QUALITY CONTROL DATA BOOK

Husky Energy 5964-3rd Ave. Edson, AB T7E 1T9

JOB# 2017-8840-01

Replacement Firetube & End Plate

Location: Galloway, AB LSD: 12-05-054-20 W5M

<u>Phase #:</u> 2017-8840-01

Phase Title: Replacement Firetube & End Plate

TABLE OF CONTENTS

	Title	Availab	oility
		Yes	No
1.	Data Reports		N/A
2.	CRN's		N/A
3.	Nameplate Copy		N/A
4.	Travel Sheet	X	
5.	Impact Test Reports		N/A
6.	Material Control		N/A
7.	Material Reports		N/A
8.	MTR's		N/A
9.	NDE MPT	X	
	LPT		N/A
	RADIOGRAPHY	X	
	ULTRA SONIC		N/A
10.	Stress Relieve Charts	X	
11.	Hydro Test Report(s)	X	
12.	Hydro Chart		N/A
13.	PSV & Valve Cert.		N/A

TRAVEL SHEET

Authorized Inspector (Signature) _____ Date _____

CUST	OMER / LOCATION	SEF	RIAL NUMBER / U	NIT		(A) NUMI	BER:		
HU	ISKY ENERGY		2017-8840-01				DRAWIN	IG NUMBER	
G/	ALLOWAY, AB	LSD:	12-05-054-20 \	N5M		(C-2017-88	40-01-001/00	1
ITEMS:		COMME						ED AND INSPEC	
8.	CEMENT FIRETUB END PLATE 14 X 16'-6 1/8" LG	E			HOLD QC		CUSTOMER	HOLD (AGENT)	HOLD A.I.
Repair Proced	ure Approved								
Approved Drav	vings / CRN								
Material Check	ked / Heat Verified								
MTR Checked									
Impact Test									
Unit Layout							17.		
Weld Procedur	re Approved	REVIEW		7 2017	14				
Welder(s) Qual	lifications	REVIEW	8444	1 2017	LF				
Fit-Up: Shell &	Heads								
Nozzles & F	ittings								
Internals					D.				
Externals			MAY 18	2017	4				
Connections: L	Location								
	Rating								
Internal Inspec	tion		MAY 17	2017	LF				
Internals Insta	lled								
Weld Profile, S	izes & ID	CHECKE	D MAY 1	3 2017	J				
Radiographs		RT 100%	MAY 1	8 2017					
Other NDE		BEVELS	/ WFMT BEF & AF	T PWHT	MAY 1	8 2017			
Stamping		CHECKE	D MAY 18	2017	W				
External Upon	Completion	CHECKE	D MAY 1	8 2017	10 1				
Other Test		HARDNE	SS TEST M	AY 18	2017	A.K			
PWHT Charts	Checked	1150°F F	OR 1 HOUR	AY 0	2017	F			
Hydrostatic Te	st	15 PSIG	GAGE# MAY	182	017				
MDR									
Nameplate	E			7					
PART	MATERIAL SPEC	THICKNESS	HEAT NO.	PA	ART	MATER	AL SPEC	THICKNESS	HEAT NO.
Heads				Re	pads				
Shell	SA53B ERW	0.375"							
				Tu	bes				
Tubesheet									

ALCO GAS	2, (NI	T RE	PORT -	MPI	
PRODUCTION EQUIPM	MENT I	LTD.					
CUSTOMER:	DESCRIPT					JOB NUMBER:	
HUSKY ENERGY			UBE FOR 48" X 18' HE	ATER	2017-8		I DN/4
DATE:	TECHNIQU					SECTION VIII N: 2015	י עוט ז
APRIL 25 2017 MATERIAL:	MPT P#1 R	MAT'L THICKNE	ESS: 375"			PTANCE:	APPENDIX 6
X PRE HEAT TREATMENT		The Thiotage	POST HEAT TREAT	TMENT			ORO TEST:
TEST EQUIPMENT- Y6 YOKE 43530 TAG#	128	X BLACK LIGH	HT - 957536 TAG# 136		X B/L METER -	DM-365X 1094	460 TAG# 135
BLACK ON WHITE CONRAST - MAGNAFLU		WCP BATCH	H#		7HF PREPAR	ED BATH#	
DRY X WET X	FLOURESC	CENT	RED	GREY	B/WH	IITE	OTHER
X YOKE PROD	COIL	X A/C	D/C	X CO	NTINUOUS		RESIDUAL
BASE METAL X GROUND	MACHINE	D	PAINTED	SHO	OT BLASTED		RAL COND.
VIEWING LIGHT SOURCE IN EXC ESS OF	100FC.	AMBIENT	TROUBLE LIGHT	FLA	SHLITE	W/L METER	3
NOTES: MAGNETIC PARTICLE EXAMINATION OF RELEVANT INDICATIONS V							
ALL BEVELLED EDGES - ACCE	PTED						
SKETCH;			OSTINO.				
		CC	STING				
PAGE 1 OF 1 INSPECTOR	BARRY	RASMUSSEN	g/k	LEVEL	III AS	NT:	CGSB
						TIME:	1 HOUR
						-	/ HR,

TOTAL COST:

ALCO GAS	2	OII	ND	T REP	ORT -	- MPI	
PRODUCTION EQUIPM	MENT	LTD.					
CUSTOMER:	DESCRIPT					JOB NUMBER:	
HUSKY ENERGY			UBE FOR 48" X 18' HE	ATER	The second second	3840-01	
DATE:		JE # USED:			13.7347.4447.110	SECTION VII	I DIV 1
MAY 1 2017 MATERIAL:	MPT P#1 R	MAT'L THICKNE	FSS: 375"			DN: 2015 PTANCE:	APPENDIX 6
X PRE HEAT TREATMENT		WATE THIORING	POST HEAT TREAT	MENT	I	HARLOW AND HARLOW	ORO TEST:
TEST EQUIPMENT- Y6 YOKE 43530 TAG#	128	X BLACK LIGH	HT - 957536 TAG# 136		B/L METER -	DM-365X 1094	
BLACK ON WHITE CONRAST - MAGNAFLL		WCP BATCI	H#		7HF PREPAR		
DRY X WET X	FLOURES	CENT	RED	GREY	B/W	HITE	OTHER
X YOKE PROD	COIL	X A/C	D/C	X CONT	INUOUS	F	RESIDUAL
BASE METAL X GROUND	MACHINE	ED	PAINTED	SHOT	BLASTED	CENT	RAL COND.
VIEWING LIGHT SOURCE IN EXC ESS OF	100FC	AMBIENT	TROUBLE LIGHT	FLASI	ILITE	W/L METER	₹
NO RELEVANT INDICATIONS V	VERE FOUN	ND AT TIME OF E	EXAMINATION.				
ALL WELDS PRIOR TO PWHT	- ACCEPTE)					
SKETCH:							
PAGE 1 OF 1 INSPECTOR	BARRY F		OSTING	EVEL	IIIAS	мт.•	CGSB
						TIME:	1 HOUR
						-	

TOTAL COST: _____

ALCO GAS	& (OIL		ND	T .	RF	EPOR	T -	MPI		
PRODUCTION EQUIPA	/ENT I	_TD.									
CUSTOMER: HUSKY ENERGY	DESCRIPTI	ION: CEMENT FIRE	TURE EC	₩ 18" ¥ 18' HE	ΔTER			ALCO 3	JOB NUMBE	ER:	
DATE: MAY 18 2017	TECHNIQU MPT P#1 R	E # USED:	IODETO	K 40 X 10 HE	VI LIV			CODE:	SECTION N: 2015	VIII DIV 1	
MATERIAL: PRE HEAT TREATMENT	JWII TT#TT	MAT'L THICKN		'5" T HEAT TREAT	MENT			ACCEF	TANCE:	APPI	ENDIX 6
TEST EQUIPMENT- Y6 YOKE 43530 TAG# BLACK ON WHITE CONRAST - MAGNAFLU			HT - 95	7536 TAG# 136			X B/L ME	TER - I	DM-365X 10	094460 TA	
	FLOURESC		F	RED D/C		REY	ONTINUOUS	B/WH		OTH	
BASE METAL X GROUND VIEWING LIGHT SOURCE IN EXC ESS OF	MACHINE		TEC	PAINTED UBLE LIGHT		SI	HOT BLASTI LASHLITE		W/L ME	NTRAL C	
NOTES: MAGNETIC PARTICLE EXAMIN. NO RELEVANT INDICATIONS V	ATION OF A	LL WELDS AFT	EXAMIN	HT.			LASHLITE	J.	VV/L ME	IER	
ALL WELDS AFTER HYDROTES	ST AND PW	HI - ACCEPTE	D								
SKETCH			OSTING								
PAGE: 1 OF 1 INSPECTOR:	BARRY R	ASMUSSEN	16-		-EVEL	-	101	ASN	ıT: ✓		CGSB
									TIME:	1	HOUR
											/ HR.

TOTAL COST:___

ALCO GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOME	R:					DES	CRIPT	ION:								ALCO JOB NUMBER:		
HUSKY EN	NERGY					14" F	FIRET	TUBE	FOR 4	48" X	18' HEA	TER				2017-8840-01		
DATE:						TECH	HNIQL	JE#U	SED:					CODE:		•		
APRIL 26 2	2017								R	T P#1	REV#	ŧ 0		B31.3				
MATERIAL	12					MAT	'L TH	ICKNI	ESS:					EDITION: 2014				
P1										3/8"				ACCEPTANCE: 1	100% NOR	MAL		
1 NO. 0	OF FILMS PER	R CASSE	ΠE															
LEGEND:	* - WELD	ER SYMB	IOL			HL	- HI L	0		S - S	SLAG		CRA	CK	X SI	NGLE WALL EXPOSURE		
	IP - INCOM	MPLETE P	ENE	RATI	ON	LC	- LO	N CON	/ER	P -	POROSI	TY	(1) S	SLIGHT		OUBLE WALL EXPOSURE		
	BT - BURN	THROUG	Н					ER CU		1 -	ICICLE			MEDIUM	x s	INGLE WALL VIEWING		
	IC - INTER	NAL CON				-		STRIK		_	CRATER		(3) S	SEVERE		OUBLE WALL VIEWING		
Film#	Location	•	ΙP	S	С	ВТ	LC	UC	HL	P		IC			RE	MARKS	ACC	REJEC.
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	SOURCE TYPE:				Г				_	HRS		@	-			\$0.00	1	
	STRENGTH: SOD:	. 5	0 Ci		-					8" FI		@	-		-	\$0.00	1	
	SOD:	6	625"				-		4	17" F		@	-		-	\$0.00	1	
										PIPE		@				\$0.00		
	FILM TYPE:			SS 1	_		_			PIPE		@	_		_	\$0.00		
FOC	AL SPOT SIZE:		113"							PIPE		@			-	\$0.00	İ	
										PIPE		@				\$0.00		
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ALCO GAS & OIL RADIOGRAPHY REPORT PRODUCTION EQUIPMENT LTD.

CUSTOMER						DESCRIPTION: ALCO JOB NUMBER: 14" FIRETUBE FOR 48" X 18' HEATER 2017-8840-01											
HUSKY EN	ERGY							E # US		8" X 1	IR. HEA	IEK		CODE:	2017-8840-01		
DATE:	247					IEU	INIQU	E# 00		ר פינים	REV#	0		B31,3			
APRIL 27 20						NAAT	יו דע	ICKNE		F#2	NEV#	-		EDITION: 2014			
MATERIAL: P1						IVIA	LIII	ICKIVL		3/8"				ACCEPTANCE: 100% N	JORMAI		
7-14				_	_					0/0				ACCEPTANCE. 100 % P	NONVIAL		
	F FILMS PER • - WELD					н	- HI L()		S-S	LAG		CRA	ck \Box	SINGLE WALL EXPOSURE		
LEGEND:	IP - INCOM			DATIO								~		LIGHT X	DOUBLE WALL EXPOSURE		
	BT - BURN			IVAII	JIV			ER CU			CICLE	' '		MEDIUM X	SINGLE WALL VIEWING		
	IC - INTERI			~				STRIKI			CRATER			EVERE	DOUBLE WALL VIEWING		
Film #	Location	I*	IP	s	<u></u>			uc			1	IC	T		REMARKS	ACC	REJECT
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		13							4	17" F		@			\$0.00		
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	FILM TYPE:			SS 1						PIPE		@			\$0.00		
FOCA	L SPOT SIZE:									PIPE		@			\$0.00		
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	COMMENTS							то	TAL E	XPOS	URES	- 4	Ê		\$0.00		
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	PAGE	1	OF	1	EXA	MINE	R : BA	RRY F	KASML	JSSEN	0			LEVE	EL SNT III CGSB II #235		
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ALCO GAS & OIL RADIOGRAPHY REPORT PRODUCTION EQUIPMENT LTD.

HUSKY EN							SRIPT			10" V	18' HEA	TED				2017-88	DB NUMBER:			
DATE:	NERGI							IE#U	_	+0 /	10 TIEP	TEN		CODE:		2017-00	+0-01			
APRIL 25 2	2017									T P#1	REV#	ŧ 0		B31.3						
MATERIAL						MAT	'L TH	ICKNI						EDITION: 2014						
P1										3/8"				ACCEPTANCE: 10	00% NORI	ЛAL				
1 NO. C	OF FILMS PER	R CASSE	TTE			-														
LEGEND:						HL	- HI L	0		S - S	SLAG		CRA	NCK	X SI	NGLE WAL	L EXPOSURE			
	IP - INCO	MPLETE P	ENET	RATIO	NC	LC	- LOV	v cov	/ER	P -	POROSI	TY	(1) S	SLIGHT	=	OUBLE WA	ALL EXPOSURI	E		
	BT - BURN	THROUGH	Н			UC -	UND	ER CU	Т	1 -1	CICLE			MEDIUM	x s	INGLE WA	LL VIEWING			
	IC - INTER	NAL CON	CAVIT	Y	_			STRIK			CRATER		(3) S	SEVERE		OUBLE WA	ALL VIEWING	-		
Film #	Location	<u> </u>	IP	S	С	ВТ	LC	UC	HL	Р	_1_	IC.	_		RE	MARKS			ACC	REJEC
C2	0-13	34	-			-													_	
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	28-42																		V	
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C3	0-13	34							_			-							~	
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	SOURCE TYPE		192	_						HRS 8" FII		@	-					\$0.00 \$0.00		
	STRENGTH		625"						8	17" F		@						\$0.00		
		: 6 : 3		_					J	PIPE		@						\$0.00		
	FILM TYPE			SS 1						PIPE		@						\$0.00		
FOCA	AL SPOT SIZE			30						PIPE		@						\$0.00		
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	PAGE	1	OF	1	EXA	MINE	R : BA	KRY F	≺ASMI	JSSE	יעאו				LEVEL S	SNI III CO	SSB II #235			
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ALCO GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

COSTOME						DESCRIPTION OF THE PERSON OF T	IDET		-OP 4	10" V 4	18' HEA	TED				2017-8840-01		
HUSKY EN DATE:	ERGT							E#US		, A	IO IILA	TEIX	-	CODE:		2017-0040-01		
MAY 17 201	17						111100	L # 00		r p#1	REV#	. n		B31.3				
MATERIAL:						MAT	'I TH	ICKNE		1 11 11 1	1120 11			EDITION: 2014				
P1										3/8"				ACCEPTANCE: 1	100% N	ORMAI		
	E EN MO DED	04005												710021 1711102.		OT WITH IL		
LEGEND:	F FILMS PER * - WELDI					HL	- HILO	Э		S - S	LAG		CRA	.CK	x	SINGLE WALL EXPOSURE		
LEGEND.	IP - INCOM			RATIO	NC	LC	- LOV	v cov				ſΥ		SLIGHT	ñ	DOUBLE WALL EXPOSURE		
	BT - BURN							ER CU			CICLE			MEDIUM	$\overline{\mathbf{x}}$	SINGLE WALL VIEWING		
	IC - INTERN			Y				STRIKI			CRATER			SEVERE		DOUBLE WALL VIEWING		
Film#	Location		IР	s				uc		Р	-1	IC				REMARKS	ACC	REJECT
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C5	0-13	33											T				V	
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	STRENGTH:		0 Ci						0	8" FIL		@	-		-		\$0.00	
			625"					-	8	17" F PIPE		@			-		\$0.00 \$0.00	
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F00.4	FILM TYPE: AL SPOT SIZE:			1001						PIPE		@					\$0.00	
FUCF	AL SPUT SIZE		113							PIPE		@					\$0.00	
										1 117							+0.00	
	COMMENTS							TO	TALF	XPOS	SURES:	2)				\$0.00	
	COMMITTION	_								00	. J. 1.L.J.	11			-	TOTAL C		
	PAGE	1	OF	1	EXA	MINE	R:BA	RRY	RASMI	JSSEN	A	<u></u>		-	LEVE	EL SNT III CGSB II #235		
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AL	CO	GAS	&	OIL	NI)T I	REP	OR	XT' -	B	HN		
PROD	DUCTION	EQUIPN	ΛΕΝΤ	LTD.									
CUSTOME	ER:		DESCRIPT	ION:	TUDE FOR 4011 15				I		NUMBER	₹:	
HUSKY EN	NERGY			PLACEMENT FIRE JE # USED:	TUBE FOR 48" HEA	ATER			2017-8			'III DIV 1	
DATE: MAY 5 201	17		1	30 USED BH SCAL	.E				EDITIO				
MATERIAL				MAT'L THICKNES					ACCE	PTAN	CE:	UW-51	
	PRE HEAT T	REATMENT		Х	POST HEAT TREA	TMENT				F	POST H	YDRO TEST:	
	JIPMENT- TIME TH			BLACK LIGHT			_		ETER -				
	WHITE CONRAS	T - MAGNAFLU	-	WCP BATCH		Пог	L	7HF P	REPAR		ATH#	OTHER	_
DRY	WET		FLOURES COIL	A/C	RED D/C	I IGI	REY	TINUOL		THE	$ \Gamma$	RESIDUAL	_
YOKE BASE MET	PROD TAL GRO	ILIND T	MACHIN		PAINTED	-	_	T BLAS				COND.	
	LIGHT SOURCE IN			SHOP LIGHTS	TROUBLE LIGHT		_	HLITE	1	Πw	/L METE		
NOTES:	BRINELL HARDN	NESS READING	GS WERE T	AKEN ON BASE M	ATERIAL, WELD, A		T AFFE						
	BASE 127	BASE 136	BASE	E 133	BASE 134	BASE	130	BA	ASE 129)			
	WELD 133	WELD 139	WEL	D 141	WELD 138	WELD	154	W	ELD 176	6			
	HAZ 150	HAZ 170	HAZ	176	HAZ 167								
					41								
SKETCH:	:												
8													
					STING								
PAGE	1 OF1	_INSPECTOR	BARRY	RASMUSSEN 🏄		LEVEL	-	m	Si	NT _	<u>i</u>	CGS	3B <u>235</u>
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TOTAL COST

AL	co 🗏	GAS &	OIL	NDT	REPORT - 1	BHN
PROD	DUCTION	EQUIPMEN	T LTD.			
CUSTOME			RIPTION:		ALCO JO	OB NUMBER:
HUSKY EN		14"OD	REPLACEMENT FIRET	UBE FOR 48" HEATER	2017-884	
DATE:			IIQUE # USED:	_		SECTION VIII DIV 1
MAY 18 20		TIME T	H 130 USED BH SCALE MAT'L THICKNESS		ACCEPT	2015 ANCE: UW-51
MATERIAL	.: P1 PRE HEAT T	DEATMENT		POST HEAT TREATMEN		POST HYDRO TEST:
TEST FOL	JIPMENT- TIME TH		BLACK LIGHT		B/L METER -	
	WHITE CONRAS		WCP BATCH#		7HF PREPARE	
DRY	WET		RESCENT	RED (GREY B/WHI	
YOKE	PROD	COIL	A/C	D/C	CONTINUOUS	RESIDUAL
BASE MET			HINED	PAINTED	SHOT BLASTED	NEW COND. W/L METER
VIEWING	LIGHT SOURCE IN	EXC ESS OF 100FC.	SHOP LIGHTS	TROUBLE LIGHT	FLASHLITE	WIL METER
NOTES:	BRINELL HARDN	IESS READINGS WER	E TAKEN ON BASE MA	TERIAL, WELD, AND HE	AT AFFECTED ZONE AFT	ER PWHT,
I THE STREET						
	C5	C6				
	DAGE 440	DAGE 440				
	BASE 148	BASE 149				
	WELD 156	WELD 148				
	HAZ 159	HAZ 155				
SKETCH	:					
			cos	TING		
PAGE:	1_OF1_	_INSPECTOR: BAR	RY RASMUSSEN	LEVE	EL III SNT	CGSB 235
			•			TIME: 1 HOUR
						/HR.

TOTAL COST: ___



CONTRACTED OU 1	ГО:	BRIMSTONE	
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DATE <u>MAY 4TH 2017</u>

5203-75 Street, Edmonton, Alberta, Canada T6E 5S5 * Phone: (780) 465-9061 * Fax: (780) 466-8110

POST WELD HEAT TREATMENT INSTRUCTIONS

#	JOB NUMBER	HEAD	SHELL	NOM. DIA.	LENGTH	ITEM DESCRIPTION	WEIGHT IN LBS.	QC APPR
1	2017-8840-01	PIPE	.375"	14"OD	16'-12"	REPLACEMENT FIRETUBE	2,490	N
1	2016-8801-21	.337"	.337"	4"	3'-6"	VERTICAL LEVEL BRIDLE	95	V
1	2016-8801-272	.237"	.237"	4"	4'-0"	VERTICAL LEVEL BRIDLE	65	N
						Y		
3	TOTAL NUN	MBER	.,			TOTAL WEIGHT IN LBS	2,650	
ТЕМР	ERATURE: TO BE	RAISED FRO HR.,DIVIDEI	OM 800°F TO D BY THE MA	1150°F, ± 25°1 AXIMUM MET	F AT A MAXIM	UM RATE OF 400 °F BUT IN NO C S WHEN GREATER THAN ONE INCH THICK.	ASE MORE THA	N
	ERATURE: TO BE 400°F/1 ERATURE: BE HE	HR.,DIVIDEI	D BY THE MA	AXIMUM MET	F AT A MAXIMI FAL THICKNES	S WHEN GREATER THAN ONE INCH THICK.	ASE MORE THAI	N
TEMP	400°F/) ERATURE: BE HE	HR.,DIVIDEI LD AT 1150° LOWERED F	D BY THE MAPP., ± 25°F FOR ROM 1150°F,	4XIMUM ME1 R	FAL THICKNES 60 MAXIMUM RAT	S WHEN GREATER THAN ONE INCH THICK. MINUTES	SE MORE THAN	ſ
ТЕМР ТЕМР	400°F/) ERATURE: BE HE ERATURE: TO BE I 500°F/H	HR.,DIVIDEI LD AT 1150° LOWERED F IR. DIVIDED CHMENTS:	D BY THE MAPPER OF THE MAPPER	AXIMUM MET R ± 25°F AT A 1 XIMUM THIC UPLES ARE R	MAXIMUM RATE KNESS OF THE	S WHEN GREATER THAN ONE INCH THICK. MINUTES. TE OF 500 °F , BUT IN NO CA	SE MORE THAN	I INCH.
ТЕМР ТЕМР	400°F/) ERATURE: BE HE ERATURE: TO BE I 500°F/H MOCOUPLE ATTA - SPECII E: ALL TH FNSUR	HR.,DIVIDED LD AT 1150° LOWERED F IR. DIVIDED CHMENTS: FIC LOCATION ERMOCOUF ETHAT ALL	D BY THE MAP FF, ± 25°F FOI ROM 1150°F, BY THE MA THERMOCO ONS OF THEI PLES ARE TO ALCO JOB N	± 25°F AT A I XIMUM THIC UPLES ARE R RMOCOUPLE BE ATTACHI	MAXIMUM RATKNESS OF THE REQUIRED AT TATTACHMENT ED BY FLASH VEIDENTIFIED (S WHEN GREATER THAN ONE INCH THICK. MINUTES. TE OF 500 °F , BUT IN NO CA MATERIAL, WHEN THE MATERIAL THICKN THE TOP, MIDDLE AND BOTTOM. SEE ATTAC	SE MORE THAN	I INCH.
TEMP TEMP THER	400°F/) ERATURE: BE HE ERATURE: TO BE I 500°F/H MOCOUPLE ATTA - SPECII E: ALL TH ENSURI POST W THE VE	HR.,DIVIDED LOWERED F IR. DIVIDED CHMENTS: FIC LOCATION ERMOCOUF E THAT ALL VELD HEAT	PARTS THERA	± 25°F AT A I XIMUM THIC UPLES ARE R RMOCOUPLE BE ATTACHI IUMBERS AR IS TO BE DO EOF SHALL B	MAXIMUM RATKNESS OF THE REQUIRED AT TATTACHMENT ED BY FLASH VEIDENTIFIED ONE AS PER ASM	MINUTES. TE OF 500 °F, BUT IN NO CA MATERIAL, WHEN THE MATERIAL THICKN THE TOP, MIDDLE AND BOTTOM. SEE ATTAC S (WHEN APPLICABLE). WELDING ONLY. DN ALL HEAT CHARTS.	SE MORE THAN SESS EXCEEDS 1 CHED DRAWINGS	INCH. B FOR EMENT,
TEMP TEMP THER	400°F/) ERATURE: BE HE ERATURE: TO BE I 500°F/H MOCOUPLE ATTA - SPECII E: ALL TH ENSURI POST W THE VE ALL GA	HR.,DIVIDED LOWERED F IR. DIVIDED CHMENTS: FIC LOCATION ERMOCOUF E THAT ALL VELD HEAT	PARTS THERA	± 25°F AT A 1 XIMUM THIC UPLES ARE R RMOCOUPLE BE ATTACHI NUMBERS AR IS TO BE DO EOF SHALL B HREADED CO	MAXIMUM RATKNESS OF THE REQUIRED AT TATTACHMENTED BY FLASH VEIDENTIFIED ONE AS PER ASM	MINUTES. TE OF 500 °F, BUT IN NO CA MATERIAL, WHEN THE MATERIAL THICKN THE TOP, MIDDLE AND BOTTOM. SEE ATTAC S (WHEN APPLICABLE). WELDING ONLY ON ALL HEAT CHARTS. ME CODE, SECTION VIII-1, Para. UCS-56. UPPORTED AND PROTECTED FROM DIRECT	SE MORE THAN SESS EXCEEDS 1 CHED DRAWINGS	INCH. B FOR EMENT;
TEMP TEMP THER	400°F/) ERATURE: BE HE ERATURE: TO BE I 500°F/H MOCOUPLE ATTA - SPECII E: ALL TH ENSURI POST W THE VE ALL GA	LOWERED FIR. DIVIDED CHMENTS: FIC LOCATION ETHAT ALL VELD HEAT SSEL AND FINSEL SURF	PF, ± 25°F FOR THE MARTHERMOCO ONS OF THE PLES ARE TO ALCO JOB NOT THE PARTS THER ACES AND TO THE PARTS THER ACES AND TO THE PARTS THER PARTS T	± 25°F AT A I XIMUM THIC UPLES ARE R RMOCOUPLE BE ATTACHI IUMBERS AR IS TO BE DO EOF SHALL B HREADED CO	MAXIMUM RATKNESS OF THE REQUIRED AT TATTACHMENTED BY FLASH VEIDENTIFIED ONE AS PER ASM	S WHEN GREATER THAN ONE INCH THICK. MINUTES. TE OF 500 °F, BUT IN NO CA MATERIAL, WHEN THE MATERIAL THICKN THE TOP, MIDDLE AND BOTTOM. SEE ATTAC S (WHEN APPLICABLE). WELDING ONLY. ON ALL HEAT CHARTS. ME CODE, SECTION VIII-1, Para. UCS-56. UPPORTED AND PROTECTED FROM DIRECT HALL BE COATED WITH A SUITABLE PROT AD NO. MAY#1/2017	SE MORE THAN SESS EXCEEDS 1 CHED DRAWINGS	INCH. B FOR EMENT;

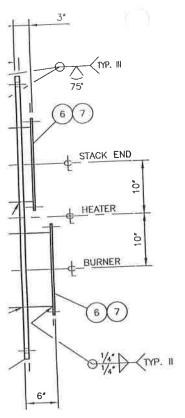


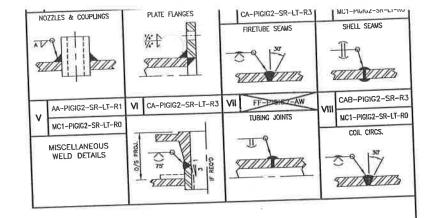
WORK ORDER FURNACE DIVISION

7216 - 52 Street, Edmonton, Alberta T6B 2G3

Telephone 780-468-2425 Fax 780-469-6809

	DATE M	AY ()4	20.17
CLIENT ALCO GAS & OIL ADDRESS 5203 - 75 STREET EDMONTON, AB TGE 585 WORK ORDER NO. P.O. NO. OO140	DATE REQ	UIRED N OF	ASAP DAVE HAW	IRYLUK
DESCRIPTION		QTY.	FURNACE SIZE / NO.	PRICE PER FURNACE LOAD
REPLACEMENT FIRETUBE				
JOB No.: 8840-01				
VERTICAL LEVEL BRIDLE		2		
JOB No.: 8801-21/22 gb				
			F	
CUSTOMER X SPECIFICATION			TOTAL	
P-NOMATERIAL	TOTAL OVE	RTIME H	OURS=	_@ \$/hr
AMBIENT to 425 at M/R 425 to 621 at 222 per hour SOAK at 621 ± 14 of for 1 hours 8 mins.	OTHER CHA	ARGES C	OR CONDITIONS:	
COOL FROM 621 to 425 at 277 per hour				
COOL FROM 425 to AMB at A/C	×			
Above temperatures in C WRITTEN RECORD &	-			
Comments				
NOTE: Customers sending in work for heat treatment only: (1) Will be charged an extra for any supports or blocking required. (2) Will not hold Brimstone Furnace Works Ltd. responsible for any damage or distortion caused by Heat treatment process.	Thank you for BRIMSTONE		onage CE WORKS LTD.	





IA. HLS. PACED 3CD ΔĀ ıΙΑ.

	SPEC	IFI		10	N 5	
BOILER SHELL:			HEADS:			_
IRGE TANK SHELL: -			HEADS:	OUDEANS	100 00	ft
RETUBE: 0.375	5" SA-53-B			SURFACE	: 128 sq.	16.
TLL COLUMN: -			STACK:	-		-
OIL HEATING AREA: -				_		
JBING: -						
ISC. PLATE & SUPPORTS:						
ORKING PRESSURE: 14.9	PSIG		HYDROTE	er coll	C	
ESTING: SEE NOTES			HYDROIE	SI COIL	3.	
(SURGE) - (ST. SHIPPING WEIGHT: 2- SURFACE PREPARATION: W PAINT: PRIMER: 1-1.5 m FINISH: NONE INSULATION: NONE	490 Lbs.	ST SSPC-S ALE #8320	P5)3 HI-HEAT	SILICONI	E ALUMINUN	M.
					· le	
NOTE: ALL BOLT HOLES T	O BE EQUALLY S	PACED STE	ADDLING NA	TURAL C	LS	_
160			TES			
1. 100% RADIOGRAPHY 2 PWHT 1150 ± 25 3. HARDNESS TESTING	EACH WELD T	TO BE TES	AL WELDS.	LLOWS:		

IECE ONE (1) UNIT REQUIRED PGD DRAWN 2017-04-19 DATE 1'=1'-0" SCALE CHK'D

GAS & OIL PRODUCTION EQUIPMENT LTD.

*GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP.

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APR 2 1 2017

QUALITY CONTROL

14" O.D. REPLACEMENT FIRETUBE & END PLATE FOR 48" O.D. x 18'-0" LG. INDIRECT FIRED HEATER

(BUILT UNDER SO #2001-6729-02) LOCATION: GALLOWAY, AB

CUSTOMER: HUSKY ENERGY

DWG/SHOP ORDER:

C-2017-8840-01-001/001

REV.

REVISIONS

ISSUED FOR CONSTRUCTION

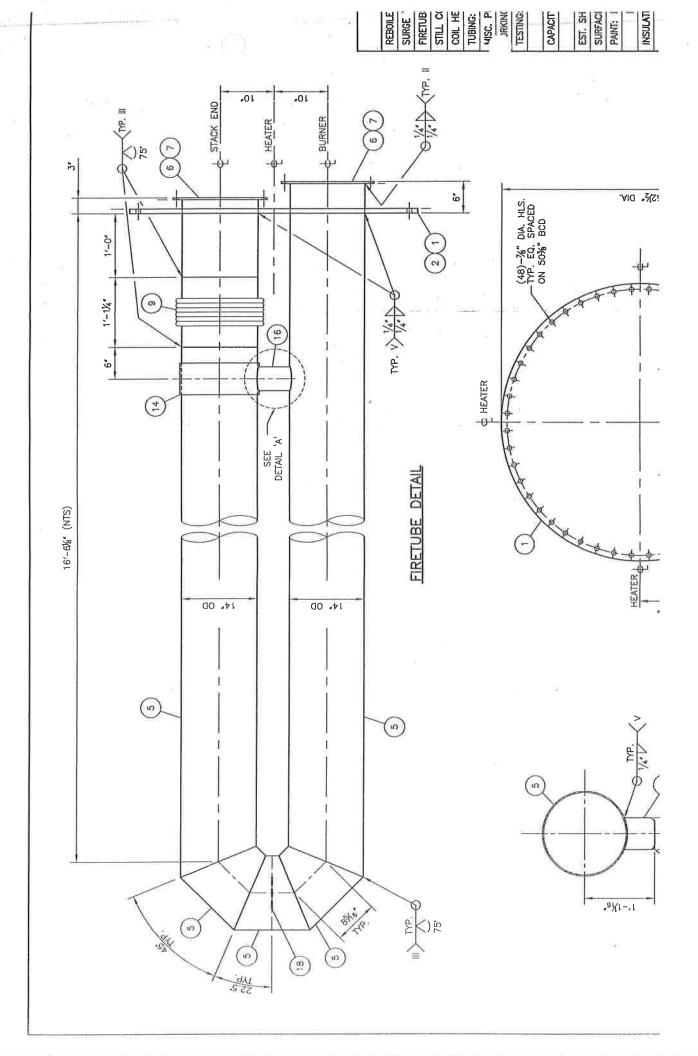
DESCRIPTION

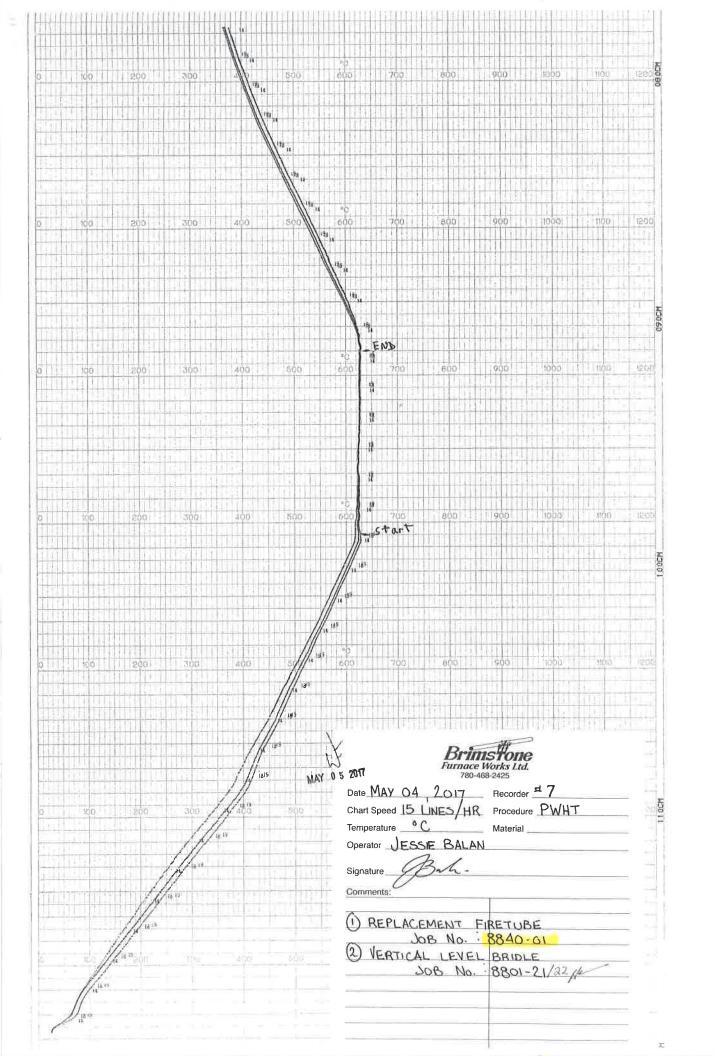
- (1) IN THE CENTER OF THE WELD - (1) ON EITHER SIDE OF HAZ - (1) ON EITHER SIDE OF PARENT MATERIAL

5. ALL BEVELLED EDGES 100% WET FLOURESCENT MPI. 6. INTERNAL HYDROTEST @ 15 PSIG FOR 1 HR.

7. B-PRESSURE WELDER REQUIRED FOR ALL WELDS.

4. ALL WELDS 100% WET FLOURESCENT MPI BEFORE & AFTER PWHT.







5203-75 Street, Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER:	2017-8840-01			
DESCRIPTION:				
NAME OF AUTHO	RIZED INSPECTIO	ON AGENCY:	N/A	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROSTATIC-PNI	EUMATIC		
TEST PRESSURE:	15 psig			
POSITION OF THE	E UNIT TESTED	HORIZ VERT	ZONTAL ICAL	
TEST FLUID:	Water	TEST TEMP	PERATURE	> 60 F
TEST PROCEDUR	E: ALC	O QCP-71		
PRESSURE TEST	CHART RECORDE	D: YES	□ NO	\boxtimes
WE CERTIFY THA WAS PRESSURE-T LEAKS OR OTHER	ESTED FOR A PE	RIOD OF 1	HOUR(S	S) AND NO
	1 t		5/18	3/2017
QC INSPEC	OR ALCO GAS & C	OIL	DAT	E
3 RD PAI	RTY INSPECTOR		DAT	E
AUTHO	RIZED INSPECTOR		DA	re