

Mines Branch Information Circular IC 163
(Supersedes Information Circular IC 131, August 1961)

LIST OF CERTIFIED ELECTRICAL APPARATUS,
CERTIFIED FIRE-RESISTANT CONVEYOR BELTING AND
CERTIFIED DIESEL ENGINES FOR COAL MINE USE
(Second Edition)

G.K. Brown*

ABSTRACT

GANMET
EDMONTON COAL RESEARCH
LABORATORY

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ENERGY, MINES & RESOURCES
CANADA

The principal information presented in this circular is a complete list of the electrical apparatus which has been certified by the Department of Mines and Technical Surveys as being suitable for use in coal mines. In addition to the electrical apparatus there is a list of conveyor belting which has been certified fire-resistant by the Department, as well as details of a diesel engine certified for use in an underground locomotive. The period covered is from the opening of the certification service, in September 1955, until June 30, 1964. This report is the second of a series of lists of certified apparatus which will be issued from time to time. The scope and background of the certification service are covered briefly in the preface, and references are given for those interested in obtaining more detailed information.

*Certification Officer, Fuels and Mining Practice Division, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Canada.

Direction des mines, Circulaire d'Information IC 163
(Supplante la circulaire d'information IC 131, d'août 1961)

LISTE DES APPAREILS ÉLECTRIQUES CERTIFIÉS,
DES COURROIES TRANSPORTEUSES IGNIFUGES CERTIFIÉES ET
DES MOTEURS DIESEL CERTIFIÉS, POUR UTILISATION DANS LES HOUILLÈRES.
(Deuxième Édition)

G. K. Brown*

RÉSUMÉ

Les principaux renseignements contenus dans la présente circulaire prennent la forme d'une liste complète des appareils électriques que le ministère des Mines et des Relevés techniques a approuvés pour utilisation dans les houillères. En plus des appareils électriques, il s'y trouve une liste des courroies transporteuses que le Ministère a déclarées ignifuges, de même que des détails relatifs à un moteur diesel certifié pour usage dans les locomotives souterraines. La période visée s'étend depuis la mise sur pied du service, en septembre 1955, jusqu'au 30 juin 1964. La présente circulaire est la deuxième d'une nomenclature d'appareils certifiés à être publiée de temps à autre. Le champ d'action et les antécédents du service de certification sont brièvement passés en revue dans la préface, et l'auteur mentionne des ouvrages de référence à l'intention de ceux qui pourraient désirer de plus amples informations.

*Agent de certification, Division des combustibles et des techniques de l'exploitation minière, Direction des mines, ministère des Mines et des Relevés techniques, Ottawa, Canada.

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PREFACE

In the summer of 1955 the Department of Mines and Technical Surveys announced the start of a certification service with respect to electrical apparatus for use in coal mines, and the opening of a laboratory equipped to test such apparatus in explosive atmospheres. In establishing these services the Department was fulfilling the wishes expressed, at conferences of provincial Ministers of Mines, for central certification facilities in Canada. In addition to certifying* electrical apparatus for coal mines, the Department is conducting research which it is hoped will provide useful contributions to the existing information about explosive atmospheres and the means by which electrical or other apparatus can be safely used in such hazardous locations. Contacts have been established and maintained with recognized certification establishments at home and abroad, and for several years the Certification Officer has been chairman of the committee on "Electrical Apparatus for Use in Explosive Gas Atmospheres", of the Canadian National Committee of the International Electrotechnical Commission.

The certification laboratory has cooperated with the Canadian Standards Association in the latter's investigations of electrical apparatus for hazardous locations other than mines by testing several hundred items in explosive atmospheres to C. S. A.

*See Appendix for interpretation of terms.

specifications. Other organizations have been assisted by the laboratory in developing apparatus for use in hazardous areas such as the oil fields in western Canada.

Technical Memorandum No. 96/58-EC* of the Fuels and Mining Practice Division, Mines Branch, gives a general account of the certification services. Two booklets--designated Certification Memorandum No. 1 and Certification Memorandum No. 2--have also been prepared by the Division, to supply detailed information on how to make application for (No. 1) certification of electrical apparatus for coal mines and (No. 2) certification of fire-resistant conveyor belting. The interpretations of terms such as "certification", "flameproof" and "fire-resistant" are also contained in the memoranda; however, these interpretations have been reprinted in the Appendix of this circular. The above publications are available upon request.

The certification memoranda mentioned have stated that lists of certified apparatus will be published from time to time, and the following pages comprise the second of these lists--complete to June 30, 1964.

George K. Brown

G.K. Brown

Certification Officer.

*"Electric Equipment Certification Section", by G.K. Brown, issued July 1958 as Technical Memorandum 96/58-EC, Fuels and Mining Practice Division, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Canada.

CERTIFICATION LISTING

ASSEMBLIES
(Coal Mining Machines)

1.

Apparatus: 3 CML 100 "Borecut" Continuous Mining
and Loading Machine

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate No.: 10A

Date Certified: Dec. 12th, 1958

Holder of Certificate: Canadian Ingersoll Rand Co., Limited,
800 Birks Bldg.,
Phillips Square,
Montreal 2, Quebec.

2.

Apparatus: "Dosco Miner" Continuous Mining
Machine and Associated Safety Circuit
Centres

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate Nos.: 7 A and 18 S

Date Certified: Aug. 6th, 1959

Date of Supplementary
Certificate: Oct. 25th, 1960

Holder of Certificates: Dominion Steel and Coal Corp.,
Trenton Industries Division,
Trenton, Nova Scotia.

3.

Apparatus: Borecut II Coal Mining Machine (1 only)
Electrical Supply: 550 Volts, 3 Phase, 60 Cycles
Certificate No.: 19 A
Date Certified: Feb. 9th, 1961
Holder of Certificate: The Crow's Nest Pass Coal Co., Limited,
Fernie, British Columbia.

4.

Apparatus: Modified 3 CML "Borecut" Continuous
Mining and Loading Machine
Electrical Supply: 550 Volts, 3 Phase, 60 Cycles
Certificate No.: 29 A
Date Certified: Aug. 31st, 1962
Holder of Certificate: The Crow's Nest Pass Coal Co., Limited,
Fernie, British Columbia.

BATTERIES

1.

Apparatus: "Eveready" W-594 Battery (24 Volts),
for use only with intrinsically safe
signalling circuits requiring a
certified source of direct current
Certificate No.: I.S. 2
Date Certified: June 27th, 1956
Holder of Certificate: National Carbon Co., Division of Union
Carbide Canada Limited,
805 Davenport Road,
Toronto 4, Ontario.

DRY CELLS

1.

Apparatus: Cipel Type 524 CL Primary Dry Cell
(1 1/2 Volts) for use in banks of 16
(not more) with intrinsically safe
signalling circuits requiring a
certified source of direct current

Certificate No.: I.S. 1

Date Certified: June 8th, 1956

Holder of Certificate: Cipel (Canada) Limited,
P.O. Box 173,
Valleyfield, Quebec.

ENGINES (DIESEL)

1.

Apparatus: Style LE4, 4 Cylinder, 100 B.H.P. Diesel
Engine, manufactured by the National
Gas and Oil Co., Limited,
Ashton-under-Lyne, England.

Certificate No.: 11 D

Date Certified: Jan. 14th, 1960

Holder of Certificate: Orenda Industrial Ltd.,
17 Haas Road,
Rexdale, Ontario.

FIRE-RESISTANT CONVEYOR BELTING

1.

Holder of
Certificates: Dominion Rubber Co., Limited,
P.O. Box 130,
Place d'Armes,
Montreal, Quebec.

Material: Fire-Resistant Conveyor Belting:

<u>Style No.</u>	<u>Certificate</u>	<u>Date Certified</u>
2776-32 oz.	FR 1	Dec. 19th, 1957
2276-EN	FR 1	Dec. 19th, 1957
2776-EN	8 S	June 24th, 1959
2776-(static conductivity)	8 S	June 24th, 1959
3606	13 FR	May 9th, 1960
2908-XN (6 ply)	14 FR	May 9th, 1960
2908-XN (4 ply)	16 FR	Sept. 14th, 1960
2352-SN (4 ply)	17 FR	Sept. 14th, 1960
2276-EN (4 ply) 1/8" top cover	22 FR	June 29th, 1961
2908-XN (4 ply) variation	23 FR	Dec. 4th, 1962
2908-XN (4 ply) variation	51 S	March 3rd, 1964
4800-ZN (4 ply)	31 FR	Dec. 4th, 1962
4800-ZN (4 ply) variation	32 FR	Dec. 4th, 1962
4800-ZN (4 ply) variation	52 S	March 3rd, 1964

2.

Holder of
Certificates: The Goodyear Tire and Rubber Co. of
Canada, Limited,
3050 Lakeshore Blvd., West,
Toronto 14, Ontario.

<u>Style No.</u>	<u>Certificate</u>	<u>Date Certified</u>
42 HDNF (4 ply)	26 FR	Jan. 12th, 1962
42 HDNF (4 ply) variation	49 S	Feb. 11th, 1964
60 HDNF (4 ply)	27 FR	Jan. 12th, 1962
60 HDNF (4 ply) variation	50 S	Feb. 11th, 1964

3.

Holder of
Certificate: Mintex Federal Limited,
189 Rexdale Blvd.,
Rexdale, Ontario.

<u>Style No.</u>	<u>Certificate</u>	<u>Date Certified</u>
Scandura (Thin Line, Gold Line, Heavy Duty Gold Line)	28 FR	Jan. 30th, 1962

4.

Holder of
Certificates: BTR Industries,
Herga House,
Vincent Square,
London S.W. 1, England.

<u>Style No.</u>	<u>Certificate</u>	<u>Date Certified</u>
Pluvicor	37 FR	May 16th, 1963
Pluvicor variation	38 S	Jan. 17th, 1964
Pluvicor variation	57 S	May 15th, 1964

LAMPS (ELECTRIC)

1.

Apparatus: Explosion-Proof SAFTLITE 509 A/E X 2
Electrical Supply: 110 Volts, 1 Phase, 60 Cycles, and
self-contained emergency battery
Certificate No.: 9 FP
Date Certified: Aug. 26th, 1959
Holder of Certificate: Ward Leonard of Canada, Ltd.,
1070 Birchmount Road,
Box 70, O'Connor Postal Station,
Toronto 16, Ontario.

2.

Apparatus: Edison Model S Electric Cap Lamp
Certificate Nos.: 12 L, 20 S and 45 S
Date Certified: March 11th, 1960
Date of Supplementary
Certificates: Feb. 20th, 1961
Dec. 9th, 1963
Holder of
Certificates: Nickel Alkaline Battery Division,
The Electric Storage Battery Co.,
169 Main Street,
West Orange,
New Jersey, U.S.A.
Canadian Agent: Mine Safety Appliances Co. of Canada
Limited,
500 MacPherson Avenue,
Toronto 4, Ontario.

3.

Apparatus: MSA Minespot Electric Cap Lamp
Certificate No.: 39 L
Date Certified: Sept. 18th, 1963
Holder of Certificate: Mine Safety Appliances Co.,
201 North Braddock Avenue,
Pittsburgh 8, Pa., U.S.A.
Canadian Agent: Mine Safety Appliances Co. of Canada
Limited,
500 MacPherson Avenue,
Toronto 4, Ontario.

METHANE DETECTORS

1.

Apparatus: M.S.A. General Purpose Methanometer
Certificate Nos.: 24 M and 33 S
Date Certified: June 5th, 1961
Date of Supplementary
Certificate: Feb. 14th, 1963
Holder of Certificates: Mine Safety Appliances Co., Limited,
Queenslie Industrial Estate,
New Edinburgh Road,
Glasgow, Scotland.
Canadian Agent: Mine Safety Appliances Co. of Canada
Limited,
500 MacPherson Avenue,
Toronto 4, Ontario.

2.

Apparatus: Sigma Recording Flame Methanometer,
Type 208/C

Certificate No.: 56 M

Date Certified: June 16th, 1964

Holder of Certificate: Sigma Instrument Co., Limited,
Letchworth, England.

Canadian Agent: George Kent (Canada) Ltd.,
389 Horner Ave.,
Toronto 14, Ontario.

MISCELLANEOUS FLAMEPROOF APPARATUS

1.

Holder of Certificates: The Crow's Nest Pass Coal Co., Limited,
Fernie, British Columbia.

1.1 Apparatus: Enclosure on an oil-pressure-operated
switch, rated 115 Volts to 550 Volts

Certificate No.: 25 FP

Date Certified: March 14th, 1962

1.2 Apparatus: Modified Reyrolle Form JBR 1
Cable Coupler, 3300 Volts, 200 Amps

Certificate No.: 30

Date Certified: Aug. 1st, 1962

- 1.3 Apparatus: Enclosure of electrical controls for conveyor belt
- Electrical Supply: 550 Volts, Single Phase, 60 Cycles
- Certificate No.: 42 FP
- Date Certified: Sept. 30th, 1963
- 1.4 Apparatus: Enclosure of a solenoid valve, 110 Volts, Single Phase, 60 Cycles
- Certificate No.: 44 FP
- Date Certified: Nov. 20th, 1963
- 1.5 Apparatus: Enclosure of electrical controls for extensible belt
- Electrical Supply: 550 Volts, 3 Phase, 60 Cycles
- Certificate No.: 46 FP
- Date Certified: Jan. 15th, 1964
- 1.6 Apparatus: Modified Motor, 100 HP, 550 Volts, 3 Phase, 60 Cycles
- Certificate No.: 47 FP
- Date Certified: Jan. 15th, 1964
- 1.7 Apparatus: Enclosure of electrical control switch, 110 to 220 Volts, Single Phase, 60 Cycles
- Certificate No.: 55 FP
- Date Certified: June 15th, 1964

MOTORS

1.

Holder of
Certificates: Canada Iron Foundries, Limited,
Tampere Division,
160 St. Joseph St.,
Lachine,
Montreal 32, Quebec.

1.1 Apparatus: 50 H.P., 550 Volts, 3 Phase, 60 Cycles,
Fan-Cooled Induction Motor,
Assembled on Frame 365 U, with
Special End Bracket for Hydraulic
Pump

Certificate Nos.: 4 FP and 15 S

Date Certified: July 30th, 1958

Date of
Supplementary
Certificate: June 14th, 1960

1.2 Apparatus: Series of 550 Volts, 3 Phase,
60 Cycles, Fan-Cooled Induction
Motors, Assembled on C.E.M.A. Frames
180 to 445. Ratings of 1/2 to 100 h.p.,
with speeds of 900 to 3600 r.p.m.

Certificate Nos.: 6 FP, 43 S, 54 S

Date Certified: Nov. 19th, 1958

Dates of
Supplementary
Certificates: Oct. 9th, 1963 and April 24th, 1964

2.

Holder of
Certificates: Canadian Westinghouse Co., Limited,
Box 510,
Hamilton, Ontario.

2.1 Apparatus: 25 H.P., 550 Volts, 3 Phase, 60 Cycles,
1200 RPM, T.E.F.C. Induction Motor,
Frame 365-U, with 30-ampere socket

Certificate No.: 35 FP

Date Certified: April 17th, 1963

2.2 Apparatus: 30 H.P., 550 Volts, 3 Phase, 60 Cycles,
1800 RPM, T.E.F.C. Induction Motor,
Frame 326-U, with 30-ampere socket

Certificate No.: 36 FP

Date Certified: Aug. 14th, 1963

2.3 Apparatus: A Series of Ribbed, Totally Enclosed,
Polyphase Induction Motors,
Frames 182 to 506, Voltages 600 or
less

Certificate No.: 38 FP

Date Certified: July 11th, 1963

2.4 Apparatus: 100 H.P., 550 Volts, 3 Phase, 60 Cycles,
1770 RPM, T.E.F.C. Induction Motor,
Frame 440 U.S., with cable entry
gland and 10 ft. of trailing cable

Certificate No.: 40 FP

Date Certified: Oct. 10th, 1963

2.5 Apparatus: 5 H.P., 550 Volts, 3 Phase, 60 Cycles,
1735 RPM, T.E.F.C. Induction Motor,
Frame 215, with cable entry gland
and 10 ft. of motor cable

Certificate No.: 41 FP

Date Certified: Dec. 11th, 1963

SEISMITRON

1.

Apparatus: Seismitron Model ZA-4

Power Supply: Battery-operated

Certificate No.: 34 I.S.

Date Certified: May 6th, 1963

Holder of Certificate: Walter Nold Company,
24 Birch Road,
Natick, Mass., U.S.A.

SWITCHES

1.

Apparatus: EFS and EFD Series Tumbler Switch
Condulets, Furnished with Tumbler
Switches (Certified for Conduit
Installations Only). See List Below.

Certificate No.: 5 FP

Date Certified: July 31st, 1958

Holder of Certificate: Crouse-Hinds Company of Canada, Limited,
1160 Birchmount Road,
Scarborough, Ontario.

Dead End Single-Gang Cat. No.	Through Feed Single -Gang Cat. No.	Switch Information				
		Style	Amperes		H. P. at 230-V. A. C.	Size Hub
			125 V.	250 V.		
EFS1129	EFSC1129	1-Pole	20T	10	-	1/2
EFS118	EFSC118	2-Pole	20T	20	2	
EFS1130	EFSC1130	3-Way	15T	10	-	
EFS1140	EFSC1140	4-Way	5T	2	-	
EFS2129	EFSC2129	1-Pole	20T	10	-	3/4
EFS218	EFSC218	2-Pole	20T	20	2	
EFS2123	EFSC2123	3-Pole	10	5	1/2	
EFS2130	EFSC2130	3-Way	15T	10	-	
EFS2140	EFSC2140	4-Way	5T	2	-	
EFS3129	EFSC3129	1-Pole	20T	10	-	1
EFD3591	EFDC3591	1-Pole	30T	30	-	
EFS318	EFSC318	2-Pole	20T	20	2	
EFD3593	EFDC3593	2-Pole	30T	30 [‡]	2	
EFS3123	EFSC3123	3-Pole	10	5	1/2	
EFS3130	EFSC3130	3-Way	15T	10	-	
EFD3594	EFDC3594	3-Way	30T	30	-	
EFS3140	EFSC3140	4-Way	5T	2	-	
EFD3590	EFDC3590	4-Way	20T	10	-	
EFS3540	EFSC3540	DP DT-no "OFF"	10	5	-	
EFS3539	EFSC3539	DP DT-with "OFF"	20	10 [§]	2	
EFS3424	EFSC3424	3P DT-with "OFF"	10	5	1/2	

(Cont'd)

[‡] Also rated at 20 amperes, 600 volts. [§] Also rated at 5 amperes, 600 volts.

EFS and EFD Series Tumbler Switch Condulets (Cont'd)

Furnished With Tumbler Switches

Dead End Two-Gang Cat. No.	Through Feed Two-Gang Cat. No.	Style	Switch Information			
			Amperes		H. P. at 230-V. A. C.	Size Hub
			125 V.	250 V.		
EFS1229 -- -- --	EFSC1229 EFSC128 EFSC1230 EFSC1240	1-Pole 2-Pole 3-Way 4-Way	20T 20T 15T 5T	10 20 10 2	- 2 - -	1/2
EFS2229 -- -- EFS2230 --	EFSC2229 EFSC228 EFSC2223 EFSC2230 EFSC2240	1-Pole 2-Pole 3-Pole 3-Way 4-Way	20T 20T 10 15T 5T	10 20 5 10 2	- 2 1/2 - -	3/4
EFS3229 EFD3691 EFS328 -- -- EFS3230 EFD3694 EFS3240 EFD3690	EFSC3229 EFDC3691 EFSC328 EFD3693 EFSC3223 EFSC3230 EFD3694 EFSC3240 EFDC3690	1-Pole 1-Pole 2-Pole 2-Pole 3-Pole 3-Way 3-Way 4-Way 4-Way	20T 30T 20T 30T 10 15T 30T 5T 20T	10 30 20 30† 5 10 30 2 10	- - 2 2 1/2 - - - -	1
For Surface Mounting	For Flush Mounting	Style	Amperes		Size	
Plain Finish	Chromium Plated Cover		125	250		
Cat. No. (Single Switch)	Cat. No. (Single Switch)		Volts	Volts		
EFS1101 EFS1100 EFS1107 EFS1108	EFS1121 EFS1120 EFS1119 EFS1124	1-Pole 2-Pole 3-Way 4-Way	10T 10T 10T 5T	5 10 5 2	1/2 1/2 1/2 1/2	
EFS2101 EFS2100 EFS2107 EFS2108	EFS2121 EFS2120 EFS2119 EFS2124	1-Pole 2-Pole 3-Way 4-Way	10T 10T 10T 5T	5 10 5 2	3/4 3/4 3/4 3/4	
EFSC1101 EFSC1100 EFSC1107 EFSC1108	EFSC1121 EFSC1120 EFSC1119 EFSC1124	1-Pole 2-Pole 3-Way 4-Way	10T 10T 10T 5T	5 10 5 2	1/2 1/2 1/2 1/2	

† Also rated at 20 amperes, 600 volts.

EFS and EFD Series Tumbler Switch Condulets (Concluded)

Furnished With Tumbler Switches

For Surface Mounting	For Flush Mounting	Style	Amperes		Size
			Amperes		
			125 Volts	250 Volts	
Plain Finish	Chromium Plated Cover	Style	Amperes		Size
Cat. No. (Single Switch)	Cat. No. (Single Switch)		125 Volts	250 Volts	
EFSC2101	EFSC2121	1-Pole	10T	5	3/4
EFSC2100	EFSC2120	2-Pole	10T	10	3/4
EFSC2107	EFSC2119	3-Way	10T	5	3/4
EFSC2108	EFSC2124	4-Way	5T	2	3/4
Cat. No. (Duplex Switch)	Cat. No. (Duplex Switch)				
EFS1109	EFS1125	1-Pole	10T	5	1/2
EFS2109	EFS2125	1-Pole	10T	5	3/4
EFS2110	EFS2126	2-Pole	10T	10	3/4
EFS2113	EFS2127	3-Way	10T	5	3/4
EFS3114	EFS3128	4-Way	5T	2	1
EFSC1109	EFSC1125	1-Pole	10T	5	1/2
EFSC1110	EFSC1126	2-Pole	10T	10	1/2
EFSC1113	EFSC1127	3-Way	10T	5	1/2
EFSC1114	EFSC1128	4-Way	5T	2	1/2
EFSC2109	EFSC2125	1-Pole	10T	5	3/4
EFSC2110	EFSC2126	2-Pole	10T	10	3/4
EFSC2113	EFSC2127	3-Way	10T	5	3/4
EFSC2114	EFSC2128	4-Way	5T	2	3/4
Cat. No. (Triple Switch)	Cat. No. (Triple Switch)				
EFS1115	EFS1131	1-Pole	10T	5	1/2
EFS2115	EFS2131	1-Pole	10T	5	3/4
EFS3116	EFS3132	2-Pole	10T	10	1
EFS3117	EFS3133	3-Way	10T	5	1
EFSC1115	EFSC1131	1-Pole	10T	5	1/2
EFSC1116	EFSC1132	2-Pole	10T	10	1/2
EFSC2115	EFSC2131	1-Pole	10T	5	3/4
EFSC2116	EFSC2132	2-Pole	10T	10	3/4
EFSC2117	EFSC2133	3-Way	10T	5	3/4
EFSC2118	EFSC2134	4-Way	5T	2	3/4

2.

Apparatus:

A series of Snap-Lock, Explosion-Proof Switches, types
SL2X-C, SL2X-C1, SL2X-C2,
SL2X-C3, SL2X-C4, SL2X-C5,
SL2X-C6, SL2X-C7, SL2X-C8

Electrical Ratings:

(1) When supplied with trailing cable specified in the schedule associated with the certificate:

<u>A. C. Volts</u>	<u>Amperes</u>
125	20

<u>D. C. Volts</u>	<u>Amperes</u>
125	5

(2) When supplied for conduit installations:

<u>A. C. Volts</u>	<u>Amperes</u>
125	20
250	15
480	10
600	5

<u>D. C. Volts</u>	<u>Amperes</u>
250	1.5
125	5

(3) When supplied for installations as part of an assembly (on a mining machine or other apparatus) where the switch cable is completely enclosed by metallic protection:

Electrical rating the same as for (2).

Certificate No. :

21 FP

Date Certified:

May 15th, 1961

Holder of Certificate:

The National Acme Co.,
Cleveland, Ohio,
U.S.A.

ELECTRICAL INSTRUMENTS
(Experimental Applications)

The following instruments were developed, modified or adapted by the Department of Mines and Technical Surveys for use in research into underground stress phenomena. The certification applies only to single specific instruments, which are identified in Letters of Certification. Changes were covered by Supplementary Letters of Certification. The holder of these letters is the Fuels and Mining Practice Division of the Mines Branch, Department of Mines and Technical Surveys, 562 Booth Street, Ottawa, Ontario.

<u>Instrument</u>	<u>Certificate No.</u>	<u>Date</u>
Strain Indicator	Letter #1	Feb. 14th, 1956
Electrical Resistivity Unit, Model 2A	Letter #2	Feb. 14th, 1956
Modified Strain Indicator	Letter Supp. to #1	April 16th, 1956
Load Cell Bridge, Model 2A	Letter #3	Feb. 14th, 1956
Load Cell Bridge, Model 2A, Modified	Letter Supp. to #3	Nov. 30th, 1966
Load Cell Orienting Unit	Letter #4	Feb. 28th, 1956
Load Cell Orienting Unit #2	Letter #5	April 20th, 1956
Baldwin SR4 Type N Portable Strain Indicator, Serial No. 443246	Letter #6	Oct. 31st, 1958
Modified Baldwin SR4 Type N Portable Strain Indicator	Letter Supp. to #6	Jan. 28th, 1960

<u>Instrument</u>	<u>Certificate No.</u>	<u>Date</u>
Baldwin SR4 Type N Portable Strain Indicator, Serial No. 443702	Letter #6	Oct. 31st, 1958
Modified Baldwin SR4 Type N Portable Strain Indicator	Letter Supp. to #6	Jan. 28th, 1960
Baldwin SR4 Type N Portable Strain Indicator, Serial No. 562900	Letter Supp. to #6	May 6th, 1960
Load Cell Switch Unit	Letter #7	May 6th, 1960
Vibrating Wire Comparator	Letter #8	Feb. 14th, 1961
Modified Vibrating Wire Comparator	Letter Supp. to #8	Oct. 11th, 1963
Seismitron	Letter #9	May 7th, 1963

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APPENDIX

Extract From Certification Memorandum No. 1

INTERPRETATION

In this memorandum:

Certificate means the certificate issued over the signature of the Certification Officer.

Certification means that the apparatus concerned has been judged to be safe and suitable for use underground in coal mines by the certifying authority provided it is installed and maintained in a correct manner. It does not include permission for installation, and use anywhere and the acceptance or rejection for use of certified apparatus in any location will remain the responsibility of the properly constituted authorities. In Canada this responsibility rests with provincial authorities.

Certifying Authority means the Department of Mines and Technical Surveys, Ottawa, represented by the officer duly appointed by the Minister to make certifications under the name and style of "Certification Officer".

Explosion-proof means in an "Explosion-proof Enclosure" which shall have the same meaning as "Flameproof Enclosure" for certification purposes.

Flameproof means in a "Flameproof Enclosure" which is an enclosure for electrical apparatus that will withstand, without injury, any explosion of the prescribed inflammable gas that may occur within it under practical conditions of operation within the rating of the apparatus (and recognized overloads, if any, associated therewith) and will prevent the transmission of flame such as would ignite the prescribed inflammable gas which may be present in the surrounding atmosphere.

Registered Mark means the certification mark, registered at the Canadian Trade Marks Office, which may be put on certified apparatus and which carries the initials F P, standing for "Flameproof" and M. and T.S., standing for "Department of Mines and Technical Surveys, Ottawa".

Extract From Certification Memorandum No. 2

INTERPRETATION

In this memorandum:

Certificate means the certificate issued over the signature of the Certification Officer.

Certification means that the conveyor belting concerned has been judged to be fire-resistant to the extent that samples have passed the requirements prescribed in this memorandum. It does not include permission for installation and use anywhere. The acceptance or rejection for use of certified fire-resistant belting in any location remains the responsibility of the properly constituted authorities. In Canada this responsibility rests with provincial authorities.

Certifying Authority means the Department of Mines and Technical Surveys, Ottawa, represented by the officer duly appointed by the Minister to make certifications under the name and style of "Certification Officer".

Fire-Resistant means that samples of the conveyor belting provided by the applicant as being representative of the conveyor belting being investigated have successfully met the requirements prescribed in this memorandum.