MISTRAS
Division Saguenay

Rapport / Report	S17- 22434A-011			
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Radiographie / RADIOGRAPHY

Client / Customer	Fabricant / Manufacturer	Commande no / P. O. Number
Unies-Fab	Unies-Fab	
Responsable / Responsible	Responsable / Responsible	No d'ouvrage / Job no
Brian Savard	Brian Savard	UF-2106-19846
Projet / Project	Description	
UF-2106-19846	Radiographie sur tuyauteries	

Identification de la radiographie / Radiograph identification		Épaisseur / Thickness			Soudeur / Welder	Évaluation / Interpretation		Discontinuité et Localisation du manque / Discontinuity and Defect location			CR	
		Matériel / Matériel	Renforcement / Build up	Soudure / Weld		ACC	REJ				Contraste / Contrast	Brillance / Brightness
Joint 6 MK-20	0 - 7	STD			31	√						
	7 - 14	STD			31	√						
	14 - 0	STD			31	√						
Joint 7 MK-20	0 - 7	STD			31	√						
	7 - 14	STD			31	√						
	14 - 0	STD			31	√						
Joint 8 MK-32	0 - 7	STD			31	√						
	7 - 14	STD			31	√						
	14 - 0	STD			31	√						
Joint 8 MK-43	0 - 7	STD			24	√						
	7 - 14	STD			24	√						
	14 - 0	STD			24	√						
Joint 10 MK-11	0 - 7	STD			24	√						
	7 - 14	STD			24	√						
	14 - 0	STD			24	√						
Joint 11 MK-46	0 - 7	STD			21	√						
	7 - 14	STD			21	√						
	14 - 0	STD			21	√						

LEGENDE / LEGEND

Surf. : Surface / Surface	L.O.P. : Manque de pénétration / Lack of Penetration	B.T. : Traversée / Burn Through	G : Glaçon / Icicle
C. : Concavité / Concavity	L.O.F. : Manque de Fusion / Lack of Fusion	M.L. : Alignement défectueux / Misalignment	A.D. : Arrêt-départ / Stop-start
C.K. : Fissure / Crack	I.U.C. : Caniveau intérieur / Inside Undercut	S.I. : Inclusion de Laitier / Slag Inclusion	T.I. : Inclusion de tungstène / tungsten incl.
P. : Porosité / Porosity	O.U.C. : Caniveau Extérieur / Outside Undercut	F/A : Défaut du film / Film Artefact	

Technicien / Technician	Date	Approuvé par / Approved by	Niveau / Level		Vérifié par / Verified by
Gilbert Asselin	2017-06-15	*David Gauthier*	ONGC / CGSB	2	VR

F-Radiog.xlsx

Rév 25

Brian Savard 15/06/2017

MISTRAS
Division Abitibi-Témiscamingue

Rapport / Report	A17- 26447A-016			
	Page	1	de/of	1

Magnétoscopie
Magnetic particule

Client / Customer	Fabricant / Manufacturer	Commande no / P.O. Number
GROUPE PROMEC		62508
Éric Poulin Responsable / Responsible	Responsable / Responsible	WO-40413640 No d'ouvrage / Job no
Projet / Project	Description	
Tagger 22466T - Meliadine	AGNICO EAGLE Rankin Inlet Marine Line for Tank Farm	

Technique
- ☑ Poudre sèche / Dry Powder
- ☐ Fluorescent (humide / wet)
- ☐ Noir et blanc / Black & White (humide / wet)

Courant / Current
- ☑ AC — Intensité: 6 amps
- ☐ DC

Matériau / Material: Cabon Steel

Doc. de référence / Reference Doc.

Norme / Code:	ASME
Section:	B31,3
Année / Year:	2015
Critères / Criteria:	Normal
Technique / Method	ASTM E709 / I-TEC-05

Méthode / Method
- ☑ Continuelle / Continuous
- ☐ Résiduelle / Residual

Magnétisation / Magnetization
- ☑ Long.
- ☐ Circ.

- ☐ Aimant / Permanent magnet
- ☑ Culasse électromagnétique / Electromagnetic Yoke
- ☐ Électrodes d'amenée / Prods
- ☐ Serpentin / Coil
- ☐ Tête magnétisante / Head shot
- ☐ Conducteur central / Central conductor

Medium
- ☐ Huile / Oil
- ☐ Eau / Water

Magnétoscope / Magnetoscope

Marque / Mark	Modèle / Model	# Série / Serial #	Levage/Lift test	Poids/Weight
Parker	B-300	4568	6"	10lbs

Matériel / Material

Marque / Mark	No.	Couleur / Color
Circle Sys.	66	Jaune

Lampe noire/ Blacklight

Marque / Mark	Modèle / Model	# Série / Serial #	Intensité/Intensity
n/a	n/a	n/a	n/a

Photomètre UV/ UV light meter

Marque / Mark	Modèle / Model	# Série / Serial #	Cal due
n/a	n/a	n/a	n/a

Photomètre lumière blanche/ White light meter

Marque / Mark	Modèle / Model	# Série / Serial #	Cal due
n/a	n/a	n/a	n/a

État de la surface / Surface conditionning
- ☑ La surface inspectée rencontrait les exigences de la norme ASTM E709. According to ASTM E709.
- ☐ La surface inspectée ne rencontrait pas les exigences de la norme ASTM E709. Not in accordance with ASTM E709.
  - ☐ Eau / Water ☐ Saleté / Dirt ☐ Rouille / Rust ☐ Peinture / Paint ☐

Résultats / Results

An magnetic particles inspection was conducted on 23 socket weld.

Accepted & conforme to the standards

Technicien / Technician	Date	Approuvé par / Approved by	Niveau / Level		Vérifié par / Verified by
Pierre Goyette	2017-09-28	*Pierre Goyette*	SNT-TC	3	KF

MISTRAS | Métaltec
Division Abitibi-Témiscamingue

Rapport / Report	A17- 26447A-017			
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Ultrasons ULTRASONIC TESTING

Client / Customer	Fabricant / Manufacturer	Commande no / P.O. Number
GROUPE PROMEC		62508
Éric Poulin Responsable / Responsible	Responsable / Responsible	WO-40413640 No d'ouvrage / Job no
Projet / Project	Description	
Tagger 22466T - Meliadine	AGNICO EAGLE Rankin Inlet Marine Line for Tank Farm	

Équipement / Equipment

Sonatest	D70	I0007829
Marque / Mark	Modèle / Model	# Série / Serial #

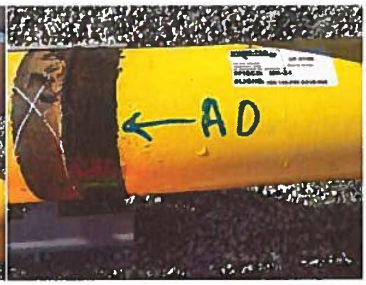
Palpeurs / Transducers

Cable: type BNC-BNC, L 6 pi/ft

NDT Syst.	2,25	0,5	60	8987432
Marque / Mark	MHz	Diam.	Angle	# Série / Serial #

Matériau / Material	Doc. de référence / Reference Doc.	
Carbon Steel	Norme / Code:	ASME
Type de soudure / Weld type	Section:	B31,3
But Weld	Année / Year:	2015,00
Bloc de calibration / calibration bloc	Critères / Criteria:	Normal
IIW & DAC	Technique / Method	
Milieu de couplage / Coupling liquid	I-TEC-02 RB rev07	
Echogel 40		

Identification Soudure / Weld	Face de contact / Contact Face	Epaisseur / Thickness	No réflecteur / Reflector Number	Angle de palpeur / of probe (°)	Evaluation: DAC, Référence/Reference (dB)	Evaluation: Amplitude, de la DAC / from DAC (%) ou / or	Evaluation: Amplitude, de la DAC / from DAC (dB)	Evaluation: Type d'indication / Indication Type	Localisation / Localization: Longueur / Length	Localisation: Trajet sonore / Soundpath	Localisation: Profondeur à partir de la surface / Depth from the surface	Distance: De / From X	Distance: De / From Y	Acceptation / Acceptability
AMR (1)	A	sch40		60	49									Accepted
AO (1)	A	sch40		60	49									Accepted
AO (2)	A	sch40		60	49									Accepted
AMR (2)	A	sch40		60	49									Accepted
JMP	A	sch40		60	49									Accepted



Technicien / Technician	Date	Approuvé par / Approved by	Niveau / Level		Vérifié par / Verified by
Pierre Goyette	2017-09-28	*Pierre Goyette*	SNT-TC	3	KF

AGNICO EAGLE

Vendor Document Status

1 ☐ Proceed to next submission and status.

2 ☐ Proceed with exceptions as noted to next submission and status.

3 ☐ Do not proceed.
Revise as noted and resubmit next submission and status.

4 ☑ Complete, no further submission required.

By: JEAN-FRANCOIS TREMBLAY Date: 2017-06-22

Review and authorization to fabricate are only for general conformance with the design concept of the Project as expressed in the Contract Documents. Sole responsibility for the accuracy and completeness of this document, including but not limited to dimensions and quantities, remains with the Supplier/Contractor. Agnico Eagle does not warrant the accuracy or completeness of any of the information contained herein, nor does Agnico Eagle authorize or approve any construction means, methods, techniques, sequences or any safety precautions or procedures.

Agnico Eagle No. 6515-C-270-007-141-TES-0045 R: Sub002

DOCUMENT FOR INFORMATION

Agnico-Eagle Mines Ltd.
Pressure Test Report

ITR Number : AEM-PI-ITR-001
Contract no. : C22466T

Design Code	Design Test Pressure	Test Medium	Medium Temp.	Test Duration

P&ID (Highlight Boundaries)	Rev	Line	Drawing/ISO	Rev	Spool

Pressure Test Specifications

	Contractor	Date (dd-mm-yy)	Client	Date (dd-mm-yy)
Pre-Hydro Inspection				
NDE/PWHT Clearance				
Release for Test				

Test Instruments

	Make/Model	Serial Number	Test Range (psi)	Calibration Date
Upper				
Lower				

Test Data

	Time	Test Pressure	Ambient Temp. (C)	Pipe Temp. (C)	Comments
Start					
Finish					

Comments/Referenced Documents (e.g. applicable field reports):

PRESSURE TEST COMPLETE

Contractor Representative			Client Representative		
Name (Print)	Signature	Date	Name (Print)	Signature	Date

LINE RESTORATION COMPLETE

Contractor Representative			Client Representative		
Name (Print)	Signature	Date	Name (Print)	Signature	Date

ADDITIONAL LINES

P&ID	Rev	Line	Drawing/ISO	Rev	Spool

P&ID	Rev	Line	Drawing/ISO	Rev	Spool

Agnico-Eagle Mines Ltd.
Pressure Test Report

ITR Number : AEM-PI-ITR-001
Contract no. : C22466T

Design Code	Design Test Pressure	Test Medium	Medium Temp.	Test Duration
	15 PSI	Air	10°C	1 hrs

P&ID (Highlight Boundaries)	Rev	Line	Drawing/ISO	Rev	Spool
		103-150-PDE-CC010-001	5/13	0	

Pressure Test Specifications

	Contractor	Date (dd-mm-yy)	Client	Date (dd-mm-yy)
Pre-Hydro Inspection	Promec	26/08/17	AEM	26/08/17
NDE/PWHT Clearance				
Release for Test				

Test Instruments

	Make/Model	Serial Number	Test Range (psi)	Calibration Date
Upper	Winters PFQ Series	G17-0675	0 - 300	05 — 2017
Lower				

Test Data

	Time	Test Pressure	Ambient Temp. (C)	Pipe Temp. (C)	Comments
Start	2h 15	15 PSI	15	15	None
Finish	3h 15	15 PSI	15	15	None

Comments/Referenced Documents (e.g. applicable field reports):

PRESSURE TEST COMPLETE

Contractor Representative			Client Representative		
Robbie Lamothe			Clem Bonin		
Name (Print)	Signature	Date	Name (Print)	Signature	Date Sept 14/17

LINE RESTORATION COMPLETE

Contractor Representative			Client Representative		
Name (Print)	Signature	Date	Name (Print)	Signature	Date

NUQSANA-PROMEC MINING

Agnico-Eagle Mines Ltd.
Pressure Test Report

ITR Number : AEM-PI-ITR-001
Contract no. : C22466T

AGNICO EAGLE

Design Code	Design Test Pressure	Test Medium	Medium Temp.	Test Duration
	60 PSI	Air	5 °C	1 hrs

P&ID (Highlight Boundaries)	Rev	Line	Drawing/ISO	Rev	Spool
65-103-205-200		103-150-PDI-CC10-001	6/13 7/13 8/13	0	
			9/13		
65-103-205-200		103-150-PDI-CC10-002	1/3 2/3 3/3	0	

Pressure Test Specifications

	Contractor	Date (dd-mm-yy)	Client	Date (dd-mm-yy)
Pre-Hydro Inspection	Promec	24/09/17	AEM	24/09/17
NDE/PWHT Clearance				
Release for Test				

Test Instruments

	Make/Model	Serial Number	Test Range (psi)	Calibration Date
Upper	Winters PFG Series	617-0675	0 - 300	05 — 2017
Lower				

Test Data

	Time	Test Pressure	Ambient Temp. (C)	Pipe Temp. (C)	Comments
Start	10h15	60 PSI	10 °C	10 °C	None
Finish	11h15	60 PSI	10 °C	10 °C	None

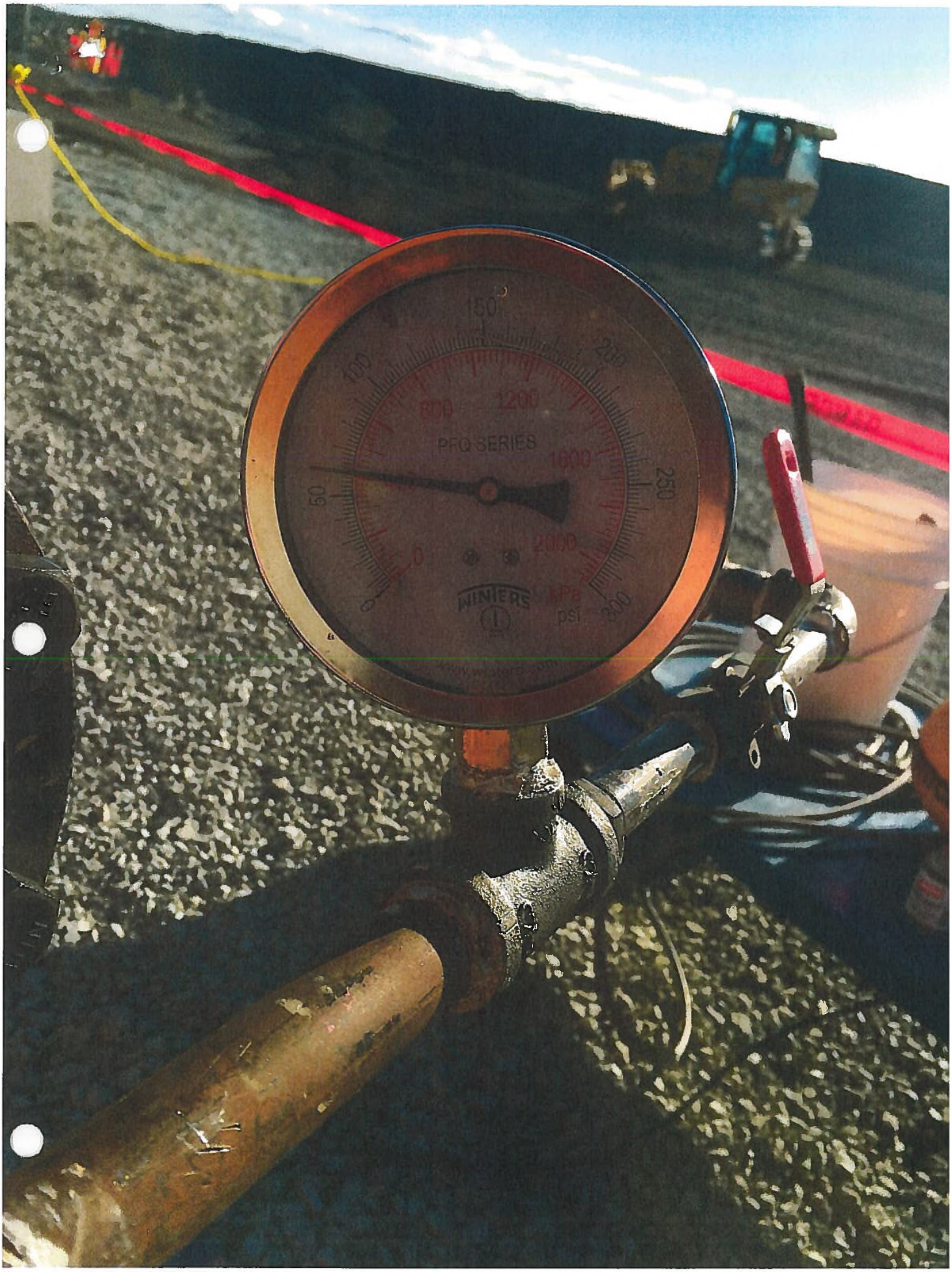
Comments/Referenced Documents (e.g. applicable field reports):

PRESSURE TEST COMPLETE

Contractor Representative			Client Representative		
Robbie Lamothe		24/09/17	Clem Bonin		24/09/17
Name (Print)	Signature	Date	Name (Print)	Signature	Date

LINE RESTORATION COMPLETE

Contractor Representative			Client Representative		
Name (Print)	Signature	Date	Name (Print)	Signature	Date


PFQ SERIES
WINIERS
kPa
psi

Agnico-Eagle Mines Ltd.
Pressure Test Report

ITR Number : AEM-PI-ITR-001
Contract no. : C22466T

Design Code	Design Test Pressure	Test Medium	Medium Temp.	Test Duration
	60 PSI	Air	5°C	1 hrs

P&ID (Highlight Boundaries)	Rev	Line	Drawing/ISO	Rev	Spool
65-103-205-200		103-150-PDI-CC10-003	1/12 2/12 3/12	0	
			4/12 5/12 6/12		
			7/12 8/12 9/12		
65-103-205-200		103-150-PDI-CC10-004	1/1	0	

Pressure Test Specifications

	Contractor	Date (dd-mm-yy)	Client	Date (dd-mm-yy)
Pre-Hydro Inspection	Promec	24/09/17	AEM	24/09/17
NDE/PWHT Clearance				
Release for Test				

Test Instruments

	Make/Model	Serial Number	Test Range (psi)	Calibration Date
Upper	Winters PFQ Series	617-0675	0 - 300	05 — 2017
Lower				

Test Data

	Time	Test Pressure	Ambient Temp. (C)	Pipe Temp. (C)	Comments
Start	3h00 PM	60 PSI	5	5	None
Finish	4h00	60 PSI	5	5	None

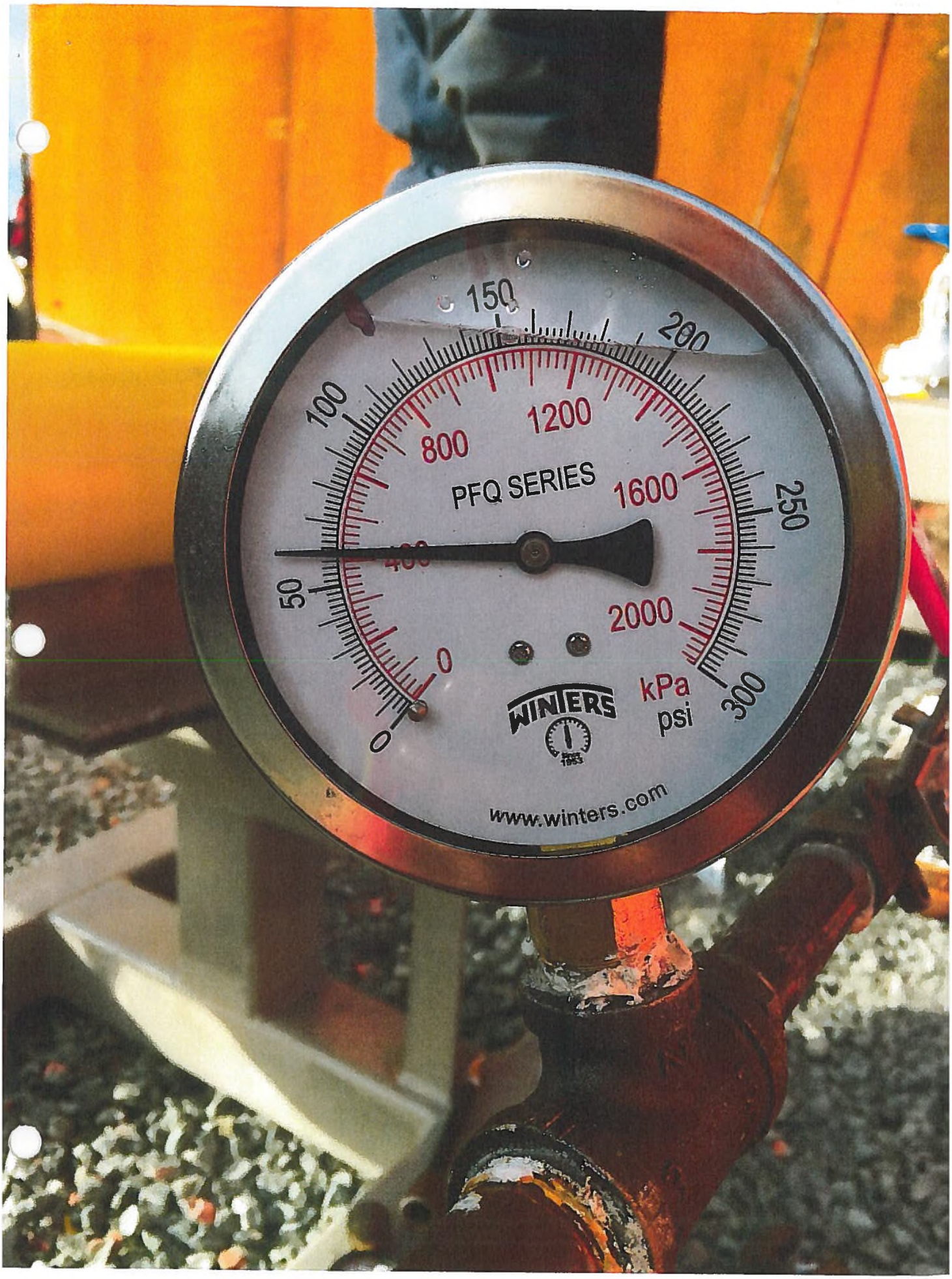
Comments/Referenced Documents (e.g. applicable field reports):

PRESSURE TEST COMPLETE

Contractor Representative			Client Representative		
Robbie Lamothe			Clem Bonin	Clem Bonin	Sept 25/17
Name (Print)	Signature	Date	Name (Print)	Signature	Date

LINE RESTORATION COMPLETE

Contractor Representative			Client Representative		
Name (Print)	Signature	Date	Name (Print)	Signature	Date


150
200
100
1200
800
PFQ SERIES
1600
250
50
2000
0
300
0
WINTERS
kPa
psi
www.winters.com

Agnico-Eagle Mines Ltd.
Pressure Test Report

ITR Number : AEM-PI-ITR-001
Contract no. : C22466T

Design Code	Design Test Pressure	Test Medium	Medium Temp.	Test Duration
	120	Water	12 °C	1 hrs

P&ID (Highlight Boundaries)	Rev	Line	Drawing/ISO	Rev	Spool
		Double Wall Section	103-150-PDI-001		Complet

Pressure Test Specifications

	Contractor	Date (dd-mm-yy)	Client	Date (dd-mm-yy)
Pre-Hydro Inspection	Premec	01/09/17	AEM	01/9/17
NDE/PWHT Clearance				
Release for Test				

Test Instruments

	Make/Model	Serial Number	Test Range (psi)	Calibration Date
Upper	Waters PTQ Series	617-0675	0 - 300	May 15 2017
Lower				

Test Data

	Time	Test Pressure	Ambient Temp. (C)	Pipe Temp. (C)	Comments
Start	2h00	120	12 °C	12 °C	CB
Finish	3 h 00	120	12 °C	12 °C	

Comments/Referenced Documents (e.g. applicable field reports):

PRESSURE TEST COMPLETE

Contractor Representative			Client Representative		
Robbie Lamothe		09/01/17	CLEM BOUIN		3.10 PM 10-1-2017
Name (Print)	Signature	Date	Name (Print)	Signature	Date

LINE RESTORATION COMPLETE

Contractor Representative			Client Representative		
Name (Print)	Signature	Date	Name (Print)	Signature	Date

NUQSANA PROMEC MINING

Agnico-Eagle Mines Ltd.
Pressure Test Report

ITR Number : AEM-PI-ITR-001
Contract no. : C22466T

AGNICO EAGLE

Design Code	Design Test Pressure	Test Medium	Medium Temp.	Test Duration
	60 PSI	Pneumatic	-6 °C	60 min

P&ID (Highlight Boundaries)	Rev	Line	Drawing/ISO	Rev	Spool
65-116-205-2000	2	103-150-PDI-CC10-003	1-2-3	0	
		103-150-PDI-CC10-004	1/1	0	

Pressure Test Specifications

	Contractor	Date (dd-mm-yy)	Client	Date (dd-mm-yy)
Pre-Hydro Inspection				
NDE/PWHT Clearance				
Release for Test				

Test Instruments

	Make/Model	Serial Number	Test Range (psi)	Calibration Date
Upper	Winters PFQ Series	617-0675	6 - 300	May 15 2017
Lower				

Test Data

	Time	Test Pressure	Ambient Temp. (C)	Pipe Temp. (C)	Comments
Start	4h 08	60 PSI	-6 °C	-6 °C	
Finish	5h 08	60 PSI	-6 °C	-6 °C	

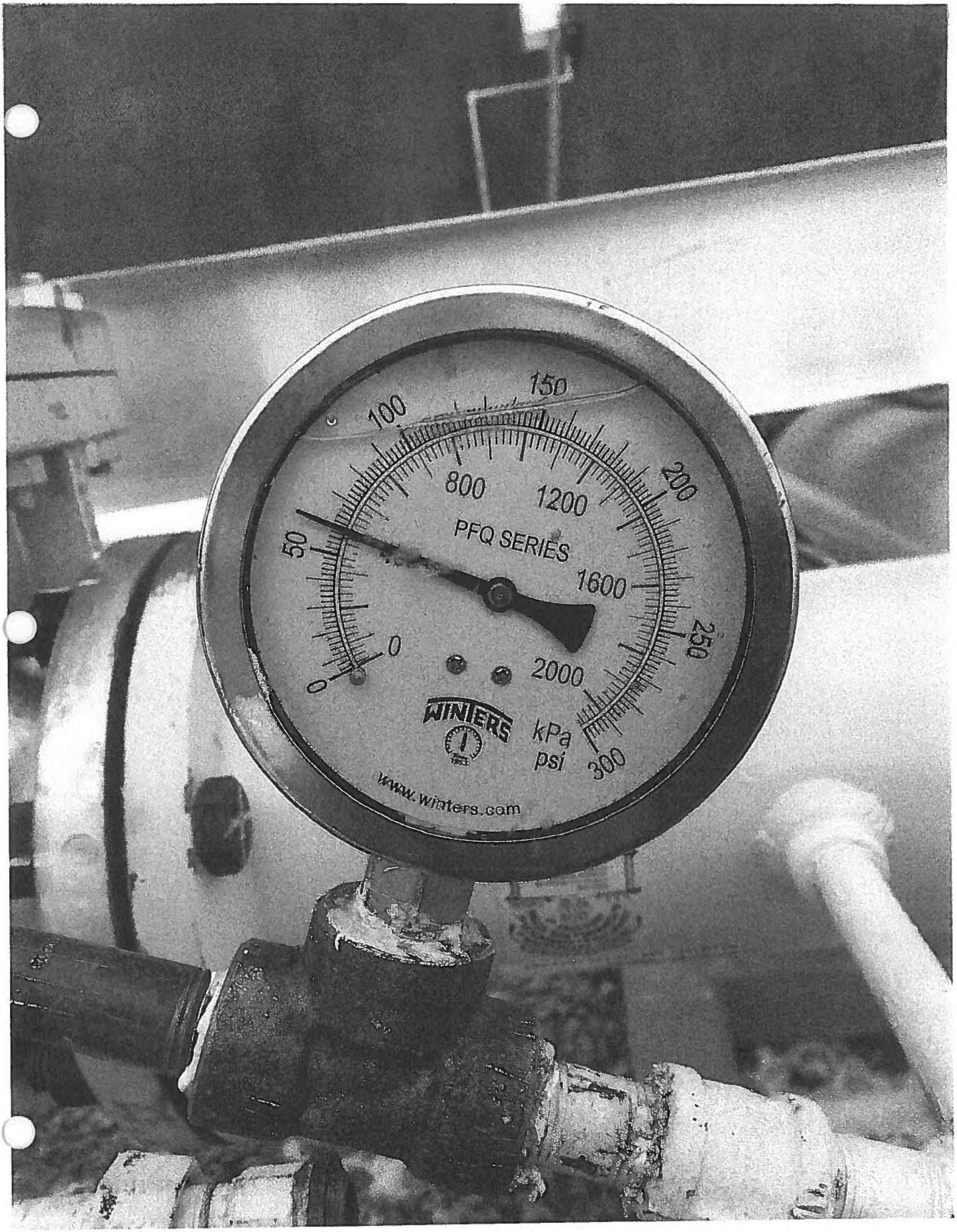
Comments/Referenced Documents (e.g. applicable field reports):

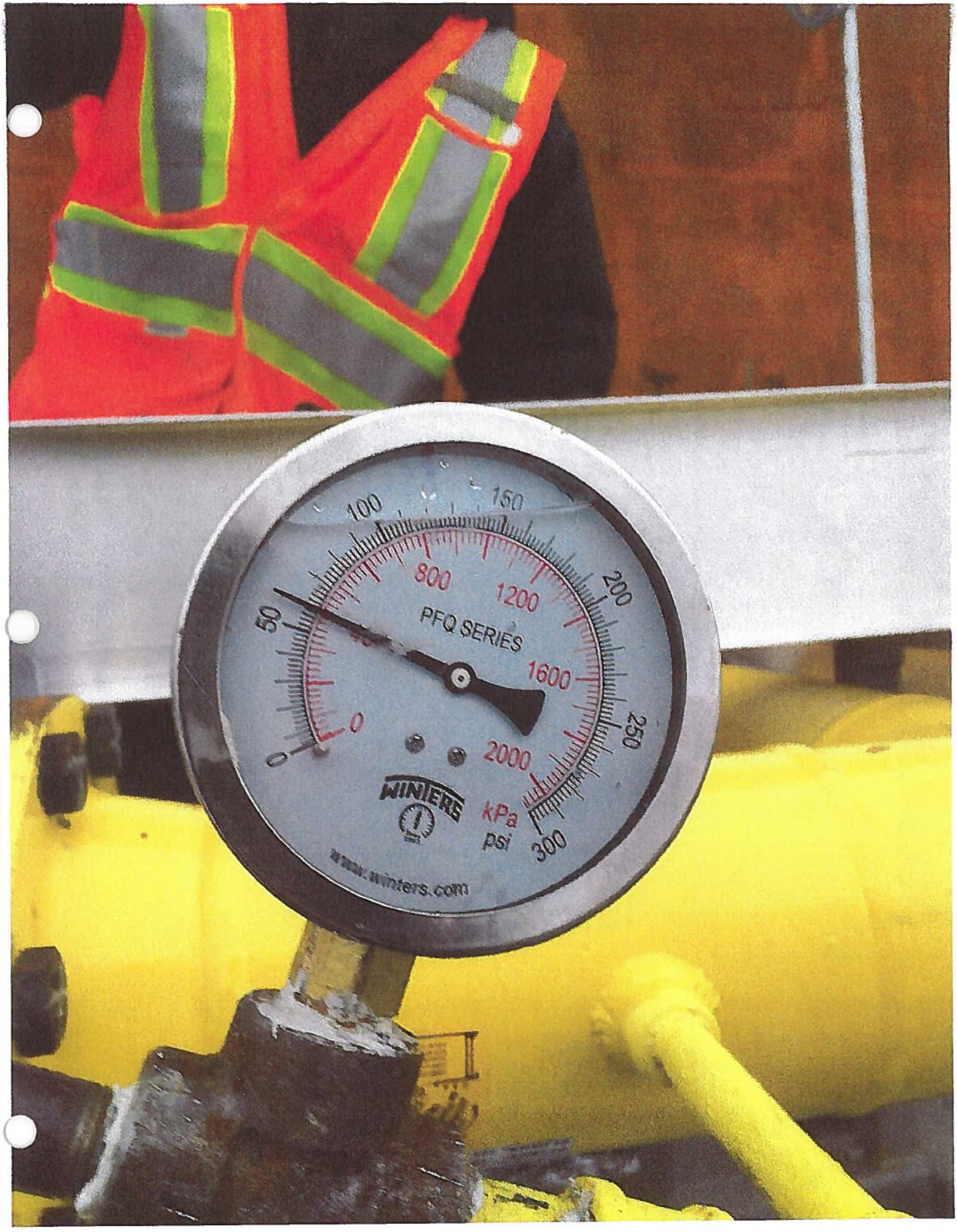
PRESSURE TEST COMPLETE

Contractor Representative			Client Representative		
Robert Lamothe		11/10/17	Stephane Gionet		11/10/17
Name (Print)	Signature	Date	Name (Print)	Signature	Date

LINE RESTORATION COMPLETE

Contractor Representative			Client Representative		
Robert Lamothe		11/10/17	Stephane Gionet		11/10/17
Name (Print)	Signature	Date	Name (Print)	Signature	Date


100
150
200
800
1200
PFQ SERIES
50
1600
0
0
250
2000
WINTERS
kPa
psi
300
www.winters.com


100
150
200
50
800
1200
PFQ SERIES
1600
0
250
2000
WINTERS
kPa
psi
300
www.winters.com

NUQSANA PROMEC MINING

Agnico-Eagle Mines Ltd.
Pressure Test Report

ITR Number : AEM-PI-ITR-001
Contract no. : C22466T

AGNICO EAGLE

Design Code	Design Test Pressure	Test Medium	Medium Temp.	Test Duration
	60 PSI	Pneumatic		60 min

P&ID (Highlight Boundaries)	Rev	Line	Drawing/ISO	Rev	Spool
65-116-205-200	2	116-150-PDI-CC10-0001	103-150-PDI-CC10 001	0	Pg 1-9
"	2	116-150-PDI-CC10-002	103-150-PDI CC10002	0	Pg 1-3

Pressure Test Specifications

	Contractor	Date (dd-mm-yy)	Client	Date (dd-mm-yy)
Pre-Hydro Inspection				
NDE/PWHT Clearance				
Release for Test				

Test Instruments

	Make/Model	Serial Number	Test Range (psi)	Calibration Date
Upper	Winters PFQ Series	617-0675	0-300 PSI	May 15 2017
Lower				

Test Data

	Time	Test Pressure	Ambient Temp. (C)	Pipe Temp. (C)	Comments
Start	4 h 46 PM	60 PSI	-2	-2	
Finish	5 h 46 PM	60 PSI	-2	-2	

Comments/Referenced Documents (e.g. applicable field reports):

PRESSURE TEST COMPLETE

Contractor Representative			Client Representative		
Robert Lamothe		7 Oct 2017	Stephane Ciment		07 oct, 2017
Name (Print)	Signature	Date	Name (Print)	Signature	Date

LINE RESTORATION COMPLETE

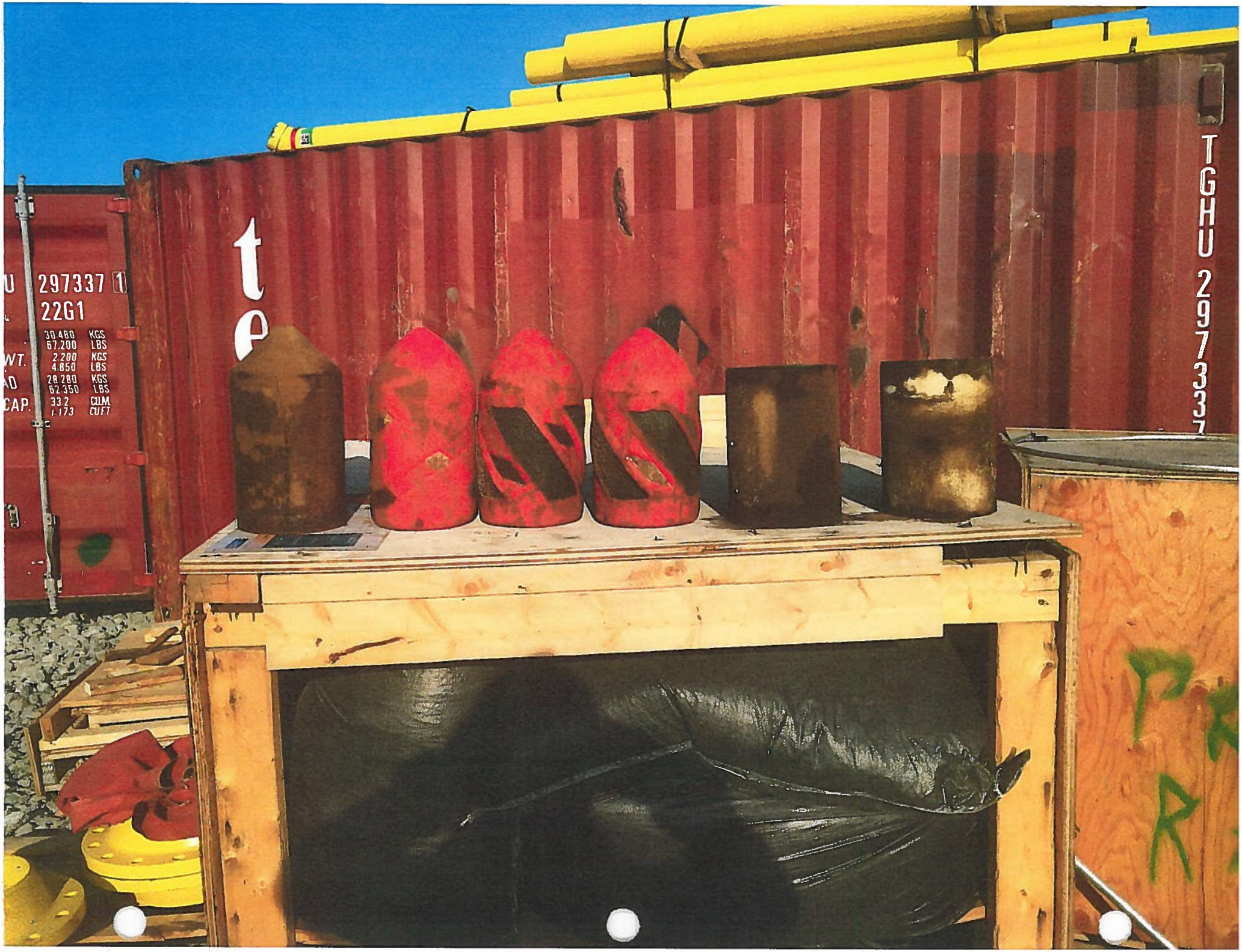
Contractor Representative			Client Representative		
Robert Lamothe		8 oct 2017	Stephane Ciment		08 oct, 2017
Name (Print)	Signature	Date	Name (Print)	Signature	Date

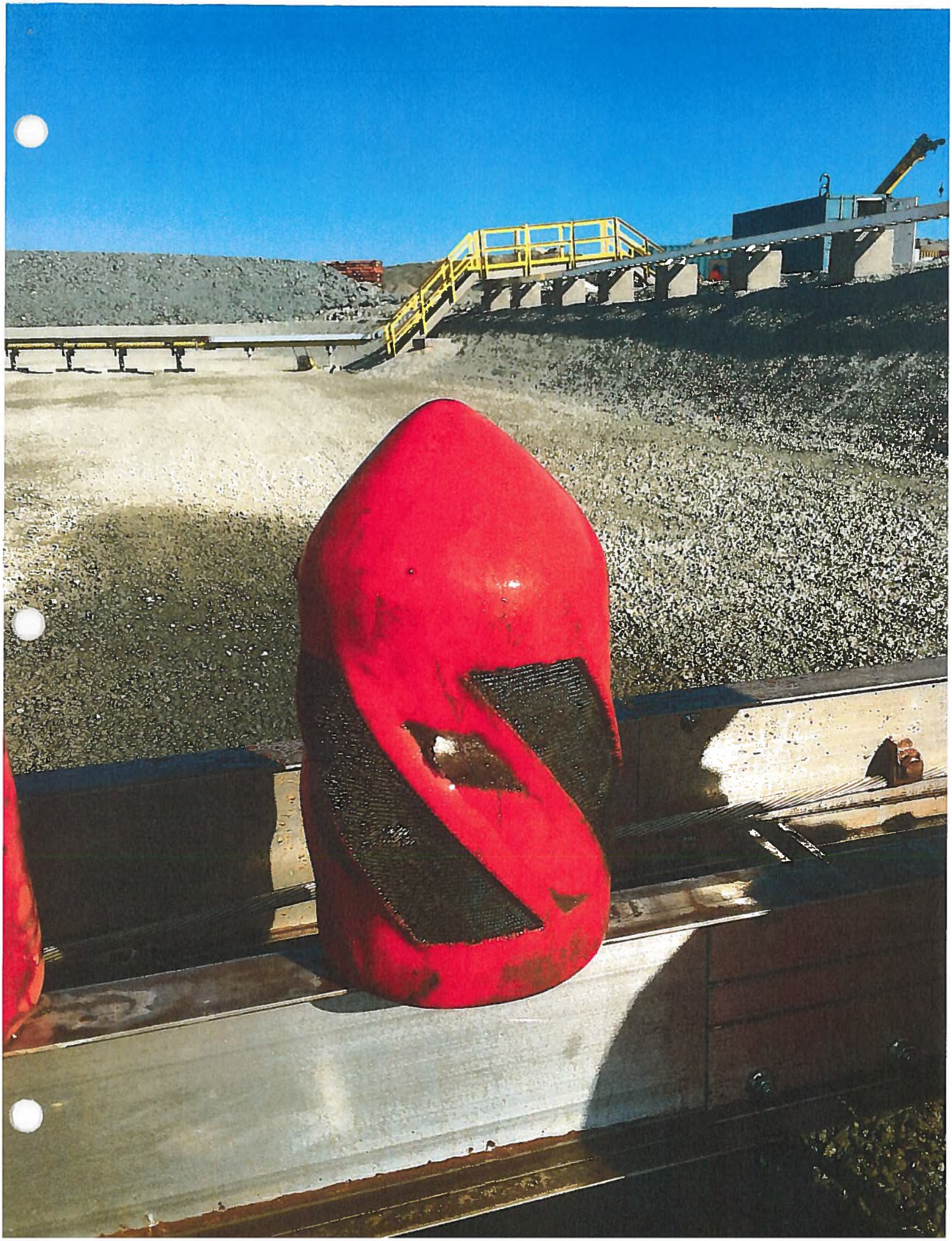

PFQ SERIES
WINTERS
kPa
psi
www.winters.com

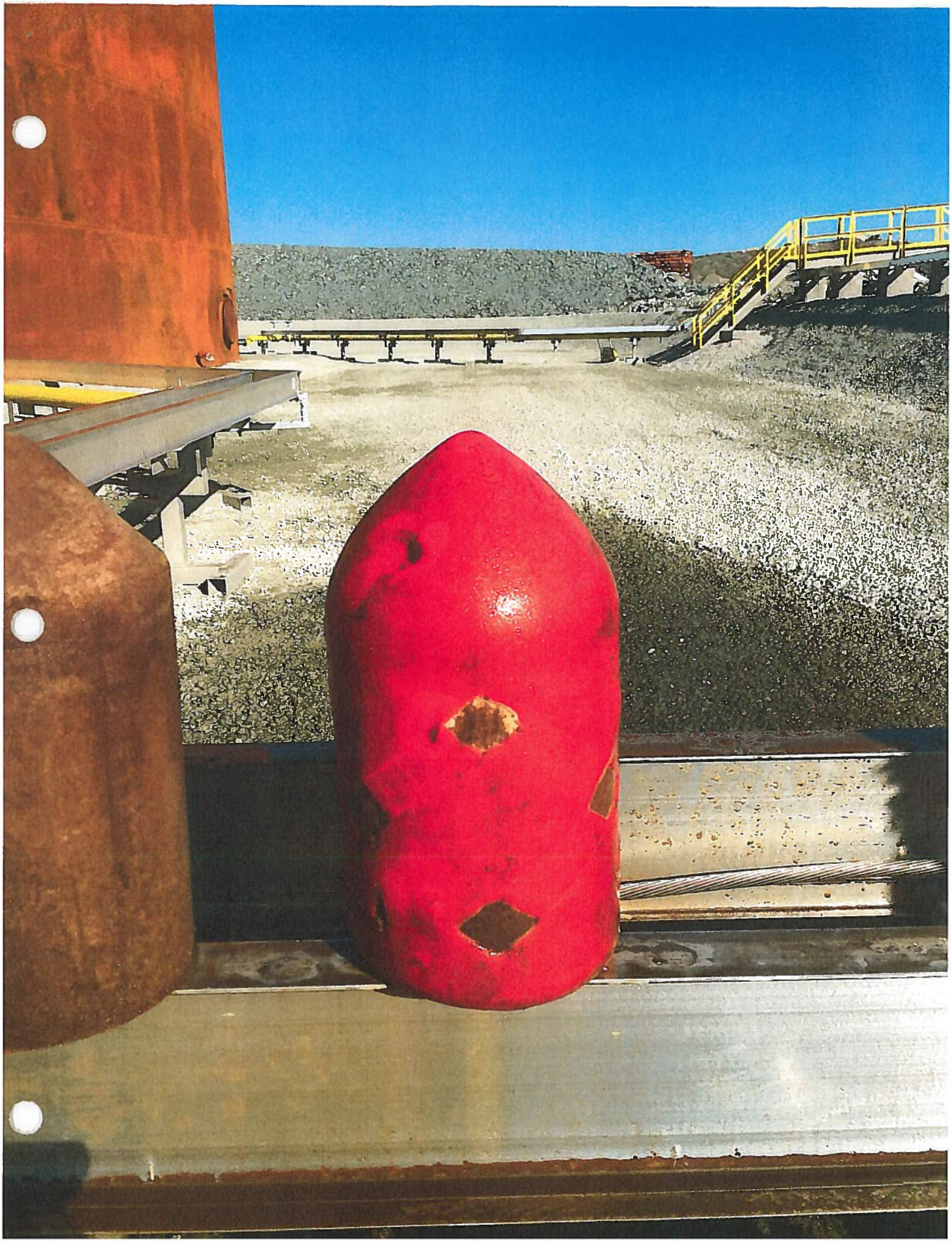

PRO SERIES
WINTERS
kPa
psi
www.winters.com

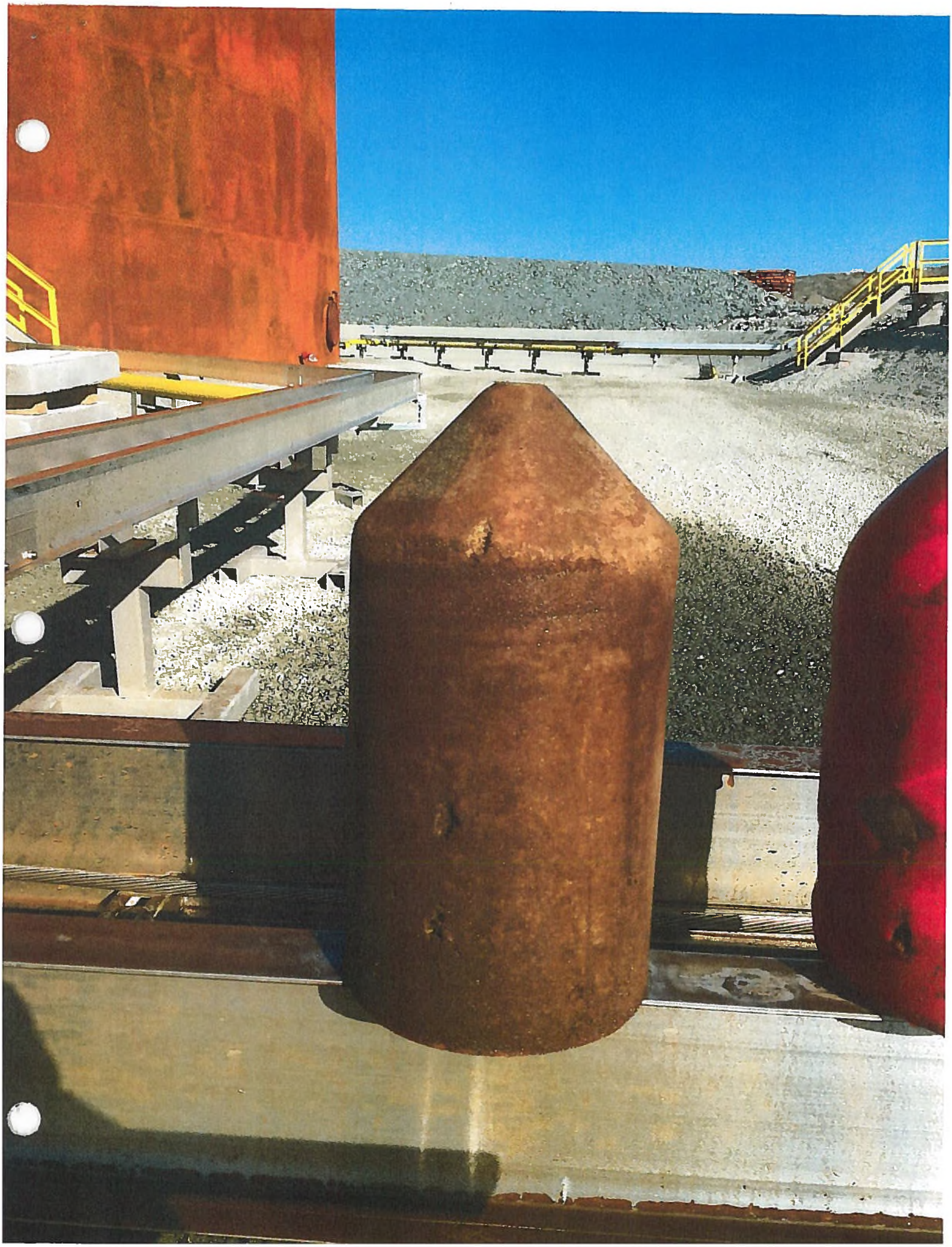
Pigging of Pipe

1 fois le RX 3
1 fois le RX4
6 fois le RX5
2 fois le G1 swabs


297337 1
22G1
30.480 KGS
67.200 LBS
2.200 KGS
4.850 LBS
28.280 KGS
62.350 LBS
33.2 CUM.
1173 CUFT
TGHU 297337



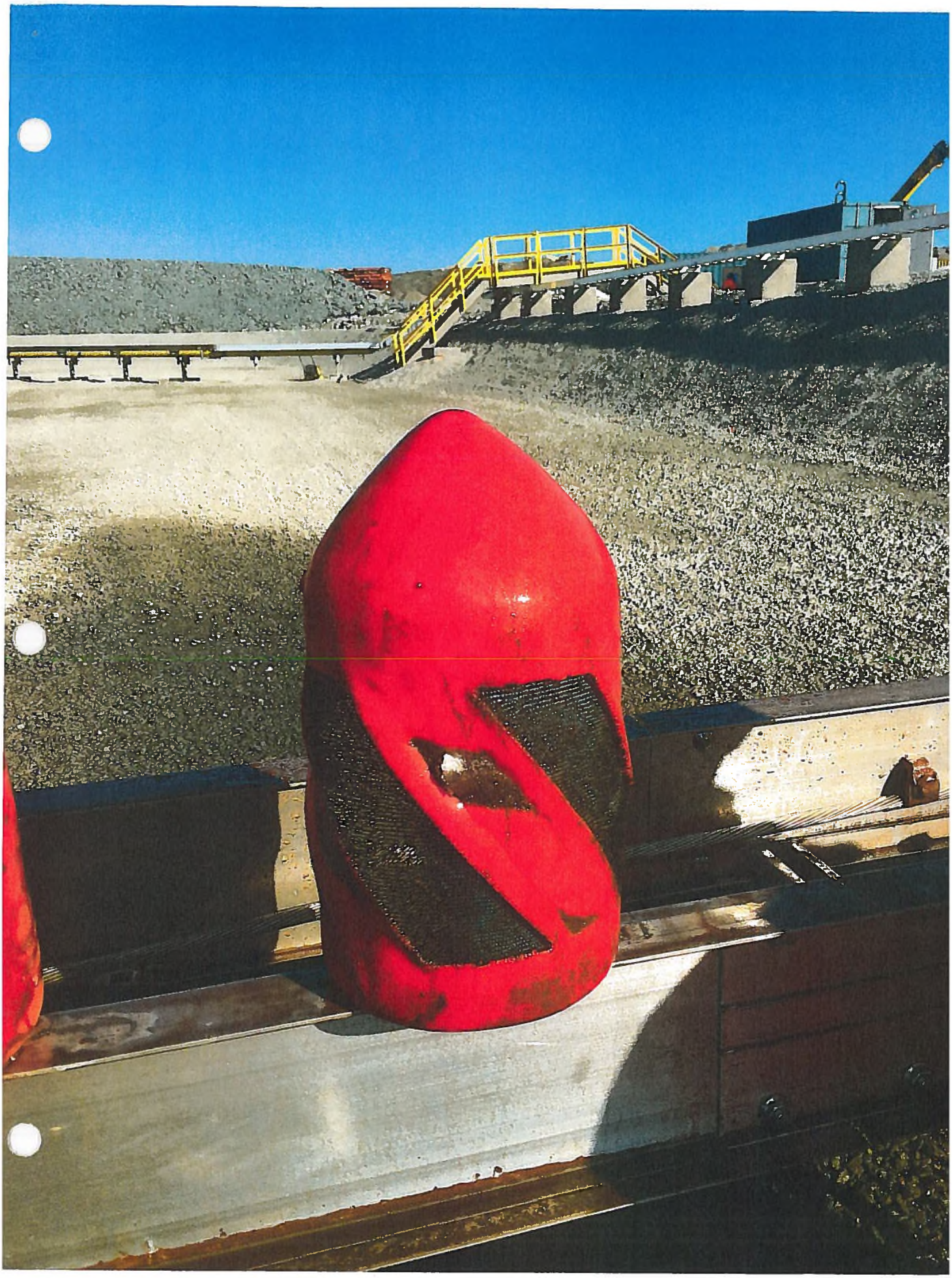


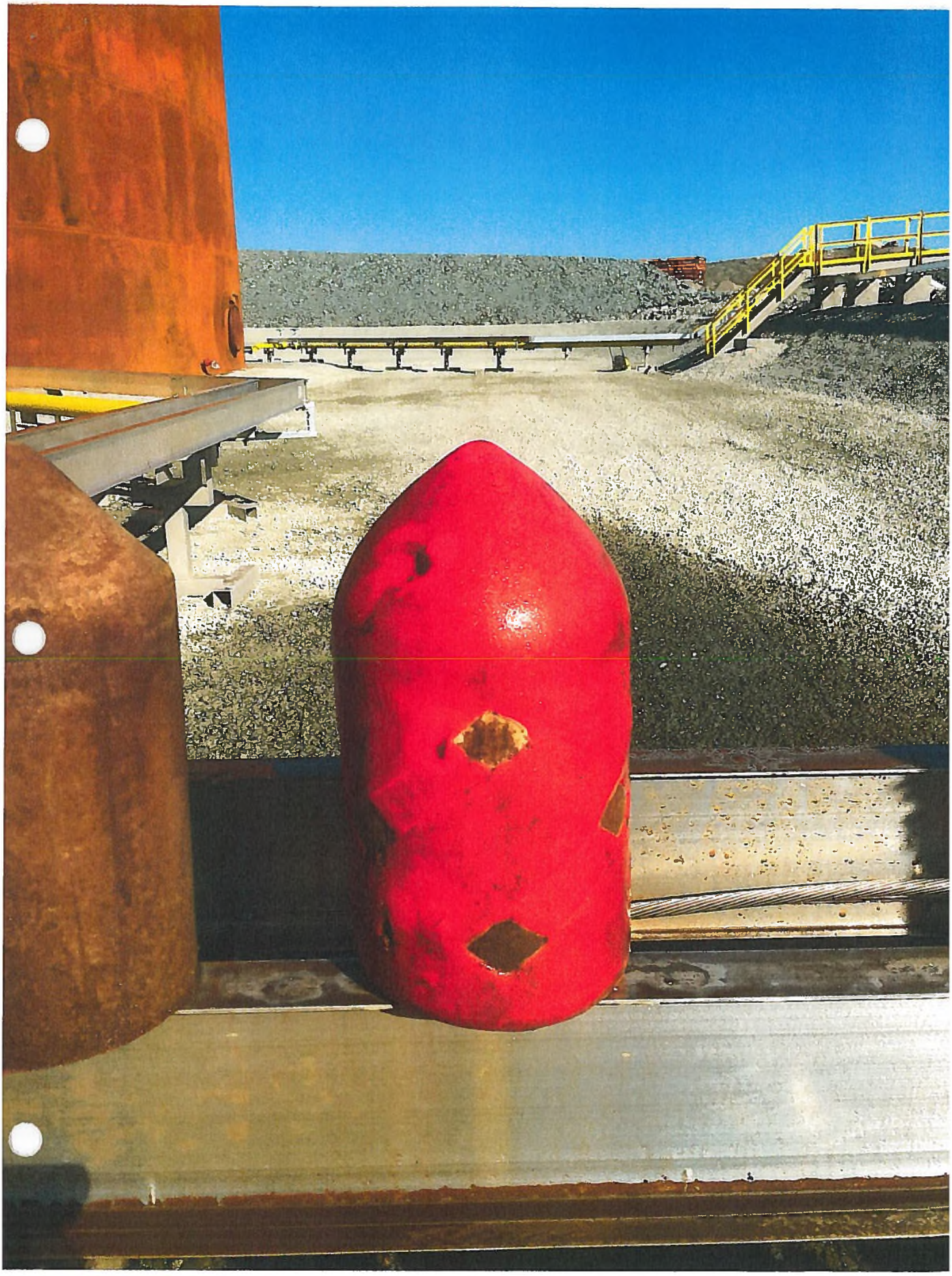


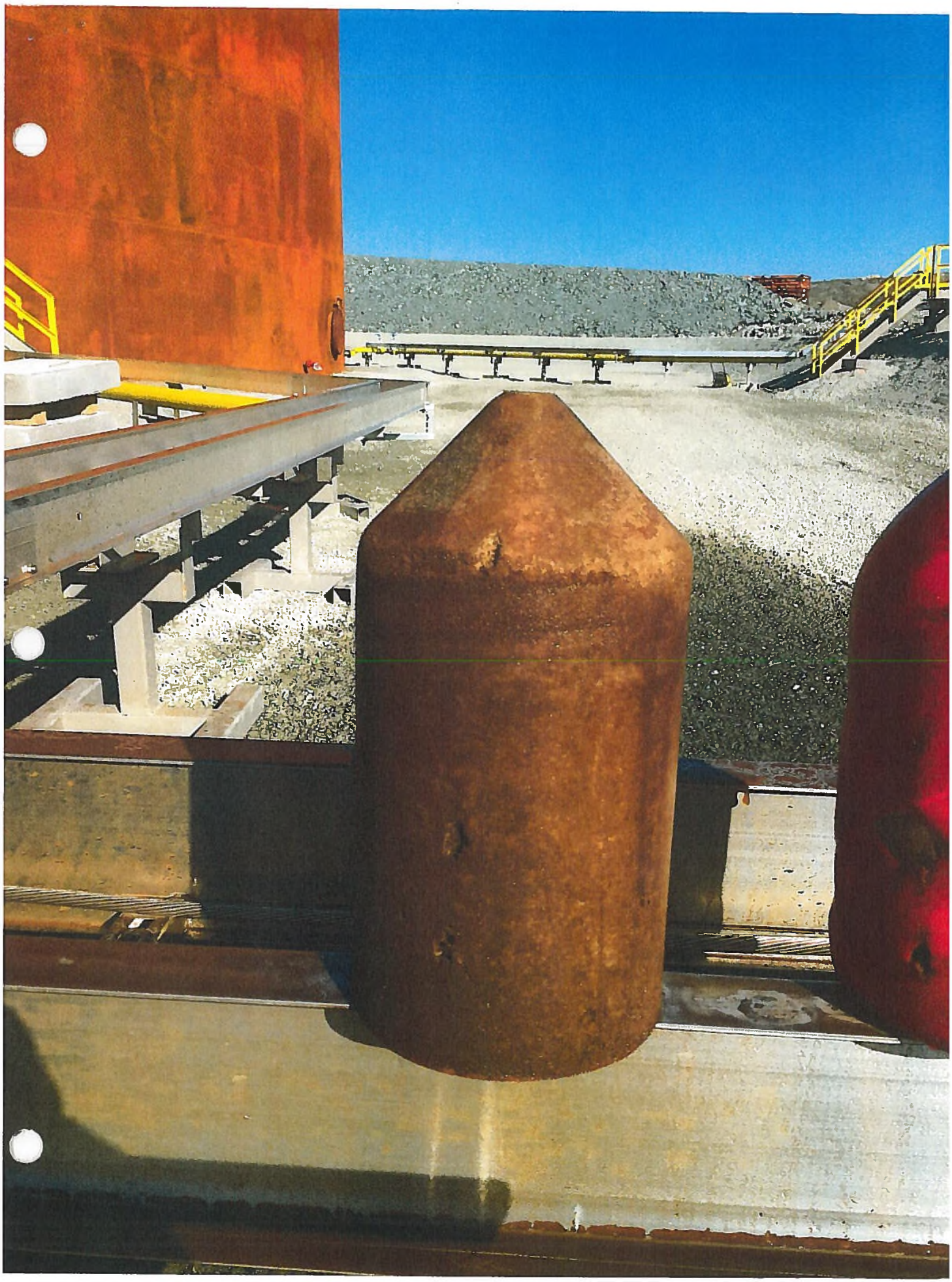
Pigging of Pipe

1 fois le RX 3
1 fois le RX4
6 fois le RX5
2 fois le G1 swabs


U 297337 1
22G1
30 480 KGS
67 200 LBS
WT. 2 200 KGS
4 850 LBS
AO 28 280 KGS
62 350 LBS
CAP. 33 2 CUM.
1 173 CUFT
TGHU 297337







VIKING FIRE PROTECTION INC. 3005 | Pitfield boulevard | Saint-Laurent, Québec, Canada | H4S 1H4
Tel.: 514.332.5110 Fax: 514.332.6260 info@vikingfire.ca

AUTOMATIC DRY CHEMICAL FIRE SUPRESSION SYSTEMS

TECHNICAL MANUAL

FOR

AGNICO EAGLE
MELIADINE PROJECT
KIVALLIQ REGION,
NUNAVUT TERRITORY,
CANADA

C-270-007 – FUEL MODULES

SUBMITTED BY

VIKING FIRE PROTECTION INC.
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CHAPTER 1

GENERAL INFORMATION

CHAPTER I
General Information

INTRODUCTION

PYRO-CHEM automatic dry chemical fire suppression systems are of the pre-engineered type as defined by the NFPA Standard for Dry Chemical Extinguishing Systems, NFPA-17. The extinguishing units described in this manual are intended to be installed, inspected, and maintained in accordance with NFPA-17. Limitations detailed in this manual have been established through extensive testing by Underwriters Laboratories, Inc. Installation and maintenance of the system must conform to the limitations detailed in this manual and be performed by an Authorized PYRO-CHEM dealer.

The PYRO-CHEM Industrial Fire Suppression System utilizes a either a sodium bicarbonate based dry chemical agent (specifically designed to suppress liquid, gas or electrical fires) or a monoammonium phosphate based dry chemical agent (specifically designed to suppress carbonaceous solid, liquid, gas or electrical fires). The system provides mechanical or electrical automatic actuation and can be manually actuated through a remote mechanical pull station. Upon actuation, the system discharges a pre-determined amount of agent to the hazard area.

The shutdown of fuel and power to the hazard area is required upon system actuation. Exhaust fan(s) in the ventilation system must be shut off during system discharge to allow the proper concentration of agent to build up in the hazard area.

TEMPERATURE LIMITATIONS

The operating temperature ranges of the PYRO-CHEM System are:

Monoammonium Phosphate (ABC) Total Flooding Systems: –20 °F (–28 °C) minimum to 120 °F (49 °C) maximum.

Local Application – Overhead Systems: 32 °F (0 °C) minimum to 120 °F (49 °C) maximum.

Local Application – Tankside Systems: –20 °F (–28 °C) minimum to 120 °F (49 °C) maximum.

UL LISTING

The PYRO-CHEM Industrial Fire Suppression System has been tested to the UL Standard for Pre-Engineered Dry Chemical Extinguishing System Units, UL1254 (Revised Sept. 29, 1998), and Listed by Underwriters Laboratories, Inc.

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CHAPTER 2

COMPONENTS

CHAPTER II
COMPONENTS

CYLINDERS & VALVE

PYRO-CHEM automatic dry chemical systems are supplied in 17 pound, 25 pound, 35 pound, 50 pound, and 70 pound capacity cylinders. They are the Models PCI-15ABC, PCI-17ABC, PCI-25sBC, PCI-25sABC, PCI-35ABC, PCI-50sBC, PCI-50sABC, and PCI-70ABC. Each cylinder must be separately piped to its own nozzles. All models are charged with dry nitrogen to 350 psi @ 70° F. These systems are for indoor hazard protection only. The particular models are as follows:

PCI-15ABC. This system is charged with 12.5 pounds of monoammonium phosphate-based dry chemical, PYRO-CHEM Part No. 550170. It is Listed for use in total flooding applications. It is rated to protect Class "A," "B," and "C" hazards.

PCI-17ABC. This system is charged with 17 pounds of monoammonium phosphate based dry chemical, PYRO-CHEM Part No. 550170. It is Listed for use in total flooding applications. It is rated to protect Class "A," "B," and "C" hazards.

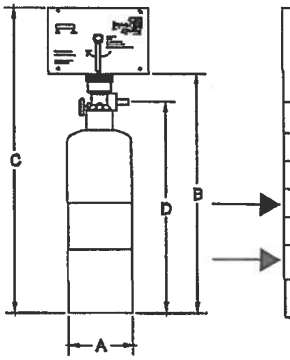
PCI-25sBC. This system is charged with 25 pounds of regular sodium bicarbonate based dry chemical, PYRO-CHEM Part No. 550162. It is Listed for use in local overhead and local tankside applications. It is rated to protect only Class "B" and "C" hazards.

PCI-25sABC. This system is charged with 25 pounds of monoammonium phosphate based dry chemical, PYRO-CHEM Part No. 550170. It is Listed for use in local overhead and local tankside applications. It is rated to protect Class "A," "B," and "C" hazards.

PCI-35ABC. This system is charged with 35 pounds of monoammonium phosphate based dry chemical, PYRO-CHEM Part No. 550170. It is Listed for use in total flooding applications. It is rated to protect Class "A," "B," and "C" hazards.

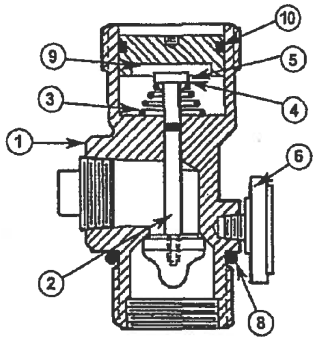
PCI-50sBC. This system is charged with 50 pounds of regular sodium bicarbonate based dry chemical, PYRO-CHEM Part No. 550162. It is Listed for use in local overhead and local tankside applications. It is rated to protect only Class "B" and "C" hazards.

PCI-50sABC. This system is charged with 50 pounds of monoammonium phosphate based dry chemical, PYRO-CHEM Part No. 550170. It is Listed for use in local overhead and local tankside applications. It is rated to protect Class "A," "B," and "C" hazards.



MODEL NO.	A	B	C	D	WEIGHT	MOUNTING BRACKET USED
PCI-15ABC	6.00	21.44	27.19	18.69	30 lbs.	MB-15
PCI-17ABC	8.00	24.81	30.56	22.06	50 lbs.	MB-15
PCI-25sABC/BC	8.00	24.81	30.56	22.06	58 lbs.	MB-15
PCI-35ABC	10.00	29.94	35.69	27.18	71 lbs.	MB-1
PCI-50sABC/BC	10.00	29.94	35.69	27.18	86 lbs.	MB-1
PCI-70ABC	12.00	35.31	41.06	32.56	130 lbs.	MB-1
ALL DIMENSIONS IN INCHES						

Figure 2-1 Cylinder and Valve Assemblies
002841PC



ITEM	PART NO.	DESCRIPTION
1	- - -	VALVE BODY
2	- - -	VALVE STEM & CAP ASSEMBLY
3	550022	CONICAL SPRING
4	550261	RETAINING WASHER
5	550024	E-RING
6	550025	PRESSURE GAUGE
7	550026	HIGH TEMPERATURE RELIEF PLUG
8	550029	VALVE BODY O-RING
9	550805	PISTON
10	550636	PISTON O-RING

Figure 2-2 Valve Cross Section
002842PC

PCI-70ABC. This system is charged with 70 pounds of monoammonium phosphate based dry chemical, PYRO-CHEM Part No. 550170. It is Listed for use in total flooding applications. It is rated to protect Class "A," "B," and "C" hazards.

The dimensions of the PCI-15/17/25s/35/50s/70 cylinder and valve assemblies are shown in Figure 2-1. The cylinder is manufactured, tested, and marked in accordance with DOT specification 4BW350.

The valve shown in Figure 2-2 is a pressure sealed, poppet type valve. It is used on the PCI-15/17/25s/35/50s/70, PAC-10, and PAC-200 cylinders. The valve discharge port is 3/4 in. NPT.

NOZZLES

Nozzles have been developed for total flooding, local application overhead, and local application tankside. The Model NF-ABC nozzle is used for total flooding protection. The Model N-SCR nozzle is used for screening the opening. The Model N-OTF nozzle is used for overhead total flooding application in the work area. The Model N-PLU nozzle is used for overhead application in the plenum area. The Model N-DCT nozzle is used for exhaust duct protection. The Models N-LA-ABC and N-LA-BC nozzles are used for local overhead application. The Model N-TS nozzle is used for local tankside application. See Figure 2-3.

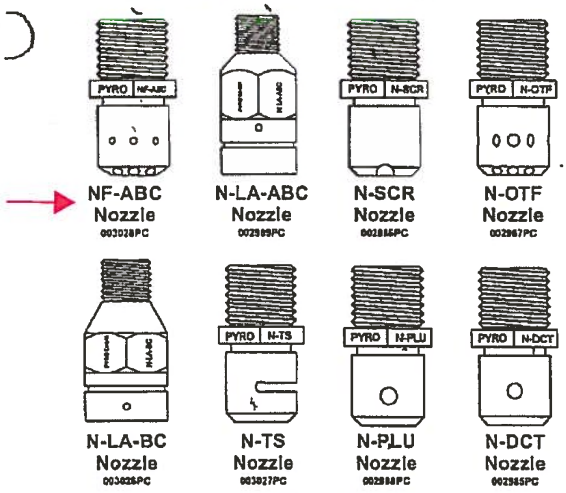


Figure 2-3. Nozzles.

CYLINDER BRACKETING

Vertical wall mounting for the PCI-15ABC, PCI-17ABC, and PCI-25sBC/ABC, is provided by the Model MB-15 mounting bracket kit. Vertical wall mounting for the PCI-35ABC, PCI-50sBC/ABC and PCI-70ABC is provided by the Model MB-1 mounting bracket kit. See Figure 2-4.

For vertical floor mounting of the PCI-15ABC, PCI-17ABC, PCI-25sBC and PCI-25sABC, an 8 in. unistrut type mounting bracket is available, the Model MB-U8.

For vertical floor mounting of the PCI-35ABC, PCI-50sBC, and PCI-50sABC, a 10 in. unistrut type mounting bracket is available, the Model MB-U10.

For vertical floor mounting of the PCI-70ABC, a 12 in. unistrut type mounting bracket is available, the Model MB-U12.

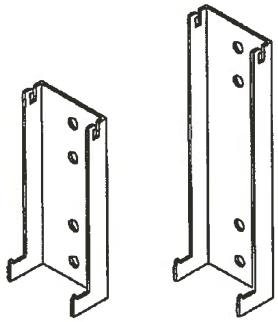


Figure 2-4 Mounting Brackets MB-15 and MB-1.
002843PC

MODEL MCH3 – MECHANICAL CONTROL HEAD

The Model MCH3 mechanical control head is a fully mechanical control head which can be connected to the PCI-15/17/25s/35/50s/70 cylinder valve. This control head will support a fusible link detection system, a remote mechanical pull station (Model RPS-M), and a mechanical or electric gas shut-off valve. A micro switch (Model MS-SPDT, MS-DPDT, MS-3PDT, or MS-4PDT) can be ordered separately and field installed. It is equipped with a local manual control handle that allows for mechanical system actuation. Operation of the local manual control requires removing the pull pin and rotating the handle clockwise. The Model MCH3 control head can actuate a maximum of five (5) cylinders. See Figure 2-5.

MODEL MCH3 CONTROL HEAD

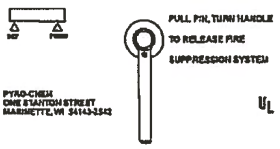


Figure 2-5. Mechanical Control Head.
004796PC

MODEL ECH3 – ELECTRIC CONTROL HEAD

The Model ECH3 electric control head is an electrically operated control head which can be connected to the PCI-15/17/25s/35/50s/70 cylinder valve. This control head will support an electric thermal detection system, a remote mechanical pull station (Model RPS-M), and an electric gas shut-off valve. It will not support a fusible link detection system. A micro switch (Model MS-DPDT) is included. The Model ECH3 control head is available in both 120 VAC (Model ECH3-120) and 24 VDC (Model ECH3-24). It is equipped with a local manual control handle that allows for mechanical system actuation. Operation of the local manual control requires removing the pull pin and rotating the handle clockwise. The Model ECH3 control head can actuate a maximum of five (5) cylinders. See Figure 2-6.

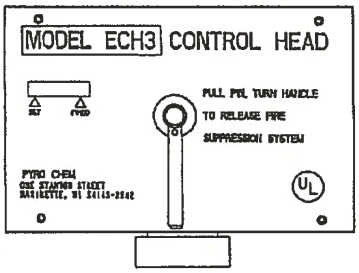


Figure 2-6. Electric Control Head.
004789PC

MODEL NMCH3 – MECHANICAL CONTROL HEAD

The Model NMCH3 Mechanical Control Head is a fully mechanical control head which can be connected to the PCI-15/17/25s/35/50s/70 cylinder valve. This control head will support a fusible link detection system, a remote mechanical pull station (Model RPS-M), and a mechanical or electric shut-off valve. A micro switch (Model MS-SPDT, MS-DPDT, MS-3PDT, or MS-4PDT) can be ordered separately and field installed. There is no local manual actuation for the Model NMCH3. The Model NMCH3 control head can actuate a maximum of five (5) cylinders. See Figure 2-6a.

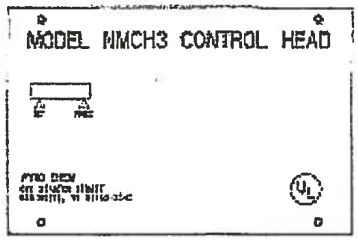


Figure 2-6a. Mechanical Control Head.
006843PC

MODEL MB-P2 - CONTROL HEAD MOUNTING BRACKET

The Model MB-P2 mounting bracket must be used to mount the Model MCH3, NMCH3 or ECH3 control head if the control head is not mounted directly on a cylinder valve. See Figure 2-7.

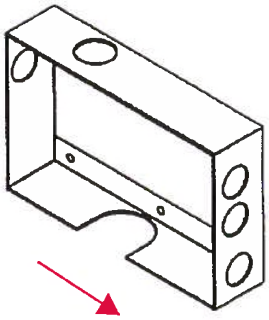


Figure 2-7. Model MB-P2 – Control Head Mounting Bracket.
002845PC

CAUTION

Do not screw the control head directly to a wall as this will warp the control head, not allowing the mechanism to actuate.

MODEL PDA-D2 PNEUMATIC ACTUATING ADAPTOR

The Model PDA-D2 Pneumatic Actuating Adaptor is used to open the cylinder valve when the system is actuated. It must be installed on the valve of each cylinder unless a control head has been mounted on the cylinder valve. See Figure 2-7a.

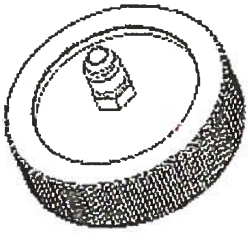


Figure 2-7a. Model PDA-D2 Pneumatic Actuating Adaptor.
006886PC

DETECTION EQUIPMENT

1. Model FLK-1.

The Model FLK-1 fusible link kit includes a 10 in. steel bracket, two (2) 1/2 in. EMT connectors, two (2) cable crimps, and two (2) "S" hooks. Fusible links must be ordered separately. See Figure 2-10.

2. Model FLK-1A.

The Model FLK-1A fusible link kit includes an 8 in. steel bracket, two (2) 1/2 in. EMT connectors, two (2) cable crimps, and two (2) "S" hooks. Fusible links must be ordered separately.

3. Model FLH-1.

The Model FLH-1 fusible link hanger is an accessory designed to simplify the installation of fusible links in the fusible link line. It can be used with the Model FLK-1/1A fusible link kits (kits must be ordered separately). The Fusible Link Hanger makes it possible to install fusible links without cutting and crimping loops in the fusible link line for each link. They are available in packages of 25 (FLH-25) only. See Figure 2-11.

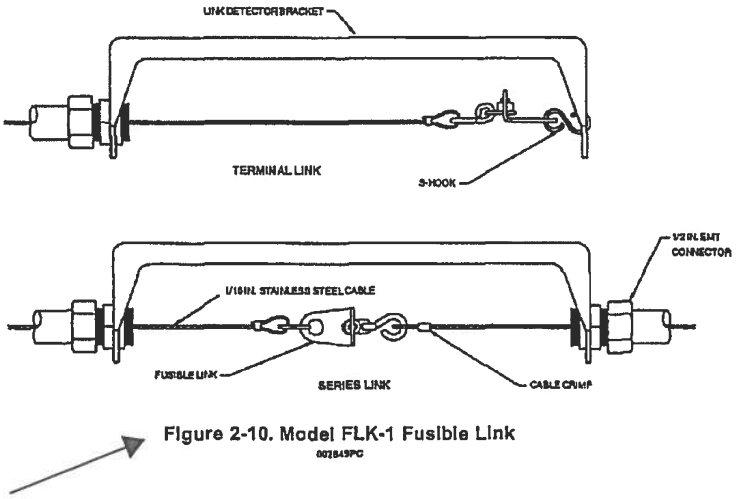


Figure 2-10. Model FLK-1 Fusible Link
002849PC

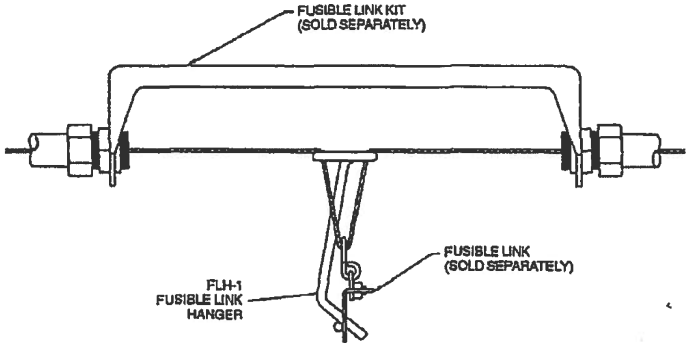


Figure 2-11. Model FLH-1 Fusible Link Hanger
002850PC

4. Fusible Links.

The fusible link is designed to separate at a specific temperature, releasing tension from the fusible link line, causing system actuation. See Figure 2-12.

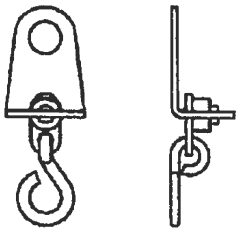


Figure 2-12. ML Style Fusible Link.
002851PC

After determining the maximum ambient temperature at the fusible link location, select the correct fusible link according to the temperature condition chart below:

Fusible Link Model No.	Maximum Ambient Temperature
FL-165	100° F. (38° C.)
FL-212	150° F. (66° C.)
FL-280	225° F. (107° C.)
FL-360	290° F. (143° C.)
FL-450	360° F. (182° C.)
FL-500	400° F. (204° C.)

5. Thermal Detectors.

Rate compensated temperature thermal detectors are normally open, mechanical contact closure switches designed to operate at a factory preset temperature. They are available in six preset temperatures which meet NFPA standards and are UL Listed and FM Approved.

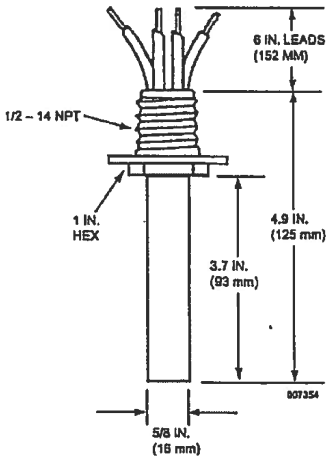


Figure 2-12a. Thermal Detector.

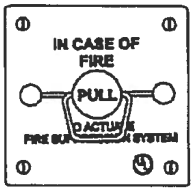
After determining the maximum ambient temperature at the thermal detector location, select the correct thermal detector according to the temperature condition chart below:

Thermal Detector Model No.	Maximum Ambient Temperature
TD-140	100° F. (38° C.)
TD-190	150° F. (66° C.)
TD-225	185° F. (85° C.)
TD-325	285° F. (141° C.)
TD-450	410° F. (210° C.)
TD-600	560° F. (293° C.)

REMOTE MECHANICAL PULL STATION

Model RPS-M

Remote manual control for system releasing devices is provided by the Model RPS-M remote mechanical pull station. It is connected to the system releasing device by stainless steel cable. This cable is enclosed in 1/2 in. EMT with corner pulleys at each change in direction. The remote mechanical pull station shall be located at the point of egress from the hazard area. See Figure 2-13.



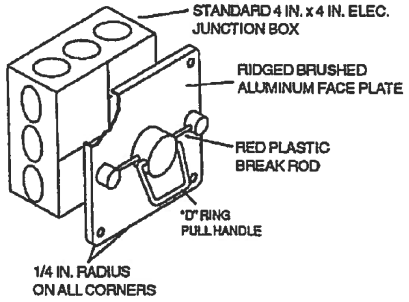


Figure 2-13. Model RPS-M Mechanical Pull Station.
002852PC

CORNER PULLEYS

1. Model SBP-1.

A corner pulley is used whenever a change in stainless steel cable direction is required. The Model SBP-1 corner pulley is equipped with a set screw fitting for connection to 1/2 in. EMT. See Figure 2-15.

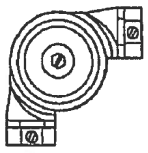


Figure 2-15. Model SBP-1 Corner Pulley.
000180

2. Model CBP-1.

A corner pulley is used whenever a change in stainless cable direction is required. The Model CBP-1 is a grease-tight corner pulley designed for areas likely to experience excessive deposit build-up. It is equipped with a compression fitting for connection to 1/2 in. EMT. See Figure 2-16.

Note: The Model CBP-1 is not a liquid tight sealing device.

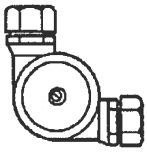


Figure 2-16. Model CBP-1 Corner Pulley.
000181

3. Model WBP-1.

A corner pulley is used whenever a change in stainless cable direction is required. The Model WBP-1 is a liquid-tight corner pulley designed for areas likely to experience excessive moisture build-up. It is equipped with a female pipe thread for connection to 1/2 in. rigid conduit. See Figure 2-17.

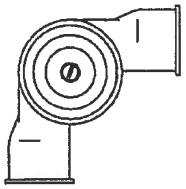


Figure 2-17. Model WBP-1 Corner Pulley.
000194PC

TEE PULLEY

The Model TP-1 tee pulley is used to connect two mechanical gas valves or two remote mechanical pull stations to a single control head. The tee pulley replaces two standard 90° corner pulleys. See Figure 2-18.

CAUTION

The Tee Pulley must never be used to connect multiple fusible link lines to a single control head.

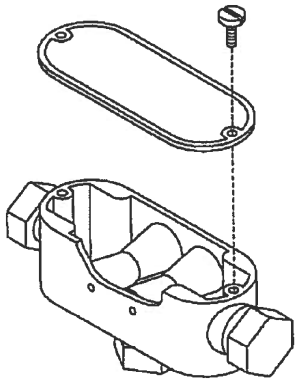


Figure 2-18. Model TP-1 Tee Pulley.
002687PC

SWING CHECK VALVE

The Swing Check Valve, Part No. 417788, is required when piping a main and reserve Monarch tank on the same distribution piping. It allows the dry chemical agent to discharge through the agent piping leading to the discharge nozzles, while preventing it from flowing into the piping from the other tank. The swing check valve body is constructed of brass with a 1 in. NPT female thread. See Figure 2-19.

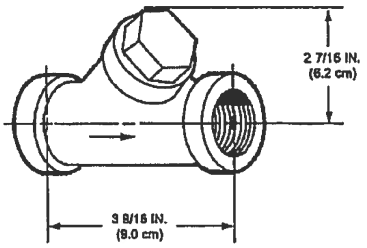


Figure 2-19. Swing Check Valve.
000430