4	37.7	0.73	A.D.B.
	97.4		38.0	0.74	97.4	38.0	0.74	D.B.
65M x 0	2.6	1.0	28.8	0.81	100.0	37.5	0.73	A.D.B.
	2.6		29.1	0.82	100.0	37.8	0.74	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	43.9	1.0	7.4	33.6	58.0	1.07	43.9	7.4	A.D.B.
	43.9		7.5	33.9	58.6	1.08	43.9	7.5	D.B.
1.40-1.50	7.5	0.9	27.5	26.9	44.7	0.85	51.4	10.3	A.D.B.
	7.5		27.7	27.1	45.2	0.86	51.4	10.4	D.B.
1.50-1.60	5.3	0.9	36.4				56.7	12.8	A.D.B.
	5.3		36.7				56.7	12.9	D.B.
+1.60	43.3	0.9	70.4				100.0	37.7	A.D.B.
	43.3		71.0				100.0	38.1	D.B.

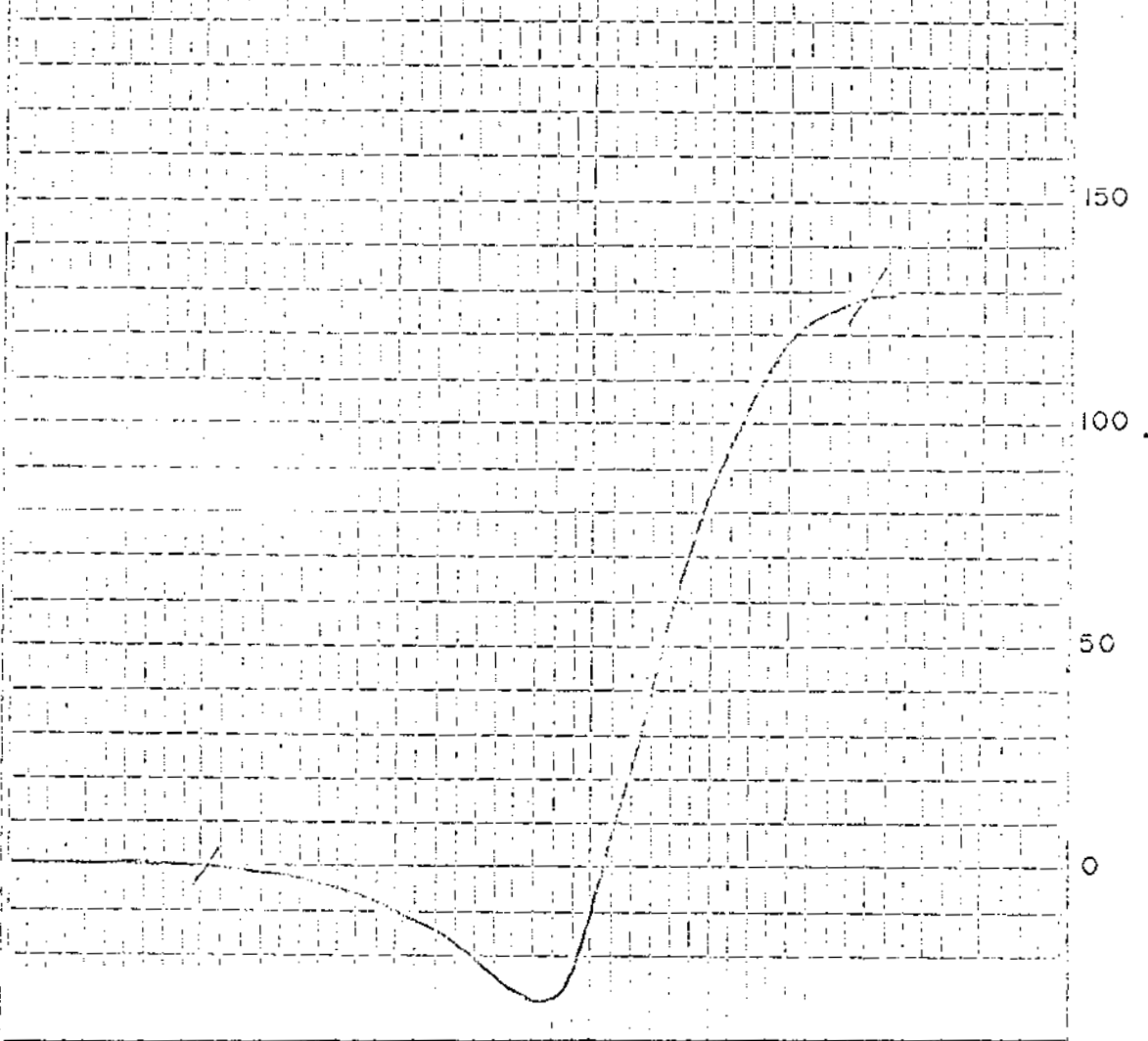
COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
7 1/2	0.07	350	452	30	29	0.998	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 9030 Date May 18, 1977  
 Client: ELCO MINING LTD.  
 Sample Identification: DH-8-5  
 Starting Temperature °C: 320  
 Softening Temperature °C: 350  
 Max. Dilatation Temp. °C: 452  
 Contraction %: 30  
 Dilatation %: 29  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 0.998



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-8-6 Lab. No. 9031 DATE: May/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	44.9	22.5	31.6	1.09	59	Air Dried Basis
	45.3	22.8	31.9	1.10	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	97.6	0.8	45.4	1.07	97.6	45.4	1.07	A.D.B.
	97.6		45.8	1.08	97.6	45.8	1.08	D.B.
65M x 0	2.4	1.1	32.4	1.10	100.0	45.1	1.07	A.D.B.
	2.4		32.8	1.11	100.0	45.5	1.08	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	29.9	0.9	8.5	33.3	57.3	1.05	29.9	8.5	A.D.B.
	29.9		8.6	33.6	57.8	1.06	29.9	8.6	D.B.
1.40-1.50	5.9	0.9	26.1	27.7	45.3	1.02	35.8	11.4	A.D.B.
	5.9		26.3	28.0	45.7	1.03	35.8	11.5	D.B.
1.50-1.60	7.5	0.6	35.5				43.3	15.6	A.D.B.
	7.5		35.7				43.3	15.7	D.B.
+1.60	56.7	0.8	68.1				100.0	45.4	A.D.B.
	56.7		68.6				100.0	45.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.09	347	455	27	136	1.098

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 9031 Date May 18, 1977.

Client: ELCO MINING LTD.

Sample Identification: DH-8-6

Starting Temperature °C: 320

Softening Temperature °C: 347

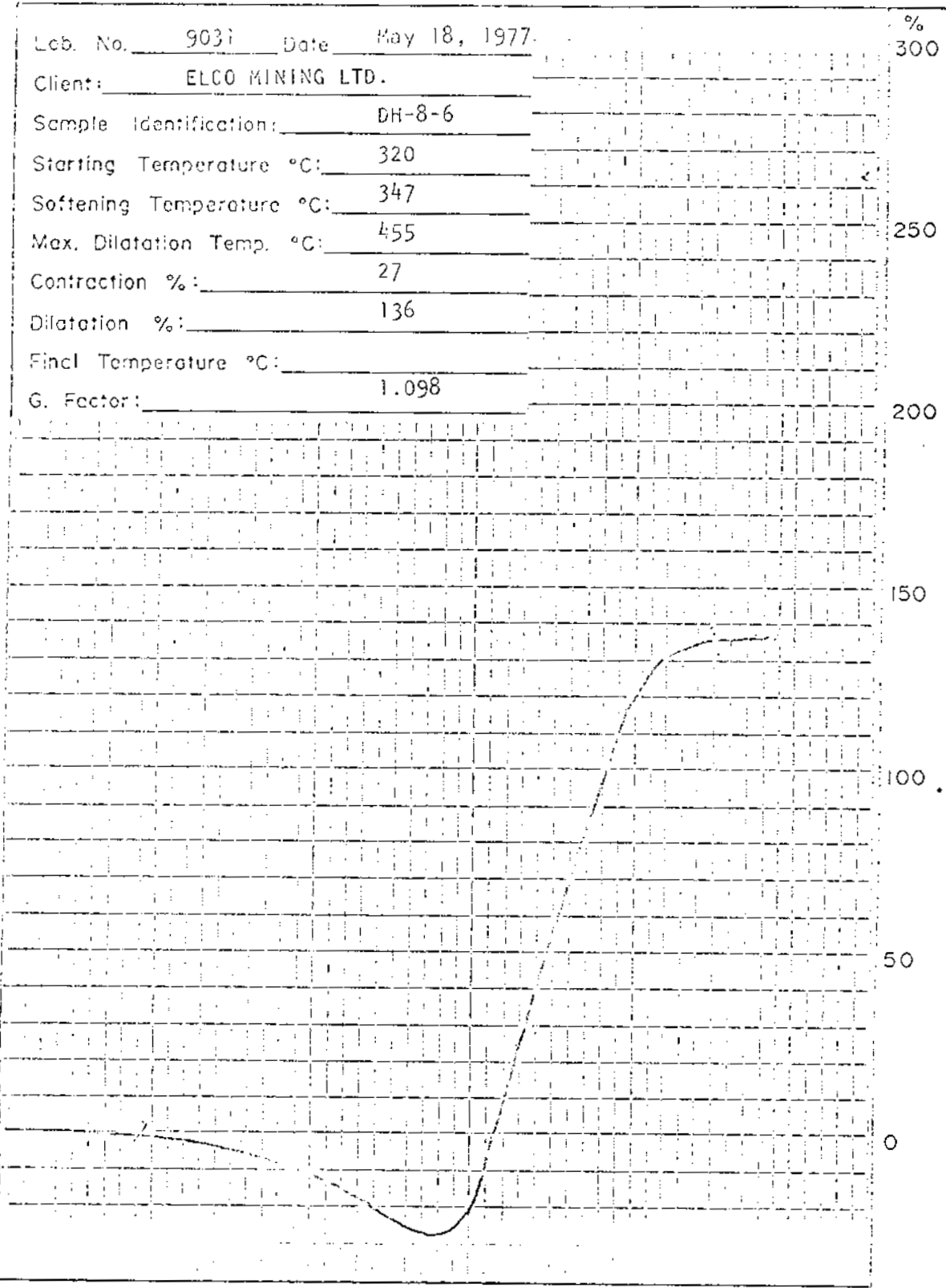
Max. Dilatation Temp. °C: 455

Contraction %: 27

Dilatation %: 136

Finl Temperature °C:

G. Factor: 1.098



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-8-7

Lab. No. 9032

DATE: May/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	54.3	19.5	25.3	0.62	54	Air Dried Basis
	54.8	19.7	25.5	0.63	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	97.6	0.7	54.5	0.59	97.6	54.5	0.59	A.D.B.
	97.6		54.9	0.59	97.6	54.9	0.59	D.B.
65M x 0	2.4	1.1	45.0	0.81	100.0	54.3	0.60	A.D.B.
	2.4		45.5	0.82	100.0	54.7	0.60	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	20.2	0.6	10.4	33.3	55.7	1.22	20.2	10.4	A.D.B.
	20.2		10.5	33.5	56.0	1.23	20.2	10.5	D.B.
1.40-1.50	9.6	0.7	25.5	29.2	44.6	0.97	29.8	15.3	A.D.B.
	9.6		25.7	29.4	44.9	0.98	29.8	15.4	D.B.
1.50-1.60	3.8	0.9	35.2				33.6	17.5	A.D.B.
	3.8		35.5				33.6	17.7	D.B.
+1.60	66.4	0.7	73.2				100.0	54.5	A.D.B.
	66.4		73.7				100.0	54.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
7	0.03	350	455	29	135	1.092	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 9032 Date May 18, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-8-7

Starting Temperature °C: 320

Softening Temperature °C: 350

Max. Dilatation Temp. °C: 455

250

Contraction %: 29

Dilatation %: 135

Final Temperature °C:

G. Factor: 1.092

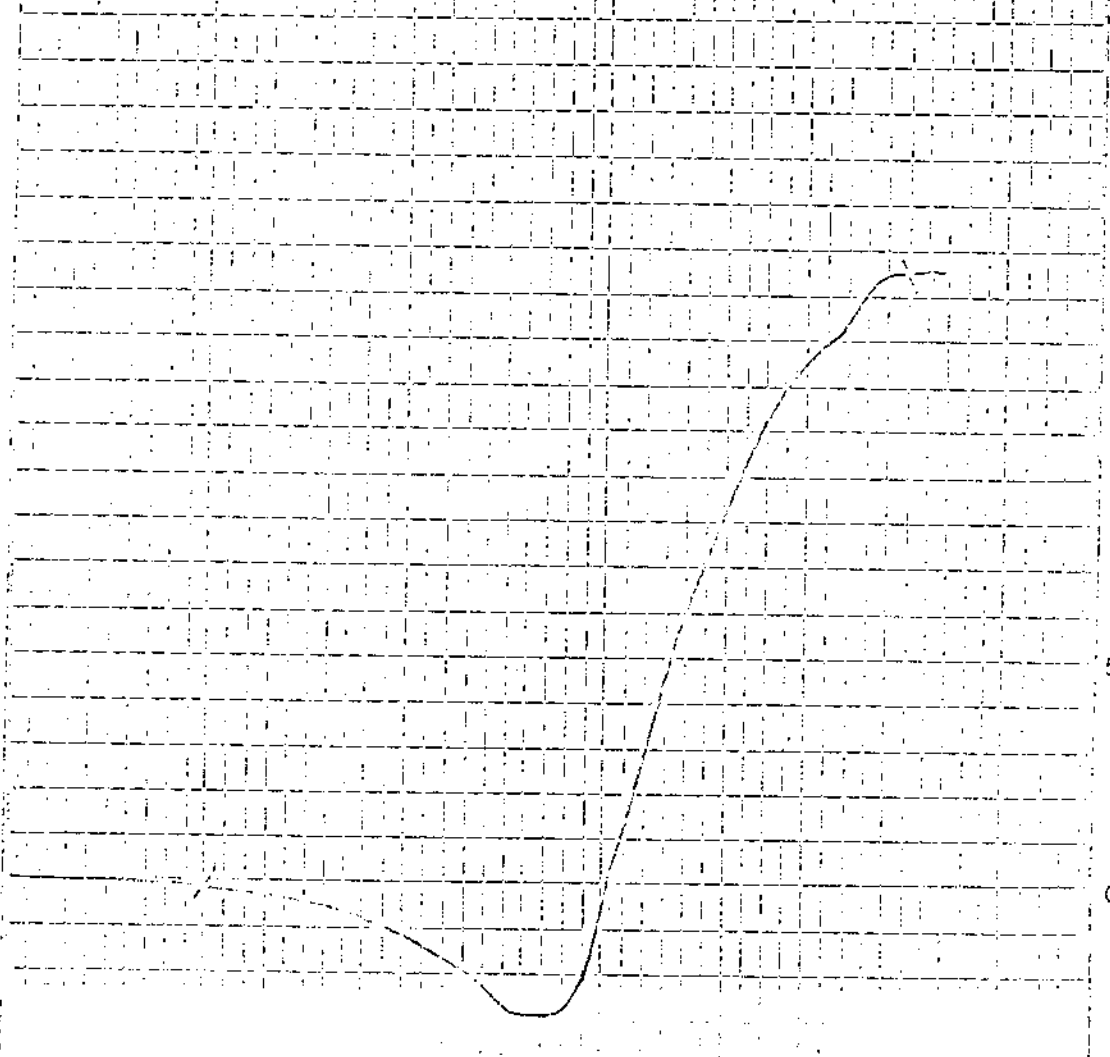
200

150

100

50

0



DARTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-8-8 Lab. No. 9033 DATE: May/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	11.9	33.6	53.5	0.99	68	Air Dried Basis
	12.0	33.9	54.1	1.00	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	97.2	0.8	12.7	0.99	97.2	12.7	0.99	A.D.B.
	97.2		12.8	1.00	97.2	12.8	1.00	D.B.
65M x 0	2.8	1.1	9.6	0.98	100.0	12.6	0.99	A.D.B.
	2.8		9.7	0.99	100.0	12.7	1.00	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	83.7	0.8	4.6	36.1	58.5	1.02	83.7	4.6	A.D.B.
	83.7		4.6	36.4	59.0	1.03	83.7	4.6	D.B.
1.40-1.50	5.0	0.8	27.9	27.5	43.8	0.92	88.7	5.9	A.D.B.
	5.0		28.1	27.7	44.2	0.93	88.7	5.9	D.B.
1.50-1.60	1.5	0.8	34.0				90.2	6.4	A.D.B.
	1.5		34.3				90.2	6.4	D.B.
+1.60	9.8	1.2	70.5				100.0	12.7	A.D.B.
	9.8		71.4				100.0	12.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
6 1/2	0.04	344	461	27	208	1.126	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 9033 Date May 18, 1977.

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-8-8

Starting Temperature °C: 320

Softening Temperature °C: 344

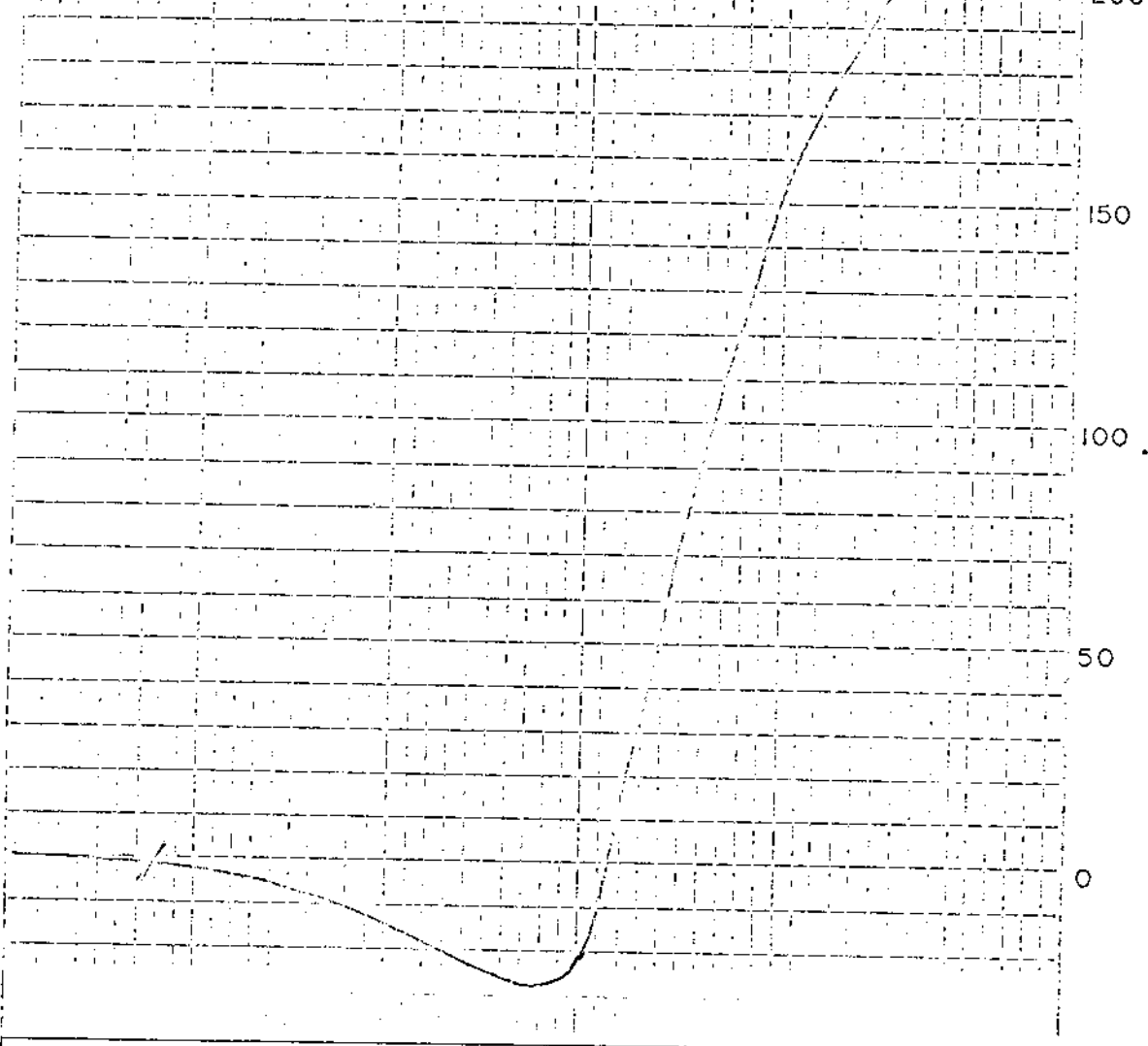
Max. Dilatation Temp. °C: 461

Contraction %: 27

Dilatation %: 208

Final Temperature °C: 1.126

G. Factor: 1.126



DITTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 9 - 1      Lab. No.: 77 - 4019      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	26.6	16.1	55.0	0.42	91.3	Air Dried Basis
--	26.8	16.2	55.2	0.42	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
1/4 x 65	85.1	0.6	28.8	0.45	85.1	28.8	0.45	A.D.B.
	85.1	--	29.0	0.45	85.1	29.0	0.45	D.B.
65 x 0	14.9	0.6	18.2	0.49	100.0	27.2	0.46	A.D.B.
	14.9	--	18.3	0.49	100.0	27.4	0.46	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	51.6	0.7	5.6	18.1	75.6	0.46	51.6	5.6	A.D.B.
	51.6	--	5.7	18.2	76.1	0.46	51.6	5.7	D.B.
1.40-1.50	12.5	0.8	14.1	17.2	67.9	0.40	64.1	7.3	A.D.B.
	12.5	--	14.2	17.3	68.5	0.40	64.1	7.4	D.B.
1.50-1.60	4.5	0.7	26.5	--	--	--	68.6	8.5	A.D.B.
	4.5	--	26.6	--	--	--	68.6	8.6	D.B.
+1.60	31.4	1.0	73.5	--	--	--	100.0	28.9	A.D.B.
	31.4	--	74.3	--	--	--	100.0	29.2	D.B.

COMPOSITE 1/4" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
4 1/2	0.071					

Lab. No 77 - 4019 Date: May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 9 - 1

Starting Temperature °C: 340 °C

Softening Temperature °C: 424 °C

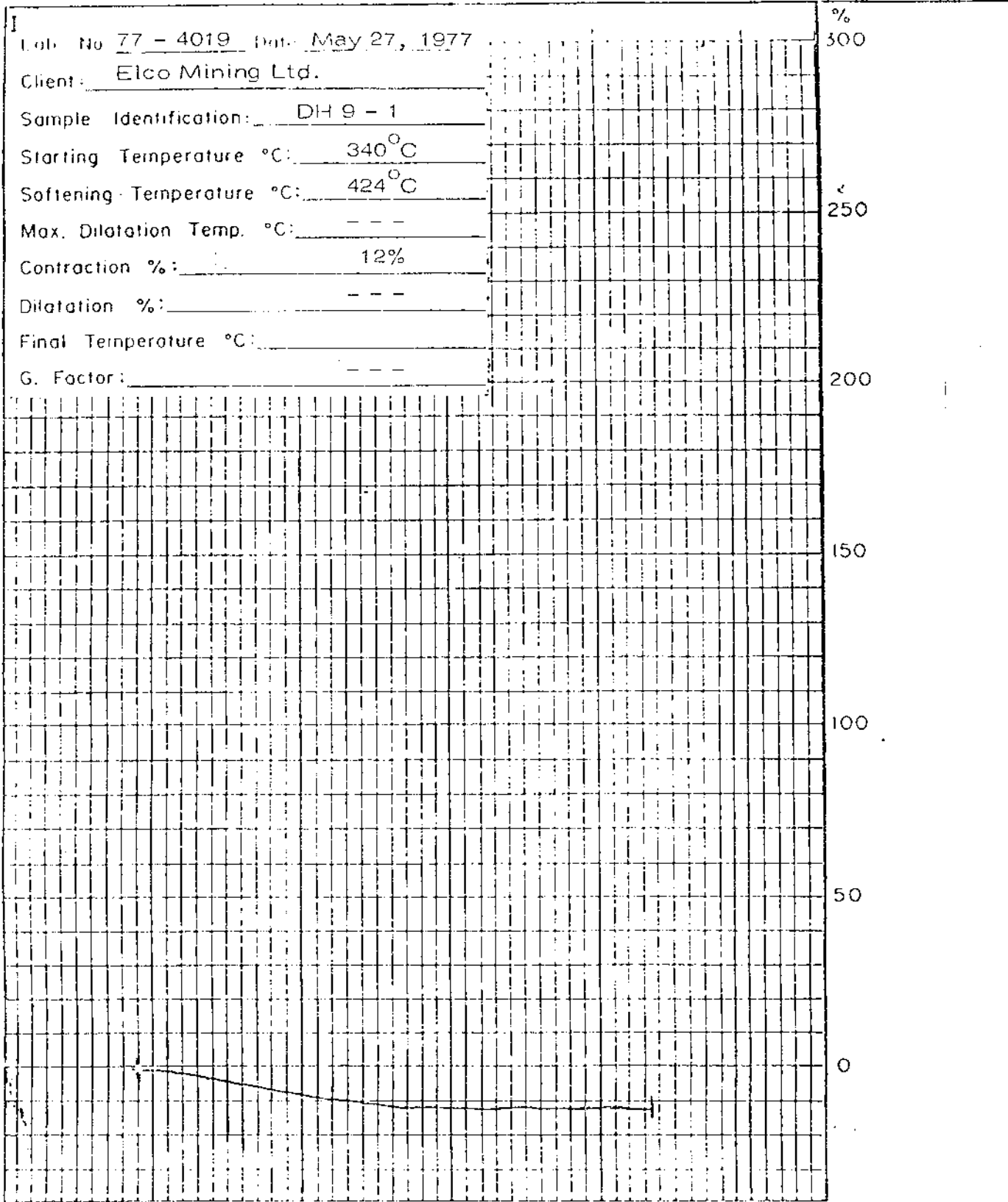
Max. Dilatation Temp. °C: ---

Contraction %: 12%

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 9 - 2      Lab. No.: 77 - 4020      Date: April 20, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	8.6	19.2	71.7	0.53	121.8	Air Dried Basis
--	8.6	19.3	72.1	0.53	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.6	0.5	9.0	0.60	90.6	9.0	0.60	A.D.B.
	90.6	--	9.0	0.60	90.6	9.0	0.60	D.B.
65 x 0	9.4	0.4	8.7	0.51	100.0	9.0	0.59	A.D.B.
	9.4	--	8.7	0.51	100.0	9.0	0.59	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	85.3	1.4	4.9	20.0	73.7	0.71	85.3	4.9	A.D.B.
	85.3	--	4.9	20.2	74.9	0.72	85.3	4.9	D.B.
1.40-1.50	6.1	1.0	15.8	17.6	65.6	0.46	91.4	5.6	A.D.B.
	6.1	--	16.0	17.7	66.3	0.46	91.4	5.6	D.B.
1.50-1.60	3.1	1.2	23.8	--	--	--	94.5	6.2	A.D.B.
	3.1	--	24.1	--	--	--	94.5	6.2	D.B.
+1.60	5.5	1.5	57.8	--	--	--	100.0	9.1	A.D.B.
	5.5	--	58.6	--	--	--	100.0	9.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8%	0.036					

Lab. No. 77 - 4020 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 9 - 2

Starting Temperature °C: 350 °C

Softening Temperature °C: 426 °C

Max. Dilatation Temp. °C: 487 °C

Contraction %: 16%

Dilatation %: - - -

Final Temperature °C: - - -

G. Factor: .937

%

300

250

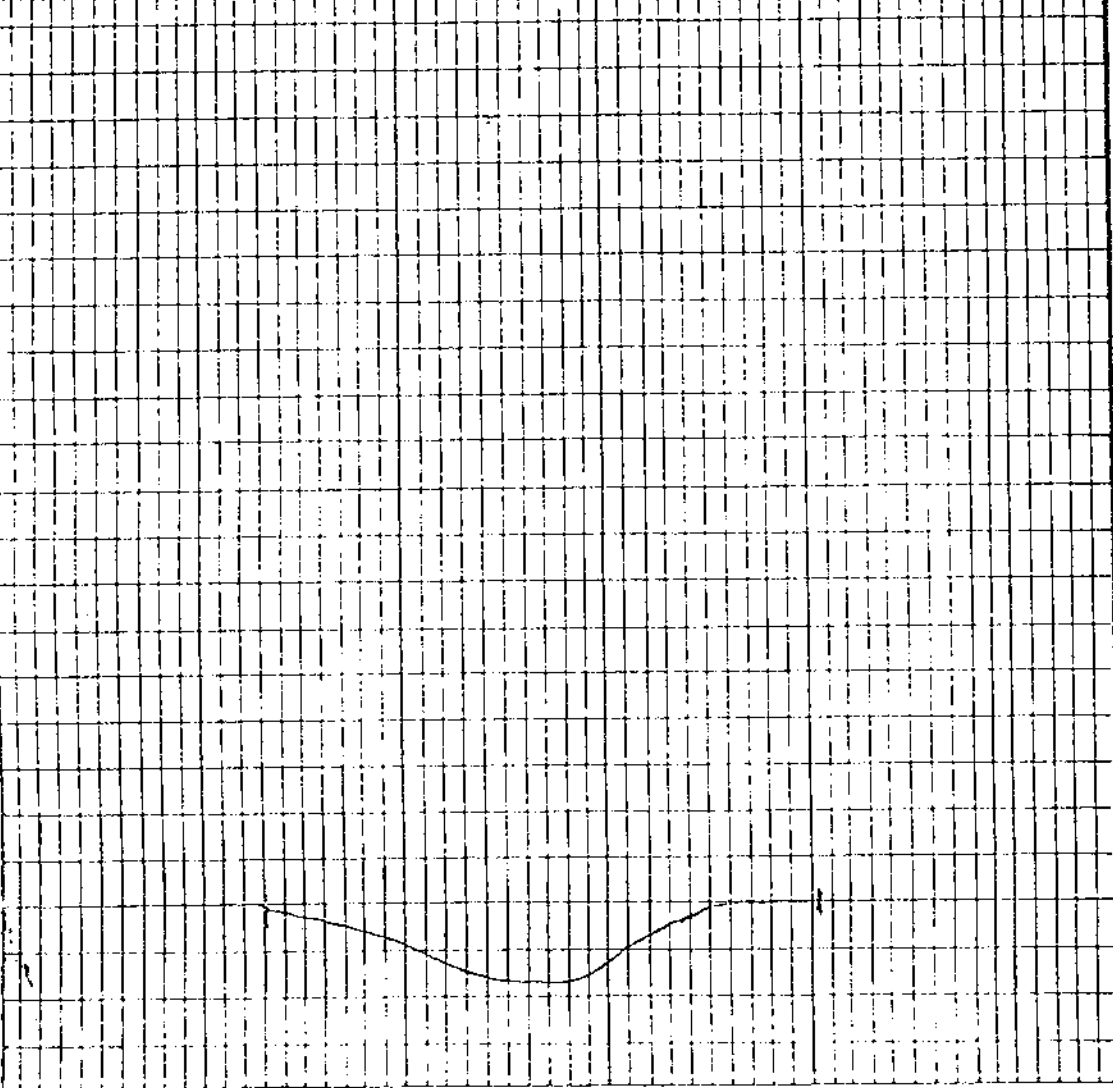
200

150

100

50

0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 9 - 8      Lab. No.: 77 - 4021 A      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	39.0	14.0	46.0	0.45	76.1	Air Dried Basis
--	39.4	14.1	46.5	0.45	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	86.8	0.6	40.8	0.40	86.8	40.8	0.40	A.D.B.
	86.8	--	41.0	0.40	86.8	41.0	0.40	D.B.
65 x 0	13.2	0.6	32.3	0.48	100.0	39.7	0.41	A.D.B.
	13.2	--	32.5	0.48	100.0	39.9	0.41	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	30.1	0.6	6.9	19.1	73.4	0.56	30.1	6.9	A.D.B.
	30.1	--	7.0	19.2	73.8	0.56	30.1	7.0	D.B.
1.40-1.50	11.7	0.6	17.2	17.0	65.2	0.53	41.8	9.8	A.D.B.
	11.7	--	17.4	17.1	65.5	0.53	41.8	9.9	D.B.
1.50-1.60	6.4	0.8	27.5	--	--	--	48.2	12.1	A.D.B.
	6.4	--	27.7	--	--	--	48.2	12.3	D.B.
+1.60	51.8	0.7	66.4	--	--	--	100.0	40.2	A.D.B.
	51.8	--	66.9	--	--	--	100.0	40.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8	0.007					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 9 - 4 Lab. No.: 77 - 4021 B Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	48.5	13.1	37.7	1.68	117.6	Air Dried Basis
--	48.8	13.2	38.0	1.69	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	84.4	0.6	50.5	1.83	84.4	50.5	1.83	A.D.B.
	84.4	--	50.8	1.84	84.4	50.8	1.84	D.B.
65 x 0	15.6	0.8	38.5	1.32	100.0	48.6	1.75	A.D.B.
	15.6	--	38.8	1.33	100.0	48.9	1.76	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	29.9	1.4	7.6	19.6	71.4	0.68	29.9	7.6	A.D.B.
	29.9	--	7.7	19.9	72.4	0.69	29.9	7.7	D.B.
1.40-1.50	7.6	1.4	14.6	18.6	65.4	0.52	37.5	9.0	A.D.B.
	7.6	--	14.8	18.9	66.3	0.53	37.5	9.1	D.B.
1.50-1.60	3.2	1.1	25.0	--	--	--	40.7	10.3	A.D.B.
	3.2	--	25.3	--	--	--	40.7	10.4	D.B.
+1.60	59.3	0.9	76.6	--	--	--	100.0	49.6	A.D.B.
	59.3	--	77.3	--	--	--	100.0	50.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.006					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 9 - 5 Lab. No.: 77 - 4021 C Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	10.8	19.2	69.5	0.72	149.5	Air Dried Basis
--	10.8	19.3	69.9	0.72	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	80.0	0.4	10.5	0.78	80.0	10.5	0.78	A.D.B.
	80.0	--	10.6	0.78	80.0	10.6	0.78	D.B.
65 x 0	20.0	0.4	8.8	0.63	100.0	10.2	0.75	A.D.B.
	20.0	--	8.9	0.63	100.0	10.3	0.75	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	74.7	1.1	5.9	19.6	73.4	0.54	74.7	5.9	A.D.B.
	74.8	--	5.9	19.8	74.3	0.55	74.8	5.9	D.B.
1.40-1.50	18.0	1.0	13.5	18.2	67.3	0.62	92.7	7.4	A.D.B.
	18.0	--	13.6	18.3	68.1	0.63	92.8	7.4	D.B.
1.50-1.60	3.4	1.2	20.9	--	--	--	96.1	7.8	A.D.B.
	3.4	--	21.2	--	--	--	96.2	7.9	D.B.
+1.60	3.9	0.7	66.5	--	--	--	100.0	10.1	A.D.B.
	3.8	--	67.0	--	--	--	100.0	10.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.005					

CLIENT: WARNOCK HERSEY

PROJECT: DILATATION TESTS \*

SAMPLE : -8 Mesh, -1.50 Composite

DATE: May 9, 1977

CS&MT LAB. NO.	W.H. I.D. No.	INITIAL TEMP (°C)	SOFTENING TEMP (°C)	MAX. DILAT'N TEMP (°C)	MAX. CONTRACT'N %	MAX. DILATATION %	G.No.
9001	77-4021 A	320	403	483	21	10	0.969
9002	77-4021 B	320	399	475	26	74	1.044
9003	77-4021 C	320	403	482	29	26	0.995
9004	77-4022	320	406	---	22 @ 496°C	---	---
9005	77-4023	320	399	478	22	39	1.026
9006	77-4024	320	410	---	21 @ 475°C	---	---
9007	77-4025	320	410	---	21 @ 475°C	---	---
9008	77-4026	320	374	460	25	112	1.070
9009	77-4027	320	368	459	25	217	1.096
9010	77-4028	320	374	453	29	112	1.060
9011	77-4029	320	381	463	25	39	1.022
9012	77-4030	320	388	471	30	-18	0.721
9013	77-4031	320	374	459	24	241	1.091
9014	77-4032	320	378	468	21	68	1.060
9015	77-4033	320	391	475	23	38	1.024
9016	77-4034	320	381	460	26	154	1.072
9017	77-4035	320	381	468	24	52	1.039
9018	77-4036	320	391	474	24	41	1.026
9019	77-4037	320	385	471	22	40	1.030
9020	77-4038	320	388	469	23	21	0.996
8998#1	77-4337	320	397	512	24	223	1.113
8998#2	77-4337	320	398	510	24	223	1.110

\* Softening Temp., Maximum Dilatation/Contraction Temp.  
are corrected with factor = 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-10-1 Lab. No. 8654 DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.5	23.6	17.6	58.3	0.58	79	Air Dried Basis
	23.7	17.7	58.6	0.58	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	77.9	0.5	26.3	0.55	77.9	26.3	0.55	A.D.B.
	77.9		26.4	0.55	77.9	26.4	0.55	D.B.
65M x 0	22.1	0.6	15.5	0.70	100.0	23.9	0.58	A.D.B.
	22.1		15.6	0.70	100.0	24.0	0.58	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	54.4	1.0	6.0	19.1	73.9	0.75	54.4	6.0	A.D.B.
	54.3		6.1	19.3	74.6	0.76	54.3	6.1	D.B.
1.40-1.50	12.4	0.7	17.4	17.3	64.6	0.60	66.8	8.1	A.D.B.
	12.4		17.5	17.4	65.1	0.60	66.7	8.2	D.B.
1.50-1.60	5.1	0.7	23.2				71.9	9.5	A.D.B.
	5.1		23.4				71.8	9.7	D.B.
+1.60	28.1	0.7	70.2				100.0	26.6	A.D.B.
	28.2		70.7				100.0	26.9	D.B.

COMPOSITE 1/4" x 65M FLOAHS > 1.50 S.G., A.D.B.						
F.S.I.	PK ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP. (°C)	MAX. DIL. TEMP. (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
3	0.07	408	---	21% @ 493°	---	---

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

Lab. No. 8658 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-10-1

Starting Temperature °C: 320

Softening Temperature °C: 408

Max. Dilatation Temp. °C: 493

250

Contraction %: 21

Dilatation %: - 21

Final Temperature °C:

G. Factor: ---

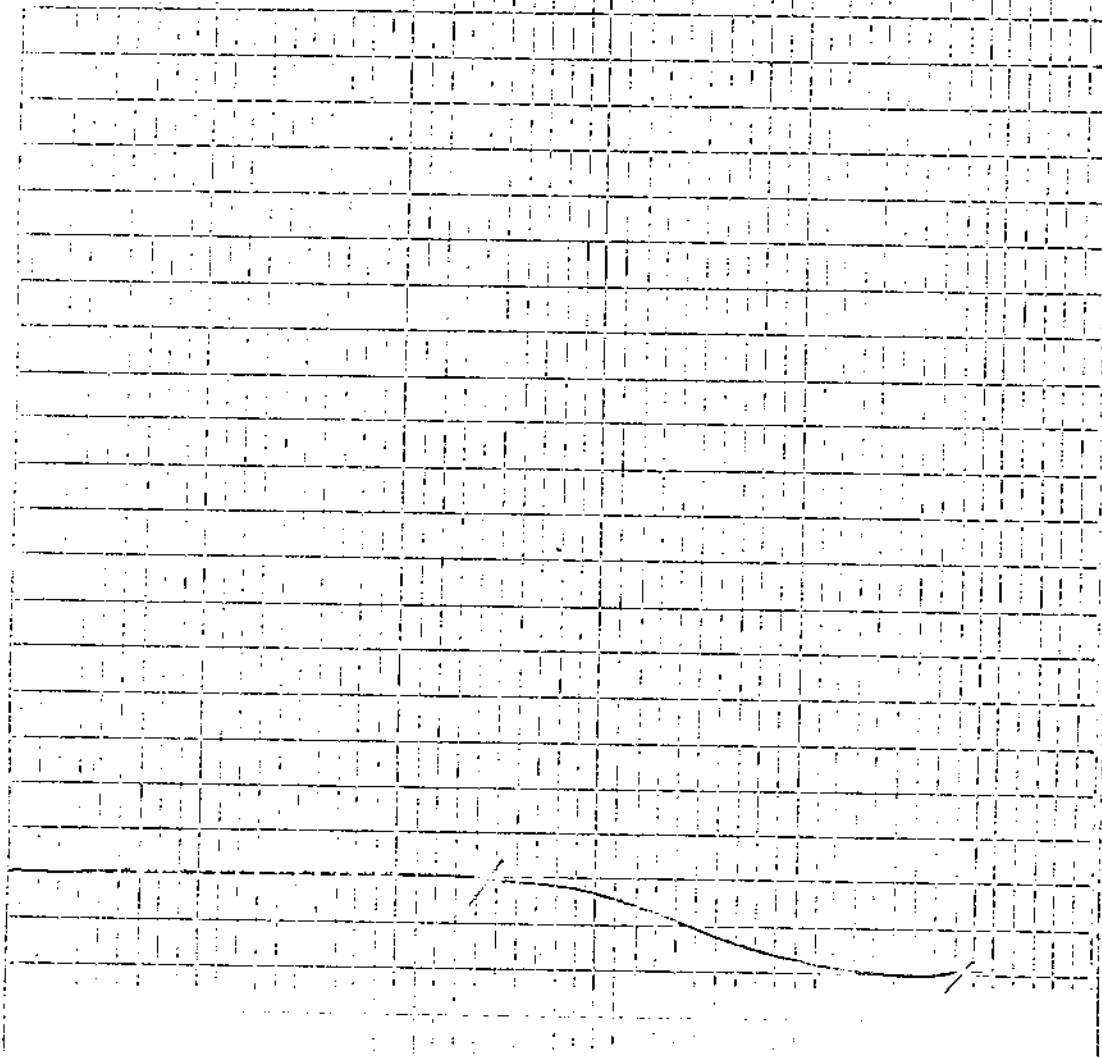
200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-10-2 Lab. No. 8655 DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	11.2	20.7	67.3	0.77	88	Air Dried Basis
	11.3	20.9	67.8	0.78	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.6	0.8	11.8	0.72	89.6	11.8	0.72	A.D.B.
	89.6		11.9	0.73	89.6	11.9	0.73	D.B.
65M x 0	10.4	1.0	9.7	0.79	100.0	11.6	0.73	A.D.B.
	10.4		9.8	0.80	100.0	11.7	0.74	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	78.3	0.8	4.2	19.9	75.1	0.76	78.3	4.2	A.D.B.
	78.2		4.2	20.1	75.7	0.77	78.2	4.2	D.B.
1.40-1.50	8.1	0.8	16.1	18.0	65.1	0.62	86.4	5.3	A.D.B.
	8.1		16.2	18.1	65.7	0.63	86.3	5.3	D.B.
1.50-1.60	1.6	0.7	27.0				88.0	5.7	A.D.B.
	1.6		27.2				87.9	5.7	D.B.
+1.60	12.0	0.9	55.2				100.0	11.6	A.D.B.
	12.1		55.7				100.0	11.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	PX ON COAL	DILATATION TEST (Starting Temp. = 320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.09	406	---	18% @ 460°	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 0655 Date March 29, 1977

%  
300

Client: ELCO MIXING LTD.

Sample Identification: DH-10-2

Starting Temperature °C: 320

Softening Temperature °C: 406

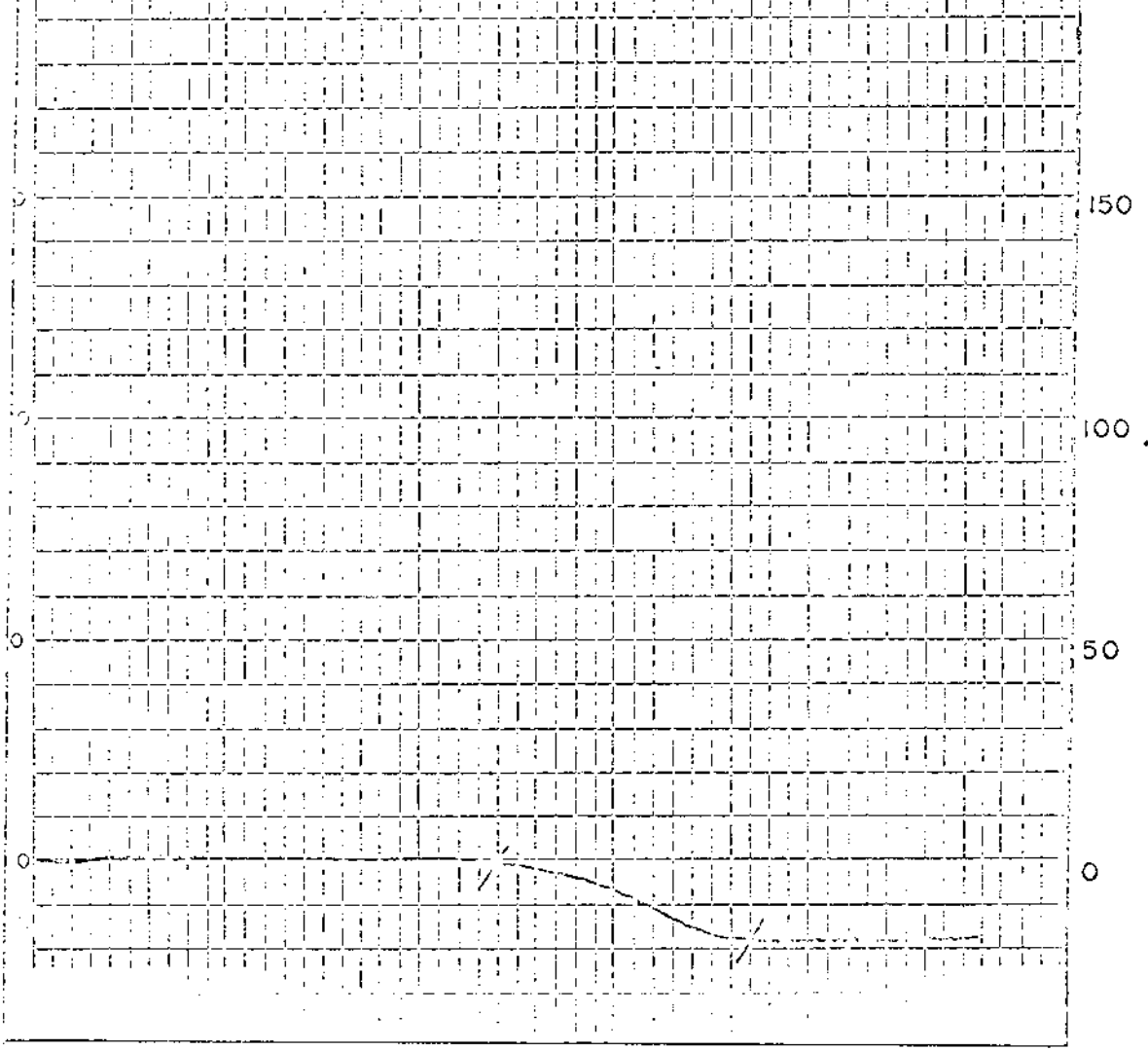
Max. Dilatation Temp. °C: -460

Contraction %: 18

Dilatation %: -18

Final Temperature °C: ---

G. Factor: ---



BIRTLEY ENGINEERING (CANADA) LTD.

Title RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-10-3 Lab. No. 8656 DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	22.0	16.1	61.2	0.65	83	Air Dried Basis
	22.2	16.2	61.6	0.65	--	Dry Basis

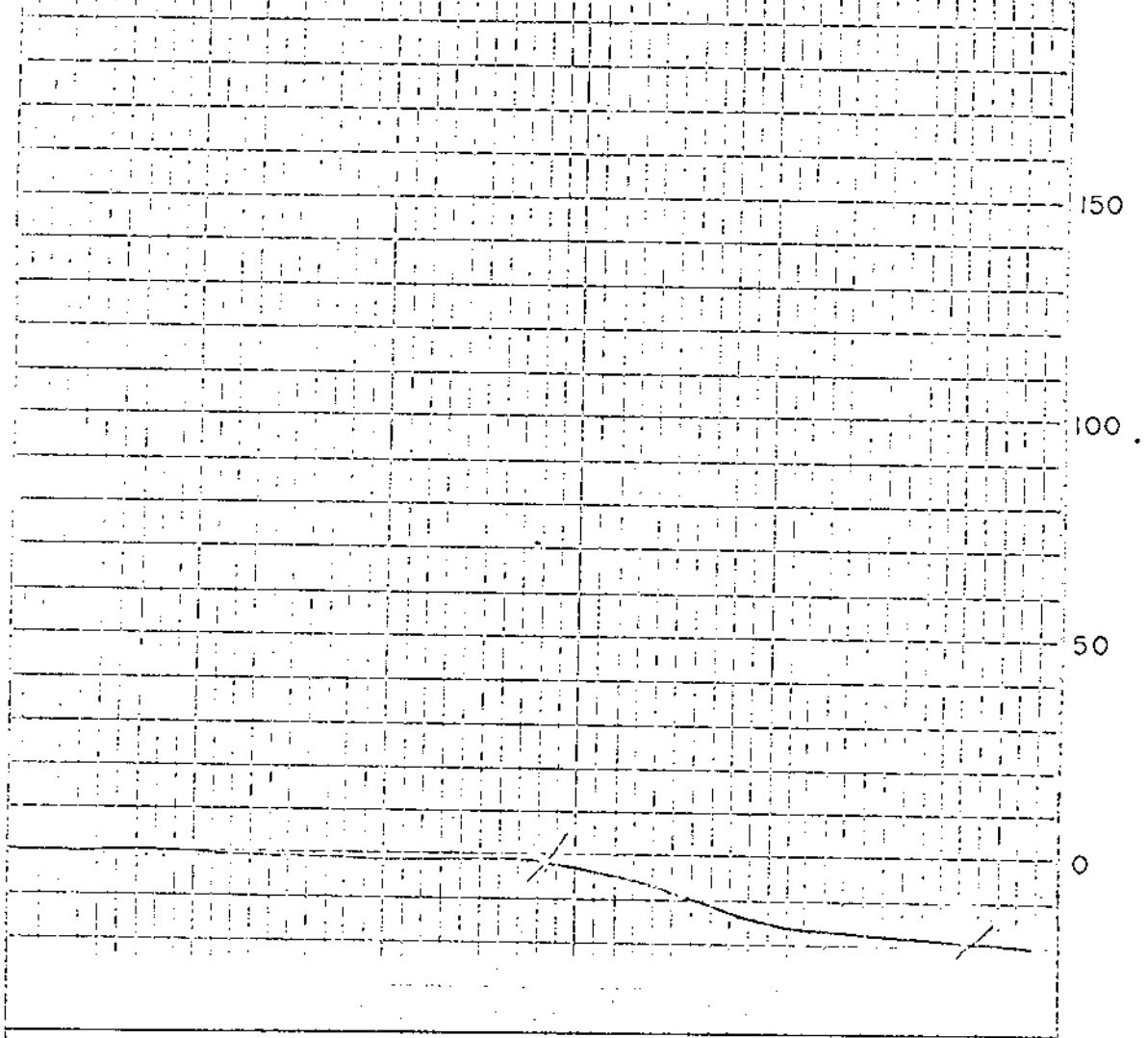
SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.7	0.8	22.8	0.64	92.7	22.8	0.64	A.D.B.
	92.7		23.0	0.65	92.7	23.0	0.65	D.B.
65M x 0	7.3	0.7	15.1	0.79	100.0	22.2	0.65	A.D.B.
	7.3		15.2	0.80	100.0	22.4	0.66	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	54.5	0.8	5.7	18.8	74.7	0.82	54.5	5.7	A.D.B.
	54.5		5.7	19.0	75.3	0.83	54.5	5.7	D.B.
1.40-1.50	12.1	0.8	18.1	16.7	64.4	0.68	66.6	8.0	A.D.B.
	12.1		18.2	16.8	65.0	0.69	66.6	8.0	D.B.
1.50-1.60	8.3	0.8	29.5				74.9	10.3	A.D.B.
	8.3		29.7				74.9	10.4	D.B.
+1.60	25.1	0.8	60.0				100.0	22.8	A.D.B.
	25.1		60.5				100.0	23.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	PK ON COAL	DILATATION TEST (Starting Temp. = 320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
3	0.04	424	---	18% @ 504°	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8656 Date March 29, 1977 %  
 Client: ELCO MINING LTD. 300  
 Sample Identification: DH-10-3  
 Starting Temperature °C: 320  
 Softening Temperature °C: 424  
 Max. Dilatation Temp. °C: - 504 250  
 Contraction %: 18  
 Dilatation %: - 18  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: --- 200



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title  <b>RUHR DILATOMETER TEST</b>	Date
	Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-10-4 Lab. No. 8657 DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	19.3	18.1	61.9	0.56	80	Air Dried Basis
	19.4	18.2	62.4	0.56	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.2	0.8	20.3	0.62	92.2	20.3	0.62	A.D.B.
	92.2		20.5	0.63	92.2	20.5	0.63	D.B.
65M x 0	7.8	0.6	14.8	0.49	100.0	19.9	0.61	A.D.B.
	7.8		14.9	0.49	100.0	20.1	0.62	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	60.4	0.9	5.5	18.3	75.3	0.60	60.4	5.5	A.D.B.
	60.3		5.5	18.5	76.0	0.61	60.3	5.5	D.B.
1.40-1.50	9.9	0.6	17.7	16.8	64.9	0.41	70.3	7.2	A.D.B.
	9.9		17.8	16.9	65.3	0.41	70.2	7.2	D.B.
1.50-1.60	6.3	0.6	27.3	X	X	X	76.6	8.9	A.D.B.
	6.3		27.5				76.5	8.9	D.B.
+1.60	23.4	0.6	59.9	X	X	X	100.0	20.8	A.D.B.
	23.5		60.3				100.0	21.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	PK ON COAL	DILATATION TEST (Starting Temp.=320°C)					G. NO.
		SOFTENING TEMP. (°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
4 1/2	0.02	414	---	17% @ 511°	---	---	

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

Lab. No. 8657 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-10-4

Starting Temperature °C: 320

Softening Temperature °C: 414

Max. Dilatation Temp. °C: -511

Contraction %: 17

Dilatation %: -17

Final Temperature °C:

G. Factor: ---

250

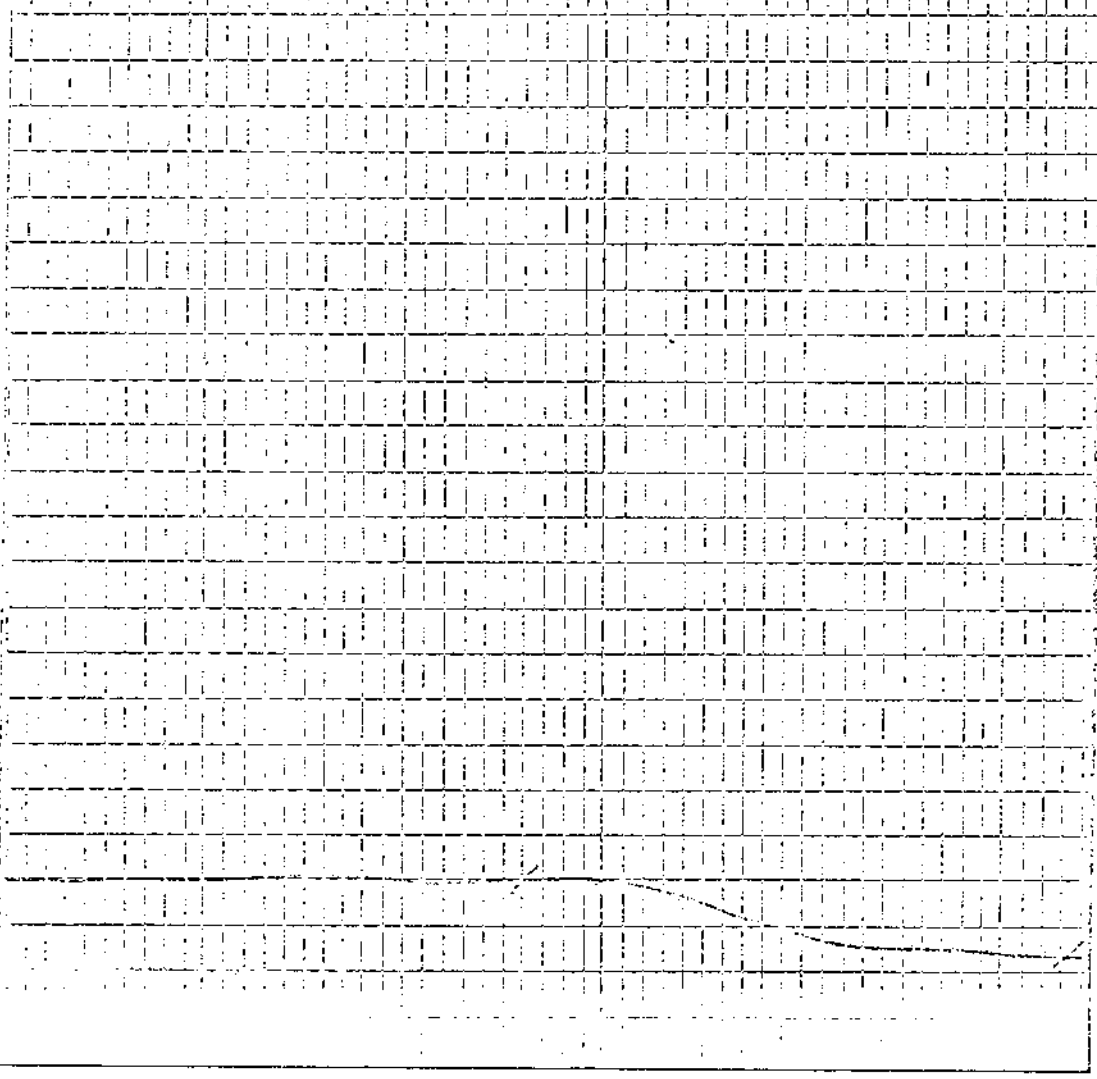
200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-10-5

Lab. No. 8658

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	19.0	16.7	63.4	0.52	91	Air Dried Basis
	19.2	16.9	63.9	0.52	--	Dry Basis

SIZE / RAW ANALYSES									
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE				%P on Coal
					WT. %	ASH %	S. %		
1/4" x 65M	91.7	0.9	20.1	0.50	91.7	20.1	0.50	A.D.B.	0.08
	91.7		20.3	0.50	91.7	20.3	0.50	D.B.	
65M x 0	8.3	0.7	16.4	0.55	100.0	19.8	0.50	A.D.B.	0.05
	8.3		16.5	0.55	100.0	20.0	0.50	D.B.	

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	68.2	0.9	5.2	19.1	74.8	0.49	68.2	5.2	A.D.B.
	68.2		5.2	19.3	76.0	0.49	68.2	5.2	D.B.
1.40-1.50	10.5	0.9	17.9	16.7	64.5	0.62	78.7	6.9	A.D.B.
	10.5		18.1	16.9	65.0	0.63	78.7	6.9	D.B.
1.50-1.60	3.0	0.7	27.9				81.7	7.7	A.D.B.
	3.0		28.1				81.7	7.7	D.B.
+1.60	18.3	0.8	74.3				100.0	19.9	A.D.B.
	18.3		74.9				100.0	20.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	PK ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
5	0.09	410	---	19	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-10-6 Lab. No. 8659 DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	20.8	17.7	60.7	0.46	86	Air Dried Basis
	21.0	17.8	61.2	0.46	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	90.1	0.7	22.2	0.49	90.1	22.2	0.49	A.D.B.
	90.1		22.4	0.49	90.1	22.4	0.49	D.B.
65M x 0	9.9	0.8	12.4	0.46	100.0	21.2	0.49	A.D.B.
	9.9		12.5	0.46	100.0	21.4	0.49	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	58.8	0.9	5.6	18.8	74.7	0.56	58.8	5.6	A.D.B.
	58.7		5.7	19.0	75.3	0.57	58.7	5.7	D.B.
1.40-1.50	11.2	0.7	18.1	17.1	64.1	0.51	70.0	7.6	A.D.B.
	11.2		18.2	17.2	64.6	0.51	69.9	7.7	D.B.
1.50-1.60	5.5	0.7	26.8				75.5	9.0	A.D.B.
	5.5		27.0				75.4	9.1	D.B.
+1.60	24.5	0.7	62.8				100.0	22.2	A.D.B.
	24.6		63.2				100.0	22.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
7	0.07	403	---	19% @ 450°	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8659 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-10-6

Starting Temperature °C: 320

Softening Temperature °C: 403

Max. Dilatation Temp. °C: - 450

Contraction %: 19

Dilatation %: - 19

Final Temperature °C:

G. Factor: ---

250

200

150

100

50

0



DITTELEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 10 - 7      Lab. No.: 77 - 4022      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	23.2	16.1	59.8	0.63	102.4	Air Dried Basis
--	23.4	16.2	60.4	0.64	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	86.2	0.5	25.1	0.59	86.2	25.1	0.59	A.D.B.
	86.2	--	25.3	0.59	86.2	25.3	0.59	D.B.
65 x 0	13.8	0.8	15.0	0.69	100.0	23.7	0.60	A.D.B.
	13.8	--	15.2	0.70	100.0	23.9	0.60	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	54.8	1.1	4.8	20.2	73.9	0.65	54.8	4.8	A.D.B.
	54.8	--	4.8	20.4	74.8	0.66	54.8	4.8	D.B.
1.40-1.50	12.7	0.8	15.8	17.7	65.7	0.58	67.5	6.9	A.D.B.
	12.7	--	16.0	17.9	66.1	0.58	67.5	6.9	D.B.
1.50-1.60	5.2	0.8	24.8	--	--	--	72.7	8.2	A.D.B.
	5.2	--	25.0	--	--	--	72.7	8.2	D.B.
+1.60	27.3	0.7	69.1	--	--	--	100.0	24.8	A.D.B.
	27.3	--	69.5	--	--	--	100.0	24.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal					G.No.
		Softening Temp.(°C)	Max.Dil. Temp.(°C)	Maximum Contr.%	Maximum Dil. %	
4½	0.038					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 10 - 8      Lab. No.: 77 - 4023      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	26.7	16.5	56.0	0.58	99.6	Air Dried Basis
--	26.9	16.6	56.5	0.58	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
1/4 x 65	87.4	0.5	28.4	0.58	87.4	28.4	0.58	A.D.B.
	87.4	--	28.5	0.58	87.4	28.5	0.58	D.B.
65 x 0	12.6	0.6	18.6	0.68	100.00	27.2	0.59	A.D.B.
	12.6	--	18.8	0.68	100.00	27.3	0.59	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	41.5	0.9	6.4	21.2	71.5	0.68	41.5	6.4	A.D.B.
	41.5	--	6.5	21.4	72.1	0.69	41.5	6.5	D.B.
1.40-1.50	17.7	0.7	19.2	18.0	62.1	0.58	59.2	10.2	A.D.B.
	17.7	--	19.4	18.1	62.5	0.58	59.2	10.4	D.B.
1.50-1.60	11.7	0.9	28.2	--	--	--	70.9	13.2	A.D.B.
	11.7	--	28.4	--	--	--	70.9	13.3	D.B.
+1.60	29.1	0.6	66.7	--	--	--	100.0	28.8	A.D.B.
	29.1	--	67.1	--	--	--	100.0	29.0	D.B.

COMPOSITE 1/4" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8 1/2	0.036					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 10 - 9

Lab. No.: 77 - 4024

Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	17.9	16.9	64.7	0.64	97.5	Air Dried Basis
--	18.0	17.0	65.0	0.64	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.2	0.4	17.3	0.67	90.2	17.3	0.67	A.D.B.
	90.2	--	17.4	0.67	90.2	17.4	0.67	D.B.
65 x 0	9.8	0.6	16.9	0.76	100.0	17.3	0.68	A.D.B.
	9.8	--	17.0	0.76	100.0	17.4	0.68	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	61.9	0.8	5.8	18.8	74.6	0.67	61.9	5.8	A.D.B.
	61.9	--	5.8	19.0	75.2	0.68	61.9	5.8	D.B.
1.40-1.50	11.4	0.7	16.5	17.5	65.3	0.62	73.3	7.5	A.D.B.
	11.4	--	16.6	17.6	65.8	0.62	73.3	7.5	D.B.
1.50-1.60	6.1	0.7	27.0	--	--	--	79.4	9.0	A.D.B.
	6.1	--	27.2	--	--	--	79.4	9.0	D.B.
+1.60	20.6	0.5	51.1	--	--	--	100.0	17.6	A.D.B.
	20.6	--	51.4	--	--	--	100.0	17.7	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
4½	0.010					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 10 - 10

Lab. No.: 77 - 4025

Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	13.3	16.8	69.3	0.67	98.9	Air Dried Basis
--	13.4	16.9	69.7	0.67	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.6	0.4	14.4	0.71	88.6	14.4	0.71	A.D.B.
	88.6	--	14.5	0.71	88.6	14.5	0.71	D.B.
65 x 0	11.4	0.6	11.2	0.76	100.0	14.0	0.72	A.D.B.
	11.4	--	11.2	0.76	100.0	14.1	0.72	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	70.9	0.7	5.9	18.5	74.9	0.67	70.9	5.9	A.D.B.
	70.9	--	5.9	18.7	75.4	0.67	70.9	5.9	D.B.
1.40-1.50	12.1	0.5	16.6	16.3	66.6	0.64	83.0	7.5	A.D.B.
	12.1	--	16.7	16.4	66.9	0.64	83.0	7.5	D.B.
1.50-1.60	5.6	0.6	26.0	--	--	--	88.6	8.6	A.D.B.
	5.6	--	26.1	--	--	--	88.6	8.6	D.B.
+1.60	11.4	0.5	61.5	--	--	--	100.0	14.6	A.D.B.
	11.4	--	61.8	--	--	--	100.0	14.7	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
3½	0.020					

CLIENT: WARNOCK HERSEY

PROJECT: DILATATION TESTS \*

SAMPLE : -8 Mesh, -1.50 Composite

DATE: May 9, 1977

CS&MT LAB. NO.	W.H. I.D. No.	INITIAL TEMP (°C)	SOFTENING TEMP (°C)	MAX. DILAT'N TEMP (°C)	MAX. CONTRACT'N %	MAX. DILATATION %	G.No.
9001	77-4021 A	320	403	483	21	10	0.969
9002	77-4021 B	320	399	475	26	74	1.044
9003	77-4021 C	320	403	482	29	26	0.995
9004	77-4022	320	406	---	22 @ 496°C	---	---
9005	77-4023	320	399	478	22	39	1.026
9006	77-4024	320	410	---	21 @ 475°C	---	---
9007	77-4025	320	410	---	21 @ 475°C	---	---
9008	77-4026	320	374	460	25	112	1.070
9009	77-4027	320	368	459	25	217	1.096
9010	77-4028	320	374	453	29	112	1.060
9011	77-4029	320	381	463	25	39	1.022
9012	77-4030	320	388	471	30	-18	0.721
9013	77-4031	320	374	459	24	241	1.091
9014	77-4032	320	378	468	21	68	1.060
9015	77-4033	320	391	475	23	38	1.024
9016	77-4034	320	381	460	26	154	1.072
9017	77-4035	320	381	468	24	52	1.039
9018	77-4036	320	391	474	24	41	1.026
9019	77-4037	320	385	471	22	40	1.030
9020	77-4038	320	388	469	23	21	0.996
8998#1	77-4337	320	397	512	24	223	1.113
8998#2	77-4337	320	398	510	24	223	1.110

\* Softening Temp., Maximum Dilatation/Contraction Temp.  
are corrected with factor = 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries.



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 1

Lab. No.: 77 - 4026

Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	32.8	18.9	47.3	2.82	92.7	Air Dried Basis
--	33.1	19.1	47.8	2.85	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.8	0.8	34.8	2.81	89.8	34.8	2.81	A.D.B.
	89.8	--	35.0	2.83	89.8	35.0	2.83	D.B.
65 x 0	10.2	0.8	20.6	3.10	100.0	33.4	2.84	A.D.B.
	10.2	--	20.7	3.12	100.0	33.5	2.86	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	45.6	1.0	5.0	26.2	67.8	0.86	45.6	5.0	A.D.B.
	45.6	--	5.0	26.5	68.5	0.87	45.6	5.0	D.B.
1.40-1.50	5.4	1.0	19.9	21.7	57.4	0.92	51.0	6.6	A.D.B.
	5.4	--	20.1	21.9	58.0	0.93	51.0	6.6'	D.B.
1.50-1.60	2.9	0.9	30.8	--	--	--	53.9	7.9	A.D.B.
	2.9	--	31.1	--	--	--	53.9	7.9	D.B.
+1.60	46.1	0.8	67.8	--	--	--	100.0	35.5	A.D.B.
	46.1	--	68.3	--	--	--	100.0	35.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Swelling Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
9	0.028					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 2      Lab. No.: 77 - 4027      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.1	13.6	23.9	61.4	0.83	98.2	Air Dried Basis
--	13.8	24.2	62.0	0.84	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.1	0.5	13.6	0.86	91.1	13.6	0.86	A.D.B.
	91.1	--	13.7	0.86	91.1	13.7	0.86	D.B.
65 x 0	8.9	0.7	12.2	0.89	100.0	13.5	0.86	A.D.B.
	8.9	--	12.3	0.90	100.0	13.6	0.86	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	80.0	1.0	5.7	26.2	67.1	0.73	80.0	5.7	A.D.B.
	80.1	--	5.7	26.5	67.8	0.74	80.1	5.7	D.B.
1.40-1.50	6.2	0.8	20.0	22.4	56.8	0.52	86.2	6.7	A.D.B.
	6.2	--	20.2	22.6	57.2	0.52	86.3	6.7	D.B.
1.50-1.60	2.7	0.7	29.8	--	--	--	88.9	7.4	A.D.B.
	2.7	--	30.0	--	--	--	89.0	7.4	D.B.
+1.60	11.1	0.6	61.3	--	--	--	100.0	13.4	A.D.B.
	11.0	--	61.7	--	--	--	100.0	13.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G. No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.046					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 3      Lab. No.: 77 - 4028      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	27.6	19.3	52.2	0.65	103.1	Air Dried Basis
--	27.9	19.5	52.6	0.66	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.7	0.6	28.4	0.70	88.7	28.4	0.70	A.D.B.
	88.7	--	28.6	0.70	88.7	28.6	0.70	D.B.
65 x 0	11.3	0.8	25.4	0.76	100.0	28.1	0.71	A.D.B.
	11.3	--	25.6	0.77	100.0	28.3	0.71	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	51.1	0.8	7.0	24.2	68.0	0.75	51.1	7.0	A.D.B.
	51.1	--	7.1	24.4	68.5	0.76	51.1	7.1	D.B.
1.40-1.50	10.9	0.7	20.2	21.3	57.8	0.67	62.0	9.3	A.D.B.
	10.9	--	20.4	21.4	58.2	0.67	62.0	9.4	D.B.
1.50-1.60	7.5	0.5	29.1	--	--	--	69.5	11.4	A.D.B.
	7.5	--	29.2	--	--	--	69.5	11.6	D.B.
+1.60	30.5	0.7	70.2	--	--	--	100.0	29.4	A.D.B.
	30.5	--	70.7	--	--	--	100.0	29.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coat	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.049					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 4      Lab. No.: 77 - 4029      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	24.5	19.5	55.0	0.69	108.6	Air Dried Basis
--	24.7	19.7	55.6	0.70	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.8	0.6	25.8	0.70	90.8	25.8	0.70	A.D.B.
	90.8	--	25.9	0.70	90.8	25.9	0.70	D.B.
65 x 0	9.2	0.8	17.9	0.76	100.0	25.1	0.71	A.D.B.
	9.2	--	18.1	0.77	100.0	25.2	0.71	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	61.4	1.2	5.2	23.8	69.8	0.75	61.4	5.2	A.D.B.
	61.5	--	5.3	24.1	70.6	0.76	61.5	5.3	D.B.
1.40-1.50	6.7	0.8	17.0	20.1	62.1	0.68	68.1	6.4	A.D.B.
	6.7	--	17.2	20.3	62.5	0.68	68.2	6.5	D.B.
1.50-1.60	4.0	0.7	27.4	--	--	--	72.1	7.5	A.D.B.
	4.0	--	27.6	--	--	--	72.2	7.6	D.B.
+1.60	27.9	0.8	71.2	--	--	--	100.0	25.3	A.D.B.
	27.8	--	71.8	--	--	--	100.0	25.5	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.046					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 5      Lab. No.: 77 - 4030      Date April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	9.6	21.0	68.4	0.81	119.7	Air Dried Basis
--	9.7	21.2	69.1	0.82	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.5	0.6	10.2	0.80	90.5	10.2	0.80	A.D.B.
	90.5	--	10.3	0.80	90.5	10.3	0.80	D.B.
65 x 0	9.5	0.6	8.8	0.82	100.0	10.1	0.80	A.D.B.
	9.5	--	8.8	0.82	100.0	10.2	0.80	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	88.4	1.2	4.1	23.4	71.3	0.88	88.4	4.1	A.D.B.
	88.4	--	4.1	23.6	72.3	0.89	88.4	4.1	D.B.
1.40-1.50	3.5	0.9	13.3	20.0	65.8	0.70	91.9	4.4	A.D.B.
	3.5	--	13.4	20.2	66.4	0.71	91.9	4.4	D.B.
1.50-1.60	0.6	0.9	23.7	--	--	--	92.5	4.6	A.D.B.
	0.6	--	24.0	--	--	--	92.5	4.6	D.B.
+1.60	7.5	0.9	75.0	--	--	--	100.0	9.8	A.D.B.
	7.5	--	75.7	--	--	--	100.0	9.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
7	0.039					

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ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 6      Lab. No.: 77 - 4031      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.1	53.9	15.6	29.4	0.98	74.0	Air Dried Basis
--	54.4	15.8	29.8	0.99	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.2	0.8	57.3	0.98	89.2	57.3	0.98	A.D.B.
	89.2	--	57.7	0.99	89.2	57.7	0.99	D.B.
65 x 0	10.8	0.8	32.6	1.31	100.0	54.6	1.02	A.D.B.
	10.8	--	32.9	1.32	100.0	55.0	1.03	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	27.6	1.0	4.0	27.9	67.1	1.19	27.6	4.0	A.D.B.
	27.6	--	4.1	28.2	67.7	1.20	27.6	4.1	D.B.
1.40-1.50	2.8	0.7	11.7	23.6	64.0	1.62	30.4	4.7	A.D.B.
	2.8	--	11.8	23.8	64.4	1.63	30.4	4.8	D.B.
1.50-1.60	1.0	0.8	25.7	--	--	--	31.4	5.4	A.D.B.
	1.0	--	25.9	--	--	--	31.4	5.5	D.B.
+1.60	68.6	1.2	80.8	--	--	--	100.0	57.1	A.D.B.
	68.6	--	81.9	--	--	--	100.0	57.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.024					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 7      Lab. No.: 77 - 4032      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	10.1	22.3	66.6	0.91	115.6	Air Dried Basis
--	10.2	22.5	67.3	0.92	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
1/4 x 65	87.9	0.6	9.9	0.89	87.9	9.9	0.89	A.D.B.
	87.9	--	10.0	0.90	87.9	10.0	0.90	D.B.
65 x 0	12.1	0.8	11.9	0.93	100.0	10.1	0.89	A.D.B.
	12.1	--	12.0	0.94	100.0	10.2	0.90	D.B.

SINK - FLOAT ANALYSIS: 1/2" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	84.8	0.9	4.0	24.8	70.3	0.85	84.8	4.0	A.D.B.
	84.8	--	4.0	25.0	71.0	0.86	84.8	4.0	D.B.
1.40-1.50	2.7	0.7	19.1	21.4	58.8	0.83	87.5	4.5	A.D.B.
	2.7	--	19.3	21.6	59.1	0.84	87.5	4.5	D.B.
1.50-1.60	3.2	0.8	24.8	--	--	--	90.7	5.2	A.D.B.
	3.2	--	25.0	--	--	--	90.7	5.2	D.B.
+1.60	9.3	0.8	59.1	--	--	--	100.0	10.2	A.D.B.
	9.3	--	59.6	--	--	--	100.0	10.3	D.B.

COMPOSITE 1/2" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	IP % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
9	0.018					

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ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 8      Lab. No.: 77 - 4033      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	14.9	21.1	63.1	1.09	97.5	Air Dried Basis
--	15.0	21.2	63.8	1.10	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.5	0.5	15.6	1.09	89.5	15.6	1.09	A.D.B.
	89.5	--	15.7	1.10	89.5	15.7	1.10	D.B.
65 x 0	10.5	0.6	16.0	1.28	100.0	15.6	1.11	A.D.B.
	10.6	--	16.1	1.29	100.0	15.7	1.12	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	72.2	0.7	5.2	24.3	69.8	0.97	72.2	5.2	A.D.B.
	72.1	--	5.2	24.5	70.3	0.98	72.1	5.2	D.B.
1.40-1.50	8.8	0.7	17.7	20.6	61.0	0.88	81.0	6.6	A.D.B.
	8.8	--	17.8	20.7	61.5	0.89	80.9	6.6	D.B.
1.50-1.60	4.6	0.9	26.1	--	--	--	85.6	7.6	A.D.B.
	4.6	--	26.3	--	--	--	85.5	7.6	D.B.
+1.60	14.4	1.2	59.6	--	--	--	100.0	15.1	A.D.B.
	14.5	--	60.3	--	--	--	100.0	15.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coat	Softening	Max. Dil.	Maximum	Maximum	G. No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.033					



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CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 9

Lab. No.: 77 - 4034

Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	40.6	16.2	42.5	0.91	78.8	Air Dried Basis
---	40.9	16.3	42.8	0.92	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.8	0.5	41.2	0.94	91.8	41.2	0.94	A.D.B.
	91.8	--	41.4	0.94	91.8	41.4	0.94	D.B.
65 x 0	8.2	0.7	32.5	0.96	100.0	40.5	0.94	A.D.B.
	8.2	--	32.7	0.97	100.0	40.7	0.94	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	35.1	0.6	5.0	23.5	70.9	0.99	35.1	5.0	A.D.B.
	35.1	--	5.0	23.7	71.3	1.00	35.1	5.0	D.B.
1.40-1.50	7.5	0.6	22.0	20.0	57.4	0.88	42.6	8.0	A.D.B.
	7.5	--	22.1	20.1	57.8	0.89	42.6	8.0	D.B.
1.50-1.60	5.5	0.6	29.8	--	--	--	48.1	10.5	A.D.B.
	5.5	--	30.0	--	--	--	48.1	10.5	D.B.
+1.60	51.9	0.6	69.4	--	--	--	100.0	41.1	A.D.B.
	51.9	--	69.9	--	--	--	100.0	41.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp.(°C)	Max.Dil. Temp.(°C)	Maximum Contr.%	Maximum Dil. %	G.No.

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 10      Lab. No.: 77 - 4035      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	20.9	19.9	58.6	0.74	103.1	Air Dried Basis
--	21.1	20.0	58.9	0.74	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.1	0.5	20.5	0.75	90.1	20.5	0.75	A.D.B.
	90.1	--	20.6	0.75	90.1	20.6	0.75	D.B.
65 x 0	9.9	0.6	16.0	0.81	100.0	20.1	0.76	A.D.B.
	9.9	--	16.1	0.81	100.0	20.2	0.76	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	66.0	0.6	5.4	22.4	71.6	0.75	66.0	5.4	A.D.B.
	66.0	--	5.4	22.6	72.0	0.75	66.0	5.4	D.B.
1.40-1.50	8.2	0.5	18.8	19.7	61.0	0.60	74.2	6.9	A.D.B.
	8.2	--	18.9	19.8	61.3	0.60	74.2	6.9	D.B.
1.50-1.60	5.0	0.6	27.5	--	--	--	79.2	8.2	A.D.B.
	5.0	--	27.7	--	--	--	79.2	8.2	D.B.
+1.60	20.8	0.5	66.5	--	--	--	100.0	20.3	A.D.B.
	20.8	--	66.8	--	--	--	100.0	20.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.019					

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ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 11 Lab. No.: 77 - 4036 Date: April 27, 1977.

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	14.7	22.8	61.7	0.60	98.2	Air Dried Basis
--	14.8	23.0	62.2	0.60	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.9	0.5	15.5	0.65	89.9	15.5	0.65	A.D.B.
	89.9	--	15.5	0.65	89.9	15.5	0.65	D.B.
65 x 0	10.1	0.6	13.5	0.62	100.0	15.3	0.65	A.D.B.
	10.1	--	13.6	0.62	100.0	15.3	0.65	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	72.4	0.6	5.1	22.9	71.4	0.71	72.4	5.1	A.D.B.
	72.4	--	5.1	23.0	71.9	0.71	72.4	5.1	D.B.
1.40-1.50	9.1	0.6	17.7	19.9	61.8	0.53	81.5	6.5	A.D.B.
	9.1	--	17.8	20.0	62.2	0.53	81.5	6.5	D.B.
1.50-1.60	4.0	0.5	25.7	--	--	--	85.5	7.4	A.D.B.
	4.0	--	25.8	--	--	--	85.5	7.4	D.B.
+1.60	14.5	0.5	61.2	--	--	--	100.0	15.2	A.D.B.
	14.5	--	61.5	--	--	--	100.0	15.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.078					

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ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 12      Lab. No.: 77 - 4037      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	16.8	19.6	62.6	0.82	98.9	Air Dried Basis
--	16.9	19.8	63.3	0.83	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	88.0	0.4	17.4	0.85	88.0	17.4	0.85	A.D.B.
	88.0	--	17.5	0.85	88.0	17.5	0.85	D.B.
65 x 0	12.0	0.8	14.0	0.88	100.0	17.0	0.85	A.D.B.
	12.0	--	14.2	0.89	100.0	17.1	0.85	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	64.6	0.5	4.8	21.6	73.1	0.83	64.6	4.8	A.D.B.
	64.6	--	4.8	21.7	73.5	0.83	64.6	4.8	D.B.
1.40-1.50	8.4	0.5	16.8	18.6	64.1	0.87	73.0	6.2	A.D.B.
	8.4	--	16.9	18.7	64.4	0.87	73.0	6.2	D.B.
1.50-1.60	5.8	0.5	25.0	--	--	--	78.8	7.6	A.D.B.
	5.8	--	25.1	--	--	--	78.8	7.6	D.B.
+1.60	21.2	0.4	56.0	--	--	--	100.0	17.9	A.D.B.
	21.2	--	56.2	--	--	--	100.0	17.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.044					

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 13      Lab. No.: 77 - 4038      Date: April 27, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	26.3	18.0	54.8	0.65	83.0	Air Dried Basis
--	26.5	18.2	55.3	0.66	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.6	0.5	27.4	0.73	90.6	27.4	0.73	A.D.B.
	90.6	--	27.5	0.73	90.6	27.5	0.73	D.B.
65 x 0	9.4	0.8	21.0	0.70	100.0	26.8	0.73	A.D.B.
	9.4	--	21.2	0.71	100.0	26.9	0.73	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	56.0	0.6	4.4	21.5	73.5	0.80	56.0	4.4	A.D.B.
	56.0	--	4.4	21.6	74.0	0.80	56.0	4.4	D.B.
1.40-1.50	7.8	0.6	17.6	19.1	62.7	0.67	63.8	6.0	A.D.B.
	7.8	--	17.7	19.2	63.1	0.67	63.8	6.0	D.B.
1.50-1.60	3.1	0.5	26.6	--	--	--	66.9	7.0	A.D.B.
	3.1	--	26.7	--	--	--	66.9	7.0	D.B.
+1.60	33.1	0.5	68.2	--	--	--	100.0	27.2	A.D.B.
	33.1	--	68.5	--	--	--	100.0	27.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.034					

CLIENT: WARNOCK HERSEY

PROJECT: DILATATION TESTS \*

SAMPLE : -8 Mesh, -1.50 Composite

DATE: May 9, 1977

CSEMT LAB. NO.	W.H. I.D. No.	INITIAL TEMP (°C)	SOFTENING TEMP (°C)	MAX. DILAT'N TEMP (°C)	MAX. CONTRACT'N %	MAX. DILATATION %	G.No.
9001	77-4021 A	320	403	483	21	10	0.969
9002	77-4021 B	320	399	475	26	74	1.044
9003	77-4021 C	320	403	482	29	26	0.995
9004	77-4022	320	406	---	22 @ 496°C	---	---
9005	77-4023	320	399	478	22	39	1.026
9006	77-4024	320	410	---	21 @ 475°C	---	---
<del>9007</del>	<del>77-4025</del>	<del>320</del>	<del>410</del>		<del>21 @ 475°C</del>	<del>---</del>	<del>---</del>
9008	77-4026	320	374	460	25	112	1.070
9009	77-4027	320	368	459	25	217	1.096
9010	77-4028	320	374	453	29	112	1.060
9011	77-4029	320	381	463	25	39	1.022
9012	77-4030	320	388	471	30	-18	0.721
9013	77-4031	320	374	459	24	241	1.091
9014	77-4032	320	378	468	21	68	1.060
9015	77-4033	320	391	475	23	38	1.024
9016	77-4034	320	381	460	26	154	1.072
9017	77-4035	320	381	468	24	52	1.039
9018	77-4036	320	391	474	24	41	1.026
9019	77-4037	320	385	471	22	40	1.030
9020	77-4038	320	388	469	23	21	0.996
<del>8998#1</del>	<del>77-4337</del>	<del>320</del>	<del>397</del>	<del>512</del>	<del>24</del>	<del>223</del>	<del>1.113</del>
<del>8998#2</del>	<del>77-4337</del>	<del>320</del>	<del>398</del>	<del>510</del>	<del>24</del>	<del>223</del>	<del>1.110</del>

\* Softening Temp., Maximum Dilatation/Contraction Temp.  
are corrected with factor = 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 14 Lab. No.: 77 - 4039 Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.4	24.8	17.5	57.3	0.59	94.8	Air Dried Basis
--	24.9	17.6	57.5	0.59	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.6	0.5	25.3	0.61	88.6	25.3	0.61	A.D.B.
	88.6	--	25.5	0.61	88.6	25.5	0.61	D.B.
65 x 0	11.4	0.4	18.0	0.64	100.0	24.5	0.61	A.D.B.
	11.4	--	18.0	0.64	100.0	24.6	0.61	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	54.4	0.6	4.8	21.1	73.5	0.88	54.4	4.8	A.D.B.
	54.4	--	4.8	21.2	74.0	0.88	54.4	4.8	D.B.
1.40-1.50	10.4	0.6	18.6	18.6	62.2	0.74	64.8	7.0	A.D.B.
	10.4	--	18.7	18.7	62.6	0.74	64.8	7.0	D.B.
1.50-1.60	5.4	0.7	26.1	--	--	--	70.2	8.5	A.D.B.
	5.4	--	26.3	--	--	--	70.2	8.5	D.B.
+1.60	29.8	0.6	64.3	--	--	--	100.0	25.1	A.D.B.
	29.8	--	64.6	--	--	--	100.0	25.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
		9	0.016			

I Lab No. 77-4039 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 11 - 14

Starting Temperature °C: 350°C

Softening Temperature °C: 407°C

Max. Dilatation Temp. °C: 481°C

Contraction %: 22%

Dilatation %: 5%

Final Temperature °C: \_\_\_\_\_

G. Factor: .949

%  
300

250

200

150

100

50

0

WARNOCK HURSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 15      Lab. No.: 77 - 4040      Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.5	28.8	17.0	53.7	0.55	76.1	Air Dried Basis
---	28.9	17.1	54.0	0.55	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.7	0.4	29.4	0.53	91.7	29.4	0.53	A.D.B.
	91.7	--	29.5	0.53	91.7	29.5	0.53	D.B.
65 x 0	8.3	0.4	18.4	0.63	100.0	28.5	0.54	A.D.B.
	8.3	--	18.5	0.63	100.0	28.6	0.54	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	44.2	0.5	5.9	19.4	74.2	0.73	44.2	5.9	A.D.B.
	44.2	--	5.9	19.5	74.6	0.73	44.2	5.9	D.B.
1.40-1.50	9.6	0.4	16.9	18.1	64.6	0.77	53.8	7.9	A.D.B.
	9.6	--	17.0	18.1	64.9	0.77	53.8	7.9	D.B.
1.50-1.60	6.6	0.5	23.8	--	--	--	60.4	9.6	A.D.B.
	6.6	--	23.9	--	--	--	60.4	9.6	D.B.
+1.60	39.6	0.5	61.1	--	--	--	100.0	30.0	A.D.B.
	39.6	--	61.4	--	--	--	100.0	30.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G. No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
5½	0.011					

Lab. No. 77 - 4040 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 11 - 15

Starting Temperature °C: 350°C

Softening Temperature °C: 416°C

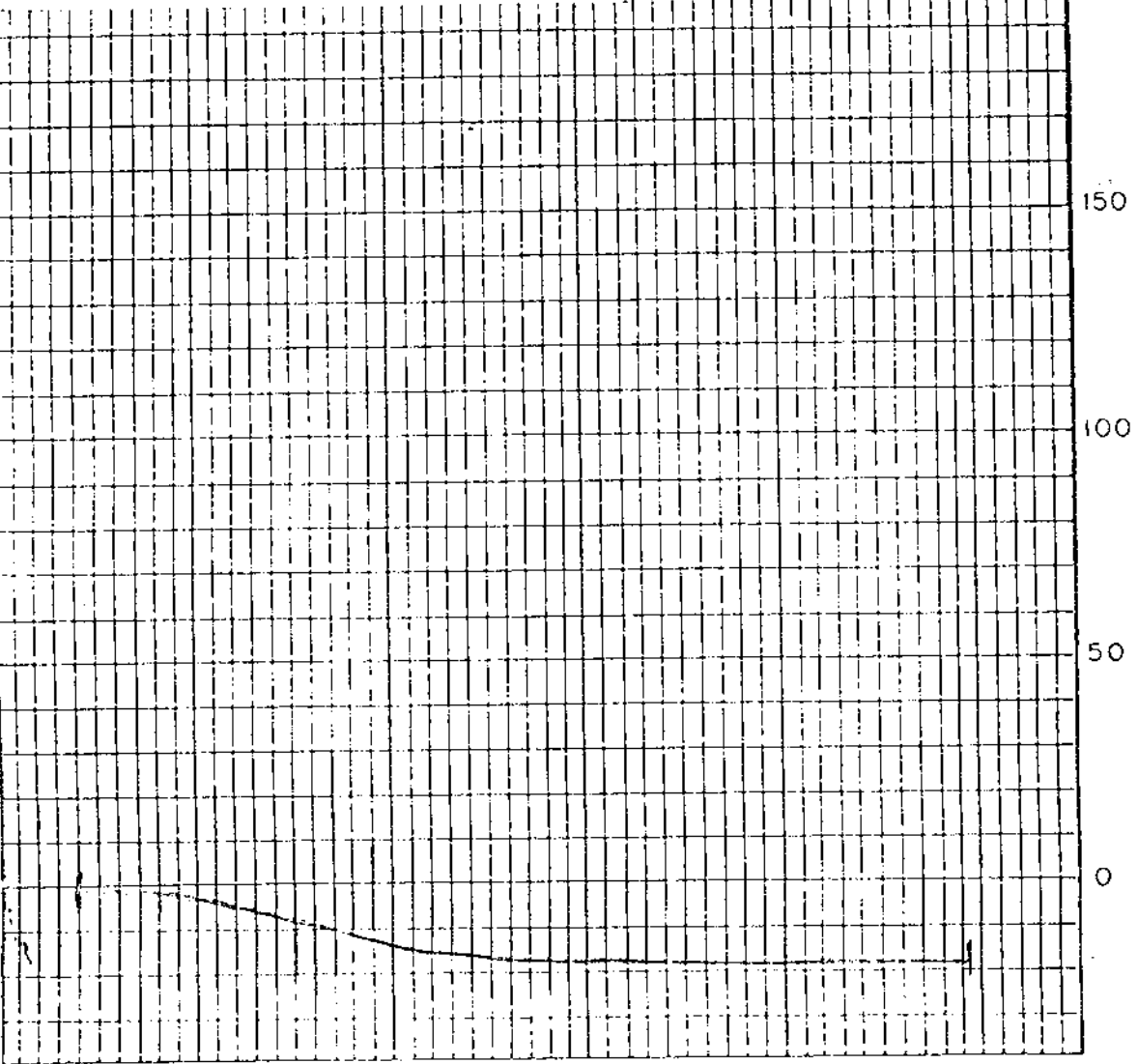
Max. Dilatation Temp. °C: ---

Contraction %: 18%

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 16 Lab. No.: 77 - 4041 Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	23.0	17.9	58.5	0.40	87.2	Air Dried Basis
--	23.2	18.0	58.8	0.40	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
1/2 x 65	88.4	0.5	23.8	0.42	88.4	23.8	0.42	A.D.B.
	88.4	--	24.0	0.42	88.4	24.0	0.42	D.B.
65 x 0	11.6	0.5	15.9	0.42	100.0	22.9	0.42	A.D.B.
	11.6	--	16.0	0.42	100.0	23.1	0.42	D.B.

SINK - FLOAT ANALYSIS: 1/2" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	50.3	0.6	5.1	20.5	73.8	0.56	50.3	5.1	A.D.B.
	50.3	--	5.1	20.6	74.3	0.56	50.3	5.1	D.B.
1.40-1.50	15.6	0.6	15.5	18.4	65.5	0.57	65.9	7.6	A.D.B.
	15.6	--	15.6	18.5	65.9	0.57	65.9	7.6	D.B.
1.50-1.60	7.3	0.6	22.7	--	--	--	73.2	9.1	A.D.B.
	7.3	--	22.8	--	--	--	73.2	9.1	D.B.
+1.60	26.8	0.6	66.1	--	--	--	100.0	24.4	A.D.B.
	26.8	--	66.5	--	--	--	100.0	24.5	D.B.

COMPOSITE 1/2" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
3%	0.016					

Lab. No 77 - 4041 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 11 - 16

Starting Temperature °C: 350°C

Softening Temperature °C: 420°C

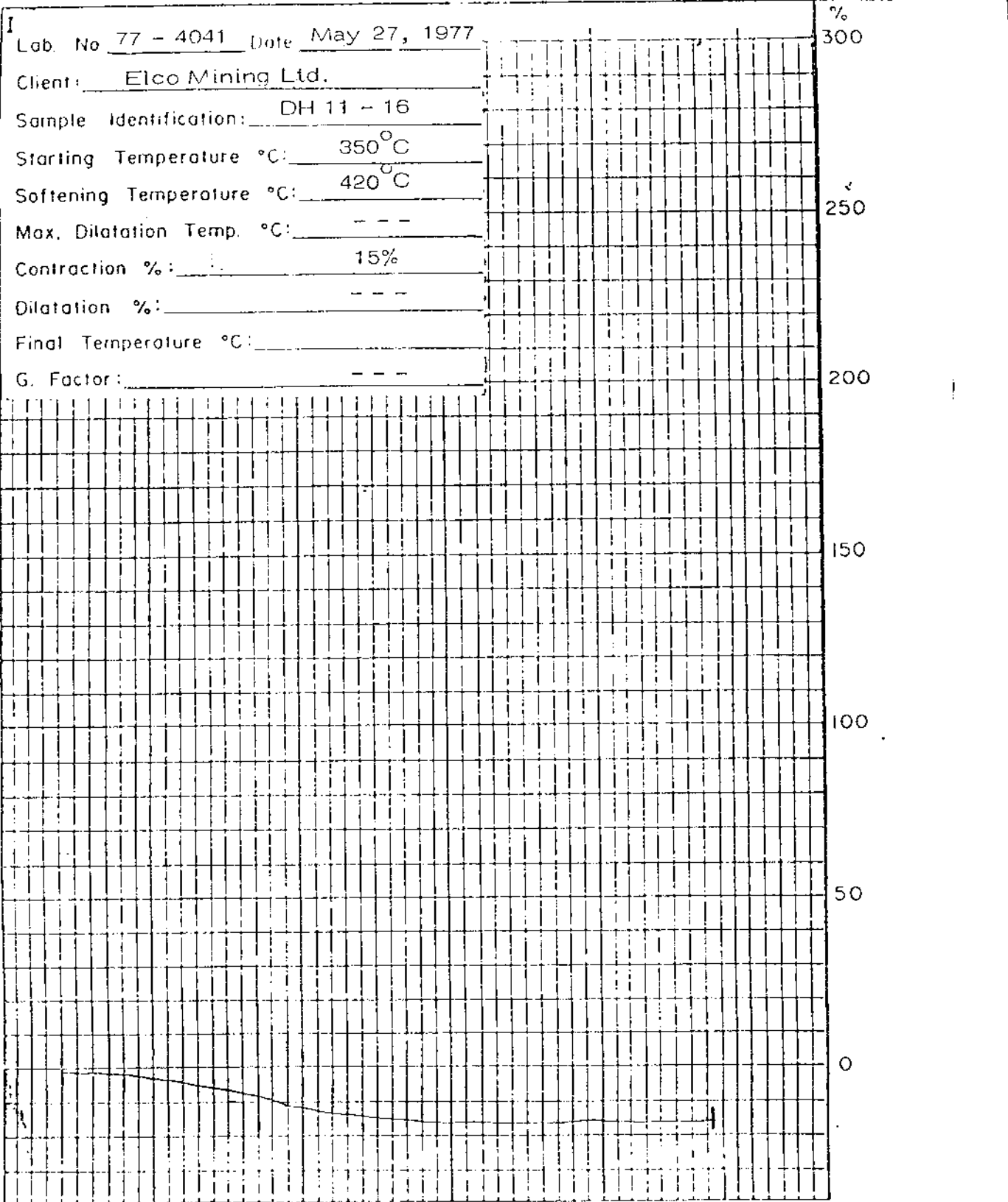
Max. Dilatation Temp. °C: ---

Contraction %: 15%

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 17 Lab. No.: 77 - 4042 Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	27.2	17.4	54.8	0.39	85.8	Air Dried Basis
--	27.4	17.5	55.1	0.39	--	Dry Basis

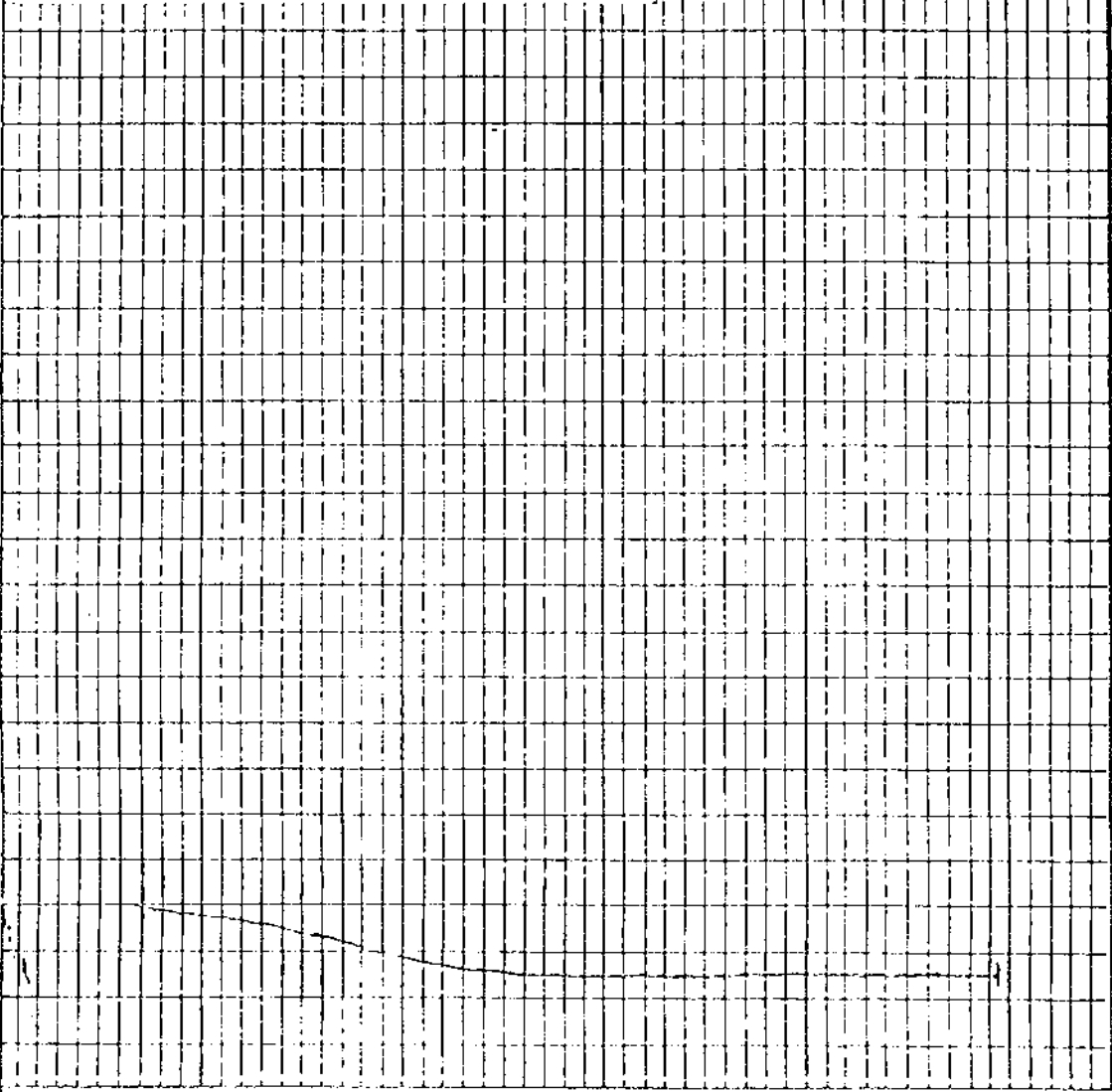
SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	86.0	0.6	28.0	0.44	86.0	28.0	0.44	A.D.B.
	86.0	--	28.1	0.44	86.0	28.1	0.44	D.B.
65 x 0	14.0	0.5	18.3	0.44	100.0	26.6	0.44	A.D.B.
	14.0	--	18.4	0.44	100.0	26.7	0.44	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	61.6	0.6	5.6	19.7	74.1	0.49	61.6	5.6	A.D.B.
	61.6	--	5.6	19.8	74.6	0.49	61.6	5.6	D.B.
1.40-1.50	5.1	0.6	17.7	17.4	64.3	0.51	66.7	6.5	A.D.B.
	5.1	--	17.8	17.5	64.7	0.51	66.7	6.5	D.B.
1.50-1.60	4.5	0.7	23.7	--	--	--	71.2	7.6	A.D.B.
	4.5	--	23.9	--	--	--	71.2	7.6	D.B.
+1.60	28.8	0.7	78.1	--	--	--	100.0	27.9	A.D.B.
	28.8	--	78.6	--	--	--	100.0	28.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
6	0.043					

Lab. No. 77 - 4042 Date May 27, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 11 - 17  
 Starting Temperature °C: 348<sup>o</sup>C  
 Softening Temperature °C: 426<sup>o</sup>C  
 Max. Dilatation Temp. °C: ---  
 Contraction %: 14%  
 Dilatation %: ---  
 Final Temperature °C: ---  
 G. Factor: ---

%  
 300  
 250  
 200  
 150  
 100  
 50  
 0



WARNOCK HERSEY PROFESSIONAL SERVICES.

Title <p style="text-align: center;">RUHR DILATOMETER TEST</p>	Date
	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 11 - 18      Lab. No.: 77 - 4043      Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.4	17.5	18.0	64.1	0.59	120.4	Air Dried Basis
--	17.5	18.1	64.4	0.59	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
1/2 x 65	83.5	0.5	18.4	0.57	83.5	18.4	0.57	A.D.B.
	83.5	--	18.5	0.57	83.5	18.5	0.57	D.B.
65 x 0	16.5	0.4	9.1	0.64	100.0	16.9	0.58	A.D.B.
	16.5	--	9.1	0.64	100.0	17.0	0.58	D.B.

SINK - FLOAT ANALYSIS: 1/2" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	61.7	1.2	6.1	19.7	73.0	0.71	61.7	6.1	A.D.B.
	61.8	--	6.2	19.9	73.9	0.72	61.8	6.2	D.B.
1.40-1.50	16.1	0.9	16.2	17.6	65.3	0.65	77.8	8.2	A.D.B.
	16.0	--	16.3	17.8	65.9	0.66	77.8	8.3	D.B.
1.50-1.60	8.3	0.8	26.1	--	--	--	86.1	9.9	A.D.B.
	8.3	--	26.3	--	--	--	86.1	10.0	D.B.
+1.60	13.9	0.7	66.3	--	--	--	100.0	17.8	A.D.B.
	13.9	--	66.8	--	--	--	100.0	17.9	D.B.

COMPOSITE 1/2" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
3	0.035					

Lab. No 77 - 4043 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 11 - 18

Starting Temperature °C: 349°C

Softening Temperature °C: 427°C

Max. Dilatation Temp. °C: ---

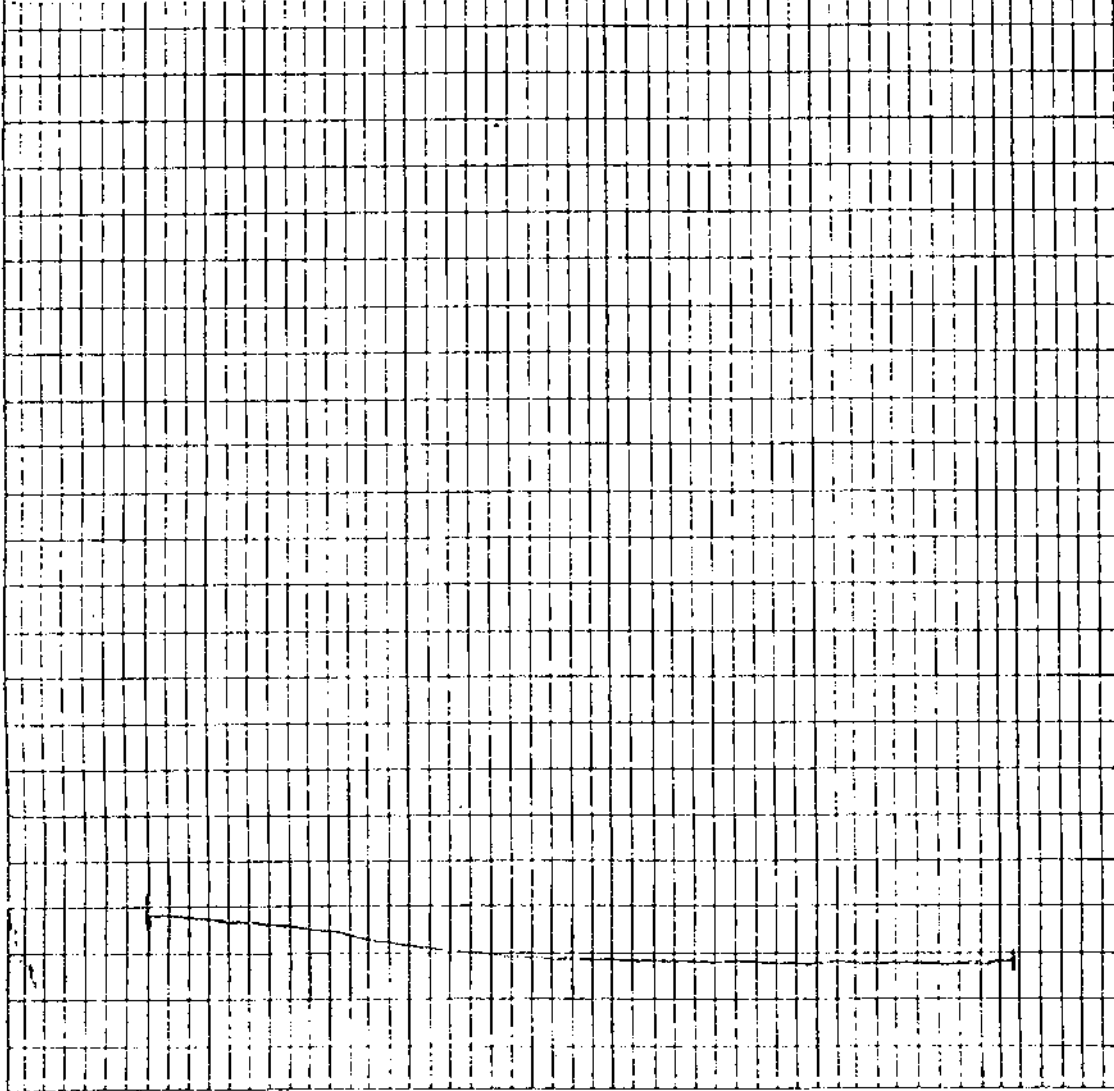
Contraction %: 10%

Dilatation %: ---

Final Temperature °C: ---

G. Factor: ---

%  
300  
250  
200  
150  
100  
50  
0



WARNOCK HURSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-1

Lab. No. 8821

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	33.0	19.8	46.3	0.81	78	Air Dried Basis
	33.3	20.0	46.7	0.82	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			I
					WT. %	ASH %	S. %	
1/4" x 65M	95.2	0.8	34.1	0.77	95.2	34.1	0.77	A.D.B.
	95.2		34.4	0.78	95.2	34.4	0.78	D.B.
65M x 0	4.8	0.8	9.5	0.92	100.0	32.9	0.78	A.D.B.
	4.8		9.6	0.93	100.0	33.2	0.79	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	56.7	0.7	2.5	26.7	70.1	1.00	56.7	2.5	A.D.B.
	56.8		2.5	26.9	70.6	1.01	56.8	2.5	D.B.
1.40-1.50	3.4	0.7	16.4	21.0	61.9	0.72	60.1	3.3	A.D.B.
	3.4		16.5	21.1	62.4	0.73	60.2	3.3	D.B.
1.50-1.60	1.1	0.9	24.7				61.2	3.7	A.D.B.
	1.0		24.9				61.2	3.6	D.B.
+1.60	38.8	0.9	82.1				100.0	34.1	A.D.B.
	38.8		82.8				100.0	34.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.03	360	456	23	171	1.099

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8821 Date April 15, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-12-1

Starting Temperature °C: 320

Softening Temperature °C: 360

Max. Dilatation Temp. °C: 456

250

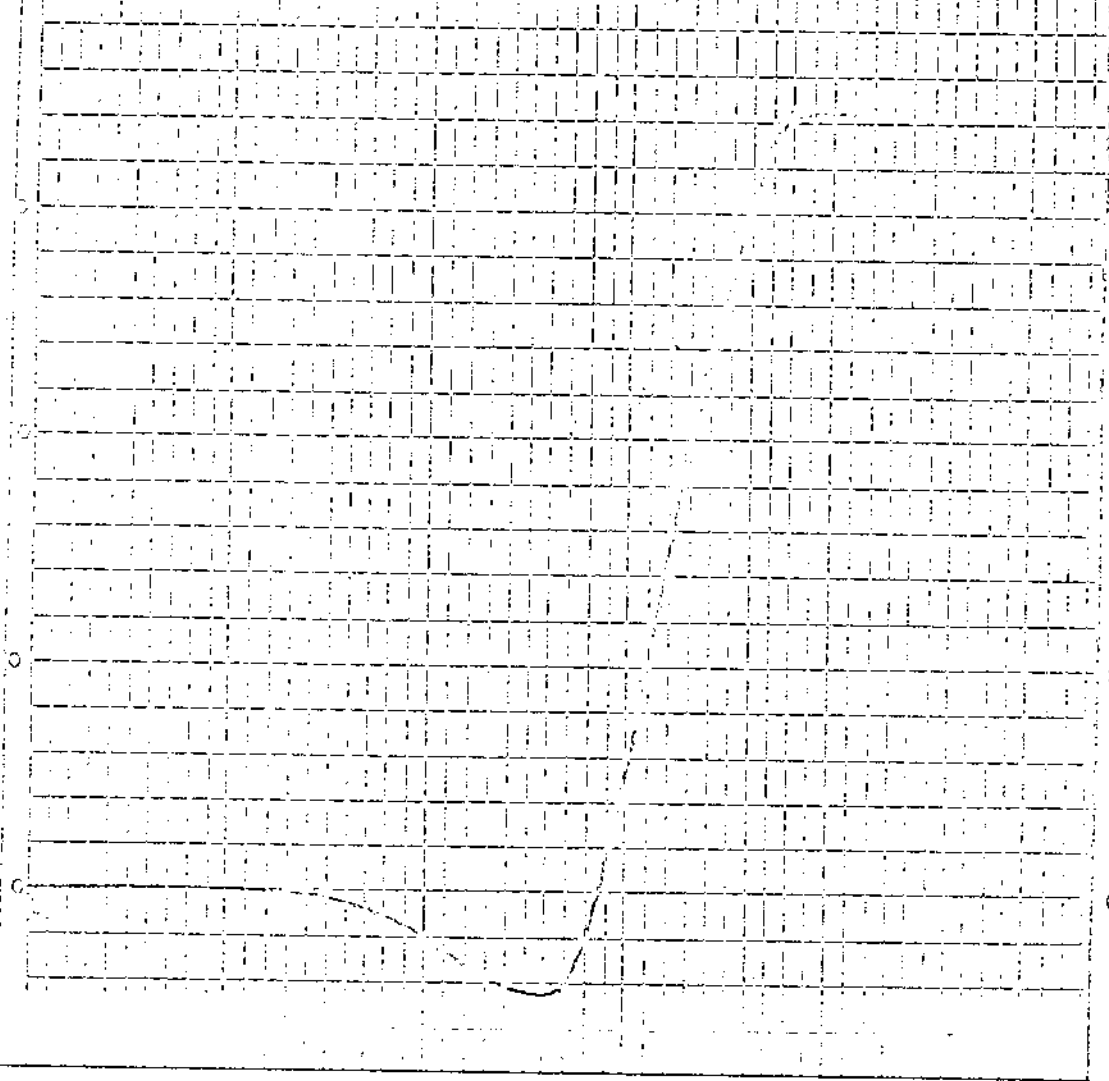
Contraction %: 23

Dilatation %: 171

Final Temperature °C:

G. Factor: 1.099

200



DARTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-2

Lab. No. 8822

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	7.8	23.6	67.8	0.59	98	Air Dried Basis
	7.9	23.8	68.3	0.59	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			!
					WT. %	ASH %	S. %	
1/4" x 65M	88.6	0.8	8.5	0.63	88.6	8.5	0.63	A.D.B.
	88.6		8.6	0.64	88.6	8.6	0.64	D.B.
65M x 0	11.4	0.9	6.2	0.65	100.0	8.2	0.63	A.D.B.
	11.4		6.3	0.66	100.0	8.3	0.64	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	85.5	0.8	4.6	25.3	69.3	0.73	85.5	4.6	A.D.B.
	85.5		4.6	25.5	69.9	0.74	85.5	4.6	D.B.
1.40-1.50	5.2	0.9	14.8	22.4	61.9	0.74	90.7	5.2	A.D.B.
	5.2		14.9	22.6	62.5	0.75	90.7	5.2	D.B.
1.50-1.60	2.3	0.9	23.0				93.0	5.6	A.D.B.
	2.3		23.2				93.0	5.6	D.B.
+1.60	7.0	1.0	52.7				100.0	8.9	A.D.B.
	7.0		53.2				100.0	9.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.*(°C)	MAX. DIL. TEMP. (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.04	378	453	23	62	1.043

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8822 Date April 15, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: SW-12-2

Starting Temperature °C: 320

Softening Temperature °C: 378

Max. Dilatation Temp. °C: 453

250

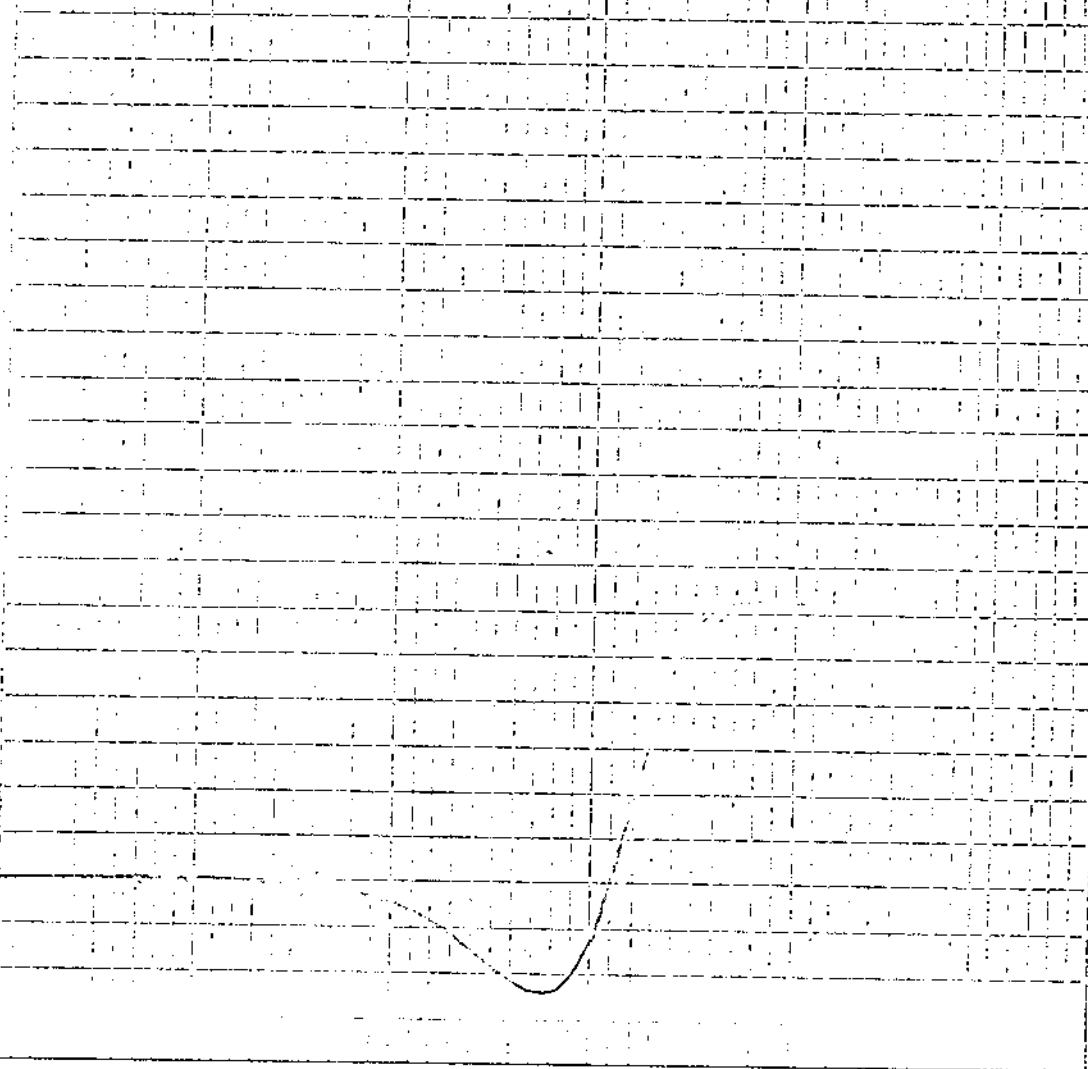
Contraction %: 23

Dilatation %: 62

Final Temperature °C:

G. Factor: 1.043

200



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-3

Lab. No. 8823

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	27.7	21.7	49.7	0.80	84	Air Dried Basis
	28.0	21.9	50.1	0.81	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.6	0.8	28.1	0.80	94.6	28.1	0.80	A.D.B.
	94.6		28.3	0.81	94.6	28.3	0.81	D.B.
65M x 0	5.4	0.8	19.5	0.79	100.0	27.6	0.80	A.D.B.
	5.4		19.7	0.80	100.0	27.8	0.81	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	58.9	0.8	5.1	26.5	67.6	0.92	58.9	5.1	A.D.B.
	58.9		5.1	26.7	68.2	0.93	58.9	5.1	D.B.
1.40-1.50	4.4	0.7	21.0	22.7	55.6	0.86	63.3	6.2	A.D.B.
	4.4		21.1	22.9	56.0	0.87	63.3	6.2	D.B.
1.50-1.60	3.3	1.2	31.7				66.6	7.5	A.D.B.
	3.3		32.1				66.6	7.5	D.B.
+1.60	33.4	0.8	69.3				100.0	28.1	A.D.B.
	33.4		69.9				100.0	28.3	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8 1/2	0.10	374	457	20	240	1.092	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8823 Date April 15, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DII-12-3

Starting Temperature °C: 320

Softening Temperature °C: 374

Max. Dilatation Temp. °C: 457

Contraction %: 20

Dilatation %: 240

Final Temperature °C:

G. Factor: 1.092

250

200

150

100

50

0

0

50

0

0



BARTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-4      Lab. No. 8824      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	58.9	12.9	27.2	0.51	67	Air Dried Basis
	59.5	13.0	27.5	0.52	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.1	1.0	60.4	0.49	94.1	60.4	0.49	A.D.B.
	94.1		61.0	0.49	94.1	61.0	0.49	D.B.
65M x 0	5.9	1.0	33.3	0.73	100.0	58.8	0.50	A.D.B.
	5.9		33.6	0.74	100.0	59.4	0.50	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	27.7	1.0	5.2	25.8	68.0	0.89	27.7	5.2	A.D.B.
	27.7		5.3	26.1	68.6	0.90	27.7	5.3	D.B.
1.40-1.50	2.2	0.7	20.3	21.8	57.2	0.75	29.9	6.3	A.D.B.
	2.2		20.4	22.0	57.6	0.76	29.9	6.4	D.B.
1.50-1.60	1.8	0.6	34.3				31.7	7.9	A.D.B.
	1.8		34.5				31.7	8.0	D.B.
+1.60	68.3	0.7	82.5				100.0	58.9	A.D.B.
	68.3		83.1				100.0	59.3	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
9	0.05	370	454	23	218	1.090

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8824 Date April 15, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-12-4

Starting Temperature °C: 320

Softening Temperature °C: 370

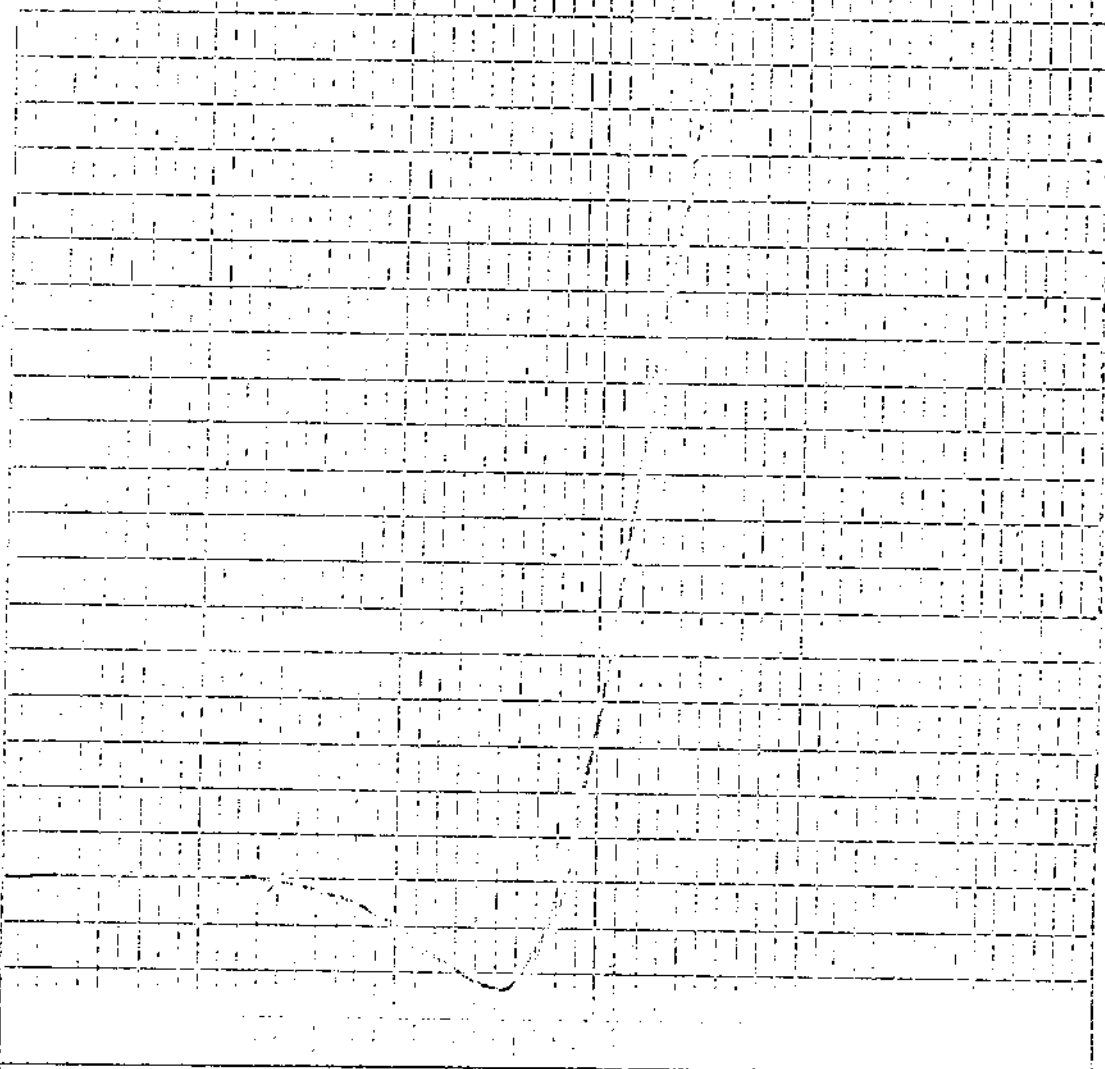
Max. Dilatation Temp. °C: 454

Contraction %: 23

Dilatation %: 218

Final Temperature °C:

G. Factor: 1.090



DIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-5      Lab. No. 8825      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	36.4	18.1	44.7	0.59	81	Air Dried Basis
	36.7	18.2	45.1	0.59	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			i
					WT. %	ASH %	S. %	
1/4" x 65M	95.0	0.8	37.8	0.61	95.0	37.8	0.61	A.D.B.
	95.0		38.1	0.61	95.0	38.1	0.61	D.B.
65M x 0	5.0	0.9	26.7	0.69	100.0	37.2	0.61	A.D.B.
	5.0		26.9	0.70	100.0	37.5	0.61	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	41.1	0.8	9.8	22.5	66.9	0.85	41.1	9.8	A.D.B.
	41.2		9.9	22.7	67.4	0.86	41.2	9.9	D.B.
1.40-1.50	6.9	1.1	20.5	20.5	57.9	0.74	48.0	11.3	A.D.B.
	6.9		20.7	20.7	58.6	0.75	48.1	11.4	D.B.
1.50-1.60	6.7	1.0	30.0				54.7	13.6	A.D.B.
	6.7		30.3				54.8	13.8	D.B.
+1.60	45.3	1.1	67.0				100.0	37.8	A.D.B.
	45.2		67.7				100.0	38.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. †(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8 1/2	0.10	380	458	26	127	1.065	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. S825 Date April 15, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-12-5

Starting Temperature °C: 320

Softening Temperature °C: 380

Max. Dilatation Temp. °C: 458

250

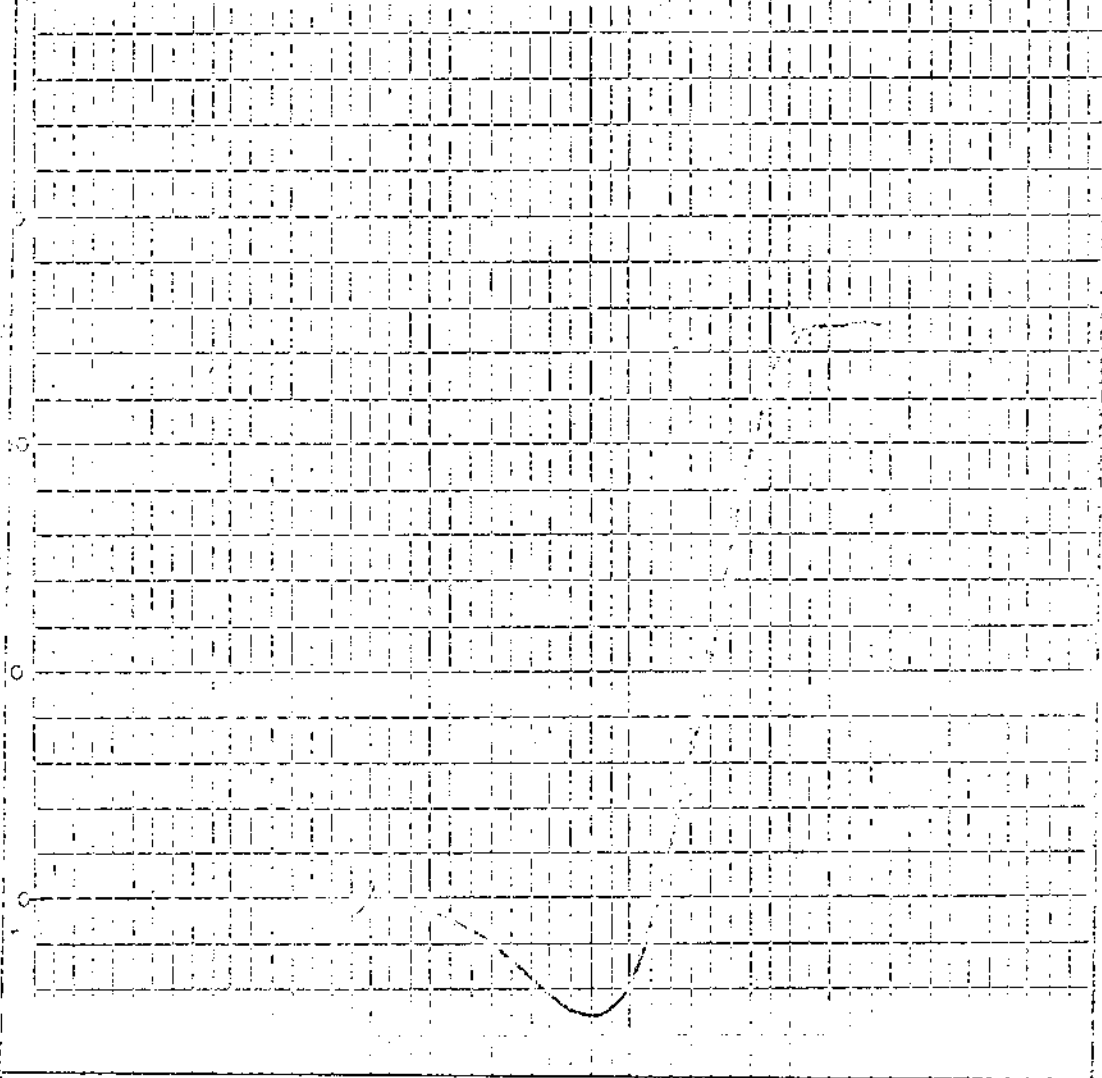
Contraction %: 26

Dilatation %: 127

Final Temperature °C:

G. Factor: 1.065

200



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-6 Lab. No. 8826 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	9.1	21.9	68.0	0.81	95	Air Dried Basis
	9.2	22.1	68.7	0.82	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	95.7	1.1	8.5	0.81	95.7	8.5	0.81	A.D.B.
	95.7		8.6	0.82	95.7	8.6	0.82	D.B.
65M x 0	4.3	0.9	11.5	0.85	100.0	8.6	0.81	A.D.B.
	4.3		11.6	0.86	100.0	8.7	0.82	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	81.6	1.0	4.7	23.3	71.0	0.92	81.6	4.7	A.D.B.
	81.7		4.7	23.5	71.8	0.93	81.7	4.7	D.B.
1.40-1.50	9.4	1.2	14.2	20.9	63.7	0.87	91.0	5.7	A.D.B.
	9.3		14.4	21.2	64.4	0.88	91.0	5.7	D.B.
1.50-1.60	3.2	1.6	20.3	<del>          </del>	<del>          </del>	<del>          </del>	94.2	6.2	A.D.B.
	3.2		20.6	<del>          </del>	<del>          </del>	<del>          </del>	94.2	6.2	D.B.
+1.60	5.8	1.3	46.6	<del>          </del>	<del>          </del>	<del>          </del>	100.0	8.5	A.D.B.
	5.8		47.2	<del>          </del>	<del>          </del>	<del>          </del>	100.0	8.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8 1/2	0.04	385	460	11	118	1.079	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8826 Date April 15, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-12-6

Starting Temperature °C: 320

Softening Temperature °C: 385

Max. Dilatation Temp. °C: 460

250

Contraction %: 11

Dilatation %: 118

Final Temperature °C:

G. Factor: 1.079

200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

PILE NO.: DH-12-7 Lab. No. 8827 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	13.3	21.6	64.1	0.83	139	Air Dried Basis
	13.4	21.8	64.8	0.84	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.H. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.2	1.0	13.1	0.83	89.2	13.1	0.83	A.D.B.
	89.2		13.2	0.84	89.2	13.2	0.84	D.B.
65M x 0	10.8	1.0	16.1	0.82	100.0	13.4	0.83	A.D.B.
	10.2		16.3	0.83	100.0	13.4	0.83	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	76.8	1.0	5.1	23.7	70.2	0.87	76.8	5.1	A.D.B.
	76.8		5.2	23.9	70.9	0.88	76.8	5.2	D.B.
1.40-1.50	5.2	0.9	12.7	21.8	64.6	0.81	82.0	5.6	A.D.B.
	5.2		12.8	22.0	65.2	0.82	82.0	5.7	D.B.
1.50-1.60	2.7	1.0	20.5				84.7	6.1	A.D.B.
	2.7		20.7				84.7	6.2	D.B.
+1.60	15.3	1.0	51.9				100.0	13.1	A.D.B.
	15.3		52.4				100.0	13.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	PK ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.02	381	460	32	13	0.962

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 9827 Date April 15, 1977

%  
300

Client: ELCO MINING LTD.

Sample identification: DH-12-7

Starting Temperature °C: 320

Softening Temperature °C: 381

Max. Dilatation Temp. °C: 460

250

Contraction %: 32

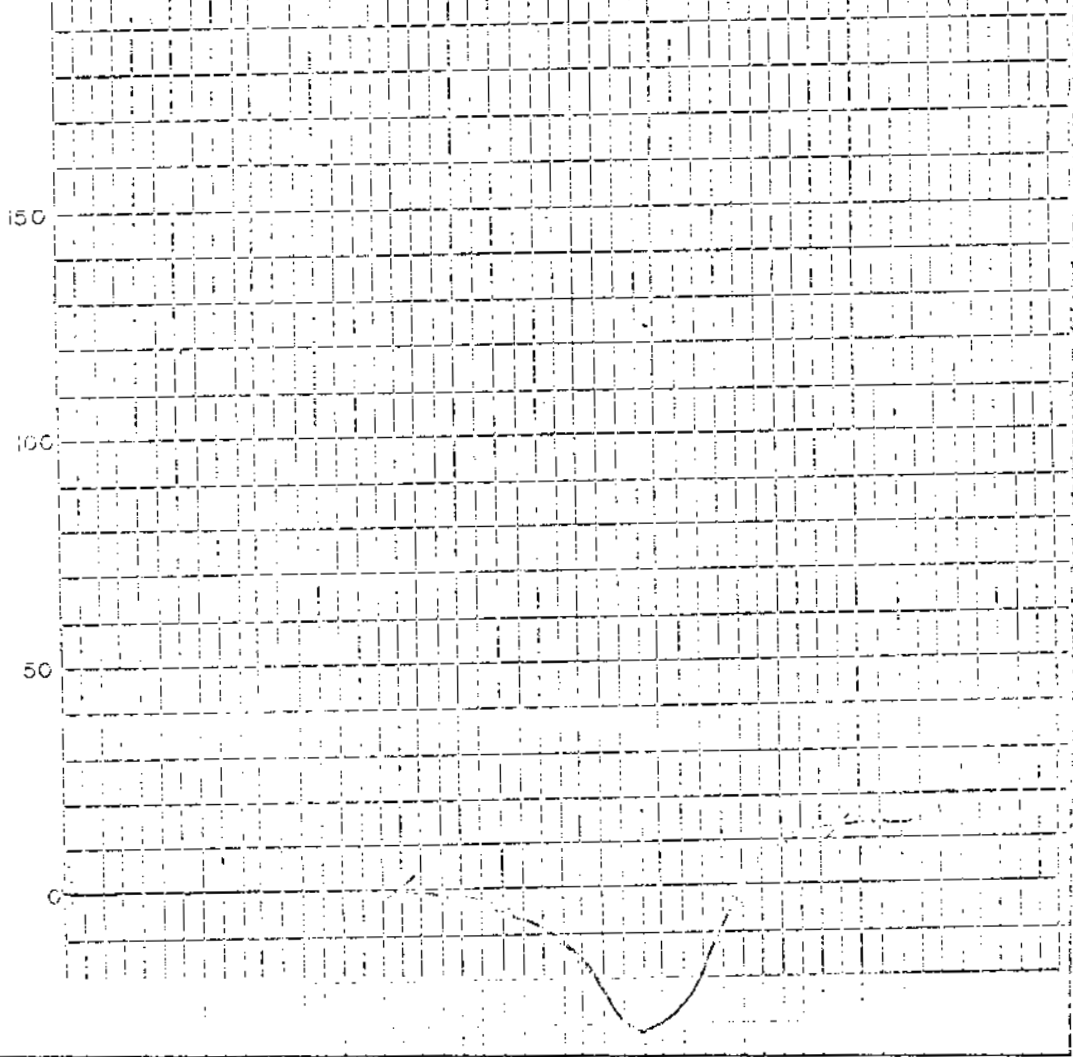
Dilatation %: 13

Final Temperature °C: 0.962

200

G. Factor:

200



BIRTLEY ENGINEERING (CANADA) LTD.

Title

Date

RUHR DILATOMETER TEST

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-8 Lab. No. 8828 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	18.3	23.4	57.4	1.31	106	Air Dried Basis
	18.5	23.6	57.9	1.32	---	Dry Basis

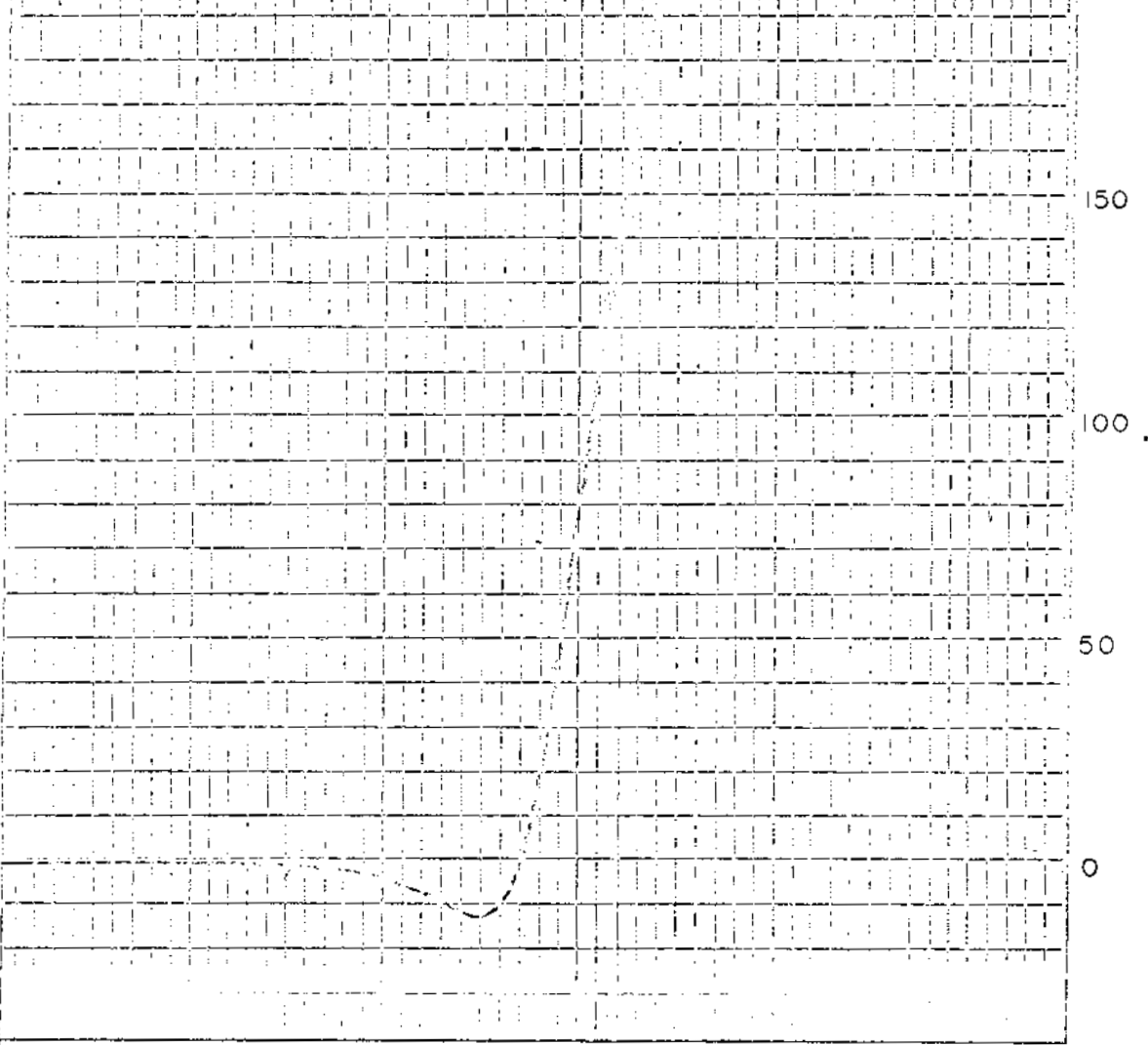
SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			i
					WT. %	ASH %	S. %	
1/4" x 65M	85.9	0.9	19.5	1.30	85.9	19.5	1.30	A.D.B.
	85.9		19.7	1.31	85.9	19.7	1.31	D.B.
65M x 0	14.1	0.9	10.7	1.35	100.0	18.3	1.31	A.D.B.
	14.1		10.8	1.36	100.0	18.4	1.32	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	70.2	0.9	4.6	25.2	69.3	1.46	70.2	4.6	A.D.B.
	70.2		4.6	25.4	70.0	1.47	70.2	4.6	D.B.
1.40-1.50	6.0	0.8	12.6	23.3	63.3	1.49	76.2	5.2	A.D.B.
	6.1		12.7	23.5	63.8	1.50	76.3	5.2	D.B.
1.50-1.60	2.9	1.0	20.8	X	X	X	79.1	5.8	A.D.B.
	2.9		21.0				79.2	5.8	D.B.
+1.60	20.9	1.0	71.3	X	X	X	100.0	19.5	A.D.B.
	20.8		72.0				100.0	19.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.04	376	454	12	226	1.092

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8828 Date April 18, 1977 %  
 Client: ELCO MINING LTD. 300  
 Sample Identification: DH-12-8  
 Starting Temperature °C: 320  
 Softening Temperature °C: 376 250  
 Max. Dilatation Temp. °C: 454  
 Contraction %: 12  
 Dilatation %: 226  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.092 200



**BENTLEY ENGINEERING (CANADA) LTD.**

Title <p style="text-align: center; margin-top: 20px;">RUHR DILATOMETER TEST</p>	Date  <hr/> Drawn 
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**ELCO MINING LTD.**  
**CORE SAMPLE ANALYSIS**

HOLE NO.: DH-12-9 Lab. No. 8829 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.3	24.3	19.3	55.1	0.69	100	Air Dried Basis
	24.6	19.6	55.8	0.70	---	Dry Basis

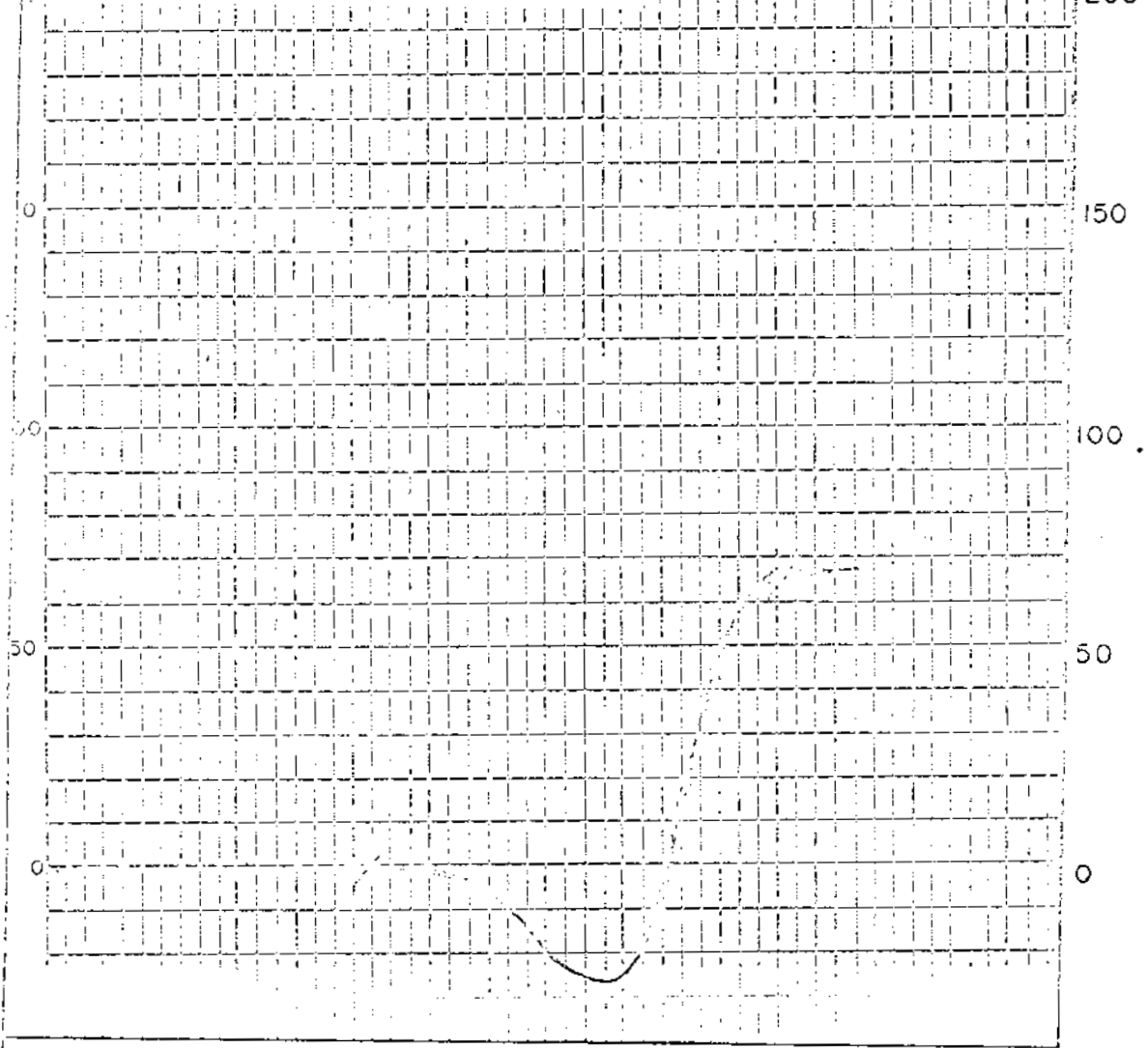
SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.7	1.0	25.2	0.71	91.7	25.2	0.71	A.D.B.
	91.7		25.5	0.72	91.7	25.5	0.72	D.B.
65M x 0	8.3	1.4	16.3	0.81	100.0	24.5	0.72	A.D.B.
	8.3		16.5	0.82	100.0	24.8	0.73	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	66.5	1.0	4.0	23.7	71.3	0.88	66.5	4.0	A.D.B.
	66.5		4.0	23.9	72.1	0.89	66.5	4.0	D.B.
1.40-1.50	4.6	0.9	15.6	20.5	63.0	0.78	71.1	4.8	A.D.B.
	4.6		15.7	20.7	63.6	0.79	71.1	4.8	D.B.
1.50-1.60	2.0	1.0	25.7	X	X	X	73.1	5.3	A.D.B.
	2.0		26.0				73.1	5.3	D.B.
+1.60	26.9	0.9	77.5	X	X	X	100.0	24.7	A.D.B.
	26.9		78.2				100.0	24.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.*(°C)	MAX. DIL. TEMP.*(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.07	381	459	28	67	1.040	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 3829 Date April 18, 1977 %  
 Client: ELCO MINING LTD. 300  
 Sample Identification: DH-12-9  
 Starting Temperature °C: 320  
 Softening Temperature °C: 381  
 Max. Dilatation Temp. °C: 459 250  
 Contraction %: 28  
 Dilatation %: 67  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.040 200



**DIXLEY ENGINEERING (CANADA) LTD.**

Title RUHR DILATOMETER TEST

Date \_\_\_\_\_  
 Drawn \_\_\_\_\_

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-10 Lab. No. 8830 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	18.6	19.5	61.1	0.69	94	Air Dried Basis
	18.8	19.7	61.5	0.70	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.4	0.8	19.9	0.68	92.4	19.9	0.68	A.D.B.
	92.4		20.1	0.69	92.4	20.1	0.69	D.B.
65M x 0	7.6	0.8	11.0	0.77	100.0	19.2	0.69	A.D.B.
	7.6		11.1	0.78	100.0	19.4	0.70	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	66.3	0.8	5.6	22.2	71.4	0.78	66.3	5.6	A.D.B.
	66.4		5.6	22.4	72.0	0.79	66.4	5.6	D.B.
1.40-1.50	8.0	0.9	19.6	18.7	60.8	0.64	74.3	7.1	A.D.B.
	8.0		19.8	18.9	61.3	0.65	74.4	7.1	D.B.
1.50-1.60	3.8	1.0	28.3				78.1	8.1	A.D.B.
	3.8		28.6				78.2	8.2	D.B.
+1.60	21.9	1.1	65.5				100.0	20.7	A.D.B.
	21.8		66.2				100.0	20.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.02	388	466	26	23	0.994

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8330 Date April 18, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-12-10

Starting Temperature °C: 320

Softening Temperature °C: 388

Max. Dilatation Temp. °C: 466

Contraction %: 26

Dilatation %: 23

Final Temperature °C: 0.994

G. Factor: 0.994

250

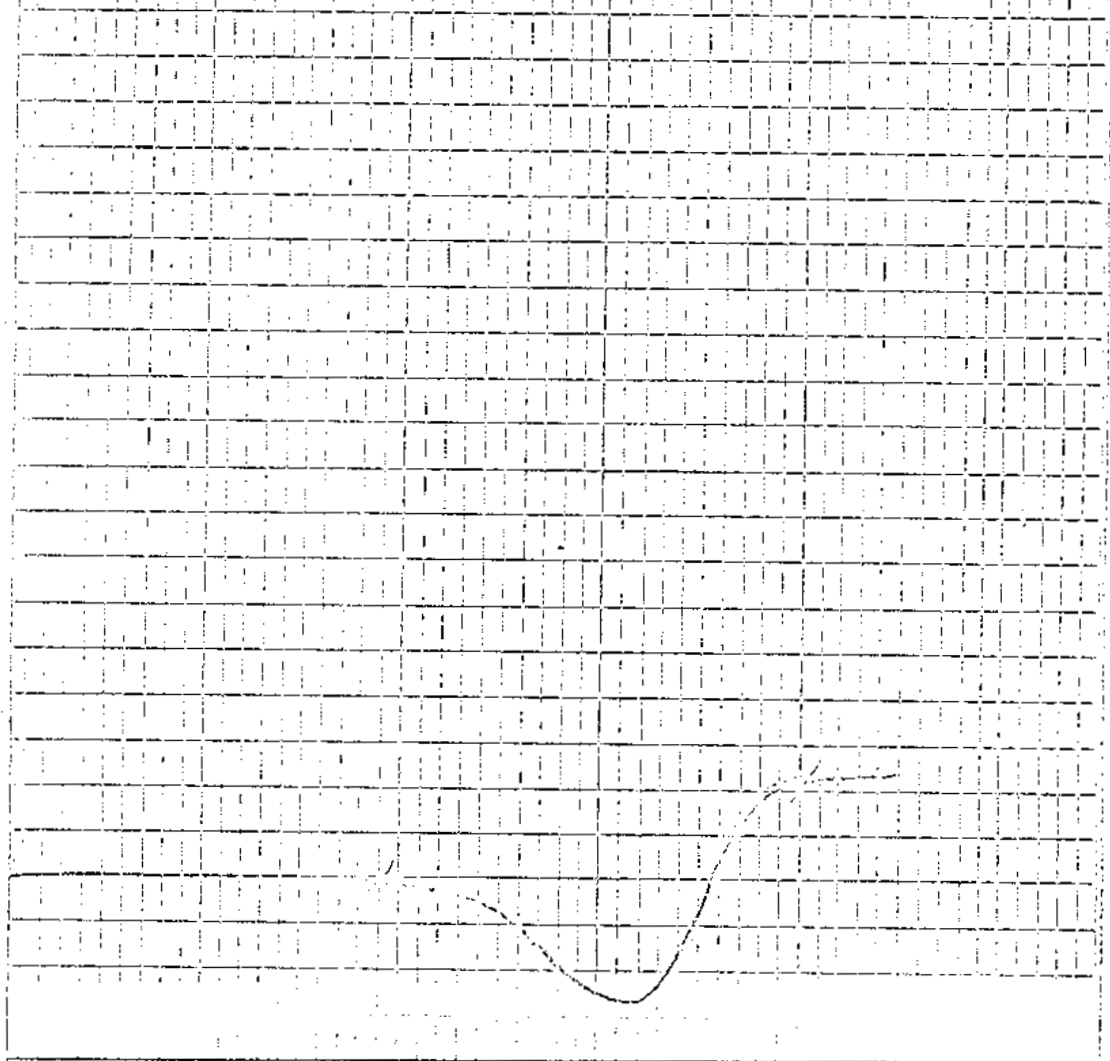
200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MIXING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-11

Lab. No. 8831

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	15.5	20.3	63.4	0.62	93	Air Dried Basis
	15.6	20.5	63.9	0.63	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	90.5	0.8	16.7	0.63	90.5	16.7	0.63	A.D.B.
	90.5		16.8	0.64	90.5	16.8	0.64	D.B.
65M x 0	9.5	0.8	11.8	0.64	100.0	16.2	0.63	A.D.B.
	9.5		11.9	0.65	100.0	16.3	0.64	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	70.6	0.8	4.6	23.0	71.6	0.70	70.6	4.6	A.D.B.
	70.7		4.6	23.2	72.2	0.71	70.7	4.6	D.B.
1.40-1.50	7.1	0.9	16.9	19.9	62.3	0.64	77.7	5.7	A.D.B.
	7.1		17.1	20.1	62.8	0.65	77.8	5.7	D.B.
1.50-1.60	4.4	1.0	25.1				82.1	6.8	A.D.B.
	4.4		25.4				82.2	6.8	D.B.
+1.60	17.9	1.5	62.3				100.0	16.7	A.D.B.
	17.8		63.2				100.0	16.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.10	386	466	20	32	1.022

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8831 Date April 18, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-12-11

Starting Temperature °C: 320

Softening Temperature °C: 386

Max. Dilatation Temp. °C: 466

Contraction %: 20

Dilatation %: 32

Final Temperature °C: 1.022

C. Factor:

250

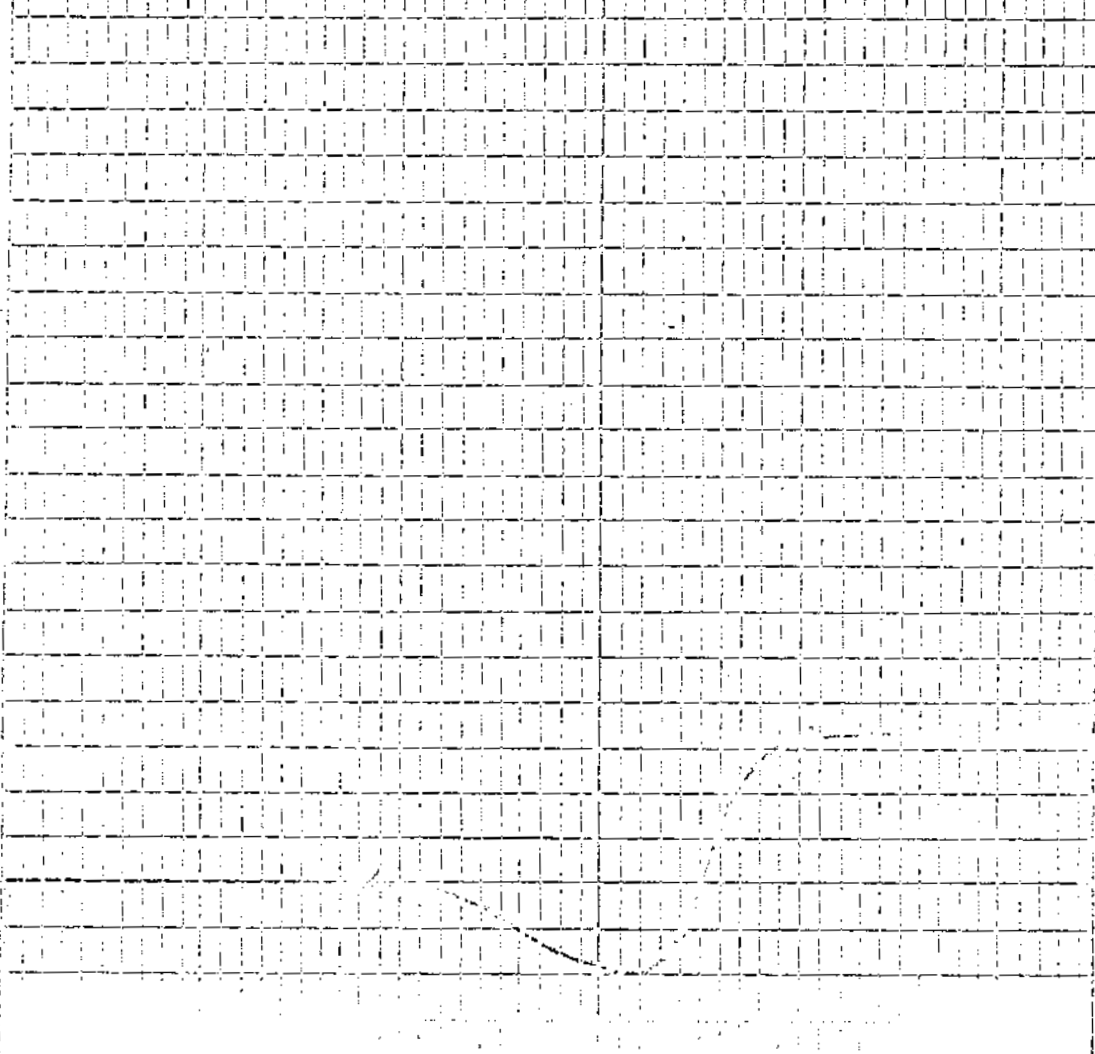
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-12      Lab. No. 8885      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.5	18.2	19.7	61.6	0.92	87	Air Dried Basis
	18.3	19.8	61.9	0.92	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.1	0.5	19.4	0.88	93.1	19.4	0.88	A.D.B.
	93.1		19.5	0.88	93.1	19.5	0.88	D.B.
65M x 0	6.9	0.5	11.6	0.96	100.0	18.9	0.89	A.D.B.
	6.9		11.7	0.96	100.0	19.0	0.89	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	62.2	0.5	4.8	22.1	72.6	0.97	62.2	4.8	A.D.B.
	62.2		4.8	22.2	73.0	0.97	62.2	4.8	D.B.
1.40-1.50	8.7	0.9	16.0	18.4	64.7	0.88	70.9	6.2	A.D.B.
	8.7		16.1	18.6	65.3	0.89	70.9	6.2	D.B.
1.50-1.60	5.1	0.8	25.3				76.0	7.5	A.D.B.
	5.1		25.5				76.0	7.5	D.B.
+1.60	24.0	0.6	59.5				100.0	19.9	A.D.B.
	24.0		59.9				100.0	20.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.11	380	457	22	46	1.034

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8535 Date April 26, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-12-12

Starting Temperature °C: 320

Softening Temperature °C: 380

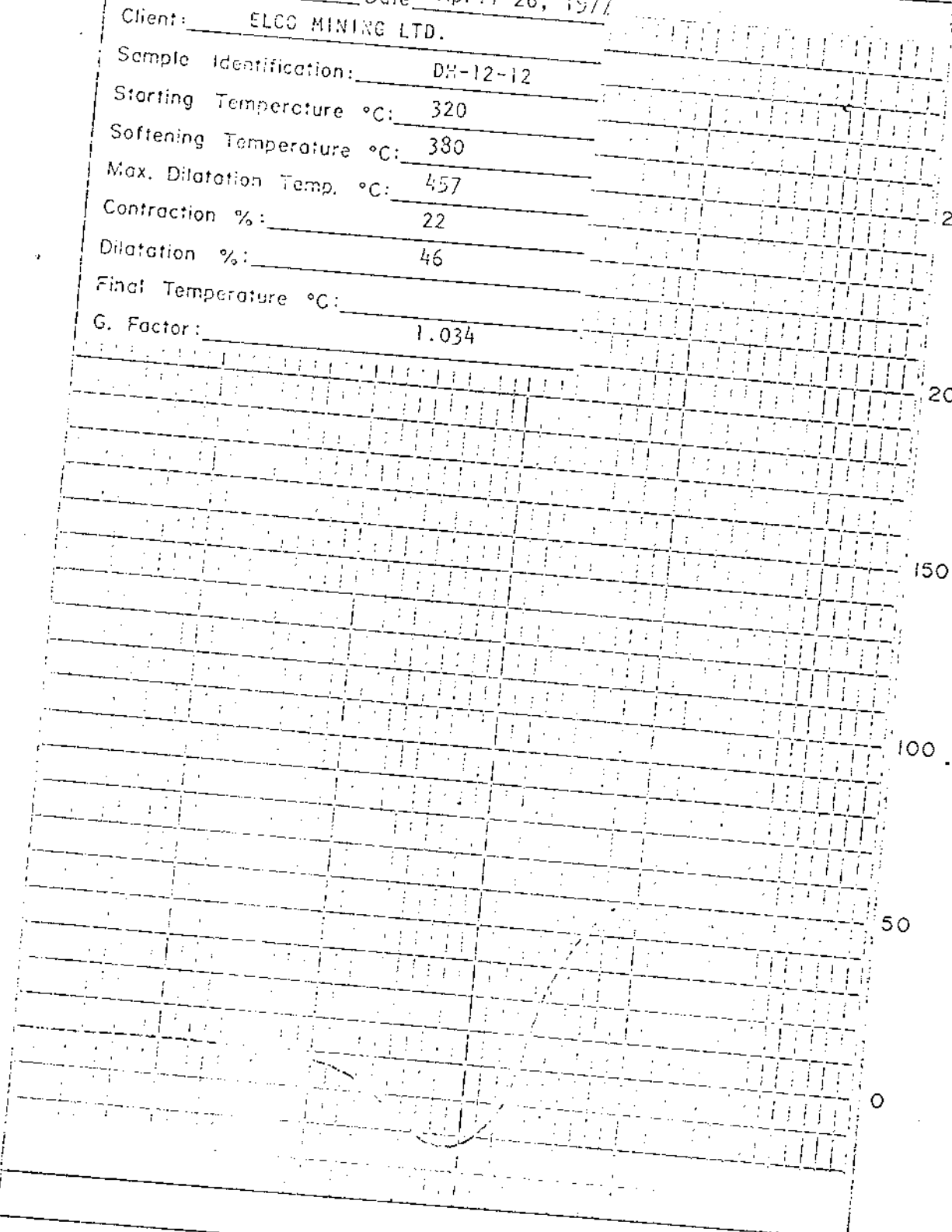
Max. Dilatation Temp. °C: 457

Contraction %: 22

Dilatation %: 46

Final Temperature °C: 1.034

G. Factor: 1.034



STANLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-13 Lab. No. 8886 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	19.1	19.6	60.6	0.74	85	Air Dried Basis
	19.2	19.7	61.1	0.75	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.5	0.7	19.5	0.70	93.5	19.5	0.70	A.D.B.
	93.5		19.6	0.70	93.5	19.6	0.70	D.B.
65M x 0	6.5	0.7	11.2	0.78	100.0	19.0	0.71	A.D.B.
	6.5		11.3	0.79	100.0	19.1	0.71	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	67.5	0.7	5.0	20.4	73.9	0.75	67.5	5.0	A.D.B.
	67.5		5.0	20.5	74.5	0.76	67.5	5.0	D.B.
1.40-1.50	7.7	0.9	19.2	18.4	61.5	0.61	75.2	6.5	A.D.B.
	7.7		19.4	18.6	62.0	0.62	75.2	6.5	D.B.
1.50-1.60	3.6	1.1	27.8	<del>          </del>	<del>          </del>	<del>          </del>	78.8	7.4	A.D.B.
	3.6		28.1	<del>          </del>	<del>          </del>	<del>          </del>	78.8	7.5	D.B.
+1.60	21.2	0.7	64.2	<del>          </del>	<del>          </del>	<del>          </del>	100.0	19.5	A.D.B.
	21.2		64.7	<del>          </del>	<del>          </del>	<del>          </del>	100.0	19.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320 °C)					G. NO.
		SOFTENING TEMP. °(°C)	MAX. DIL. TEMP. °(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.03	391	471	21	11	0.972	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 0086 Date April 26, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-12-13

Starting Temperature °C: 320

Softening Temperature °C: 391

Max. Dilatation Temp. °C: 471

250

Contraction %: 21

Dilatation %: 11

Final Temperature °C:

G. Factor: 0.972

200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-12-14 Lab. No. 8887 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	29.6	16.5	53.1	0.53	79	Air Dried Basis
	29.8	16.6	53.6	0.53	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.4	0.8	30.5	0.55	93.4	30.5	0.55	A.D.B.
	93.4		30.7	0.55	93.4	30.7	0.55	D.B.
65M x 0	6.6	0.6	17.6	0.69	100.0	29.6	0.56	A.D.B.
	6.6		17.7	0.69	100.0	29.8	0.56	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	50.6	0.8	5.7	20.0	73.5	0.80	50.6	5.7	A.D.B.
	50.6		5.7	20.2	74.1	0.81	50.6	5.7	D.B.
1.40-1.50	8.7	0.8	17.3	18.4	63.5	0.68	59.3	7.4	A.D.B.
	8.7		17.4	18.5	64.1	0.69	59.3	7.4	D.B.
1.50-1.60	5.2	0.7	26.6				64.5	8.9	A.D.B.
	5.2		26.8				64.5	9.0	D.B.
+1.60	35.5	0.7	69.7				100.0	30.5	A.D.B.
	35.5		70.2				100.0	30.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.04	394	475	22	48	1.036

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8887 Date April 16, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-12-14

Starting Temperature °C: 320

Softening Temperature °C: 394

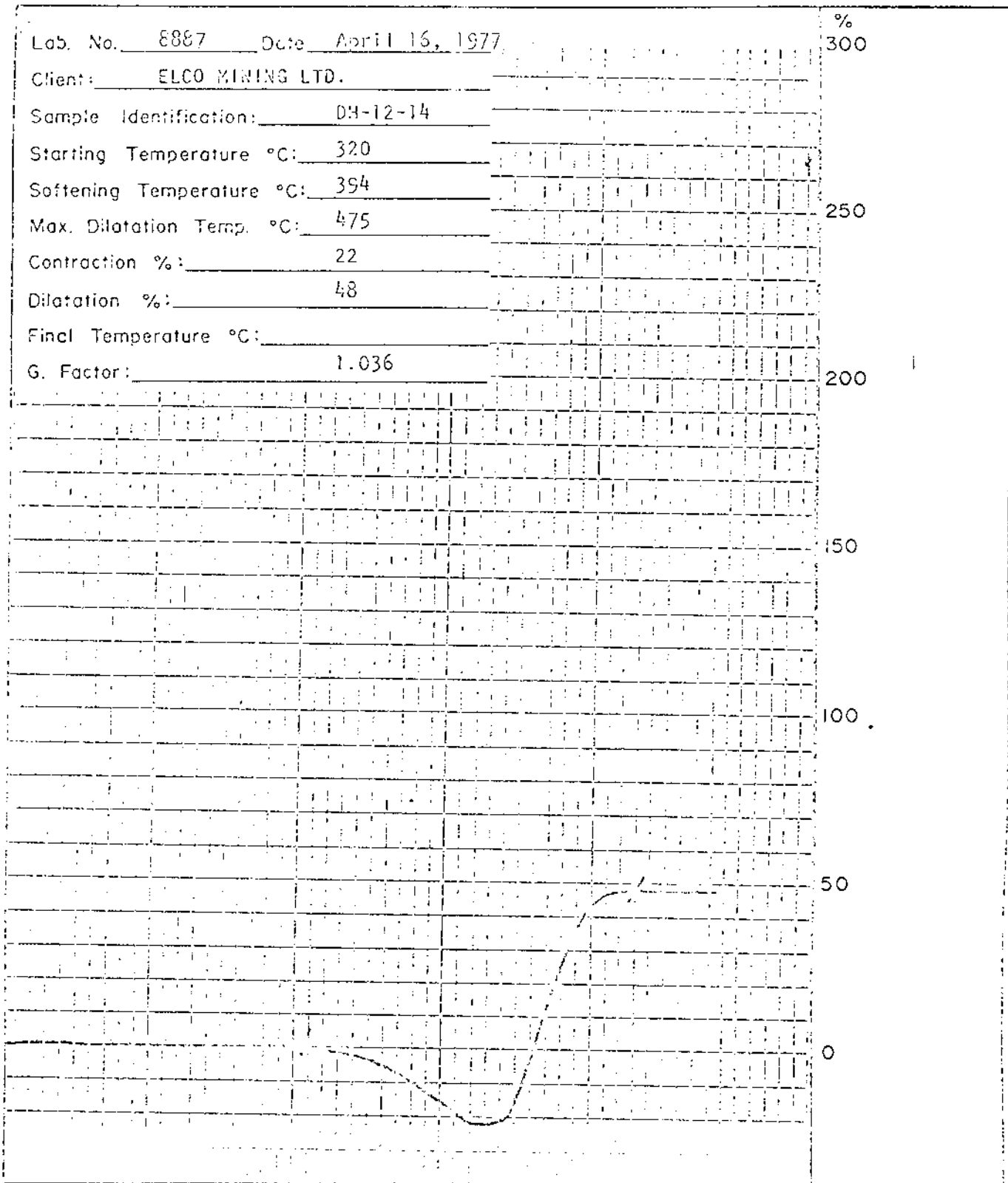
Max. Dilatation Temp. °C: 475

Contraction %: 22

Dilatation %: 48

Final Temperature °C:

G. Factor: 1.036



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-1 Lab. No. 8888 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	6.1	27.5	65.4	0.98	72	Air Dried Basis
	6.2	27.8	66.0	0.99	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.2	0.8	5.9	0.98	91.2	5.9	0.98	A.D.B.
	91.2		5.9	0.99	91.2	5.9	0.99	D.B.
65M x 0	8.8	1.1	8.5	0.94	100.0	6.1	0.98	A.D.B.
	8.8		8.6	0.95	100.0	6.1	0.99	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	91.4	0.8	2.7	28.3	68.2	1.09	91.4	2.7	A.D.B.
	91.4		2.7	28.5	68.8	1.10	91.4	2.7	D.B.
1.40-1.50	3.0	0.8	15.7	24.9	58.6	1.14	94.4	3.1	A.D.B.
	3.0		15.8	25.1	59.1	1.15	94.4	3.1	D.B.
1.50-1.60	1.1	0.9	26.4	X	X	X	95.5	3.4	A.D.B.
	1.1		26.6				95.5	3.4	D.B.
+1.60	4.5	0.8	58.6	X	X	X	100.0	5.9	A.D.B.
	4.5		59.1				100.0	5.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	PG ON COAL	DILATATION TEST (Initial Temp. -320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.08	363	460	25	112	1.081

\* S.T. & M.D.T. corrected with factor 6/5

Lcb. No. 3888 Date April 16, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-13-1

Starting Temperature °C: 320

Softening Temperature °C: 363

Max. Dilatation Temp. °C: 460

Contraction %: 25

Dilatation %: 112

Final Temperature °C:

G. Factor: 1.081

250

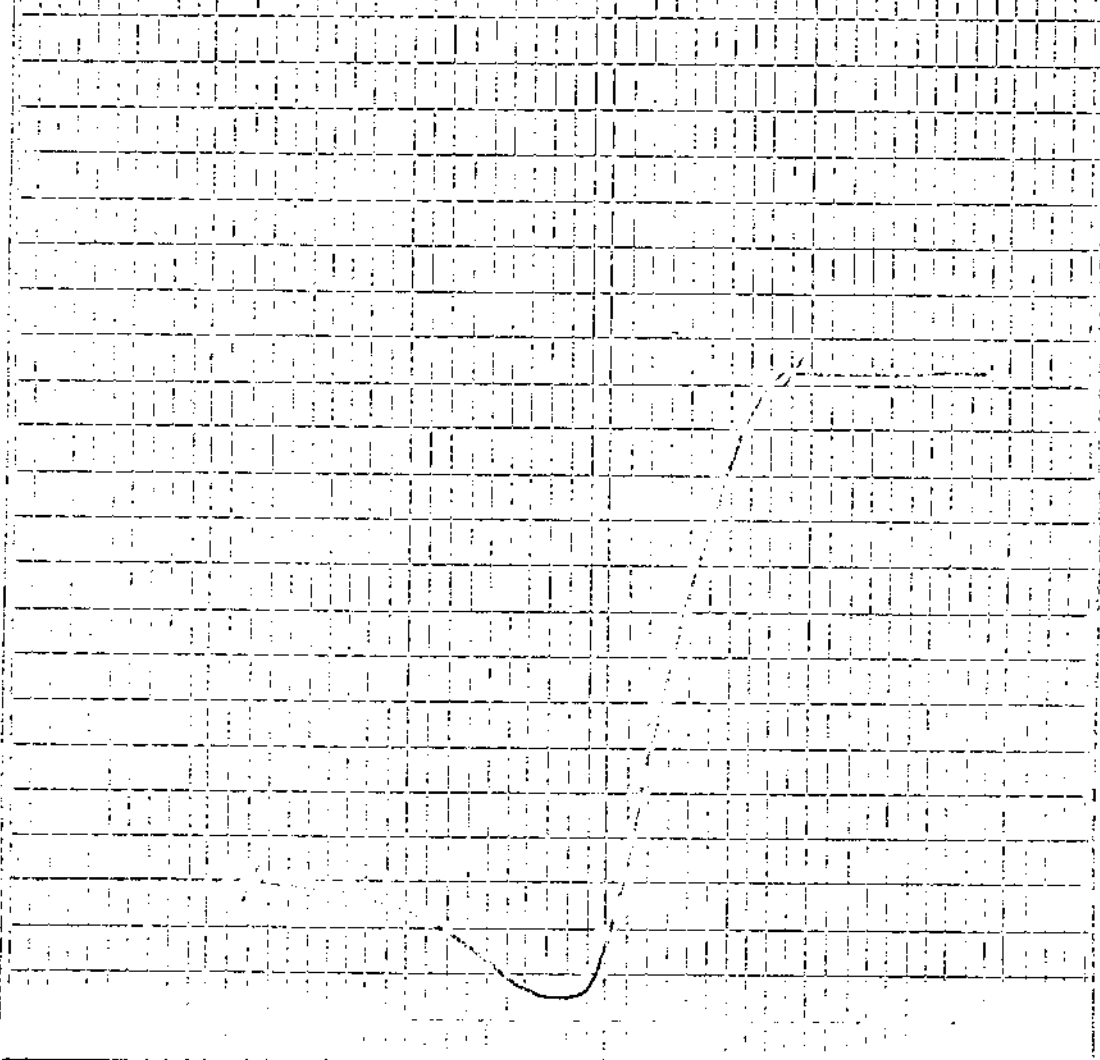
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-2      Lab. No. 8889      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	5.2	28.8	65.1	0.74	73	Air Dried Basis
	5.2	29.1	65.7	0.75	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	95.3	0.8	5.7	0.74	95.3	5.7	0.74	A.D.B.
	95.3		5.7	0.75	95.3	5.7	0.75	D.B.
65M x 0	4.7	0.9	4.9	0.84	100.0	5.7	0.74	A.D.B.
	4.7		4.9	0.85	100.0	5.7	0.75	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	91.9	0.8	2.7	29.5	67.0	0.81	91.9	2.7	A.D.B.
	91.9		2.7	29.7	67.6	0.82	91.9	2.7	D.B.
1.40-1.50	3.0	0.8	20.2	24.8	54.2	0.70	94.9	3.3	A.D.B.
	3.0		20.4	25.0	54.6	0.71	94.9	3.3	D.B.
1.50-1.60	1.3	0.6	29.5				96.2	3.6	A.D.B.
	1.3		29.7				96.2	3.6	D.B.
+1.60	3.8	0.6	57.9				100.0	5.7	A.D.B.
	3.8		58.2				100.0	5.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
8 1/2	0.03	360	459	25	182	1.101

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8889 Date April 27, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-13-2

Starting Temperature °C: 320

Softening Temperature °C: 360

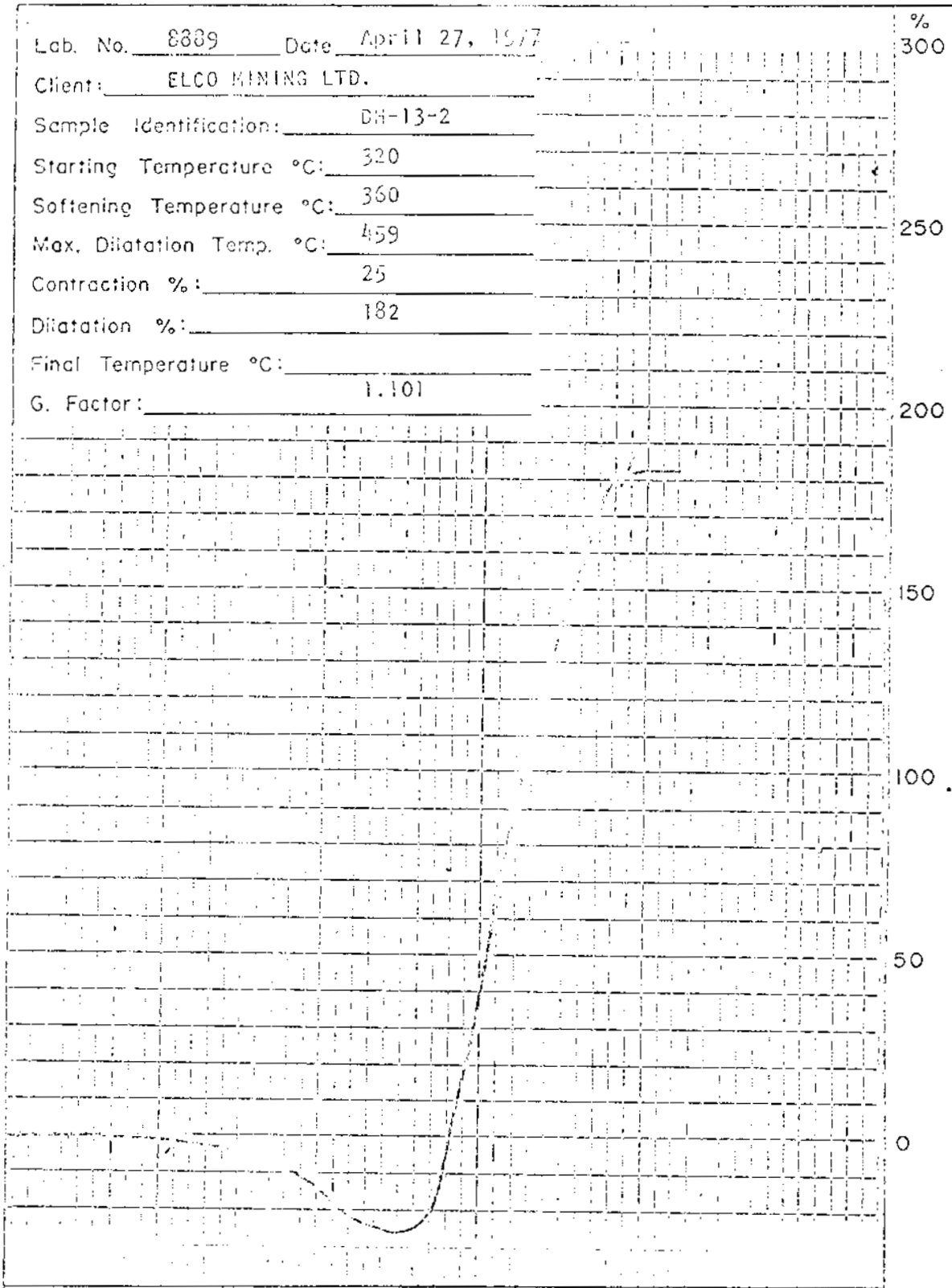
Max. Dilatation Temp. °C: 459

Contraction %: 25

Dilatation %: 182

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.101



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-3

Lab. No. 8890

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	20.4	23.9	55.1	0.63	75	Air Dried Basis
	20.5	24.0	55.5	0.63	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.5	0.5	21.1	0.65	93.5	21.1	0.65	A.D.B.
	93.5		21.2	0.65	93.5	21.2	0.65	D.B.
65M x 0	6.5	0.7	13.7	0.63	100.0	20.6	0.65	A.D.B.
	6.5		13.8	0.63	100.0	20.7	0.65	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	68.0	0.5	5.5	28.4	65.6	0.67	68.0	5.5	A.D.B.
	68.0		5.5	28.5	66.0	0.67	68.0	5.5	D.B.
1.40-1.50	5.9	0.6	20.0	22.2	56.2	0.62	73.9	6.7	A.D.B.
	5.9		20.1	22.3	57.6	0.62	73.9	6.7	D.B.
1.50-1.60	3.8	0.6	31.3				77.7	7.9	A.D.B.
	3.8		31.5				77.7	7.9	D.B.
+1.60	22.3	0.6	67.3				100.0	21.1	A.D.B.
	22.3		67.7				100.0	21.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. (°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.11	356	463	24	164	1.108

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8890 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: D11-13-3

Starting Temperature °C: 320

Softening Temperature °C: 356

Max. Dilatation Temp. °C: 463

250

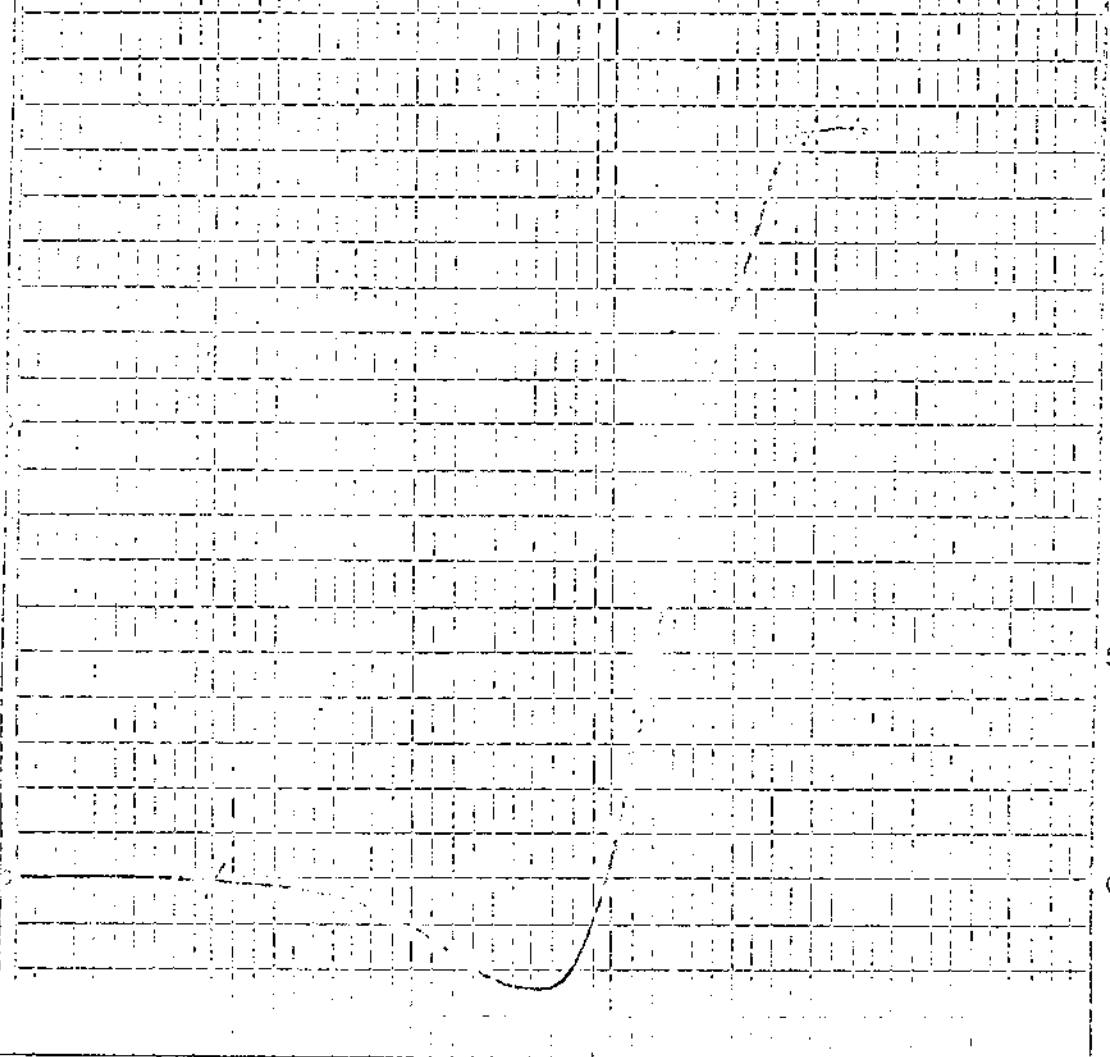
Contraction %: 24

Dilatation %: 164

Final Temperature °C:

G. Factor: 1.108

200



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUMR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-4

Lab. No. 8891

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	38.0	20.0	41.1	0.61	68	Air Dried Basis
	38.3	20.2	41.5	0.62	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.4	0.7	39.0	0.60	93.4	39.0	0.60	A.D.B.
	93.4		39.3	0.60	93.4	39.3	0.60	D.B.
65M x 0	6.6	1.0	26.9	0.67	100.0	38.2	0.60	A.D.B.
	6.6		27.2	0.68	100.0	38.5	0.61	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	45.0	0.6	6.2	28.2	65.0	0.83	45.0	6.2	A.D.B.
	45.0		6.2	28.4	65.4	0.84	45.0	6.2	D.B.
1.40-1.50	4.0	0.8	22.7	23.5	53.0	0.76	49.0	7.5	A.D.B.
	4.0		22.9	23.7	53.4	0.77	49.0	7.6	D.B.
1.50-1.60	3.5	0.7	32.6				52.5	9.2	A.D.B.
	3.5		32.8				52.5	9.2	D.B.
+1.60	47.5	0.7	72.0				100.0	39.0	A.D.B.
	47.5		72.5				100.0	39.3	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.08	356	460	27	216	1.110	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8891 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: D-13-4

Starting Temperature °C: 320

Softening Temperature °C: 356

Max. Dilatation Temp. °C: 460

250

Contraction %: 27

Dilatation %: 216

Final Temperature °C:

G. Factor: 1.110

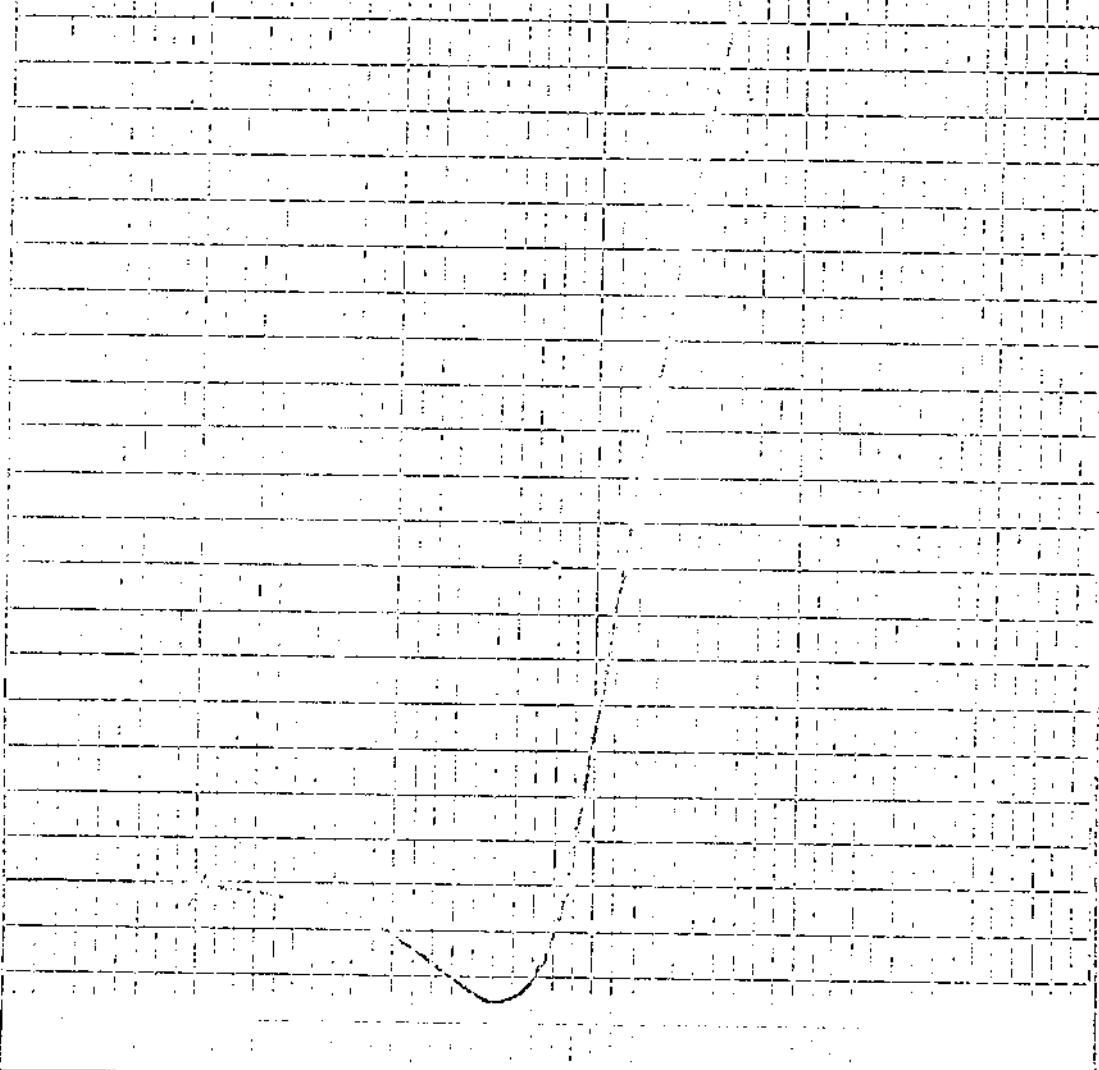
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MIXING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-5

Lab. No. 8892

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	9.8	28.1	61.4	0.78	83	Air Dried Basis
	9.9	28.3	61.8	0.79	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.7	0.6	9.1	0.74	94.7	9.1	0.74	A.D.B.
	94.7		9.2	0.74	94.7	9.2	0.74	D.B.
65M x 0	5.3	0.8	9.2	0.75	100.0	9.1	0.74	A.D.B.
	5.3		9.3	0.76	100.0	9.2	0.74	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	83.1	0.6	4.7	28.5	66.2	0.78	83.1	4.7	A.D.B.
	83.1		4.7	28.7	66.6	0.78	83.1	4.7	D.B.
1.40-1.50	7.5	0.6	20.4	26.0	53.0	0.65	90.6	6.0	A.D.B.
	7.5		20.5	26.2	53.3	0.65	90.6	6.0	D.B.
1.50-1.60	2.9	0.6	29.6				93.5	6.7	A.D.B.
	2.9		29.8				93.5	6.7	D.B.
+1.60	6.5	0.5	43.2				100.0	9.1	A.D.B.
	6.5		43.4				100.0	9.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.09	356	460	24	153	1.102

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lcd. No. 8892 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DR-13-5

Starting Temperature °C: 320

Softening Temperature °C: 356

Max. Dilatation Temp. °C: 460

Contraction %: 24

Dilatation %: 153

Final Temperature °C: 1.102

G. Factor: 1.102

250

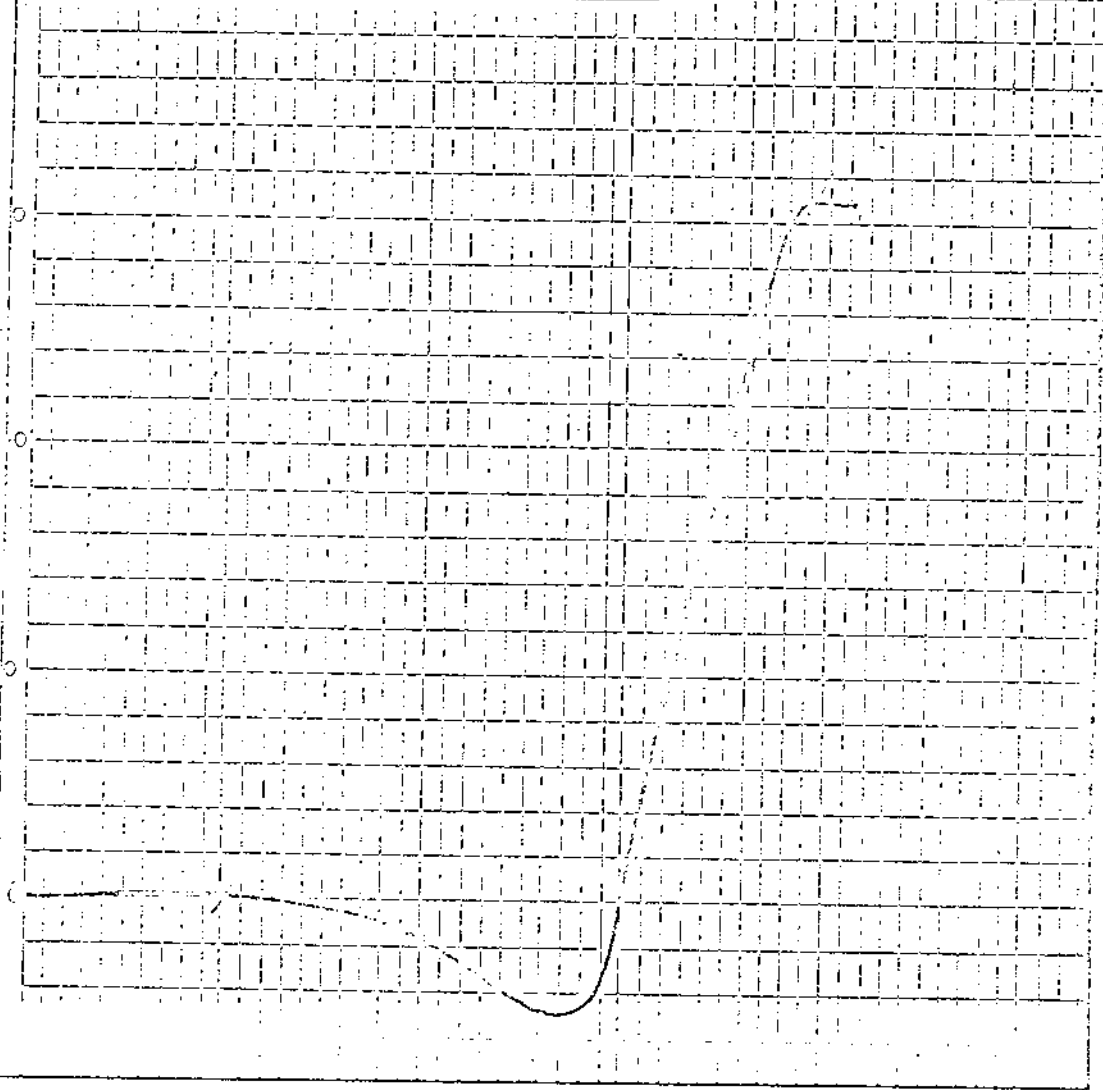
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-6      Lab. No. 8893      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	15.7	26.6	56.9	0.75	99	Air Dried Basis
	15.8	26.8	57.4	0.76	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	88.8	0.8	17.0	0.74	88.8	17.0	0.74	A.D.B.
	88.8		17.1	0.75	88.8	17.1	0.75	D.B.
65M x 0	11.2	0.8	8.6	0.82	100.0	16.1	0.75	A.D.B.
	11.2		8.7	0.83	100.0	16.2	0.76	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	71.9	0.8	4.2	27.5	67.5	0.91	71.9	4.2	A.D.B.
	71.9		4.2	27.7	68.1	0.92	71.9	4.2	D.B.
1.40-1.50	5.9	0.8	14.3	24.8	60.1	0.83	77.8	5.0	A.D.B.
	5.9		14.4	25.0	60.6	0.84	77.8	5.0	D.B.
1.50-1.60	3.4	0.9	22.4	X	X	X	81.2	5.7	A.D.B.
	3.4		22.6				81.2	5.7	D.B.
+1.60	18.8	1.0	66.0	X	X	X	100.0	17.0	A.D.B.
	18.8		66.7				100.0	17.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.06	360	450	26	107	1.073

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8893 Date April 27, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-13-6

Starting Temperature °C: 320

Softening Temperature °C: 360

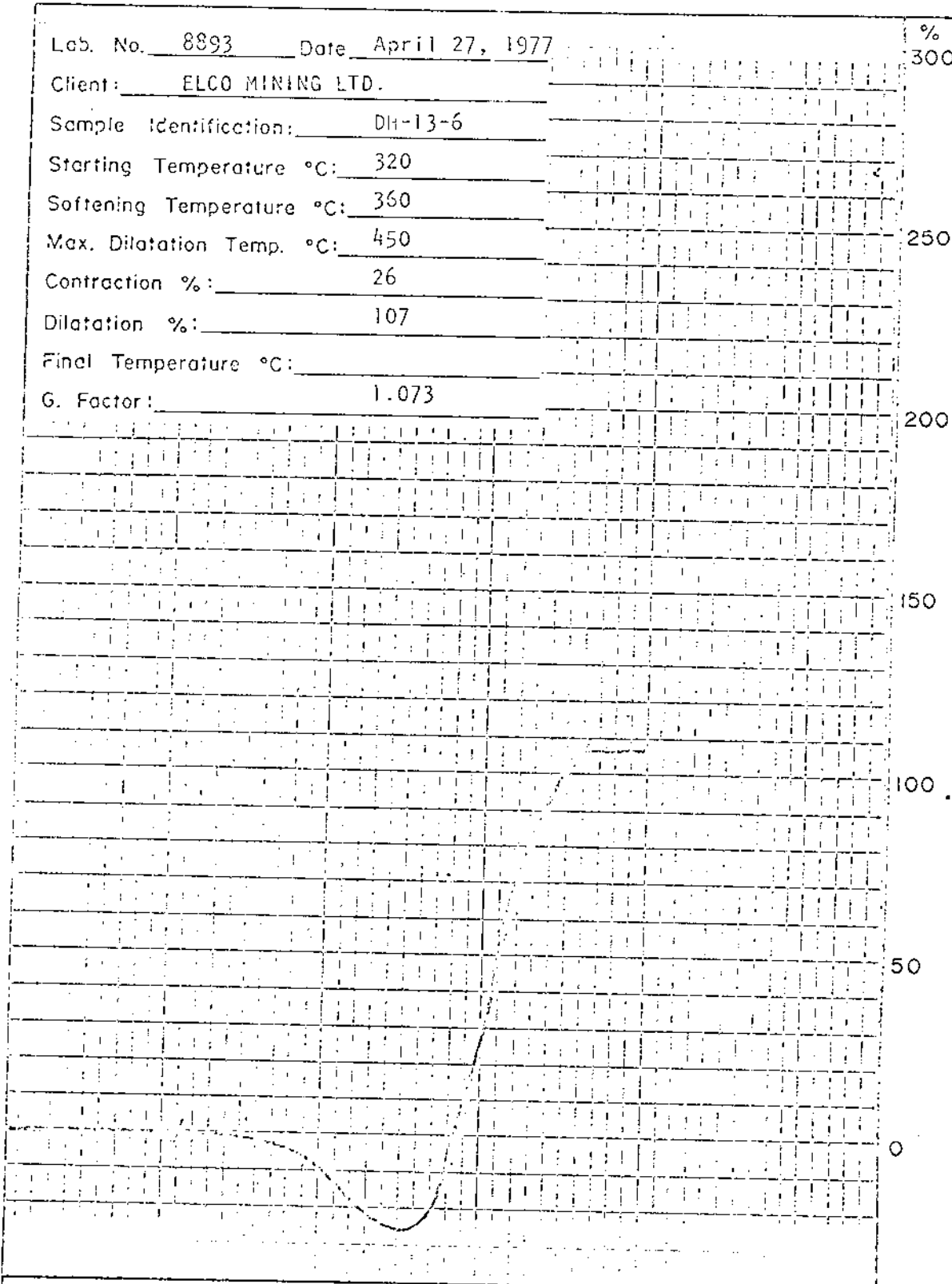
Max. Dilatation Temp. °C: 450

Contraction %: 26

Dilatation %: 107

Final Temperature °C:

G. Factor: 1.073



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-7

Lab. No. 8894

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	42.2	18.7	38.4	0.57	64	Air Dried Basis
	42.5	18.8	38.7	0.57	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.4	0.5	43.4	0.56	93.4	43.4	0.56	A.D.B.
	93.4		43.6	0.56	93.4	43.6	0.56	D.B.
65M x 0	6.6	0.9	28.9	0.67	100.0	42.4	0.57	A.D.B.
	6.6		29.2	0.68	100.0	42.6	0.57	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	31.3	0.6	7.1	26.9	65.4	0.89	31.3	7.1	A.D.B.
	31.3		7.1	27.1	65.8	0.90	31.3	7.1	D.B.
1.40-1.50	8.8	0.5	25.0	22.4	52.1	0.66	40.1	11.0	A.D.B.
	8.8		25.1	22.5	52.4	0.66	40.1	11.1	D.B.
1.50-1.60	7.4	0.4	34.1				47.5	14.6	A.D.B.
	7.4		34.2				47.5	14.7	D.B.
+1.60	52.5	0.5	69.4				100.0	43.4	A.D.B.
	52.5		69.7				100.0	43.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.05	360	453	27	219	1.098

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8894 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DM-13-7

Starting Temperature °C: 320

Softening Temperature °C: 360

Max. Dilatation Temp. °C: 453

Contraction %: 27

Dilatation %: 219

Final Temperature °C: 1.098

G. Factor: 1.098

250

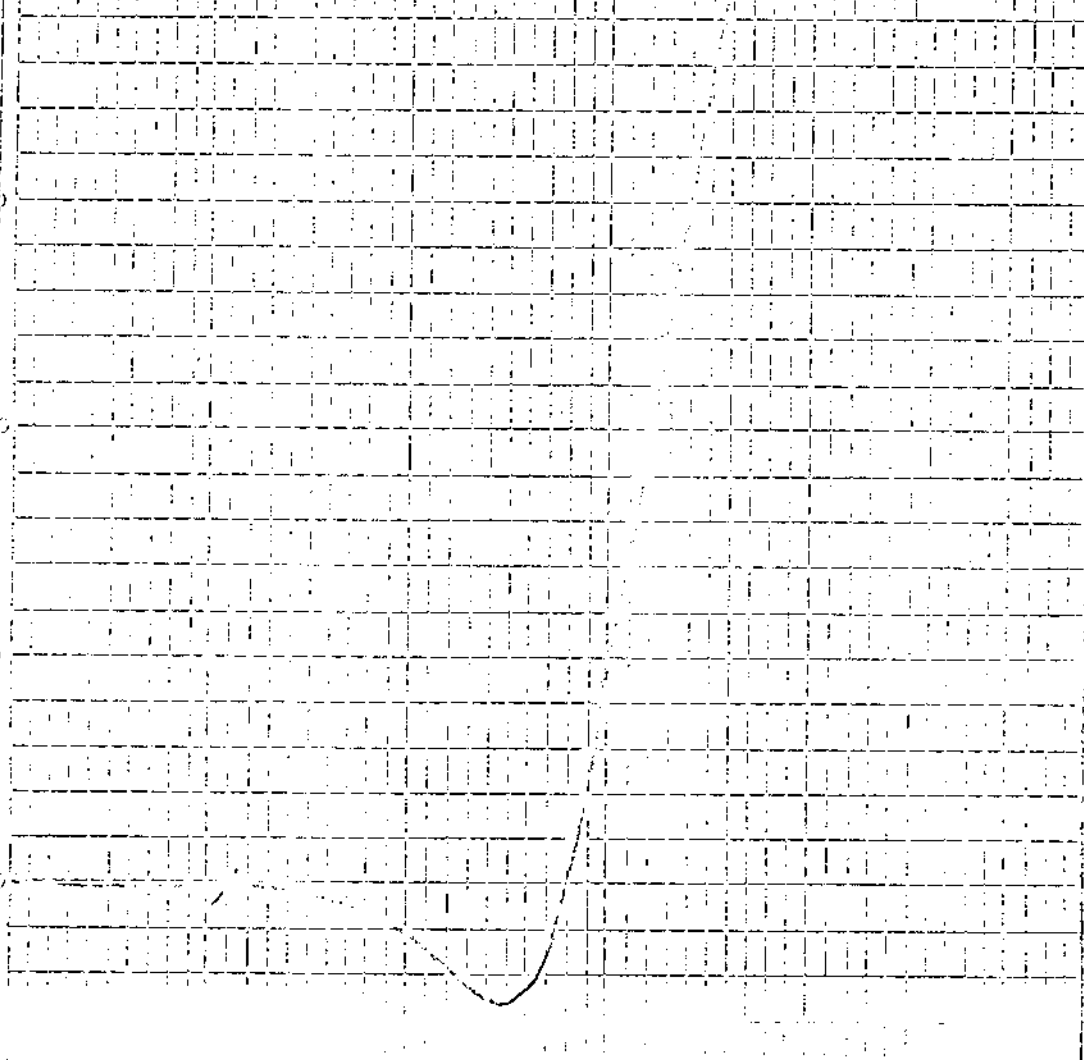
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title  
RUHR DILATOMETER TEST

Date  
Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-8

Lab. No. 8895

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	8.2	26.6	64.5	1.00	87	Air Dried Basis
	8.3	26.8	64.9	1.01	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.6	0.7	8.1	1.03	94.6	8.1	1.03	A.D.B.
	94.6		8.2	1.04	94.6	8.2	1.04	D.B.
65M x 0	5.4	0.6	9.9	0.96	100.0	8.2	1.03	A.D.B.
	5.4		10.0	0.97	100.0	8.3	1.04	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	83.9	0.7	3.4	27.3	68.6	1.04	83.9	3.4	A.D.B.
	83.9		3.4	27.5	69.1	1.05	83.9	3.4	D.B.
1.40-1.50	7.1	0.7	18.5	19.9	50.9	0.77	91.0	4.6	A.D.B.
	7.1		18.6	20.0	61.4	0.78	91.0	4.6	D.B.
1.50-1.60	3.8	0.8	21.8				94.8	5.3	A.D.B.
	3.8		22.0				94.8	5.3	D.B.
+1.60	5.2	1.0	59.6				100.0	8.1	A.D.B.
	5.2		60.2				100.0	8.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.05	357	457	26	221	1.107

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8895 Date April 27, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-13-8

Starting Temperature °C: 320

Softening Temperature °C: 357

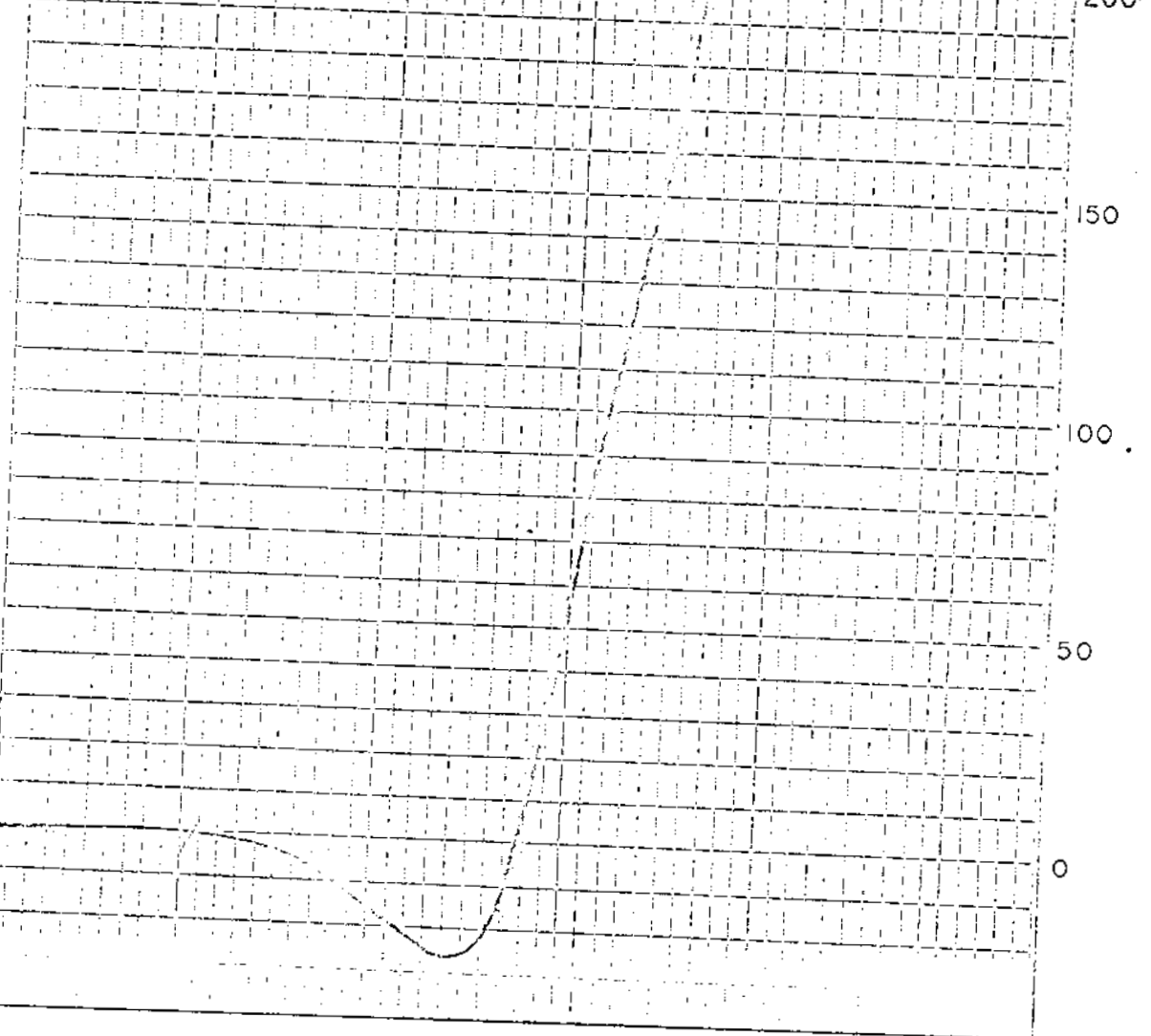
Max. Dilatation Temp. °C: 457

Contraction %: 26

Dilatation %: 221

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.107



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-9

Lab. No. 8896

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	20.1	22.5	56.6	0.61	102	Air Dried Basis
	20.3	22.7	57.0	0.61	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			i
					WT. %	ASH %	S. %	
1/4" x 65M	86.8	0.8	21.0	0.62	86.8	21.0	0.62	A.D.B.
	86.8		21.2	0.63	86.8	21.2	0.63	D.B.
65M x 0	13.2	0.8	11.0	0.73	100.0	19.7	0.63	A.D.B.
	13.2		11.1	0.74	100.0	19.9	0.64	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	66.6	0.8	4.0	26.1	69.1	0.74	66.6	4.0	A.D.B.
	66.6		4.0	26.3	69.7	0.75	66.6	4.0	D.B.
1.40-1.50	6.1	0.8	17.3	22.1	59.8	0.61	72.7	5.1	A.D.B.
	6.1		17.4	22.3	60.3	0.61	72.7	5.1	D.B.
1.50-1.60	3.1	1.0	28.3				75.8	6.0	A.D.B.
	3.1		28.6				75.8	6.1	D.B.
+1.60	24.2	0.9	67.7				100.0	21.0	A.D.B.
	24.2		68.3				100.0	21.1	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP. °(°C)	MAX. DIL. TEMP. °(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.03	374	450	28	53	1.029	

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8896 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-13-9

Starting Temperature °C: 320

Softening Temperature °C: 374

Max. Dilatation Temp. °C: 450

250

Contraction %: 28

Dilatation %: 53

Final Temperature °C: 1.029

200

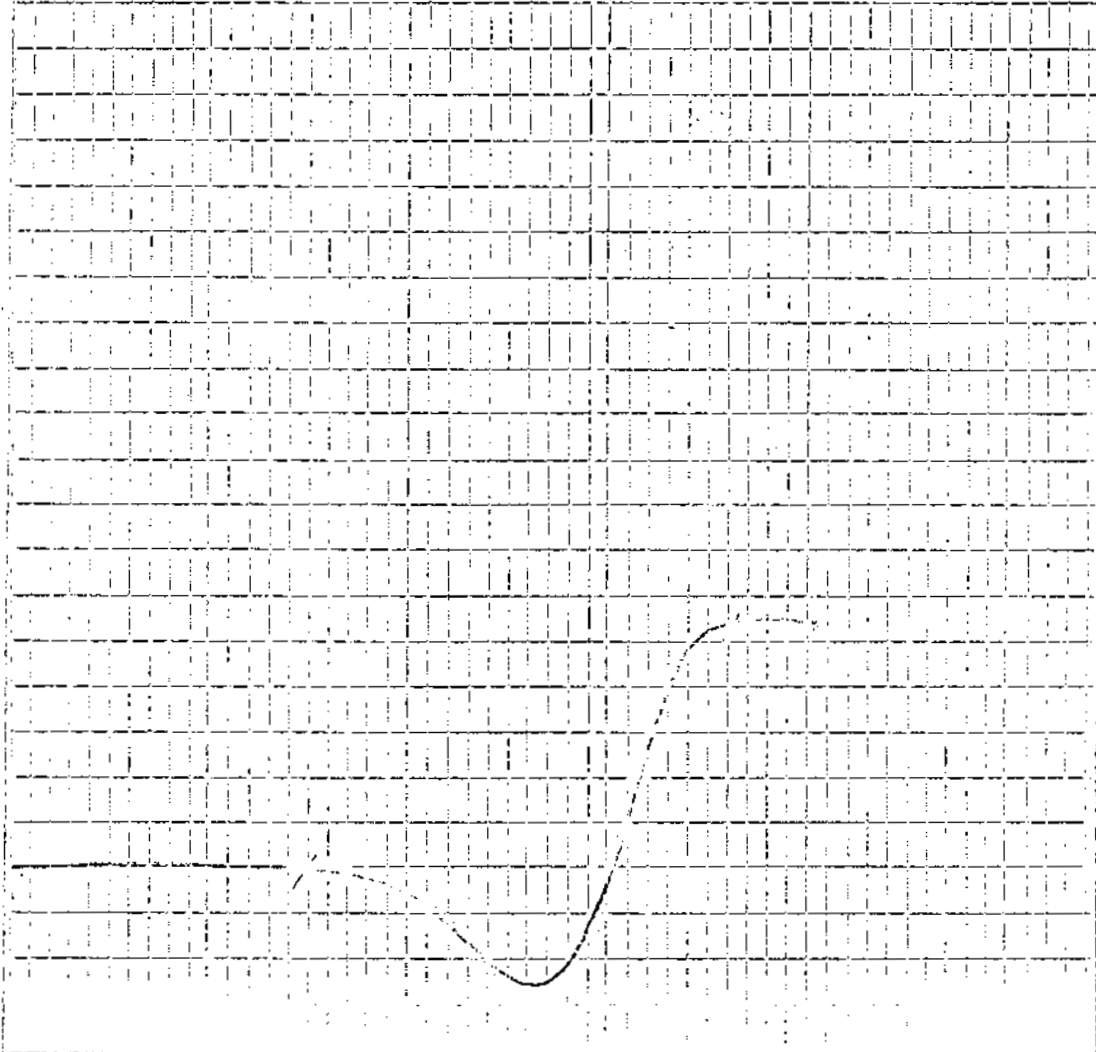
G. Factor: 1.029

150

100

50

0



SIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-10

Lab. No. 8897

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	25.2	20.0	54.0	1.00	77	Air Dried Basis
	25.4	20.2	54.4	1.01	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	90.9	0.8	25.8	1.00	90.9	25.8	1.00	A.D.B.
	90.9		26.0	1.01	90.9	26.0	1.01	D.B.
65M x 0	9.1	0.9	19.3	0.96	100.0	25.2	1.00	A.D.B.
	9.1		19.5	0.97	100.0	25.4	1.01	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	55.1	0.8	7.1	25.2	66.9	0.98	55.1	7.1	A.D.B.
	55.1		7.2	25.4	67.4	0.99	55.1	7.2	D.B.
1.40-1.50	6.3	0.8	22.3	20.6	56.3	1.14	61.4	8.7	A.D.B.
	6.3		22.5	20.8	56.7	1.15	61.4	8.8	D.B.
1.50-1.60	5.9	0.7	31.4				67.3	10.7	A.D.B.
	5.9		31.6				67.3	10.8	D.B.
+1.60	32.7	0.7	56.9				100.0	25.8	A.D.B.
	32.7		57.3				100.0	26.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.05	356	453	28	219	1.102

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8897 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-13-10

Starting Temperature °C: 320

Softening Temperature °C: 356

Max. Dilatation Temp. °C: 453

250

Contraction %: 28

Dilatation %: 219

Final Temperature °C:

G. Factor: 1.102

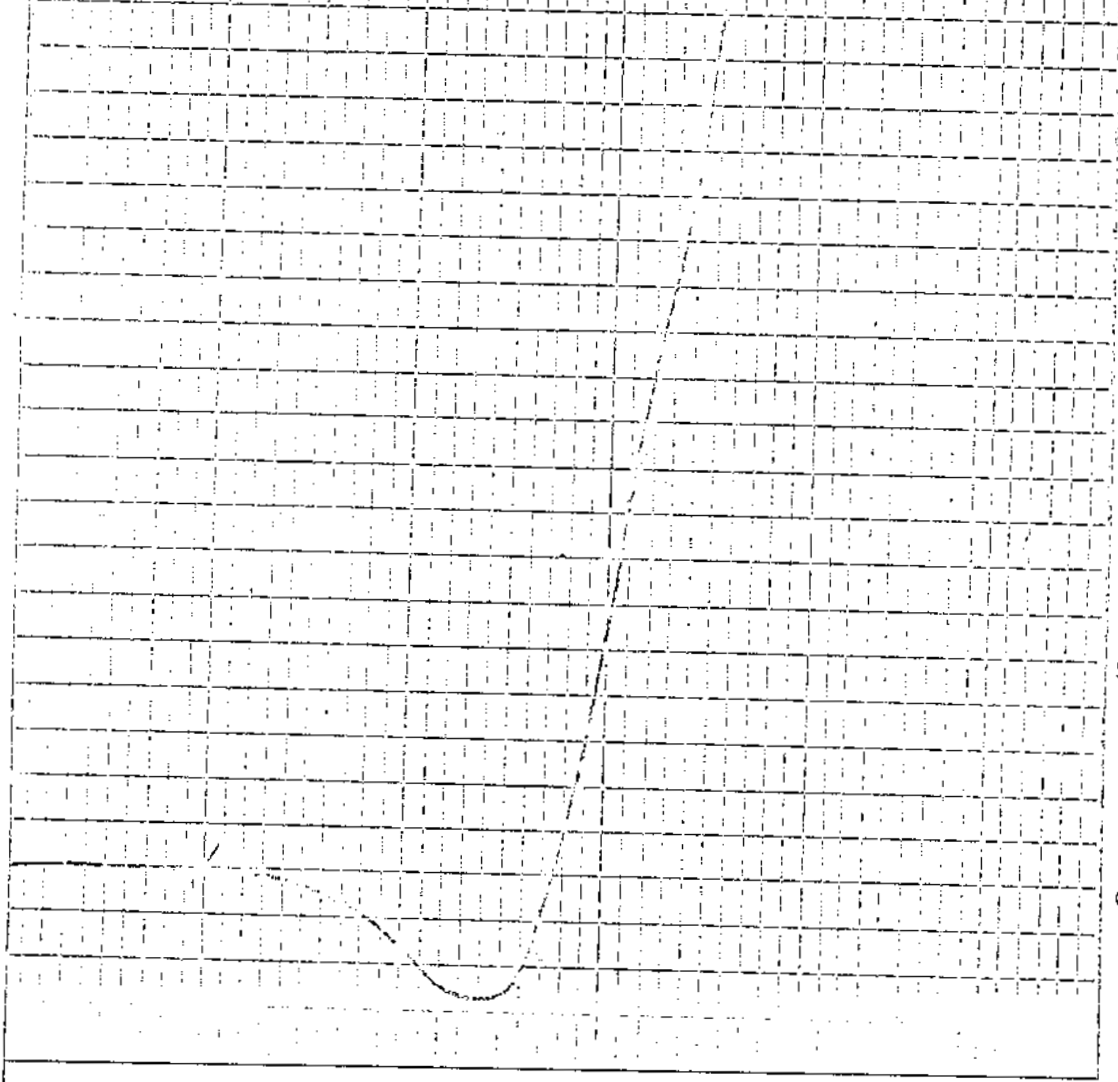
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-11

Lab. No. 8898

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	19.4	21.3	58.4	0.80	91	Air Dried Basis
	19.6	21.5	58.9	0.81	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.3	0.9	20.2	0.79	92.3	20.2	0.79	A.D.B.
	92.3		20.4	0.80	92.3	20.4	0.80	D.B.
65M x 0	7.7	0.7	9.2	0.87	100.0	19.4	0.80	A.D.B.
	7.7		9.3	0.88	100.0	19.5	0.81	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	59.9	1.1	3.2	25.2	70.5	0.90	59.9	3.2	A.D.B.
	59.8		3.2	25.5	71.3	0.91	59.8	3.2	D.B.
1.40-1.50	8.2	0.8	15.5	20.9	62.8	0.70	68.1	4.7	A.D.B.
	8.2		15.6	21.1	63.3	0.71	68.0	4.7	D.B.
1.50-1.60	3.9	0.9	26.7				72.0	5.9	A.D.B.
	3.9		26.9				71.9	5.9	D.B.
+1.60	28.0	0.6	57.1				100.0	20.2	A.D.B.
	28.1		57.4				100.0	20.4	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.04	368	452	25	162	1.081

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8898 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-13-11

Starting Temperature °C: 320

Softening Temperature °C: 368

Max. Dilatation Temp. °C: 452

Contraction %: 25

Dilatation %: 162

Final Temperature °C:

G. Factor: 1.081

250

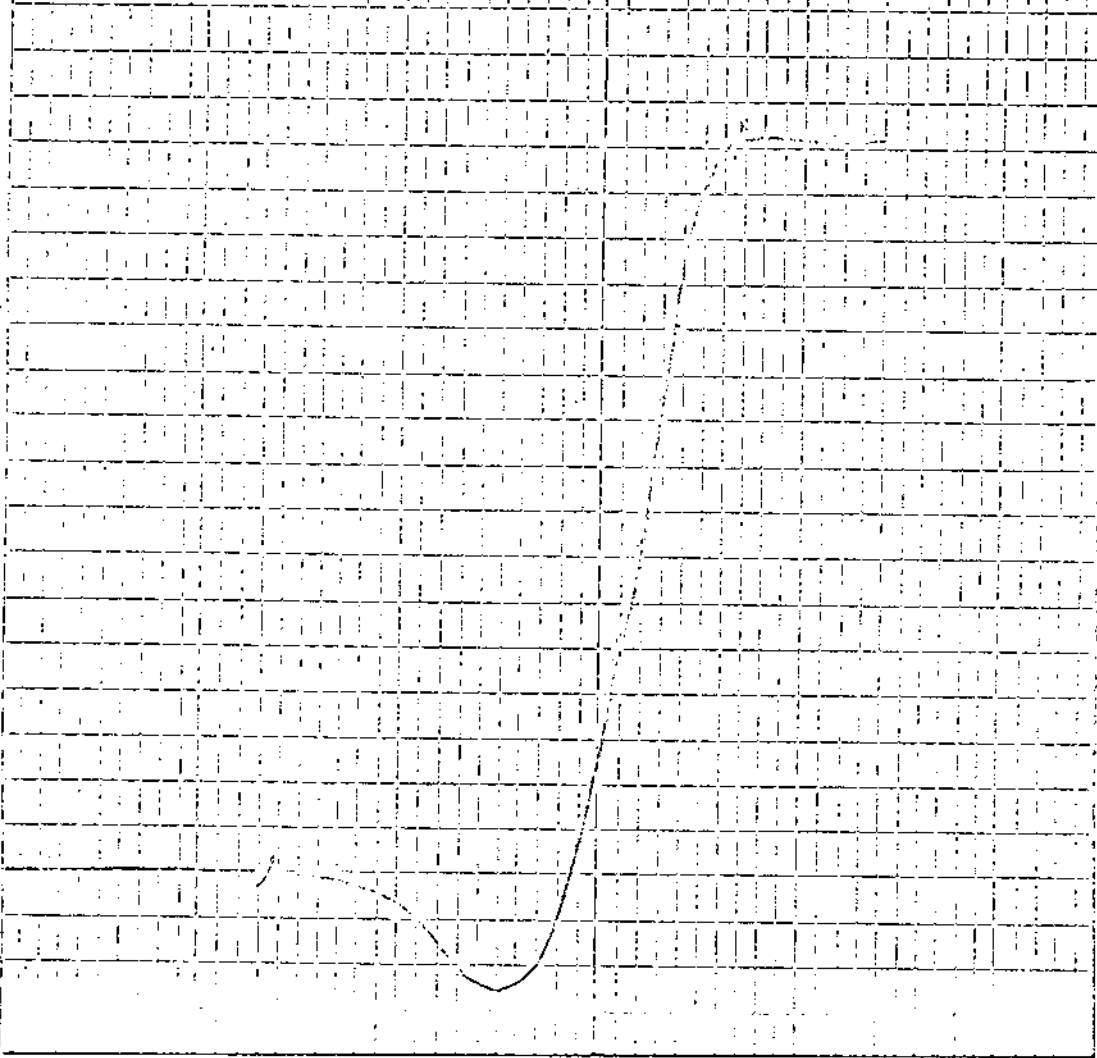
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-13-12      Lab. No. 8699      DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	14.5	23.2	61.6	0.67	108	Air Dried Basis
	14.6	23.4	62.0	0.67	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	90.0	0.7	15.8	0.69	90.0	15.8	0.69	A.D.B.
	90.0		15.9	0.69	90.0	15.9	0.69	D.B.
65M x 0	10.0	0.8	7.7	0.70	100.0	15.0	0.69	A.D.B.
	10.0		7.8	0.71	100.0	15.1	0.69	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	72.7	0.7	5.0	25.1	69.2	0.73	72.7	5.0	A.D.B.
	72.7		5.0	25.3	69.7	0.74	72.7	5.0	D.B.
1.40-1.50	7.7	0.9	19.7	20.8	58.6	0.59	80.4	6.4	A.D.B.
	7.7		19.9	21.0	59.1	0.60	80.4	6.4	D.B.
1.50-1.60	3.5	0.9	31.2				83.9	7.4	A.D.B.
	3.5		31.5				83.9	7.5	D.B.
+1.60	16.1	0.9	59.6				100.0	15.8	A.D.B.
	16.1		60.1				100.0	15.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.*(°C)	MAX. DIL. TEMP.*(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.10	374	456	25	158	1.077

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8899 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: D4-13-12

Starting Temperature °C: 320

Softening Temperature °C: 374

Max. Dilatation Temp. °C: 456

250

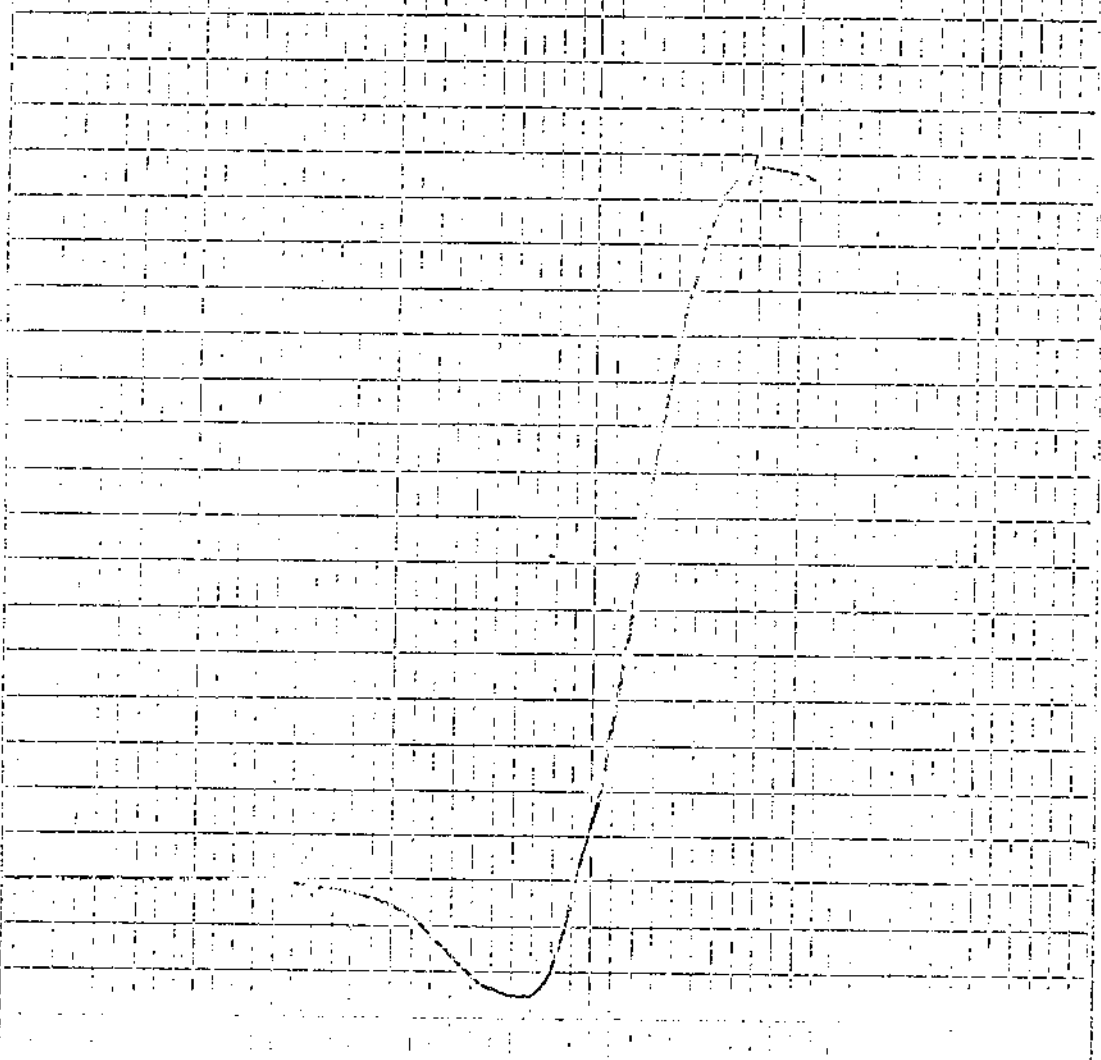
Contraction %: 25

Dilatation %: 158

Final Temperature °C:

G. Factor: 1.077

200



150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-1

Lab. No. 8900

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	41.8	21.5	35.8	1.29	58	Air Dried Basis
	42.2	21.7	36.1	1.30	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.0	0.6	42.0	1.29	94.0	42.0	1.29	A.D.B.
	94.0		42.3	1.30	94.0	42.0	1.30	D.B.
65M x 0	6.0	0.9	27.2	1.70	100.0	41.1	1.31	A.D.B.
	6.0		27.4	1.72	100.0	41.4	1.33	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	38.4	0.6	5.0	31.3	63.1	1.22	38.4	5.0	A.D.B.
	38.4		5.0	31.5	63.5	1.23	38.4	5.0	D.B.
1.40-1.50	4.9	0.7	25.0	26.0	48.3	1.61	43.3	7.3	A.D.B.
	4.9		25.2	26.2	48.6	1.62	43.3	7.3	D.B.
1.50-1.60	3.7	0.7	34.6				47.0	9.4	A.D.B.
	3.7		34.8				47.0	9.5	D.B.
+1.60	53.0	0.6	69.4				100.0	41.2	A.D.B.
	53.0		69.8				100.0	41.4	D.B.

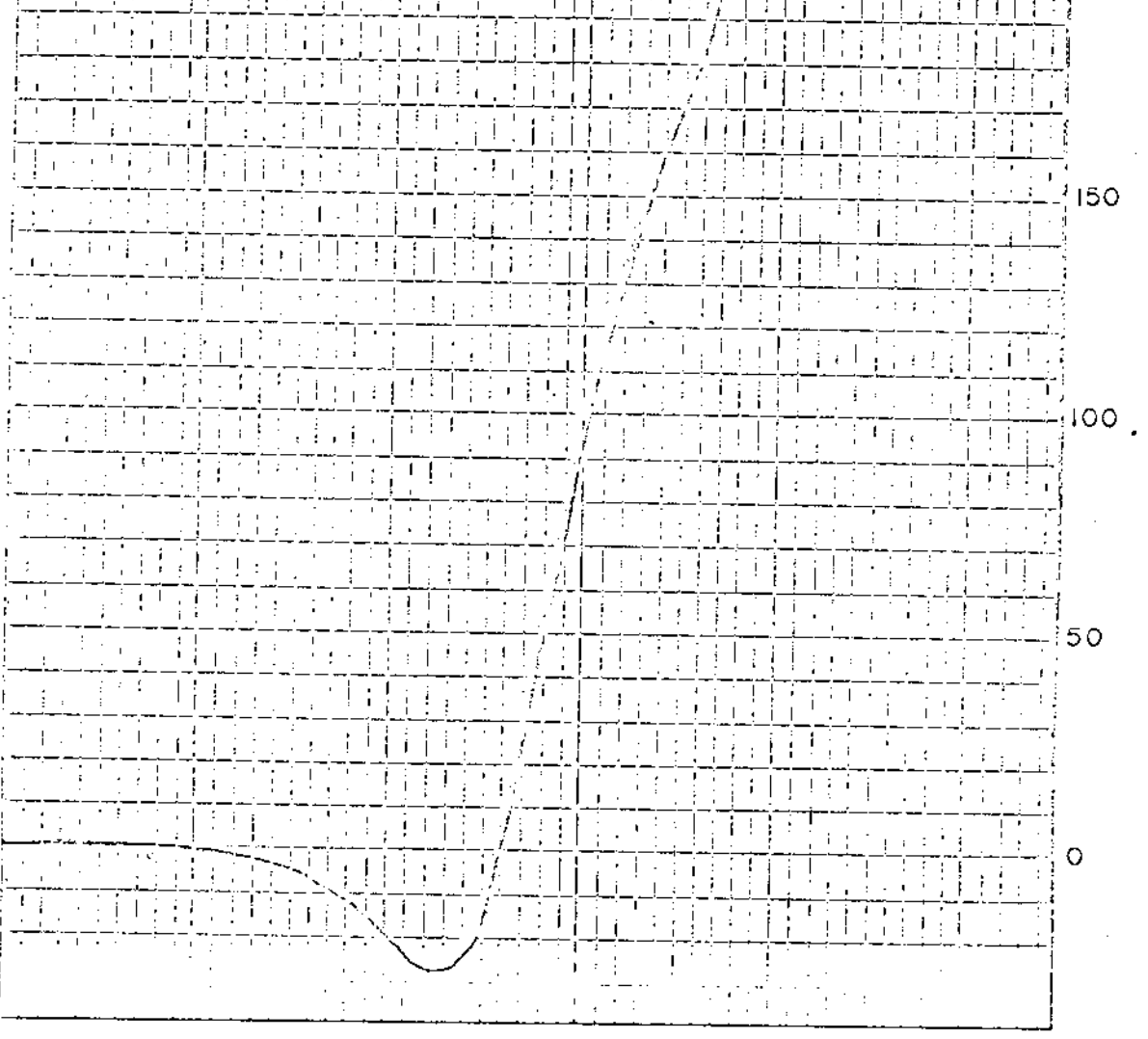
COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)					G. NO.
		SOFTENING TEMP. (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
9	0.04	349	459	28	218	1.118	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8900 Date April 27, 1977 %  
 Client: ELCO MINING LTD. 300  
 Sample Identification: DH-14-1  
 Starting Temperature °C: 320  
 Softening Temperature °C: 349  
 Max. Dilatation Temp. °C: 459 250  
 Contraction %: 28  
 Dilatation %: 218  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.118 200



**DITLEY ENGINEERING (CANADA) LTD.**

Title  <p style="text-align: center; font-weight: bold;">RUHR DILATOMETER TEST</p>	Date  <hr/> Drawn
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ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-2

Lab. No. 8901

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	9.8	29.2	60.2	0.72	93	Air Dried Basis
	9.9	29.4	60.7	0.73	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.1	0.8	9.5	0.72	89.1	9.5	0.72	A.D.B.
	89.1		9.6	0.73	89.1	9.6	0.73	D.B.
65M x 0	10.9	1.0	9.0	0.69	100.0	9.4	0.72	A.D.B.
	10.9		9.1	0.70	100.0	9.5	0.73	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	88.3	0.8	3.4	31.0	64.8	0.74	88.3	3.4	A.D.B.
	88.3		3.4	31.3	65.3	0.75	88.3	3.4	D.B.
1.40-1.50	2.3	0.8	17.9	26.2	55.1	0.69	90.6	3.8	A.D.B.
	2.3		18.0	26.4	55.6	0.70	90.6	3.8	D.B.
1.50-1.60	1.2	1.0	29.9				91.8	4.1	A.D.B.
	1.2		30.2				91.8	4.1	D.B.
+1.60	8.2	1.2	69.4				100.0	9.5	A.D.B.
	8.2		70.2				100.0	9.5	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.03	352	448	26	180	1.099

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8901 Date April 27, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-14-2

Starting Temperature °C: 320

Softening Temperature °C: 352

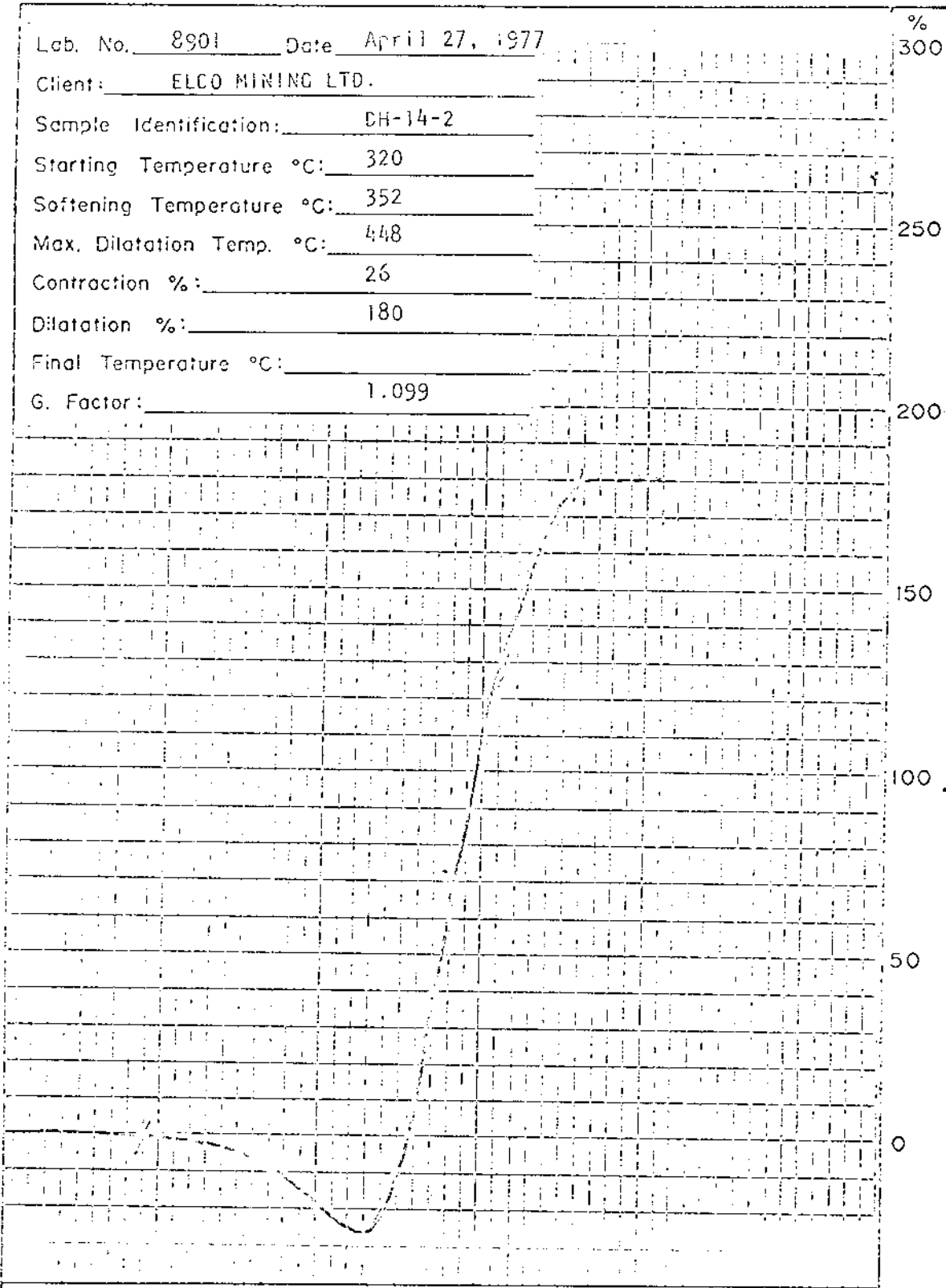
Max. Dilatation Temp. °C: 448

Contraction %: 26

Dilatation %: 180

Final Temperature °C:

G. Factor: 1.099



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-3 Lab. No. 8902 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	4.3	29.9	64.9	0.78	76	Air Dried Basis
	4.3	30.2	65.5	0.79	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			i
					WT. %	ASH %	S. %	
1/4" x 65M	93.8	0.9	4.3	0.80	93.8	4.3	0.80	A.D.B.
	93.8		4.3	0.81	93.8	4.3	0.81	D.B.
65M x 0	6.2	0.9	8.1	0.93	100.0	4.5	0.81	A.D.B.
	6.2		8.2	0.94	100.0	4.5	0.82	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	94.3	0.8	2.8	29.2	67.2	0.72	94.3	2.8	A.D.B.
	94.3		2.8	29.4	67.8	0.73	94.3	2.8	D.B.
1.40-1.50	2.7	0.9	15.9	23.5	59.7	0.69	97.0	3.2	A.D.B.
	2.7		16.0	23.7	60.3	0.70	97.0	3.2	D.B.
1.50-1.60	1.3	0.9	28.9				98.3	3.5	A.D.B.
	1.3		29.2				98.3	3.5	D.B.
+1.60	1.7	0.9	49.8				100.0	4.3	A.D.B.
	1.7		50.3				100.0	4.3	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.05	356	456	27	156	1.095

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8902 Date April 27, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-14-3

Starting Temperature °C: 320

Softening Temperature °C: 356

Max. Dilatation Temp. °C: 456

250

Contraction %: 27

Dilatation %: 156

Final Temperature °C:

G. Factor: 1.095

200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-4

Lab. No. 8903

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	7.2	29.4	62.5	0.67	74	Air Dried Basis
	7.3	29.7	63.0	0.68	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.5	0.9	7.0	0.69	94.5	7.0	0.69	A.D.B.
	94.5		7.1	0.70	94.5	7.1	0.70	D.B.
65M x 0	5.5	0.9	9.5	0.67	100.0	7.1	0.69	A.D.B.
	5.5		9.6	0.68	100.0	7.2	0.70	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	90.7	0.9	3.2	29.4	66.5	0.68	90.7	3.2	A.D.B.
	90.7		3.2	29.7	67.1	0.69	90.7	3.2	D.B.
1.40-1.50	3.3	0.9	20.6	25.9	52.6	0.56	94.0	3.8	A.D.B.
	3.3		20.8	26.1	53.1	0.57	94.0	3.8	D.B.
1.50-1.60	1.3	1.1	27.3				95.3	4.1	A.D.B.
	1.3		27.6				95.3	4.1	D.B.
+1.60	4.7	1.0	64.3				100.0	7.0	A.D.B.
	4.7		64.9				100.0	7.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.05	352	453	23	173	1.106

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

Lab. No. 8903 Date April 28, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-14-4

Starting Temperature °C: 320

Softening Temperature °C: 352

Max. Dilatation Temp. °C: 453

Contraction %: 23

Dilatation %: 173

Final Temperature °C:

G. Factor: 1.106

250

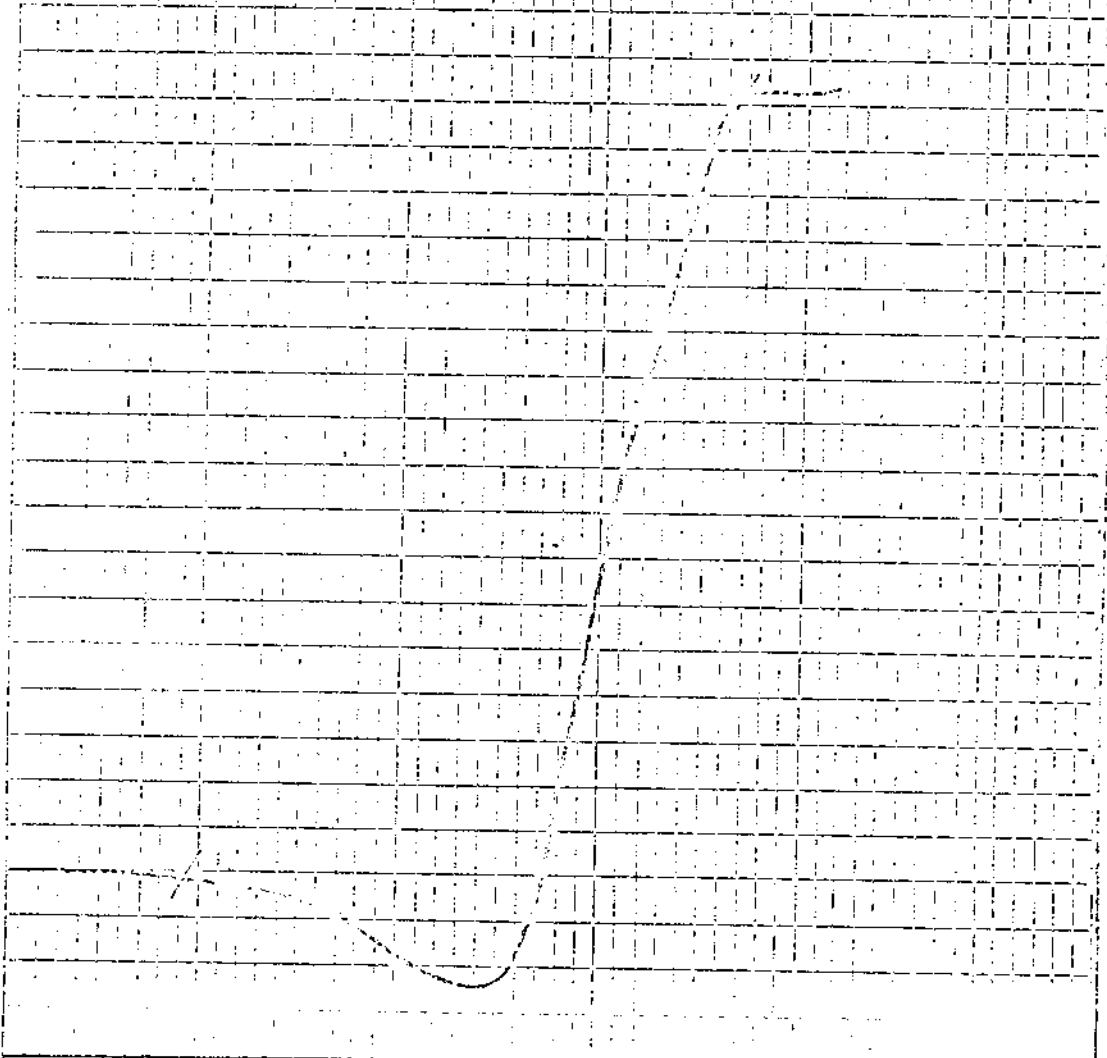
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-5 Lab. No. 8904 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	17.4	26.7	55.1	0.67	80	Air Dried Basis
	17.5	26.9	55.6	0.68	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.9	0.7	18.2	0.68	91.9	18.2	0.68	A.D.B.
	91.9		18.3	0.68	91.9	18.3	0.68	D.B.
65M x 0	8.1	0.9	12.0	0.67	100.0	17.7	0.68	A.D.B.
	8.1		12.1	0.68	100.0	17.8	0.68	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	72.0	0.8	5.0	28.4	65.8	0.74	72.0	5.0	A.D.B.
	72.0		5.0	28.6	66.4	0.75	72.0	5.0	D.B.
1.40-1.50	5.8	0.6	23.8	23.4	52.2	0.61	77.8	6.4	A.D.B.
	5.8		23.9	23.5	52.6	0.61	77.8	6.4	D.B.
1.50-1.60	3.3	0.6	33.4				81.1	7.5	A.D.B.
	3.3		33.6				81.1	7.5	D.B.
+1.60	18.9	0.5	64.0				100.0	18.2	A.D.B.
	18.9		64.3				100.0	18.2	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.*(°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.11	356	457	28	190	1.102

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8904 Date April 28, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-14-5

Starting Temperature °C: 320

Softening Temperature °C: 356

Max. Dilatation Temp. °C: 457

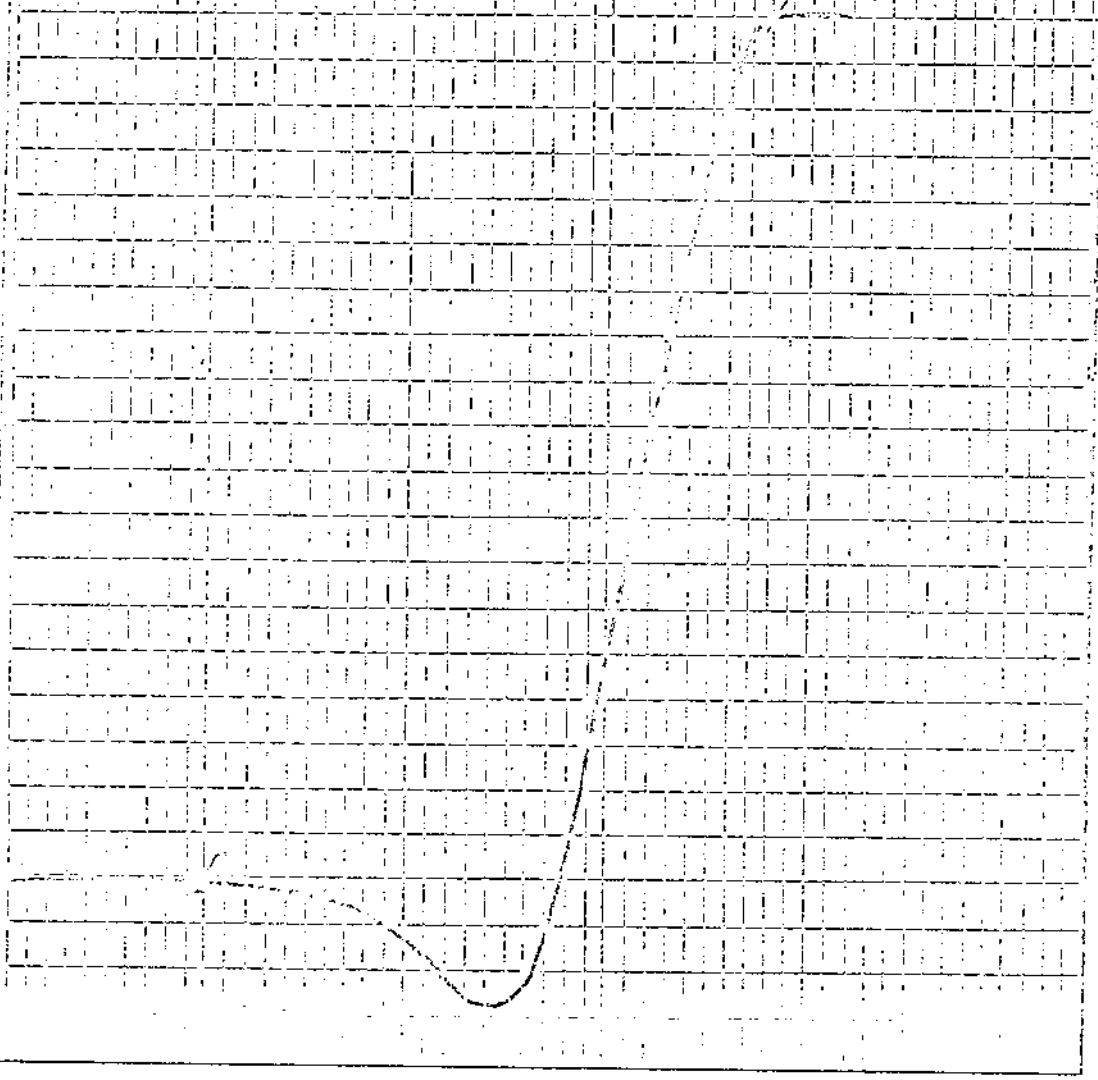
Contraction %: 28

Dilatation %: 190

Final Temperature °C:

G. Factor: 1.102

250  
200



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-6

Lab. No. 8905

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	31.6	22.4	45.3	0.58	64	Air Dried Basis
	31.8	22.6	45.6	0.58	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.7	0.6	32.5	0.56	93.7	32.5	0.56	A.D.B.
	93.7		32.7	0.56	93.7	32.7	0.56	D.B.
65M x 0	6.3	0.8	19.4	0.68	100.0	31.7	0.57	A.D.B.
	6.3		19.6	0.69	100.0	31.9	0.57	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	46.3	0.4	6.2	28.6	64.8	0.74	46.3	6.2	A.D.B.
	46.4		6.2	28.7	65.1	0.74	46.4	6.2	D.B.
1.40-1.50	7.2	0.5	22.5	24.5	52.5	0.66	53.5	8.4	A.D.B.
	7.2		22.6	24.6	52.8	0.66	53.6	8.4	D.B.
1.50-1.60	5.9	0.6	32.7				59.4	10.8	A.D.B.
	5.9		32.9				59.5	10.8	D.B.
+1.60	40.6	0.7	64.3				100.0	32.5	A.D.B.
	40.5		64.8				100.0	32.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP. * (°C)	MAX. DIL. TEMP. * (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.11	354	453	28	204	1.103

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8905 Date April 28, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-14-6

Starting Temperature °C: 320

Softening Temperature °C: 354

Max. Dilatation Temp. °C: 453

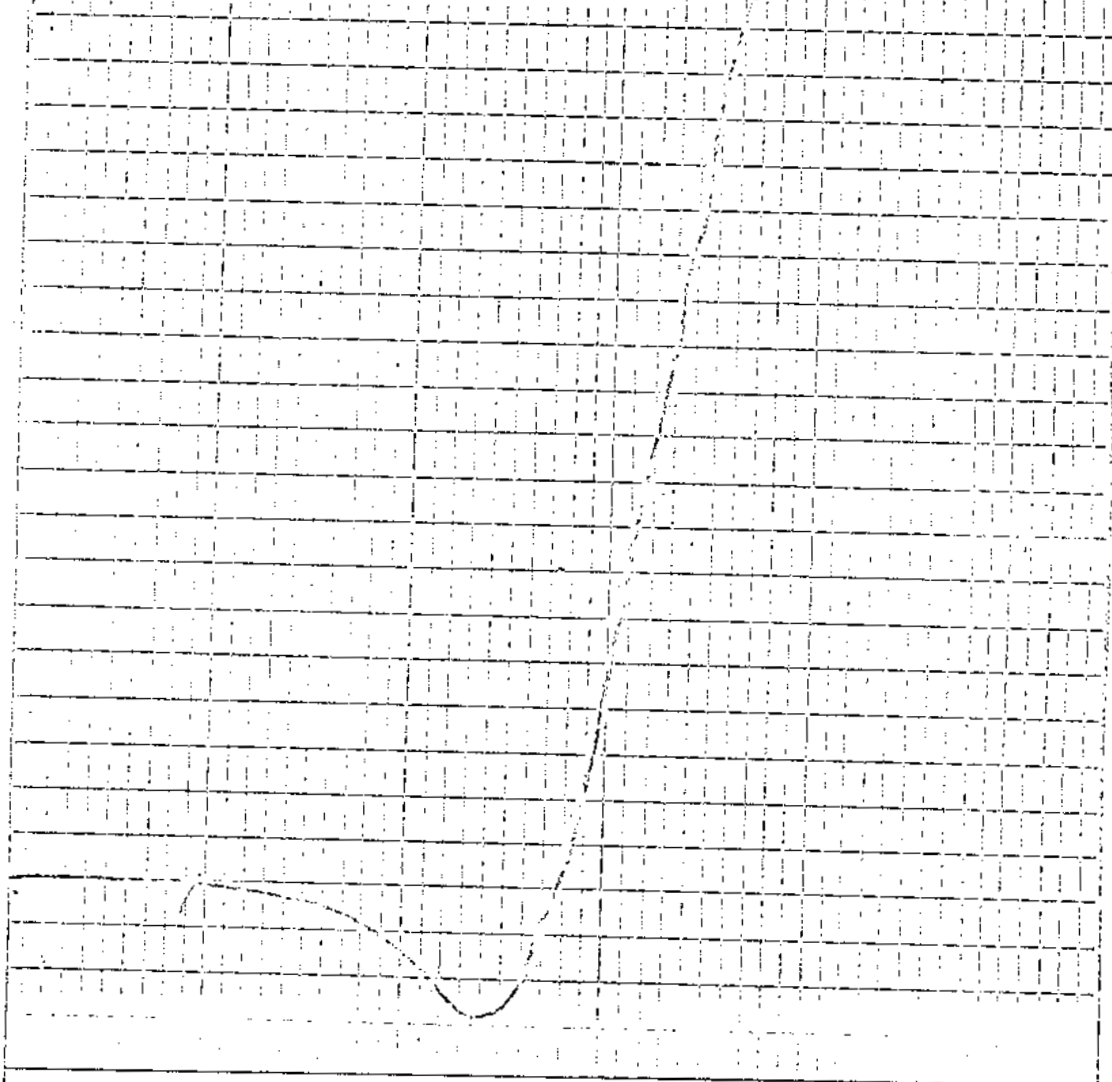
Contraction %: 28

Dilatation %: 204

Final Temperature °C:

G. Factor: 1.103

%  
300  
250  
200  
150  
100  
50  
0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
COKE SAMPLE ANALYSIS

HOLE NO.: DH-14-7 Lab. No. 8906 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	18.7	25.1	55.5	0.73	72	Air Dried Basis
	18.8	25.3	55.9	0.74	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	93.1	0.7	18.5	0.72	93.1	18.5	0.72	A.D.B.
	93.1		18.6	0.73	93.1	18.6	0.73	D.B.
65M x 0	6.9	0.9	10.6	0.77	100.0	18.0	0.72	A.D.B.
	6.9		10.7	0.78	100.0	18.1	0.73	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	70.1	0.7	5.2	26.6	67.5	0.74	70.1	5.2	A.D.B.
	70.1		5.2	26.8	68.0	0.75	70.1	5.2	D.B.
1.40-1.50	4.9	1.0	20.5	24.6	53.9	0.68	75.0	6.2	A.D.B.
	4.9		20.7	24.8	54.5	0.69	75.0	6.2	D.B.
1.50-1.60	3.6	1.0	26.9				78.6	7.1	A.D.B.
	3.6		27.2				78.6	7.2	D.B.
+1.60	21.4	0.8	60.0				100.0	18.5	A.D.B.
	21.4		60.5				100.0	18.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.08	360	456	20	104	1.087

\* S.T. & M.D.T. corrected with factor 6/5

Lcb. No. 3906 Date April 28, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-14-7

Starting Temperature °C: 320

Softening Temperature °C: 360

Max. Dilatation Temp. °C: 456

250

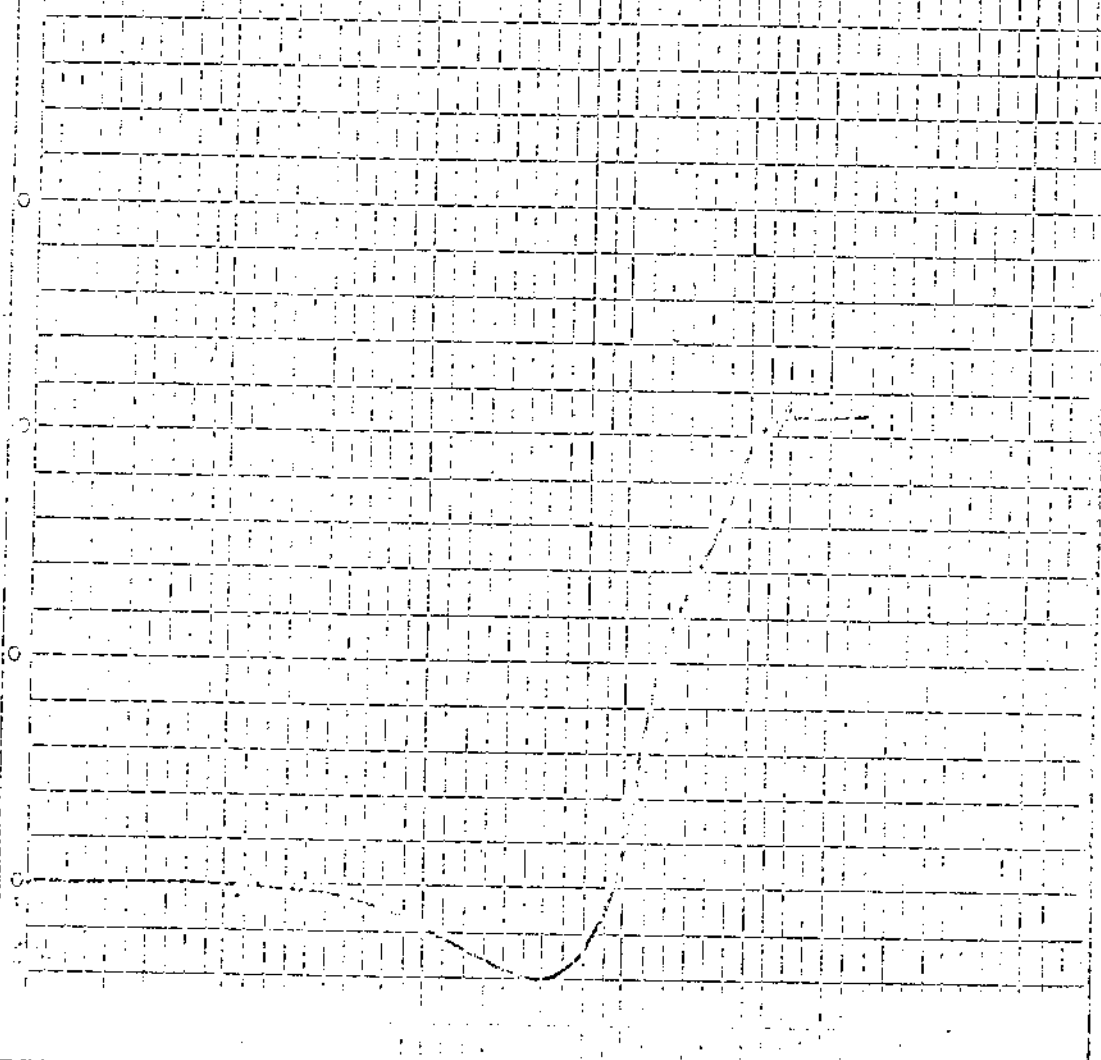
Contraction %: 20

Dilatation %: 104

Final Temperature °C:

G. Factor: 1.037

200



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-8

Lab. No. 8907

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	43.6	18.8	36.8	0.93	58	Air Dried Basis
	44.0	19.0	37.0	0.94		Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	95.7	0.8	44.3	0.92	95.7	44.3	0.92	A.D.B.
	95.7		44.7	0.93	95.7	44.7	0.93	D.B.
65M x 0	4.3	0.7	28.3	1.08	100.0	43.6	0.93	A.D.B.
	4.3		28.5	1.09	100.0	44.0	0.94	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	34.5	0.6	7.0	28.5	63.9	1.22	34.5	7.0	A.D.B.
	34.5		7.0	28.7	64.3	1.23	34.5	7.0	D.B.
1.40-1.50	4.9	0.8	21.8	24.6	52.8	1.04	39.4	8.8	A.D.B.
	4.9		22.0	24.8	53.2	1.05	39.4	8.9	D.B.
1.50-1.60	5.0	0.8	30.4				44.4	11.3	A.D.B.
	5.0		30.6				44.4	11.3	D.B.
+1.60	55.6	0.8	70.7				100.0	44.3	A.D.B.
	55.6		71.3				100.0	44.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST				G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
8	0.05	352	459	24	294	1.126

\*S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 3907 Date April 28, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-14-8

Starting Temperature °C: 320

Softening Temperature °C: 352

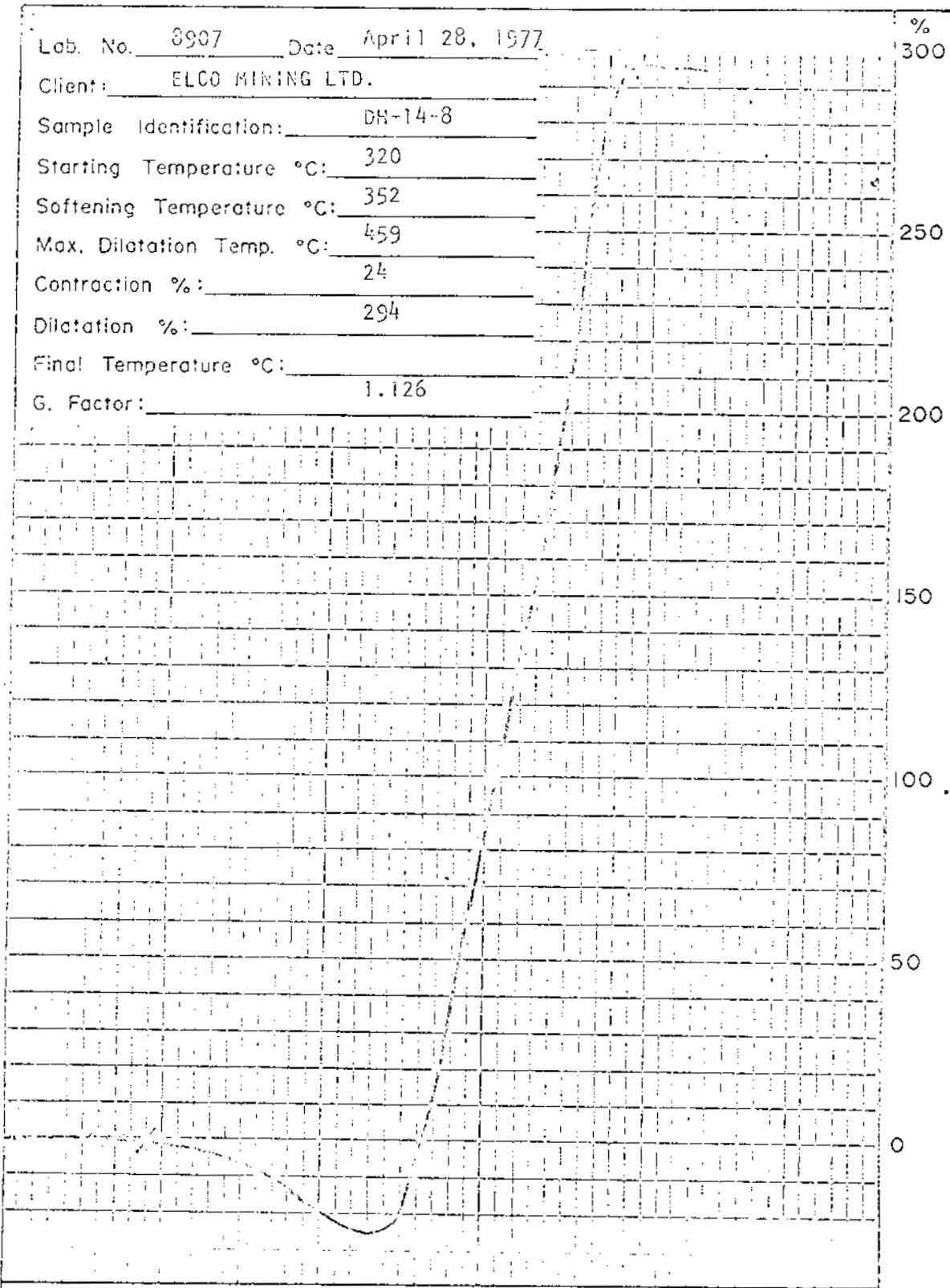
Max. Dilatation Temp. °C: 459

Contraction %: 24

Dilatation %: 294

Final Temperature °C:

G. Factor: 1.126



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-9 Lab. No. 8908 DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	11.2	25.8	62.2	0.82	95	Air Dried Basis
	11.3	26.0	62.7	0.83	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	88.8	0.8	11.4	0.78	88.8	11.4	0.78	A.D.B.
	88.8		11.5	0.79	88.8	11.5	0.79	D.B.
65M x 0	11.2	0.9	9.6	0.79	100.0	11.2	0.78	A.D.B.
	11.2		9.7	0.80	100.0	11.3	0.79	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	78.8	0.8	4.4	27.6	67.2	0.81	78.8	4.4	A.D.B.
	78.8		4.4	27.8	67.8	0.82	78.8	4.4	D.B.
1.40-1.50	6.0	0.8	18.2	23.8	57.2	0.76	84.8	5.4	A.D.B.
	6.0		18.3	24.0	57.7	0.77	84.8	5.4	D.B.
1.50-1.60	4.1	0.8	28.1				88.9	6.4	A.D.B.
	4.1		28.3				88.9	6.4	D.B.
+1.60	11.1	1.3	51.1				100.0	11.4	A.D.B.
	11.1		51.8				100.0	11.5	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8 1/2	0.05	361	457	28	131	1.082

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8903 Date April 28, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-14-9

Starting Temperature °C: 320

Softening Temperature °C: 361

Max. Dilatation Temp. °C: 457

Contraction %: 28

Dilatation %: 131

Final Temperature °C:

G. Factor: 1.082

250

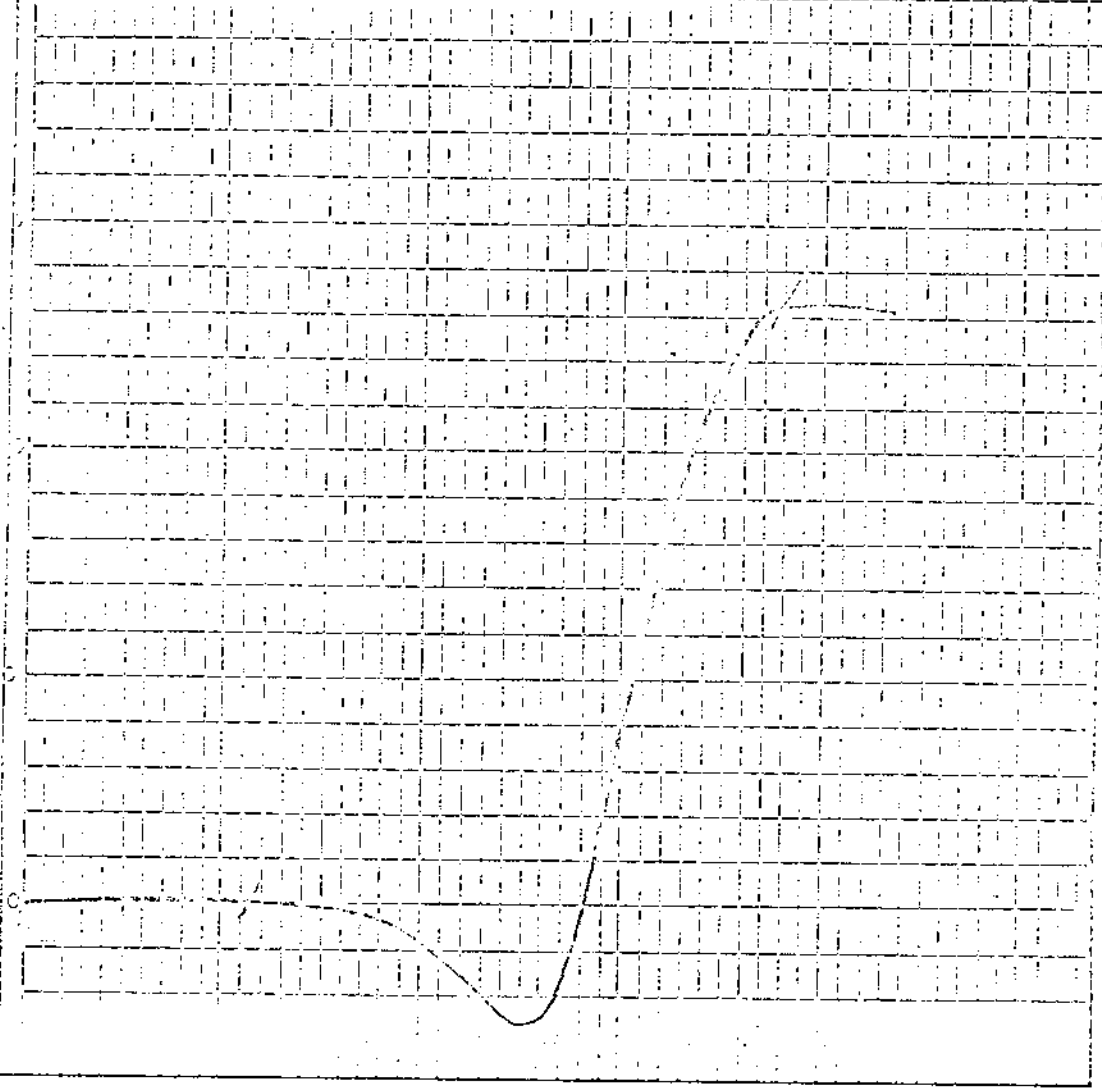
200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-10

Lab. No. 8909

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	39.6	19.6	40.1	0.55	69	Air Dried Basis
	39.9	19.7	40.4	0.55	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.4	0.8	40.1	0.54	94.4	40.1	0.54	A.D.B.
	94.4		40.4	0.54	94.4	40.4	0.54	D.B.
65M x 0	5.6	0.9	26.0	0.70	100.0	39.3	0.55	A.D.B.
	5.6		26.2	0.71	100.0	39.6	0.55	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	41.2	0.8	7.6	27.1	64.5	0.84	41.2	7.6	A.D.B.
	41.2		7.7	27.3	65.0	0.85	41.2	7.7	D.B.
1.40-1.50	4.4	0.7	23.0	23.2	53.1	0.69	45.6	9.1	A.D.B.
	4.4		23.2	23.4	53.4	0.69	45.6	9.2	D.B.
1.50-1.60	6.7	0.9	31.0				52.3	11.9	A.D.B.
	6.7		31.3				52.3	12.0	D.B.
+1.60	47.7	0.8	69.7				100.0	39.5	A.D.B.
	47.7		70.3				100.0	39.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp. = 320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.05	361	460	29	222	1.102

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8903 Date April 29, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-14-10

Starting Temperature °C: 320

Softening Temperature °C: 361

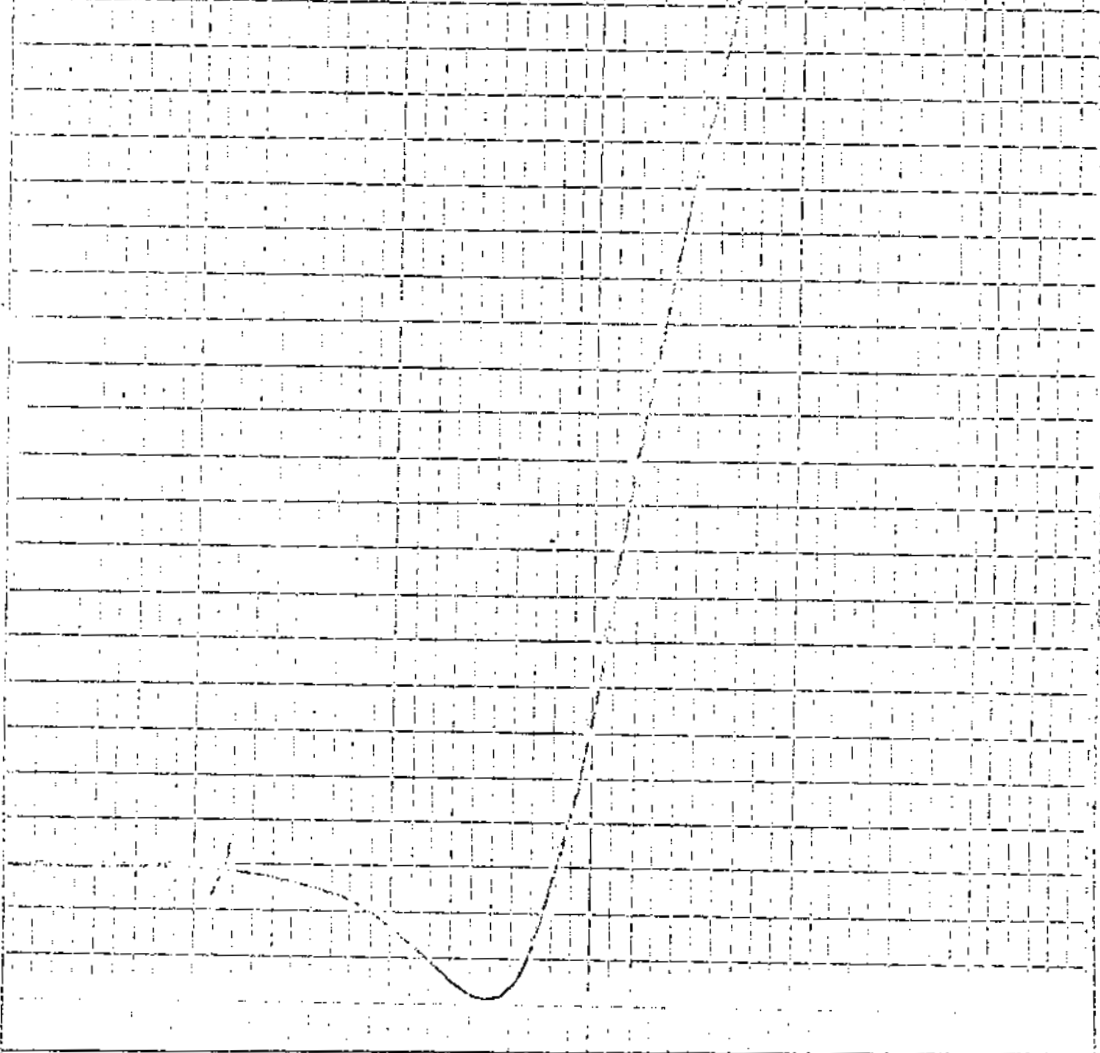
Max. Dilatation Temp. °C: 460

Contraction %: 29

Dilatation %: 222

Final Temperature °C: 1.102

G. Factor: 1.102



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

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Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-14-11

Lab. No. 8910

DATE: April/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	5.9	27.9	65.4	0.87	92	Air Dried Basis
	5.9	28.1	66.0	0.88	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	92.7	0.8	6.0	0.87	92.7	6.0	0.87	A.D.B.
	92.7		6.0	0.88	92.7	6.0	0.88	D.B.
65M x 0	7.3	0.6	4.8	0.88	100.0	5.9	0.87	A.D.B.
	7.3		4.8	0.89	100.0	5.9	0.88	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	91.1	0.8	3.9	27.9	67.4	0.89	91.1	3.9	A.D.B.
	91.1		3.9	28.1	68.0	0.90	91.1	3.9	D.B.
1.40-1.50	4.5	1.0	14.6	23.9	60.5	0.80	95.6	4.4	A.D.B.
	4.5		14.7	24.1	61.2	0.81	95.6	4.4	D.B.
1.50-1.60	1.3	1.0	19.7				96.9	4.6	A.D.B.
	1.3		19.9				96.9	4.6	D.B.
+1.60	3.1	1.0	49.2				100.0	6.0	A.D.B.
	3.1		49.7				100.0	6.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Initial Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.03	360	459	25	208	1.105

\* S.T. \* M.D.T. corrected with factor 6/5

Lab. No. 8910 Date April 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-14-11

Starting Temperature °C: 320

Softening Temperature °C: 360

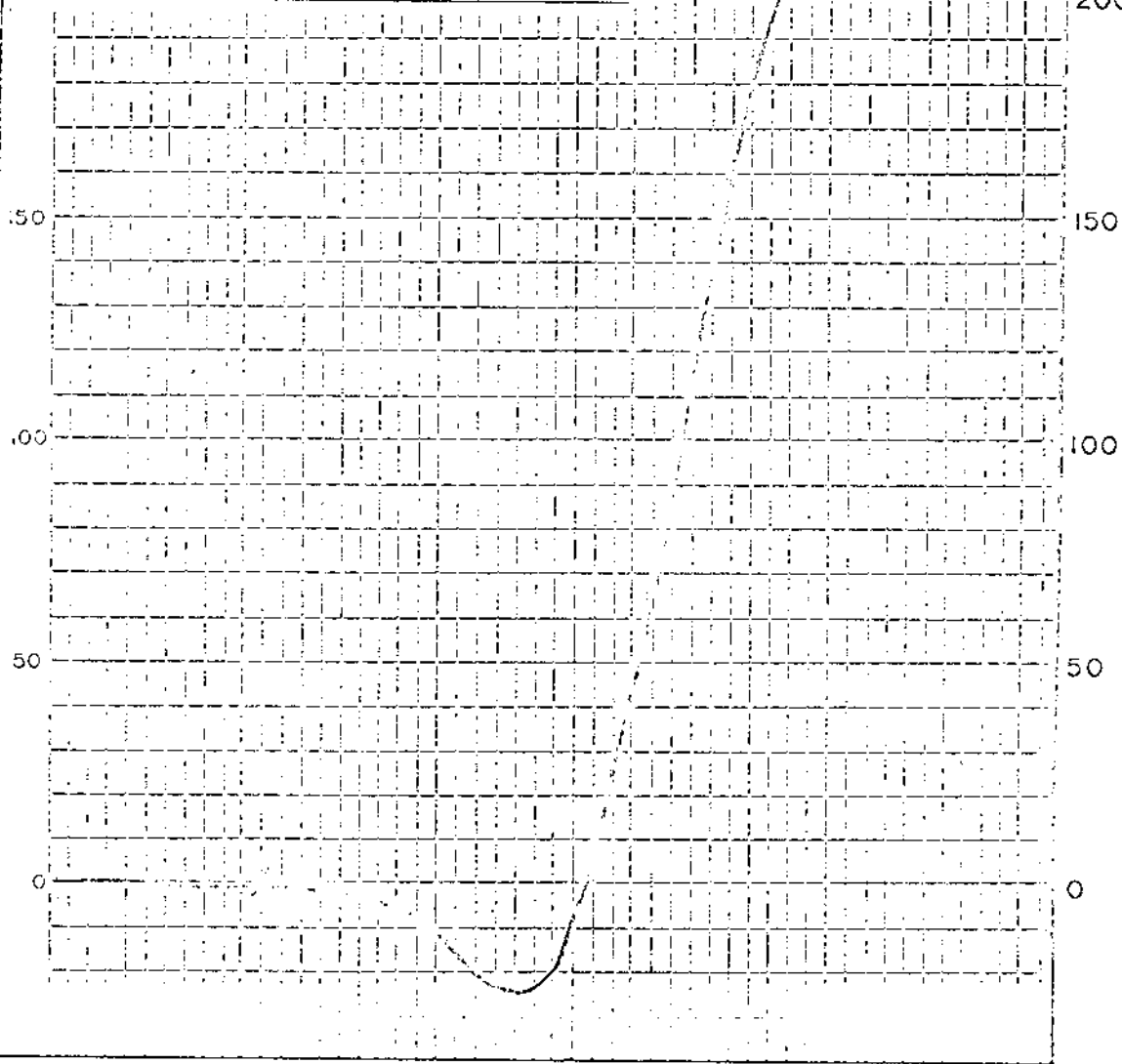
Max. Dilatation Temp. °C: 459

Contraction %: 25

Dilatation %: 208

Final Temperature °C:

G. Factor: 1.105



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 1 Lab. No.: 77 - 4299 Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	16.8	30.7	51.6	0.96	76.8	Air Dried Basis
--	16.9	31.0	52.1	0.97	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.0	0.8	17.4	0.92	88.0	17.4	0.92	A.D.B.
	88.0	--	17.5	0.93	88.0	17.5	0.93	D.B.
65 x 0	12.0	0.9	12.7	1.06	100.0	16.8	0.94	A.D.B.
	12.0	--	12.8	1.07	100.0	16.9	0.95	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	81.4	1.2	8.0	33.6	57.2	1.03	81.4	8.0	A.D.B.
	81.5	--	8.1	34.0	57.9	1.04	81.5	8.1	D.B.
1.40-1.50	3.4	0.9	23.0	29.0	47.1	0.80	84.8	8.6	A.D.B.
	3.4	--	23.2	29.3	47.5	0.81	84.9	8.7	D.B.
1.50-1.60	1.4	0.7	27.4	--	--	--	86.2	8.9	A.D.B.
	1.4	--	27.6	--	--	--	86.3	9.0	D.B.
+1.60	13.8	0.7	67.2	--	--	--	100.0	17.0	A.D.B.
	13.7	--	67.7	--	--	--	100.0	17.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8½	0.040					

Lab No. 77 - 4299 Date June 7, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 1

Starting Temperature °C: 350°C

Softening Temperature °C: 370°C

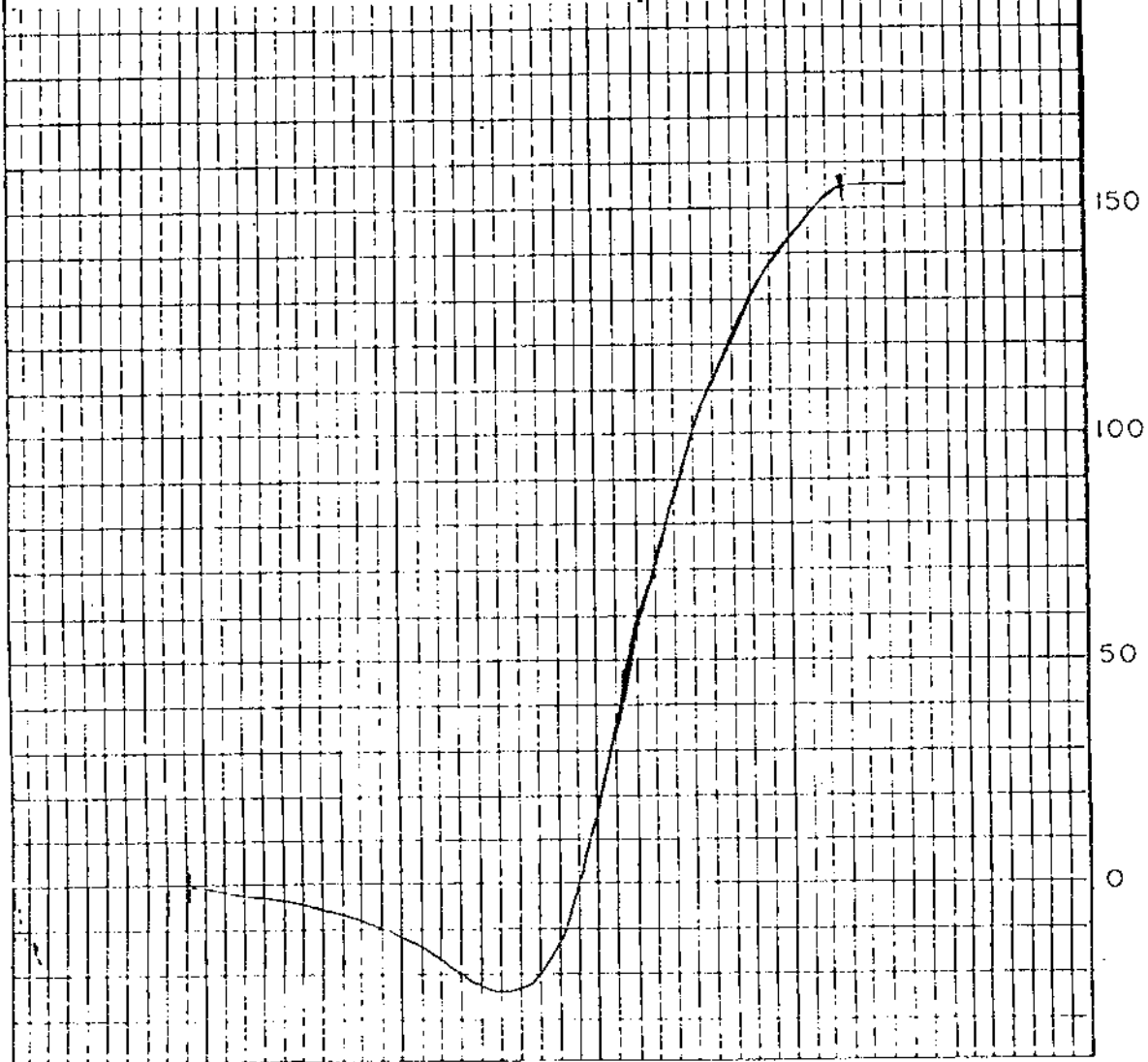
Max. Dilatation Temp. °C: 459°C

Contraction %: 24%

Dilatation %: 155%

Final Temperature °C:

G. Factor: 1.085



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 2      Lab. No.: 77 - 4300      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	45.2	29.1	25.0	1.98	65.0	Air Dried Basis
--	45.5	29.3	25.2	1.99	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.2	0.6	46.3	2.06	89.2	46.3	2.06	A.D.B.
	89.2	--	46.4	2.07	89.2	46.4	2.07	D.B.
65 x 0	10.8	0.6	41.6	2.50	100.0	45.8	2.11	A.D.B.
	10.8	--	41.8	2.51	100.0	45.9	2.12	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	32.5	1.1	4.2	32.0	62.7	0.85	32.5	4.2	A.D.B.
	32.6	--	4.3	32.4	63.3	0.86	32.6	4.3	D.B.
1.40-1.50	4.3	0.9	23.8	26.9	48.4	0.75	36.8	6.5	A.D.B.
	4.3	--	24.0	27.2	48.8	0.76	36.9	6.6	D.B.
1.50-1.60	1.8	0.7	32.8	--	--	--	38.6	7.7	A.D.B.
	1.8	--	33.0	--	--	--	38.7	7.8	D.B.
+1.60	61.4	0.5	68.7	--	--	--	100.0	45.2	A.D.B.
	61.3	--	69.0	--	--	--	100.0	45.3	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.057					

Lab. No. 77 - 4300 Date June 7, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 2

Starting Temperature °C: 350°C

Softening Temperature °C: 367°C

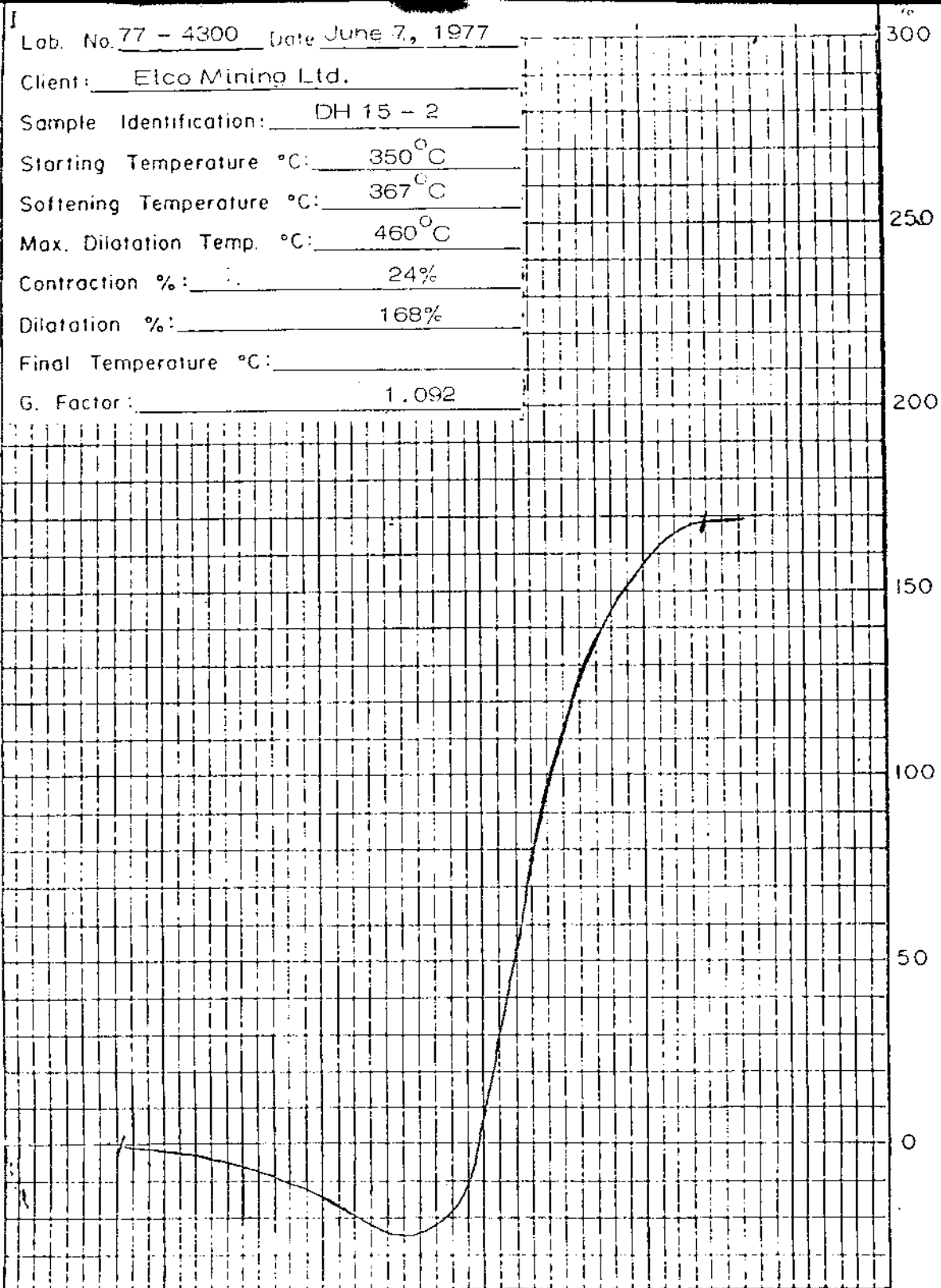
Max. Dilatation Temp. °C: 460°C

Contraction %: 24%

Dilatation %: 168%

Final Temperature °C:

G. Factor: 1.092



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 3 Lab. No.: 77 - 4301 Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	12.3	30.6	56.3	0.94	63.6	Air Dried Basis
--	12.4	30.9	56.7	0.95	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	89.8	0.8	12.4	0.90	89.8	12.4	0.90	A.D.B.
	89.8	--	12.5	0.91	89.8	12.5	0.91	D.B.
65 x 0	10.2	0.8	13.4	1.03	100.0	12.4	0.91	A.D.B.
	10.2	--	13.5	1.04	100.0	12.6	0.92	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	77.8	0.9	3.8	33.3	62.0	0.90	77.8	3.8	A.D.B.
	77.8	--	3.8	33.6	62.6	0.91	77.8	3.8	D.B.
1.40-1.50	5.5	1.0	11.8	30.1	57.1	0.88	83.3	4.3	A.D.B.
	5.5	--	11.9	30.4	57.7	0.89	83.3	4.3	D.B.
1.50-1.60	2.8	0.4	33.0	--	--	--	86.1	5.3	A.D.B.
	2.8	--	33.2	--	--	--	86.1	5.3	D.B.
+1.60	13.9	0.7	59.8	--	--	--	100.0	12.8	A.D.B.
	13.9	--	60.2	--	--	--	100.0	12.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
		8½	0.035			

Lab. No. 77 - 4301 Date June 7, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 3

Starting Temperature °C: 350°C

Softening Temperature °C: 368°C

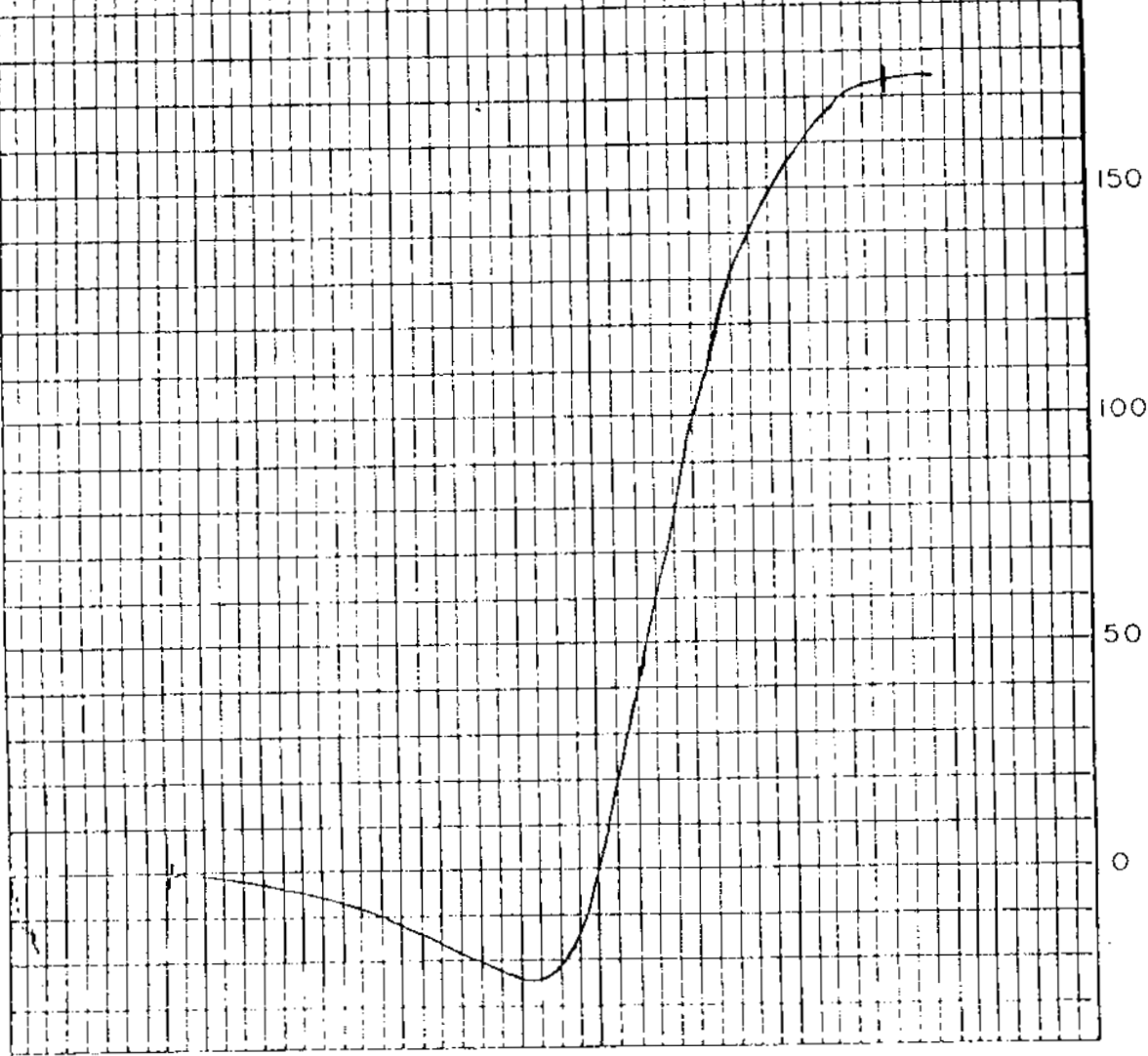
Max. Dilatation Temp. °C: 463°C

Contraction %: 24%

Dilatation %: 173%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.095



WARNOCK HERSEY PROFESSIONAL SERVICES

Title RUHR DILATOMETER TEST

Date \_\_\_\_\_

Drawn \_\_\_\_\_



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 4      Lab. No.: 77 - 4302      Date: May 25, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	48.5	22.3	28.5	0.44	74.7	Air Dried Basis
--	48.8	22.5	28.7	0.44	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	86.8	0.6	49.7	0.47	86.8	49.7	0.47	A.D.B.
	86.8	--	50.0	0.47	86.8	50.0	0.47	D.B.
65 x 0	13.2	0.8	39.3	0.57	100.0	48.3	0.48	A.D.B.
	13.2	--	39.6	0.57	100.0	48.6	0.48	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	34.3	1.3	6.5	33.9	58.3	0.74	34.3	6.5	A.D.B.
	34.4	--	6.6	34.3	59.1	0.75	34.4	6.6	D.B.
1.40-1.50	5.1	1.2	19.6	29.4	49.8	0.61	39.4	8.2	A.D.B.
	5.1	--	19.8	29.8	50.4	0.62	39.5	8.3	D.B.
1.50-1.60	2.5	0.9	35.5	--	--	--	41.9	9.8	A.D.B.
	2.5	--	35.8	--	--	--	42.0	9.9	D.B.
+1.60	58.1	0.6	80.4	--	--	--	100.0	50.8	A.D.B.
	58.0	--	80.8	--	--	--	100.0	51.0	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp.(°C)	Max.Dil. Temp.(°C)	Maximum Contr.%	Maximum Dil. %	G.No.
9	0.053					

Lab. No. 77 - 4302 Date June 7, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 4

Starting Temperature °C: 350°C

Softening Temperature °C: 367°C

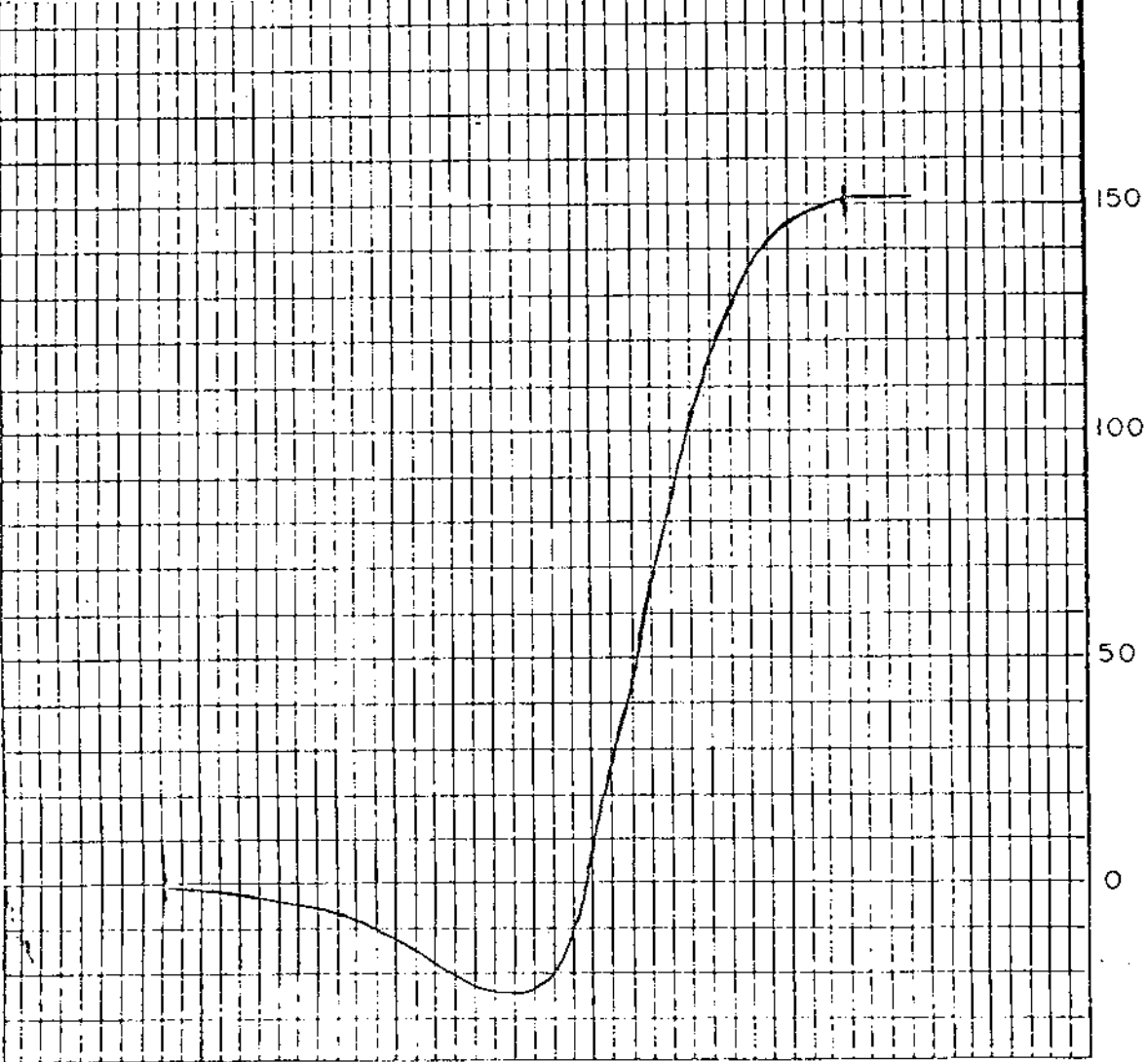
Max. Dilatation Temp. °C: 458°C

Contraction %: 24%

Dilatation %: 151%

Final Temperature °C:

G. Factor: 1.087



WARNOCK HERSEY PROFESSIONAL SERVICES

Title RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15-5

Lab. No.: 77 - 4303

Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M. %	Ash %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	45.3	21.1	32.6	0.58	53.2	Air Dried Basis
--	45.7	21.2	33.1	0.59	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	89.3	0.9	47.1	0.51	89.3	47.1	0.51	A.D.B.
	89.3	--	47.6	0.51	89.3	47.6	0.51	D.B.
65 x 0	10.7	1.0	36.2	0.65	100.0	45.9	0.52	A.D.B.
	10.7	--	36.6	0.66	100.0	46.4	0.52	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash %	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	24.2	0.9	9.6	34.4	55.1	0.86	24.2	9.6	A.D.B.
	24.2	--	9.7	34.7	55.6	0.87	24.2	9.7	D.B.
1.40-1.50	9.8	0.9	20.9	28.5	49.7	0.74	34.0	12.8	A.D.B.
	9.8	--	21.1	28.8	50.1	0.75	34.0	12.9	D.B.
1.50-1.60	6.3	0.9	29.1	--	--	--	40.3	15.5	A.D.B.
	6.3	--	29.4	--	--	--	40.3	15.6	D.B.
+1.60	59.7	0.9	70.2	--	--	--	100.0	48.2	A.D.B.
	59.7	--	70.8	--	--	--	100.0	48.5	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G. No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½						

Lab. No 77 - 4303 (Date June.7, 1977)

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 5

Starting Temperature °C: 350°C

Softening Temperature °C: 372°C

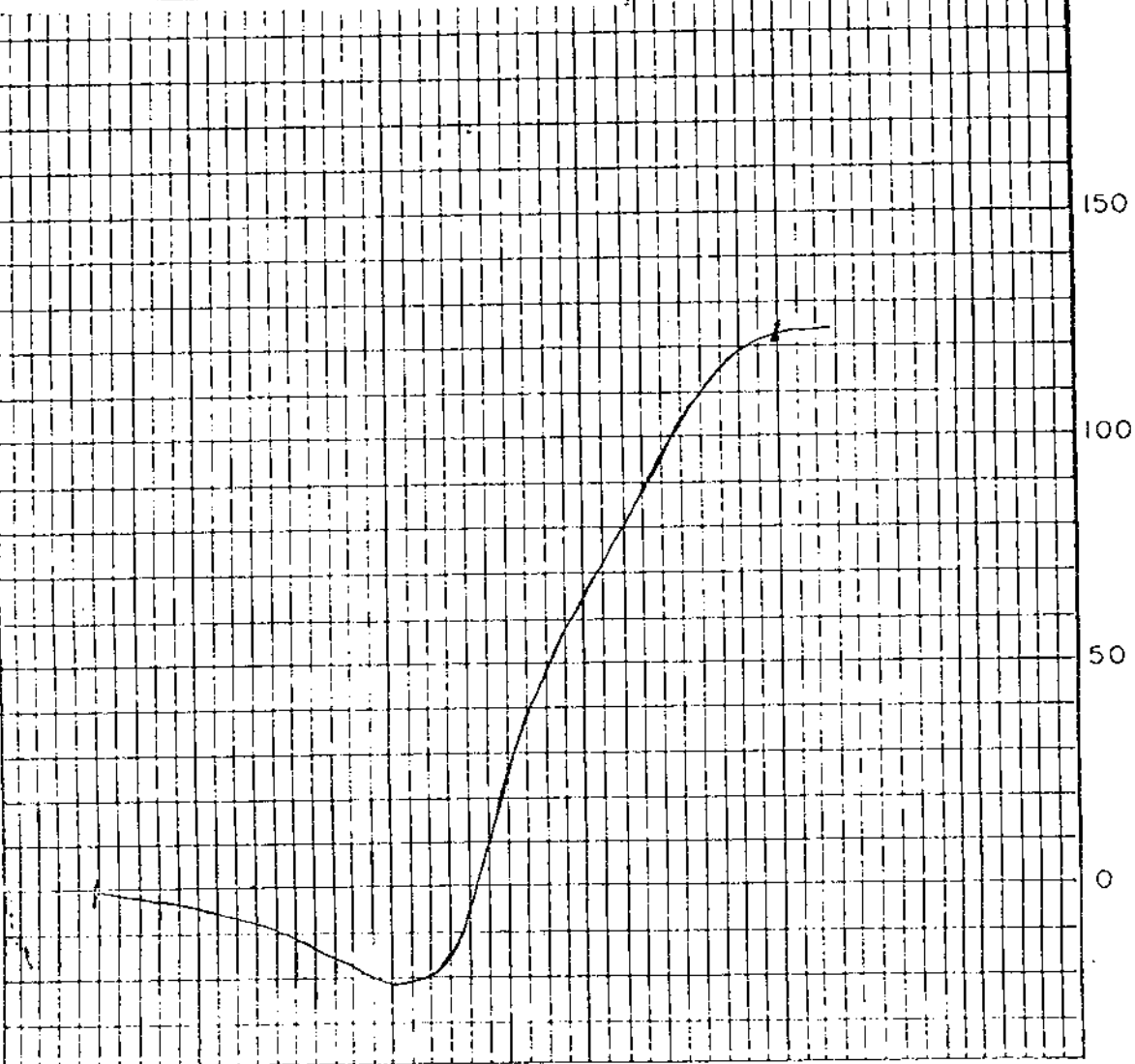
Max. Dilatation Temp. °C: 463°C

Contraction %: 21%

Dilatation %: 123%

Final Temperature °C:

G. Factor: 1.084



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

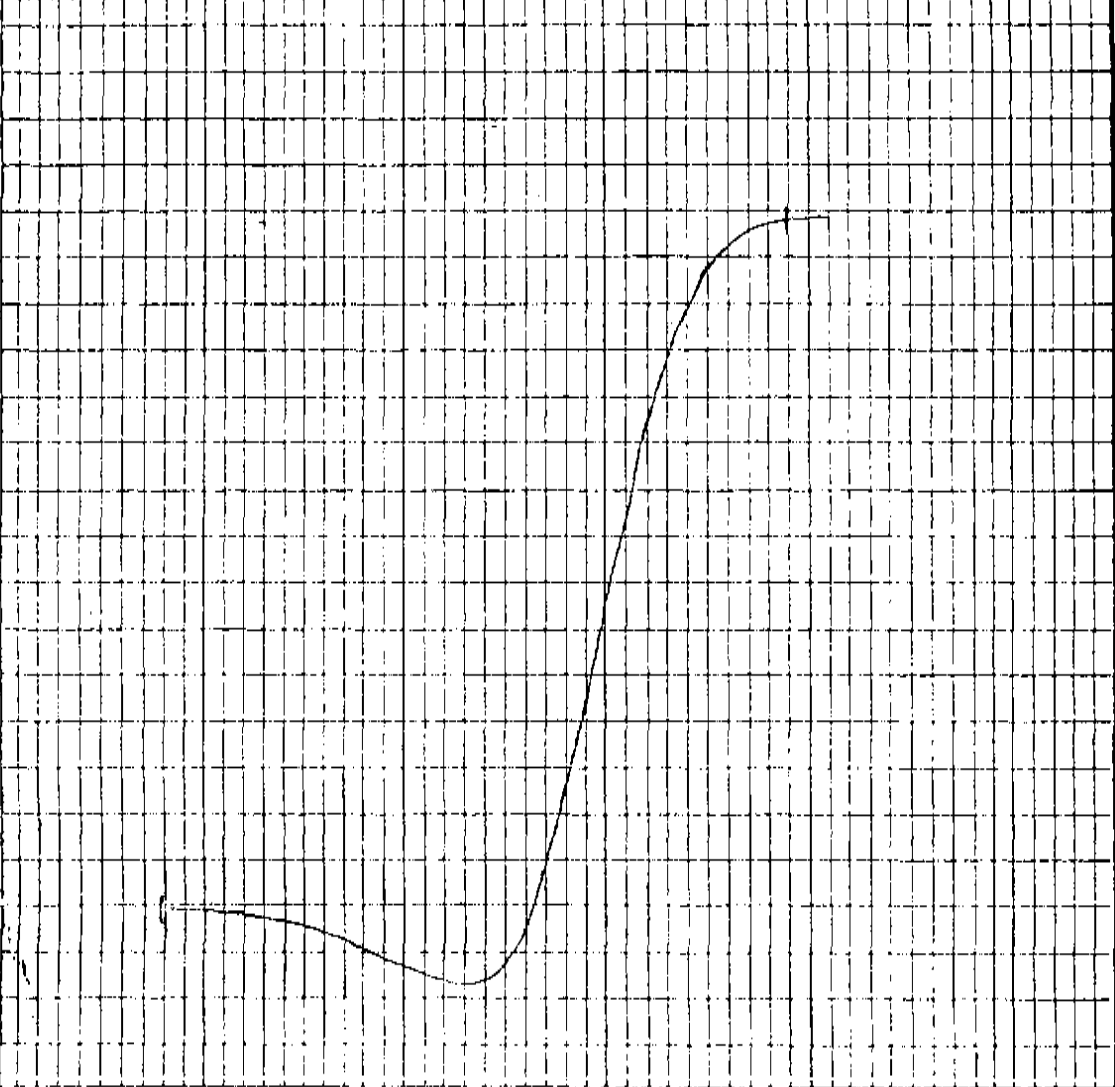
RUHR DILATOMETER TEST

Date

Drawn

Lab. No. 77 - 4304 Date June 7, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: D11 15 - 5  
 Starting Temperature °C: 350°C  
 Softening Temperature °C: 370°C  
 Max. Dilatation Temp. °C: 450°C  
 Contraction %: 17%  
 Dilatation %: 148%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.084

300  
 250  
 200  
 150  
 100  
 50  
 0



WARNOCK HERSEY PROFESSIONAL SERVICES

Title: RUHR DILATOMETER TEST

Date: \_\_\_\_\_  
 Drawn: \_\_\_\_\_

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 6 Lab. No.: 77 - 4304 Date: June 3, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	17.7	28.4	52.9	0.77	88.5	Air Dried Basis
--	17.8	28.7	53.5	0.78	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
1/4 x 65	91.3	1.1	18.0	0.83	91.3	18.0	0.83	A.D.B.
	91.3	--	18.2	0.84	91.3	18.2	0.84	D.B.
65 x 0	8.7	1.2	11.9	0.76	100.0	17.5	0.82	A.D.B.
	8.7	--	12.0	0.77	100.0	17.6	0.93	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	70.5	1.2	4.5	32.02	62.3	0.74	70.5	4.5	A.D.B.
	70.6	--	4.5	32.48	63.0	0.75	70.6	4.5	D.B.
1.40-1.50	5.1	0.9	20.7	27.6	51.7	0.79	75.6	5.6	A.D.B.
	5.1	--	20.9	27.9	51.2	0.79	75.7	5.6	D.B.
1.50-1.60	11.4	0.7	35.3	--	--	--	87.0	9.5	A.D.B.
	11.3	--	35.5	--	--	--	87.0	9.5	D.B.
+1.60	13.0	0.7	66.9	--	--	--	100.0	16.9	A.D.B.
	13.0	--	67.4	--	--	--	100.0	17.0	D.B.

COMPOSITE 1/4" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8%						

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 -7 Lab. No.: 77 - 4305 Date: June 3, 1977

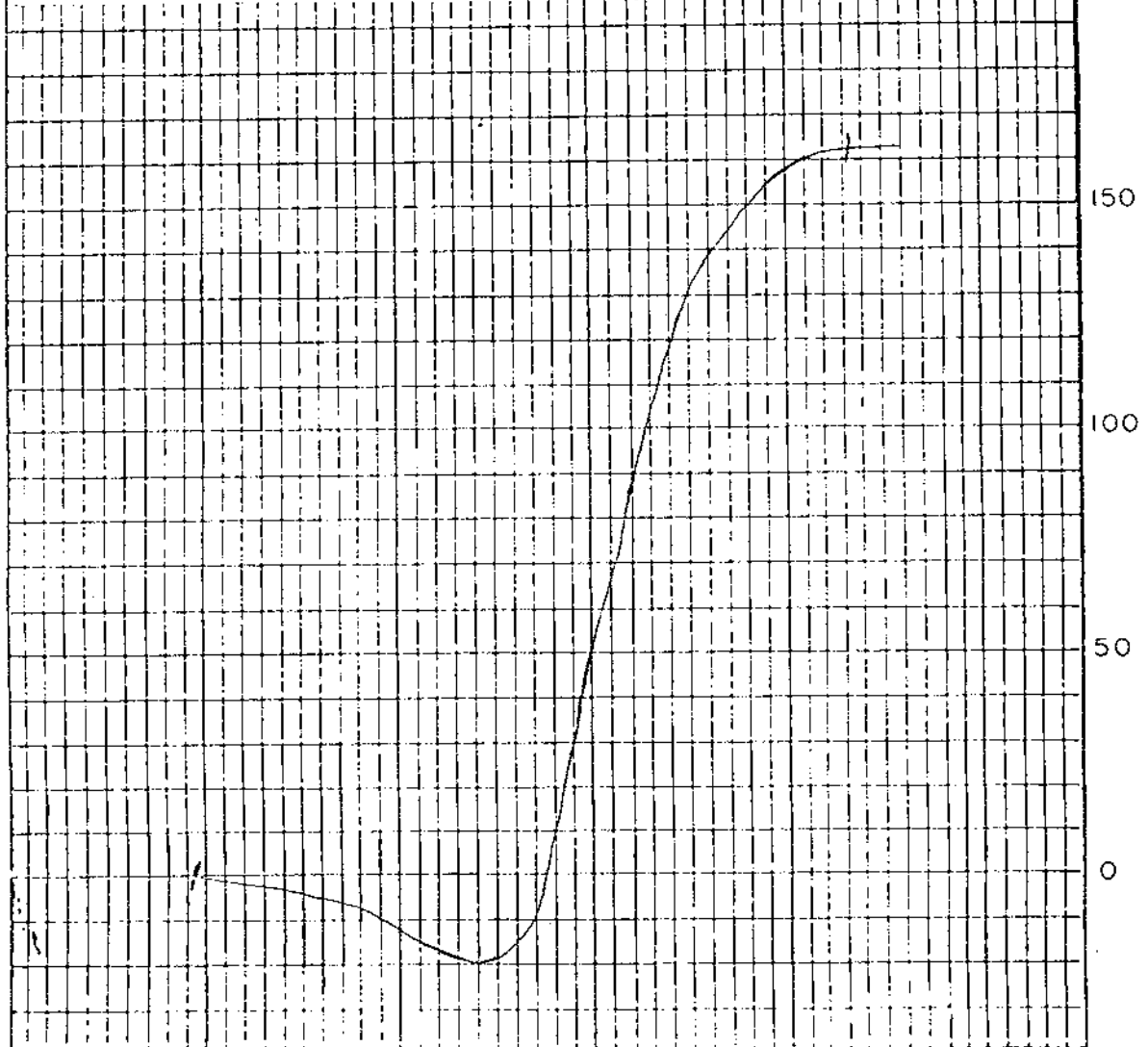
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	19.4	27.5	52.1	1.03	84.4	Air Dried Basis
--	19.5	27.8	52.7	1.04	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	92.2	0.8	20.3	1.04	92.2	20.3	1.04	A.D.B.
	92.2	--	20.4	1.05	92.2	20.4	1.05	D.B.
65 x 0	7.8	1.2	14.9	0.96	100.0	19.8	1.03	A.D.B.
	7.8	--	15.1	0.97	100.0	20.0	1.04	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	66.7	1.0	3.9	32.4	62.7	0.97	66.7	3.9	A.D.B.
	66.7	--	3.9	32.7	63.4	0.98	66.7	3.9	D.B.
1.40-1.50	5.0	0.8	19.5	28.2	51.5	1.79	71.7	4.9	A.D.B.
	5.0	--	19.7	28.4	51.9	1.90	71.7	5.0	D.B.
1.50-1.60	4.0	0.8	28.4	--	--	--	75.7	6.3	A.D.B.
	4.0	--	28.5	--	--	--	75.7	6.2	D.B.
+1.60	24.3	0.8	63.2	--	--	--	100.0	20.1	A.D.B.
	24.3	--	63.7	--	--	--	100.0	20.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½						

Lab. No. 77 - 4305 Date June 8, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 15 - 7  
 Starting Temperature °C: 350°C  
 Softening Temperature °C: 372°C  
 Max. Dilatation Temp. °C: 460°C  
 Contraction %: 20%  
 Dilatation %: 162%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.090



WARNOCK HERSEY PROFESSIONAL SERVICES

Title RUHR DILATOMETER TEST

Date \_\_\_\_\_  
 Drawn \_\_\_\_\_



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 8 Lab. No.: 77 - 4306 Date: June 3, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	35.5	23.9	39.6	1.01	65.7	Air Dried Basis
--	35.8	24.1	40.1	1.02	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	93.6	0.8	35.6	1.08	93.6	35.6	1.08	A.D.B.
	93.6	--	35.9	1.09	93.6	35.9	1.09	D.B.
65 x 0	6.4	1.0	27.4	1.14	100.0	35.1	1.08	A.D.B.
	6.4	--	27.7	1.15	100.0	35.4	1.09	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	33.9	0.9	4.5	31.0	63.6	1.11	33.9	4.5	A.D.B.
	33.9	--	4.6	31.3	64.1	1.12	33.9	4.6	D.B.
1.40-1.50	5.9	0.9	17.5	28.0	53.6	0.91	39.8	6.4	A.D.B.
	5.9	--	17.6	28.2	54.2	0.92	39.8	6.5	D.B.
1.50-1.60	6.9	0.8	31.9	--	--	--	46.7	10.2	A.D.B.
	6.9	--	32.2	--	--	--	46.7	10.3	D.B.
+1.60	53.3	0.9	59.7	--	--	--	100.0	36.6	A.D.B.
	53.3	--	60.3	--	--	--	100.0	36.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9						

Lab. No. 77 - 4306 Date June 8, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 8

Starting Temperature °C: 350

Softening Temperature °C: 367

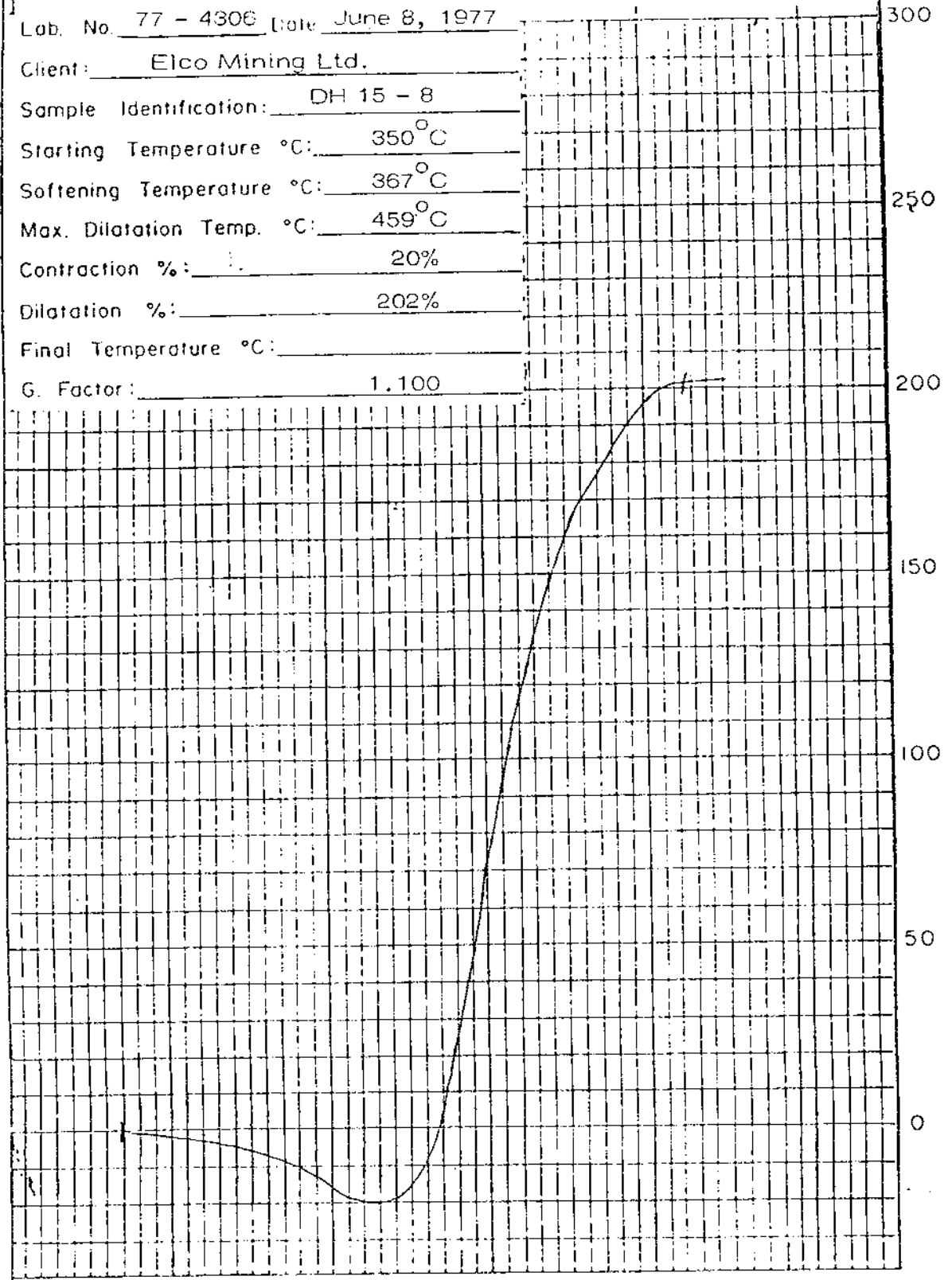
Max. Dilatation Temp. °C: 459

Contraction %: 20%

Dilatation %: 202%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.100



WARNOCK HERSEY PROFESSIONAL SERVICES

Title  
RUHR DILATOMETER TEST

Date  
\_\_\_\_\_  
Drawn  
\_\_\_\_\_

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 9 Lab. No.: 77 - 4307 Date: June 2, 1977

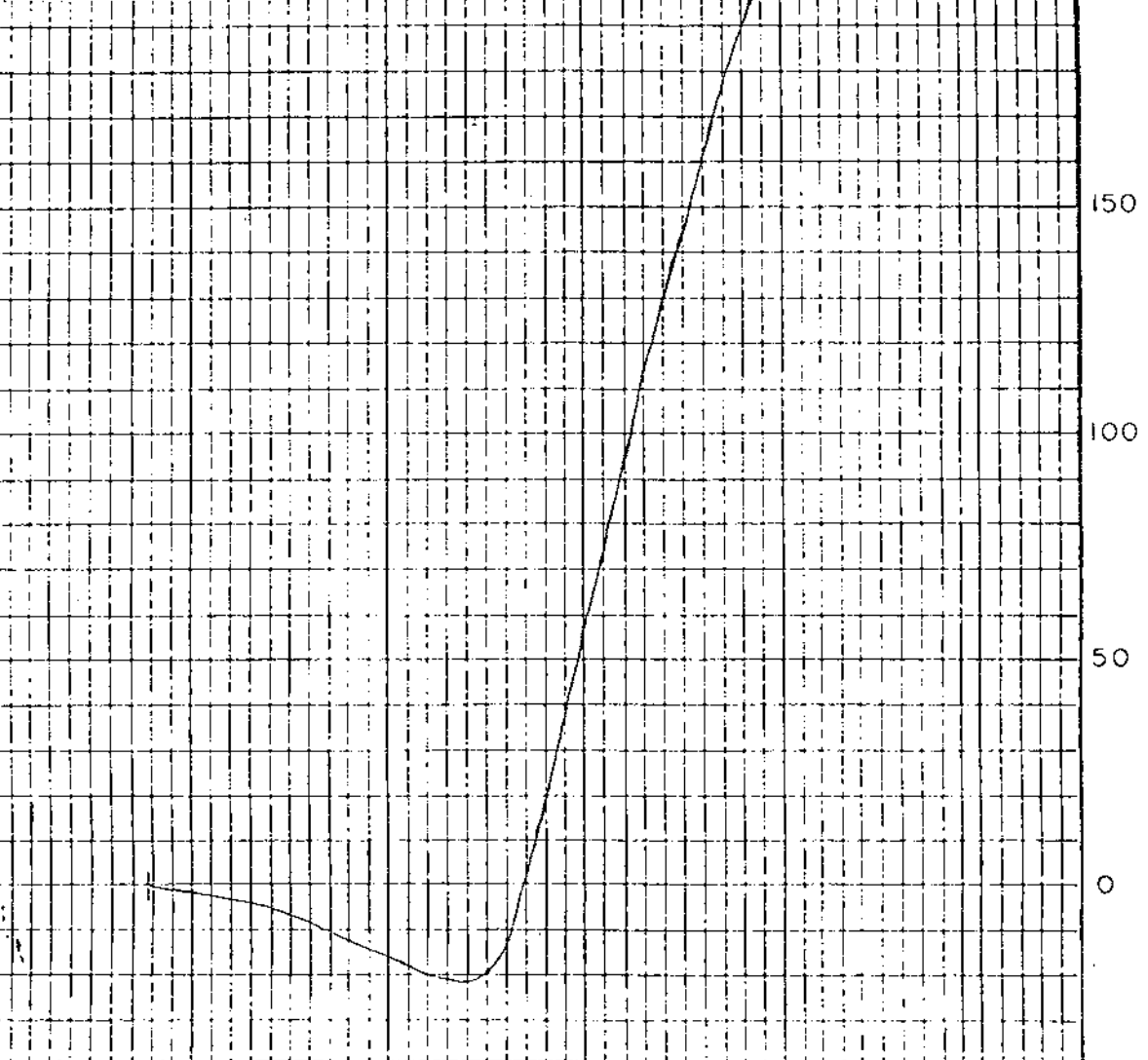
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	34.1	23.7	41.4	0.66	70.5	Air Dried Basis
--	34.4	23.9	41.7	0.67	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.3	0.7	34.8	0.66	91.3	34.8	0.66	A.D.B.
	91.3	--	35.1	0.66	91.3	35.1	0.66	D.B.
65 x 0	8.7	1.0	27.0	0.75	100.0	34.1	0.67	A.D.B.
	8.7	--	27.2	0.76	100.0	34.4	0.67	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	49.0	0.9	5.9	32.5	60.7	0.89	49.0	5.9	A.D.B.
	49.0	--	5.9	32.8	61.3	0.89	49.0	5.9	D.B.
1.40-1.50	5.8	0.7	18.6	28.9	51.8	0.78	54.8	7.3	A.D.B.
	5.8	--	18.8	29.1	52.1	0.78	54.8	7.3	D.B.
1.50-1.60	3.6	0.7	31.6	--	--	--	58.4	8.7	A.D.B.
	3.6	--	31.8	--	--	--	58.4	8.7	D.B.
+1.60	41.6	0.8	71.5	--	--	--	100.0	34.8	A.D.B.
	41.6	--	72.1	--	--	--	100.0	35.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½						

Lab No. 77 - 4307 Date June 8, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 15 - 9  
 Starting Temperature °C: 350°C  
 Softening Temperature °C: 370°C  
 Max. Dilatation Temp. °C: 463°C  
 Contraction %: 22%  
 Dilatation %: 249%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.103



WARNOCK HERSEY PROFESSIONAL SERVICES

Title: RUHR DILATOMETER TEST

Date: \_\_\_\_\_  
 Drawn: \_\_\_\_\_

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 10 Lab. No.: 77 - 4308 Date: June 3, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	8.3	29.2	61.6	0.56	123.2	Air Dried Basis
--	8.4	29.5	62.1	0.56	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	85.7	0.8	7.8	0.59	85.7	7.8	0.59	A.D.B.
	85.7	--	7.8	0.59	85.7	7.8	0.59	D.B.
65 x 0	14.3	1.2	6.2	0.60	100.0	7.6	0.59	A.D.B.
	14.3	--	6.3	0.61	100.0	7.6	0.59	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	90.5	1.2	3.7	33.2	61.9	0.57	90.5	3.7	A.D.B.
	90.5	--	3.8	33.6	62.6	0.57	90.5	3.8	D.B.
1.40-1.50	2.8	1.5	12.0	29.2	57.3	0.51	93.3	3.9	A.D.B.
	2.8	--	12.2	29.6	58.2	0.52	93.3	4.1	D.B.
1.50-1.60	1.0	1.4	20.7	--	--	--	94.3	4.1	A.D.B.
	1.0	--	21.0	--	--	--	94.3	4.2	D.B.
+1.60	5.7	1.3	59.6	--	--	--	100.0	7.3	A.D.B.
	5.7	--	60.4	--	--	--	100.0	7.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9						

Lab No 77 - 4308 Date June 8, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 10

Starting Temperature °C: 350°C

Softening Temperature °C: 372°C

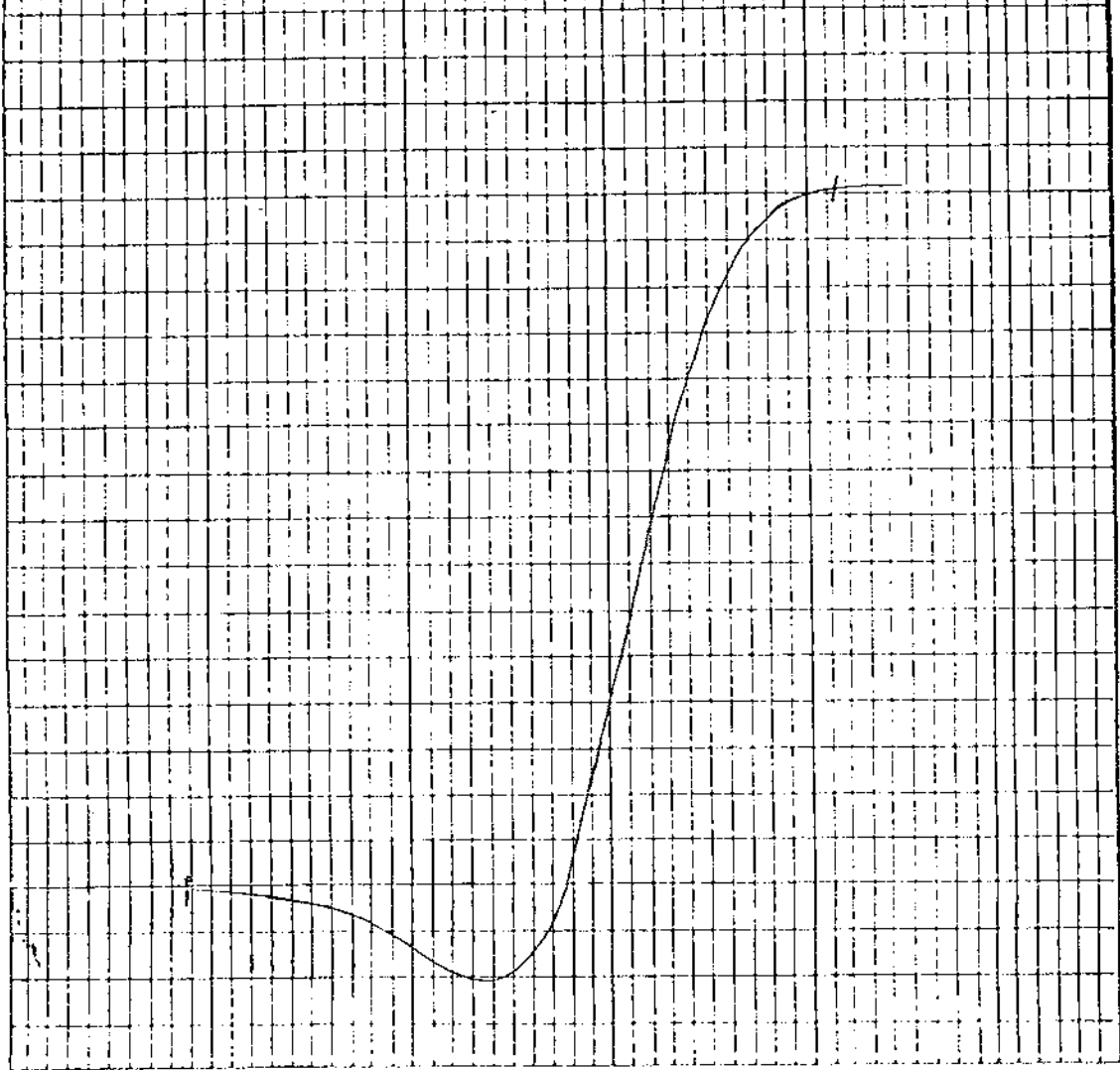
Max. Dilatation Temp. °C: 456°C

Contraction %: 21%

Dilatation %: 151%

Final Temperature °C:

G. Factor: 1.083



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 15 - 11      Lab. No.: 77 - 4309      Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	16.6	26.3	56.3	0.76	62.9	Air Dried Basis
--	16.7	26.5	56.8	0.77	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	92.6	0.7	16.5	0.76	92.6	16.5	.76	A.D.B.
	92.6	--	16.6	0.76	92.6	16.6	.76	D.B.
65 x 0	7.4	0.9	14.0	0.74	100.0	16.3	.76	A.D.B.
	7.4	--	14.1	0.75	100.0	16.4	.76	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	72.1	1.0	5.7	30.1	63.2	0.78	72.1	5.7	A.D.B.
	72.1	--	5.7	30.4	63.9	0.79	72.1	5.7	D.B.
1.40-1.50	6.5	0.8	16.6	27.1	55.5	0.71	78.6	6.6	A.D.B.
	6.5	--	16.8	27.3	55.9	0.72	78.6	6.6	D.B.
1.50-1.60	4.7	0.8	26.2	--	--	--	83.3	7.7	A.D.B.
	4.7	--	26.4	--	--	--	83.3	7.7	D.B.
+1.60	16.7	0.9	60.5	--	--	--	100.0	16.5	A.D.B.
	16.7	--	61.0	--	--	--	100.0	16.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8						

Lab No. 77 - 4309 Date June 8, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 15 - 11

Starting Temperature °C: 350°C

Softening Temperature °C: 372°C

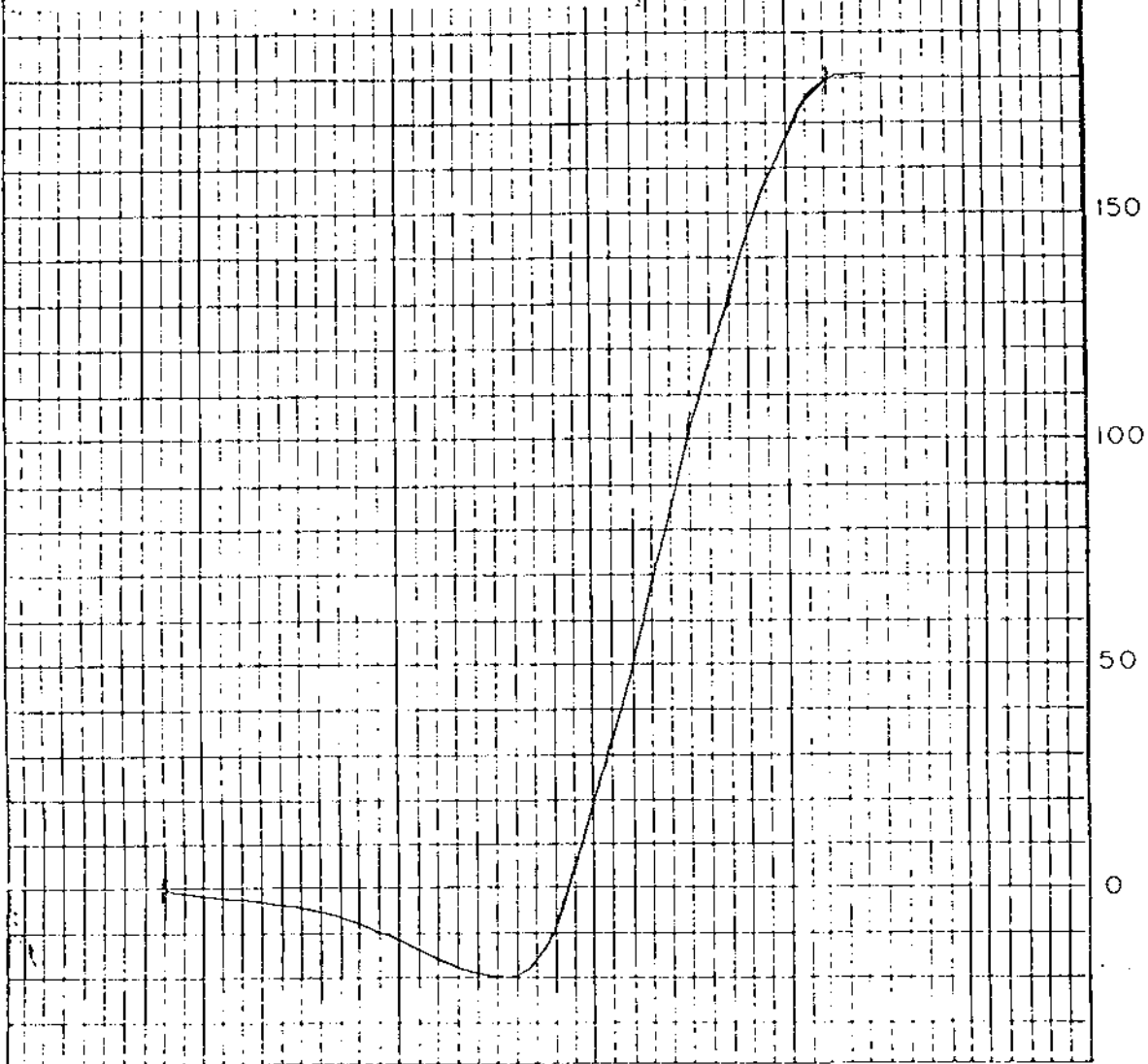
Max. Dilatation Temp. °C: 460°C

Contraction %: 20%

Dilatation %: 181%

Final Temperature °C:

G. Factor: 1.093



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 1 Lab. No.: 77 - 4310 Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	29.3	27.6	42.3	0.73	74.7	Air Dried Basis
--	29.5	27.8	42.7	0.74	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
1/4 x 65	88.0	0.7	31.5	0.74	88.0	31.5	0.74	A.D.B.
	88.0	--	31.8	0.74	88.0	31.8	0.74	D.B.
65 x 0	12.0	1.0	26.8	0.82	100.0	30.9	0.75	A.D.B.
	12.0	--	27.0	0.83	100.0	31.2	0.75	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	51.4	1.6	3.6	36.4	58.4	0.83	51.4	3.6	A.D.B.
	51.5	--	3.7	36.9	59.4	0.84	51.5	3.7	D.B.
1.40-1.50	2.4	0.9	12.9	32.4	53.8	0.80	53.8	4.0	A.D.B.
	2.4	--	13.0	32.7	54.3	0.81	53.9	4.1	D.B.
1.50-1.60	5.5	0.9	30.3	--	--	--	59.3	6.4	A.D.B.
	5.5	--	30.6	--	--	--	59.4	6.5	D.B.
+1.60	40.7	0.9	65.8	--	--	--	100.0	30.6	A.D.B.
	40.6	--	66.4	--	--	--	100.0	30.8	D.B.

COMPOSITE 1/4" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8 1/2						

Lab. No. 77 - 4310 Date June 9, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 16 - 1

Starting Temperature °C: 350°C

Softening Temperature °C: 362°C

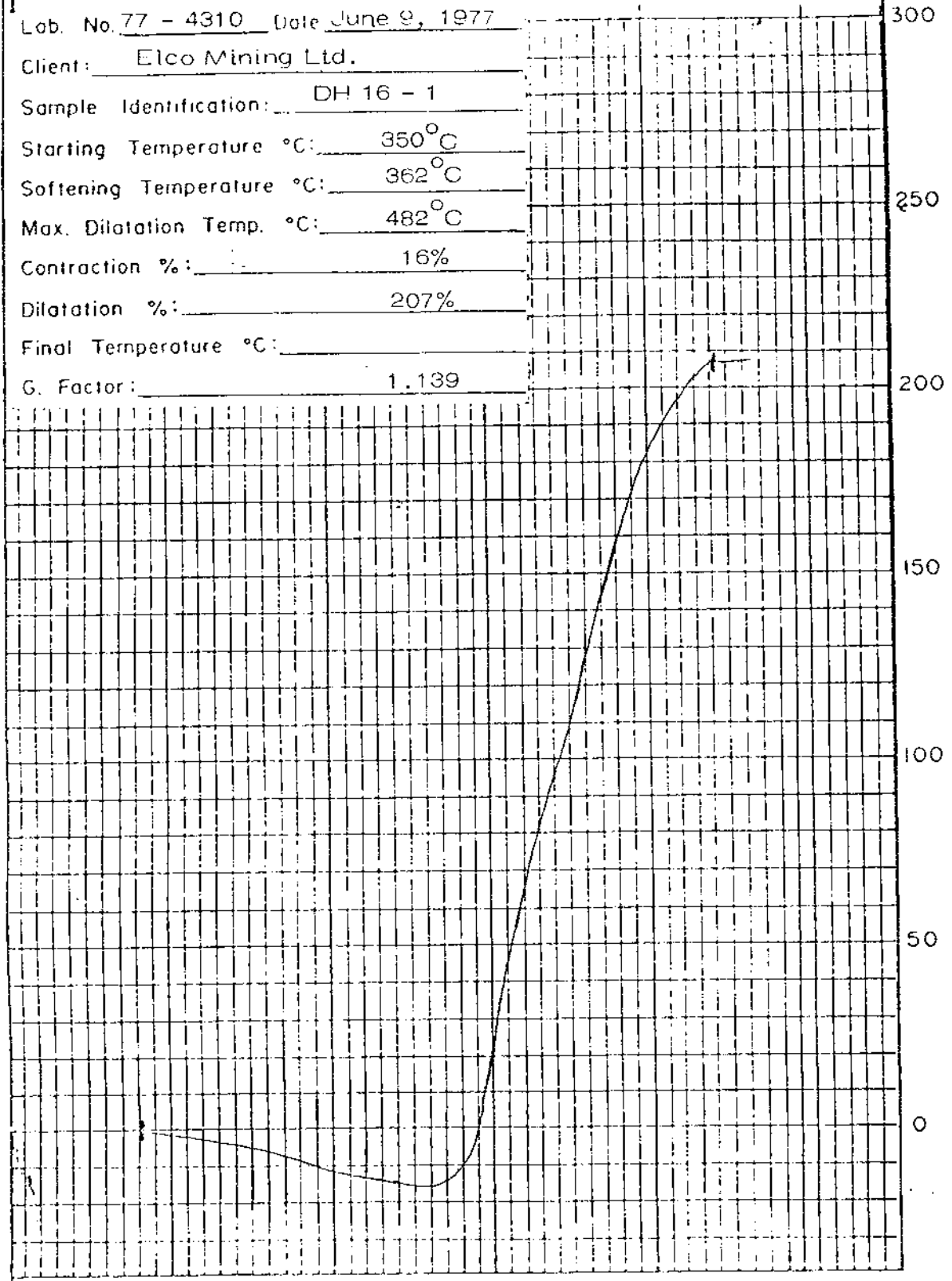
Max. Dilatation Temp. °C: 482°C

Contraction %: 16%

Dilatation %: 207%

Final Temperature °C:

G. Factor: 1.139



WARNOCK HIRSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 2      Lab. No.: 77 - 4311      Date: June 3, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.2	19.0	28.9	51.2	0.81	79.5	Air Dried Basis
--	19.2	29.1	51.7	0.82	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.0	0.8	20.6	0.77	91.0	20.6	0.77	A.D.B.
	91.0	--	20.8	0.77	91.0	20.8	0.77	D.B.
65 x 0	9.0	1.2	15.8	0.81	100.0	20.2	0.77	A.D.B.
	9.0	--	16.0	0.82	100.0	20.4	0.77	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	66.0	1.3	5.4	34.0	59.3	0.76	66.0	5.4	A.D.B.
	66.0	--	5.5	34.5	60.0	0.77	66.0	5.5	D.B.
1.40-1.50	4.5	1.0	11.5	32.3	55.2	0.74	70.5	5.8	A.D.B.
	4.5	--	11.6	32.6	55.8	0.75	70.5	5.9	D.B.
1.50-1.60	3.3	1.1	20.4	--	--	--	73.8	6.4	A.D.B.
	3.3	--	20.6	--	--	--	73.8	6.5	D.B.
+1.60	26.2	0.9	57.7	--	--	--	100.0	19.8	A.D.B.
	26.2	--	58.3	--	--	--	100.0	20.1	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8						

Lab. No. 77 - 4311 Date June 9, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 16 - 2

Starting Temperature °C: 350°C

Softening Temperature °C: 368°C

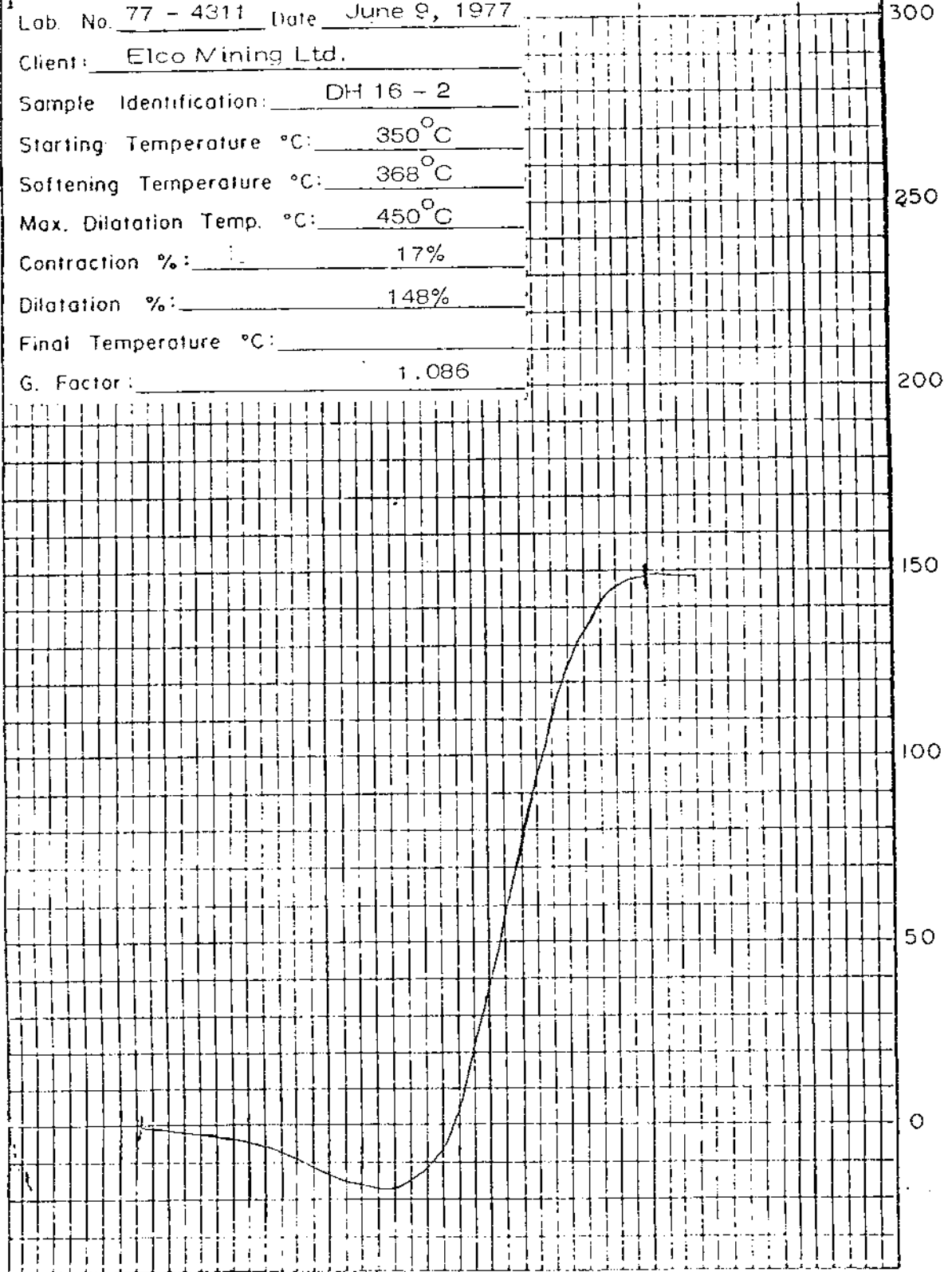
Max. Dilatation Temp. °C: 450°C

Contraction %: 17%

Dilatation %: 148%

Final Temperature °C:

G. Factor: 1.086



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 = 3      Lab. No.: 77 - 4312      Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	43.9	22.9	32.4	0.54	85.8	Air Dried Basis
--	44.3	23.1	32.6	0.54	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	88.9	0.7	46.2	0.52	88.9	46.2	0.52	A.D.B.
	88.9	--	46.6	0.52	88.9	46.6	0.52	D.B.
65 x 0	11.1	1.1	27.8	0.68	100.0	44.2	0.54	A.D.B.
	11.1	--	28.1	0.68	100.0	44.5	0.54	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	30.6	1.7	5.7	33.9	58.7	0.78	30.6	5.7	A.D.B.
	30.7	--	5.8	34.5	59.7	0.79	30.7	5.8	D.B.
1.40-1.50	5.2	0.9	19.3	28.9	50.9	0.76	35.8	7.6	A.D.B.
	5.2	--	19.5	29.2	51.3	0.76	35.9	7.7	D.B.
1.50-1.60	5.0	0.8	26.7	--	--	--	40.8	10.0	A.D.B.
	4.9	--	26.9	--	--	--	40.8	10.1	D.B.
+1.60	59.2	1.0	72.9	--	--	--	100.0	47.2	A.D.B.
	59.2	--	73.6	--	--	--	100.0	47.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8						

Lab. No. 77 - 4312 (Date June 9, 1977)

Client: Elco Mining Ltd.

Sample Identification: DH 16 - 3

Starting Temperature °C: 350 °C

Softening Temperature °C: 366 °C

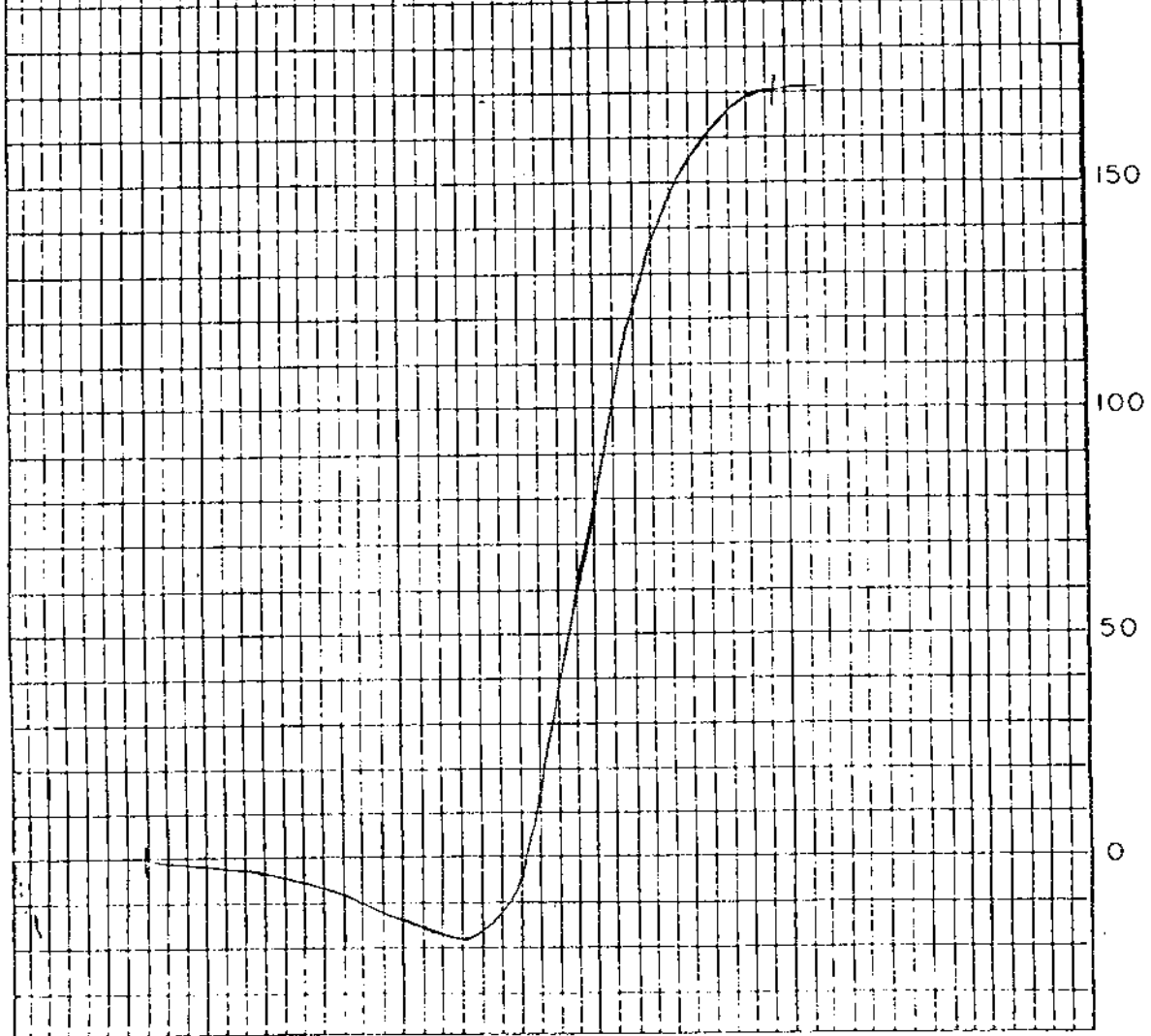
Max. Dilatation Temp. °C: 451 °C

Contraction %: 18%

Dilatation %: 171%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.092



WARNOCK HERSEY PROFESSIONAL SERVICES

Title RUHR DILATOMETER TEST

Date \_\_\_\_\_

Drawn \_\_\_\_\_

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 4      Lab. No.: 77 - 4313      Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
1.0	12.4	29.8	56.8	0.75	98.9	Air Dried Basis
--	12.6	30.1	57.3	0.76	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	80.7	0.9	13.0	0.77	80.7	13.0	0.77	A.D.B.
	80.7	--	13.1	0.77	80.7	13.1	0.77	D.B.
65 x 0	19.3	1.2	6.6	0.76	100.0	11.8	0.77	A.D.B.
	19.3	--	6.7	0.77	100.0	11.9	0.77	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	76.2	1.3	3.7	33.5	61.5	0.89	76.2	3.7	A.D.B.
	76.2	--	3.8	33.9	62.3	0.90	76.2	3.8	D.B.
1.40-1.50	8.2	1.4	8.1	31.4	59.1	0.76	84.4	4.1	A.D.B.
	8.2	--	8.2	31.9	59.9	0.77	84.4	4.2	D.B.
1.50-1.60	2.9	1.3	12.7	--	--	--	87.3	4.4	A.D.B.
	2.9	--	12.9	--	--	--	87.3	4.5	D.B.
+1.60	12.7	0.8	66.2	--	--	--	100.0	12.3	A.D.B.
	12.7	--	66.7	--	--	--	100.0	12.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8						

Lab No. 77 - 4313 Date June 9, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 16 - 4

Starting Temperature °C: 350°C

Softening Temperature °C: 356°C

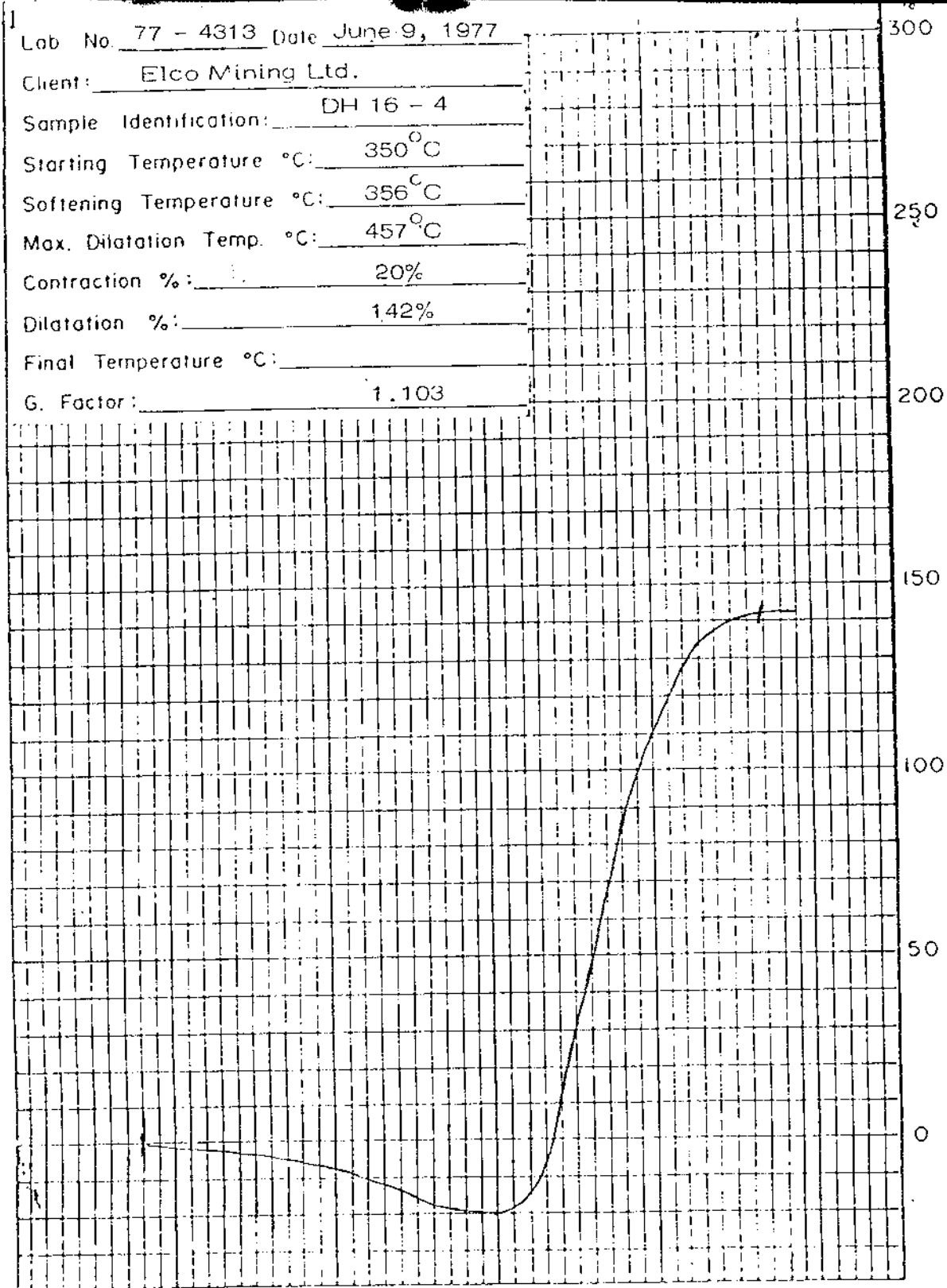
Max. Dilatation Temp. °C: 457°C

Contraction %: 20%

Dilatation %: 142%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.103



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn



Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 5      Lab. No.: 77 - 4314      Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	71.5	12.3	15.3	0.30	44.2	Air Dried Basis
--	72.1	12.4	15.5	0.30	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	93.1	0.7	72.8	0.29	93.1	72.8	0.29	A.D.B.
	93.1	--	73.3	0.29	93.1	73.3	0.29	D.B.
65 x 0	6.9	1.1	53.6	0.49	100.0	71.5	0.30	A.D.B.
	6.9	--	54.2	0.49	100.0	71.9	0.30	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	2.3	1.2	5.4	34.6	58.8	0.96	2.3	5.4	A.D.B.
	2.3	--	5.4	35.1	59.5	0.97	2.3	5.4	D.B.
1.40-1.50	1.1	1.0	11.0	30.2	57.8	0.89	3.4	7.2	A.D.B.
	1.1	--	11.2	30.5	58.3	0.90	3.4	7.3	D.B.
1.50-1.60	0.6	1.0	20.3	--	--	--	4.0	9.2	A.D.B.
	0.6	--	20.5	--	--	--	4.0	9.3	D.B.
+1.60	96.0	1.0	76.1	--	--	--	100.0	73.4	A.D.B.
	96.0	--	76.9	--	--	--	100.0	74.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½						

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 6 Lab. No.: 77 - 4315 Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	38.4	23.8	37.0	0.92	65.7	Air Dried Basis
--	38.7	24.0	37.3	0.93	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	92.4	0.7	40.7	0.82	92.4	40.7	0.82	A.D.B.
	92.4	--	41.0	0.83	92.4	41.0	0.83	D.B.
65 x 0	7.6	1.0	33.0	1.18	100.0	40.1	0.85	A.D.B.
	7.6	--	33.3	1.19	100.0	40.1	0.86	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	41.0	1.0	6.0	33.0	60.0	0.88	41.0	6.0	A.D.B.
	41.0	--	6.1	33.4	60.5	0.88	41.0	6.1	D.B.
1.40-1.50	6.3	0.8	19.5	28.9	50.8	0.80	47.3	7.8	A.D.B.
	6.3	--	19.7	29.2	51.1	0.81	47.3	7.9	D.B.
1.50-1.60	6.1	0.8	31.8	--	--	--	53.4	10.5	A.D.B.
	6.1	--	32.1	--	--	--	53.4	10.7	D.B.
+1.60	46.6	0.9	74.3	--	--	--	100.0	40.2	A.D.B.
	46.6	--	74.9	--	--	--	100.0	40.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½						

Lab. No. 77-4315 Date June 9, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 16 - 6

Starting Temperature °C: 350°C

Softening Temperature °C: 366°C

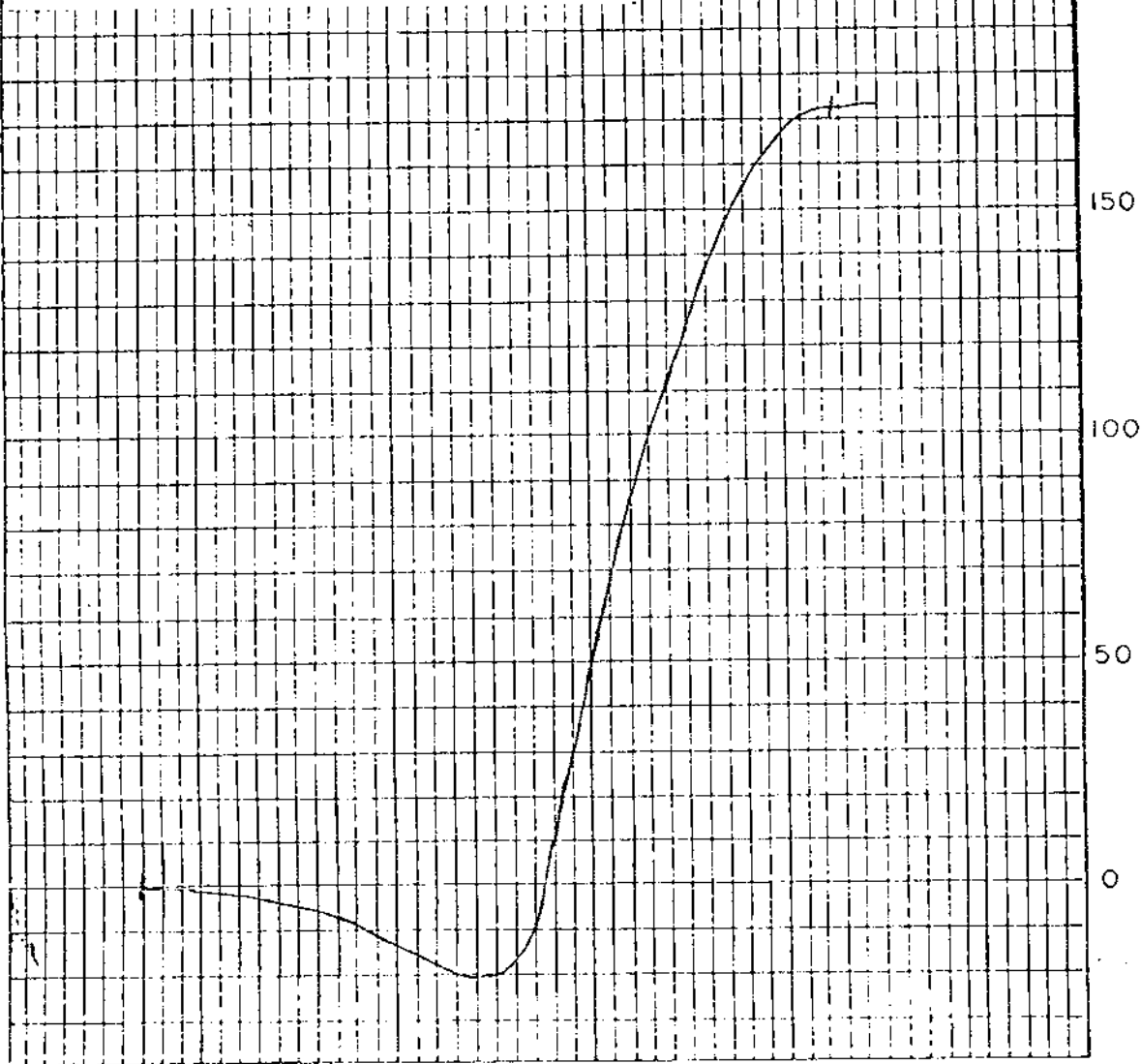
Max. Dilatation Temp. °C: 459°C

Contraction %: 21%

Dilatation %: 173%

Final Temperature °C:

G. Factor: 1.097



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 7 Lab. No.: 77 - 4316 Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	11.3	30.4	57.4	1.24	89.2	Air Dried Basis
--	11.4	30.6	58.0	1.25	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.4	0.8	11.6	1.20	91.4	11.6	1.20	A.D.B.
	91.4	--	11.7	1.21	91.4	11.7	1.21	D.B.
65 x 0	8.6	1.1	11.9	1.39	100.0	11.6	1.22	A.D.B.
	8.6	--	12.1	1.41	100.0	11.7	1.23	D.B.

SINK - FLOAT ANALYSIS; ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	85.8	1.1	5.8	32.0	61.1	1.02	85.5	5.8	A.D.B.
	85.8	--	5.9	32.4	61.7	1.03	85.5	5.9	D.B.
1.40-1.50	4.9	0.9	14.8	29.7	54.6	1.14	90.7	6.3	A.D.B.
	4.9	--	14.9	29.9	55.2	1.15	90.7	6.4	D.B.
1.50-1.60	3.0	1.0	21.9	--	--	--	93.7	6.8	A.D.B.
	3.0	--	22.1	--	--	--	93.7	6.8	D.B.
+1.60	6.3	0.9	62.5	--	--	--	100.0	10.3	A.D.B.
	6.3	--	63.1	--	--	--	100.0	10.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½						

Lab. No. 77 - 4316 Date June 9, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 16 - 7

Starting Temperature °C: 350°C

Softening Temperature °C: 366°C

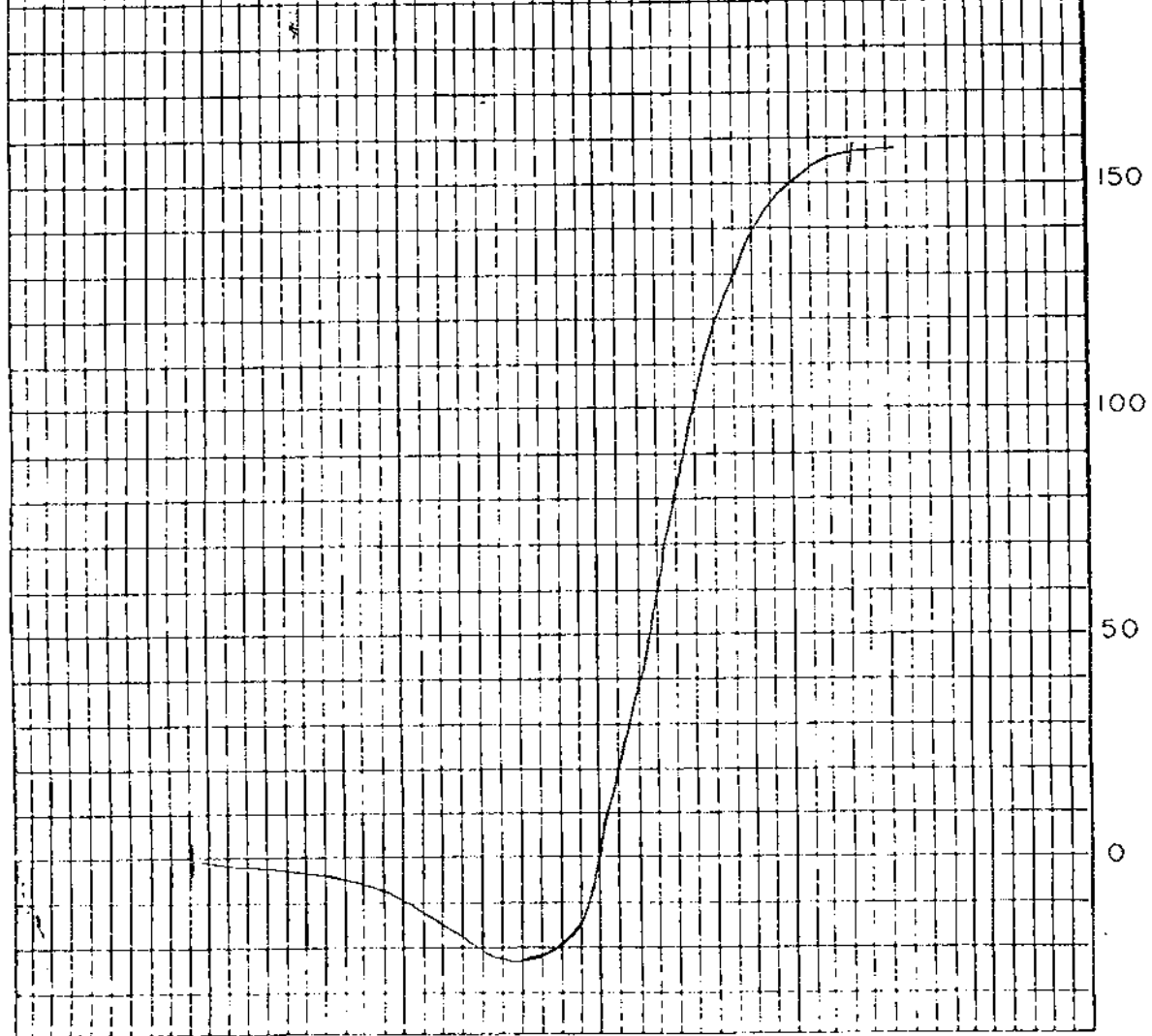
Max. Dilatation Temp. °C: 459°C

Contraction %: 23%

Dilatation %: 157%

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.092



WARNOCK HERSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 8 Lab. No.: 77 - 4317 Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	39.1	21.8	38.2	0.68	67.8	Air Dried Basis
--	39.4	22.0	38.6	0.69	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	91.8	0.8	39.0	0.69	91.8	39.0	0.69	A.D.B.
	91.8	--	39.3	0.69	91.8	39.3	0.69	D.B.
65 x 0	8.2	1.0	34.9	0.74	100.0	38.6	0.69	A.D.B.
	8.2	--	35.3	0.75	100.0	38.9	0.69	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	40.5	0.9	4.9	32.7	61.5	0.93	40.5	4.9	A.D.B.
	40.5	--	5.0	33.0	62.0	0.94	40.5	5.0	D.B.
1.40-1.50	4.6	0.9	14.6	28.6	55.9	0.90	45.1	5.8	A.D.B.
	4.6	--	14.7	28.9	56.4	0.91	45.1	5.9	D.B.
1.50-1.60	4.3	0.9	22.7	--	--	--	49.4	7.4	A.D.B.
	4.3	--	22.9	--	--	--	49.4	7.5	D.B.
+1.60	50.6	1.0	73.1	--	--	--	100.0	40.6	A.D.B.
	50.6	--	73.8	--	--	--	100.0	41.0	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½						

Lab. No. 77 - 4317 Date June 9, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 16 - 8

Starting Temperature °C: 350°C

Softening Temperature °C: 368°C

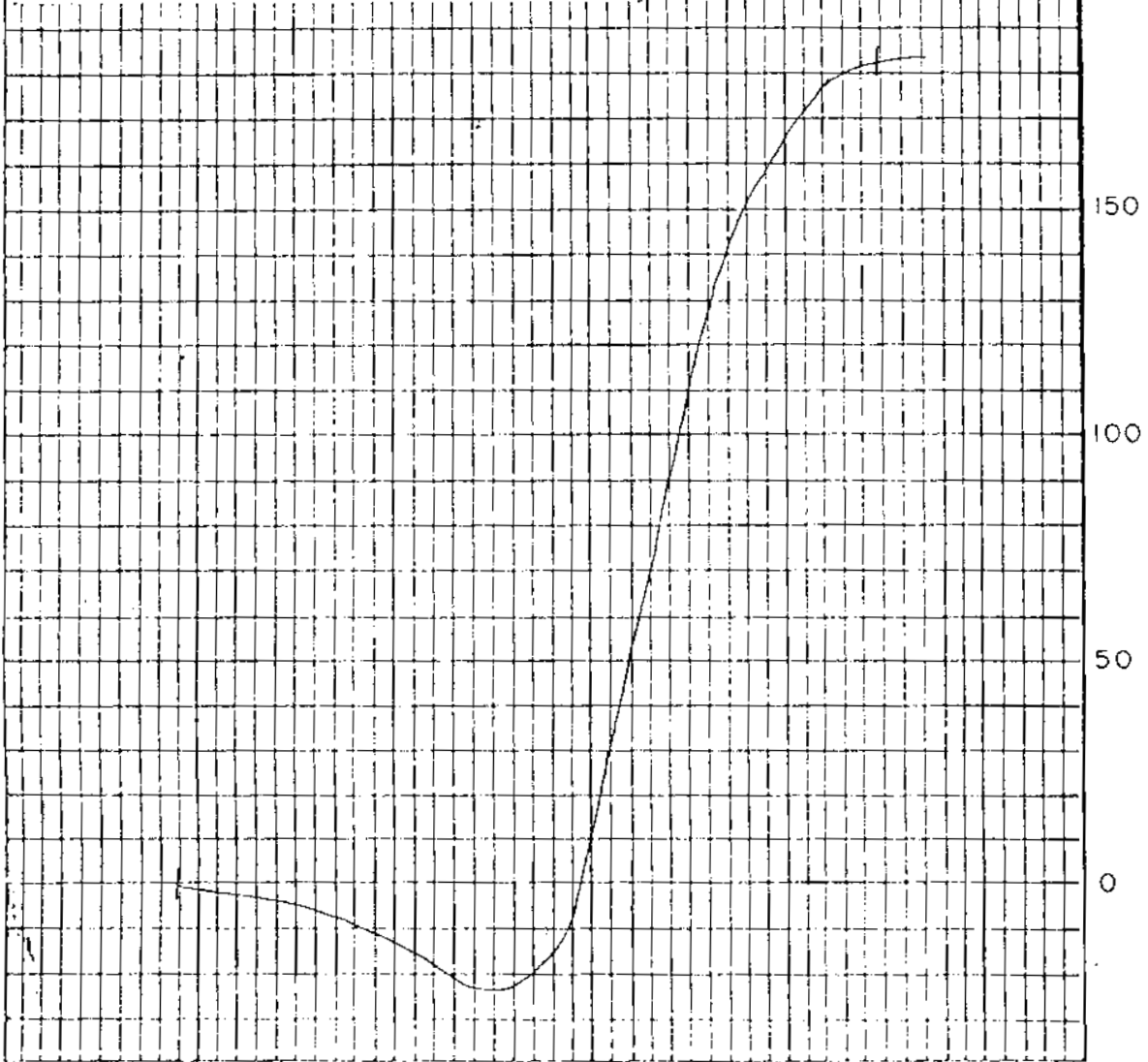
Max. Dilatation Temp. °C: 460°C

Contraction %: 24%

Dilatation %: 183%

Final Temperature °C:

G. Factor: 1.093



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 16 - 9      Lab. No.: 77 - 4318      Date: June 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	30.4	25.8	42.9	1.30	63.6	Air Dried Basis
--	30.6	26.0	43.4	1.31	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	93.0	0.8	30.3	1.37	93.0	30.3	1.37	A.D.B.
	93.0	--	30.5	1.38	93.0	30.5	1.38	D.B.
65 x 0	7.0	1.0	27.3	1.43	100.0	30.1	1.37	A.D.B.
	7.0	--	27.5	1.44	100.0	30.3	1.38	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	52.9	0.9	7.6	32.2	59.3	1.31	52.9	7.6	A.D.B.
	52.9	--	7.6	32.5	59.9	1.32	52.9	7.6	D.B.
1.40-1.50	7.4	1.0	20.9	27.3	50.8	1.51	60.3	9.2	A.D.B.
	7.4	--	21.1	27.6	51.3	1.53	60.3	9.3	D.B.
1.50-1.60	5.9	1.0	29.4	--	--	--	66.2	11.0	A.D.B.
	5.9	--	29.7	--	--	--	66.2	11.1	D.B.
+1.60	33.8	0.8	63.3	--	--	--	100.0	28.7	A.D.B.
	33.8	--	63.7	--	--	--	100.0	28.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
I.S.						



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

Hoie No. DH 17 - 1 Lab. No.: 77 - 3036 Date: March 25, 1977

HEAD RAW ANALYSIS						
F.M.%	Ash%	V.M.%	F.C %	S.%	H.G.I.	REMARKS
0.5	30.0	15.9	53.6	0.46	100.3	Air Dried Basis
- - -	30.1	16.0	53.9	0.46	- - -	Dry Basis

SIZE / RAW ANALYSES								
Size Fraction	Wt. %	R.M.%	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	83.7	0.4	31.9	0.40	83.7	31.9	0.40	A.D.B.
	83.7	- - -	32.0	0.40	83.7	32.0	0.40	D.B.
65 x 0	16.3	0.5	19.1	0.54	100.0	29.8	0.42	A.D.B.
	16.3	- - -	19.2	0.54	100.0	29.9	0.42	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S. G.	Wt.%	R.M%	Ash %	V.M%	F.C%	S.%	Cumulative		
							Wt. %	Ash %	
-1.40	49.5	0.9	6.5	19.8	72.8	0.41	49.5	6.5	A.D.B.
	49.5	- - -	6.6	19.9	73.5	0.41	49.5	6.6	D.B.
1.40-1.50	6.8	1.0	14.0	18.2	66.8	0.40	56.3	7.4	A.D.B.
	6.8	- -	14.1	18.4	67.5	0.40	56.3	7.5	D.B.
1.50-1.60	5.6	1.0	23.9	- - -	- - -	- - -	61.9	8.9	A.D.B.
	5.6	- - -	24.1	- - -	- - -	- - -	61.9	9.0	D.B.
+1.60	38.1	1.2	68.4	- - -	- - -	- - -	100.0	31.6	A.D.B.
	38.1	- - -	69.2	- - -	- - -	- - -	100.0	31.9	D.B.

COMPOSITE ¼" x 65 m		FLOATS @ 1.50 S.G., A.D.B.				
F.S.I.	F % on Coal	DILATION TESTS				
		Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
5	051					

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

Hole No.: DH 17 - 2 Lab. No.: 77 - 3037 Date: March 25, 1977

HEAD RAW ANALYSIS						
F.M.%	Ash%	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.3	10.1	19.1	70.5	0.52	123.9	Air Dried Basis
--	10.1	19.2	70.7	0.52	---	Dry Basis

SIZE / RAW ANALYSES								
Size Fraction	Wt. %	R.M.%	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	87.6	0.3	9.1	0.55	87.6	9.1	0.55	A.D.B.
	87.6	--	9.1	0.55	87.6	9.1	0.55	D.B.
65 x 0	12.4	0.6	8.8	0.55	100.0	9.1	0.55	A.D.B.
	12.4	---	8.8	0.55	100.0	9.1	0.55	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S. G.	Wt.%	R.M%	Ash %	V.M%	F.C%	S.%	Cumulative		
							Wt. %	Ash %	
-1.40	83.1	0.8	5.5	21.8	71.9	0.44	83.1	5.5	A.D.B.
	83.1	--	5.5	22.0	72.5	0.44	83.1	5.5	D.B.
1.40-1.50	8.3	1.3	14.1	19.4	65.2	0.38	91.4	6.3	A.D.B.
	8.3	--	14.3	19.6	66.1	0.38	91.4	6.3	D.B.
1.50-1.60	3.1	0.9	22.4	---	---	---	94.5	6.8	A.D.B.
	3.1	---	22.6	---	---	---	94.5	6.8	D.B.
+1.60	5.5	0.9	42.6	---	---	---	100.0	8.8	A.D.B.
	5.5	---	43.0	---	---	---	100.0	8.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	F % on Coal	DILATATION TESTS				
		Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
7%	0.004					

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

Hole No. · DH 17 - 3 Lab. No.: 77 - 3038 Date March 28 , 1977

HEAD RAW ANALYSIS						
P.M.%	Ash%	V.M.%	F.C %	S.%	H.G.I.	REMARKS
0.4	29.6	16.3	53.7	0.51	96.9	Air Dried Basis
---	29.7	16.3	54.0	0.51	---	Dry Basis

SIZE / RAW ANALYSES								
Size Fraction	Wt. %	R.M.%	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	87.9	0.3	29.5	0.50	87.9	29.5	0.50	A.D.B.
	87.9	---	29.6	0.50	87.9	29.6	0.50	D.B.
65 x 0	12.1	0.6	23.1	0.57	100.0	28.7	0.51	A.D.B.
	12.1	---	23.3	0.57	100.0	28.8	0.51	D.B.

SINK - FLOAT ANALYSIS · ¼" x 65 M									
S. G.	Wt.%	R.M.%	Ash %	V.M.%	F.C%	S.%	Cumulative		
							Wt. %	Ash %	
-1.40	44.7	1.0	8.2	22.0	68.8	0.55	44.7	8.2	A.D.B.
	44.7	---	8.3	22.2	69.5	0.56	44.7	8.3	D.B.
1.40-1.50	10.0	0.8	16.7	18.3	64.2	0.47	54.7	9.8	A.D.B.
	10.0	---	16.8	18.5	64.7	0.47	54.7	9.9	D.B.
1.50-1.60	8.7	0.8	25.9	---	---	--	63.4	12.0	A.D.B.
	8.7	---	26.1	---	---	--	63.4	12.1	D.B.
+1.60	36.6	0.7	58.4	---	---	---	100.0	29.0	A.D.B.
	36.6	---	58.8	---	---	--	100.0	29.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	F % on Coal	DILATATION TESTS				
		Softening Temp.(°C)	Max. Dil. Temp.(°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8	0.009					

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

Hole No. - DH 17 - 4    Lab. No. : 77 - 3039    Date: March 28, 1977

HEAD RAW ANALYSIS						
F.M.%	Ash%	V.M.%	F.C %	S.%	H.G.I.	REMARKS
0.5	37.2	14.9	47.4	0.50	92.0	Air Dried Basis
---	37.4	14.9	47.7	0.50	---	Dry Basis

SIZE / RAW ANALYSES								
Size Fraction	Wt. %	R.M.%	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	85.1	0.4	35.8	0.49	85.1	35.8	0.49	A.D.B.
	85.1	---	35.9	0.49	85.1	35.9	0.49	D.B.
65 x 0	14.9	0.6	38.6	0.48	100.0	36.2	0.49	A.D.B.
	14.9	---	38.8	0.48	100.0	36.3	0.49	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S. G.	Wt.%	R.M%	Ash %	V.M%	F.C%	S.%	Cumulative		
							Wt. %	Ash %	
-1.40	23.8	0.7	13.0	19.6	66.7	0.63	23.8	13.0	A.D.B.
	23.8	---	13.1	19.7	67.2	0.63	23.8	13.1	D.B.
1.40-1.50	17.2	0.9	20.0	19.4	59.7	0.53	41.0	15.9	A.D.B.
	17.2	---	20.1	19.5	60.4	0.53	41.0	16.0	D.B.
1.50-1.60	14.3	0.7	26.1	---	---	---	55.3	18.6	A.D.B.
	14.3	---	26.2	---	---	---	55.3	18.7	D.B.
+1.60	44.7	0.9	55.9	--	---	---	100.0	35.3	A.D.B.
	44.7	---	56.4	---	---	---	100.0	35.5	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	DILATATION TESTS				
		Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8½	0.063					

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

Hole No. DH 17 - 5 Lab. No.: 77 - 3040 Date: March 28, 1977

HEAD RAW ANALYSIS						
P.M.%	Ash%	V.M.%	F.C %	S. %	H.G.I.	REMARKS
0.4	13.0	20.1	66.5	0.95	101.0	Air Dried Basis
--	13.0	20.2	66.8	0.95	---	Dry Basis

SIZE / RAW ANALYSES								
Size Fraction	Wt. %	R.M.%	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	81.8	0.4	12.8	0.94	81.8	12.8	0.94	A.D.B.
	81.8	---	12.9	0.94	81.8	12.9	0.94	D.B.
65 x 0	18.2	0.5	10.4	0.91	100.0	12.4	0.93	A.D.B.
	18.2	---	10.5	0.91	100.0	12.5	0.93	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S. G.	Wt.%	R.M.%	Ash %	V.M.%	F.C%	S. %	Cumulative		
							Wt. %	Ash %	
-1.40	72.7	0.4	6.3	24.3	69.0	0.64	72.7	6.3	A.D.B.
	72.7	---	6.3	24.4	69.3	0.64	72.7	6.3	D.B.
1.40-1.50	10.2	0.4	14.5	24.0	61.1	0.77	82.9	7.3	A.D.B.
	10.2	---	14.6	24.1	61.3	0.77	82.9	7.3	D.B.
1.50-1.60	5.7	0.4	19.4	---	---	--	88.6	8.1	A.D.B.
	5.7	---	19.5	---	---	--	88.6	8.1	D.B.
+1.60	11.4	0.6	50.2	---	---	---	100.0	12.9	A.D.B.
	11.4	---	50.5	---	---	---	100.0	12.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	DILATATION TESTS				
		Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
9	0.033					

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

Hole No.: DH 17 - 6 Lab. No.: 77 - 3041 Date: March 28, 1977

HEAD RAW ANALYSIS						
F.M.%	Ash%	V.M.%	F.C.%	S.%	H.G.I.	REMARKS'
0.3	11.0	21.4	67.3	0.57	101.0	Air Dried Basis
--	11.0	21.5	67.5	0.57	---	Dry Basis

SIZE / RAW ANALYSES								
Size Fraction	Wt. %	R.M.%	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	84.4	0.2	10.5	0.58	84.4	10.5	0.58	A.D.B.
	84.4	---	10.5	0.58	84.4	10.5	0.58	D.B.
65 x 0	15.6	0.4	8.8	0.61	100.0	10.2	0.58	A.D.B.
	15.6	---	8.8	0.61	100.0	10.2	0.58	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S. G.	Wt.%	R.M.%	Ash %	V.M.%	F.C.%	S.%	Cumulative		
							Wt. %	Ash %	
-1.40	72.3	0.4	6.3	24.1	69.2	0.48	72.3	6.3	A.D.B.
	72.3	--	6.3	24.2	69.5	0.48	72.3	6.3	D.B.
1.40-1.50	15.6	0.4	11.8	20.6	67.2	0.48	87.9	7.3	A.D.B.
	15.6	--	11.9	20.7	67.4	0.48	87.9	7.3	D.B.
1.50-1.60	5.6	0.4	19.8	--	--	--	93.5	8.0	A.D.B.
	5.6	--	19.9	--	--	---	93.5	8.0	D.B.
+1.60	6.5	0.6	44.9	--	--	--	100.0	10.4	A.D.B.
	6.5	--	45.2	--	--	--	100.0	10.4	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	F % on Coal	DILATATION TESTS				G.No.
		Softening Temp.(°C)	Max. Dil. Temp.(°C)	Maximum Contr. %	Maximum Dil. %	
8½	0.021					

CLIENT: WARNOCK HERSEY

PROJECT: DILATATION TESTS \*

SAMPLE : -8 Mesh, 1.50 S.G. Floats  
Composite

DATE: March 30, 1977

Well No.	W.H. I.D. No.	INITIAL TEMP (°C)	SOFTENING TEMP (°C)	MAX. DILAT'N TEMP (°C)	MAX. CONTRACT'N %	MAX. DILATATION %	G.No.
DH 17-1	77-3036	320	417	---	20% @ 468°	---	---
DH 17-2	77-3037	320	406	482	30	3	0.935
DH 17-3	77-3038	320	396	475	22	56	1.041
DH 17-4	77-3039	320	396	468	26	59	1.033
DH 17-5	77-3040	320	385	478	27	145	1.080
DH 17-6	77-3041	320	385	475	22	120	1.078
DH 22-1	77-3042	320	403	---	17% @ 453°	---	---
DH 22-2	77-3043	320	429	---	22% @ 460°	---	---
DH 22-3	77-3044	320	410	---	18% @ 464°	---	---
DH 22-4	77-3045	320	421	---	20% @ 471°	---	---
DH 22-5	77-3046	320	410	---	15% @ 464°	---	---
DH 22-6	77-3047	320	392	468	24	69	1.045
DH 22-7	77-3048	320	410	---	21% @ 457°	---	---
DH 22-8	77-3049	320	410	482	24	10	0.968
DH 22-9	77-3050	320	421	---	21% @ 468°	---	---
DH 28-1	77-3051	320	421	---	19% @ 468°	---	---
DH 28-2	77-3052	320	424	---	16% @ 468°	---	---
DH 28-3	77-3053	320	406	475	25	45	1.023
DH 28-4	77-3054	320	414	---	14% @ 464°	---	---
DH 28-5	77-3055	320	414	446	24	2	0.969
DH 28-6	77-3056	320	406	478	22	19	0.473
DH 29-8	77-3057	320	406	478	26	8	0.959
DH 29-9	77-3058	320	403	478	24	22	0.996

\* Softening Temp., Maximum Dilatation/Contraction Temp.  
are corrected with factor = 6/5

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-1

Lab. No. 8660

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	16.8	18.4	64.1	0.58	92	Air Dried Basis
	16.9	18.5	64.6	0.58	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			!
					WT. %	ASH %	S. %	
1/4" x 65M	87.9	0.7	17.6	0.57	87.9	17.6	0.57	A.D.B.
	87.9		17.7	0.57	87.9	17.7	0.57	D.B.
65M x 0	12.1	0.6	10.9	0.45	100.0	16.8	0.56	A.D.B.
	12.1		11.0	0.45	100.0	16.9	0.56	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	69.7	0.6	5.3	19.3	74.8	0.59	69.7	5.3	A.D.B.
	69.7		5.3	19.4	75.3	0.59	69.7	5.3	D.B.
1.40-1.50	9.2	0.9	16.0	17.2	65.9	0.56	78.9	6.5	A.D.B.
	9.2		16.1	17.4	66.5	0.57	78.9	6.6	D.B.
1.50-1.60	4.0	0.9	26.0				82.9	7.5	A.D.B.
	4.0		26.2				82.9	7.5	D.B.
+1.60	17.1	0.9	66.7				100.0	17.6	A.D.B.
	17.1		67.3				100.0	17.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
6 1/2	0.10	404	---	21% @ 457°	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries



Lab. No. 8660 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-1

Starting Temperature °C: 320

Softening Temperature °C: 404

Max. Dilatation Temp. °C: - 457

Contraction %: 21

Dilatation %: - 21

Final Temperature °C:

G. Factor: ---

250

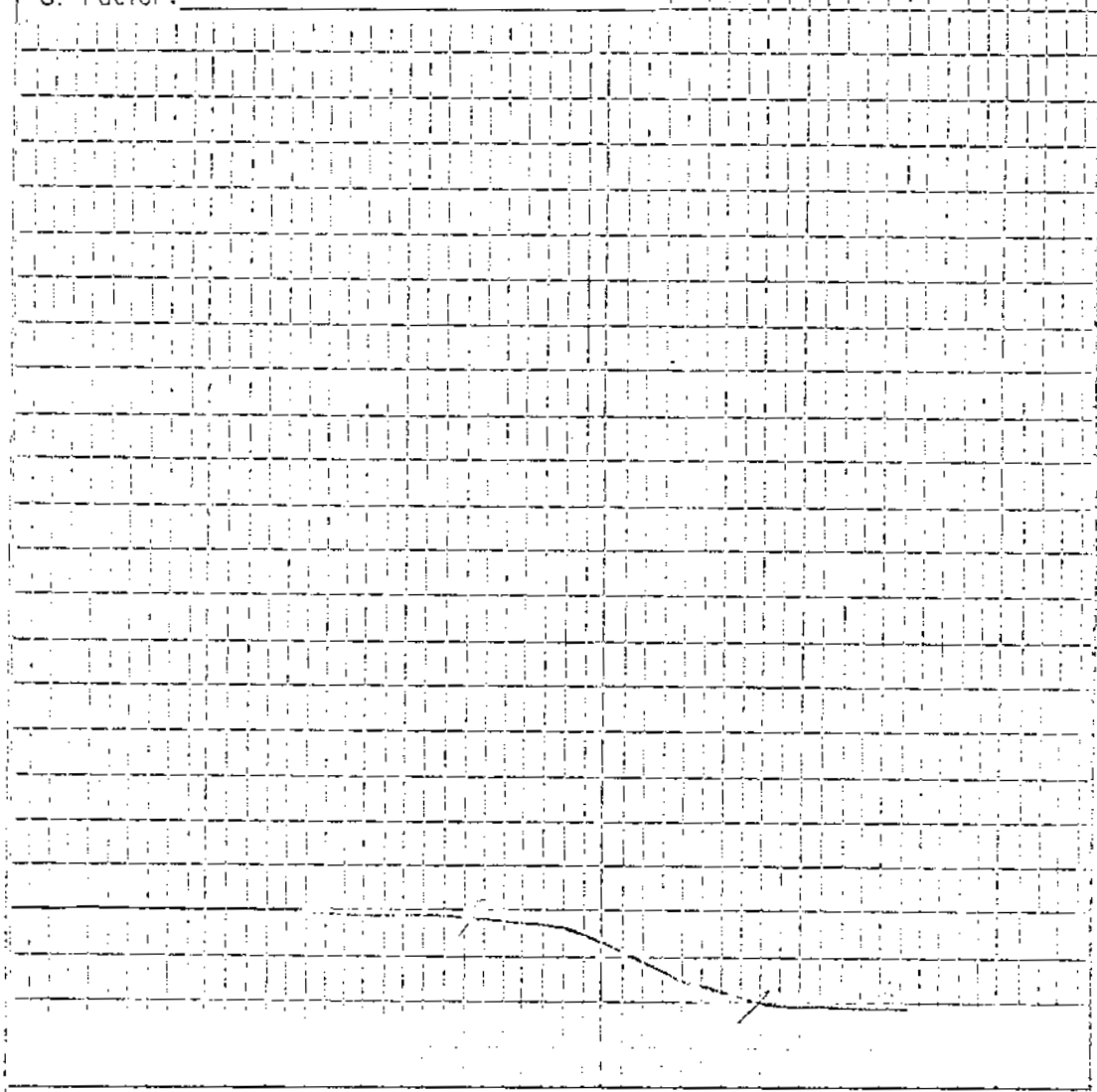
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-2

Lab. N 1 8661

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.0	13.9	18.3	66.8	0.56	84	Air Dried Basis
	14.0	18.5	67.5	0.57	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.6	0.8	14.2	0.56	89.6	14.2	0.56	A.D.B.
	89.7		14.3	0.56	89.7	14.3	0.56	D.B.
65M x 0	10.4	1.1	12.9	0.60	100.0	14.1	0.56	A.D.B.
	10.3		13.0	0.61	100.0	14.2	0.57	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	72.3	1.0	5.7	18.9	74.4	0.53	72.3	5.7	A.D.B.
	72.2		5.8	19.1	75.1	0.54	72.2	5.8	D.B.
1.40-1.50	11.3	0.8	16.2	16.8	66.2	0.45	83.6	7.1	A.D.B.
	11.3		16.3	16.9	66.8	0.45	83.5	7.2	D.B.
1.50-1.60	4.9	1.0	26.0				88.5	8.2	A.D.B.
	4.9		26.3				88.4	8.3	D.B.
+1.60	11.5	0.6	57.2				100.0	13.8	A.D.B.
	11.6		57.5				100.0	14.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
7	0.03	414	---	19% @ 464°	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8651 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-2

Starting Temperature °C: 320

Softening Temperature °C: 414

Max. Dilatation Temp. °C: - 464

Contraction %: 19

Dilatation %: - 19

Final Temperature °C: ---

G. Factor: ---

250

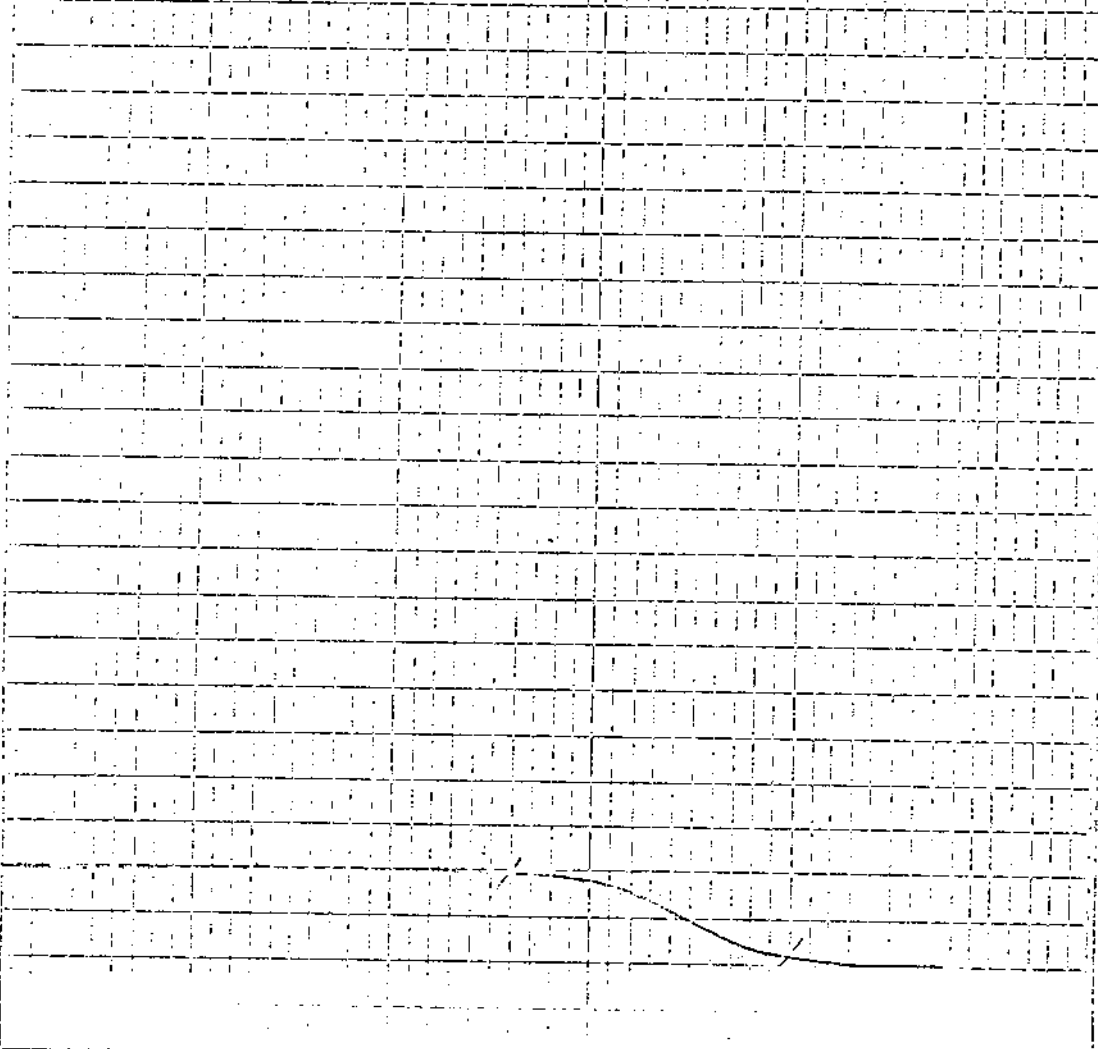
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-3

Lab. No. 8662

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.9	21.5	16.5	61.1	0.54	94	Air Dried Basis
	21.7	16.6	61.7	0.54	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	86.5	0.8	21.9	0.57	86.5	21.9	0.57	A.D.B.
	86.6		22.1	0.57	86.6	22.1	0.57	D.B.
65M x 0	13.5	1.2	16.4	0.36	100.0	21.2	0.54	A.D.B.
	13.4		16.6	0.36	100.0	21.4	0.54	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	52.8	0.9	6.7	19.3	73.1	0.73	52.8	6.7	A.D.B.
	52.7		6.8	19.5	73.7	0.74	52.7	6.8	D.B.
1.40-1.50	14.8	0.7	16.3	16.4	66.6	0.54	67.6	8.8	A.D.B.
	14.8		16.4	16.5	67.1	0.54	67.5	8.9	D.B.
1.50-1.60	7.9	0.8	27.3				75.5	10.7	A.D.B.
	7.9		27.5				75.4	10.9	D.B.
+1.60	24.5	0.7	55.3				100.0	21.7	A.D.B.
	24.6		55.7				100.0	21.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp. = 320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
4	0.05	414	---	18% @ 486°	---	---

\* S.T & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8662 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-3

Starting Temperature °C: 320

Softening Temperature °C: 414

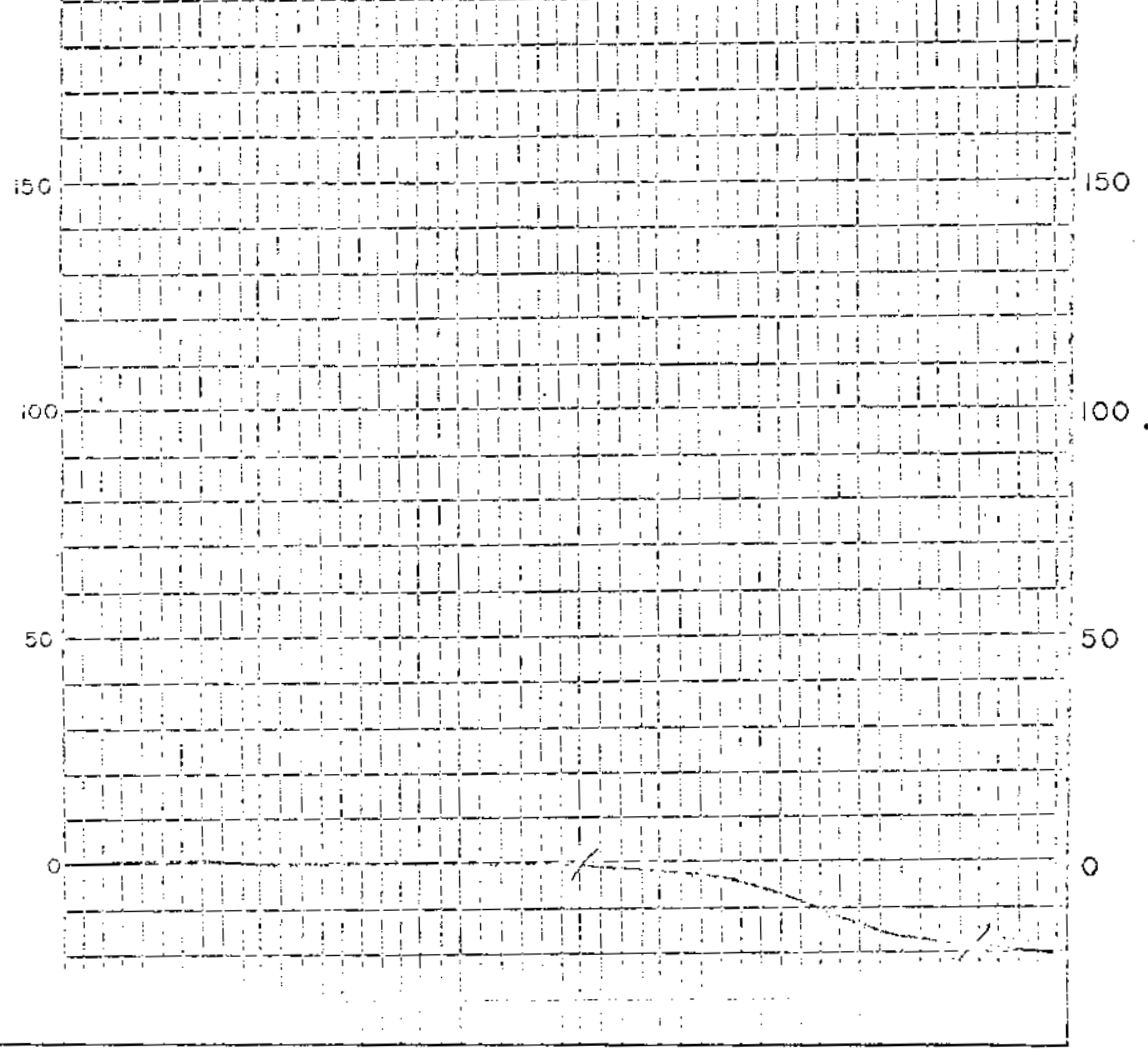
Max. Dilatation Temp. °C: - 486

Contraction %: 18

Dilatation %: - 18

Final Temperature °C: ---

G. Factor: ---



BARTLEY ENGINEERING (CANADA) LTD.

Title  
RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-4

Lab. No. 8663

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.5	38.2	14.2	47.1	0.55	71	Air Dried Basis
	38.4	14.3	47.3	0.55	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			I
					WT. %	ASH %	S. %	
1/4" x 65M	87.9	0.8	39.5	0.52	87.9	39.5	0.52	A.D.B.
	87.9		39.8	0.52	87.9	39.8	0.52	D.B.
65M x 0	12.1	0.6	27.2	0.78	100.0	38.0	0.55	A.D.B.
	12.1		27.4	0.78	100.0	38.3	0.55	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	25.5	0.6	8.1	18.7	72.6	0.70	25.5	8.1	A.D.B.
	25.6		8.1	18.8	73.1	0.70	25.6	8.1	D.B.
1.40-1.50	9.7	0.6	21.3	16.2	61.9	0.61	35.2	11.7	A.D.B.
	9.7		21.4	16.3	62.3	0.61	35.3	11.8	D.B.
1.50-1.60	9.2	0.8	31.0				44.4	15.7	A.D.B.
	9.2		31.3				44.5	15.8	D.B.
+1.60	55.6	0.9	58.5				100.0	39.5	A.D.B.
	55.5		59.0				100.0	39.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.01	399	475	25	52	1.031

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8553 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-4

Starting Temperature °C: 320

Softening Temperature °C: 399

Max. Dilatation Temp. °C: 475

Contraction %: 25

Dilatation %: 52

Final Temperature °C:

G. Factor: 1.031

250

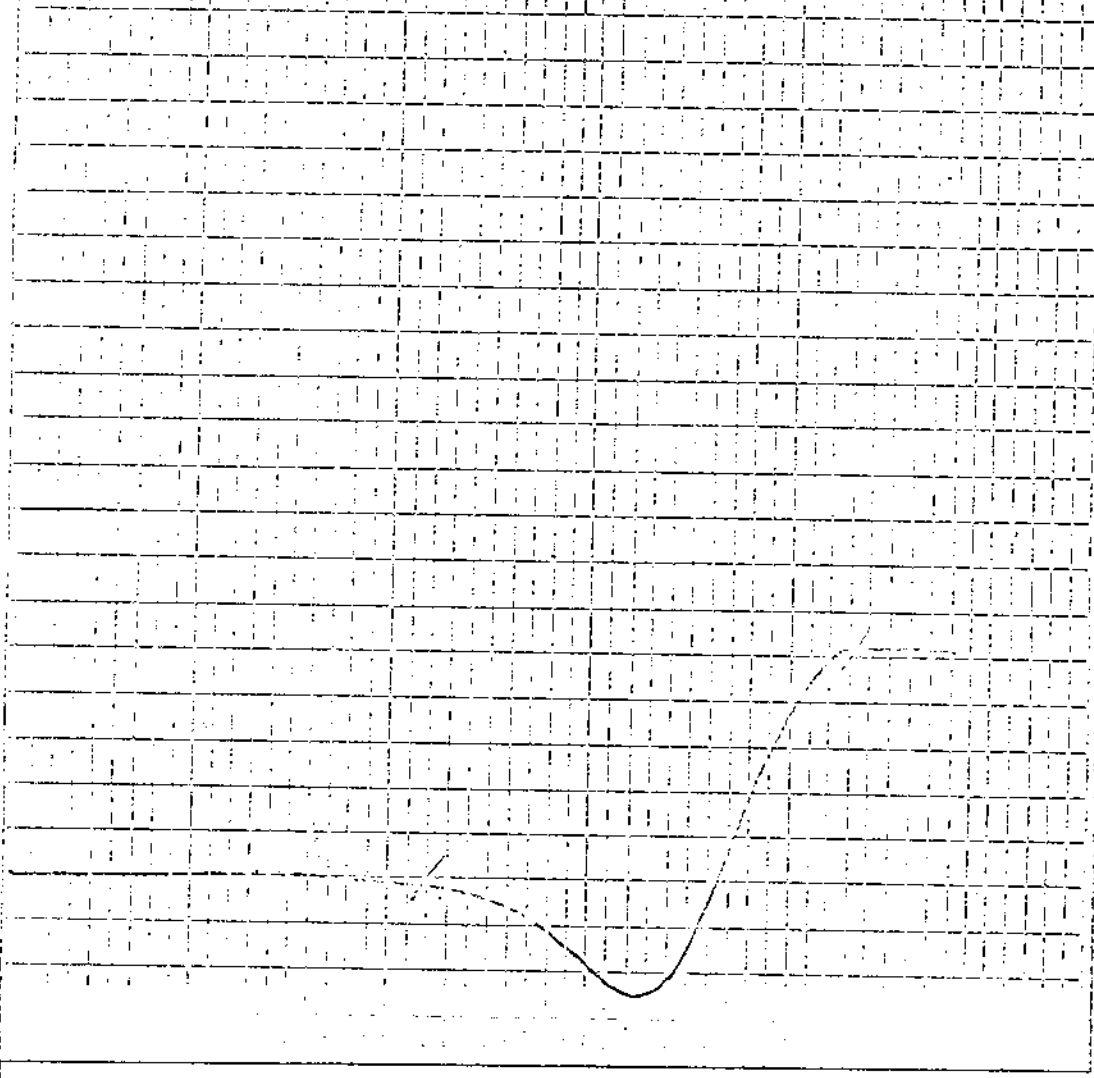
200

150

100

50

0



BENTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-5

Lab. No. 8664

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.5	22.0	17.9	59.6	0.66	87	Air Dried Basis
	22.1	18.0	59.9	0.66	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.H. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	91.0	0.9	22.5	0.67	91.0	22.5	0.67	A.D.B.
	91.0		22.7	0.68	91.0	22.7	0.68	D.B.
65M x 0	9.0	0.6	15.6	0.61	100.0	21.9	0.66	A.D.B.
	9.0		15.7	0.61	100.0	22.1	0.67	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	53.9	0.8	5.2	18.7	75.3	0.78	53.9	5.2	A.D.B.
	53.9		5.2	18.9	75.9	0.79	53.9	5.2	D.B.
1.40-1.50	12.2	0.8	16.3	16.6	66.3	0.64	66.1	7.2	A.D.B.
	12.2		16.4	16.7	66.9	0.65	66.1	7.3	D.B.
1.50-1.60	7.5	0.8	28.0				73.6	9.4	A.D.B.
	7.5		28.2				73.6	9.5	D.B.
+1.60	26.4	1.2	59.0				100.0	22.5	A.D.B.
	26.4		59.7				100.0	22.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.03	408	486	21	- 15	0.656

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries



Lab. No. 8664 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-5

Starting Temperature °C: 320

Softening Temperature °C: 408

Max. Dilatation Temp. °C: 486

250

Contraction %: 21

Dilatation %: -15

Final Temperature °C:

G. Factor: 0.656

200

150

150

100

100

50

50

0

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-6

Lab. No. 8665

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	29.5	15.3	54.4	0.41	82	Air Dried Basis
	29.7	15.4	54.9	0.41	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			i
					WT. %	ASH %	S. %	
1/4" x 65M	93.4	0.8	30.5	0.40	93.4	30.5	0.40	A.D.B.
	93.4		30.7	0.40	93.4	30.7	0.40	D.B.
65M x 0	6.6	0.6	15.2	0.55	100.0	29.5	0.41	A.D.B.
	6.6		15.3	0.55	100.0	29.7	0.41	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	53.8	0.8	5.4	17.6	76.2	0.53	53.8	5.4	A.D.B.
	53.8		5.4	17.7	76.9	0.53	53.8	5.4	D.B.
1.40-1.50	9.7	0.7	16.4	16.1	66.8	0.43	63.5	7.1	A.D.B.
	9.7		16.5	16.2	67.3	0.43	63.5	7.1	D.B.
1.50-1.60	3.1	0.6	28.3				66.6	8.1	A.D.B.
	3.1		28.5				66.6	8.1	D.B.
+1.60	33.4	0.9	75.3				100.0	30.5	A.D.B.
	33.4		76.0				100.0	30.8	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp. = 320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
5	0.03	421	---	17% @ 475°	---	---

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8635 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-6

Starting Temperature °C: 320

Softening Temperature °C: 421

Max. Dilatation Temp. °C: - 475

Contraction %: 17

Dilatation %: - 17

Final Temperature °C: \_\_\_\_\_

G. Factor: ---

250

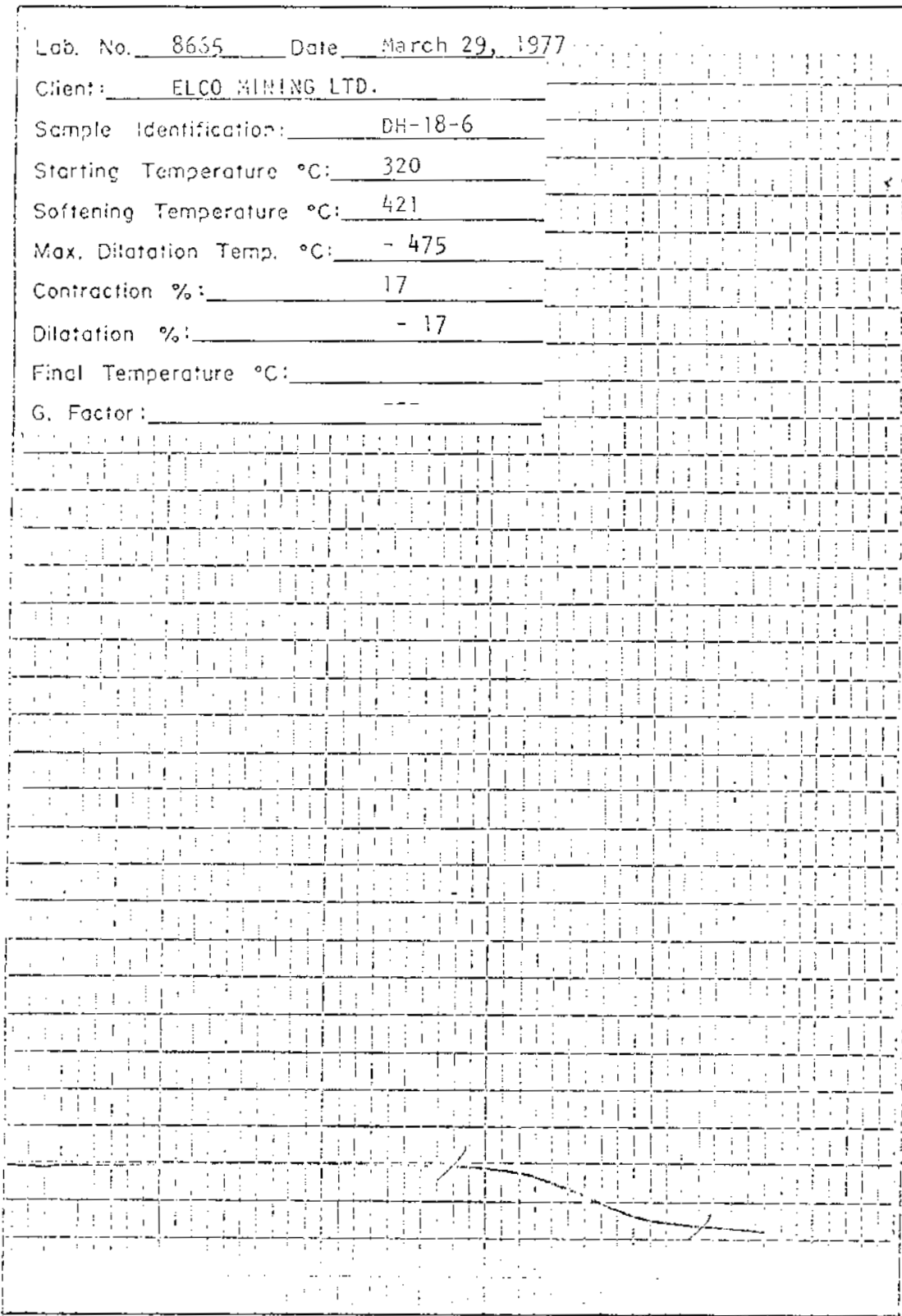
200

150

100

50

0



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-7

Lab. No. 8666

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.4	9.1	17.4	73.1	0.62	128	Air Dried Basis
	9.1	17.5	73.4	0.62	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			i
					WT. %	ASH %	S. %	
1/4" x 65M	93.0	0.8	8.6	0.60	93.0	8.6	0.60	A.D.B.
	93.0		8.7	0.60	93.0	8.7	0.60	D.B.
65M x 0	7.0	0.5	12.0	0.52	100.0	8.8	0.59	A.D.B.
	7.0		12.1	0.52	100.0	8.9	0.59	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	81.2	0.8	3.9	19.8	75.5	0.71	81.2	3.9	A.D.B.
	81.2		3.9	20.0	76.1	0.72	81.2	3.9	D.B.
1.40-1.50	9.0	0.8	13.2	16.4	69.6	0.51	90.2	4.8	A.D.B.
	9.0		13.3	16.5	70.2	0.51	90.2	4.8	D.B.
1.50-1.60	3.0	0.8	21.2				93.2	5.4	A.D.B.
	3.0		21.4				93.2	5.4	D.B.
+1.60	6.8	1.2	53.5				100.0	8.6	A.D.B.
	6.8		54.1				100.0	8.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
8	0.04	412	483	30	- 1	0.922

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8566 Date March 29, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-7

Starting Temperature °C: 320

Softening Temperature °C: 412

Max. Dilatation Temp. °C: 483

Contraction %: 30

Dilatation %: - 1

Final Temperature °C:

G. Factor: 0.922

250

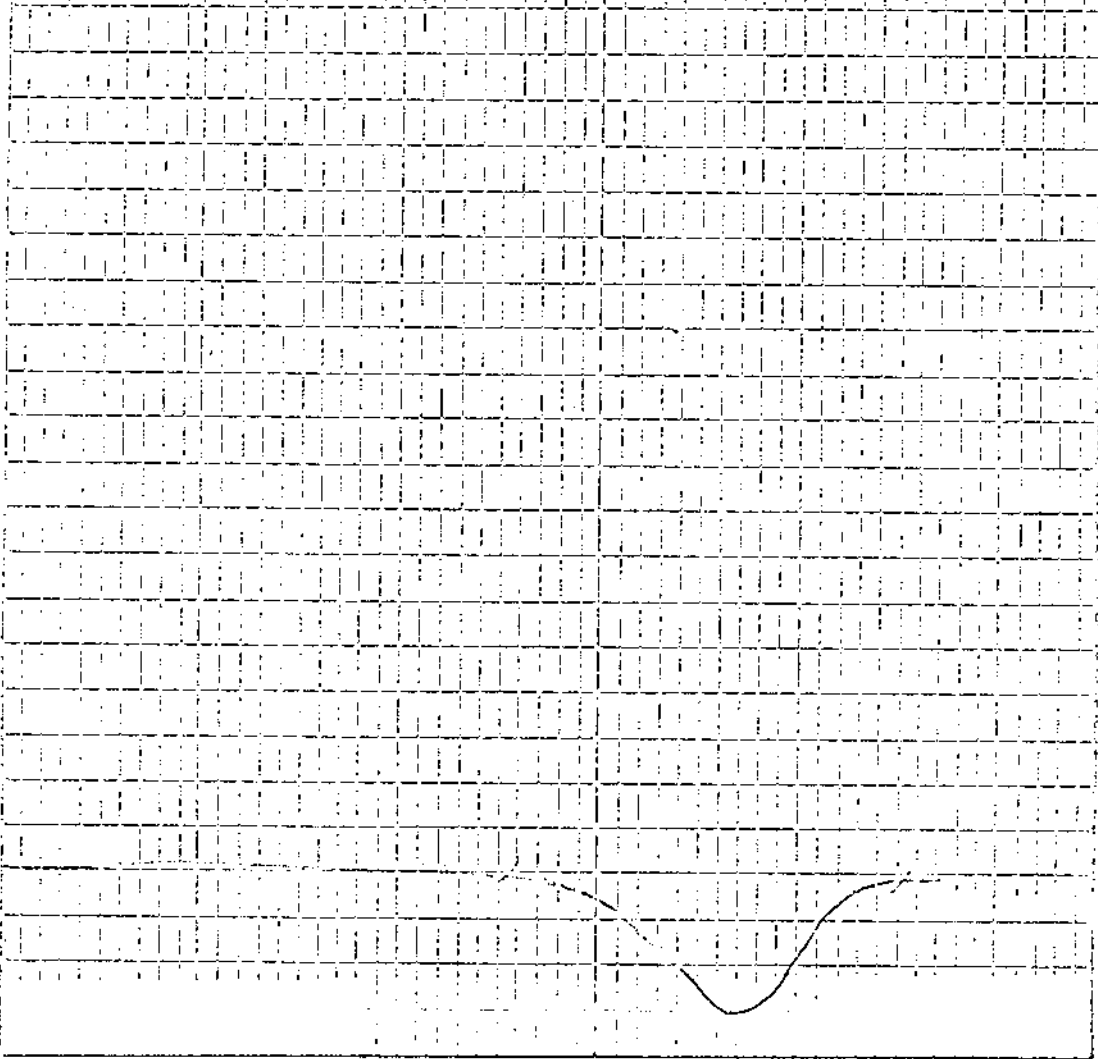
200

150

100

50

0



DARTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-8

Lab. No. 8667

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.5	14.4	18.1	67.0	0.51	96	Air Dried Basis
	14.5	18.2	67.3	0.51	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			REMARKS
					WT. %	ASH %	S. %	
1/4" x 65M	91.9	0.8	14.5	0.51	91.9	14.5	0.51	A.D.B.
	91.9		14.6	0.51	91.9	14.6	0.51	D.B.
65M x 0	8.1	0.6	8.8	0.49	100.0	14.0	0.51	A.D.B.
	8.1		8.9	0.49	100.0	14.1	0.51	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		REMARKS
							WT. %	ASH %	
-1.40	65.0	0.8	6.2	19.4	73.6	0.57	65.0	6.2	A.D.B.
	65.0		6.3	19.6	74.1	0.57	65.0	6.3	D.B.
1.40-1.50	22.3	0.8	16.6	16.2	66.4	0.50	87.3	8.9	A.D.B.
	22.3		16.7	16.3	67.0	0.50	87.3	9.0	D.B.
1.50-1.60	4.5	0.8	24.9				91.8	9.6	A.D.B.
	4.5		25.1				91.8	9.7	D.B.
+1.60	8.2	1.1	68.9				100.0	14.5	A.D.B.
	8.2		69.7				100.0	14.7	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
8 1/2	0.03	385	469	22	21	0.998

\* S.T. & M.D.T. corrected with factory 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8667 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-8

Starting Temperature °C: 320

Softening Temperature °C: 385

Max. Dilatation Temp. °C: 469

Contraction %: 22

Dilatation %: 21

Final Temperature °C:

G. Factor: 0.998

250

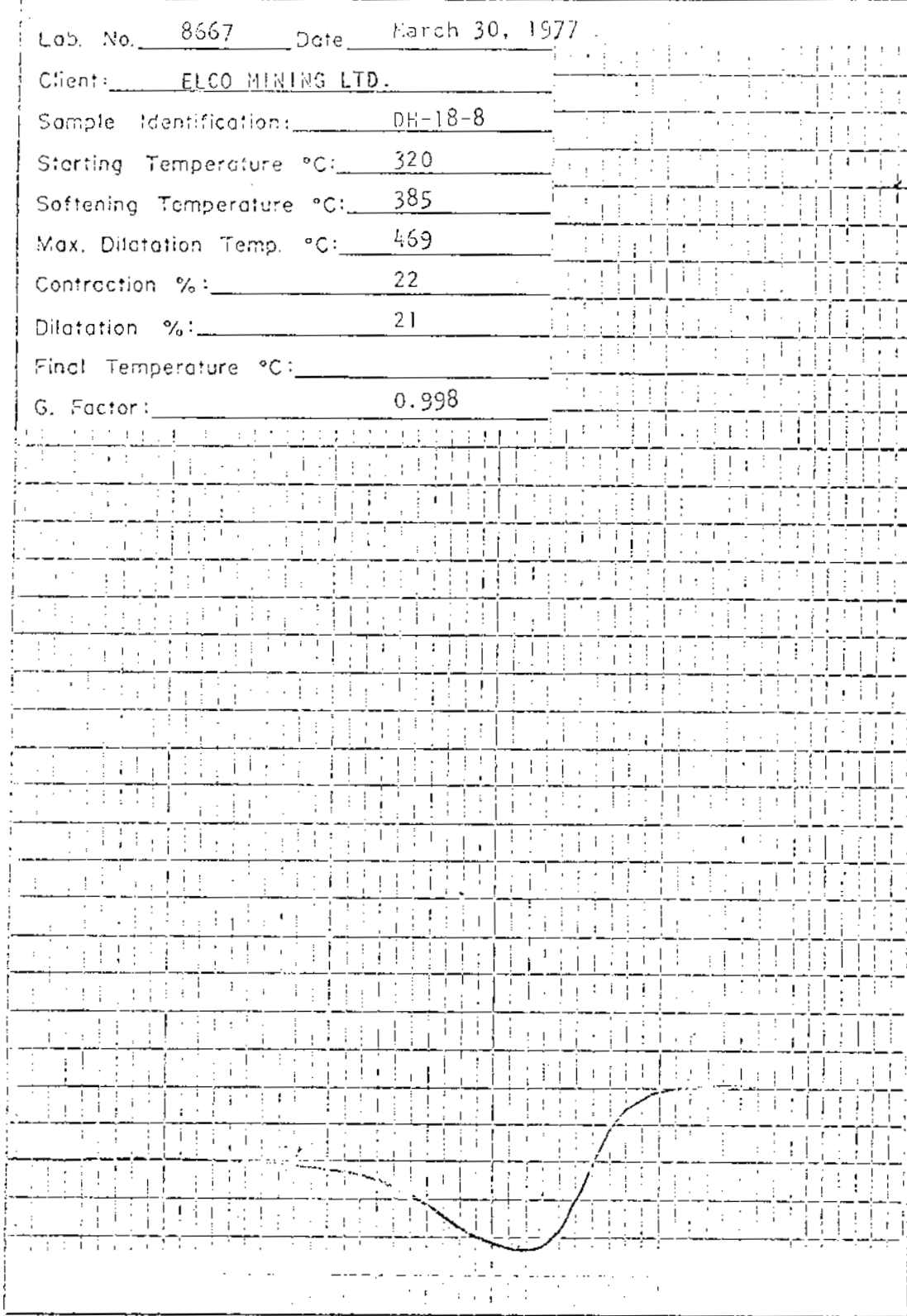
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-18-9

Lab. No. 8668

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	16.8	17.4	65.0	0.56	96	Air Dried Basis
	16.9	17.5	65.6	0.56	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	85.0	0.8	18.4	0.62	85.0	18.4	0.62	A.D.B.
	85.0		18.5	0.63	85.0	18.5	0.63	D.B.
65M x 0	15.0	0.7	13.4	0.55	100.0	17.7	0.61	A.D.B.
	15.0		13.5	0.55	100.0	17.8	0.62	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	63.6	0.8	7.4	18.9	72.9	0.53	63.6	7.4	A.D.B.
	63.6		7.5	19.1	73.4	0.53	63.6	7.5	D.B.
1.40-1.50	13.3	0.8	16.3	16.5	66.4	0.48	76.9	8.9	A.D.B.
	13.3		16.4	16.6	67.0	0.48	76.9	9.0	D.B.
1.50-1.60	6.8	0.8	24.5				83.7	10.2	A.D.B.
	6.8		24.7				83.7	10.3	D.B.
+1.60	16.3	0.9	66.7				100.0	19.4	A.D.B.
	16.3		67.3				100.0	19.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.							
F.S.I.	PK ON COAL	DILATATION TEST (Starting Temp.=320°C)					G. NO.
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %		
8	0.04	396	478	24	19	0.989	

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries



Lab. No. 8668 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-18-9

Starting Temperature °C: 320

Softening Temperature °C: 396

Max. Dilatation Temp. °C: 478

250

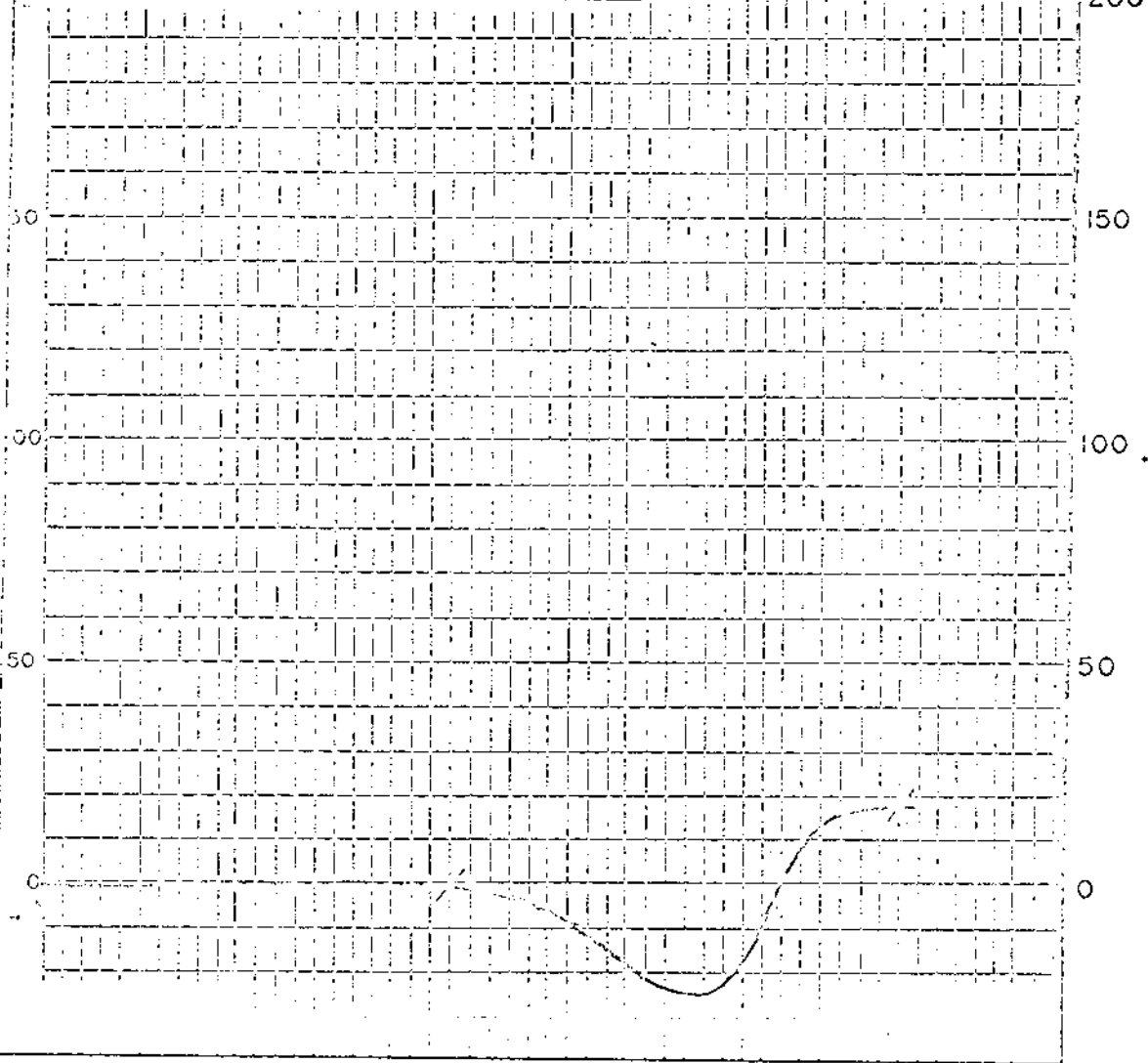
Contraction %: 24

Dilatation %: 19

Final Temperature °C:

G. Factor: 0.989

200



BARTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-1

Lab. No. 8669

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
1.3	39.8	17.9	41.0	0.59	80	Air Dried Basis
	40.3	18.1	41.6	0.60	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	87.7	1.1	41.9	0.57	87.7	41.9	0.57	A.D.B.
	87.7		42.4	0.58	87.7	42.4	0.58	D.B.
65M x 0	12.4	1.3	23.1	0.70	100.0	39.6	0.59	A.D.B.
	12.3		23.4	0.71	100.0	40.1	0.60	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	40.1	1.1	4.6	25.2	69.1	0.78	40.1	4.6	A.D.B.
	40.1		4.7	25.5	69.8	0.79	40.1	4.7	D.B.
1.40-1.50	8.5	1.1	15.4	22.0	61.5	0.69	48.6	6.5	A.D.B.
	8.5		15.6	22.2	62.2	0.70	48.6	6.6	D.B.
1.50-1.60	3.0	1.1	29.6				51.6	7.8	A.D.B.
	3.0		29.9				51.6	8.0	D.B.
+1.60	48.4	1.2	77.1				100.0	41.4	A.D.B.
	48.4		78.0				100.0	41.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	PK ON COAL	DILATATION TEST (Starting Temp. =320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP.*(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
7	0.03	374	446	23	47	1.031

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8669 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-19-1

Starting Temperature °C: 320

Softening Temperature °C: 374

Max. Dilatation Temp. °C: 446

250

Contraction %: 23

Dilatation %: 47

Final Temperature °C:

G. Factor: 1.031

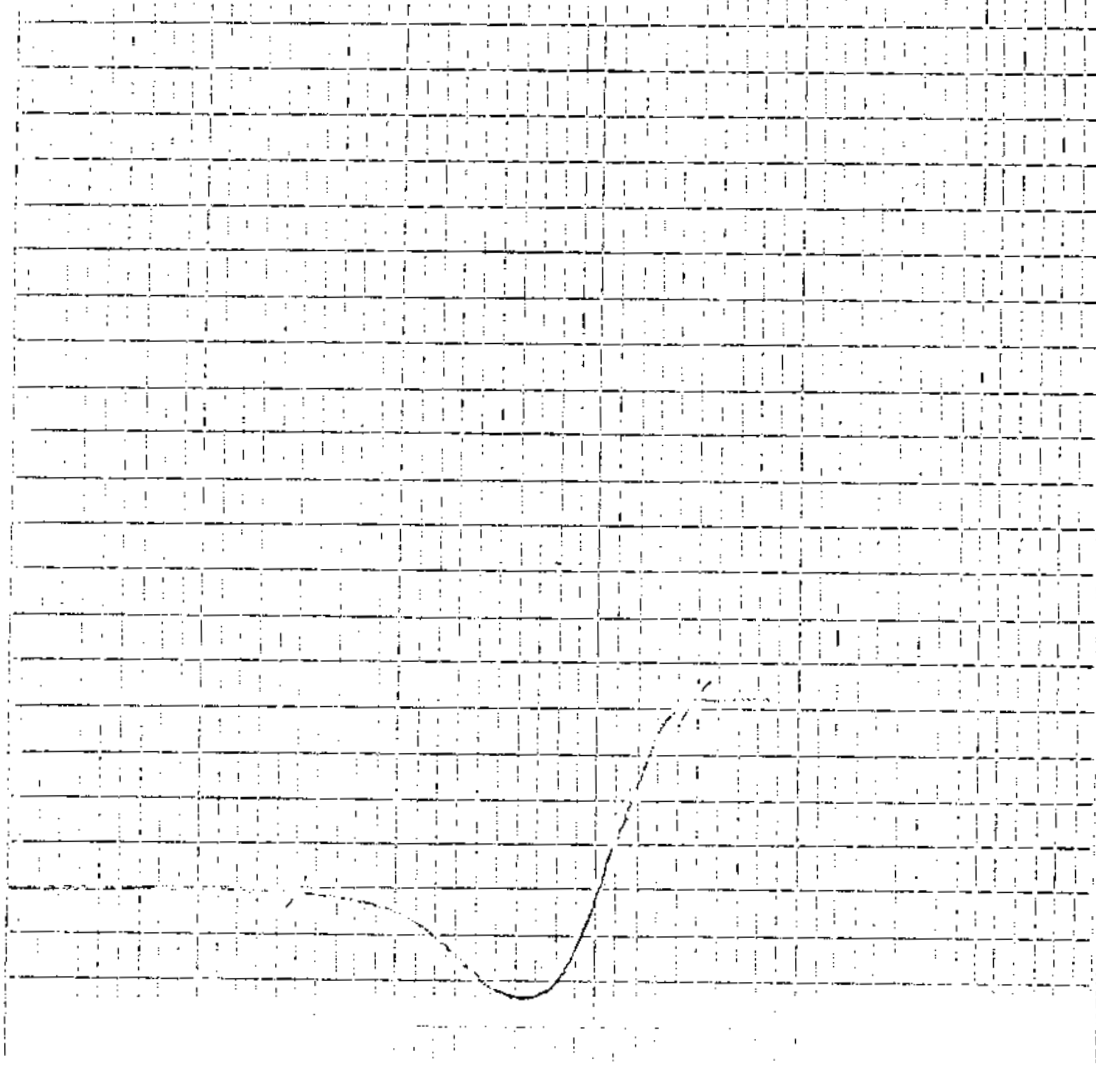
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-2

Lab. No. 8670

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	21.9	20.2	57.2	0.88	94	Air Dried Basis
	22.1	20.3	57.6	0.89	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	89.2	0.9	23.2	0.88	89.2	23.2	0.88	A.D.B.
	89.2		23.4	0.89	89.2	23.4	0.89	D.B.
65M x 0	10.8	0.7	10.6	0.89	100.0	21.8	0.88	A.D.B.
	10.8		10.7	0.90	100.0	22.0	0.89	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	66.1	1.1	4.0	25.0	69.9	0.98	66.1	4.0	A.D.B.
	66.1		4.0	25.3	70.7	0.99	66.1	4.0	D.B.
1.40-1.50	4.4	0.7	22.6	20.3	56.4	0.73	70.5	5.2	A.D.B.
	4.4		22.8	20.4	56.8	0.74	70.5	5.2	D.B.
1.50-1.60	3.7	0.7	34.3				74.2	6.6	A.D.B.
	3.7		34.5				74.2	6.6	D.B.
+1.60	25.8	1.1	70.3				100.0	23.0	A.D.B.
	25.8		71.1				100.0	23.3	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=350°C)				G. NO.
		SOFTENING TEMP.*(°C)	MAX. DIL. TEMP.*(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
9	0.04	370	458	25	183	1.088

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lob. No. 8670 Date March 22, 1977

%  
300

Client: ELCC MINING LTD.

Sample Identification: DH-19-2

Starting Temperature °C: 350

Softening Temperature °C: 370

Max. Dilatation Temp. °C: 458

250

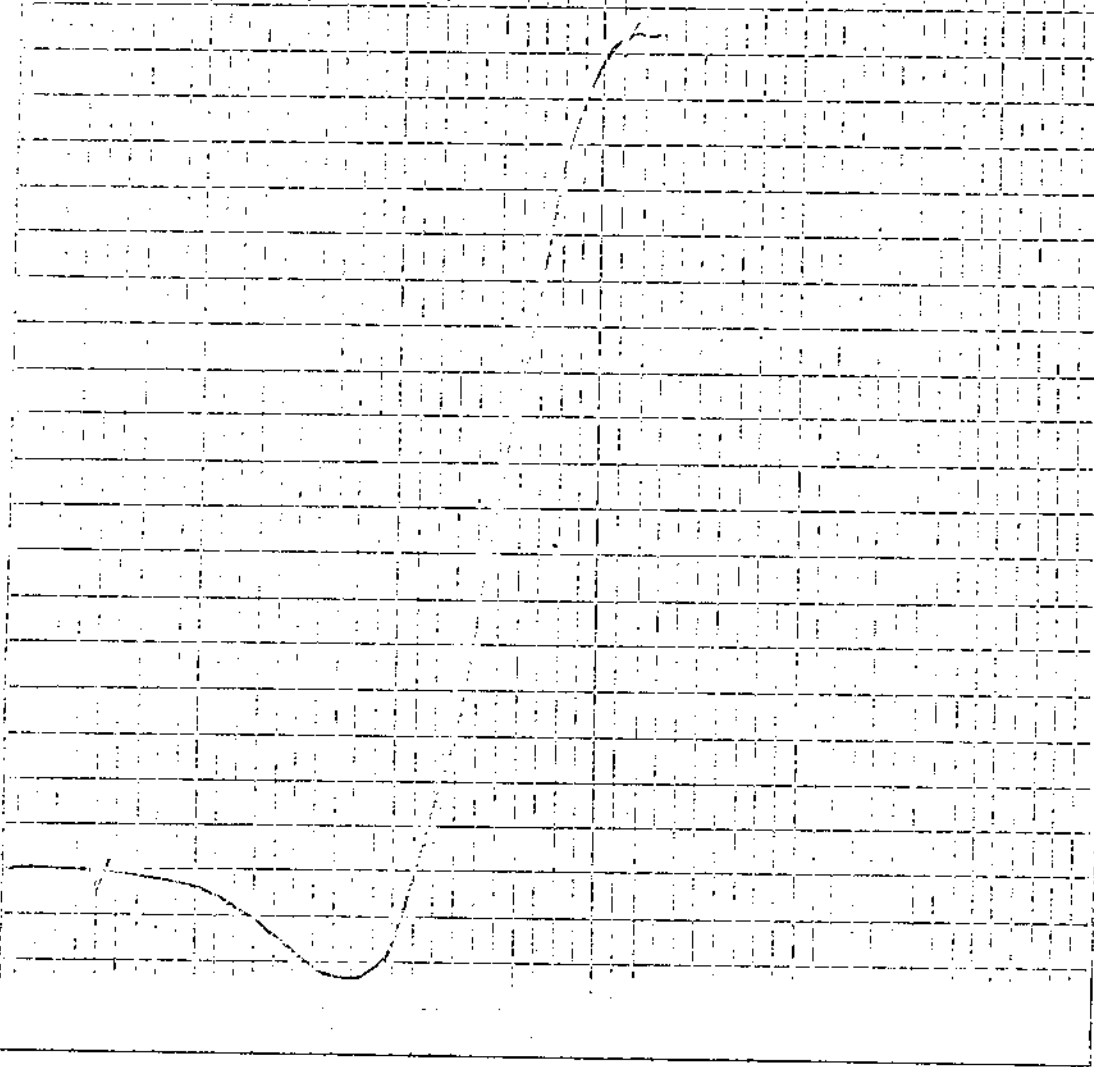
Contraction %: 25

Dilatation %: 183

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.088

200



**BIRTLEY ENGINEERING (CANADA) LTD.**

Title

**RUHR DILATOMETER TEST**

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-3

Lab. No. 8671

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	51.0	15.4	32.9	0.67	71	Air Dried Basis
	51.4	15.5	33.1	0.67	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	88.0	0.9	53.9	0.60	88.0	53.9	0.60	A.D.B.
	88.0		54.4	0.61	88.0	54.4	0.61	D.B.
65M x 0	12.0	0.8	28.0	0.86	100.0	50.9	0.63	A.D.B.
	12.0		28.2	0.87	100.0	51.3	0.64	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	30.0	0.9	4.6	25.1	69.4	0.92	30.0	4.6	A.D.B.
	30.0		4.6	25.3	70.1	0.93	30.0	4.6	D.B.
1.40-1.50	2.8	1.0	21.4	21.7	55.9	0.96	32.8	6.0	A.D.B.
	2.8		21.6	21.9	56.5	0.97	32.8	6.1	D.B.
1.50-1.60	2.1	0.9	29.1				34.9	7.4	A.D.B.
	2.1		29.4				34.9	7.5	D.B.
+1.60	65.1	1.3	78.2				100.0	53.5	A.D.B.
	65.1		79.2				100.0	54.2	D.B.

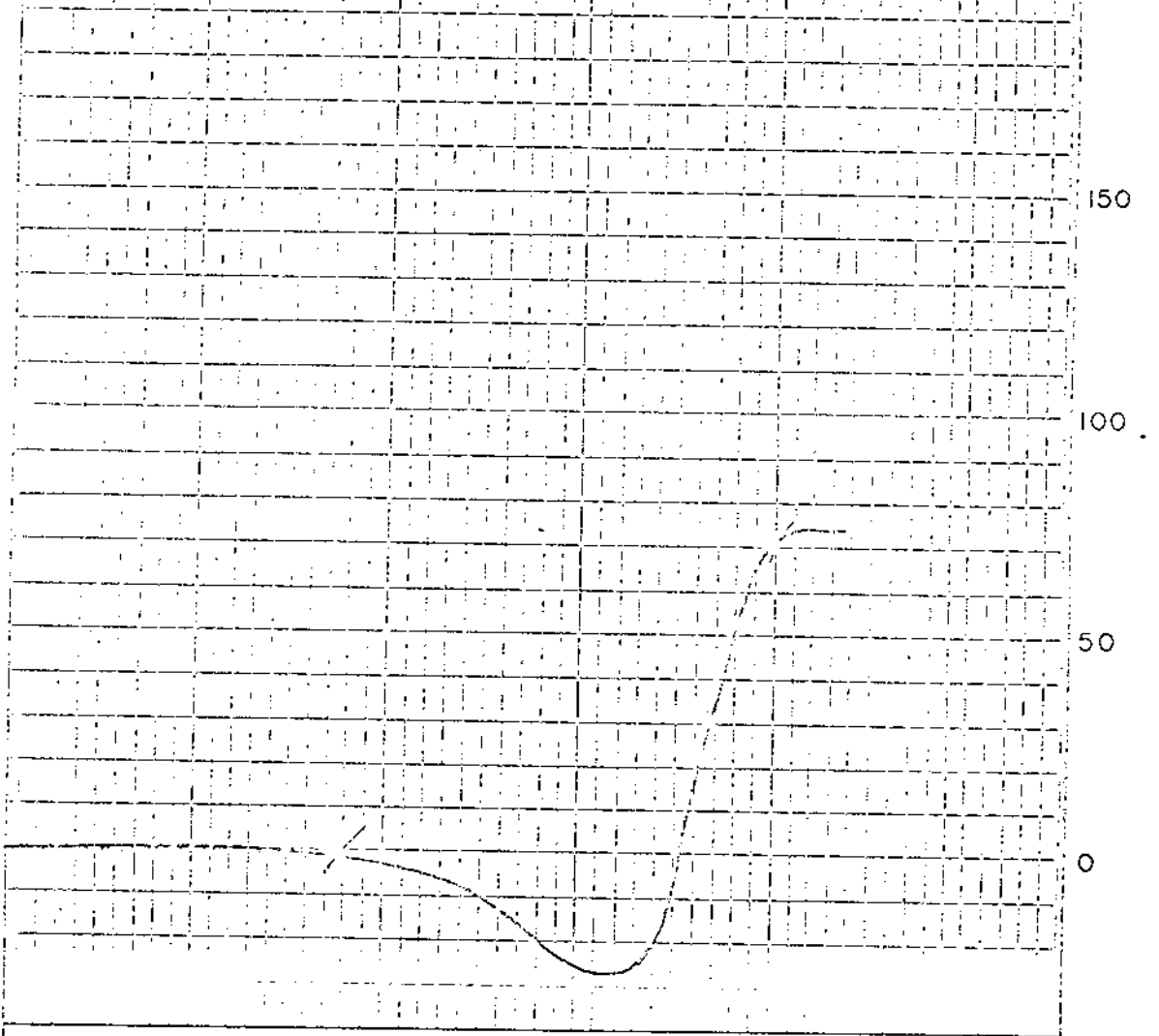
COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.05	363	447	24	208	1.090


\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8576 Date March 30, 1977  
 Client: ELCO MINING LTD.  
 Sample Identification: DH-19-3  
 Starting Temperature °C: 320  
 Softening Temperature °C: 384  
 Max. Dilatation Temp. °C: 465  
 Contraction %: 27  
 Dilatation %: 72  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.045




**BIRTLEY ENGINEERING (CANADA) LTD.**

Title  <p style="text-align: center;">RUHR DILATOMETER TEST</p>	Date
	Drawn

Lab. No. 8671 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-19-3

Starting Temperature °C: 320

Softening Temperature °C: 363

Max. Dilatation Temp. °C: 447

Contraction %: 24

Dilatation %: 208

Final Temperature °C: \_\_\_\_\_

G. Factor: 1.090

250

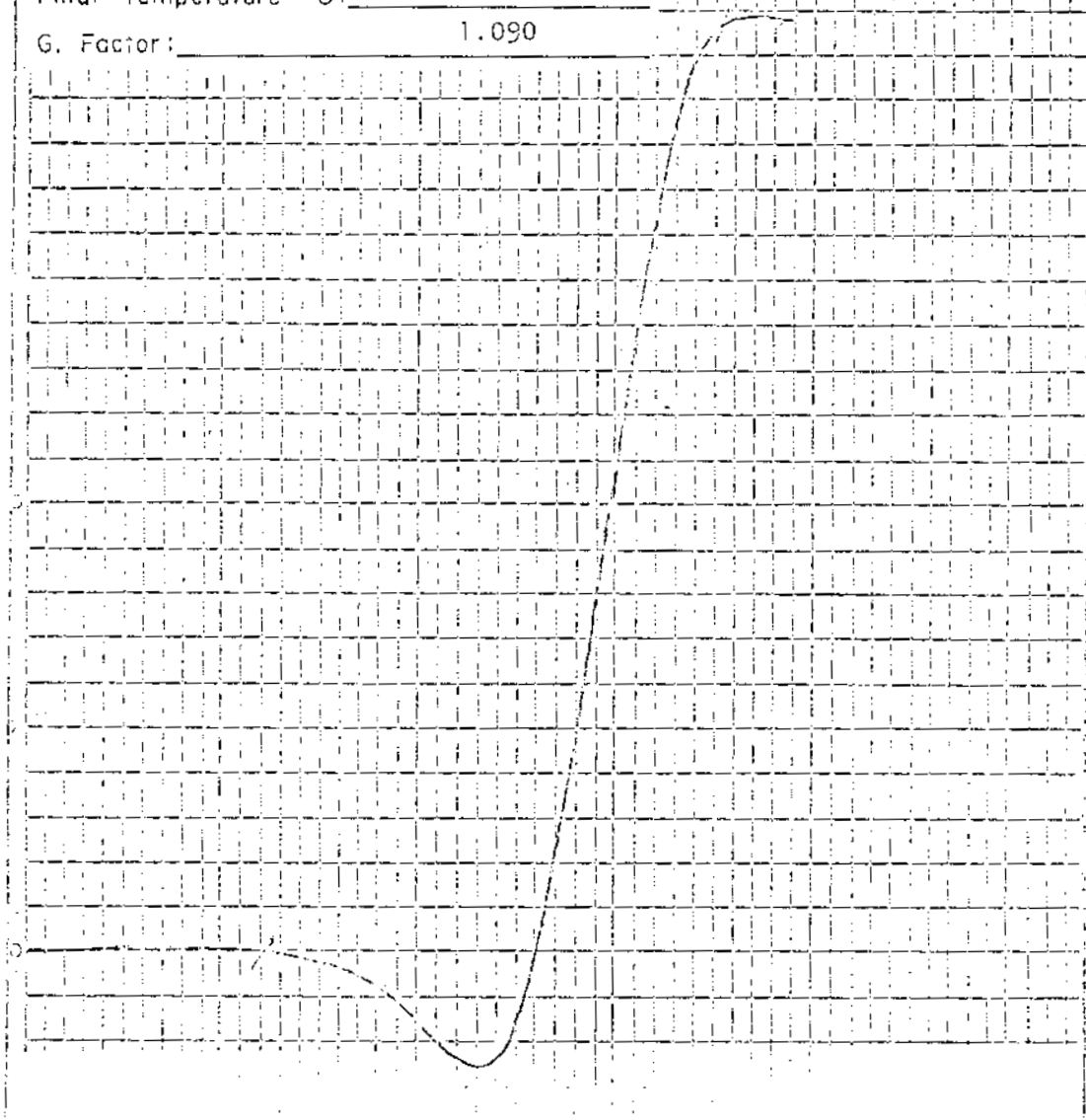
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-4

Lab. No. 8672

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	46.6	16.6	36.0	0.60	73	Air Dried Basis
	47.0	16.7	36.3	0.60	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			REMARKS
					WT. %	ASH %	S. %	
1/4" x 65M	93.3	0.6	48.0	0.59	93.3	48.0	0.59	A.D.B.
	93.3		48.3	0.59	93.3	48.3	0.59	D.B.
65M x 0	6.7	0.8	28.8	0.73	100.0	46.7	0.60	A.D.B.
	6.7		9.0	0.74	100.0	47.0	0.60	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		REMARKS
							WT. %	ASH %	
-1.40	31.5	0.9	6.9	24.8	67.4	0.88	31.5	6.9	A.D.B.
	31.5		7.0	25.0	68.0	0.89	31.5	7.0	D.B.
1.40-1.50	6.2	0.8	24.3	20.2	54.7	0.73	37.7	9.8	A.D.B.
	6.2		24.5	20.4	55.1	0.74	37.7	9.9	D.B.
1.50-1.60	9.0	0.9	34.2				46.7	14.5	A.D.B.
	9.0		34.5				46.7	14.6	D.B.
+1.60	53.3	1.1	76.4				100.0	47.5	A.D.B.
	53.3		77.2				100.0	48.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp. = 320°C)				
		SOFTENING TEMP* (°C)	MAX. DIL. TEMP* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.06	374	459	22	242	1.093

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8672 Date March 30, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-19-4

Starting Temperature °C: 320

Softening Temperature °C: 374

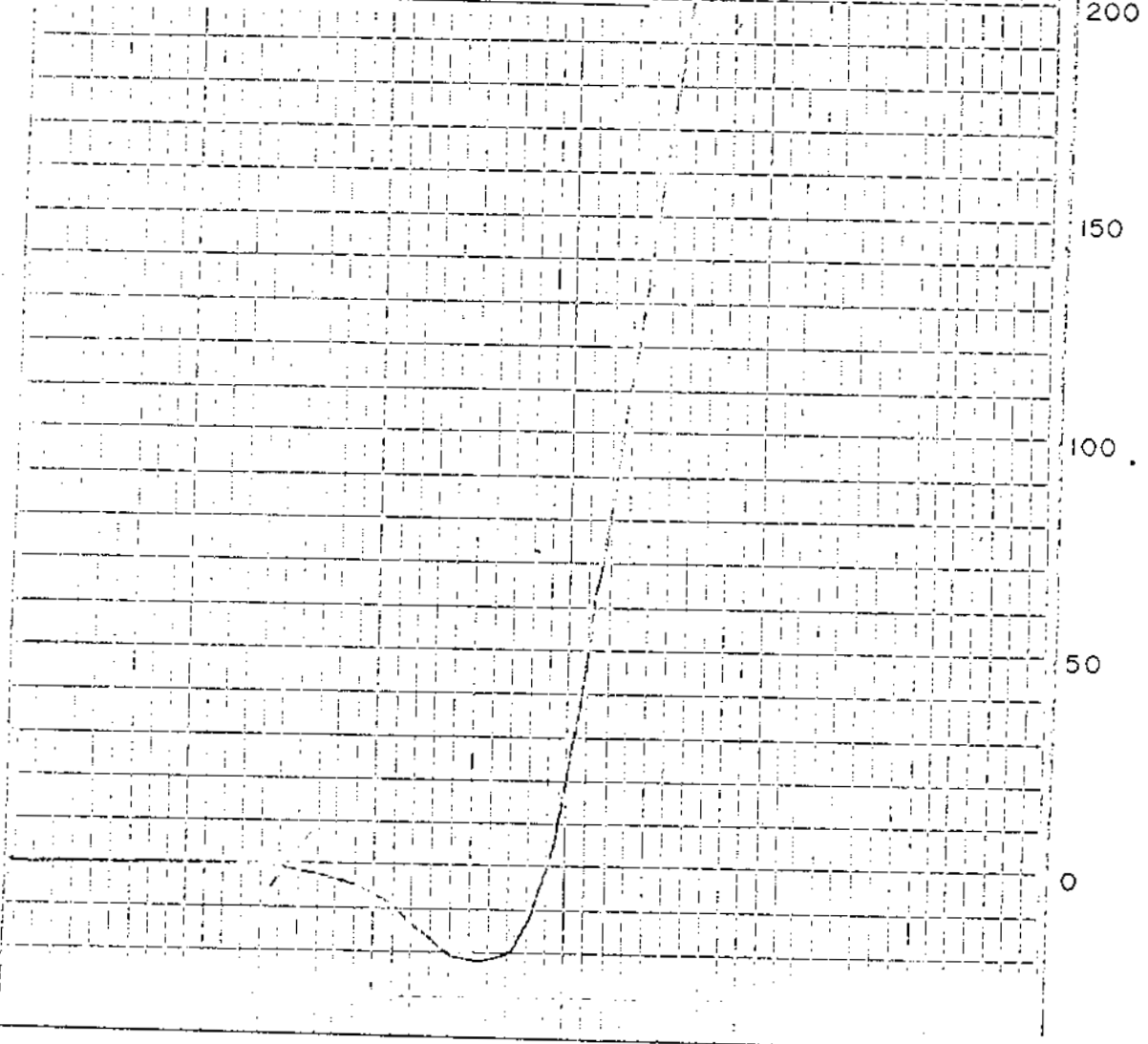
Max. Dilatation Temp. °C: 459

Contraction %: 22

Dilatation %: 242

Final Temperature °C:

G. Factor: 1.093



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-5

Lab. No. 8673

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	38.2	17.6	43.5	0.68	75	Air Dried Basis
	38.5	17.7	43.8	0.68	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.0	0.6	38.5	0.69	94.0	38.5	0.69	A.D.B.
	94.0		38.7	0.69	94.0	38.7	0.69	D.B.
65M x 0	6.0	0.8	20.4	0.87	100.0	37.4	0.70	A.D.B.
	6.0		20.6	0.88	100.0	37.6	0.70	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	33.6	0.7	6.0	24.2	69.1	0.99	33.6	6.0	A.D.B.
	33.6		6.0	24.4	69.6	1.00	33.6	6.0	D.B.
1.40-1.50	13.5	0.6	16.9	22.6	59.9	0.92	47.1	9.1	A.D.B.
	13.5		17.0	22.7	60.3	0.93	47.1	9.2	D.B.
1.50-1.60	4.9	0.7	32.4				52.0	11.3	A.D.B.
	4.9		32.6				52.0	11.4	D.B.
+1.60	48.0	0.8	66.4				100.0	37.8	A.D.B.
	48.0		66.9				100.0	38.0	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	PZ ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.15	370	460	27	205	1.091

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

Lab. No. 8673 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-19-5

Starting Temperature °C: 320

Softening Temperature °C: 370

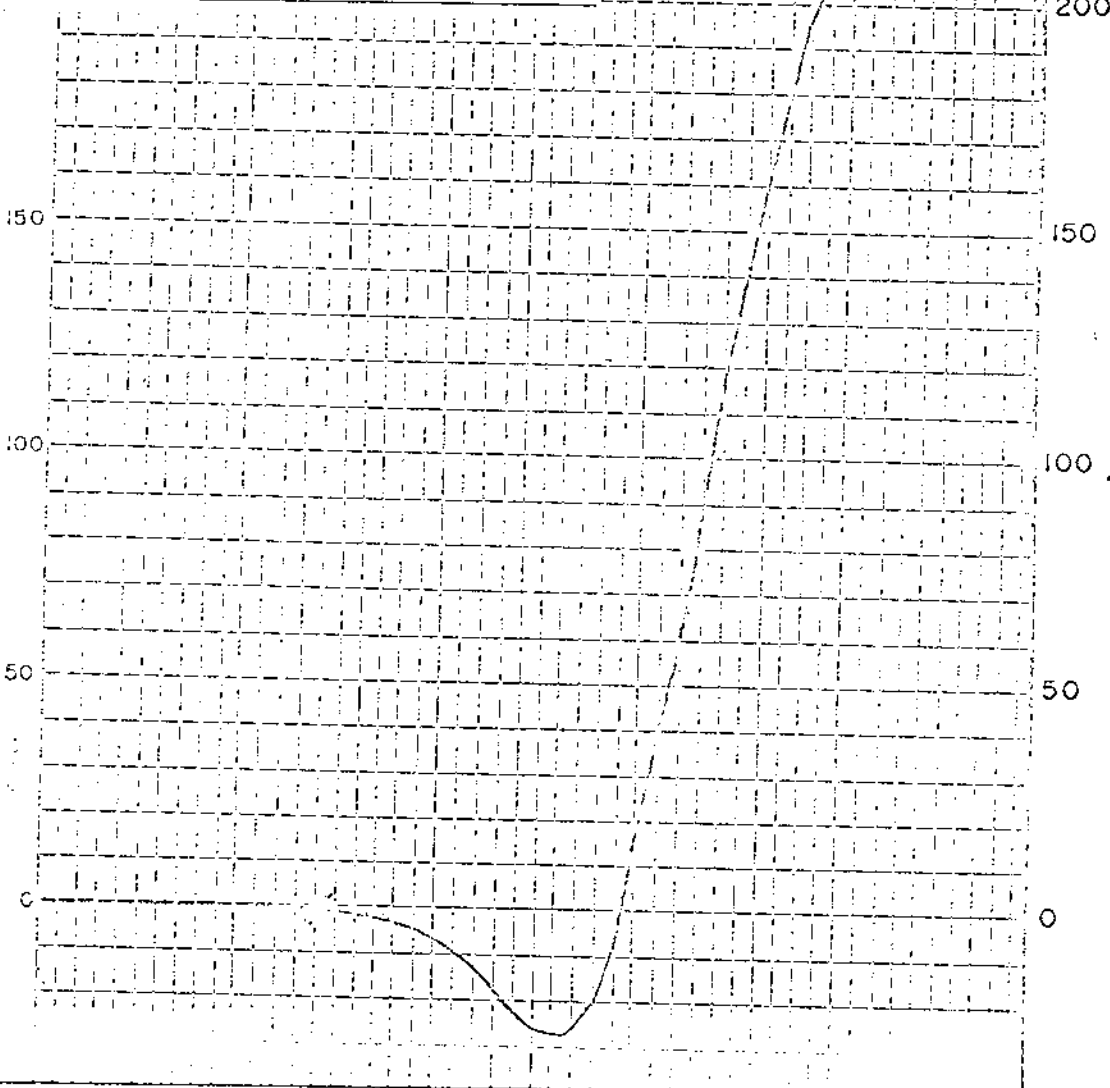
Max. Dilatation Temp. °C: 460

Contraction %: 27

Dilatation %: 205

Final Temperature °C:

G. Factor: 1.091



DINTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-6

Lab. No. 8674

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.7	17.1	20.1	62.1	0.75	100	Air Dried Basis
	17.2	20.2	62.6	0.76	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	77.5	0.7	18.4	0.74	77.5	18.4	0.74	A.D.B.
	77.5		18.5	0.75	77.5	18.5	0.75	D.B.
65M x 0	22.5	0.7	10.8	0.79	100.0	16.7	0.75	A.D.B.
	22.5		10.9	0.80	100.0	16.8	0.76	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	66.9	0.8	4.7	23.5	71.0	0.94	66.9	4.7	A.D.B.
	66.9		4.7	23.7	71.6	0.95	66.9	4.7	D.B.
1.40-1.50	15.3	0.8	19.7	18.5	61.0	0.73	82.2	7.5	A.D.B.
	15.3		19.9	18.6	61.5	0.74	82.2	7.5	D.B.
1.50-1.60	2.9	0.7	24.6				85.1	8.1	A.D.B.
	2.9		24.8				85.1	8.1	D.B.
+1.60	14.9	1.0	77.5				100.0	18.4	A.D.B.
	14.9		78.3				100.0	18.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
8 1/2	0.06	385	457	26	20	0.989

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8374 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DM-19-6

Starting Temperature °C: 320

Softening Temperature °C: 385

Max. Dilatation Temp. °C: 457

250

Contraction %: 26

Dilatation %: 20

Final Temperature °C:

G. Factor: 0.989

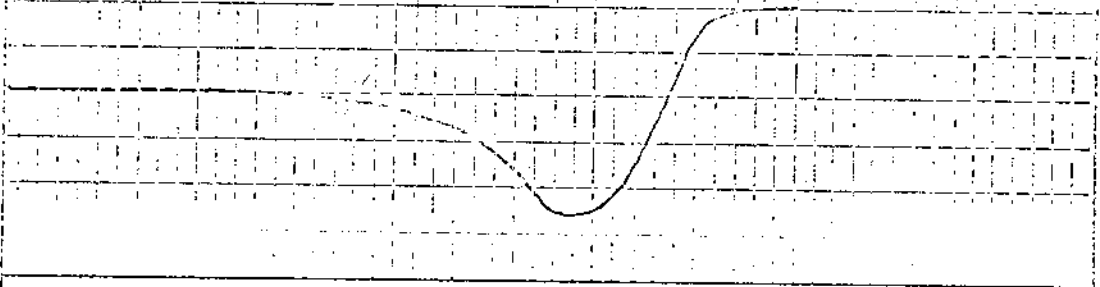
200

150

100

50

0



BIRTMET BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.

CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-7

Lab. No. 8675

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	22.7	21.6	55.1	1.75	107	Air Dried Basis
	22.8	21.7	55.5	1.76	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	86.5	0.7	23.7	1.78	86.5	23.7	1.78	A.D.B.
	86.5		23.9	1.79	86.5	23.9	1.79	D.B.
65M x 0	13.5	0.7	13.6	1.54	100.0	22.3	1.75	A.D.B.
	13.5		13.7	1.55	100.0	22.5	1.76	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	61.3	0.7	5.4	25.4	68.5	1.43	61.3	5.4	A.D.B.
	61.3		5.4	25.6	69.0	1.44	61.3	5.4	D.B.
1.40-1.50	7.3	0.8	20.1	21.7	57.4	1.63	68.6	7.0	A.D.B.
	7.3		20.3	21.9	57.8	1.64	68.6	7.0	D.B.
1.50-1.60	3.5	0.8	27.2				72.1	7.9	A.D.B.
	3.5		27.4				72.1	8.0	D.B.
+1.60	27.9	1.0	64.5				100.0	23.7	A.D.B.
	27.9		65.2				100.0	23.9	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.03	370	450	12	261	1.098

\* S.T. & M.D.T. corrected with factor 6/5

Birtley Engineering

Subsidiary of Great West Steel Industries

Lab. No. 8575 Date March 30, 1977

Client: ELCO MINING LTD.

Sample Identification: DH-19-7

Starting Temperature °C: 320

Softening Temperature °C: 370

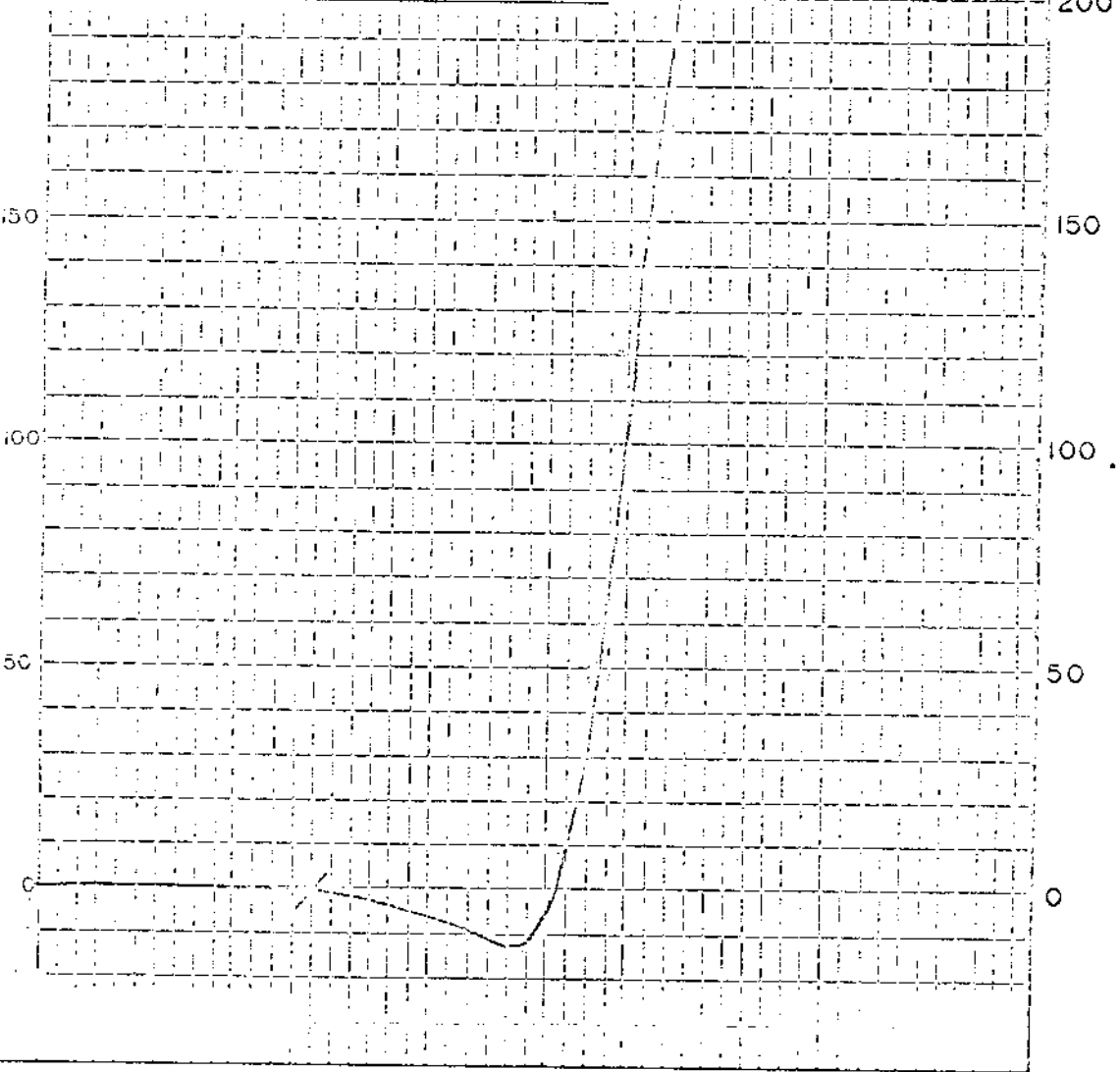
Max. Dilatation Temp. °C: 450

Contraction %: 12

Dilatation %: 261

Final Temperature °C:

G. Factor: 1.098



DARTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn



ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-8

Lab. No. 8676

DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	12.6	21.6	65.2	0.83	87	Air Dried Basis
	12.7	21.7	65.6	0.84	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			I
					WT. %	ASH %	S. %	
1/4" x 65M	94.8	0.6	13.5	0.81	94.8	13.5	0.81	A.D.B.
	94.8		13.6	0.81	94.8	13.6	0.8	D.B.
65M x 0	5.2	0.6	9.0	0.92	100.0	13.3	0.82	A.D.B.
	5.2		9.1	0.93	100.0	13.4	0.82	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		I
							WT. %	ASH %	
-1.40	81.8	0.9	4.3	23.9	70.9	0.98	81.8	4.3	A.D.B.
	81.8		4.3	24.1	71.6	0.99	81.8	4.3	D.B.
1.40-1.50	5.0	0.8	18.4	19.9	60.9	0.77	86.8	5.1	A.D.B.
	5.0		18.5	20.1	61.4	0.78	86.8	5.1	D.B.
1.50-1.60	2.4	0.7	31.4				89.2	5.8	A.D.B.
	2.4		31.6				89.2	5.8	D.B.
+1.60	10.8	0.8	76.8				100.0	13.5	A.D.B.
	10.8		77.4				100.0	13.6	D.B.

COMPOSITE 1/4" x 65M FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp. = 320°C)				
		SOFTENING TEMP. *(°C)	MAX. DIL. TEMP. *(°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.03	384	465	27	72	1.045

\* S.T. & M.D.T. corrected with factor 6/5

*Birtley Engineering*

*Subsidiary of Great West Steel Industries*

**ELCO MINING LTD.**  
**CORE SAMPLE ANALYSIS**

HOLE NO.: DH-19-9      Lab. NO. 8677      DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.8	35.4	17.2	46.6	0.88	75	Air Dried Basis
	35.7	17.3	47.0	0.89	--	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	94.3	0.8	36.3	0.83	94.3	36.3	0.83	A.D.B.
	94.3		36.6	0.84	94.3	36.6	0.84	D.B.
65M x 0	5.7	0.7	25.6	1.02	100.0	35.7	0.84	A.D.B.
	5.7		25.8	1.03	100.0	36.0	0.85	D.B.

SINK-FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.M. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	45.1	0.9	6.3	22.2	70.6	1.02	45.1	6.3	A.D.B.
	45.1		6.4	22.4	71.2	1.03	45.1	6.4	D.B.
1.40-1.50	7.3	0.8	16.7	19.4	63.1	0.83	52.4	7.7	A.D.B.
	7.3		16.8	19.6	63.6	0.84	52.4	7.8	D.B.
1.50-1.60	2.3	0.8	30.6				54.7	8.7	A.D.B.
	2.3		30.8				54.7	8.8	D.B.
+1.60	45.3	0.8	69.6				100.0	36.3	A.D.B.
	45.3		70.2				100.0	36.6	D.B.

COMPOSITE 1/4" x 65M FLOATS : 1.50 S.G., A.D.B.						
F.S.I.	P% ON COAL	DILATATION TEST (Starting Temp.=320°C)				G. NO.
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	
9	0.04	385	466	20	65	1.053

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8577 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DH-19-9

Starting Temperature °C: 320

Softening Temperature °C: 385

Max. Dilatation Temp. °C: 466

Contraction %: 20

Dilatation %: 65

Final Temperature °C:

G. Factor: 1.053

250

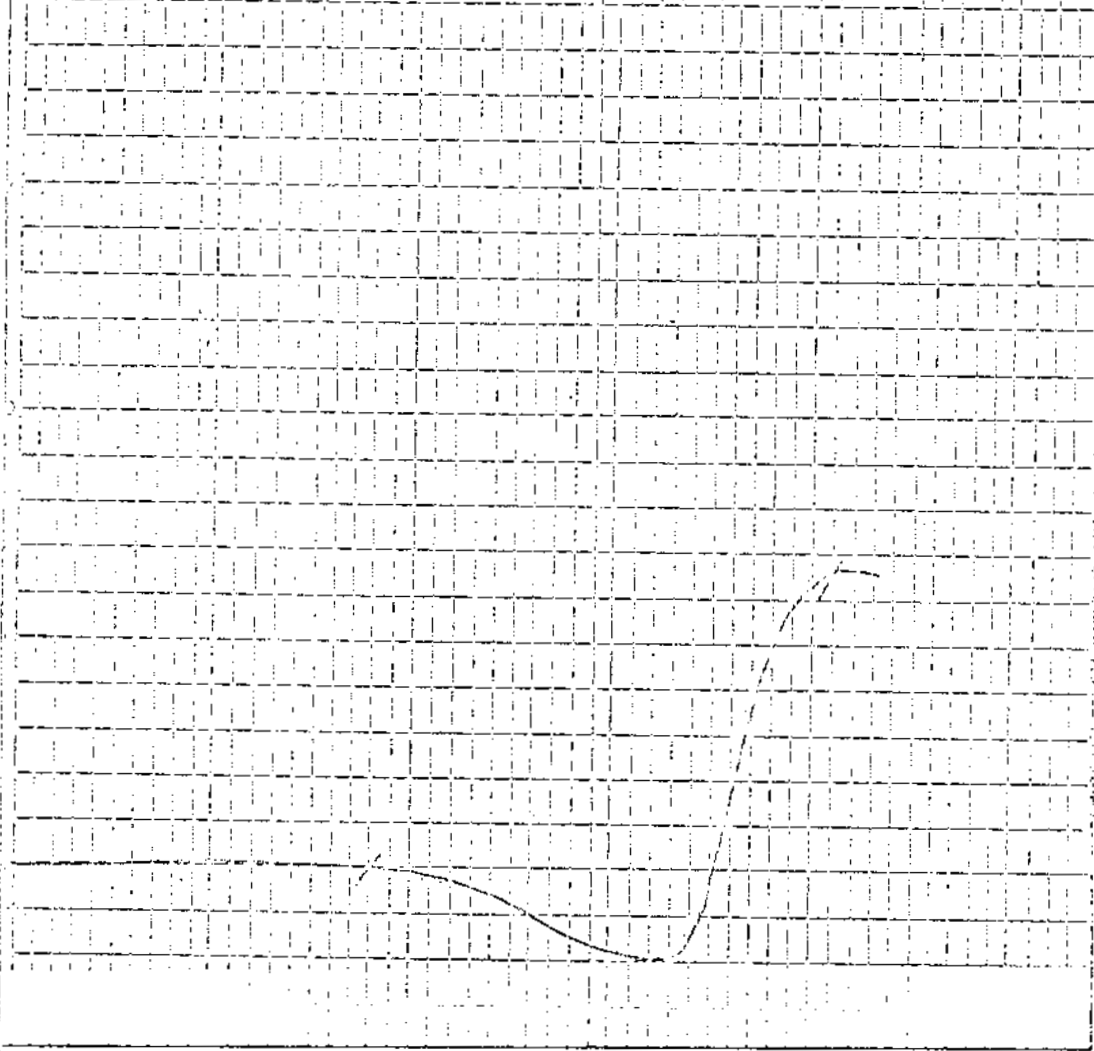
200

150

100

50

0



DINTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

HOLE NO.: DH-19-10      Lab. No. 8678      DATE: March/77

HEAD RAW ANALYSIS						
R.M. %	ASH %	V.M. %	F.C. %	S. %	H.G.I.	REMARKS
0.6	15.1	20.6	63.7	0.71	114	Air Dried Basis
	15.2	20.7	64.1	0.71	---	Dry Basis

SIZE / RAW ANALYSES								
SIZE FRACTION	WT. %	R.M. %	ASH %	S. %	CUMULATIVE			
					WT. %	ASH %	S. %	
1/4" x 65M	87.9	0.8	15.5	0.71	87.9	15.5	0.71	A.D.B.
	87.9		15.6	0.72	87.9	15.6	0.72	D.B.
65M x 0	12.1	0.6	9.5	0.70	100.0	14.8	0.71	A.D.B.
	12.1		9.6	0.70	100.0	14.9	0.72	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65M									
S. G.	WT. %	R.M. %	ASH %	V.H. %	F.C. %	S. %	CUMULATIVE		
							WT. %	ASH %	
-1.40	73.9	0.8	4.7	24.1	70.4	0.87	73.9	4.7	A.D.B.
	73.9		4.7	24.3	71.0	0.88	73.9	4.7	D.B.
1.40-1.50	5.8	0.8	18.0	19.5	61.7	0.67	79.7	5.7	A.D.B.
	5.8		18.1	19.7	62.2	0.68	79.7	5.7	D.B.
1.50-1.60	3.0	0.8	24.6	<del> </del>	<del> </del>	<del> </del>	82.7	6.4	A.D.B.
	3.0		24.8	<del> </del>	<del> </del>	<del> </del>	82.7	6.4	D.B.
+1.60	17.3	1.0	59.0	<del> </del>	<del> </del>	<del> </del>	100.0	15.5	A.D.B.
	17.3		59.6	<del> </del>	<del> </del>	<del> </del>	100.0	15.6	D.B.

COMPOSITE 1/4" x 65M FLOATS: 1.50 S.G., A.D.B.						
F.S.I.	P% GN COAL	DILATATION TEST (Starting Temp. = 320°C)				
		SOFTENING TEMP.* (°C)	MAX. DIL. TEMP.* (°C)	MAXIMUM CONTR. %	MAXIMUM DIL. %	G. NO.
9	0.05	392	460	31	21	0.985

\* S.T. & M.D.T. corrected with factor 6/5

Lab. No. 8678 Date March 30, 1977

%  
300

Client: ELCO MINING LTD.

Sample Identification: DM-19-10

Starting Temperature °C: 320

Softening Temperature °C: 392

Max. Dilatation Temp. °C: 460

250

Contraction %: 31

Dilatation %: 21

Final Temperature °C:

G. Factor: 0.985

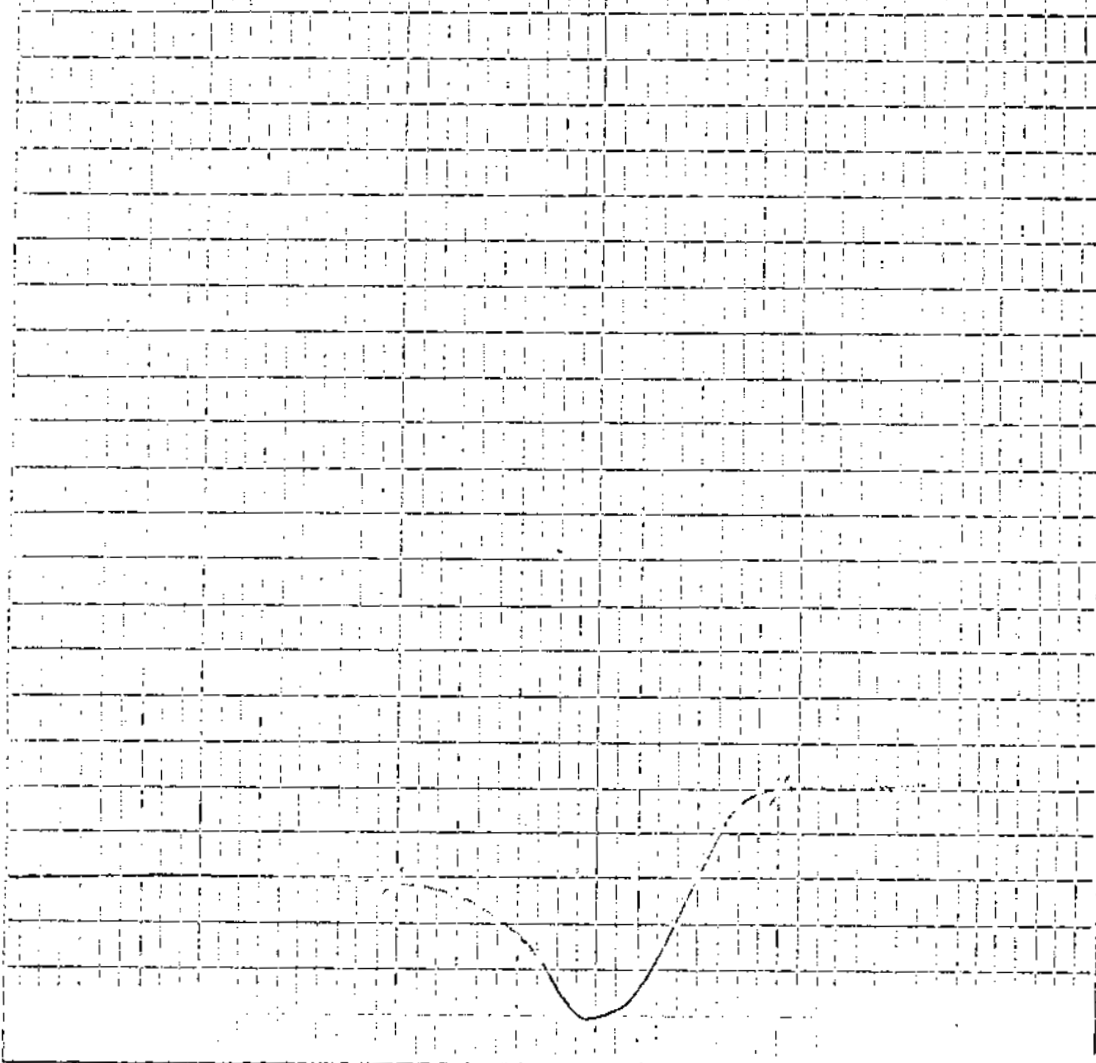
200

150

100

50

0



BIRTLEY ENGINEERING (CANADA) LTD.

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 1      Lab. No.: 77 - 4044      Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.6	48.0	19.8	31.6	0.59	79.5	Air Dried Basis
--	48.3	20.0	31.7	0.59	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	87.2	0.9	50.9	0.58	87.2	50.9	0.58	A.D.B.
	87.2	--	51.3	0.58	87.2	51.3	0.58	D.B.
65 x 0	12.8	0.8	36.8	0.78	100.0	49.1	0.60	A.D.B.
	12.8	--	37.1	0.79	100.0	49.5	0.60	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	26.0	0.9	6.1	29.5	63.5	0.88	26.0	6.1	A.D.B.
	26.0	--	6.2	29.8	64.0	0.89	26.0	6.2	D.B.
1.40-1.50	5.6	0.7	23.0	26.2	50.1	0.79	31.6	9.1	A.D.B.
	5.6	--	23.2	26.4	50.4	0.89	31.6	9.2	D.B.
1.50-1.60	4.2	0.8	32.0	--	--	--	35.8	11.8	A.D.B.
	4.2	--	32.3	--	--	--	35.8	11.9	D.B.
+1.60	64.2	0.8	72.6	--	--	--	100.0	50.8	A.D.B.
	64.2	--	73.1	--	--	--	100.0	51.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8	0.064					

Lab. No. 77 - 4044 Date May 27, 1977

Client: Elco Mining Ltd.

Sample Identification: DHI 20 - 1

Starting Temperature °C: 365°C

Softening Temperature °C: 377°C

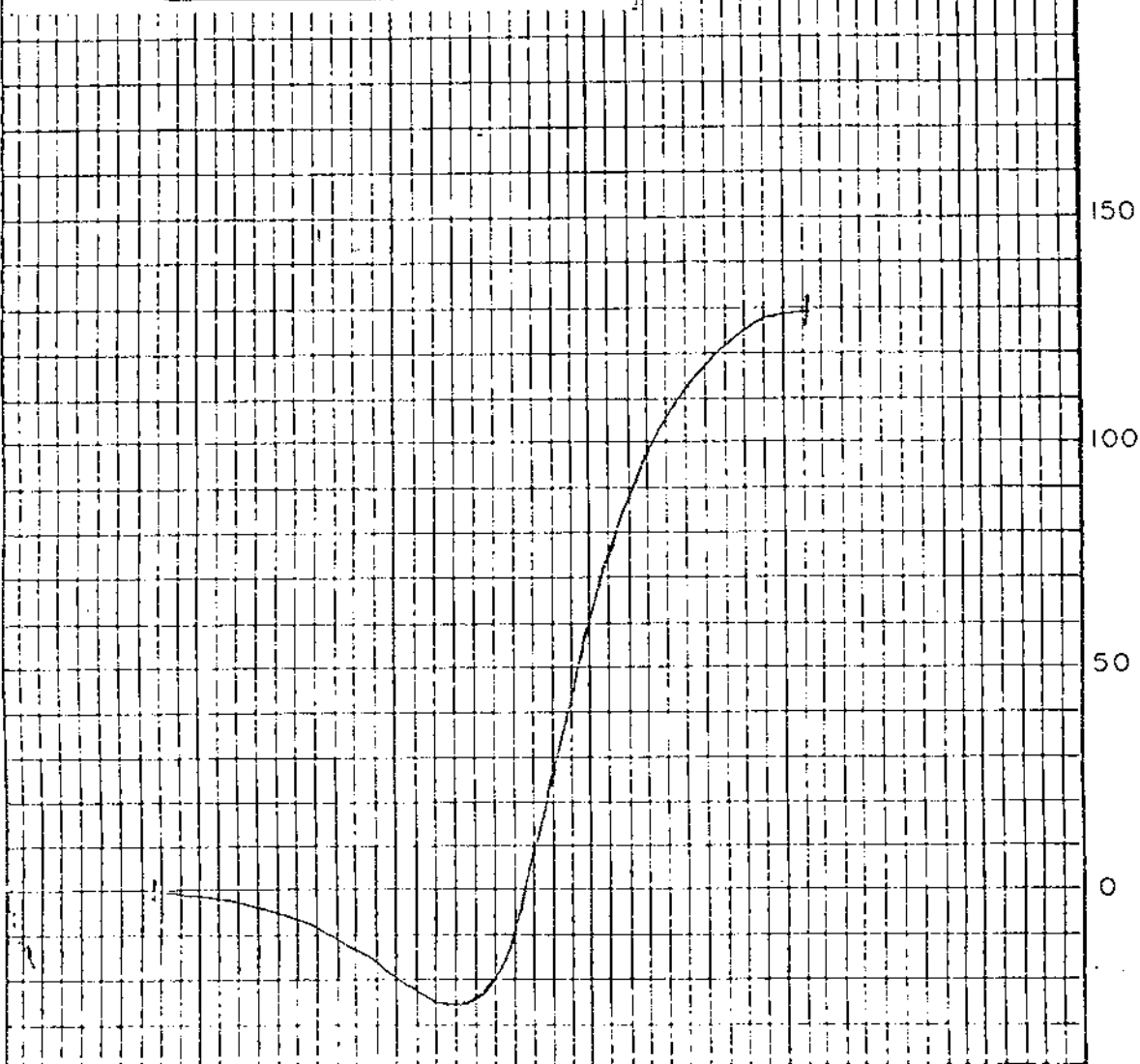
Max. Dilatation Temp. °C: 463°C

Contraction %: 26%

Dilatation %: 129%

Final Temperature °C:

G. Factor: 1.073



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 2      Lab. No.: 77 - 4045      Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	33.8	22.4	43.0	0.73	93.4	Air Dried Basis
--	34.0	22.6	43.4	0.74	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	85.4	0.9	35.9	0.71	85.4	35.9	0.71	A.D.B.
	85.4	--	36.2	0.72	85.4	36.2	0.72	D.B.
65 x 0	14.6	1.1	24.5	0.75	100.0	34.2	0.72	A.D.B.
	14.6	--	24.8	0.76	100.0	34.5	0.73	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	57.0	1.3	4.1	33.6	61.0	0.80	57.0	4.1	A.D.B.
	57.0	--	4.1	34.0	61.9	0.81	57.0	4.1	D.B.
1.40-1.50	2.9	1.2	16.4	29.2	53.2	0.78	59.9	4.7	A.D.B.
	2.9	--	16.6	29.6	53.8	0.79	59.9	4.7	D.B.
1.50-1.60	2.4	1.0	29.0	--	--	--	62.3	5.6	A.D.B.
	2.4	--	29.3	--	--	--	62.3	5.6	D.B.
+1.60	37.7	0.8	83.5	--	--	--	100.0	35.0	A.D.B.
	37.7	--	84.2	--	--	--	100.0	35.2	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.027					



Lab. No. 77 - 4045 (Date May 27, 1977)

Client: Elco Mining Ltd.

Sample Identification: DH 20 - 2

Starting Temperature °C: 365°C

Softening Temperature °C: 375°C

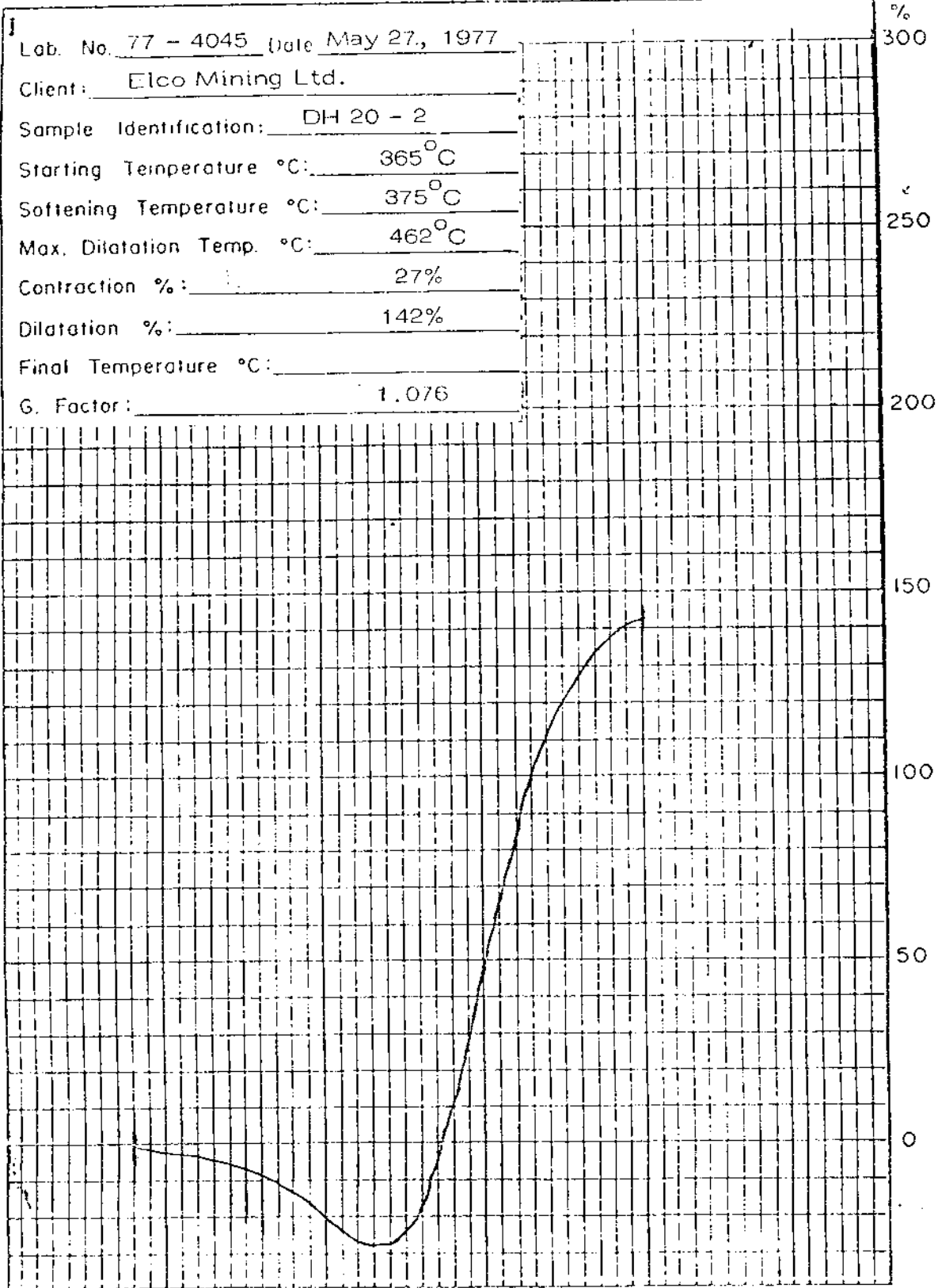
Max. Dilatation Temp. °C: 462°C

Contraction %: 27%

Dilatation %: 142%

Final Temperature °C:

G. Factor: 1.076



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Halsey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 3      Lab. No.: 77 - 4046      Date: May 2, 1977

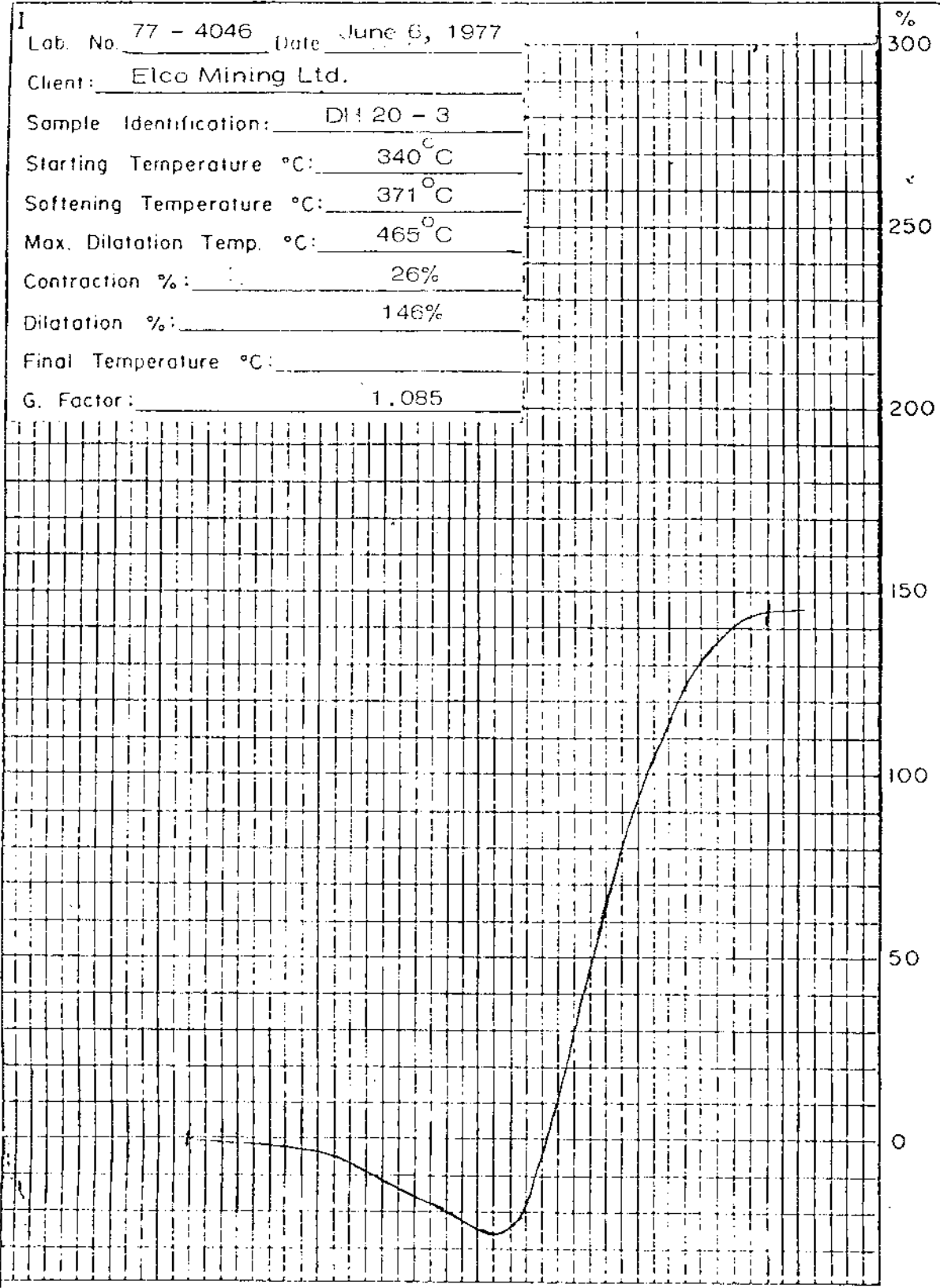
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	25.7	24.9	48.6	0.74	72.6	Air Dried Basis
--	25.9	25.1	49.0	0.75	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
1/4" x 65	90.5	0.8	27.0	0.72	90.5	27.0	0.72	A.D.B.
	90.5	--	27.3	0.73	90.5	27.3	0.73	D.B.
65 x 0	9.5	0.8	21.2	0.75	100.0	26.4	0.72	A.D.B.
	9.5	--	21.4	0.76	100.0	26.7	0.73	D.B.

SINK - FLOAT ANALYSIS: 1/4" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	64.3	1.0	3.6	29.5	65.9	0.87	64.3	3.6	A.D.B.
	64.3	--	3.6	29.8	66.6	0.88	64.3	3.6	D.B.
1.40-1.50	3.6	0.8	11.0	28.3	59.9	0.84	67.9	4.0	A.D.B.
	3.6	--	11.1	28.5	60.4	0.85	67.9	4.0	D.B.
1.50-1.60	1.7	0.8	27.7	--	--	--	69.6	4.6	A.D.B.
	1.7	--	28.0	--	--	--	69.6	4.6	D.B.
>1.60	30.4	0.8	71.0	--	--	--	100.0	26.3	A.D.B.
	30.4	--	71.6	--	--	--	100.0	26.5	D.B.

COMPOSITE 1/4" x 65 m FLOATE @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening Temp. (°C)	Max. Dil. Temp. (°C)	Maximum Contr. %	Maximum Dil. %	G.No.
8%	0.009					

Lab. No. 77 - 4046 Date June 6, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DI# 20 - 3  
 Starting Temperature °C: 340<sup>o</sup>C  
 Softening Temperature °C: 371<sup>o</sup>C  
 Max. Dilatation Temp. °C: 465<sup>o</sup>C  
 Contraction %: 26  
 Dilatation %: 146  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.085



WARNOCK HIRSEY PROFESSIONAL SERVICES

Title RUHR DILATOMETER TEST

Date \_\_\_\_\_  
 Drawn \_\_\_\_\_

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 4      Lab. No.: 77 - 4047      Date: May 2, 1977

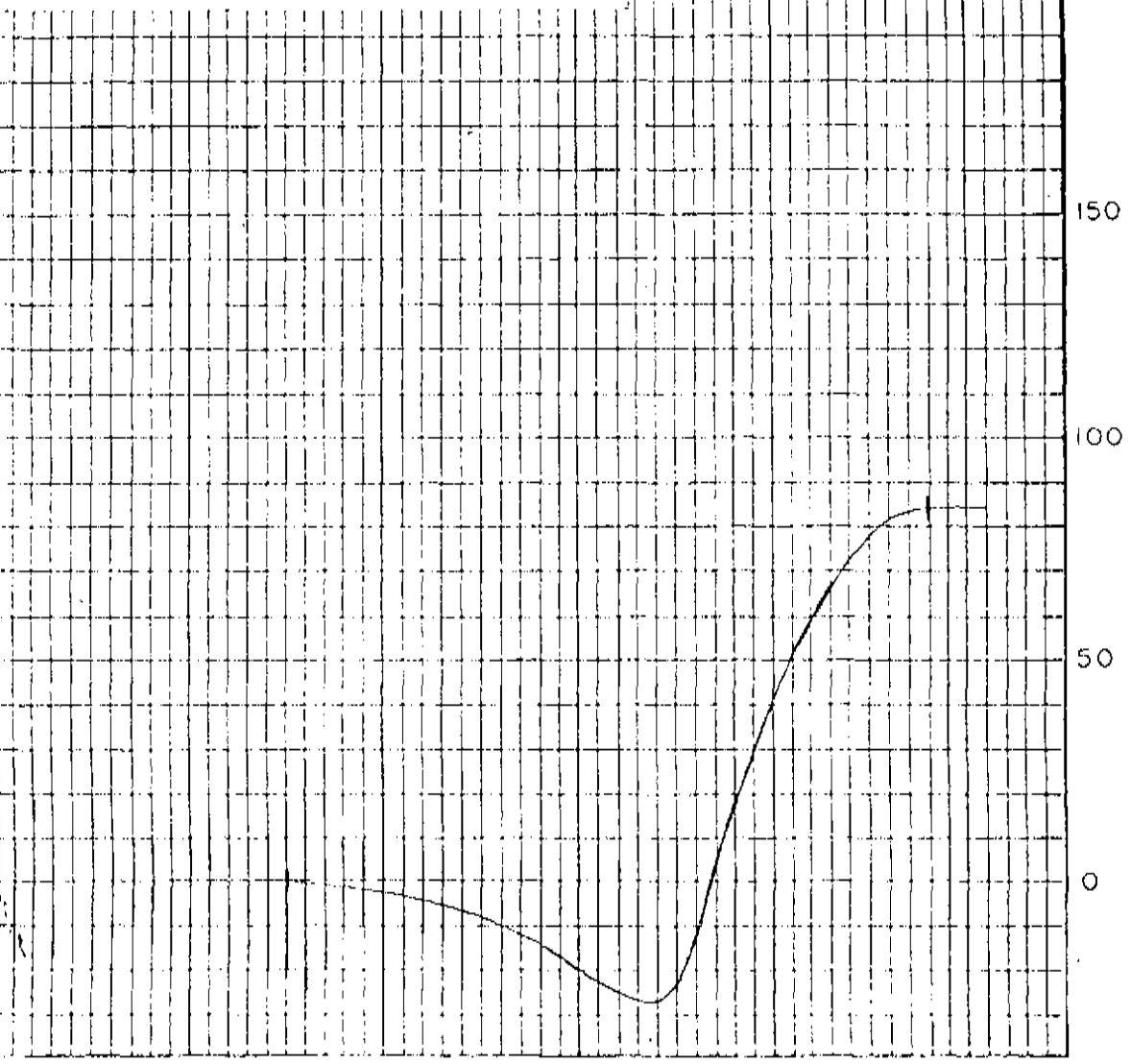
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	5.9	29.9	62.4	0.69	89.2	Air Dried Basis
--	5.9	30.2	63.9	0.70	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	90.9	1.0	6.0	0.69	90.9	6.0	0.69	A.D.B.
	90.9	--	6.1	0.70	90.9	6.1	0.70	D.B.
65 x 0	9.1	0.9	9.6	0.71	100.0	6.3	0.69	A.D.B.
	9.1	--	9.6	0.72	100.0	6.4	0.70	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	90.9	0.8	2.7	29.6	66.9	0.75	90.9	2.7	A.D.B.
	90.9	--	2.7	29.8	67.5	0.76	90.9	2.7	D.B.
1.40-1.50	4.3	0.8	9.5	26.8	62.9	0.66	95.2	3.0	A.D.B.
	4.3	--	9.5	27.0	63.5	0.66	95.2	3.0	D.B.
1.50-1.60	1.4	0.8	22.7	--	--	--	96.6	3.3	A.D.B.
	1.4	--	22.9	--	--	--	96.6	3.3	D.B.
+1.60	3.4	0.7	78.3	--	--	--	100.0	5.8	A.D.B.
	3.4	--	78.9	--	--	--	100.0	5.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.025					

Lab No 77 - 4047 (date June 6, 1977)  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 20 - 4  
 Starting Temperature °C: 340°C  
 Softening Temperature °C: 379°C  
 Max. Dilatation Temp. °C: 465°C  
 Contraction %: 27%  
 Dilatation %: 84%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.055



WARNOCK HERSHEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 5      Lab. No.: 77 - 4048      Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	18.8	24.9	55.6	0.67	94.8	Air Dried Basis
--	18.9	25.0	56.1	0.67	--	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	82.1	0.7	21.0	0.66	82.1	21.0	0.66	A.D.B.
	82.1	--	21.1	0.66	82.1	21.1	0.66	D.B.
65 x 0	17.9	0.8	13.9	0.74	100.0	19.7	0.67	A.D.B.
	17.9	--	14.0	0.75	100.0	19.8	0.67	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	71.8	1.2	5.6	30.5	62.7	0.82	71.8	5.6	A.D.B.
	71.8	--	5.6	30.8	63.6	0.83	71.8	5.6	D.B.
1.40-1.50	2.8	1.0	19.7	25.6	53.7	0.74	74.6	6.1	A.D.B.
	2.8	--	19.9	25.9	54.2	0.75	74.6	6.1	D.B.
1.50-1.60	2.6	1.1	26.5	--	--	--	77.2	6.8	A.D.B.
	2.6	--	26.8	--	--	--	77.2	6.8	D.B.
+1.60	22.8	1.1	71.9	--	--	--	100.0	21.6	A.D.B.
	22.8	--	72.7	--	--	--	100.0	21.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8½	0.061					

Lab. No. 77 - 4048 Date June 6, 1977

Client: Elco Mining Ltd.

Sample Identification: DH 20 - 5

Starting Temperature °C: 340°C

Softening Temperature °C: 376°C

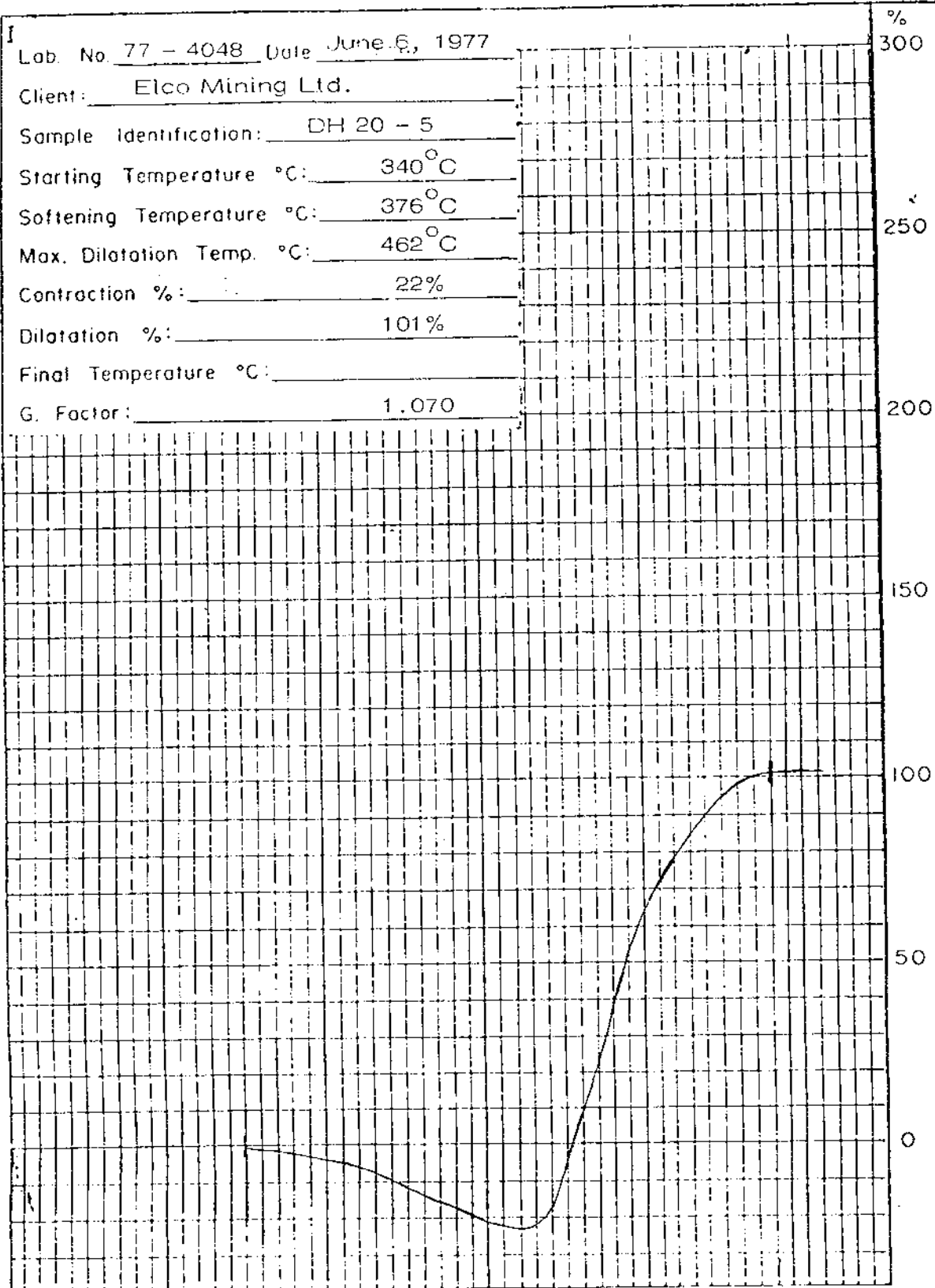
Max. Dilatation Temp. °C: 462°C

Contraction %: 22%

Dilatation %: 101%

Final Temperature °C:

G. Factor: 1.070



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUHR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 6 Lab. No.: 77 - 4049 Date: May 2, 1977

HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.8	29.0	23.4	46.8	0.99	94.1	Air Dried Basis
--	29.2	23.5	47.3	1.00	---	Dry Basis

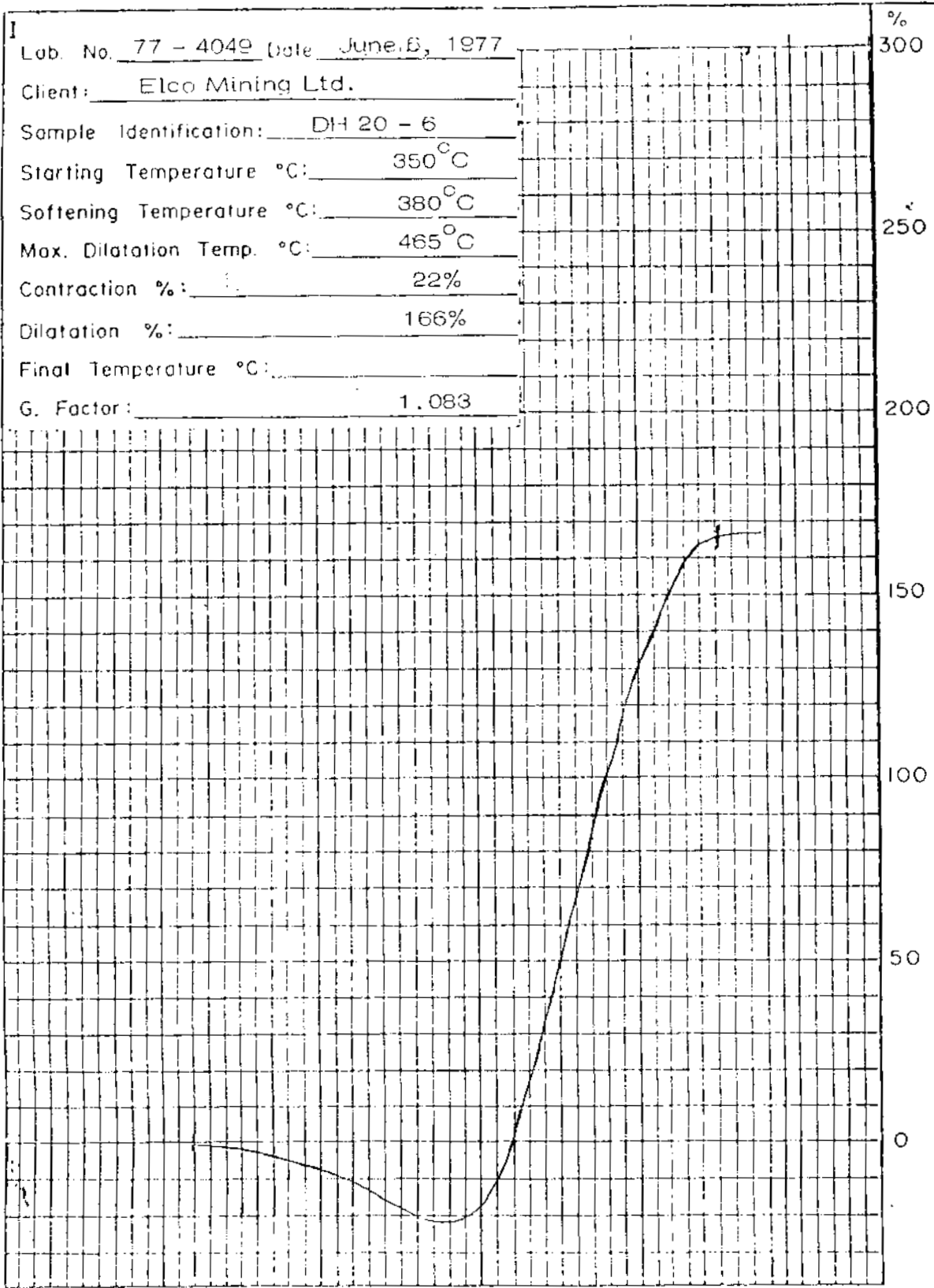
SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	87.9	0.7	30.9	1.00	87.9	30.9	1.00	A.D.B.
	87.9	--	31.1	1.01	87.9	31.1	1.01	D.B.
65 x 0	12.1	0.7	22.9	1.11	100.0	29.9	1.01	A.D.B.
	12.1	--	23.0	1.12	100.0	30.1	1.02	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	56.2	0.9	4.6	29.6	64.9	1.02	56.2	4.6	A.D.B.
	56.2	--	4.6	29.9	65.5	1.03	56.2	4.6	D.B.
1.40-1.50	3.2	0.7	22.4	25.2	51.7	0.82	59.4	5.6	A.D.B.
	3.2	--	22.5	25.4	52.1	0.83	59.4	5.6	D.B.
1.50-1.60	2.4	0.7	33.3	--	--	--	61.8	6.6	A.D.B.
	2.4	--	33.5	--	--	--	61.8	6.6	D.B.
+1.60	38.2	0.8	71.4	--	--	--	100.0	31.4	A.D.B.
	38.2	--	72.0	--	--	--	100.0	31.6	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
9	0.032					



Lab. No. 77 - 4049 (Date June 6, 1977)  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 20 - 6  
 Starting Temperature °C: 350°C  
 Softening Temperature °C: 380°C  
 Max. Dilatation Temp. °C: 465°C  
 Contraction %: 22%  
 Dilatation %: 166%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.083



WARNOCK HERSEY PROFESSIONAL SERVICES

Title

RUIR DILATOMETER TEST

Date

Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 7 Lab. No.: 77 - 4050 Date: May 2, 1977

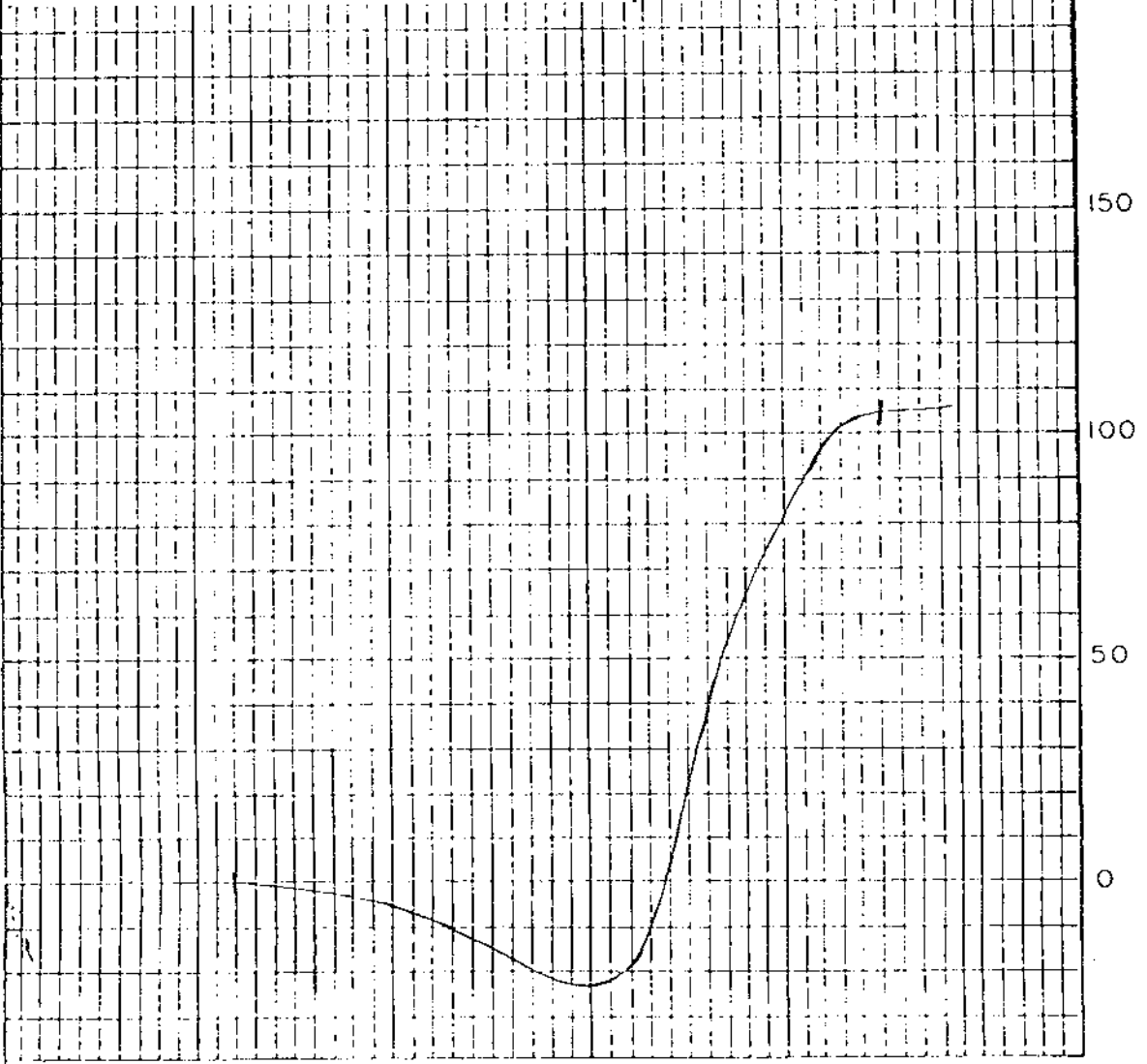
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.7	21.3	24.0	54.0	0.66	73.3	Air Dried Basis
--	21.5	24.2	54.3	0.66	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt.%	R.M.%	Ash %	S.%	CUMULATIVE			
					Wt.%	Ash %	S.%	
¼ x 65	89.6	0.8	22.3	0.69	89.6	22.3	0.69	A.D.B.
	89.6	--	22.4	0.70	89.6	22.4	0.70	D.B.
65 x 0	10.4	0.8	16.5	0.70	100.0	21.7	0.69	A.D.B.
	10.4	--	16.6	0.71	100.0	21.8	0.70	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt.%	R.M.%	Ash%	V.M.%	F.C.%	S.%	Cumulative		
							Wt.%	Ash%	
-1.40	66.8	0.7	5.4	28.4	65.5	0.65	66.8	5.4	A.D.B.
	66.8	--	5.5	28.6	65.9	0.65	66.8	5.5	D.B.
1.40-1.50	6.3	0.7	19.6	24.8	54.9	0.64	73.1	6.6	A.D.B.
	6.3	--	19.8	25.0	55.2	0.64	73.1	6.7	D.B.
1.50-1.60	3.8	0.7	29.9	--	--	--	76.9	7.8	A.D.B.
	3.8	--	30.1	--	--	--	76.9	7.9	D.B.
+1.60	23.1	0.6	68.2	--	--	--	100.0	21.8	A.D.B.
	23.1	--	68.6	--	--	--	100.0	21.9	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8	0.039					

Lab. No. 77-4050 Date June 6, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 20 - 7  
 Starting Temperature °C: 350<sup>o</sup>C  
 Softening Temperature °C: 379<sup>o</sup>C  
 Max. Dilatation Temp. °C: 465<sup>o</sup>C  
 Contraction %: 23%  
 Dilatation %: 105%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.070



WARNOCK HURSEY PROFESSIONAL SERVICES

Title	Date
RUHR DILATOMETER TEST	Drawn

Warnock Hersey Professional Services Ltd.

ELCO MINING LTD.  
CORE SAMPLE ANALYSIS

Hole No.: DH 20 - 8 Lab. No.: 77 - 4051 Date: May 2, 1977

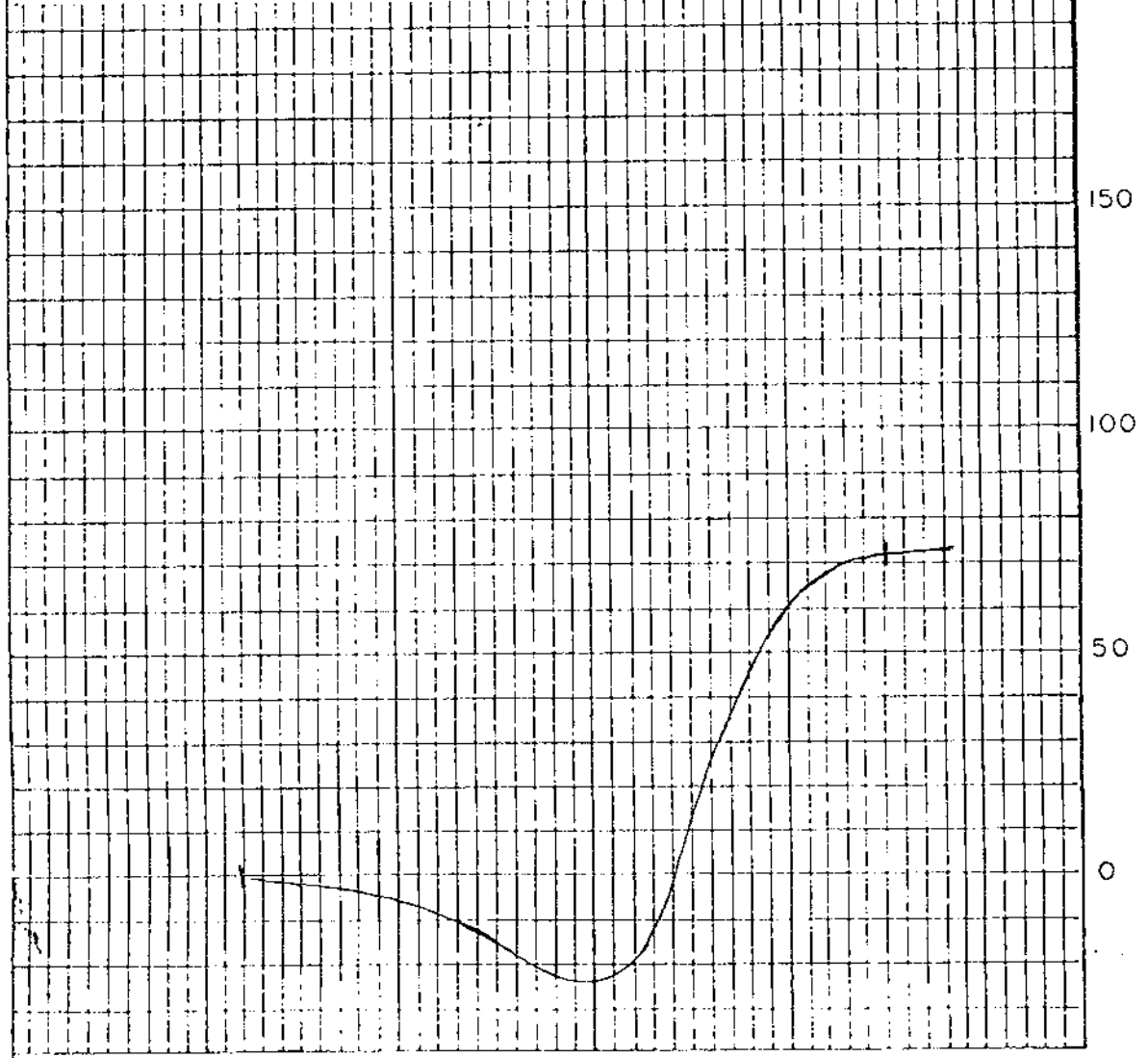
HEAD RAW ANALYSIS						
R.M.%	Ash %	V.M.%	F.C.%	S.%	H.G.I.	REMARKS
0.9	19.6	24.2	55.3	0.76	137.0	Air Dried Basis
--	19.8	24.4	55.8	0.77	---	Dry Basis

SIZE / RAW ANALYSIS								
Size Fraction	Wt. %	R.M. %	Ash %	S. %	CUMULATIVE			
					Wt. %	Ash %	S. %	
¼ x 65	82.6	0.9	22.1	0.79	82.6	22.1	0.79	A.D.B.
	82.5	--	22.3	0.80	82.5	22.3	0.80	D.B.
65 x 0	17.4	1.2	11.9	0.83	100.0	20.3	0.80	A.D.B.
	17.5	--	12.1	0.84	100.0	20.5	0.81	D.B.

SINK - FLOAT ANALYSIS: ¼" x 65 M									
S.G.	Wt. %	R.M. %	Ash%	V.M. %	F.C. %	S. %	Cumulative		
							Wt. %	Ash%	
-1.40	71.0	1.3	4.8	27.8	66.1	0.97	71.0	4.8	A.D.B.
	71.0	--	4.9	28.2	66.9	0.98	71.0	4.9	D.B.
1.40-1.50	3.6	1.2	16.5	24.7	57.6	0.56	74.6	5.4	A.D.B.
	3.6	--	16.7	25.0	58.3	0.57	74.6	5.5	D.B.
1.50-1.60	3.5	1.3	28.4	--	--	--	78.1	6.4	A.D.B.
	3.5	--	28.8	--	--	--	78.1	6.5	D.B.
+1.60	21.9	1.1	75.8	--	--	--	100.0	21.6	A.D.B.
	21.9	--	76.6	--	--	--	100.0	21.8	D.B.

COMPOSITE ¼" x 65 m FLOATS @ 1.50 S.G., A.D.B.						
F.S.I.	P % on Coal	Softening	Max. Dil.	Maximum	Maximum	G.No.
		Temp. (°C)	Temp. (°C)	Contr. %	Dil. %	
8	0.038					

Lab. No. 77 - 4051 Date June 6, 1977  
 Client: Elco Mining Ltd.  
 Sample Identification: DH 20 - 8  
 Starting Temperature °C: 350<sup>o</sup>C  
 Softening Temperature °C: 382<sup>o</sup>C  
 Max. Dilatation Temp. °C: 468<sup>o</sup>C  
 Contraction %: 23%  
 Dilatation %: 72%  
 Final Temperature °C: \_\_\_\_\_  
 G. Factor: 1.055



WARNOCK HERSEY PROFESSIONAL SERVICES

Title <p style="text-align: center;">RUHR DILATOMETER TEST</p>	Date
	Drawn

Lab. No. 8580 Date March/77

Client: Warnock Hersey

Sample Identification: 77-2006

Starting Temperature °C: 350

Softening Temperature °C: 362

Max. Dilatation Temp. °C: 437

Contraction %: 17

Dilatation %: 199

Final Temperature °C: 1.085

G. Factor: 1.085



BIRLEY ENGINEERING (CANADA) LTD.

Title

RUIR DILATOMETER TEST

Date

Drawn