



This Quality Control package has been prepared for:

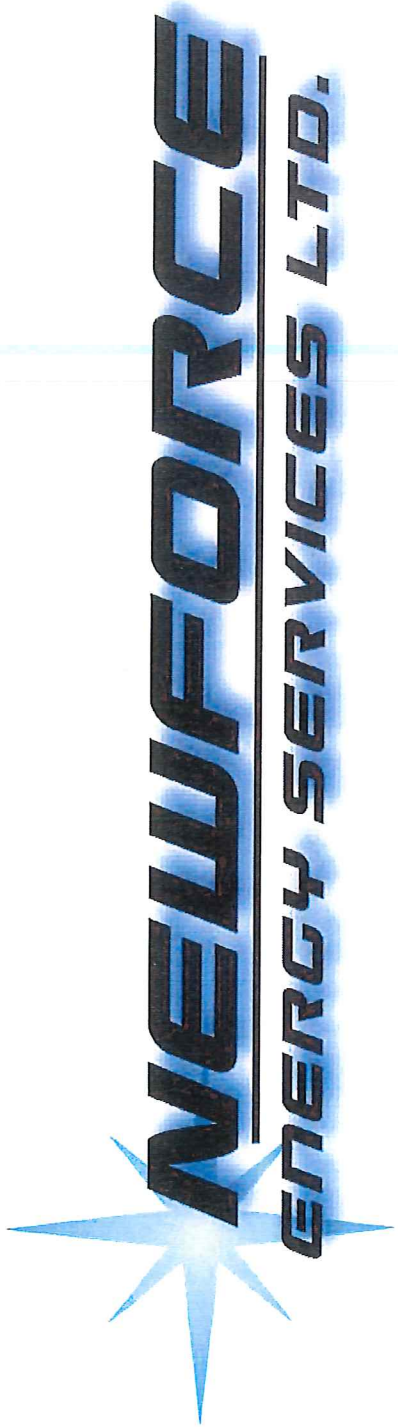
Arc Resources

02-13-048-08-W5M

Polymer Injection Skid

NESL-DV1454

Prepared By: Tim Schnieder



Forms

Safety

As Built

Heat Numbers

MTR's

Welders Log

X-Ray Numbers

Test Reports

Contract Review Document



QC Number: NESL-DV1454 Date: Feb 23/15
 Owner Company: Arc Resources
 Description of Job: Polymer Injection Skid

	OWNER	NEWFORCE ENERGY SERVICES LTD.
Materials Receiving Inspection, Identification and	☒ <i>RC.</i>	☒
Welding	☒ <i>RC.</i>	☒
Site Control of Heat Treatment	☒ <i>RC.</i>	☐
Site Control of NDT	☒ <i>RC.</i>	☒
Measuring and Test Equipment	☒ <i>RC.</i>	☒
Witness of Pressure Tests	☒ <i>RC.</i>	☒
Document Control	☒ <i>RC.</i>	☒
Preparing and Retention of Quality Control Records	☒ <i>RC.</i>	☒

The Alberta Pressure Equipment Safety Regulations requires the owner to have an authorized Quality Management System if they assume any of the Quality Management System functions listed above. A piping system over 0.5 cubic meters in capacity must be registered with ABSA.

RESPONSIBLE FOR SUPPLY	OWNER	NEWFORCE ENERGY SERVICES LTD.
Materials	☒ <i>RC.</i>	☐
Design Registration with ABSA	☒ <i>RC.</i>	☐
Drawing & Specification	☒ <i>RC.</i>	☐
NDE	☒ <i>RC.</i>	☐
Heat Treatment	☐ <i>N/A</i>	<i>N/A</i> ☐

Lot size for spot radiography will be discussed and agreed upon prior to the start of the project.

Lot size: 100%

Owner's Representative: *Kerry Chown* Date: *FEB. 12/16*

QC Manager / QC Inspector: *Bill Pearce* Date: *MAY 26/15*

Examination & Inspection Report (Piping)



QC: NESL-DV1454

Drawing No.:

Line No.:

Description: Polymer Injection Skid

*Hold points to be identified with an asterisk**

OPERATION	Notes	QC Personnel	Date	Owner's Inspector	Date
1) Drawing ABSA registration over 0.5 m3. Approved by Owner. Approved for Construction, Repair or Alteration (signed and dated)	N/A	HL	26/05/15		
2) Owner's Inspector notified	HL	TS	Feb 22/15	HL	Feb 12/16
3) Registered Welding Procedures, Quality Systems Manual and forms available at site. Job File started.	HL	TS	"	HL	
4) Welders qualified for weld procedures and have valid Performance Qualification cards. Welders log completed. WPS reviewed with welders.	HL	TS	"	HL	
5) Material checked against P.O. Owner's Bill of Materials, drawings, and specifications. Identification confirmed. Colour coding applied.	HL	TS	"	HL	
6) Sample of each welder's work examined, including root spacing, alignment, cleaning, joint preparation, preheat and electrodes control.	HL	TS	"	HL	
7) Non-destructive examination completed, Reports and radiographs reviewed, signed by level II or III, Radiograph I.D. detailed on drawings.	HL	TS	Feb 25/15	HL	
8) Visual examination of all completed welds. Welders I.D. stamped and/or recorded on drawings.	HL	TS	"	HL	
9) Heat Treatment verified and recorded on drawings.	N/A	HL	26/05/15	HL	
10) Each system checked against specifications and drawings before test.	HL	TS	Feb 27/15	HL	
11) All deficiencies recorded and signed off by QCI and Owner's Inspector before test.	HL	TS	"	HL	
12) Pressure test checked. Gauge calibration verifies, gauge no. recorded.	HL	TS	"	HL	
13) System checked after test. Deficiencies recorded and corrected.	HL	TS	"	HL	
14) Construction data reports prepared and signed by QCM and Owner's Inspector (AB-83)	HL	HL	26/05/15	HL	
15) Declaration form submitted to ABSA (AB-81)	N/A	HL	"	HL	
16) As built drawings accepted by Owner.	HL	TS	"	HL	

- All above examination are mandatory and must be signed by Quality Control Personnel when applicable
- Additional requirements may be added for any particular job at the request of the Customer or the QCM
- When the QCM has satisfied himself that all the above operations have been performed, he shall date and sign this form and retain a copy in the job file.

Date

Signature of Quality Control Manager



the pressure equipment safety authority

PRESSURE PIPING CONSTRUCTION AND TEST DATA REPORT

Shop Construction ☐; Field Construction ☒; Final Data Report ☒;
 Partial Data Report ☐ (from one ABSA-authorized Contractor to another ABSA-authorized contractor).

1. Constructed By: Newforce Energy Services Ltd. Owner's Job #: NESL-DV1454
(Name of ABSA authorized primary contractor or subcontractor)

Box 7576, #2 5621-58 Ave Drayton Valley, AB
(Address)

Certificate of Authorization Permit No. AQP- 21273

Expiry Date: 21-Aug-15

2. Constructed For: Arc Resources
(Name & of primary contractor if different from above)

(Address)

Certificate of Authorization Permit No. AQP- _____

Expiry Date: _____

(Required when the primary contractor undertakes some/all of the quality functions, e.g., NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

3. Owner: Arc Resources
(Name and address)

02-13-048-08-W5M

(Location of installation)

Certificate of Authorization Permit No. AQP- _____

Expiry Date: _____

(Required when the owner undertakes some/all of the quality functions, e.g., NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

4. Piping Design Alberta Registration No.: PP-
(required if aggregate piping volume is over 0.5m³)

5. Design Responsibility: Owner ☒; Contractor ☐

6. WP No.: WP- 2779.2; Company: Newforce Energy Services Ltd. Owner's WP No.(If used): WP- _____
(Alberta Registration No.) (Alberta Registration No.)

WPS No(s). used: NESL-1 REV. 1; Owner's WPS No(s). (If used): _____

7. Code: ASME B31.1 Non Boiler External Piping ☐; ASME B31.1 Boiler External Piping ☐;

B31.5 ☐; B31.9 ☐; CSA Z66.2 Steam Pipelines ☐;

ASME B31.3 ☒ - Service category: Normal ☒ D ☐ M ☐ High Pressure ☐; Severe Cyclic Condition ☐ High Purity ☐

Drwg No. Rev No. Line No.	Fluid (Air/Stm. Etc.)	Des. Press. kPa	Des. Temp. °C (Max. & Min.)	Pressure Test kPa	Test Medium	Pipe Mat'l Spec. & Grade	C.A. mm	Pipe NPS & Schedule	Flange Material & Rating	PWHT/ Preheat Temp. °C	NDE	
1	Emulsion	15306	-29 - 38C	22960	Water			3", sch 80	A105N, 900#	10	100%	RT/MT
	Emulsion	15306	-29 - 38C	22960	Water			4", sch 80	A105N, 900#	10	100%	RT/MT
2	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT
	Emulsion	15306	-29 - 38C	22960	Water	A106, gr B		3", sch 80	A105N, 1500#	10	100%	RT/MT
3	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT
4 - 7	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT
8	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT
	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 1500#	10	100%	RT/MT
9 - 10	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT
11	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT
	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 1500#	10	100%	RT/MT
12	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT
	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		4", sch 80	A105N, 900#	10	100%	RT/MT
13 - 16	Emulsion	15306	-29 - 38C	2960	Water	A106, gr B		3", sch 80	A105N, 900#	10	100%	RT/MT

Constructed by: NEWFORCE

Owners Job #: _____

Partial Data Reports certified by sub-contractors are listed below and attached to this Data Report ☐

No.	Line No.	Spool No.	Dwg No. (with Rev. No.)	Sub-contractor (Name)	AQP No. (if from Alberta)	Expiry (if from Alberta)

Remarks: For partial data report provide information about the code work that was not completed by the subcontractor (e.g., hydrostatic test, PWHT etc.). For final data report provide information about the code work that was not completed by subcontractors and subsequently completed by the primary contractor (e.g., hydrostatic test of entire assembly, PWHT etc.)

Endorse certificate 'A' or 'B'

A. CERTIFICATE OF COMPLIANCE

Signed by the subcontractor when supplying this certificate as a
Partial Data Report

We certify that the statements in this Data Report are correct and that materials, construction and workmanship of the piping fabrication conform to the registered quality system and the applicable Piping code(s).

Date: _____
Subcontractor

Print Authorized Representative's Name

Signature

This certificate is not valid unless it forms part of a Final Data Report signed by Primary Contractor.

B. CERTIFICATE OF COMPLIANCE

Signed by the primary contractor when supplying this certificate as a
Final Data Report

We certify that the statements in this Data Report are correct and that piping job no. **NESL-DV1454** described in this Data Report was constructed in accordance with the Province of Alberta Safety Codes Act and Regulations, and applicable ASME Piping Code(s).

May 26, 2015 **Newforce Energy Services Ltd.**

Contractor

Bill Cavanagh

Print Authorized Representative's Name

Signature

CERTIFICATE OF INSPECTION

I, the undersigned, employed by **Arc Resources** have verified that all required examination and testing has been completed, and inspected the piping described in this construction data report to the extent necessary to be satisfied that it conforms to all applicable examination requirements of the Code and of the engineering design, and state that, to the best of my knowledge and belief, the contractor has constructed this piping in accordance with the Alberta Safety Codes Act and Regulations. By signing this certificate neither the inspector nor his or her employer makes any warranty, expressed or implied, concerning the piping described in this construction data report. Furthermore, neither the inspector nor his or her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection

Date: **FEB-12/16**

Date: _____

Khanh Chauhan
Owner's Inspector Name (please print)

ABSA Safety Codes Officer (please print)
(BOILER EXTERNAL PIPING ONLY)

[Signature]
Owner's Inspector Signature:

ABSA Safety Codes Officer's Signature

Current version of this Form may be obtained from www.absa.ca



Certificate of Authorization Permit

Quality Management System

Expiry Date: **August 21, 2015**

Reg. No.: **AQP-21273**

This is to certify that:

NEWFORCE ENERGY SERVICES LTD.

**#2, 5621 - 58 AVENUE
DRAYTON VALLEY, ALBERTA**

having complied with the provisions of the SAFETY CODES ACT, is hereby authorized to:

**Construct, Repair/Alter ASME B31.1 Power Piping, Boiler External Piping and ASME
B31.3 Process Piping**

Repair/Alter ASME Section VIII-1 Pressure Vessels

at the SHOP and FIELD sites controlled from the above address.

As a condition of this permit, the holder is required to participate in interim audits by a safety codes officer to verify that the quality management system is being maintained in a manner acceptable to a safety codes officer.

Dated at Edmonton, this 30th day of July, 2012



Chief Inspector and Administrator

Certificate No.: 8581



COLOUR CODE

MATERIAL	COLOUR
SA/A53 Grade B (ERW)	Red
SA/A53 Grade B (SMLS)	Yellow
SA/A106 Grade B	Light Blue
SA/A335 P11	Violet
SA/A335 P22	Green
SA/A333 Grade 6	Fluorescent Orange
SA/350LF2 Fittings, Flanges	Fluorescent Orange
CSA G40.21 44W	Fluorescent Pink

Other materials will have a colour stripe as determined by the Quality Control Manager.
Each length of pipe will have a continuous stripe of the designated colour.

Coded Markings

MATERIAL	CODE
(Nozzles, and Welded attachments)	
SA-105	5
SA-105N	5N
SA-106-B	6
SA-53-B	8
SA-350 LF2	2
SA-516-70	7
SA-516-70N	7N
SA-36	3
CSA G40.21 44W	4

Each piece will be die stamped with the indicated letter or digit code.

Note: Pipe materials in outdoor storage for extended periods may require re-coding in order for the materials to retain positive identification.



Pre-Job Safety Meeting

Company Name: Arc Resources

Location: 02-13-048-08-W5M

Job Specifications: Polymer Injection Skid

QC: NESL-DV1454

Concerns/Discussions:

All safety concerns of both Arc Resources and Newforce Energy Services Ltd. were adhered to during this project.

Tim Schnieder

Newforce Energy Services

#2 5621 - 58 Ave, Box 7576
Drayton Valley, Alberta T7A 1S7
E-mail: info@newforceenergy.com

Emergency Response Plan

Fire Department	911
DV - Fire Department	(780) 514-2216
Ambulance	911
DV - Ambulance	(780) 542-5118
Air Medivac	911
Nearest Hospital	911
DV - Hospital	(780) 542-5321
Local RCMP	911
DV - RCMP	(780) 542-4456
Helicopter Services (G.P)	(780) 532-2047
Grande Prairie	(780) 830-5700
Fort Saskatchewan	(780) 992-6100
SITE# Stars	(888) 888-4567
Poison Centre	(800) 332-1414
Environment Canada	(800) 222-6514
Alberta Energy Regulator	(780) 542-5182
Dangerous Goods	(800) 272-9600
Workplace, Health & Safety	(780) 427-8842
Alberta One Call	(800) 242-3447
Report-a-Poacher	(800) 642-3800
Forest Fire Centre	(780) 310-3473

Inspector	Phone	Cell
<i>Kerry Clow</i>	<i>403. 352 - 8818</i>	
NESL Supervisor	<i>780 918 5591</i>	
NESL - Drayton Valley	(780) 514-7882	
Darren Nelson	President (780) 514-7882	(780) 621-9687
	Dispatch (780) 514-7882	(780) 514-8502
Bob White	Safety (780) 514-7882	(780)-621-8374
Bill Cavanagh	Quality Control (780) 514-7882	(780) 621-9126

On Site EMS

Location Name: *AR C.*

Site L.S.D.: *02-13-048-08- WSM (07-12 & 15-01)*

Directions to Location Below:

See Map

Longitude: N-
Latitude: W-

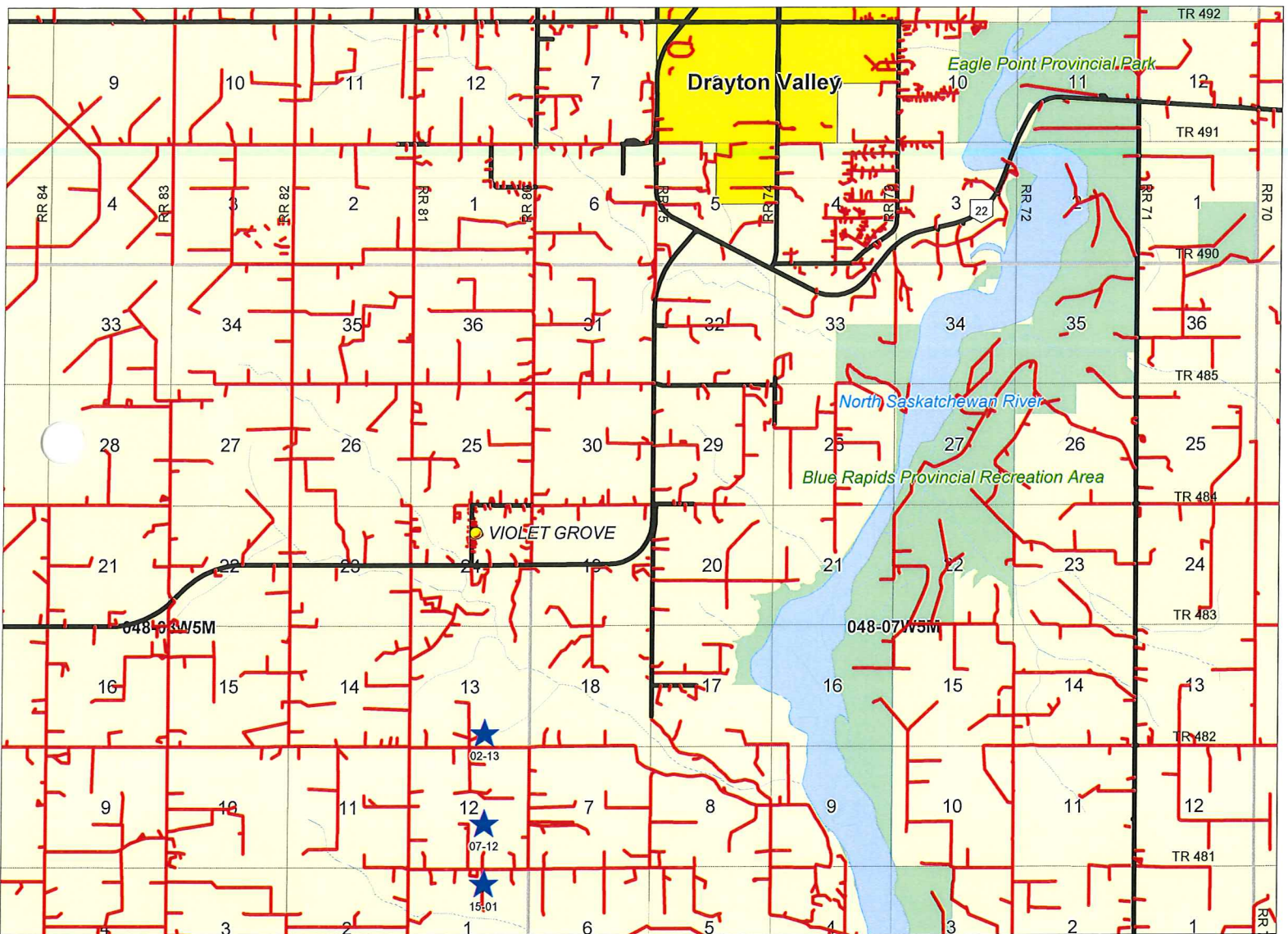
RR 80

Hwy 620

In the event of an Emergency:

1. Assess the Emergency
2. On two way radio, say EMERGENCY 3 times to clear channel.
3. Give brief description on injury, your location & what resources are required (note: stay calm, give clear instructions & ask the person you are talking to, to repeat your instructions to confirm your information).
4. Onsite medical services & or designate to immediately respond to location of injury.
5. Attend to the injured.
6. As resource arrives, standby and assist as needed.

Direction Map To



TYPE OF WORK: (✓) ☐ Cold Work ☒ Hot Work	☐ Confined Space Entry ☐ Radiography ☐ Turnaround	☐ Trenching/ Excavating ☒ Facility Construction ☐ Completions	☐ Drilling Operations ☐ Well Service ☐ Environmental	☐ Geophysical ☐ Electrical ☐ Other.
ISSUED TO: <u>NEW FORCH</u>		HAZARD ASSESSMENT/SITE SPECIFIC ORIENTATION FORM# <u>004530</u>		
VALID FROM: <u>1/26/15 8:00</u> ☐ am ☐ pm	VALID TO: <u>03/08/15 6:00</u> ☐ am ☐ pm	PERMIT EXTENDED TO: <u>MM/DD/YY</u> ☐ am ☐ pm		APPROVED BY:
LOCATION(S) OF WORK: <u>02-13-48-08-WSM / 07-12-48-08 WSM / 15-01-48-08 WSM</u>				
DESCRIPTION OF WORK: (No work other than that shown will be performed)				

- ALL 2850C WORK WITH TRK-INS OF NEW CDE SKID, WELDING, PIPE-ROCK
PPE. / INFORMATION + NOTIFICATIONS FOR NEW FISHWATER MAJOR-ON LINE

These items must be reviewed by all personnel responsible for the permit and any special precautions must be documented in the right hand column. A site hazard assessment/site specific orientation must accompany the safe work permit and be reviewed with all workers onsite.

PRECAUTIONS/ REQUIREMENTS/ LIMITATIONS	YES	NO	N/A	COMMENTS			
1. Has a Hazard Assessment been completed for the worksite?	✓						
2. Have you discussed the work with the contractor and have safe work procedures been reviewed?	✓						
3. Have contractors conducted a pre-use inspection of equipment?	✓						
4. Is additional training required to complete tasks (Eg. TDG, Confined Space Entry...)?		X					
5. Does this task require working alone precautions to be taken?		X					
6. Diesel vehicles equipped with positive air shut off?	✓						
7. Is a signaler or flagman required?		X					
8. Is stored energy present? (Pneumatic, mechanical, hydraulic, pressure, electrical...)	✓			- LIVE STRIPS			
9. Has equipment been isolated? Blinded, Blanked, Double Block & Bleed, Plugged, Closed valve, disconnected (BY OPS + OSS)	✓			- WITH WORKING ON LINE			
10. Have energy sources been locked and tagged? (BY OPS + OSS)	✓			- WITH WORKING ON LINE			
11. Has equipment been decontaminated/ purged? (BY OPS + OSS)	✓			- WITH WORKING ON LINE			
12. Is additional PPE required above ARC standard PPE? ☐ Chemical clothing ☐ Rubber gloves/ boots ☐ Respirator ☐ Other ☐ Fall arrest harness and lanyard ☐ Breathing apparatus ☐ Hearing protection ☐ Goggles ☒ Face shield ☒ Personal Monitor	✓			- ALL RARE CHECK PPE TO BE WORN AT ALL TIMES.			
Are overhead obstructions/ power lines present?	✓			- AT SITE AUTHORITY			
14. Hot work? (Grinding, Welding, Use of non-explosion proof tools...)	✓			- WELDING + CUTTING			
15. Is safety watch required?	✓			- WITH WORKING			
16. Have the Necessary Gas Tests Been Performed? ☒ Yes ☐ No ☐ N/A ☒ Continuous ☐ Periodic (refer to ARC's safe work standard for hot work)							
Initial Gas Test Results - Document Additional results on back of page.							
17. Test time	Location	H2S (ppm)	Flammable (%LEL)	CO (ppm)	O2 (%Vol)	Other	Tester's initials.
8:00 AM	02-13/1501.	0	0	0	20.9	-	RE.
18. Fall protection required? (If Yes, Complete or ensure a fall protection plan is completed - attach copy)	✓						- IF REQUIRED WITH USE WHOLE FALL PROTECT PLAN
19. Confined Space? (If Yes, Ensure confined space entry permit and rescue plan completed - attach copy)		X					
20. Ground Disturbance Required? (If yes, Ensure Ground Disturbance Permit issued - attach copy)		X					

Comments - SMOKE IN DESIGNATED AREAS ONLY / PICK-UP ALL RUBBISH

- ALL CRW TO HAVE PERSONAL MONITORS.

- USE NEW FORCH FALL PROTECT PLAN IF REQUIRED FOR CHANGING + INSTALLING SPOOLS.

INSTRUCTIONS TO THE PERMIT RECEIVER

- Only work identified on the work permit is allowed. No operations to be conducted without prior knowledge of ARC company representative.
- If conditions change from the original work permit, stop work and contact the permit issuer.
- Maintain the work permit at the work location and notify the permit issuer when the task has been completed.

Agreement: I have reviewed the job, Work Permit and Site Hazard Assessment/Site Specific Orientation - I understand the nature and extent of the work and agree to abide by all the conditions and precautions as stated to complete the work safely.

Permit Issuer: Print Robert C. Smith
Signature [Signature]

Permit Receiver: Print Tim Schneider
Signature [Signature]

Permit Issuer Phone Number: <u>403-222-367-9813</u>	Permit Receiver Phone Number: <u>780 918 9691</u>
ARC 24 Hour Emergency Number: <u>780-592-9786</u>	Contractor Emergency Contact Number: <u>780 574 7882</u>

TYPE OF WORK: (✓) ☐ Cold Work ☐ Hot Work		☐ Confined Space Entry ☐ Radiography ☐ Turnaround		☐ Trenching/ Excavating ☒ Facility Construction ☐ Completions		☐ Drilling Operations ☐ Well Service ☐ Environmental		☐ Geophysical ☐ Electrical ☐ Other.	
ISSUED TO: <u>NEW YORK</u>				HAZARD ASSESSMENT/SITE SPECIFIC ORIENTATION FORM# <u>04553</u>					
VALID FROM: <u>03/16/15 8:00 am</u> ☐ pm				VALID TO: <u>03/22/15 6:00 am</u> ☒ pm		PERMIT EXTENDED ☐ am ☐ pm		APPROVED BY:	
LOCATION(S) OF WORK: <u>02-13-43-08 WSM</u>									
DESCRIPTION OF WORK: (No work other than that shown will be performed)									
<u>- MISC. FACILITY CONST AT 02-13 FOR CDG SICK STAFF-UP.</u>									

These items must be reviewed by all personnel responsible for the permit and any special precautions must be documented in the right hand column. A site hazard assessment/site specific orientation must accompany the safe work permit and be reviewed with all workers onsite.

PRECAUTIONS/ REQUIREMENTS/ LIMITATIONS	YES	NO	N/A	COMMENTS			
1. Has a Hazard Assessment been completed for the worksite?	✓						
2. Have you discussed the work with the contractor and have safe work procedures been reviewed?	✓						
3. Have contractors conducted a pre-use inspection of equipment?	✓						
4. Is additional training required to complete tasks (Eg. TDG, Confined Space Entry...)?		✗					
5. Does this task require working alone precautions to be taken?		✗					
6. Diesel vehicles equipped with positive air shut off?	✓						
7. Is a signaler or flagman required?		✗					
8. Is stored energy present? (Pneumatic, mechanical, hydraulic, pressure, electrical...)	✓			- LUK LOCATOR			
9. Has equipment been isolated? Blinded, Blanked, Double Block & Bleed, Plugged, Closed valve, disconnected	✓			- BY OSS, FASTER			
10. Have energy sources been locked and tagged?	✓			- BY OSS / FASTER			
11. Has equipment been decontaminated/ purged?	✓			- BY OSS / FASTER			
12. Is additional PPE required above ARC standard PPE? ☐ Chemical clothing ☒ Rubber gloves/ boots ☒ Respirator ☐ Other ☐ Fall arrest harness and lanyard ☐ Breathing apparatus ☒ Hearing protection ☒ Goggles ☐ Face shield ☒ Personal Monitor	✓			- ALL REQUIRED PPE TO BE WORN AT ALL TIMES			
13. Are overhead obstructions/ power lines present?	✓			- AT FASTER.			
14. Hot work? (Grinding, Welding, Use of non-explosion proof tools...)		✗					
15. Is safety watch required?		✗					
16. Have the Necessary Gas Tests Been Performed? ☒ Yes ☐ No ☐ N/A ☒ Continuous ☐ Periodic (refer to ARC's safe work standard for hot work)							
Initial Gas Test Results - <u>DATA</u> Document Additional results on back of page.							
17. Test time	Location	H2S (ppm)	Flammable (%LEL)	CO (ppm)	O2 (%Vol)	Other	Tester's initials.
<u>8:00 am</u>	<u>02-13</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20.9</u>	<u>-</u>	<u>RE</u>
18. Fall protection required? (If Yes, Complete or ensure a fall protection plan is completed - attach copy)						✗	
19. Confined Space? (If Yes, Ensure confined space entry permit and rescue plan completed - attach copy)						✗	
20. Ground Disturbance Required? (If yes, Ensure Ground Disturbance Permit issued - attach copy)						✗	

Comments - FOLLOW ALL CONDITIONS ON HA & DATA JSA
* PERMIT GOOD FOR 1-WK UNLESS INDICATED.

INSTRUCTIONS TO THE PERMIT RECEIVER

- Only work identified on the work permit is allowed. No operations to be conducted without prior knowledge of ARC company representative.
- If conditions change from the original work permit, stop work and contact the permit issuer.
- Maintain the work permit at the work location and notify the permit issuer when the task has been completed.

Agreement: I have reviewed the job, Work Permit and Site Hazard Assessment/Site Specific Orientation - I understand the nature and extent of the work and agree to abide by all the conditions and precautions as stated to complete the work safely.

Permit Issuer: Print MURRAY O'NEILL
 Signature [Signature]

Permit Receiver: Print Tim Schneider
 Signature [Signature]

Permit Issuer Phone Number: 403-357-3813

Permit Receiver Phone Number: 780 948 9591

ARC 24 Hour Emergency Number: 780-542-3796

Contractor Emergency Contact Number: 780 544 7882



5621-58 Ave, Box 7576, Drayton Valley, Ab T7A 1S7
Office: 780-514-7882 • Fax: 780-514-7883
info@newforceenergy.ca

24834

TOOLBOX / TAILGATE MEETING

Job #: _____ Date: Feb 26 / 15 Print and Initial Name
Project Name: _____ LSD: 2-13-48-8 Tim Schneider TS
No. In Crew: _____ Phone: _____ Kenn Bawille KB
Supervisor: Tim Schneider Inspector: Kerry Cleaver Kyrill Susan
Job Description: Install new piping, Remove new old piping

Topic(s) Discussed: (include assessment of immediate safety hazards) Possible trapped pressure, possible LEL's, Heavy lifting, working overhead, awkward body positions

Safety Recommendations: wear all required PPE
Bleed down slowly

tion(s) To Be Taken: _____

Incidents: Accidents Reviewed: _____

Safety Equipment Check List: (Mark Y, N or N/A)

1. Hard Hats ☒	6. Chainsaw Pants ☐	11. Barricades ☒	16. Guards ☒
2. Safety Toed Boots ☒	7. Equip. Seat Belts ☐	12. Air Shut-Offs ☒	17. Lanyards / Harness ☒
3. First Aid Kit ☒	8. Ear Protection ☐	13. Back-Up Alarms ☒	18. Slings ☒
4. Fire Extinguisher ☒	9. Eye Protection ☒	14. Safety Vests ☒	19. Gas Detector ☒
5. Fire Fighting Equip. ☐	10. Warning Signs ☒	15. Hair & Beard Policy ☒	20. Emergency Com. ☐

Possible Hazards: (Y,N)

1. Power Lines _____ 2. Pipe Lines _____ 3. Open Excavation _____ 4. Well Head _____ 5. Confined Space _____
6. Ground Disturbance _____ 7. Other Hazards (Overhead / Underground) _____ 8. H2S _____ 9. Working Alone _____

Supervisor's Remarks: _____

Supervisor's Signature: _____

Date: Feb 26 / 15

Ink Pot Ref # K5759t



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24835

TOOLBOX / TAILGATE MEETING

Job #: _____ Date: Feb 27 / 15 Print and Initial Name
Project Name: _____ LSD: 2-13-48-8 Tim Schneider
No. In Crew: _____ Phone: _____ George Pancey
Supervisor: Tim Schneider Inspector: Kerry Cleaver Chris Schneider
Job Description: Bolt-up, welding structural Morgan Fournier
Taylor Frost
Kevin Bawille
Zach Fisher

Topic(s) Discussed: (include assessment of immediate safety hazards) Pinch points,
trapped pressure sparks & flash,
suspension loads,

Safety Recommendations: wear all required PPE,
weld in designated areas,
monitor continuously - tie off
ladders & work on scaffolding

Action(s) To Be Taken: safely - look out pressure
when disassembling piping.
Use vac truck to de-pressure

Incidents: Accidents Reviewed: _____

Safety Equipment Check List: (Mark Y, N or N/A)

1. Hard Hats ☒	6. Chainsaw Pants ☐	11. Barricades ☐	16. Guards ☐
2. Safety Toed Boots ☒	7. Equip. Seat Belts ☐	12. Air Shut-Offs ☐	17. Lanyards / Harness ☐
3. First Aid Kit ☒	8. Ear Protection ☐	13. Back-Up Alarms ☐	18. Slings ☐
4. Fire Extinguisher ☒	9. Eye Protection ☒	14. Safety Vests ☐	19. Gas Detector ☐
5. Fire Fighting Equip. ☐	10. Warning Signs ☐	15. Hair & Beard Policy ☒	20. Emergency Com. ☐

Possible Hazards: (Y,N)

1. Power Lines ☒ 2. Pipe Lines ☒ 3. Open Excavation ☒ 4. Well Head ☐ 5. Confined Space ☒
6. Ground Disturbance ☐ 7. Other Hazards (Overhead / Underground) ☐ 8. H2S ☐ 9. Working Alone ☐

Supervisor's Remarks: _____

Supervisor's Signature: _____ Date: _____



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24836

TOOLBOX / TAILGATE MEETING

Job #:	Date: <u>March 2 / 15</u>	Print and Initial Name
Project Name:	LSD: <u>2-13-48-8</u>	<u>Tim Schneider</u> <u>9/1</u>
No. In Crew: <u>4</u>	Phone:	<u>Kevin Banville</u> <u>K13</u>
Supervisor: <u>Tim Schneider</u>	Inspector: <u>Kerry Cleavel</u>	<u>Zach Fisher</u> <u>- ZF</u>
Job Description: <u>weld piping inside a structural</u> <u>bolt up shut down individual</u> <u>sites & bolt-up spools when</u> <u>dramed.</u>		<u>Magnusson</u>
Topic(s) Discussed: (include assessment of immediate safety hazards) <u>Possible LELs</u> <u>heavy lifting, sparks & flash,</u> <u>trapped pressures, slippery roads,</u>		
Safety Recommendations: <u>wear all required PPE,</u> <u>lock out pressures & properly bleed off</u> <u>before opening, Monitor & weld in</u> <u>designated areas avoid pinch points,</u>		
Action(s) To Be Taken: <u>Drive safely,</u>		
Incidents: Accidents Reviewed:		

Safety Equipment Check List: (Mark Y, N or N/A)

1. Hard Hats ☒	6. Chainsaw Pants ☐	11. Barricades ☒	16. Guards ☒
2. Safety Toed Boots ☒	7. Equip. Seat Belts ☐	12. Air Shut-Offs ☒	17. Lanyards / Harness ☐
3. First Aid Kit ☒	8. Ear Protection ☒	13. Back-Up Alarms ☐	18. Slings ☐
4. Fire Extinguisher ☒	9. Eye Protection ☒	14. Safety Vests ☒	19. Gas Detector ☒
5. Fire Fighting Equip. ☐	10. Warning Signs ☐	15. Hair & Beard Policy ☒	20. Emergency Com. ☐

Possible Hazards: (Y,N)

1. Power Lines ☐ 2. Pipe Lines ☐ 3. Open Excavation ☐ 4. Well Head ☐ 5. Confined Space ☐
6. Ground Disturbance ☐ 7. Other Hazards (Overhead / Underground) ☐ 8. H2S ☐ 9. Working Alone ☐

Supervisor's Remarks: _____

Supervisor's Signature: _____ Date: _____



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24837

TOOLBOX / TAILGATE MEETING

Job #: _____ Date: Feb 3/15 Print and Initial Name
Project Name: _____ LSD: 2-13-48-8 WS Tim Schneider
No. In Crew: 7 Phone: _____ Margot Turner
Supervisor: Tim Schneider Inspector: Kerry Cleaver Kevin Barville KB
Job Description: Bolt-up, clean injection bldg, J. Dietz
weld piping, Zach Fisher ZA
Colton Bridge CB

Topic(s) Discussed: (include assessment of immediate safety hazards) working at heights, operating overhead crane & skid steer welding in shop at drayton, bleeding down high pressure

Safety Recommendations: piping, wear all required PPE, other people on site, spotter to be used when backing up, ensure all loads are secured on lifts, look

Action(s) To Be Taken: out all piping & bleed down before unbolting piping. Pressure test & check before operating.

Incidents: Accidents Reviewed: _____

Safety Equipment Check List: (Mark Y, N or N/A)

1. Hard Hats ☒	6. Chainsaw Pants ☐	11. Barricades ☒	16. Guards ☒
2. Safety Toed Boots ☒	7. Equip. Seat Belts ☐	12. Air Shut-Offs ☒	17. Lanyards / Harness ☒
3. First Aid Kit ☒	8. Ear Protection ☐	13. Back-Up Alarms ☐	18. Slings ☒
4. Fire Extinguisher ☒	9. Eye Protection ☒	14. Safety Vests ☐	19. Gas Detector ☒
5. Fire Fighting Equip. ☐	10. Warning Signs ☐	15. Hair & Beard Policy ☒	20. Emergency Com. ☐

Possible Hazards: (Y,N)

1. Power Lines _____ 2. Pipe Lines _____ 3. Open Excavation _____ 4. Well Head _____ 5. Confined Space _____
6. Ground Disturbance _____ 7. Other Hazards (Overhead / Underground) _____ 8. H2S _____ 9. Working Alone _____

Supervisor's Remarks: _____

Supervisor's Signature: _____ Date: _____



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24838

TOOLBOX / TAILGATE MEETING

Job #:	Date: <u>Mar 10 / 15</u>	Print and Initial Name
Project Name:	LSD: <u>2-13-48-8 W5</u>	<u>Tim Schneider</u>
No. In Crew:	Phone:	<u>Kerry Bawville</u>
Supervisor: <u>Tim Schneider</u>	Inspector: <u>Kerry Cleaver</u>	<u>Zach Fisher</u>
Job Description: <u>welding structural & piping,</u>		<u>Terry Simon</u>
<u>bolt-up</u>		<u>Bretton Swartz</u>
		<u>Clin LePage</u>
		<u>Kevin Doherty</u>
Topic(s) Discussed: (include assessment of immediate safety hazards) <u>heavy lifting,</u>		<u>Taylor Frost</u>
<u>sparks & flash, possible leaks</u>		<u>Morgan Fournier</u>
Safety Recommendations: <u>wear all required PPE,</u>		
<u>use a picker on heavy lifts,</u>		
<u>drive into muddy site safely,</u>		
<u>& leave room for access. support</u>		
tion(s) To Be Taken: <u>piping & valves to open</u>		
<u>Fibrespar lines. Monitor continuously</u>		
<u>inspect rigging before lifts.</u>		
Incidents: Accidents Reviewed:		

Safety Equipment Check List: (Mark Y, N or N/A)

- | | | | |
|--|--|---|--|
| 1. Hard Hats ☒ | 6. Chainsaw Pants ☐ | 11. Barricades ☐ | 16. Guards ☒ |
| 2. Safety Toed Boots ☒ | 7. Equip. Seat Belts ☒ | 12. Air Shut-Offs ☐ | 17. Lanyards / Harness ☒ |
| 3. First Aid Kit ☒ | 8. Ear Protection ☒ | 13. Back-Up Alarms ☐ | 18. Slings ☒ |
| 4. Fire Extinguisher ☐ | 9. Eye Protection ☒ | 14. Safety Vests ☐ | 19. Gas Detector ☐ |
| 5. Fire Fighting Equip. ☐ | 10. Warning Signs ☐ | 15. Hair & Beard Policy ☒ | 20. Emergency Com. ☐ |

Possible Hazards: (Y,N)

1. Power Lines ☐ 2. Pipe Lines ☐ 3. Open Excavation ☐ 4. Well Head ☐ 5. Confined Space ☐
6. Ground Disturbance ☐ 7. Other Hazards (Overhead / Underground) ☐ 8. H2S ☐ 9. Working Alone ☐

Supervisor's Remarks: _____

Supervisor's Signature: _____

Date: _____



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24839

TOOLBOX / TAILGATE MEETING

Job #:	Date: <u>March 11 / 15</u>	Print and Initial Name
Project Name:	LSD: <u>2-13-48-8 W5</u>	<u>Tim Schneider</u>
No. In Crew:	Phone:	<u>Kevin Danforth</u>
Supervisor: <u>Tim Schneider</u>	Inspector: <u>Kerry Cleaver</u>	<u>Terry Susan Trs</u>
Job Description: <u>Pipefitting, welding structural & piping, paint, bolt-up, clean-up, Backfill & spread gravel.</u>		<u>Kevin Barville</u>
		<u>Morgan Farnier</u>
		<u>Rachel Rabin</u>
		<u>Breton Swartz</u>
Topic(s) Discussed: (include assessment of immediate safety hazards)	<u>sparks & flash, live plant site, heavy lifting, suspended loads, skid steer working around people</u>	<u>Taylor Frost</u>
Safety Recommendations:	<u>wear all required PPE, weld in designated areas & monitors to be worn. Use inspected rigging on lifts, use a spotter</u>	<u>Clint LePage</u>
Caution(s) To Be Taken:	<u>when backing in & when working near piping or buildings with skid steer, stay clear from X-Ray when on site</u>	
Incidents: Accidents Reviewed:		

Safety Equipment Check List: (Mark Y, N or N/A)

1. Hard Hats	☒	6. Chainsaw Pants	☐	11. Barricades	☒	16. Guards	☒
2. Safety Toed Boots	☒	7. Equip. Seat Belts	☐	12. Air Shut-Offs	☒	17. Lanyards / Harness	☐
3. First Aid Kit	☒	8. Ear Protection	☒	13. Back-Up Alarms	☒	18. Slings	☒
4. Fire Extinguisher	☒	9. Eye Protection	☒	14. Safety Vests	☒	19. Gas Detector	☐
5. Fire Fighting Equip.	☐	10. Warning Signs	☐	15. Hair & Beard Policy	☒	20. Emergency Com.	☐

Possible Hazards: (Y,N)

1. Power Lines ☐ 2. Pipe Lines ☐ 3. Open Excavation ☐ 4. Well Head ☐ 5. Confined Space ☐
6. Ground Disturbance ☐ 7. Other Hazards (Overhead / Underground) ☐ 8. H2S ☐ 9. Working Alone ☐

Supervisor's Remarks: _____

Supervisor's Signature: _____ Date: _____



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24840

TOOLBOX / TAILGATE MEETING

Job #: _____ Date: Mar 13 / 15 Print and Initial Name
Project Name: _____ LSD: 2-13-48-8 W5 Karin Darka
No. In Crew: _____ Phone: _____ Terry Susan T.S
Supervisor: _____ Inspector: Kerry Cleaver Karin Barville
Job Description: Clean-up spread gravel Taylor Parry

Topic(s) Discussed: (include assessment of immediate safety hazards) _____

Safety Recommendations: wear all required PPE
work safely near skid steer
drive safely, avoid pinch points

tion(s) To Be Taken: _____

Incidents: Accidents Reviewed: _____

Safety Equipment Check List: (Mark Y, N or N/A)

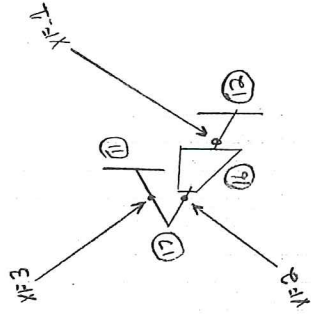
1. Hard Hats ☒	6. Chainsaw Pants ☐	11. Barricades ☒	16. Guards ☐
2. Safety Toed Boots ☒	7. Equip. Seat Belts ☐	12. Air Shut-Offs ☒	17. Lanyards / Harness ☐
3. First Aid Kit ☒	8. Ear Protection ☒	13. Back-Up Alarms ☒	18. Slings ☒
4. Fire Extinguisher ☒	9. Eye Protection ☒	14. Safety Vests ☒	19. Gas Detector ☒
5. Fire Fighting Equip. ☐	10. Warning Signs ☐	15. Hair & Beard Policy ☒	20. Emergency Com. ☐

Possible Hazards: (Y,N)

1. Power Lines ☐ 2. Pipe Lines ☐ 3. Open Excavation ☐ 4. Well Head ☐ 5. Confined Space ☐
6. Ground Disturbance ☐ 7. Other Hazards (Overhead / Underground) ☐ 8. H2S ☐ 9. Working Alone ☐

Supervisor's Remarks: _____

Supervisor's Signature: _____ Date: _____

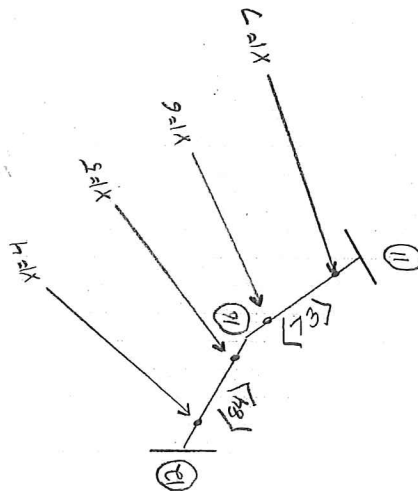


All welds Morgan Tournier

HEAT NUMBER	PIPE			STUDS & NUTS		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
	1				29	
	2				30	
	3				31	
	4				32	
	5				33	
HEAT NUMBER	VALVES			NIPPLES & SWAGES		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
	6				34	
	7				35	
	8				36	
	9				37	
	10				38	
HEAT NUMBER	FLANGES			GASKETS		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
34304	11	1	3"	900 80 RTJ W/AN A105	39	
32939	12	1	4"	900 80 RTJ W/AN A105	40	
	13				41	
	14				42	
	15				43	
HEAT NUMBER	FITTINGS - BUTT WELD			MISCELLANEOUS		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
5812	16	1	4" X 3"	80 CONC W/PB	44	
A448	17	1	3"	80 90° ELB W/PB	45	
	18				46	
	19				47	
	20				48	
	21					
	22					
	23					
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD			DESIGN PARAMETERS		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
	24					
	25					
	26					
	27					
	28					
DRAWN: Tim Schneider				L.S.D.: 17-12-48-8 W5		
CHECKED:				CLIENT: Arc Resources		
APPROVED: Kerry Cleaver				W.P.# [] NESL-1 (Rev.1) [] NESL-2 (Rev.1) [] NESL-PL-2		
DATE: Feb 24 / 15				QC# 1454 SPEC: D SHEET No.: 1 REV:		



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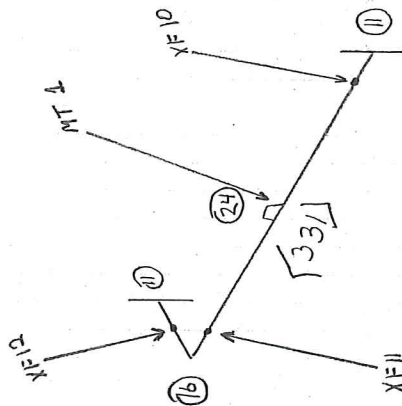
All welds "F"
Morgan Journier

HEAT NUMBER	PIPE				STUDS		EX NUTS
	No.	QTY.	SIZE	DESCRIPTION	No.	SIZE	
144695	1		3"	80	SMLS	A106	
	2						
	3						
	4						
	5						
HEAT NUMBER	VALVES				NIPPLES & SWAGES		
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE
	6						
	7						
	8						
HEAT NUMBER	FLANGES				GASKETS		
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE
	11	1	3"	1500	80	RFWN	A105
	12	1	3"	900	80	RTSWN	A105
	13						
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS		
	No.	QTY.	SIZE	SCN	No.	QTY.	SIZE
	16	1	3"	80	45°	ELB	WIPIS
	17						
	18						
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS		
	No.	QTY.	SIZE	RATING	CODE	DES. PRESS.	DES. TEMP.
	23					2220	-25-33.5
	24						
	25						
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS		
	No.	QTY.	SIZE	RATING	CODE	DES. PRESS.	DES. TEMP.
	26					2220	-25-33.5
	27						
	28						
DRAWN:	T.M. Schneider				LSD: 12-12		2-13-48-8 W5
	CHECKED:				CLIENT:		ARC Resources
	APPROVED:				W.P.#		WESL-1 (Rev.1) WESL-2 (Rev.1) WESL-PL-2
	DATE:				QC#		1454
					SPEC:		0
				SHEET No.:		2	
				REV:			

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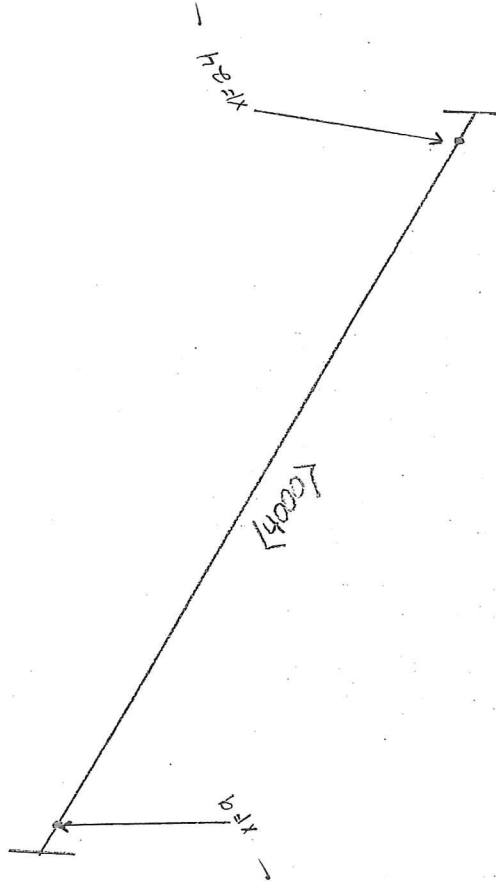
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All welds "V"
Morgon Power

HEAT NUMBER	PIPE			STUDS & NUTS		
	No.	QTY	SIZE	No.	QTY	DESCRIPTION
144695	1	3"	80	29		
	2			30		
	3			31		
	4			32		
	5			33		
HEAT NUMBER	VALVES			NIPPLES & SWAGES		
	No.	QTY	SIZE	No.	QTY	DESCRIPTION
	6			34		
	7			35		
	8			36		
	9			37		
	10			38		
HEAT NUMBER	FLANGES			GASKETS		
	No.	QTY	SIZE	No.	QTY	DESCRIPTION
1343V4	11	2	3"	39		
	12			40		
	13			41		
	14			42		
	15			43		
HEAT NUMBER	FITTINGS - BUTT WELD			MISCELLANEOUS		
	No.	QTY	SIZE	No.	QTY	DESCRIPTION
14448	16	1	3"	44		
	17			45		
	18			46		
	19			47		
	20			48		
	21					
	22					
	23					
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD			DESIGN PARAMETERS		
	No.	QTY	SIZE	No.	QTY	DESCRIPTION
4263	24	1	1"	DES. PRESS:	22.0	
	25			DES. TEMP:	-25 - 35°C	
	26			OPER. PRESS:		
	27			OPER. TEMP:		
	28			HYDRO TEST PRESSURE:	33.0	
				Ca:	1.6	
				X-RAY:	100%	
				STRESS REL:		
				REF. PIPING:		
				REF. MS/DWG:		
DRAWN:	Tim Schneider					
CHECKED:	Arc Resources					
APPROVED:	Kerry Cleaver					
DATE:	Feb 24 / 15					
	QC#	1454	SPEC:	0	SHEET No.:	4
	REV:					

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All welds "F"
Morgan

HEAT NUMBER		PIPE				STUDS & NUTS	
No.	QTY	SIZE	SCH	DESCRIPTION	SF	No.	QTY
144695	1	3"	80	SMLS A106		29	
	2					30	
	3					31	
	4					32	
	5					33	

HEAT NUMBER		VALVES				NIPPLES & SWAGES	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	No.	QTY
	6					34	
	7					35	
	8					36	
	9					37	
	10					38	

HEAT NUMBER		FLANGES				GASKETS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	No.	QTY
144314	2	3"	80	STAIN A106		39	
	12					40	
	13					41	
	14					42	
	15					43	

HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	No.	QTY
	16					44	
	17					45	
	18					46	
	19					47	
	20					48	
	21						
	22						
	23						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. TEMP.
	24					ASME B31.1	22.0
	25					ASME B31.3	-29-33°C
	26					CSA Z66.2	
	27						
	28						

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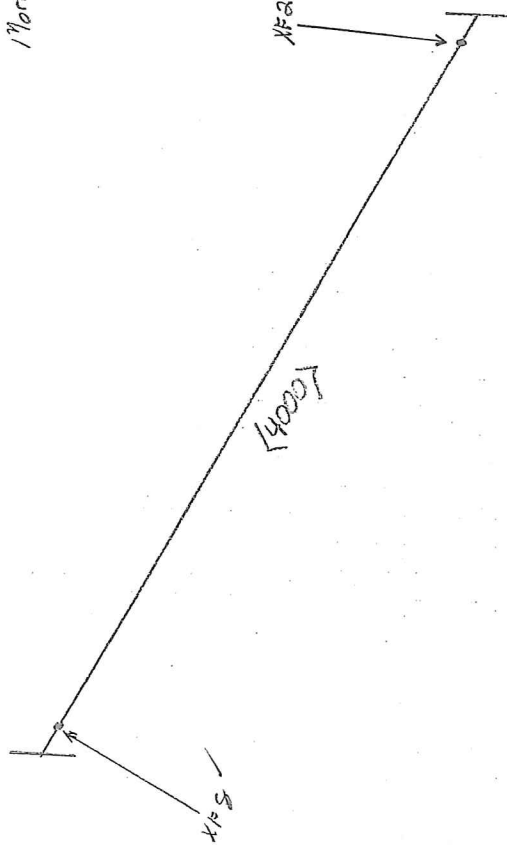
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Drayton Valley, AB T7A 1S7

Ph: 780-514-7882 Fax: 780-514-7883

All welds
1" / 5"



HEAT NUMBER		PIPE				STUDS & NUTS			
No.	DESCRIPTION	QTY.	SIZE	SCH.	SF	No.	QTY.	SIZE	SF
1	3" 80 SMS A106					29			
2						30			
3						31			
4						32			
5						33			

HEAT NUMBER		VALVES				NIPPLES & SWAGES			
No.	DESCRIPTION	QTY.	SIZE	RATING	SF	No.	QTY.	SIZE	SF
6						34			
7						35			
8						36			
9						37			
10						38			

HEAT NUMBER		FLANGES				GASKETS			
No.	DESCRIPTION	QTY.	SIZE	RATING	SF	No.	QTY.	SIZE	SF
11	2" 3" 900 80 RTJ W/AN A105					39			
12						40			
13						41			
14						42			
15						43			

HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS			
No.	DESCRIPTION	QTY.	SIZE	SCH.	SF	No.	QTY.	SIZE	SF
16						44			
17						45			
18						46			
19						47			
20						48			
21									
22									
23									

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
No.	DESCRIPTION	QTY.	SIZE	RATING	SF	CODE	DES. PRESS.	DES. TEMP.	OPER. TEMP.
24						ASME B31.1	222.0	-29 - 33C	
25						ASME B31.3			
26						CSA 266.2			
27									
28									

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
No.	DESCRIPTION	QTY.	SIZE	RATING	SF	CODE	DES. PRESS.	DES. TEMP.	OPER. TEMP.
24						ASME B31.1	222.0	-29 - 33C	
25						ASME B31.3			
26						CSA 266.2			
27									
28									

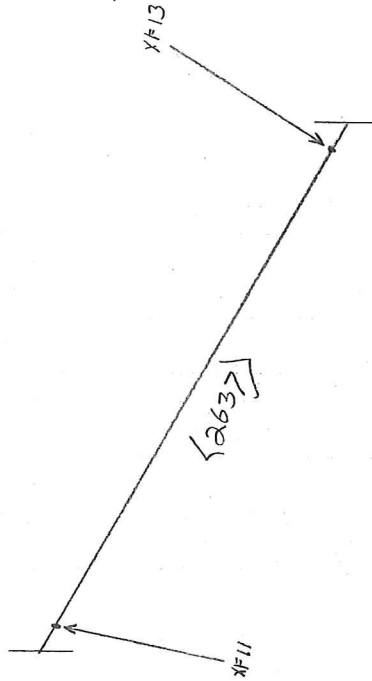
DRAWN:		L.S.D.:	
Tim Schneider	2-13-48-8 W5		

CHECKED:		CLIENT:	
Kerry Cleaver	ARC Resources		

APPROVED:		W.P.#	
Kerry Cleaver	1454		

DATE:		SPEC:	
Mar 2/15	1454		

SHEET No. #		REV:	
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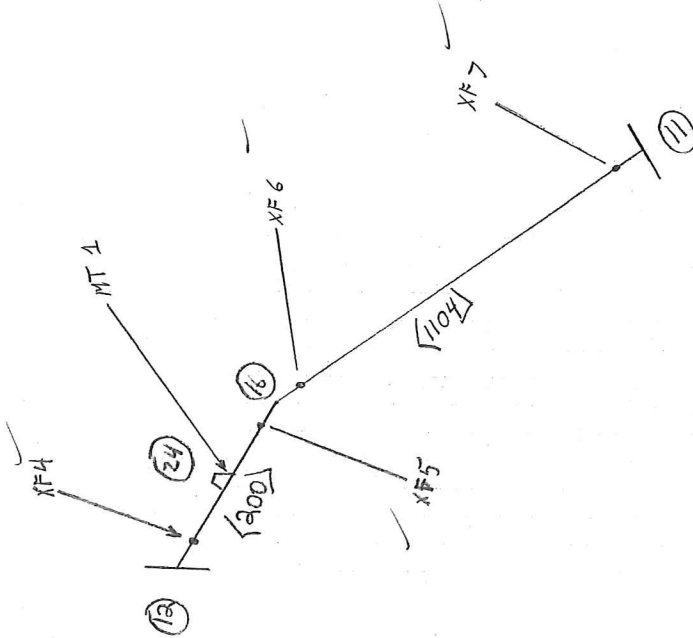


All welds "F"
Margon Fournier

HEAT NUMBER		PIPE				STUDS & WELDS				.NUTS		
		No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
144695		1	3	3"	80	SM13 A106		29				
		2						30				
		3						31				
		4						32				
		5						33				
HEAT NUMBER		VALVES				NIPPLES & SWAGES						
		No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
		6						34				
		7						35				
		8						36				
		9						37				
		10						38				
HEAT NUMBER		FLANGES				GASKETS						
		No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION
84314		11	2	3"	900	80	RTWN A105		39			
		12						40				
		13						41				
		14						42				
		15						43				
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS						
		No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
		16						44				
		17						45				
		18						46				
		19						47				
		20						48				
		21										
		22										
		23										
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS						
		No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE:	☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2			
		24						DES. PRESS:	222.0			
		25						DES. TEMP:	-25-38°C			
		26						OPER. PRESS:				
		27						HYDRO TEST PRESSURE:	333.0			
		28						CA:	1.6 mm			
		29						X-RAY:	1886			
		30						STRESS REL:				
		31						REF. PIP. DWG:				
		32						REF. MFG. DWG:				
DRAWN: Tim Schneider		L.S.D.: 2-13-48-8 w5										
CHECKED:		CLIENT: Arc Resources										
APPROVED: Kerry Cleaver		W.P.#				☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL2						
DATE: Mar 2 / 15		QC# 1454				SPEC: D				SHEET No.: #7		
										REV:		

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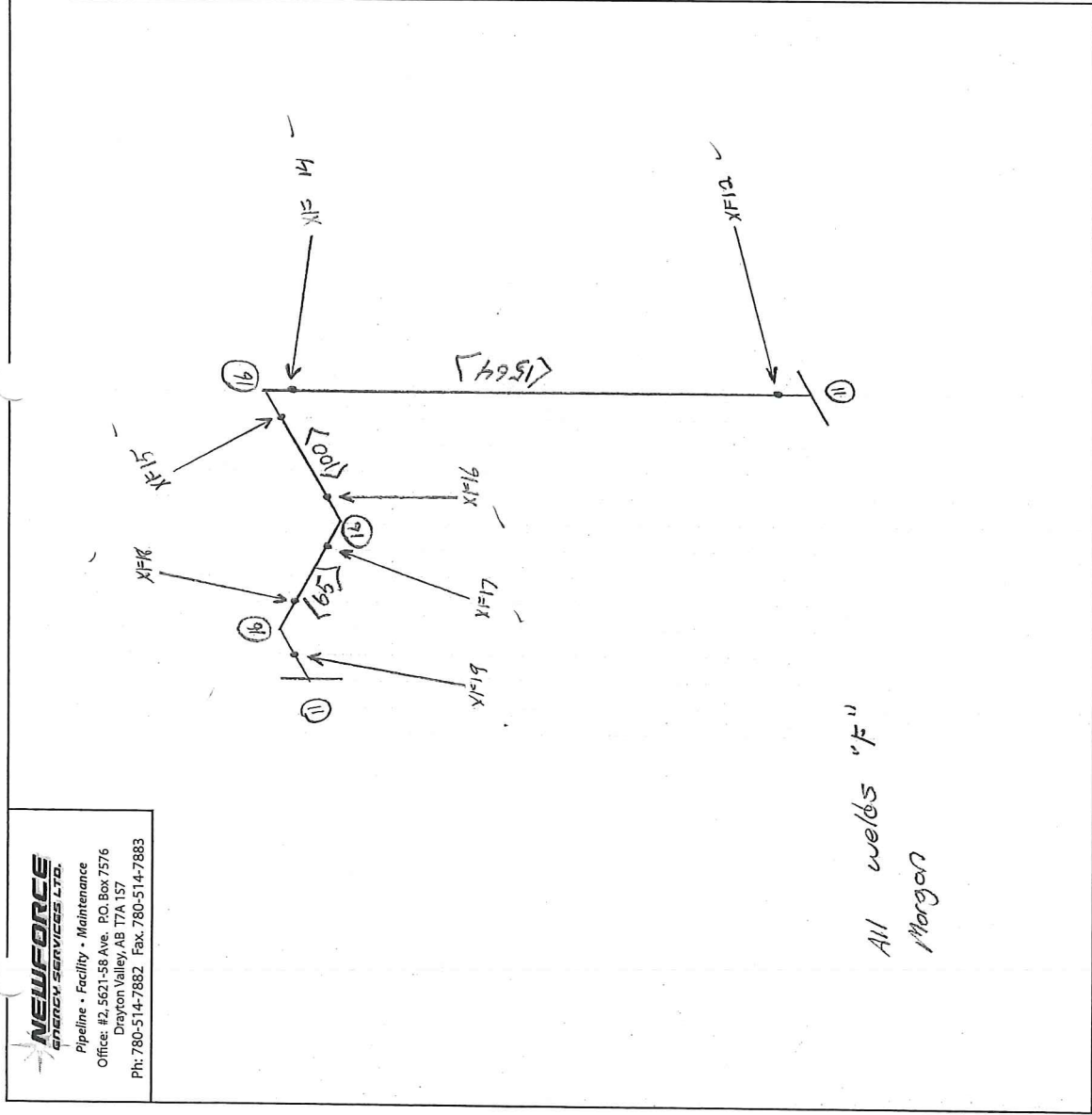


All welds "F"
Morgan Fournier

HEAT NUMBER		PIPE					STUDS C/W 2					NUTS					
		No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
A144695		1		3/4	80	SM/3 A106		29					29				
		2						30					30				
		3						31					31				
		4						32					32				
		5						33					33				
HEAT NUMBER		VALVES					NIPPLES & SWAGES										
		No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	SCH	DESCRIPTION	SF				
		6						34									
		7						35									
		8						36									
		9						37									
		10						38									
HEAT NUMBER		FLANGES					GASKETS										
		No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	RWG	DESCRIPTION	SF			
669948		11	1	3"	1500	80	RWLN A105		39								
1343V4		12	1	3"	900	80	RWLN A105		40								
		13						41									
		14						42									
		15						43									
HEAT NUMBER		FITTINGS - BUTT WELD					MISCELLANEOUS										
		No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	SCH	DESCRIPTION	SF				
3422		16	1	3"	80	45° ELB	W/13		44								
		17						45									
		18						46									
		19						47									
		20						48									
		21															
		22															
		23															
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD					DESIGN PARAMETERS										
		No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	SCH	DESCRIPTION	SF				
4001		24	1	1"	3/4	400	A105		DES. PRESS:	2220							
		25							DES. TEMP:	-29-33°C							
		26							OPER. PRESS:								
		27							HYDRO TEST PRESSURE:	3330							
		28							CA:	16							
									X-RAY:	100%							
									STRESS REL:								
									REF PIP DWG:								
									REF. MES DWG:								
DRAWN: Tim Schneider		L.S.D.:					2-13-48-8 W5										
CHECKED:							CLIENT:					Arc Resources					
APPROVED: Kerry Cleaver		W.P.#					[] NESI-1 (Rev.1) [] NESI-2 (Rev.1) [] NESI-PL2										
DATE: Mar 2 15		QC# 1454					SPEC: 0					SHEET No.: 48					
												REV:					

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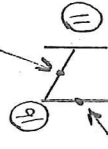


HEAT NUMBER		PIPE				STUDS & NUTS							
		No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
144695		1		3 1/4	80	SM 15 4106		29					
		2						30					
		3						31					
		4						32					
		5						33					
HEAT NUMBER		VALVES				NIPPLES & SWAGES							
		No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
		6						34					
		7						35					
		8						36					
		9						37					
		10						38					
HEAT NUMBER		FLANGES				GASKETS							
		No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
13/34037		11	2	3 1/4	900	80	RTS W N AMP		39				
		12							40				
		13							41				
		14							42				
		15							43				
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS							
		No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
A448		16	3	3 1/4	80	90° ELB WPD		44					
		17						45					
		18						46					
		19						47					
		20						48					
HEAT NUMBER		FITTINGS - SCR'D & SOCKET WELD				DESIGN PARAMETERS							
		No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2					
		21						DES. PRESS: 2220					
		22						DES. TEMP: -29 to -58°C					
		23						OPER. PRESS:					
HEAT NUMBER		FITTINGS - SCR'D & SOCKET WELD				DESIGN PARAMETERS							
		No.	QTY.	SIZE	RATING	DESCRIPTION	SF	OPER. TEMP:					
		24						HYDRO TEST PRESSURE: 3330					
		25						CL: 16					
		26						X-RAY: 100%					
		27						STRESS REL:					
		28						REF. PIP DWG:					
								REF. MFG DWG:					
DRAWN: Tim Schneider						L.S.D.: 2-13-48-8 W5							
CHECKED:						CLIENT: Arc Resources							
APPROVED: Kerry Cleaver						W.P.# ☐ MESL-1 (Rev.1) ☐ MESL-2 (Rev.1) ☐ MESL-PL-2							
DATE: Mar 2/15						QC# 1454 SPEC: D				SHEET No.: #9 REV:			



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X1=23



X1=10

1513

MT 2

11

X1=20

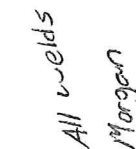
"1" "

All welds
Morgan

Morgan

X1=23

HEAT NUMBER	PIPE			STUDS			EX. NUTS
	QTY.	SIZE	DESCRIPTION	QTY.	SIZE	DESCRIPTION	
144695	1	3"	80 SCH 40	29			
	2			30			
	3			31			
	4			32			
	5			33			
HEAT NUMBER	VALVES			NIPPLES & SWAGES			
	QTY.	SIZE	DESCRIPTION	QTY.	SIZE	DESCRIPTION	
	6			34			
	7			35			
	8			36			
	9			37			
	10			38			
HEAT NUMBER	FLANGES			GASKETS			
	QTY.	SIZE	DESCRIPTION	QTY.	SIZE	DESCRIPTION	
1443V4	2	3"	900 80 1513 W/ 1513	39			
	12			40			
	13			41			
	14			42			
	15			43			
HEAT NUMBER	FITTINGS - BUTT WELD			MISCELLANEOUS			
	QTY.	SIZE	DESCRIPTION	QTY.	SIZE	DESCRIPTION	
144322	2	3"	90 80 1513 W/ 1513	44			
	17			45			
	18			46			
	19			47			
	20			48			
	21						
	22						
	23						
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD			DESIGN PARAMETERS			
	QTY.	SIZE	DESCRIPTION	QTY.	SIZE	DESCRIPTION	
	1	1"	3M 1513 W/ 1513				
	24						
	25						
	26						
	27						
	28						
				DESIGN PARAMETERS			
				CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2			
				DES. PRESS: 2226			
				DES. TEMP: 229-338			
				OPER. PRESS:			
				OPER. TEMP:			
				HYDROTEST PRESSURE: 3330			
				CR: 1.6			
				X-RAY: 100%			
				STRESS REL:			
				REF. PIP DWG:			
				REF. MFS DWG:			
DRAWN: Tim Schneider				L.S.D.: 2-13-48-8 W5			
CHECKED:				CLIENT: Arc Resources			
APPROVED: Kerry Cleaver				W.P.#: ☐ MESL-1 (Rev.1) ☐ MESL-2 (Rev.1) ☐ MESL-PL2			
DATE: Mar 2 / 15				QC# 1454 SPEC: 0			
				SHEET No.: #10			
				REV:			

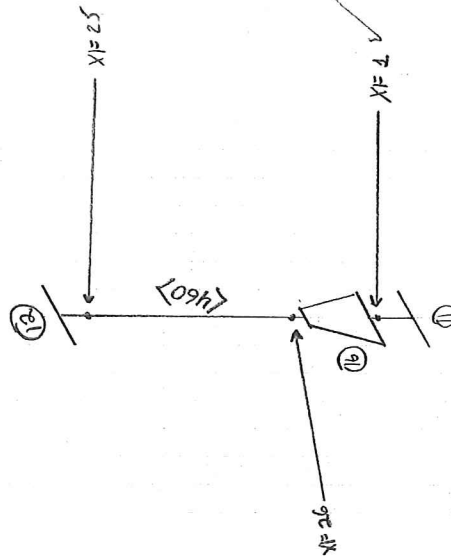


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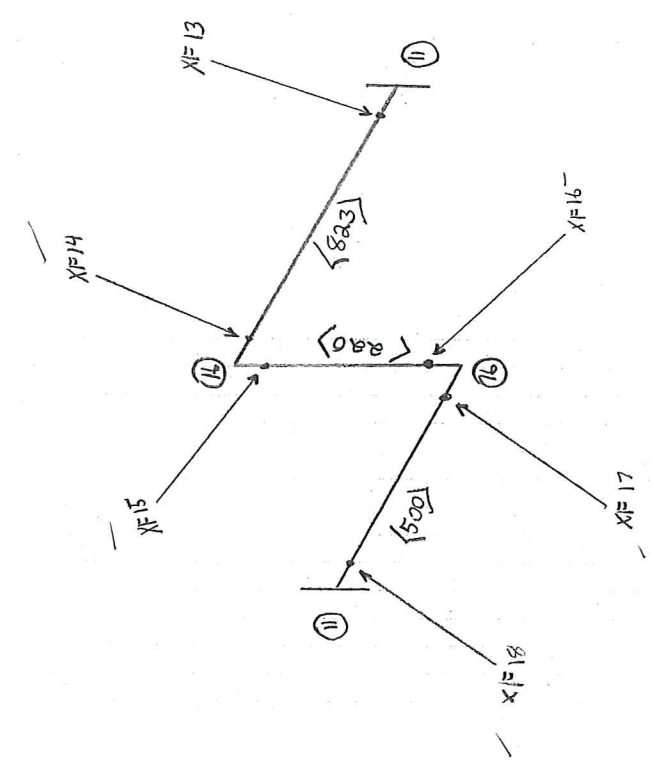


All welds "1" II
Morgan

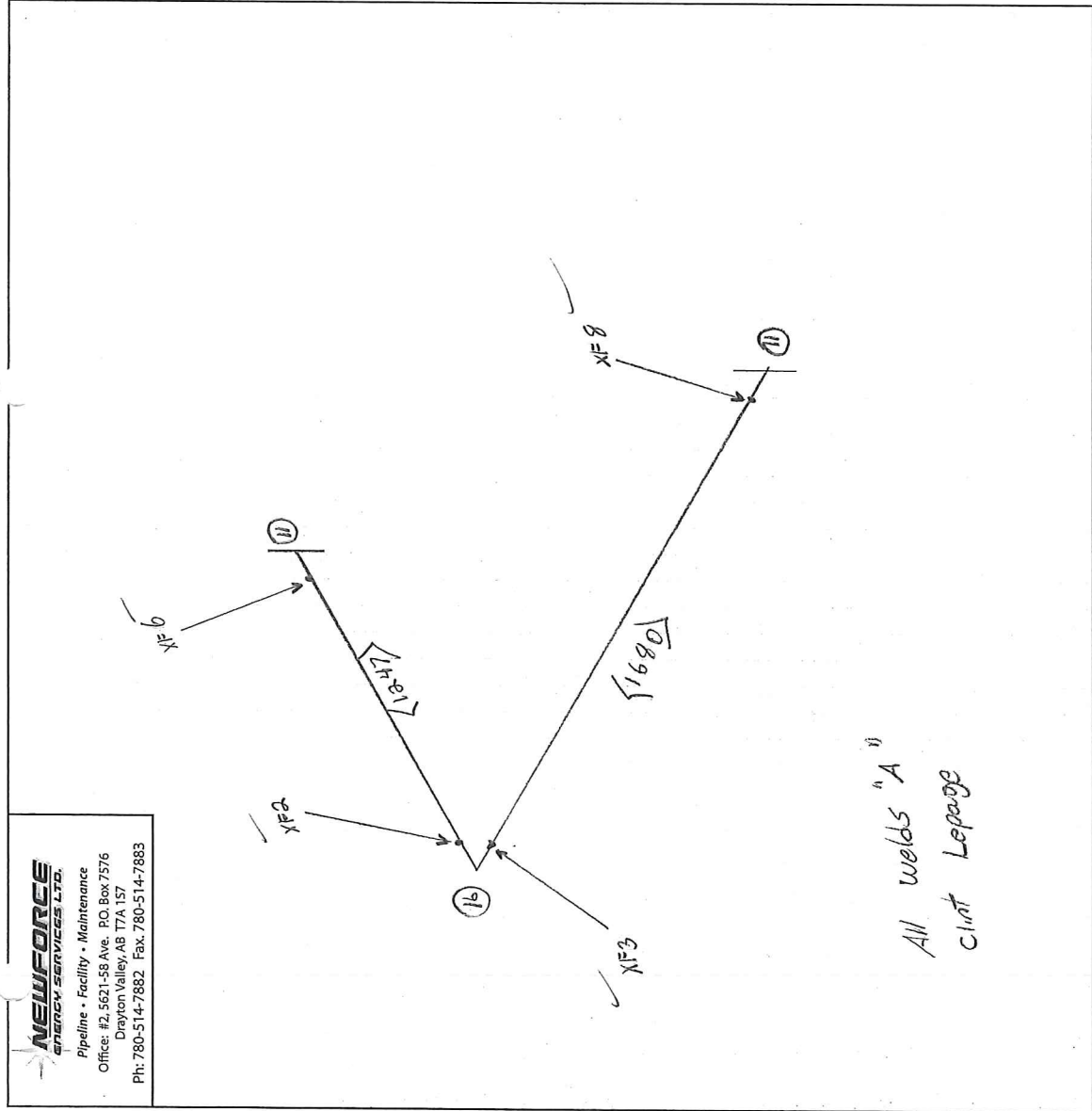
HEAT NUMBER	PIPE				STUDS C/W				NUTS		
	No.	QTY.	SIZE	SCH.	DESCRIPTION	S/F	No.	QTY.		SIZE	DESCRIPTION
144695	1		3"	80	SM/LS A106		29				
	2						30				
	3						31				
	4						32				
	5						33				
HEAT NUMBER	No.	QTY.	SIZE	RATING	DESCRIPTION	S/F	No.	QTY.	SIZE	DESCRIPTION	S/F
	6				VALVES					NIPPLES & SWAGES	
	7						34				
	8						35				
	9						36				
	10						37				
	11						38				
HEAT NUMBER	No.	QTY.	SIZE	RATING	DESCRIPTION	S/F	No.	QTY.	SIZE	DESCRIPTION	S/F
766 V2	1		4"	900	80 REVN A105		39				
843 V4	1		3"	900	80 REVN A105		40				
	12						41				
	13						42				
	14						43				
	15						44				
HEAT NUMBER	No.	QTY.	SIZE	RATING	DESCRIPTION	S/F	No.	QTY.	SIZE	DESCRIPTION	S/F
5812	1		4x3	80	CONC WPR		45				
	16						46				
	17						47				
	18						48				
	19										
	20										
	21										
	22										
	23										
HEAT NUMBER	No.	QTY.	SIZE	RATING	DESCRIPTION	S/F	No.	QTY.	SIZE	DESCRIPTION	S/F
	24				FITTINGS - SCRD & SOCKET WELD						
	25										
	26										
	27										
	28										
DESIGN PARAMETERS											
CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA 266.2											
DES. PRESS: 2270											
DES. TEMP: -29-38°C											
OPER. PRESS:											
OPER. TEMP:											
HYDRO TEST PRESSURE: 3330											
CL: 1.6											
X-RAY: 100% STRESS REL:											
REF. PIP. DWG:											
REF. MFS DWG:											
DRAWN: Tim Schneider L.S.D.: 2-13-48-8 W5											
CHECKED: Are Resources CLIENT:											
APPROVED: Kerry Cleaver W.P.# ☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2											
DATE: Mar 2 /15 QC# 1154 SPEC: D SHEET No. 12 REV:											

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All welds
4" Clint LePage



HEAT NUMBER	PIPE				STUDS & W 2				JTS
	No.	QTY	SIZE	SCH	DESCRIPTION	SF	No.	QTY	DESCRIPTION
144695	1		3"	80	SMB A106		29		
	2						30		
	3						31		
	4						32		
	5						33		
HEAT NUMBER	VALVES				NIPPLES & SWAGES				
	No.	QTY	SIZE	RATING	DESCRIPTION	SF	No.	QTY	DESCRIPTION
	6						34		
	7						35		
	8						36		
	9						37		
	10						38		
HEAT NUMBER	FLANGES				GASKETS				
	No.	QTY	SIZE	RATING	DESCRIPTION	SF	No.	QTY	DESCRIPTION
12/34037	11	2	3"	900 80	RTJW A105		39		
	12						40		
	13						41		
	14						42		
	15						43		
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS				
	No.	QTY	SIZE	SCH	DESCRIPTION	SF	No.	QTY	DESCRIPTION
A448	16	2	3"	80	90° 150 WPS		44		
	17						45		
	18						46		
	19						47		
	20						48		
	21								
	22								
	23								
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS				
	No.	QTY	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. PRESS:	
	24						☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA B662	2220	
	25						DES. TEMP:	-25 - 33	
	26						OPER. PRESS:		
	27						HYDRO TEST PRESSURE:	3330	
	28						CL:	1-6	
							X-RAY:	100%	
							STRESS REL:		
							REF. PIP DWG:		
							REF. MFS DWG:		
DRAWN:	Tom Schneider				L.S.D.:	2-13-48-8			
CHECKED:					CLIENT:	Arc Resources			
APPROVED:	Kerry Cleaver				W.P.#	☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2			
DATE:	Mar 10 / 15				QC#	1454		SPEC:	D
								SHEET No.:	4/3
								REV:	

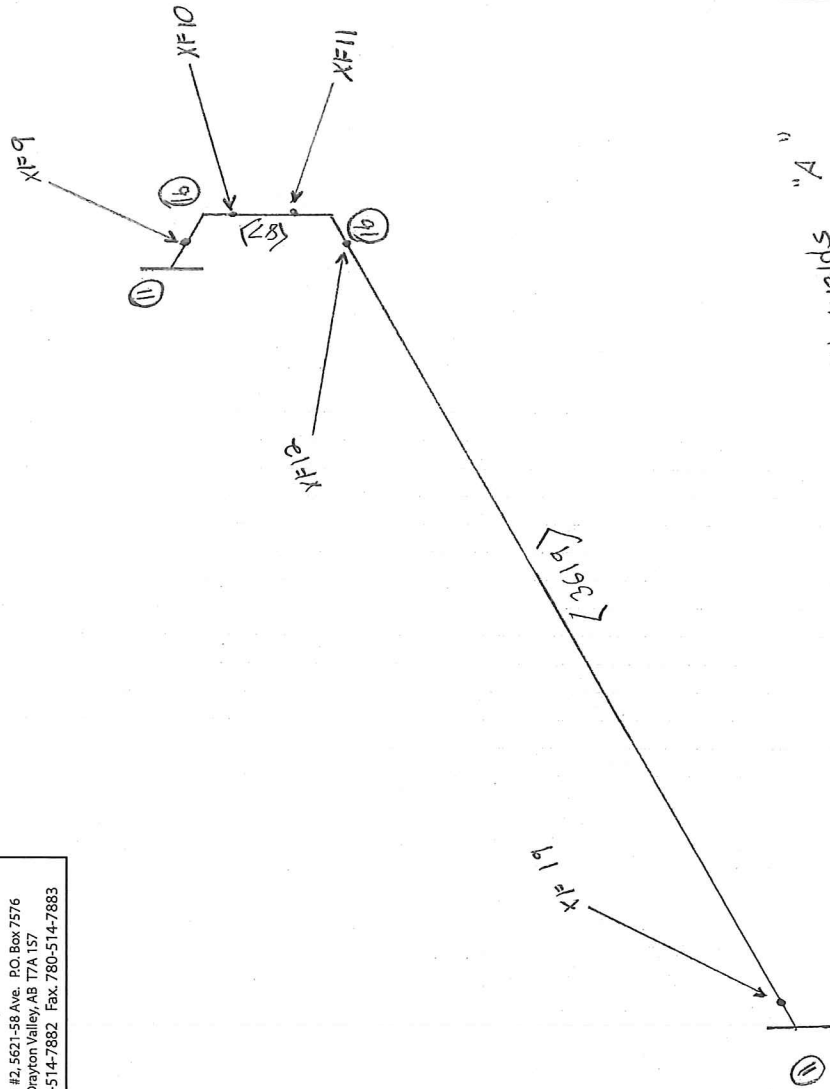


NEWFORCE
ENERGY SERVICES LTD.
Pipeline • Facility • Maintenance
Office: #2, 5621-58 Ave. PO Box 7576
Drayton Valley, AB T7A 1S7
Ph: 780-514-7882 Fax: 780-514-7883

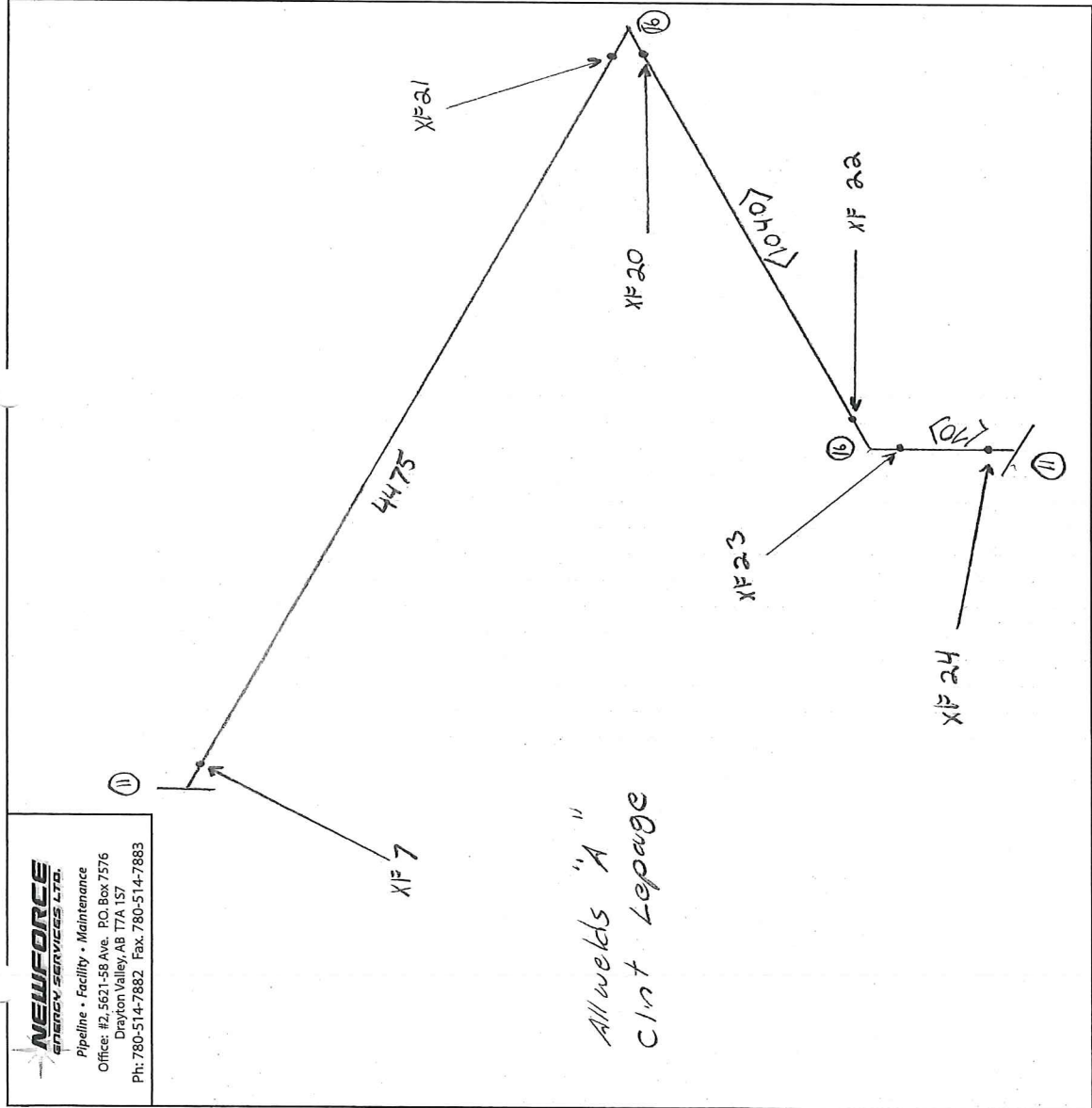
HEAT NUMBER		PIPE				STUDS & NUTS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
14469.5	1	3"	80	5mls A106		29					
	2					30					
	3					31					
	4					32					
	5					33					
HEAT NUMBER		VALVES				NIPPLES & SWAGES					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
	6					34					
	7					35					
	8					36					
	9					37					
	10					38					
HEAT NUMBER		FLANGES				GASKETS					
No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
12/34037	11	3"	900	80	RTJW A105		39				
	12						40				
	13						41				
	14						42				
	15						43				
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
4448	16	3"	80	90° ELB WPL3		44					
	17					45					
	18					46					
	19					47					
	20					48					
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE	DES. PRESS.	DES. TEMP.	OPER. PRESS.		
	21					□ ASME B31.1 □ ASME B31.3 □ CSA B66.2		222.0			
	22							-29-33C			
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE	DES. PRESS.	DES. TEMP.	OPER. PRESS.		
	24										
	25										
	26										
	27										
	28										
DRAWN:		LSD: 2-13-48-8 W5									
CHECKED:		CLIENT: Arc Resources									
APPROVED:		W.P.# □ NESL-1 (Rev.1) □ NESL-2 (Rev.1) □ NESL-PL-2									
DATE:		QC# 1454 SPEC: 0									
		SHEET No. 14 REV:									



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HEAT NUMBER	PIPE			STUDS & NUTS		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
144695	1	3	80	SMs A106	29	
	2				30	
	3				31	
	4				32	
	5				33	
HEAT NUMBER	VALVES			NIPPLES & SWAGES		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
	6				34	
	7				35	
	8				36	
	9				37	
	10				38	
HEAT NUMBER	FLANGES			GASKETS		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
12134037	11	2	3	900 80 RTJ W/ NIPPS	39	
	12				40	
	13				41	
	14				42	
	15				43	
HEAT NUMBER	FITTINGS - BUTT WELD			MISCELLANEOUS		
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.
1448	16	2	3	80 90° 3/16 W/PS	44	
	17				45	
	18				46	
	19				47	
	20				48	
	21					
	22					
	23					
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD			DESIGN PARAMETERS		
	No.	QTY.	SIZE	DESCRIPTION	CODE	DES. PRESS.
	24				ASME B31.1	222.0
	25				ASME B31.3	-29 - 33°C
	26				DES. TEMP.	
	27				OPER. TEMP.	
	28				HYDRO TEST PRESSURE	3330
					CR	1.6
					X-RAY	100%
					STRESS REL.	
					REF. PIP DWG	
					REF. WFS DWG	
DRAWN: Tim Schneider				L.S.D.: 2-13-48-8 W5		
CHECKED:				CLIENT: Arc Resources		
APPROVED: Kerry Cleaver				W.P.# MESL-1 (Rev.1) MESL-2 (Rev.1)		
DATE: Mar 10/15				QC# 1454	SPEC: 0	REV: 15



HEAT NUMBER		PIPE				STUDS & NUTS						
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF		
144695	1	3" 80		SMIS AL106		29						
	2					30						
	3					31						
	4					32						
	5					33						
HEAT NUMBER		VALVES				NIPPLES & SWAGES						
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF		
	6					34						
	7					35						
	8					36						
	9					37						
	10					38						
HEAT NUMBER		FLANGES				GASKETS						
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	RANG	DESCRIPTION	SF
12/34037	11	2	3"	900 80	RTJWN A105		39					
	12						40					
	13						41					
	14						42					
	15						43					
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS						
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	SCH	DESCRIPTION	SF	
A448	16	2	3"	80	90° 45° 10 WPB		44					
	17						45					
	18						46					
	19						47					
	20						48					
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS						
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA B66.2						
	23					DES. PRESS: 222.0						
	22					DES. TEMP: -29 - 33°C						
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS						
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA B66.2						
	24					DES. PRESS: 222.0						
	25					DES. TEMP: -29 - 33°C						
	26					HYDRO TEST PRESSURE: 333.0						
	27					Ca: 1.6mm						
	28					X-RAY: 100% STRESS REL:						
DRAWN: Tim Schneider		L.S.D.: 2-13-48-8 wbs				DES. PRESS: 222.0						
CHECKED:		CLIENT: Arc Resources				DES. TEMP: -29 - 33°C						
APPROVED: Kerry Cleaver		W.P.#				HYDRO TEST PRESSURE: 333.0						
DATE: Mar 10 15		QC# 1454				Ca: 1.6mm						
		SPEC: 0				X-RAY: 100% STRESS REL:						
		SHEET No: 4/4				DES. PRESS: 222.0						
		REV:				DES. TEMP: -29 - 33°C						
		NESL-1 (Rev.1) ☒ NESL-2 (Rev.1) ☐ NESL-P.2				CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA B66.2						

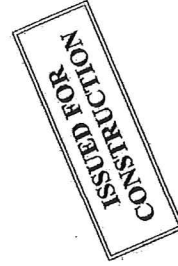
ARC RESOURCES LTD.

PEMBINA - MIPA 8

2-13-48-8 W5M

FRESH WATER MODIFICATIONS
MECHANICAL DRAWINGS

PROJECT # 2136



TNT ENGINEERING LTD.
SUITE 600 1550 15TH AVE SW
CALGARY AB T2C 0M6
PHONE (403) 387-2500
FAX (403) 387-2535

ARC RESOURCES LTD. PIPE, VALVE AND FITTING SPECIFICATIONS
 REVISED: JULY 18, 2007
 REVISION NUMBER: 1.0



SPEC D ASME PIPING SPECIFICATIONS
 REVISION 01
 DATE July 18, 2007

SERVICE: SWEET HYDROCARBONS
 DESIGN PRESSURE: 15,300 kPa (2,200 psig) @ 38 C (100 F)
 DESIGN TEMPERATURE: 38 C (100 F)
 TEMPERATURE LIMITS: -29 to 140 C (-20 to 300 F) RATING: ASME/ANSI B16.5
 CORROSION ALLOWANCE: 1.6 mm
 NOT: Vessel, 100% of all butt welds to be 100% radiographed
 if pipe wall thickness > 19 mm - see Note 11 also

ANSI CLASS: 900 RTJ
 CODE: ASME B31.3

GENERAL: see ASME PIPING SPECIFICATION 'N' for a description of relevant NOTES
 Piping Specification not to be used for amine, cryogenic, CO₂, acid gas, caustic, H₂S or LPG service.

PIPE	NPS	RATING	CONN	DESCRIPTION	NOTES
	1/2 to 1 1/2	Sch 160	SW / Std	ASTM A 106 B (SALES) P/E / TBE	
	2 to 4	Sch 160	SW / Std	ASTM A 106 B (SALES) P/E	
	4 to 12	Sch 120 min. (calc VT & MDWT)	BW	ASTM A 106 B (SALES) P/E	10

FITTINGS	NPS	RATING	CONN	DESCRIPTION	NOTES
CAP	1/2 to 1 1/2	Class 6000	Std	ASTM A 105	3
	2 to 4	Sch 160	BW	ASTM A 105 WPR	4, 10, 12
	4 to 6	Sch 120 min.	BW	ASTM A 234 WPR	4, 10, 12
COUPLING	1/2 to 1 1/2	Class 6000	Std	ASTM A 105, L/E & TBE	3
	2 to 4	Class 6000	Std	ASTM A 105, L/E & TBE	3
CROSS	1/2 to 1 1/2	Class 6000	Std	ASTM A 105, L/E & TBE	3
	2 to 4	Class 6000	Std	ASTM A 105, L/E & TBE	3
ELBOW	1/2 to 1 1/2	Sch 160	LRBW	ASTM A 234 WPR, 45 & 90, straight & reducing	2, 4
	2 to 4	Sch 120 min.	LRBW	ASTM A 234 WPR, 45 & 90, straight & reducing	2, 4, 10, 12
FLANGE	1/2 to 1 1/2	Class 6000	RTJ/NN	ASTM A 105, boned to Sch 160 pipe	5
	2 to 4	Class 6000	RTJ/NN	ASTM A 105, boned to Sch 160 pipe	5
HEADS	1/2 to 1 1/2	Class 6000	Std	ASTM A 105	10, 12
	2 to 4	Sch 160	Std	ASTM A 105	10, 12
REDUCER	1/2 to 1 1/2	Class 6000	BW	ASTM A 234 WPR, concentric / eccentric	4
	2 to 4	Sch 120 min.	BW	ASTM A 234 WPR, concentric / eccentric	4
SOCKET	1/2 to 1 1/2	Class 6000	Std	ASTM A 105	5
	2 to 4	Class 6000	Std	ASTM A 105	5
TEE	1/2 to 1 1/2	Class 6000	Std	ASTM A 105 or A 106 B (SALES), match spec & code	3
	2 to 4	Sch 160	BW	ASTM A 234 WPR, straight & reducing	4, 10, 12
	4 to 6	Sch 120 min.	BW	ASTM A 234 WPR, straight & reducing	4, 10, 12
THREADolet	1/2 to 1 1/2	Class 6000	Std	ASTM A 105	5
	2 to 4	Sch 160	Std	ASTM A 105	5
WELDOLET	1/2 to 1 1/2	Class 6000	Std	ASTM A 105	5
	2 to 4	Sch 120 min.	Std	ASTM A 105	5, 10, 12

VALVES	NPS	RATING	CONN	DESCRIPTION	NOTES
BALL	1/2 to 1 1/2	Class 6000	Std	A 105 body, or plate spec, 100% RT	9
	2 to 4	Class 6000	RTJ	WCB body, or plate spec to API 607, lever op	9
CHECK	1/2 to 1 1/2	Class 6000	RTJ	WCB body, or plate spec to API 607, lever op	9
	2 to 4	Class 6000	RTJ	WCB body, or plate spec to API 607, lever op	9
GATE	1/2 to 1 1/2	Class 1500	Std	A 105 body, trim No. 8 to API 600	9
	2 to 4	Class 1500	Std	A 105 body, trim No. 8 to API 600, handwheel	9
GLOBE	1/2 to 1 1/2	Class 6000	Std	WCB body, trim No. 8 to API 600, gear op 2, 4"	9
	2 to 4	Class 6000	Std	WCB body, trim No. 8 to API 600, gear op 2, 4"	9
NEEDLE	1/2 to 3/4	Class 6000	Std	A 105 body & 316 SS trim	9

MISCELLANEOUS	NPS	RATING	CONN	DESCRIPTION	NOTES
BLIND	1/2 to 6	Class 6000	RTJ	ASTM A 105	8
CORNER	1/2 to 6	Class 6000	RTJ	ASTM A 105	8
NUTS	1/2 to 6	Class 6000	RTJ	ASTM A 105, heavy hexagon	8
STUD	1/2 to 1 1/2	Class 6000	Std	ASTM A 105, threaded full length	17
PLUG	1/2 to 1 1/2	Class 6000	Std	ASTM A 105, threaded full length	17
	2 to 4	Class 6000	Std	ASTM A 105, threaded full length	17

ARC RESOURCES LTD. PIPE, VALVE AND FITTING SPECIFICATIONS
 REVISED: JULY 18, 2007
 REVISION NUMBER: 1.0



ASME PIPING SPECIFICATIONS

SPEC B
 REVISION 01
 DATE July 18, 2007

SERVICE: SWEET HYDROCARBONS
 DESIGN PRESSURE: 5,102 kPa (740 psig) @ 38 C (100 F)
 TEST PRESSURE: 7,254 kPa (1,110 psig)
 MATERIALS: 304 SS (A192-1) UNITS: ASME/ANSI B16.5
 CORROSION ALLOWANCE: 1.5 mm (1/16") PAINT: If pipe wall thickness > 19 mm - see Note 11 also
 NOTE: Visual, 10% of all butt welds for each welder to be 100% radiographed

ANSI CLASS: 300 RF
 CODE: ASME B31.3

GENERAL: see ASME PIPING SPECIFICATION N for a description of relevant NOTES

PVLF: Special not to be used for aniline, cryogenic, CO2, acid gas, caustic, HVP or LPG service.

PIPE	NPS	RATING	CONN	DESCRIPTION	NOTES
	1/2 to 2	Sch 40	SW / Std	ASTM A 106 B (SMLS) PE / TBE	1
	2 to 10	Sch 40	BW	ASTM A 106 B (SMLS) BE	
	12	STD	BW	ASTM A 106 B (SMLS) BE	

FITTINGS	ITEM	NPS	RATING	CONN	DESCRIPTION	NOTES
CAP		1/2 to 2	Class 3000	Std	ASTM A 105	3
		2 to 10	Sch 40	BW	ASTM A 234 WPB	4
		12	STD	BW	ASTM A 234 WPB	4
COUPLING		1/2 to 2	Class 3000	Std	ASTM A 105	3
		2 to 10	Sch 40	BW	ASTM A 234 WPB	4
		12	STD	BW	ASTM A 234 WPB	4
ELBOW		1/2 to 2	Class 3000	Std	ASTM A 105, 45 & 90	3
		2 to 10	Sch 40	LWBW	ASTM A 234 WPB, 45 & 90, straight & reducing	2, 4
		12	STD	LWBW	ASTM A 234 WPB, 45 & 90, straight & reducing	2, 4
ELBOWLET		1/2 to 2	Class 3000	Std	ASTM A 105	5
FLANGE		1 to 1 1/2	Class 300	SW	ASTM A 105, boned to Sch 40 pipe	16
		1 1/2 to 2	Class 300	SW	ASTM A 105, boned to Sch 40 pipe	16
		2 to 10	Class 300	RFWN	ASTM A 105, boned to Sch 40 pipe	16
REDUCER		1/2 to 2	Class 3000	Std	ASTM A 105	4
		2 to 10	Sch 40	BW	ASTM A 234 WPB	4
		12	STD	BW	ASTM A 234 WPB	4
SOCKET		1/2 to 1 1/2	Class 3000	SW	ASTM A 105	5
		1 1/2 to 2	Class 3000	SW	ASTM A 105	5
		2 to 10	Sch 40	BW	ASTM A 234 WPB, straight & reducing	4
		12	STD	BW	ASTM A 234 WPB, straight & reducing	4
TEE		1/2 to 2	Class 3000	Std	ASTM A 105 or A 106 B (SMLS), milled pipe & con	5
		2 to 10	Sch 40	BW	ASTM A 234 WPB, straight & reducing	4
		12	STD	BW	ASTM A 234 WPB, straight & reducing	4
THREADEDLET		1/2 to 2	Class 3000	Std	ASTM A 105	7
		2 to 4	Sch 40	BW	ASTM A 105	5
WELDOLET		1/2 to 2	Class 3000	Std	ASTM A 105	5
		2 to 4	Sch 40	BW	ASTM A 105	5

VALVES	ITEM	NPS	RATING	CONN	DESCRIPTION	NOTES
BALL		2	WOG 2000	Std	A 105 body, cr. plated trim, API 602/607	9
		2 to 4	WOG 2000	Std	A 105 body, cr. plated trim, API 602/607	9
		8 to 12	WOG 2000	RF	A 105 body, cr. plated trim, API 602/607, lower operator	9, 13
CHECK		1/2 to 2	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9
		2 to 4	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9
GATE		1/2 to 2	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9
		2 to 4	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9
GLOBE		1/2 to 2	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9
		2 to 4	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9
NEEDLE		1/2 to 2	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9
		2 to 4	WOG 2000	Std	A 105 body, cr. plated trim to API 602/607, gear op 2" & 4"	9

MISCELLANEOUS	ITEM	NPS	RATING	CONN	DESCRIPTION	NOTES
BLIND		1 to 12	Class 300	RF	ASTM A 105	8
WASHER		1 to 12	Class 300	RF	ASTM A 105	8
NUTS		1 to 12	Class 300	RF	ASTM A 105	8
PLUG		1/2 to 2	Class 3000	Std	ASTM A 105	17
		2 to 4	Class 3000	Std	ASTM A 105	17

SPEC N ASME PIPING SPECIFICATIONS
REVISION 01 NOTES
DATE July 18, 2007

The following NOTES apply to all ASME Piping Specifications

- 1 corrosion allowances for threaded connections are reduced if utilizing minimum of Sch 40. threaded connections not recommended in lifting or sour service applications
- 2 short radius elbow and returns shall not be used unless they satisfy the specification of the pipe and pressure rating restrictions imposed by ASME B16.28, Paragraph 2 (derated to 80% max. allowable stress value)
- 3 forged steel fittings to ASME B16.11
- 4 buttwelding fitting to ASME B16.9
- 5 forged C.S. branch outlet fittings to MSS SP-97
- 6 swaged (c) nipples and ball plugs to MSS SP-95
- 7 steel pipe unions to MSS SP-43
- 8 blanks to API Std. 590
- 9 all valves shall meet ASME B16.34 requirements
- 10 for > 1/2" all thickness pipe and fittings A 106 B / A 234 WPB require additional testing to meet ASME B31.3 requirements for MOMT. A 333.6 / A 420 WPLG are acceptable alternatives (as applicable) to meet MOMT requirements
- 11 use PWHT for production welds if WPS was qualified with PWHT to control hardness. Evidence of hardness control consisting of third party inspections on sample welds shall be included in the contractor's quality control manual. In particular, all weld procedures for sour piping systems must demonstrate that the weld metal, heat affected zone and parent metal through-thickness hardness levels will not exceed 22 HRC or 200 HBW (at 500 kg) as defined in NACE MR0175.
Welds that do not comply with the above requirements or that do not have evidence of hardness control must be post-weld heat treated
- 12 on calculated pipe wall thicknesses, flange wall thickness to match calculated pipe value
- 13 turnion mounted ball valve
- 14 in sour services CSA Z245.12 applications, materials shall conform to the applicable CSA specification - that is: CSA Z245.1, Section 16 for Inseparable, CSA Z245.11, Section 13 for fittings - CSA Z245.12, Section 13 for flanges - CSA Z245.15, Section 13 for valves - NACE approved fittings, flanges and valves shall be used. The corresponding CSA color - it is acceptable to utilize NACE approved pipe provided that the microhardness is confirmed at a maximum of 248 Vickers
- 15 Low Temperature refer to systems based on A333.6 pipe (L and SL series) and is restricted by the A332 LCB flange on the valves.
- 16 SFRPs Slip-on Flange Related Fum To be used in "Sweet Service" 150 and 300 ANSI Only
- 17 Stud length must accommodate nut and at a minimum 2 exposed threads on each end
- 18 Consult Asset Integrity Group for correct material selection. Valves with specific corrosion resistant properties may be required

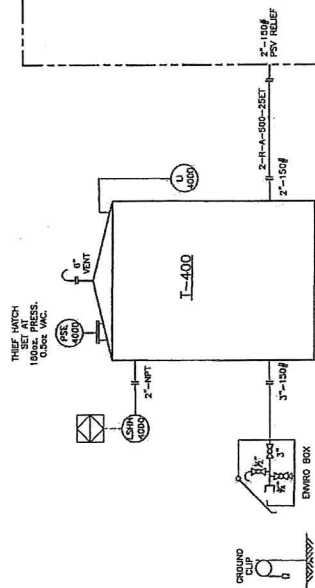
SPECIALS Rating

A= 150
B= 300
C= 600
D= 900
E= 1500

DRAWING INDEX



STRIKE AREA	SURFACE LOCATION	BOTTOM/HOLE LOCATION	DRAWING	DRAWING TYPE	COMMENTS	REV.
PENBINA	MULTI			COVER PAGE	FRESH WATER MODIFICATIONS	
-	-	-	-	ARC RESOURCES LTD. PIPING SPECIFICATION NOTES	ASME PIPING NOTES	01
-	-	-	-	ARC RESOURCES LTD. PIPING SPECIFICATION	ASME PIPING CLASS B	01
-	-	-	-	ARC RESOURCES LTD. PIPING SPECIFICATION	ASME PIPING CLASS D	01
-	-	-	-	LINE LIST	FRESH WATER MODIFICATIONS	0
-	-	-	-	LINE LIST	FRESH WATER MODIFICATIONS	0
-	-	-	-	LINE LIST	FRESH WATER MODIFICATIONS	0
-	-	-	-	TNT SYMBOL SHEET	TYPICAL FLOW SHEET SYMBOLS AND STANDARDS	D
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	WATER STORAGE	3
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	WATER STORAGE S-913	0
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	WATER INJECTION (DEMOLITION DRAWING)	A
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	WATER INJECTION	3
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	PIPELINE RISER AREA (DEMOLITION DRAWING)	A
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	PIPELINE RISER AREA	3
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	2-13 INJECTION SOUTH HEADER	A
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	2-13 INJECTION NORTH HEADER (DEMOLITION DRAWING)	A
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	2-13 INJECTION NORTH HEADER	1
-	-	-	-	PIPING AND INSTRUMENTATION DIAGRAM	2-13 CDG POLYMER SKID	2



Z-900
POLYMER INJECTION PACKAGE
VENDOR: FABTECH - BLACK BOX
TYPE: CDG - CHROMIUM CROSS-LINKER
DATE: 2014

T-400
POP TANK
VENDOR: R. POLLITT
SIZE: 100 BBL

THIEF HATCH
SET AT
160oz. PRESS.
0.5oz VAC.

7-900

2'-800f
RTU

2-PW-D-101-25E1-C

CSG TO 2-13 HEADER

6-13 UNC
(DILUTED SOLUTION 1)

013140686200/20

2'-900#
RTJ
2-PW-D-102-25T-1C
COC TO 2-13 HEADER
10-12 LINE
071594635-2101 (0)
(DILUTED SOLUTION 2)

2*-000#
RTJ
2-PW-0-103-25ET-IC
COC TO 2-13 H2O/LR
4-13 LINE
0213006MS 210170
(DILUTED SOLUTION 3)

2"-000#
RJ
2-PW-O-104-25ET-C
CDO TO 2-13 (HEADER
8-14 UNL
(DILUTED SOLUTION 4)
01/10/2008 21:51:20

2"-900#
RTJ
2-PW-D-105-25ET-IC
CDC TO 2-13 HEADER
14-12 LINE
021304686C.7101/20
(DILUTED SOLUTION 5)

2"-900#
172J

2-PW-O-106-25T-1C

CDG TO 2-13 HEADER

16-12 LINC
(DILUTED SOLUTION Ø)

02130160501216170

3"-900#
RTJ

3-
900#
RTJ  FRESH WATER
3-SW-D-150-25ET
101 DOWNS 2101 20

ARC
RESOURCES LTD.



Kvaerner Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA - MIPA 8
2-13-48-8 W5M

2-13 CDG POLYMER SKID
PIPING AND INSTRUMENTATION DIAGRAM

LC	NTS	DRG	0213048085.2102/01	REV.	2
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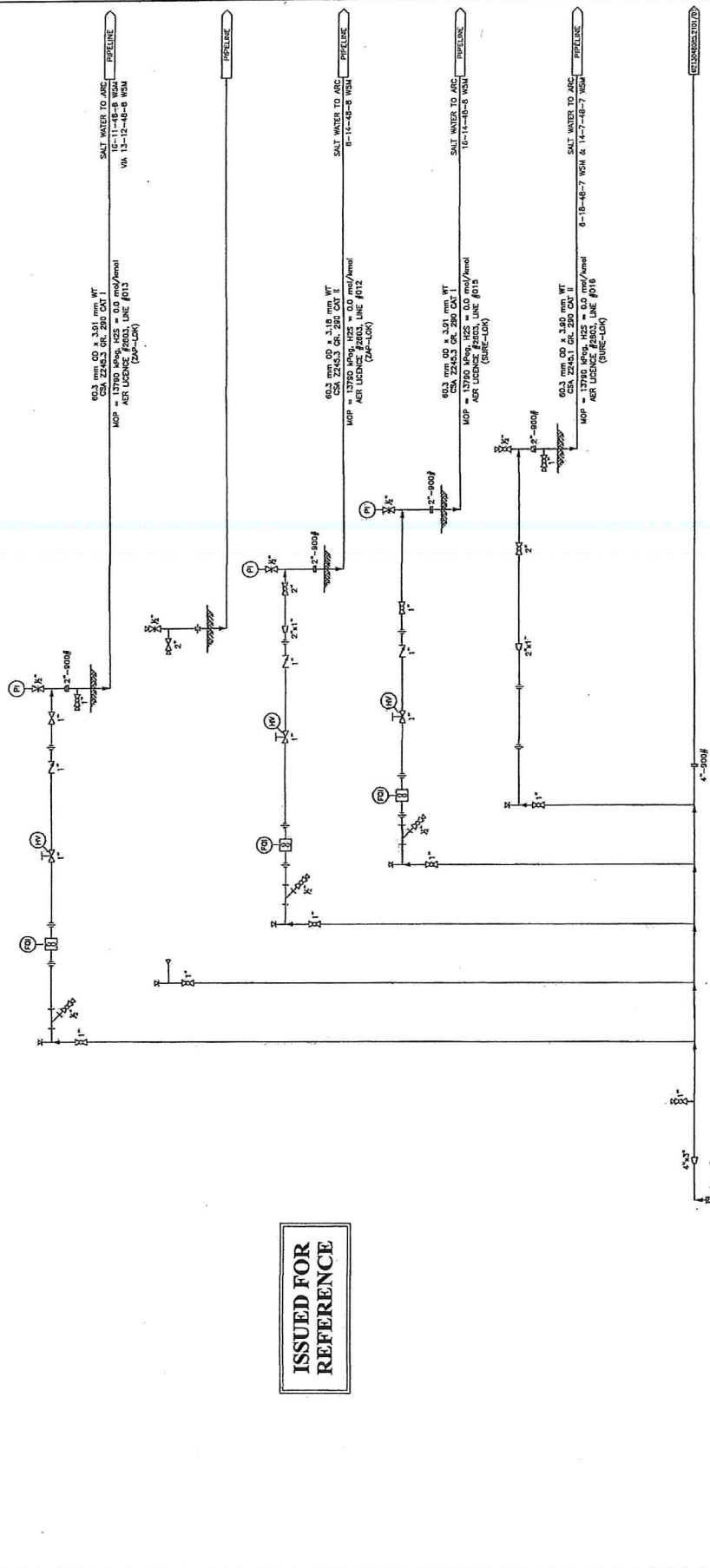
PROJECT	R. CUMBERLAND	DATE-	08/28/2014
PROJECT	N. ALBERS	DATE-	08/28/2014

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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DRY		
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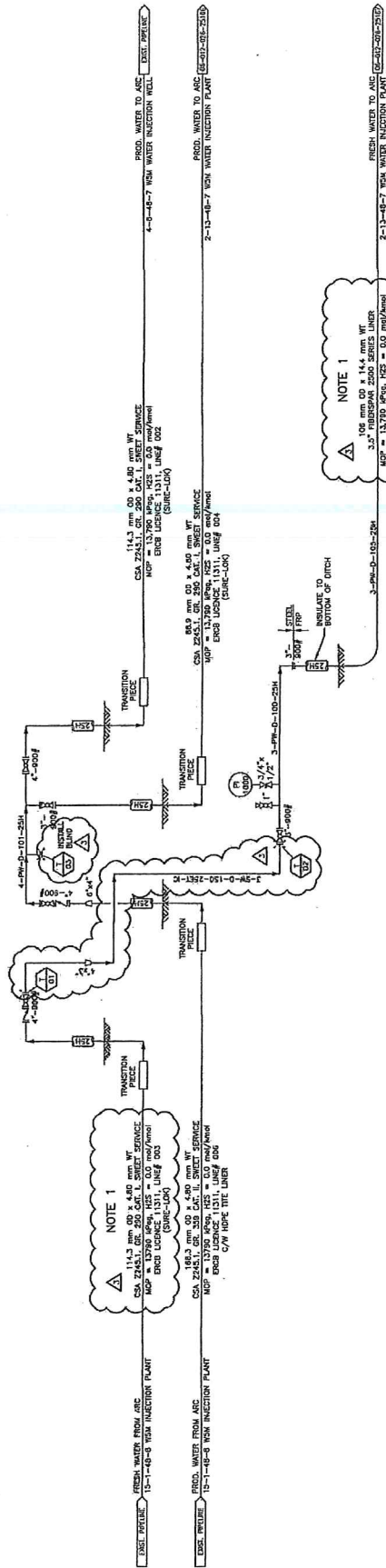
[illegible]

[illegible]

ISSUED FOR
REFERENCE

E.V. A	DESCRIPTION	BY CU	MM/DD/YYYY 03/03/2014	CHRG VR	APPROD 2130	JOB No.	STAMP	PERMIT			SUITE 600, 635 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 263-1000 (403) 387-2335 FAX	PEMBINA - MIPA 8 2-13-48-8 WSM 2-13 INJECTION SOUTH HEADER PIPING AND INSTRUMENTATION DIAGRAM	DATE: 03/03/2014 CHECKED: K. ROBERTS ENGINEER: R. CUMBERLAND PROJECT: NTS SCALE: 0213048085.2100/01 REV: A

NOTE:
1. SUBSTANCE CHANGE TO FRESH WATER.



NOTE:
1. SUBSTANCE CHANGE TO FRESH WATER.

REV	DATE	DESCRIPTION	BY	CHKD	APPD	JOB No.
01	2009/01/20	ISSUED FOR APPROVAL - 7-12 PIPELINE INSTALLATION	MR			2087
02	2009/06/12	ISSUED FOR CONSTRUCTION - 7-12 PIPELINE INSTALLATION	SL			2087
03	2015/02/25	ISSUED FOR CONSTRUCTION - FRESH WATER MODIFICATIONS	MR			2130

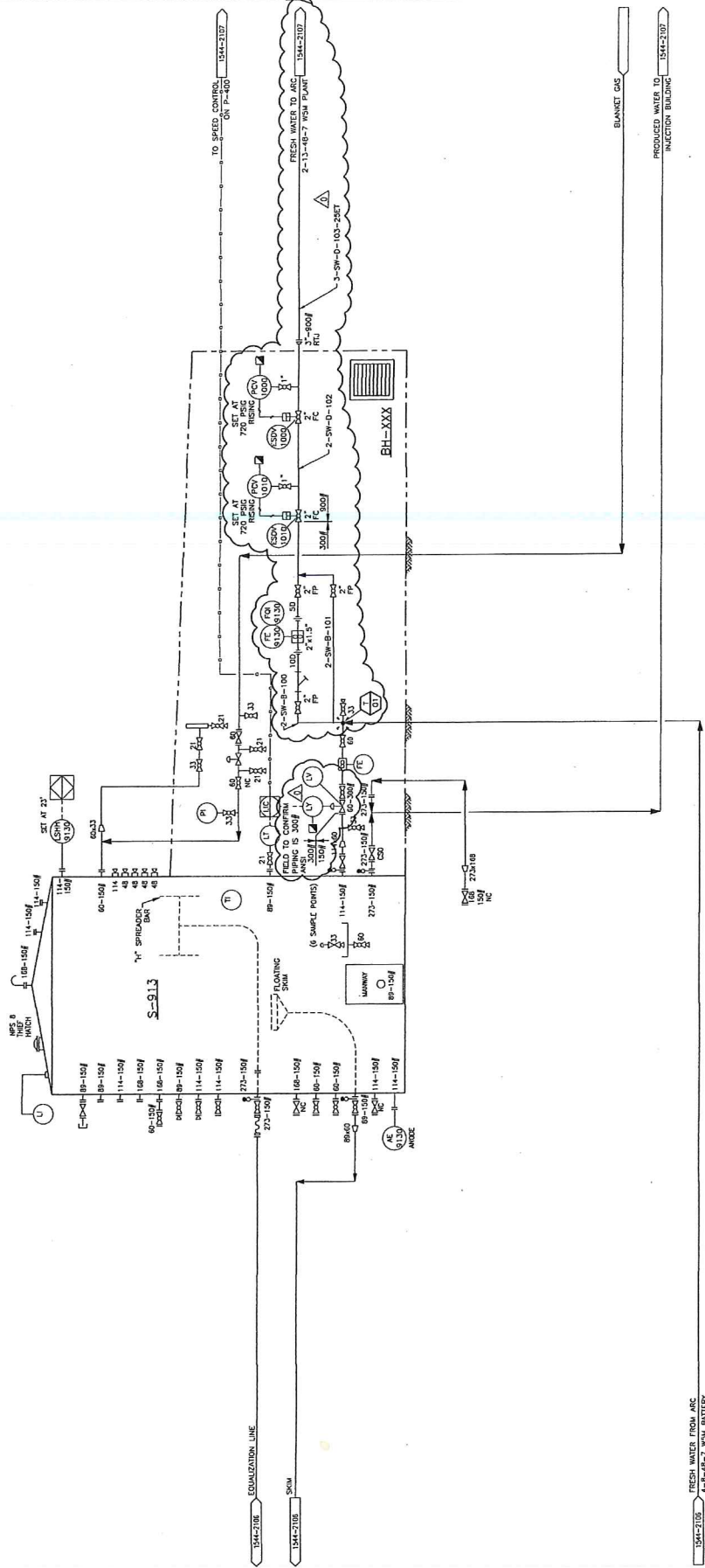
ENGINEERING STAMPS	ENGINEERING RECORD	DATE	DATE	DATE	DATE
PROFESSIONAL ENGINEER ALBERTA R. FAIR CLIMBERLAND	DATE	2009/01/20	DATE	2009/06/12	DATE
ARC RESOURCES LTD.	DATE	2009/01/20	DATE	2009/06/12	DATE
XXL ENGINEERING LTD.	DATE	2009/01/20	DATE	2009/06/12	DATE

CLIENT	PROJECT NO.	DRAWING TITLE	SCALE
ARC RESOURCES LTD.	07-12-048-08 W5M	PIPELINE RISER AREA	NONE
XXL ENGINEERING LTD.	07-12-048-08 W5M	PIPELINE RISER AREA	NONE

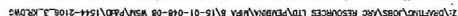
DATE	DATE	DATE	DATE
2009/01/20	2009/06/12	2015/02/25	2015/02/25

S-913
PUMP SUCTION/INJECTION TANK
 SIZE: 5250mm x 2115mm HIGH
 COMPARTMENTED
 INTERNALLY COATED

BH-XXX
BUILDING HEATER
 VENDOR: CAMDINE



ARC RESOURCES LTD.		PERMIT	
SUITE 600, 699-5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2533 FAX		VIOLET GROVE AREA (BLOCK 8) 15-1-48-8 WSM WATER STORAGE S-913 PIPING AND INSTRUMENTATION DIAGRAM	
DRAWN: K. ROBERTS CHECKED: [] PROJECT MANAGER: R. CUMBERLAND	ENGINEERING RECORD DATE: 02/25/2015 DATE: [] DATE: []	SCALE: NTS DATE: 02/25/2015	REV: 0 DATE: 02/25/2015



ZAH	ZAHH	ZAL	ZALL	ZAH
ZDAH	ZDAH	ZDAL	ZDALL	ZDAH

VES & CONNECTIONS

T — TANKS
V — VESSEL
VS — VENT STACK

SIZE	IDENT	SPEC	NO.	FLUID	FROM	TO	CODE	PIPE SCH	C.A. (mm)	PIPE MATERIAL (mm)	DESIGN PRESS. (MPa)	TEMP. (°C)	TEST PRESS. (MPa)	TEST TEMP. (°C)	OPERATING PRESS. (MPa)	TEMP. (°C)	INSULATION THICK. (mm)	HEAT TRACE (mm)	X RAY (mm)	STRESS RELIEF	HARDNESS TESTING (min. A)	ASME FLUID SERVICE CATEGORY	RADIOGRAPHY CRITERIA	NOTE	PROD NO.	LIST NO.
3	PM	D	100	Produced Water	T-08	Z-900 (Water Inlet)	ASME B31.3	80	1.6	A106 Gr. B	15307	38	-29	22960	12410	10	254	ET	100			Normal		5.8	0213048085.2102/01	10
2	PM	D	101	Produced Water	Z-900 (Final Sol'n 1 Outlet)	P/L-13	ASME B31.3	80	1.6	A106 Gr. B	15307	38	-29	22960	12410	10	254	ET	100			Normal		5.8	0213048085.2102/01	10
2	PM	D	102	Produced Water	Z-900 (Final Sol'n 2 Outlet)	P/L-10-12	ASME B31.3	80	1.6	A106 Gr. B	15307	38	-29	22960	12410	10	254	ET	100			Normal		5.8	0213048085.2102/01	10
2	PM	D	103	Produced Water	Z-900 (Final Sol'n 3 Outlet)	T-02	ASME B31.3	80	1.6	A106 Gr. B	15307	38	-29	22960	12410	10	254	ET	100			Normal		5.8	0213048085.2102/01	10
2	PM	D	104	Produced Water	Z-900 (Final Sol'n 4 Outlet)	T-03	ASME B31.3	80	1.6	A106 Gr. B	15307	38	-29	22960	12410	10	254	ET	100			Normal		5.8	0213048085.2102/01	10
2	PM	D	105	Produced Water	Z-900 (Final Sol'n 5 Outlet)	T-05	ASME B31.3	80	1.6	A106 Gr. B	15307	38	-29	22960	12410	10	254	ET	100			Normal		5.8	0213048085.2102/01	10
2	PM	D	106	Produced Water	Z-900 (Final Sol'n 6 Outlet)	T-07	ASME B31.3	80	1.6	A106 Gr. B	15307	38	-29	22960	12410	10	254	ET	100			Normal		5.8	0213048085.2102/01	10
3	SW	D	150	Source Water	T-01 (P/L From 15-1 Via 7-12)	Z-900 Polymer Injection Inlet	ASME B31.3	80	1.6	A 106 Gr B	15307	38	-29	22960	2758	10	254	ET	100			Normal		5	0213048085.2102/01	1

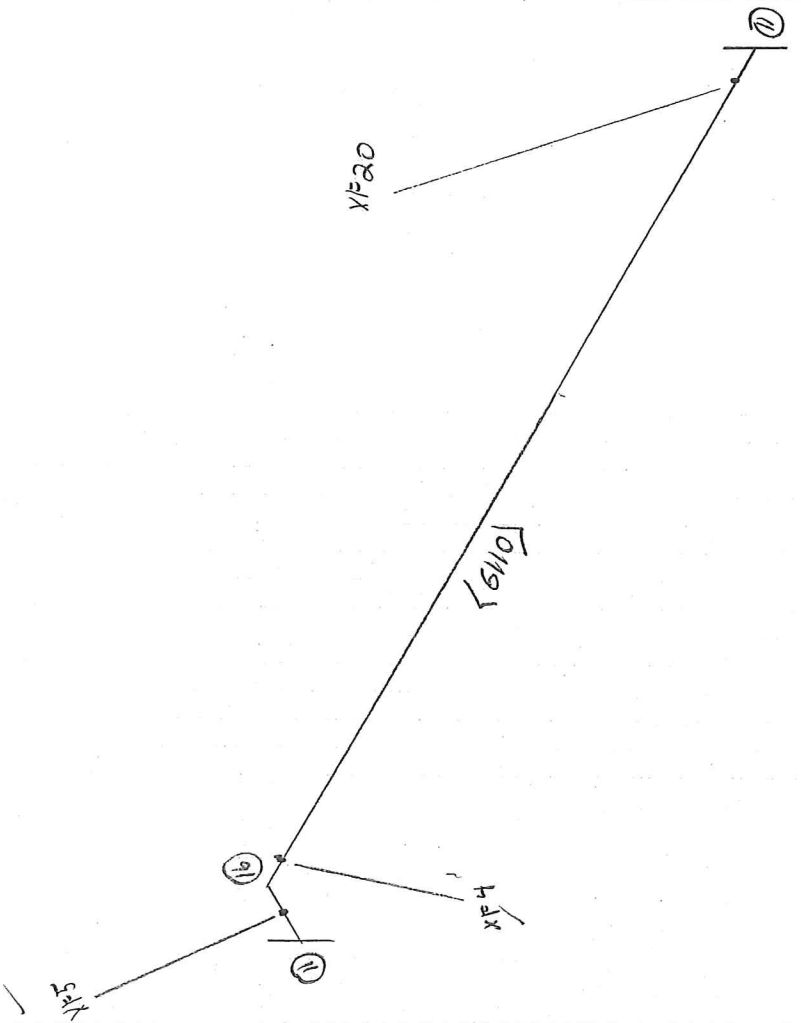
1. Insulate pipe sections to first elbow below ground
2. Insulate pipe sections outside building and utilities
3. NPT piping
4. reduced corrosion allowance
5. Insulate and electric heat trace pipe sections outside buildings and utilities
6. no pressure test - atmospheric vent or drain
7. pipe sections underground to be coated with Shaw VLS or equal
8. internally coated pipe with Duxco Duxchem 253, 3M Scotchbrite L34, or equal
9. reduced design pressure to match pipeline MOP
10. CSA piping - test @ 1.5 x design pressure (ASME pressure test)
11. CSA pressure test 1.25 x design pressure
12. CSA pressure test 1.4 x design pressure
13. FRP materials
14. shirkel inspect installed after hydro-test
15. GOST MOP 4-4 5000 R/F flanges and flangebar

PERMIT 		ENGINEERING RECORD DRAWN: M. ALDER CHECKED: DATE: 2014/09/11 APPROVED: DATE: 2014/09/11 ENGINEER: R. CUMBERLAND	
BY: MA DATE: 2014/09/11 2015/02/24		APPRO. JOB NO. 2135 2135	
DESCRIPTION 0 ISSUED FOR CONSTRUCTION 1 ISSUED FOR CONSTRUCTION - FRESH WATER MOPS			
PEMBINA - MIPA 8 2-13-48-8 W5M 2-13 INJECTION NORTH HEADER LINE LIST 0213048085.1502/01			
DATE: 2014/09/11 TIME: 14:00 (403) 387-2500 PHONE (403) 387-2535 FAX			

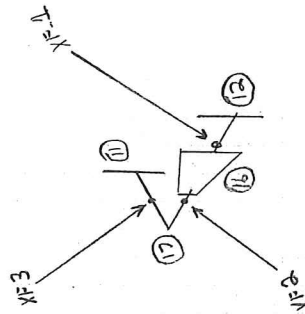
NEWFORCE

ENERGY SERVICES LTD.
Pipeline • Facility • Maintenance
Office: #2, 5621-58 Ave. PO. Box 7576
Drayton Valley, AB T7A 1S7
Ph: 780-514-7882 Fax: 780-514-7883

All welds "A"
clnt Lepage



HEAT NUMBER		PIPE			STUDS & NUTS						
		No.	QTY.	SIZE SCH	SF	No.	QTY	SIZE DESCRIPTION	SF		
14465		1	2	3" 80	ami's	4106	29				
		2					30				
		3					31				
		4					32				
		5					33				
HEAT NUMBER		VALVES			NIPPLES & SWAGES						
		No.	QTY.	SIZE RATING	SF	No.	QTY	SIZE DESCRIPTION	SF		
		6					34				
		7					35				
		8					36				
		9					37				
		10					38				
		HEAT NUMBER		FLANGES			GASKETS				
				No.	QTY.	SIZE SCH	SF	No.	QTY	SIZE DESCRIPTION	SF
				11	2	3" 80	900 80 RTJWN A105	39			
12						40					
13						41					
		14					42				
		15					43				
		HEAT NUMBER		FITTINGS - BUTT WELD			MISCELLANEOUS				
				No.	QTY.	SIZE SCH	SF	No.	QTY	SIZE DESCRIPTION	SF
				16	1	3" 80	909516 WPB	44			
17						45					
18						46					
		19					47				
		20					48				
		21									
		22									
		23									
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD			DESIGN PARAMETERS						
		No.	QTY.	SIZE RATING	SF	CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2					
		24				DES. PRESS: 2220					
		25				DES. TEMP: -29-38°C					
		26				OPER. PRESS:					
		FITTINGS - SCRD & SOCKET WELD <td colspan="3">OPER. TEMP:</td>			OPER. TEMP:						
		No.	QTY.	SIZE RATING	SF	HYDRO TEST PRESSURE: 3330					
		27				GR: 1.6mm					
		28				X-RAY: 100% STRESS REL:					
						REF. PIP DWG:					
DRAWN: Tim Schneider		L.S.D.: 2-13-4808			REF. MES DWG:						
CHECKED: ARC		CLIENT: ARC									
APPROVED: Kerry Cleaver		W.P.#			☒ MESL-1 (Rev.1) ☐ MESL-2 (Rev.1) ☐ MESL-PL-2						
DATE: May 10/15		QC# 1454			SPEC: D						
		SHEET No. 17			REV:						

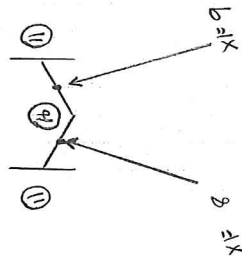


All welds Morgan
4F 11 Fourrier

HEAT NUMBER	PIPE				STUDS & NUTS			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
	1				29			
	2				30			
	3				31			
	4				32			
	5				33			
HEAT NUMBER	VALVES				NIPPLES & SWAGS			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
	6				34			
	7				35			
	8				36			
	9				37			
	10				38			
HEAT NUMBER	FLANGES				GASKETS			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
134304	11	1	3"	900 80 RTJ W/A 103	39			
32939	12	1	4"	900 80 RTJ W/A 103	40			
	13				41			
	14				42			
	15				43			
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
5812	16	1	3/4"	80 90° W/PB	44			
A448	17	1	3"	80 90° 13/16 W/PB	45			
	18				46			
	19				47			
	20				48			
	21							
	22							
	23							
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
	No.	QTY.	SIZE	DESCRIPTION	CODE	QTY.	SIZE	DESCRIPTION
	24				DES. PRESS:			
	25				DES. TEMP:			
	26				OPER. PRESS:			
	27				OPER. TEMP:			
	28				HYDRO. TEST PRESSURE:			
					CA:			
					X-RAY:			
					STRESS REL:			
					REF. W/PDNG:			
					REF. INS/DWG:			
DRAWN:	Tim Schneider				LSD:	17-12-48-8 W5		
CHECKED:					CLIENT:	Arc Resources		
APPROVED:	Kerry Cleaver				W.P.#	NESL-1 (Rev.1) NESL-2 (Rev.1) NESL-PL-2		
DATE:	Feb 24/15				QC#	1454		REV:
					SPEC:	D		SHEET No.: 1

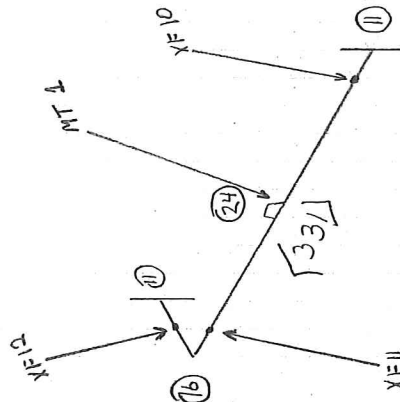


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All welds 1/2"
Morgan

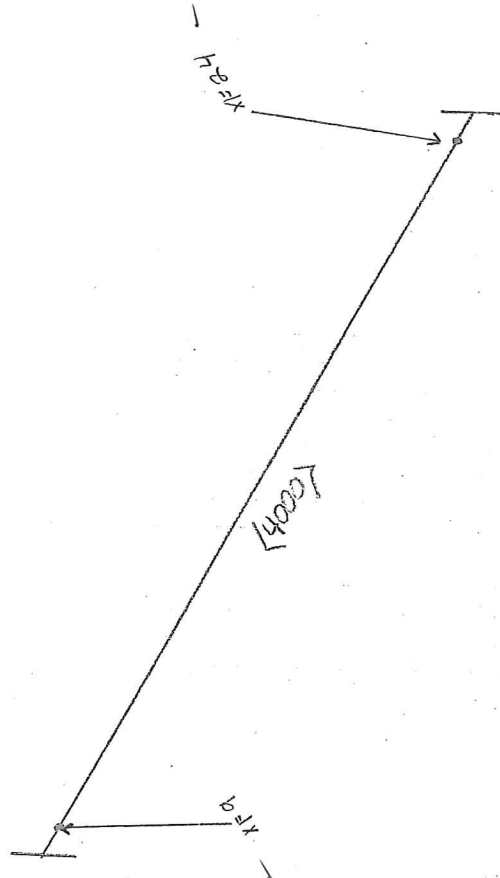
HEAT NUMBER		PIPE				STUD.				1/2 HEX NUTS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
1						29									
2						30									
3						31									
4						32									
5						33									
VALVES															
No.	QTY.	SIZE	RATING	DESCRIPTION <td>SF</td> <td>No.</td> <td>QTY.</td> <td>SIZE</td> <td>DESCRIPTION<td>SF</td><td colspan="5">NIPPLES & SWAGES</td></td>	SF	No.	QTY.	SIZE	DESCRIPTION <td>SF</td> <td colspan="5">NIPPLES & SWAGES</td>	SF	NIPPLES & SWAGES				
6						34									
7						35									
8						36									
9						37									
10						38									
FLANGES															
No.	QTY.	SIZE	RATING	SCH. <td>DESCRIPTION<td>SF</td><td>No.</td><td>QTY.</td><td>SIZE</td><td>RATING</td><td>SCH.<td>DESCRIPTION<td>SF</td><td colspan="2">GASKETS</td></td></td></td>	DESCRIPTION <td>SF</td> <td>No.</td> <td>QTY.</td> <td>SIZE</td> <td>RATING</td> <td>SCH.<td>DESCRIPTION<td>SF</td><td colspan="2">GASKETS</td></td></td>	SF	No.	QTY.	SIZE	RATING	SCH. <td>DESCRIPTION<td>SF</td><td colspan="2">GASKETS</td></td>	DESCRIPTION <td>SF</td> <td colspan="2">GASKETS</td>	SF	GASKETS	
11	2	3"	900	80	RTJWN ALLOY	39									
12						40									
13						41									
14						42									
15						43									
FITTINGS - BUTT WELD															
No.	QTY.	SIZE	SCH. <td>DESCRIPTION<td>SF</td><td>No.</td><td>QTY.</td><td>SIZE</td><td>SCH.<td>DESCRIPTION<td>SF</td><td colspan="4">MISCELLANEOUS</td></td></td></td>	DESCRIPTION <td>SF</td> <td>No.</td> <td>QTY.</td> <td>SIZE</td> <td>SCH.<td>DESCRIPTION<td>SF</td><td colspan="4">MISCELLANEOUS</td></td></td>	SF	No.	QTY.	SIZE	SCH. <td>DESCRIPTION<td>SF</td><td colspan="4">MISCELLANEOUS</td></td>	DESCRIPTION <td>SF</td> <td colspan="4">MISCELLANEOUS</td>	SF	MISCELLANEOUS			
16	1	3"	80	90° ELB WELB	44										
17						45									
18						46									
19						47									
20						48									
21															
22															
23															
DESIGN PARAMETERS															
CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2															
DES. PRESS: 2220															
DES. TEMP: -29 to 33°C															
FITTINGS - SCRD & SOCKET WELD															
No.	QTY.	SIZE	RATING <td>DESCRIPTION<td>SF</td><td colspan="10"></td></td>	DESCRIPTION <td>SF</td> <td colspan="10"></td>	SF										
24															
25															
26															
27															
28															
DRAWN: Tim Schneider L.S.D.: 17-12-2-13-48-4															
CHECKED:															
CLIENT: Arc Resources															
APPROVED: Kerry Cleaver W.P.# ☐ MES-1 (Rev.1) ☐ MES-2 (Rev.1) ☐ MES-PL-2															
DATE: Feb 24 / 15 QC# 1454 SPEC: D SHEET No.: 3 REV:															



All welds "F"
Morgan Fournier

HEAT NUMBER	PIPE			STUDS & NUTS		
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF
144695	1	3	3"	80	SMIS A106	29
	2					30
	3					31
	4					32
	5					33
HEAT NUMBER	VALVES			NIPPLES & SWAGES		
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF
	6					34
	7					35
	8					36
	9					37
	10					38
HEAT NUMBER	FLANGES			GASKETS		
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF
1343V4	11	2	3"	900	RTT W/A105	39
	12					40
	13					41
	14					42
	15					43
HEAT NUMBER	FITTINGS - BUTT WELD			MISCELLANEOUS		
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF
4448	16	1	3"	80	90° ELB WP13	44
	17					45
	18					46
	19					47
	20					48
	21					
	22					
	23					
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD			DESIGN PARAMETERS		
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF
4263	24	1	1"	3M	TOL A106	330
	25					
	26					
	27					
	28					
CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2 DES. TEMP: 22.0 °C DES. PRESS: 25-35 °C OPER. TEMP: HYDRO TEST PRESSURE: 330 CA: 1.6 X-RAY: 100% STRESS REL: REF. WELDING: REF. WELDING:						
DRAWN: Tim Schneider CHECKED: APPROVED: Kerry Cleaver DATE: Feb 24 / 15						
CLIENT: Arc Resources W.P.#: [NESL-1 (Rev.1)] [NESL-2 (Rev.1)] [NESL-PL-2] QC# 1454 / 15 SPEC: 0 SHEET No.: 4 REV:						

NEWFORCE
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 Drayton Valley, AB T7A 1S7
 Ph: 780-514-7882 Fax: 780-514-7883



All welds "F"
 Morgan

HEAT NUMBER		PIPE				STUDS & EX NUTS	
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.
1	1	3"	80	304S A106		29	
2						30	
3						31	
4						32	
5						33	

HEAT NUMBER		VALVES				NIPPLES & SWAGES	
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.
6						34	
7						35	
8						36	
9						37	
10						38	

HEAT NUMBER		FLANGES				GASKETS	
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.
11	2	3"	80	80	RTNWN A106		39
12							40
13							41
14							42
15							43

HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS	
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.
16							44
17							45
18							46
19							47
20							48

HEAT NUMBER		FITTINGS - SCFD & SOCKET WELD				DESIGN PARAMETERS	
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.
21							49
22							50
23							51

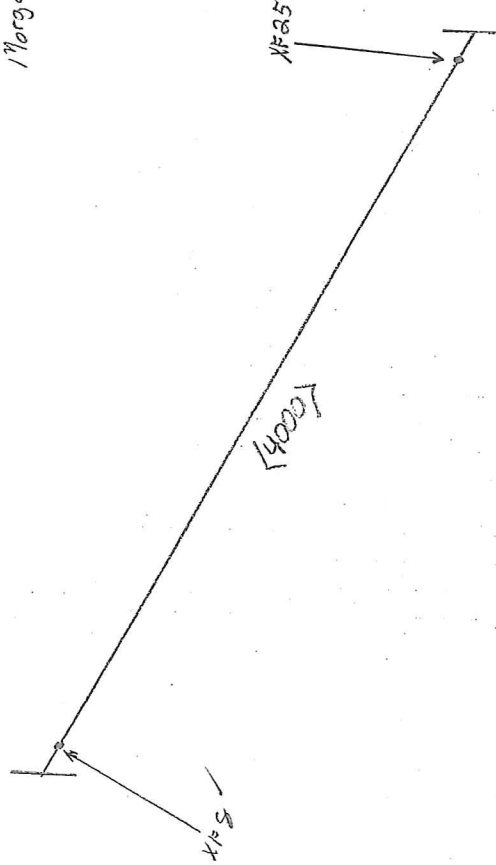
HEAT NUMBER		DESIGN PARAMETERS			
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION
24					
25					
26					
27					
28					

DRAWING		CLIENT	
No.	QTY.	SIZE	RATING
29			
30			
31			
32			
33			

APPROVED:		SHEET No.:	
No.	QTY.	SIZE	RATING
34			
35			
36			
37			
38			

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 Office: #2, 5621-58 Ave. P.O. Box 7576
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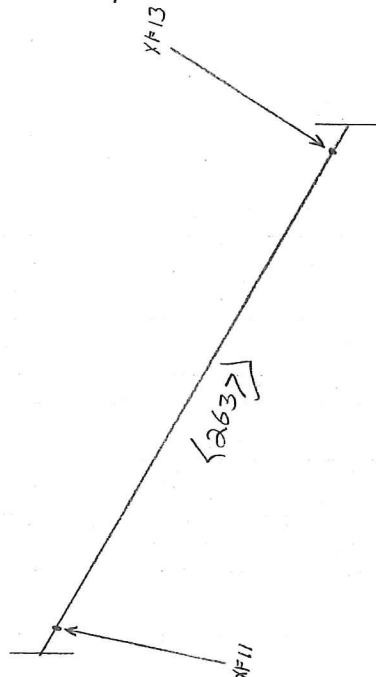
All welds "F"
 Morgan



HEAT NUMBER		PIPE				STUDS & NUTS			
No.	QTY.	SIZE	SC	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION
144695	1	3"	80	SMs A106		29			
	2					30			
	3					31			
	4					32			
	5					33			
HEAT NUMBER		VALVES				NIPPLES & SWAGES			
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION
	6					34			
	7					35			
	8					36			
	9					37			
	10					38			
HEAT NUMBER		FLANGES				GASKETS			
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION
12/34037	2	3"	80	RTI MAN A105		39			
	11					40			
	12					41			
	13					42			
	14					43			
	15					44			
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS			
No.	QTY.	SIZE	SC	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION
	16					45			
	17					46			
	18					47			
	19					48			
	20								
	21								
	22								
	23								
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE	☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2		
	24					DES. PRESS.	22.0		
	25					DES. TEMP.	-29 - 33 C		
	26					OPER. PRESS.			
	27					OPER. TEMP.			
	28					HYDRO TEST PRESSURE	3380		
						CK	1.6mm		
						STRESS REL.			
						REF. PP DWG.			
						TRE. MFG. DWG.			
DRAWN: Tim Schneider		L.S.D.: 2-13-48-8 W5							
CHECKED:		CLIENT: Arc Resources							
APPROVED: Kerry Cleaver		W.P.# ☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2							
DATE: Mar 2/15		QC# 1454 SPEC: 0				SHEET No. 6 REV:			



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All welds "F"
Morgan Farnier

HEAT NUMBER	PIPE				STUDS C/W		NUTS
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION	
144695	1	3	3"	80 sm/s A106	29		
	2				30		
	3				31		
	4				32		
	5				33		
HEAT NUMBER	VALVES				NIPPLES & SWAGES		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION	
	6				34		
	7				35		
	8				36		
HEAT NUMBER	FLANGES				GASKETS		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION	
	11	2	3"	900 80 RTWN A105	39		
	12				40		
	13				41		
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION	
	16				44		
	17				45		
	18				46		
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION	
	21				47		
	22				48		
	23						
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS		
	CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z662				DES. PRESS: 2220		
	DES. TEMP: -25-38°C				DES. TEMP: -25-38°C		
	HYDRO TEST PRESSURE: 3330				HYDRO TEST PRESSURE: 3330		
	CR: 1.6 in				CR: 1.6 in		
HEAT NUMBER	X-RAY: 100%				X-RAY: 100%		
	REF. PIP DWG:				REF. PIP DWG:		
	REF. MFS DWG:				REF. MFS DWG:		
	L.S.D.: 2-13-48-8 W5				L.S.D.: 2-13-48-8 W5		
	CLIENT: Arc Resources				CLIENT: Arc Resources		
HEAT NUMBER	W.P.#: ☐ MESL-1 (Rev.1) ☐ MESL-2 (Rev.1) ☐ MESL-PL-2				W.P.#: ☐ MESL-1 (Rev.1) ☐ MESL-2 (Rev.1) ☐ MESL-PL-2		
	DATE: Nov 21 15				DATE: Nov 21 15		
	QC# 1454				QC# 1454		
	SPEC: D				SPEC: D		
	SHEET No.: 7				SHEET No.: 7		

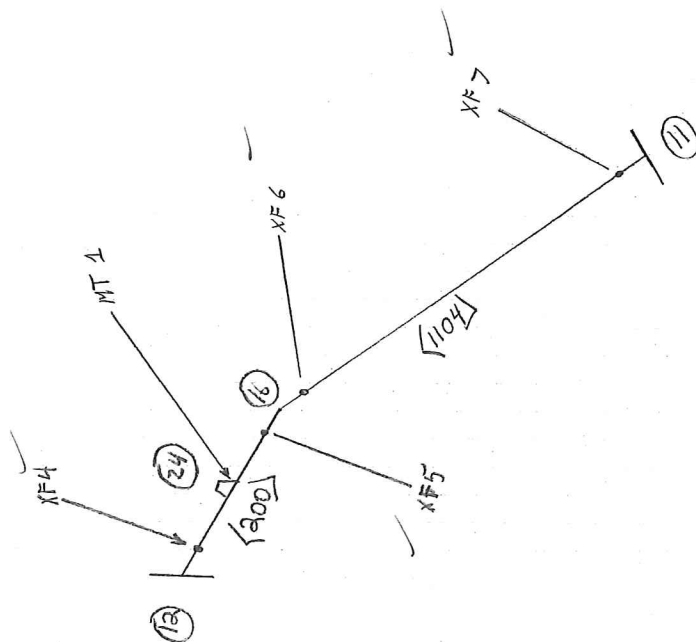
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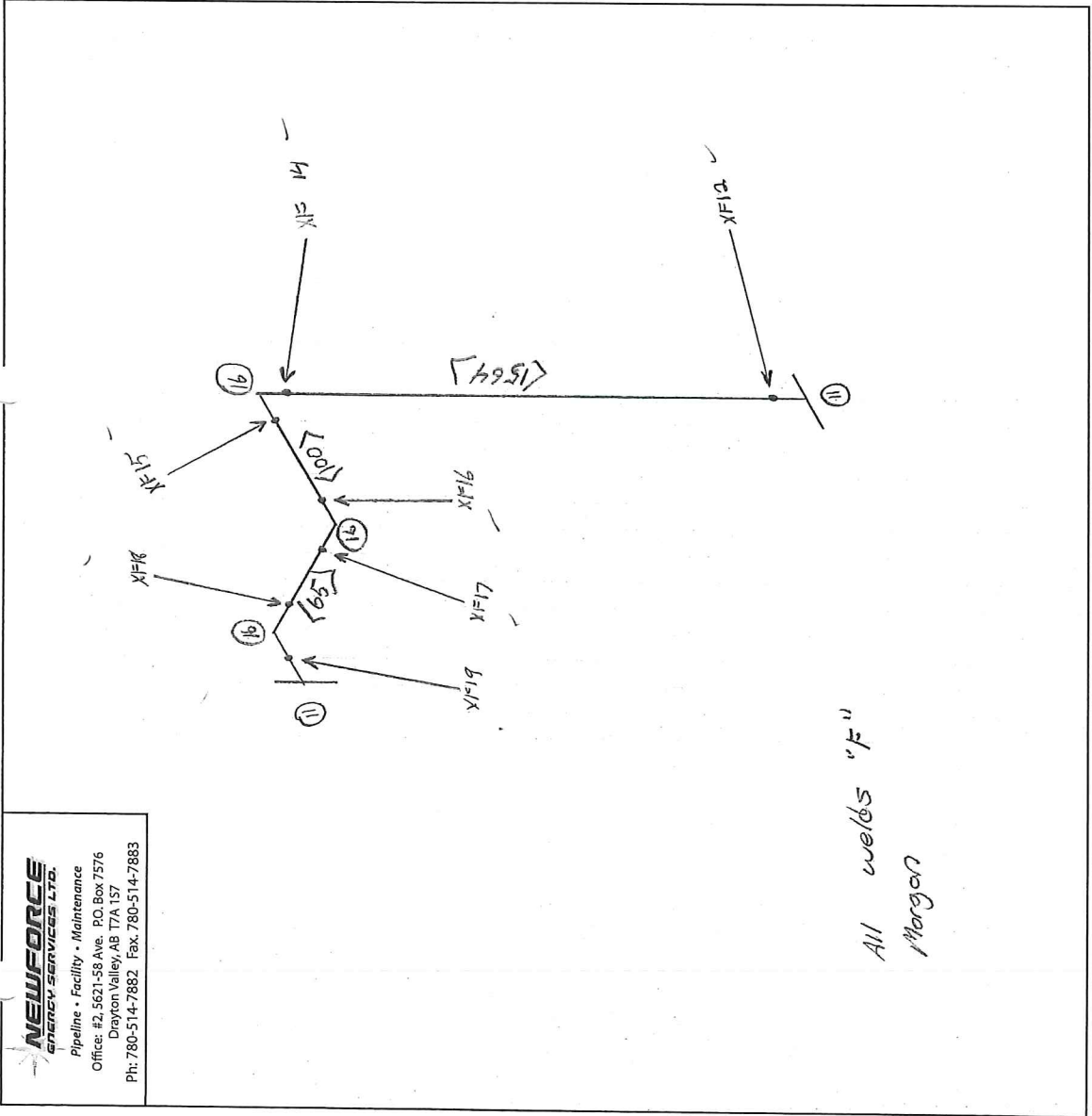


All welds 1/2"

Morgan Fournier

HEAT NUMBER		PIPE				STUDS (W/2")						
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF		
A14469S	1	3"	80	SMIS A106		29						
	2					30						
	3					31						
	4					32						
	5					33						
HEAT NUMBER		VALVES				NIPPLES & SWAGES						
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF		
	6					34						
	7					35						
	8					36						
	9					37						
	10					38						
HEAT NUMBER		FLANGES				GASKETS						
No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
669948	1	3"	1500	80	RFWN A105		39					
D43V4	1	3"	900	80	RTN A105		40					
	13						41					
	14						42					
	15						43					
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS						
No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
3482	1	3"	80	45°	1/16" W/13		44					
	17						45					
	18						46					
	19						47					
	20						48					
	21						DESIGN PARAMETERS					
	22						CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2					
	23						DES. PRESS: 222.0					
							DES. TEMP: -25-35°C					
HEAT NUMBER		FITTINGS - SCR'D & SOCKET WELD				DESIGN PARAMETERS						
No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF						
4001	1	1"	300	40	A105		DES. TEMP: 330					
	24						HYDRO TEST PRESSURE: 330					
	25						CR: 16					
	26						X-RAY: 100% STRESS REL.					
	27						REF. PIP DWG.					
	28						REF. MFG. DWG.					
DRAWN: Tim Schneider		L.S.D.: 2-13-48-8 W5										
CHECKED:		CLIENT: Arc Resources										
APPROVED: Kerry Cleaver		W.P.# ☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2										
DATE: Mar 2 / 15		QC# 1454		SPEC: 0		SHEET No.: 48		REV:				

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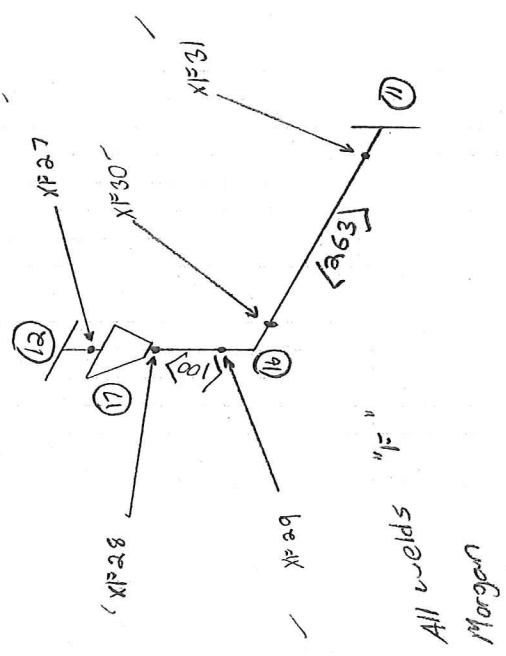
All welds "F"
Morgan

HEAT NUMBER		PIPE				STUDS & NUTS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
144695	1	3" 80		SMLS A106		29					
	2					30					
	3					31					
	4					32					
	5					33					
HEAT NUMBER		VALVES				NIPPLES & SWAGES					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
	6					34					
	7					35					
	8					36					
	9					37					
	10					38					
HEAT NUMBER		FLANGES				GASKETS					
No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
12/34037	11	2 3" 80			RTJWN A105		39				
	12						40				
	13						41				
	14						42				
	15						43				
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF
A448	16	3" 80		90° ELB W.P.C		44					
	17					45					
	18					46					
	19					47					
	20					48					
	21										
	22										
	23										
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE	ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2				
	24					DES. PRESS.	22.5				
	25					DES. TEMP.	-29-58.0C				
	26					OPER. TEMP.					
	27					HYDRO TEST PRESSURE	3330				
	28					CA	16				
						X-RAY	10090				
						STRESS REL.					
						REF. PIP DWG.					
						REF. MFS DWG.					
DRAWN:	Tim Schneider				L.S.D.:	2-13-48-8 W5					
CHECKED:					CLIENT:	Arc Resources					
APPROVED:	Kerry Cleaver				W.P.#	NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2					
DATE:	Mar 2/15				QC#	1454		SPEC:	D		
					SHEET No.:	#9		REV:			

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HEAT NUMBER	PIPE				STUDS				2X NUTS		
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.		SIZE	DESCRIPTION
1484371	1		2"	80	SMLS A106		29				
	2						30				
	3						31				
	4						32				
	5						33				

HEAT NUMBER	VALVES				NIPPLES & SWAGES							
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF
	6						34					
	7						35					
	8						36					
	9						37					
	10						38					

HEAT NUMBER	FLANGES				GASKETS								
	No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	BWG	DESCRIPTION	SF
A3074	11	1	2"	1500	80	RTJ-WN A105		39					
12134037	12	1	3"	900	80	RTJ-WN A105		40					
	13							41					
	14							42					
	15							43					

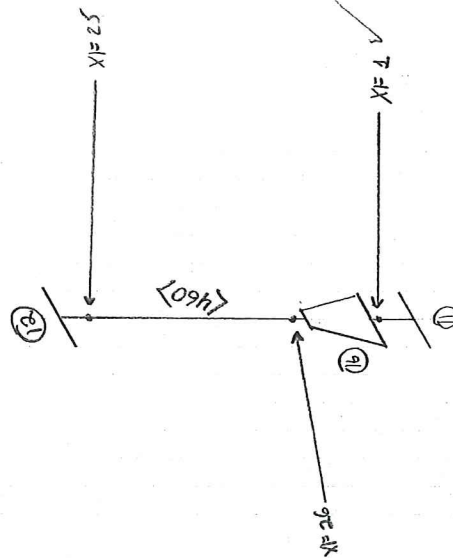
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS							
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF
B957	16	1	2"	80	90° ELB WPR3		44					
6889	17	1	3x2	80	CONC WPR3		45					
	18						46					
	19						47					
	20						48					
	21											
	22											
	23											

HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF		
	24						CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2	
	25						DES. PRESS: 2220	
	26						DES. TEMP: -25.33°C	
	27						OPER. PRESS:	
	28						OPER. TEMP:	
							HYDRO TEST PRESSURE: 3390	
							CA: 1.6	
							X-RAY: 100%	
							STRESS REL:	
							REF. PIPING:	
							REF. MFS DWG:	

DRAWN:	L.S.D.:		
Tim Schneider	2-13-48-8 W5		
CHECKED:	CLIENT:		
	Arc Resources		
APPROVED:	W.P.#	☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2	
Berry Cleaver			
DATE:	QC# 1454	SPEC: D	SHEET No. 11
			REV:



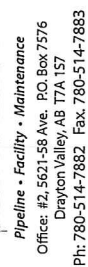
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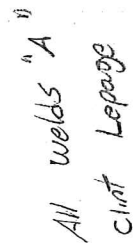


All welds "1" II
Morgen

HEAT NUMBER	PIPE				STUDS & WEL				NUTS
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION	
144695	1	1	3" 80	SMs A106	29				
	2				30				
	3				31				
	4				32				
	5				33				
HEAT NUMBER	VALVES				NIPPLES & SWAGES				
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION	
	6				34				
	7				35				
	8				36				
	9				37				
	10				38				
HEAT NUMBER	FLANGES				GASKETS				
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION	
766 V3	11	1	4" 900	80 RFWN A105	39				
1843 V4	12	1	3" 900	80 RFWN A105	40				
	13				41				
	14				42				
	15				43				
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS				
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION	
5812	16	1	4" 80	CONC WPB	44				
	17				45				
	18				46				
	19				47				
	20				48				
	21								
	22								
	23								
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS				
	No.	QTY.	SIZE	DESCRIPTION					
	24								
	25								
	26								
	27								
	28								
DRAWN: Tim Schneider					L.S.D.: 2-13-48-8 W5				
CHECKED:					CLIENT: Arc Resources				
APPROVED: Kerry Cleaver					W.P.# NESI-1 (Rev.1) NESI-2 (Rev.1) NESI-PL-2				
DATE: Mar 2 /15					Q.C.# 1454 SPEC: D SHEET No.: 12 REV:				

CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CAN 266.2
DES. PRESS: 2220
DES. TEMP: -29-38C
OPER. PRESS:
OPER. TEMP:
HYDRO TEST PRESSURE: 3330
CR: 1.6
X-RAY: 100% STRESS REL:
REF PIP DWG:
REF MFS DWG:

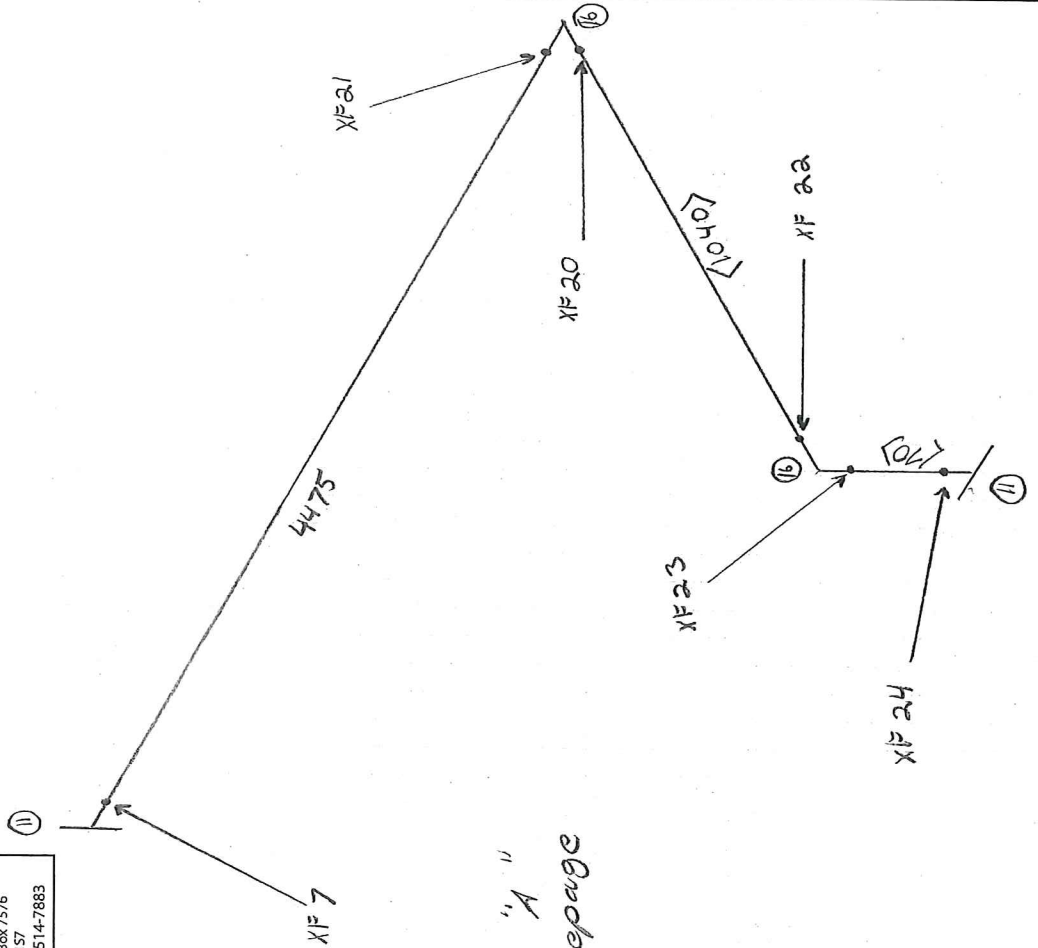
Ink Pot Ref# G4384



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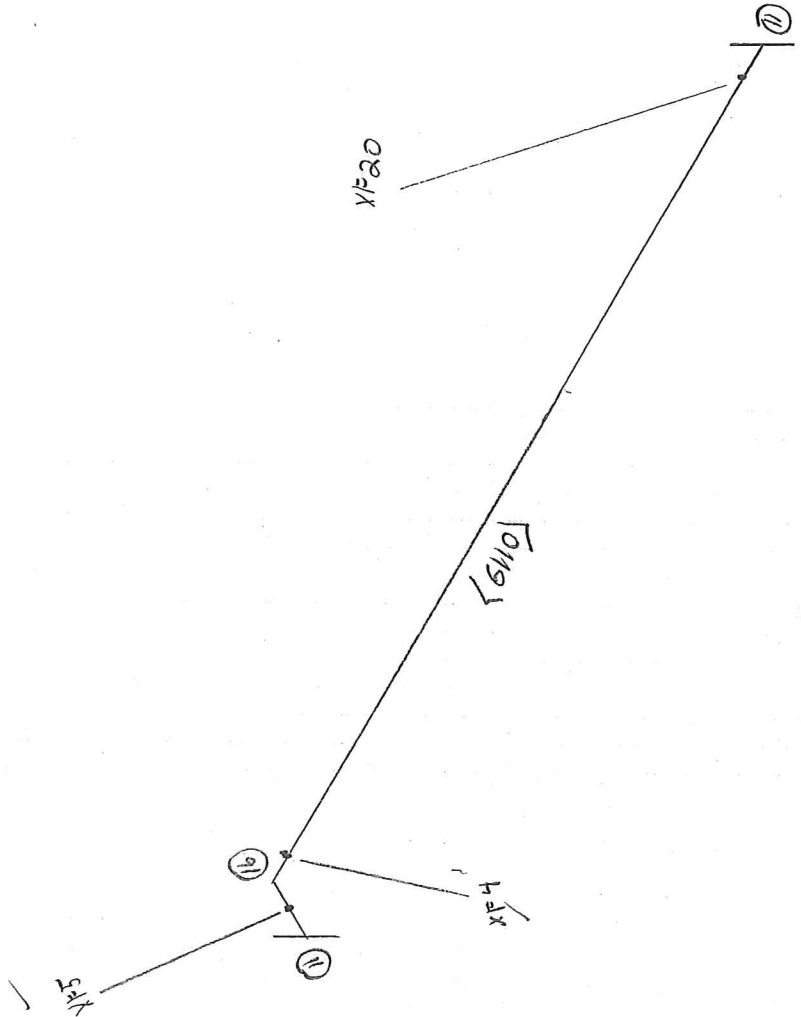
Ink Pot Ref# G4384

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HEAT NUMBER		PIPE				STUDS & NUTS					
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY	SIZE	DESCRIPTION	SF	
144695	1	3"	80	5m13 A106		29					
	2					30					
	3					31					
	4					32					
	5					33					
HEAT NUMBER		VALVES				NIPPLES & SWAGES					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY	SIZE	DESCRIPTION	SF	
	6					34					
	7					35					
	8					36					
	9					37					
	10					38					
HEAT NUMBER		FLANGES				GASKETS					
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY	SIZE	DESCRIPTION	SF
12/34037	2	3"	900	80	RT500N A105		39				
	12						40				
	13						41				
	14						42				
	15						43				
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS					
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY	SIZE	SCH	DESCRIPTION	SF
A 448	2	3"	80	904510 WPB		44					
	17					45					
	18					46					
	19					47					
	20					48					
	21										
	22										
	23										
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE:	☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2				
	24					DES. PRESS:	224.0				
	25					DES. TEMP:	-29.33°C				
	26					OPER. PRESS:					
	27					OPER. TEMP:					
	28					HYDROTEST PRESSURE:	333.0				
						CA:	1.6mm				
						X-RAY:	100%ND				
						STRESS REL:					
						REF. PIP DWG:					
						REF. MFG DWG:					
DRAWN: Tim Schneider						L.S.D.: 2-13-48-8 w8					
CHECKED:						CLIENT: Arc Resources					
APPROVED: Kerry Cleaver						W.P.# ☒ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2					
DATE: Mar 10 /15						QC# 1454 SPEC: D SHEET No. 1/6 REV:					

All welds "A"
clint Lepage



HEAT NUMBER		PIPE		STUDS & W/			NUTS			
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
144695	1	3"	80	6mls 4106		29				
	2					30				
	3					31				
	4					32				
	5					33				

HEAT NUMBER		VALVES			NIPPLES & SWAGES							
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	SCH	DESCRIPTION	SF
	6						34					
	7						35					
	8						36					
	9						37					
	10						38					

HEAT NUMBER		FLANGES			GASKETS							
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	WGT	DESCRIPTION	SF
12/34037	2	3"	80	80	RTJ W/ 4105		39					
	12						40					
	13						41					
	14						42					
	15						43					

HEAT NUMBER		FITTINGS - BUTT WELD			MISCELLANEOUS						
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	SCH	DESCRIPTION	SF
1448	1	3"	80	90° ELB	W/ B	44					
	17					45					
	18					46					
	19					47					
	20					48					
	21										
	22										
	23										

HEAT NUMBER		FITTINGS - SCRP'D & SOCKET WELD			DESIGN PARAMETERS					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. PRESS:	DES. TEMP:	OPER. PRESS:	OPER. TEMP:
	24					☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2	2220	-24-50 °C		
	25									
	26									
	27									
	28									

DRAWN: Jim Schneider		L.S.D.: 2-13-48	
CHECKED:		CLIENT: ARC	
APPROVED: Kerry Cleaver		W.P.# ☐ WMSL-1 (Rev.1) ☐ WMSL-2 (Rev.1) ☐ WMSL-PL-2	
DATE: May 10/15	QC# 1454	SPEC: D	SHEET No. 17
		REV:	



Phone: (780) 514-7882

Fax: (780) 514-7883

MATERIAL LIST

TO: Apex Monarch

DATE: Feb 23/15

QC #: NESL-DV1454

Company: Arc Resources

LSD: 02-13-048-08-W5M

SHIP TO: _____

MTR's must be supplied with material

DATE REQUIRED: _____

Item #	Quantity		
1		Attached	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

ALL FITTINGS MUST BE REGISTERED WITH ABSA (FITTING CRN)

PIPE/YARD ORDER PAGE

Date

Feb 26/15

ORIGINAL ORDER

INITIALS:

BH

COMPANY:

ARC

LOCATION:

2-13

RACK #:

"J"

PRIORITY

✓	QUANTITY	DESCRIPTION	HEAT #
	1 yr	2" 8'0 A106 Pipe	1424371
	5 yr	3" 8'0 A106 Pipe	H14489

*****BUYOUTS*****

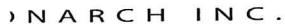
✓	QUANTITY	DESCRIPTION	VENDOR	SHIPPED ON:

ORDER PULLED BY:

CHRISTIAN

ORDER SHIPPED BY:

Customer Signature



TO: TRC

Initials

CB

DATE: _____

E-MAIL:

P.O. #

☐ CHEQ #

TERMS: NET 30 DAYS. 1.5% PER MONTH (18% per annum) WILL BE CHARGED ON OVERDUE ACCOUNTS.

RECEIVED IN GOOD ORDER



5504 - 58 AVENUE
DRAYTON VALLEY, AB
T7A 0B1
PHONE: 780-542-7135
FAX: 780-542-5678

ORDER # 29952 INV. # _____

PACKING SLIP ONLY

DV 381155

Initials JD

ORDERED BY <u>Jim</u>	VIA:	DATE: <u>mar 11/15</u>
PHONE: <u>780-918-9591</u>	E-MAIL:	
LOCATION <u>2-13-48-8 WS</u>		
AUTHORIZED PERSONNEL <u>Kerry</u>		
CHARGE CODE		
P.O. #	☐ CASH	☐ ON ACCOUNT ☐ CHEQ #

D TO: _____

QTY.	U / M	ITEM CODE	DESCRIPTION	UNIT PRICE	NET AMOUNT
2		<u>sl</u>	<u>Flg 2-300 RF Tap 1 1/2</u>	<u>POS</u>	<u>4003008</u>
1		<u>sl</u>	<u>Flg 3-900 RTJ Tap 2"</u>	<u>POS</u>	<u>1101663</u>
6			<u>BLB cups 2-300</u>		
6			<u>Flux gsh 2-300</u>		
21			<u>Pipe 3" S80 A106.</u>		<u>14469</u>
21			<u>Pipe 2" S80 A106.</u>		<u>1424371</u>
2			<u>Flg 3-900 RTJ WN XM A105</u>		<u>12/34037.</u>
10			<u>Union 2" Kemper ORing</u>		
1			<u>Swage XM 2x1</u>		
8			<u>Ball Valve 1" 3m Tag nace</u>		
10			<u>Tree 2" 3m A106.</u>		
20			<u>BLB 2" 90 3m A106</u>		
6			<u>Ball Valve 2" Tag 3m Nace</u>		
4			<u>Red Tree 2x1 3m A106.</u>		
6			<u>Mipple XM 2x2 1/2 A106</u>		
6			<u>2x3</u>		
6			<u>2x3 1/2</u>		
6			<u>2x4</u>		
6			<u>2x4 1/2</u>		
6			<u>2x5</u>		
6			<u>2x5 1/2</u>		
6			<u>2x6</u>		
6			<u>2x6 1/2</u>		
6			<u>2x7</u>		
6			<u>2x7 1/2</u>		
6			<u>2x8</u>		
6			<u>2x8 1/2</u>		
6			<u>2x9</u>		

intro print
mar 12/15



Thursday, 12-Mar-2015

From:

5504 58 Avenue
Drayton Valley, AB, Canada
T7A 1S4
Phone : 780-542-7135
Fax : 780-542-5678
Email : mtrs@monarchapex.com

To:

Ref #:

Document Summary Page

The MTR's are printed in the following order:

#	Heat #	Description	Product Cod
1	12/34037	FLANGE 3" 900# RTJWN XH A105N	FK900- RTJWNX
2	3422	ELBOW 3" 45D LR XH WELD A234- WPB	EK45-XHW
3	766T2	FLANGE 4" 900# RFWN XH A105N	FM900- RFWNX
4	4603008	MISC. WELDED FITTINGS	I9
5	Y101663	MISC. WELDED FITTINGS	I9
6	H14469	PIPE 3" SCH 80 A106 SMLS	PK-SCH80
7	1424371	PIPE 2" SCH 80 A106 SMLS	PI-SCH80

 METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE +39 031 655441 - FAX +39 031 655149 quality.mff@farnas.com		COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV = ISO 9001 = = ISO 14001 =	
INSPECTION CERTIFICATE EN 10204:2004 / 3.1			
TRANS AM PIPING PRODUCTS LTD 9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA		Nr ^{A03} 2014-C_MFF-06017 Data / Dated 23.07.2014 ^{Z03}	
Dest. TRANS AM "PROJECT" Warehouse 1711 - 66 Avenue T6P 1Y9 Edmonton, ALBERTA		CA	
Cod. colata Heat Code	Nr. colata Heat Nr	Descrizione Description	
	12/34037	W/N 900 RTJ-3" XS A105N	
Mat. in acc. a / Mat. in acc. to ^{B07} ASTM/ASME A 105/SA 105 M - 13 ASME CODE SECT. II, PART A, ED. 2013 NACE MR-0175/2009 ISO 15156 - SOUR SERVICE NACE MR-0103/2012 - SOUR SERVICE C.A.S. IN ACCORD WITH PRESS. EQUIP. DIRECT. 97/23/EC (PED) ANNEX I, PARAGRAPH 4.3 CERT. 4597-2014-CE-ITA-ACCREDIA CSA Z245.12 GRADE 248 CAT. I SOUR SERVICE			
Elementi / Elements LADLE ANALYSIS	C Si Mn S P Cr Ni Mo Ti Cu V Nb N 0,200 0,240 0,970 0,008 0,011 0,090 0,050 0,010 0,017 0,160 0,002 0,001 0,000 Al 0,025	CE LF CE SF F1 F2 PREN 0,396 0,362 0,312 0,100 --	
CE LF = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15 CE SF = C + Mn/6 F1 = Cu + Ni + Cr + Mo + V F2 = Cr + Mo			
Provetta Test specimen	Forma Shape	Snervamento Yield Strength	Rottura Tensile
126,60 50,80 1=0-2=□ 126,60 50,80 1 20	20 345,0 - 20 345,0 -	526,0 30,0 59,0 526,0 30,0 59,0	526,0 30,0 59,0 526,0 30,0 59,0
DUREZZA / HARDNESS ^{C12} HBW Tipo/Type ^{C40} KV Provetta / Test Specimen 10x10 mm RESILIENZA / IMPACT TEST ^{C03} 20 ^{C42} 82 ^{C42} 88 ^{C42} 88 Media/Average ^{C43} 85,3			
Tratt. Term. / Heat treatment ^{C10} NORMALIZED AT 920 C - COOLED IN STILL AIR ELECTRIC FURNACE			
Dim in acc. a / Dim. acc. to ^{B14} ASME/ANSI B16.5-2013 ASME/ANSI B36.10M-2004			
Finitura / Roughness ^{B06} 63 MICRQINCH AARH MAX			
Marchatura in acc. Marking in acc. to	MSS SP25 Ed. 2013	Vis. & Dim. SATISFACTORY	Origine Origin of Steel
EUROPEAN UNION			

Note / Notes 100% MANUFACTURED IN ITALY
 MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION

UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL 
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INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD.

Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS

Spec : ASME SA 234/ASTM A234-11a WPB SS

NACE MR0175/ISO15156-2 Sour Service
Region 3 Annex A, MR0103 Sour **

(MILL TEST)
ACCORDANCE WITH EN 10204-3.1

CHUP HSIN ENTERPRISE CO., LTD.

17, TUNG LI ROAD HSIAO KANG,
KAOHSIUNG, TAIWAN, R.O.C.

TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

Certificate No : 00200048-0101

Order No : D000476

Date : 2013/09/04

Starting Material				Specification for Inspection				Visual Inspection				Dimensional Inspection				
ASTM A106 GR.B				ASME B16.9-2007				GOOD				GOOD				
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test			REMARK						
							Test Temp	Size of specimen	Charpy V-Notch Impact Value		Ave.					
8	90 E L/R SMLS STD	1 1/4	25	687B	J9L4687	SUMITOMO BYVM2071										
10	90 E S/R SMLS STD	2	25	A566	J0L7566	SUMITOMO BYVM8257										
11	90 E L/R SMLS XS	2	400	B422	J0L0422	SUMITOMO BYVM9209										
13	45 E L/R SMLS STD	3	100	B502	J0L4502	SUMITOMO BYVM9223										
14	45 E L/R SMLS XS	3	25	3422	J0L3422	SUMITOMO BYVM8850										
Specification	Chemical Composition%										Tension Test			Hardness Test		
	C	SI	Mn	P	S	CU	NI	Cr	Mo	V	Nb	C.E	YS		T.S	E
X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	X100	P.S.I	P.S.I	%	HB
Min.		10	29										35000	60000	30	
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197
8	18	23	51	22	13	7	3	6	1	0	0	29	40600	62800	40	134
10	18	23	55	5	5	5	4	5	1	0	0	29	48000	73300	40	138
11	18	23	54	7	3	2	2	4	2	0	0	28	42200	71100	40	138
13	18	24	55	8	5	2	2	3	1	0	0	28	45600	71100	40	138
14	18	23	54	7	3	2	2	4	2	0	0	28	44000	68900	40	138
620°C TO 980°C HOT FORMED																
**Service/ CSA Z245.11 GR 241 CAT I SS Region 3 Annex A.																

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

L.S. Tsai

ELBOW 3" 45D LR XH WELD A234-WPB

Heat # 3422

Heat # 766T2

FLANGE 4" 900# RFWN XH A105N

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

DIN EN 10204 / 3.1
ISO 10474 / 3.1

HOJA: 1

Page: 1

FECHA: 23/09/2013

N.º No.

159946

CLIENTE / Customer / Client
CCTF CORPORATION (EDMONTON)
5407 - 53 AVENUE NW
EDMONTON, AB T6B 3G2
CANADA

PRODUCTO Article - Produit
FLANGES
SU PEDIDO N.º 4893618-00
Your Order No. Votre Cde. N.º

NORMAS APLICABLES ASME B16.5-13
Requirements - Normes Applicables

MATERIAL CORRESPONDIENTE ASME SA105M-10 add.11, ASTM A105M-12

MODO DE FUSION (*)
Steel Making - Elaboration de l'acier
E = Elec. Y = Oxígeno básico

NACE MR0175/ISO15156-2-09 & MR0103-12
Clause 7.2.1.4, Annex A.2 and SSC Region 3
CSA-Z245.12-09 Gr.248 CAT I-SS (WN & BLIND FLANGES ONLY)

DE
of - de 29/08/2013Certified acc. PED 97/23/EC-AD2000-WO
by TÜV Rheinland
N.º 01 202 EQ 02 7443Bº Zubillaga, 3 - Apdo. 14
20560 ONATI (Gipuzkoa) SPAIN
Tel.: 34 - 943 780552
Fax: 34 - 943 781808
E-mail: ulma@ulmaplating.com

MARCA DEL FABRICANTE
Mark of factory
Marque du fabricant



DEPARTAMENTO QUALITY ASSURANCE

Section

Département

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations	COLADA N.º Heat No N.º Coulée	T. Strength Resist Rupt N/mm2	Y. Strength 0.2 % N/mm2	ALARGAM. Elongation Lo: 4 d %	ESTRICCION Red Area Striction %	RESILIENCIA Impact test Résilience Joules	CHARGY V 10/10mm MEDIA Average Moyenne °C	DUREZA Hardness Dureté HBW
8 7534701	12	WN 12 300LB STD RF A105N	NE	B49T3	514	317	32.60	53.40			153 162
16 7536046	6	BLIND 12 300LB RF A105N	NE	B52A3	516	319	30.60	53.20			156 160
25 7531079	3	BLIND 6 600LB RF A105N	NE	A89T3	506	311	31.50	53.50			149 154
25 7531079	2	BLIND 6 600LB RF A105N	NE	B02T3	507	303	29.70	56.90			150 155
26 7530828	1	WN 2 1500LB STD/40 RF A105N	NE	B02T3	512	310	28.70	58.60			150 155
28 7531516	19	WN 4 900LB XS/80 RF A105N	NE	766T2	515	310	29.20	59.10			147 153
31 7530318	5	WN 2 2500LB XXS RF/RTJ A105N V01 SICHAF	NE	665V2	522	310	28.60	58.70			148 154

COMPOSICION QUIMICA - STEEL MAKERS LADLE ANALYSIS - ANALYSE CHIMIQUE

COLADA N.º Heat No N.º Coulée	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	N %	CEq %
631T2	0.193	0.193	0.890	0.011	0.027	0.064	0.102	0.016	0.000	0.002	0.295	0.000	0.000	0.0000	0.384
665V2	0.190	0.200	0.940	0.012	0.006	0.060	0.120	0.024	0.000	0.004	0.307	0.021	0.000	0.0000	0.393
766T2	0.220	0.200	0.930	0.015	0.015	0.060	0.140	0.023	0.001	0.002	0.240	0.000	0.000	0.0000	0.417
A89T3	0.210	0.170	0.880	0.014	0.015	0.090	0.150	0.021	0.006	0.001	0.290	0.000	0.000	0.0000	0.408
B02T3	0.210	0.160	0.890	0.012	0.012	0.050	0.130	0.018	0.006	0.001	0.290	0.000	0.000	0.0000	0.400
B49T3	0.190	0.160	0.890	0.020	0.010	0.070	0.090	0.024	0.006	0.002	0.390	0.000	0.000	0.0000	0.390
B52A3	0.205	0.205	1.050	0.012	0.005	0.070	0.096	0.022	0.006	0.005	0.192	0.027	0.000	0.0000	0.419

- Las dimensiones y la condición superficial se hallaron satisfactorias.
- Dimension and surface condition were found acceptable.
- Les dimensions et états de surface sont satisfaisants.

- Los materiales citados cumplen las normas aplicables.
- Manufacturing requirements are satisfied.
- Les normes applicables sont respectées.

EL INSPECTOR
Works Inspector - L'inspecteur



ULMA FORBES, COOP.

Dpto. de Garantía de calidad

Quality Assurance Dept.

(*) OBSERVACIONES: N NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

Remarks

Observations

Heat # 4603008

MISC. WELDED FITTINGS

Certificate No.: SE7030A2
Date: 07/29/2013
Page: 1 OF 1

MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)

Customer: SEYBOLD INTERNATIONAL CORP.

Order No.: 7007030(1)-PVE

SAN ENG STEEL FORGING CO LTD
311, Jen Hsin Road, Jen Wu District
Kaohsiung, Taiwan, R.O.C.
TEL: 07-3724249 ; FAX: 07-3712923
URL: www.saneng.com.tw
e-mail: saneng@ksta.seed.net.tw



PRODUCT				MATERIAL SPECIFICATIONS				DIMENSIONAL SPECIFICATIONS												
FORGED CARBON STEEL FLANGES				ASTM A105-11a/ASME SA-105-11a				ASME B16.5-08 CSA Z245.12												
Item No.	CODE NO	DESCRIPTION	QUANTITY		CHEMICAL COMPOSITION (%)															CE(*)
			Min	Max	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N				
1		150 BLRF(1"NPT TAP) 2" A105N	150 PCE		0.350	0.100	0.600	0.035	0.040	0.400	0.300	0.400	0.120	0.009	0.001	0.005	0.419			
2		150 HUB BLRF 2" A105N	100 PCE		0.210	0.220	1.150	0.023	0.005	0.006	0.020	0.010	0.004	0.006	0.001	0.006	0.407			
3		150 HUB BLRF(1/2"NPT TAP) 2" A105N	25 PCE		0.210	0.220	1.150	0.017	0.008	0.007	0.010	0.010	0.003	0.006	0.001	0.006	0.407			
4		150 HUB BLRF(1"NPT TAP) 2" A105N	100 PCE		0.210	0.220	1.150	0.017	0.008	0.007	0.010	0.010	0.003	0.006	0.001	0.006	0.407			
5		150 HUB BLRF(1 1/2" NPT TAP) 2" A105N	1 PCE		0.207	0.270	1.080	0.011	0.011	0.007	0.049	0.044	0.005	0.042	0.005	0.005	0.410			
6		150 HUB BLRF(1 1/2" NPT TAP) 2" A105N	24 PCE		0.210	0.220	1.150	0.017	0.008	0.007	0.010	0.010	0.003	0.006	0.001	0.006	0.407			
7		300 BLRF 2" A105N	100 PCE		0.220	0.220	1.140	0.021	0.006	0.007	0.020	0.010	0.003	0.004	0.001	0.007	0.417			
Item No.	Heat No.	T.S.(*) (MPa)	Y.S.(*) (MPa)	E.L.(*) (%)	Hardness (HB)	R.A.(*) (%)	Impact Test Temp: Minimum: Joule		Material Supplier	HEAT TREATMENT(*)		REMARKS								
							1	2		3	1		2							
1	4553922	535.0	358.0	34.2	154/151	68.6			ACOMINAS	880°CX3HRS		CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A. CONFORMS WITH Z245.12 CAT I GR248 SOUR SERVICE-09(FOR USE AS WELDING NECK AND BLIND FLANGES ONLY) MN TO C RATIO IS GREATER THAN 3.0"								
2	4573165	531.0	370.0	33.2	154/152	69.5			ACOMINAS											
3	4573165	531.0	370.0	33.2	154/152	69.5			ACOMINAS											
4	4573165	531.0	370.0	33.2	154/152	69.5			ACOMINAS											
5	10984	519.8	348.1	35.2	151/152	69.5			NTMK											
6	4573165	531.0	370.0	33.2	154/152	69.5			ACOMINAS											
7	4803008	524.0	370.0	33.4	154/151	70.4			ACOMINAS											
*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.																				
*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.																				
*3: C.E. Value = C + (Cr + Mo + V) / 5 + (Ni + Cu) / 15																				
We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.													Manager of Quality Assurance Dept							



Manager of Quality Assurance Dept

SO#282056 HEAT#4603008 2 300 RF BLIND A105N CW 1 1/2 NPT



SAN ENG STEEL FORGING CO. LTD
311, Jen Hsin Road, Jen Wu District
Kaohsiung, Taiwan, R.O.C.
TEL: 07-3724249; FAX: 07-3712923
URL: www.saneng.com.tw
e-mail: saneng@kts.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1 B(DIN50049/3.1 B)
Customer: SEYBOLD INTERNATIONAL CORP.
Order No.: 7004842(18)-PVE

Certificate No.: SE-4842P
Date: 11/19/2012
Page: 1 OF 1

PRODUCT				MATERIAL SPECIFICATIONS				DIMENSIONAL SPECIFICATIONS											
FORGED CARBON STEEL FLANGES				ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1				ASME B16.5-09 CSA Z245.12											
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)												CE(*)3			
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N				
			Min Max	0.300	0.150 0.300	1.350	0.035	0.040	0.400	0.350	0.400	0.120	0.090	0.020	-	-	-		
1		600 BLRF 3" LF2	32 PCE	0.220	0.200	1.150	0.021	0.003	0.006	0.010	0.010	0.002	0.004	0.001	0.005		0.415		
2		600 THRF 1" LF2	100 PCE	0.230	0.210	1.160	0.021	0.006	0.007	0.020	0.010	0.003	0.007	0.001	0.004		0.430		
3		900 BLRF(2"NPT TAP) 3" LF2	25 PCE	0.210	0.210	1.160	0.020	0.009	0.200	0.100	0.070	0.020	0.010	0.002	0.008		0.447		
4		900 BLRTJ(2"NPT TAP) 3" LF2	20 PCE	0.200	0.240	1.040	0.018	0.006	0.090	0.130	0.030	0.020	0.003	0.001	0.007		0.412		
Item No.	Heat No.	T.S.(*)1 (MPa)	Y.S.(*)1 (MPa)	E.L.(*)1 (%)	Hardness (HB)	R.A.(*)1 (%)	Impact Test Temp: -46°C		Material Supplier	HEAT TREATMENT(*)2		REMARKS							
							Minimum: 20.0 Joule	3		2	1								
1	4553962	535.0	354.0	33.8	154/152	88.6	40.0	37.0	ACOMINAS	47.0	80°Cx3HRS	CONFORMS WITH NACE MR0103-10 AND NACE							
2	4653926	535.0	354.0	33.8	154/152	89.6	72.0	76.0	ACOMINAS	80.0	MR0175/ISO15156-2:08	CONFORMS WITH NACE MR0103-10 AND NACE							
3	802890	539.0	391.0	33.0	155/152	69.5	73.0	102.0	SEAH BESTEEL	75.0	CONFORMS WITH Z245.12 CAT II GR.248 SOUR	CONFORMS WITH Z245.12 CAT II GR.248 SOUR							
4	Y101663	525.6	369.7	34.4	154/151	71.3	77.0	102.0	KOTOBUKI	80.0	BLIND FLANGES ONLY	BLIND FLANGES ONLY							
													TEST SPECIMEN SIZE: 10X10		TEST SPECIMEN ORIENTATION: TRANSVERSE		IMPACT TEST TEMP.: -46°C		
*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.																			
*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Flame Cooled, W.C=Water Cooled, O.C=Oil Cooled.																			
*3: C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15																			
We hereby certify that this material has been tested in accordance with the above specification and also with the requirements called for by the above order.																			
													Manager of Quality Assurance Dept						



Manager of Quality Assurance Dept

SO# 282056 HEAT# Y101663 3 900 RTJ BLIND LF2' CW 2 NPT



LONTRIN
YANGZHOU LONTRIN STEEL TUBE CO., LTD

MILL TEST CERTIFICATE (EN10204-3.1)

CUSTOMER: BOREALIS INDUSTRIAL SUPPLY LTD.

PRODUCT: STEEL LINE PIPES

PEC: CSA Z245.1-07 Grade 241/ASME SA106 Grade B/ASTM A106 Grade B/API5L Grade B

ISO REGISTRATION NO: 44 100

API 5L certification No: 0506

CONTRACT NO: BSI101013

CERTIFICATE NUMBER : 10441.

TOTAL: 54 BUNDLES

1085 PIECES

95381 KG

PACKING IN BUNDLES

O.	HEAT NO.	LOT NO.	STEEL GRADE	SIZE	PCS	WEIGHT Kg	CHEMISTRY/CHEMICAL COMPOSITION (Ladle Analysis) %									
							C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V.
1	13-112006	13113AR002	Grade B	3"×SCH40×6.1-6.4m	340	23588	0.18	0.23	0.52	0.024	0.008	0.02	0.01	0.02	0.001	0.001
2	H14468	13105AR289	Grade B	3"×SCH80×6.1-6.4m	104	9689	0.19	0.20	0.44	0.018	0.011	0.04	0.04	0.01	0.001	0.001
3	H14469	13105AR290	Grade B	3"×SCH80×6.1-6.4m	153	14255	0.20	0.19	0.43	0.015	0.012	0.04	0.03	0.01	0.001	0.001
4	H14450	13115AR140	Grade B	4"×SCH40×6.1-6.4m	36	3510	0.18	0.20	0.44	0.014	0.015	0.03	0.03	0.01	0.001	0.001
5	H14451	13115AR141	Grade B	4"×SCH40×6.1-6.4m	310	30396	0.19	0.21	0.42	0.016	0.013	0.02	0.03	0.01	0.001	0.001
6	H14445	13115AR142	Grade B	4"×SCH40×6.1-6.4m	142	13923	0.18	0.21	0.43	0.018	0.014	0.04	0.03	0.01	0.001	0.001
MECHANICAL PROPERTIES							TECHNOLOGICAL PROPERTIES							NONDESTRUCTIVE TEST		
ReL (MPa)	YIELD POINT	Rm (MPa)	TENSILE STRENGTH	ELONGATION A%	HARDNESS HRB	IMPACT TEST 10°10×55mm L ₁ -45°C	FLATTENING TEST	FLARING TEST	BENDING TEST	H.T ≥SS	ET			UT		
1	350	491	37	—	—	—	Satisfactory	—	—	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
2	368	485	28	—	—	—	Satisfactory	—	—	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
3	388	505	27	—	—	—	Satisfactory	—	—	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
4	319	476	35	—	—	—	Satisfactory	—	—	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
5	325	483	39	—	—	—	Satisfactory	—	—	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
6	324	472	35	—	—	—	Satisfactory	—	—	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

REMARKS:

ANALYZING REPRESENTATIVE:

STAMPER:

DATE: December 05, 2



9530025

PI-S480

HENGYANG VALIN
STEEL TUBE CO., LTD

MILL TEST CERTIFICATE

Add: 10 Daituxin, Hengyang City, Hunan, P.R. China P.C. 421001
Tel and Fax: +86 734 8873739
E-mail: hysc@hysteel.com

CUSTOMER		Bri-Chem Steel Corporation		CERTIFICATE NO.		C201425625-1	
CONTRACT/ITEM NO.		2111001258-05		P.O. NO.		BSC100090	
PRODUCT		SEAMLESS STEEL LINE PIPE		DELIVERY CONDITION		HR	
SPECIFICATION		SEE SPECIFICATION NOTE		HEAT TREATMENT			
GRADE		B/X42 Grade 290		DIMENSIONS		NPS 2 XH 40FT	
TOTAL BUNDLES:		50		TOTAL LENGTH:		37864.844	
		TOTAL PIECES:		946		TOTAL WEIGHT:	
						86.335 mt	

NO.	BATCH No.	HEAT No.	BUNDLES	PIECES	LENGTH ft	WEIGHT mt	TENSILE TEST ASTM A370				COLD BENDING TEST
							TS(psi)	YS(psi)	RT0.5	EL(%)	
1	947300813	1424371	17	320	12808.404	29.204	72935	50605	31.0	0.69	ACCEPTABLE
2	947300814	1424374	19	356	14249.549	32.490	68585	46400	30.0	0.68	ACCEPTABLE
3	947300815	1424372	14	270	10807.091	24.641	72210	50605	30.5	0.70	ACCEPTABLE

NO.	IMPACT TEST				NON METALLIC INCLUSION	GRAIN SIZE	HARDNESS TEST	
	NOTCH TYPE/ORIENTATION/TEMPERATURE(C)/SIZE (mm): III						NACE MR0175	HV10
1	AK1 (J)	Av(J)	% SHEAR AREA	LE				
2	/	/	/	/				
3	/	/	/	/				

NOTES:	W1-THEORETICAL WEIGHT	SAMPLE ORIENTATION: L- LONGITUDINAL	T- TRANSVERSE	HE-HOT EXPANDED
	W2-ACTUAL WEIGHT	SAMPLE TYPE: S- STRIP	C- CLUBBED	HR-HOT ROLLED
	NR-NORMALIZING ROLLED	Q&T-QUENCHING AND TEMPERING	F-FULL SECTION	N&T-NORMALIZING AND TEMPERING
	AK1-ABSORB ENERGY FOR THE FIRST SET	AK2-ABSORB ENERGY FOR THE SECOND SET	LE-SIDE EXPANSION	

MTE Approved
Bri-Steel

Kenton Dechant
Kleat
2014 Oct 10

Heat # 1424371

PIPE 2" SCH 80 A106 SMLS

Heat # 1424371

PIPE 2" SCH 80 A106 SMLS

Add: 10 Daluincun, Hengyang City, Hunan, P.R. China P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hstee@hysteelhube.com

MILL TEST CERTIFICATE

HENGYANG VALIN
STEEL TUBE CO., LTD

CUSTOMER		Bai-Chen Steel Corporation		CERTIFICATE NO.		C201424625-1		PAGE: 2/3	
CONTRACT-ITEM NO.		2111001248-05		P.O. NO.		BSC100090		DATE:	
PRODUCT		SEAMLESS STEEL LINE PIPE		DELIVERY CONDITION		HR		2014-8-19	
SPECIFICATION		SEE SPECIFICATION NOTE		HEAT TREATMENT		NPS 2 XH 40FT		86.355	
GRADE		B/X42, Grade 290		DIMENSIONS		R		TOTAL WEIGHT:	
TOTAL BUNDLES: 50		TOTAL PIECES: 946		TOTAL LENGTH: 37864.644		R		TOTAL WEIGHT: 86.355	
HEAT No.		1424371		BATCH No.		P			
NO		Type		C		Si		Mn	
		P		14		29		126	
		H		13		28		124	
		P		14		29		127	
		H		13		27		124	
		P		14		28		127	
		H		13		29		127	
		P		14		31		130	
		H		14		30		130	
		P		14		30		130	
		H		14		30		130	
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		P		14					

Heat # 1424371

PIPE 2" SCH 80 A106 SMLS

Add: 10 Daijincun, Hengyang
City, Hunan, P.R. China P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: bsice@hysteelube.com

MILL TEST CERTIFICATE

HENGYANG VALIN
STEEL TUBE CO., LTD

(ACCORDING TO EN10204 3.1B)

CUSTOMER	Bri-Chem Steel Corporation		CERTIFICATE NO.	C201425625-1	DATE:	2014-8-19	PAGE:	3/3
CONTRACT-ITEM NO.	2111001258-05	P.O. NO.	BSC100090	DELIVERY CONDITION	HR			
PRODUCT	SEAMLESS STEEL LINE PIPE							
SPECIFICATION	SEE SPECIFICATION NOTE		HEAT TREATMENT					
GRADE	B.XX42, Grade 290		DIMENSIONS	NPS 2" XH 40FT				
TOTAL BUNDLES:	50	TOTAL PIECES:	946	TOTAL LENGTH:	37864.844	ft	TOTAL WEIGHT:	86.335 mt

REMARK: 1. ORIGIN: MADE IN CHINA 2. ALL ELEMENTS TO BE LISTED

SPECIFICATION NOTE	API 5L(45th)PSL1, ASTM/ASME A/SA106B-2013, CSA Z245.1 GRADE 290 CAT 1-2014	
We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements. This certificate is issued by a computerized system and it is valid with electronic signature. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subject to the law. If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube CO., LTD, E-mail: bsice@hysteelube.com		
CUSTOMER THIRD PARTY		Quality Manager:  Certificate-maker: 唐延娜



5504 - 58 AVENUE
DRAYTON VALLEY, AB
T7A 0B1
PHONE: 780-542-7135
FAX: 780-542-5678

718 x 53/4

ORDER # 29296 INV. #

PACKING SLIP ONLY DV 380432

Initials

ORDERED BY <u>Jim</u>	VIA: <u>P/U Newfide</u>	DATE: <u>FEB 23/15</u>
PHONE:	E-MAIL:	
LOCATION <u>2-13-48-8 WSM</u>		
AUTHORIZED PERSONNEL <u>KERRY CLEVER</u>		
CHARGE CODE		
P.O. #	☐ CASH	☒ ON ACCOUNT ☐ CHEQ #

D TO: ARE RES

QTY.	U / M	ITEM CODE	DESCRIPTION	UNIT PRICE	NET AMOUNT
1			3' 5/80 45° EL WLB	120000	31
3			2' 5/80 LR 90° EL WLB	1448	
1			4x3' 4H CONC WLB	5812	
6			3' 90° 4H RTJUN ALOS	B43V4	1443
1			3' 1500 4H RTJUN ALOS	12/345	30
1			4' 90° 4H RTJUN ALOS	32939	
21			3' 4H PIPE ALOS	144695	
			1.3M TA ALOS	4263	
			35x50 GARBAGE BAGS		
1			3' 90° RTJ BLIND ALOS		
1			4' 90° RTJ BLIND ALOS		
1			R35 Ring Gasket 316SS		
1			3" 1500 Bolt Up Kit		
4			3" 900		
4			R31 Ring Gasket 316SS		
1			1" x 4' S160 Nipple A106		
1			1" 3M Nace Jag Ball Valve		
32			7/8 x 53/4 B7M Stud		
64			7/8 2HM Nut		
1			R37 316 Ring Gasket		
1			4' 90° Bolt Up B7M/JHM		
8			1 1/8 x 6 3/4 B7M STUDS		
16			1 1/8 2HM NUTS		
60			R24 316SS RING		
10			2" 900 Bolt UP		

mts price
Feb 26/15



Thursday, 26-Feb-2015

From:

5504 58 Avenue
Drayton Valley, AB, Canada
T7A 1S4
Phone : 780-542-7135
Fax : 780-542-5678
Email : mtrs@monarchapex.com

To:

Ref #:

Document Summary Page

The MTR's are printed in the following order:

#	Heat #	Description	Product Cod
1	12P00031	ELBOW 3" 45D LR XH WELD A234- WPB	EK45-XHW
2	A448	ELBOW 3" 90D LR XH WELD A234- WPB	EK90-XHW
3	5812	REDUCER CONCENTRIC 4" X 3" XH WELD A234	CRMXK-XHW
4	B43V4	FLANGE 3" 900# RTJWN XH A105N	FK900- RTJWNX
5	12/34530	FLANGE 3" 1500# RFWN XH A105N	FK1500- RFWNX
6	H14469	PIPE 3" SCH 80 A106 SMLS	PK-SCH80
7	4263	THREAD-O-LET 1" 3M# FS A105N	TLF-3FS



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkru, Prapadaeng,
Samutprakarn, 10130 Thailand.

D M Y Certificate No.
04/04/2013 T- 2013200278

INSPECTION CERTIFICATE

Purchaser : CCTF CORPORATION

TO EN10204 3.1

E-No. MD-015 Purchase Order No. 4810303-00 Job No.

Heat # 12P00031

ELBOW 3" 45D LR XH WELD A234-WPB

No.		MFG. No.	Specification for Material Made from Seamless Pipe										Specification for Inspection		Visual Examination	Dimensional Inspec	
			ASTM A234-11/ASME SA234-10 Gr. WPB CSA Z46 11-00 Gr. 241 CAT 1 SS INACE MFR175/ISO 15165-2/EN10204/103-10										ASME B16.9-2007/B16.25-2007		Good	Good	
			Product & Size					(T:°I)	Quantity		Heat Treatment (Note 1)		Hardness Actual Data		Item No.		
1		12E00024	90 ES WPB 2 S40						25		A		HB : 120 - 150		7510859		
2		13A00059	45 EL WPB 3 S40						150		A		HB : 118 - 145		7511213		
3		12G00025	90 ES WPB 3 S40						6/20		A		HB : 115 - 145		7510861		
4		13A00028	90 ES WPB 3 S40						14/20		A		HB : 115 - 145		7510861		
5		12P00031	45 EL WPB 3 S80						10		A		HB : 120 - 150		7511507		
Specification			Chemical Composition %										Tension Test #2				
			C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E
Min.			x 100	x 100	x 100	x 1000	x 1000	x 1000	x 100	x 100	x 100	x 1000	x 1000	x 100	MPa.		%
Max.				10	29										240	415	30
Material Heat No.			30		108	50	58	40	40	40	15	80	20		655		
1	J2L1034		20	24	79	13	5	2	3	5	1	0	0	35	328	515	50
2	24937		16	23	88	11	1	8	3	5	5	3	1	34	331	490	33
3	J2K2338		19	20	80	18	3	2	2	5	1	0	0	34	308	486	56
4	J2L9087		19	22	78	16	5	1	2	5	1	0	0	33	313	492	57
5	J2L9182		18	18	85	17	7	1	2	4	1	0	0	33	297	479	66

(Note 1) A : Hot formed with final temperature between 620 °C-980°C; Air Cooling N : Normalizing 910°Cx0.5 HR. Air Cooling

The sample was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned

and also with the purchaser's requirements and that the test results shown herein are correct.

Note for WPB: For each reduction of 0.10% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted up to a maximum of 1.35%

Form 17.6A/4

Signature
Rungnaph Kompanon

Quality Assurance Manager
Thai Benkan Co., Ltd.

INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD. (MILL TEST)
 Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
 Spec : ASME SA 234/ASTM A234-13 WPB SS
 NACE MR0175/ISO15156-2 Sour Service
 Region 3 Annex A, MR0103 Sour**
 ACCORDANCE WITH EN 10204-3.1
 CHUP HSIN ENTERPRISE CO., LTD.
 17, TUNG U ROAD HSIAO KANG,
 KAOHSIUNG, TAIWAN, R.O.C.
 TEL: (07) 831-9157 FAX: (07) 821-7500, 831-2942
 Certificate No : 00300053-0101
 Order No : E000499
 Date : 2014/08/22

ELBOW 3" 90D LR XH WELD A234-WPB

Heat # A448

Starting Material		Specification for Inspection				Visual Inspection		Dimensional Inspection										
ASTM A106 GR.B		ASME B16.9-2012				GOOD		GOOD										
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test											
							Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.								
1	90 E L/R SMIS STD	3	1545	331545	TIANJIN C102100010394													
3	90 E L/R SMIS STD	8	1915	311915	TIANJIN C102100010349													
5	90 E L/R SMIS XS	3	A448	321448	TIANJIN C102100010395													
6	90 E L/R SMIS XS	4	C103	331103	TIANJIN C102100010313													
7	45 E L/R SMIS STD	16	D237	331237	TIANJIN C102100010333													
Chemical Composition%																		
Specification	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E	YS	TS	E	Hardness Test	Heat Treatment	REMARK
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%	HB		
Min.		10	29										35000	60000	30			
Max.	22		135	50	58	40	40	40	15	80	20	50				197		
1	18	24	64	9	8	7	2	5	2	1	1	31	45852	71000	34.6			
3	15	27	105	13	7	8	3	5	0.8	3	1	35	58330	80100	48.0			
5	18	25	62	9	7	8	3	6	2	<1	<1	30	46577	71500	36.5			
6	18	23	65	10	4	2	2	4	1	<1	<1	30	43820	69400	37.5			
7	13	26	99	12	5	2	1	1	3	3	3	31	39757	67000	49.5			
										620°C TO 980°C HOT FORMED			**Service/ CSA Z245.11 GR 241 CAT I SS Region 3 Annex A.					

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15
 We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

L.S. Jui

Customer	: WFF FITTINGS & FLANGES (CANADA) LTD.	(MILL TEST)	Certificate No	: 00300053-0102
Product	: SEAMLESS CARBON STEEL BUTT WELD FITTINGS	ACCORDANCE WITH EN 10204-3.1	Order No	: E000489
Spec	: ASME SA 234/ASTM A234-13 WPB SS NACE MR0175/ISO15156-2 Sour Service Region 3 Annex A, MR0103 Sour**	CHUP HSIN ENTERPRISE CO., LTD. 17, TUNG LI ROAD HSIAO KANG, KAHSIUNG, TAIWAN, R.O.C. TEL:(07)831-9157 FAX:(07)821-7500, 831-2942	Date	: 2014/08/22

Starting Material		Specification for Inspection				Visual Inspection		Dimensional Inspection										
ASTM A106 GR.B		ASME B16.9-2012				GOOD		GOOD										
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test											
							Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.								
22	CON RED SMIS XS	3 X 1	10	811A	321811	TTANJIN C102100010185												
23	CON RED SMIS XS	4 X 3	10	5812	335812	TTANJIN C102100010051												
24	CON RED SMIS XS	6 X 3	10	7032	327032	TTANJIN C102100010339												
Chemical Composition%																		
Specification	C	Si	Mn	P	S	CU	NI	Cr	Mo	V	Nb	C.E	Y.S	T.S	E	Hardness Test	Heat Treatment	REMARK
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%			
Min.		10	29										35000	60000	30			
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197		
22	17	21	75	14	10	1	1	3	1	<1	<1	30	39612	64700	33	136	NORM. 910°C.X0.5HR	**Service/ CSA
23	13	23	105	14	4	8	3	5	1	4	32	33	52336	74675	35.2	135		Z245.11 GR 241 CAT I
24	20	22	68	14	7	2	5	9	2	1	3	34	43820	70500	44.5	131		SS Region 3 Antirex A.

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

L. S. Jai

FLANGE 3" 900# RTJWN XH A105N

CLIENTE / Customer / Client

**CCTF CORPORATION (EDMONTON)
5407 - 53 AVENUE NW
EDMONTON, AB T6B 3G2
CANADA**

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

DIN EN 10204 / 3.1
ISO 10474 / 3.1

CHA:	N.º	167680
te:	22/10/2014	

HOJA: 1
Page: 1

PRODUCTO
Article - Product

FLANGES

SU PEDIDO N.º
Your Order No.
Votre Cde. N.º

DE
of. - de 26/08/2014

NORMAS APLICABLES

ASME B16.5-13

MATERIAL CORRESPONDIENTE ASME SA105M-13, ASTM A105M-13
Material Correspondent - Qualité CHARPY AS PER ASME B31.3 Table

Clause 7.2.1.4, Annex A.2 and SSC Region 3.

CSA-Z245.12-13 GR248 CAT I-SS (WN & BLIND FLANGES ONLY)

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations	COLADA N. Heat No N.°Coulée	RESISTENCIA T.Strength Resist Rupt	UNITE ELAST. Y.Strength 0.2 % N/mm2	ALARGAM. Elongation Allongement Lo: 4 d	ESTRICCION Red. Area Striction	RESILIENCIA Impact test Résilience	CHARPY V 10x10mm MEDIA Average Moyenne	PROBETA SPECIMEN	DUREZA Hardness Dureté
			(*)		N/mm2		%	%	Joules	°C		HBW
69 7531575	18	WN 3 900LB S160 RF A105N	NE	B28V4	516	317	28,90	51,60	59	67	-29	161 164
69 7531575	72	WN 3 900LB S160 RF A105N	NE	B43V4	501	296	33,40	59,60	62	57	-29	151 155
69 7531575	54	WN 3 900LB S160 RF A105N	NE	B44V4	492	303	35,40	68,40	59	62	-29	146 148
72 7531796	24	WN 3 900LB XS180 RTJ A105N	NE	B43V4	502	297	33,10	59,00	62	67	-29	151 155
74 7531877	5	WN 3 900LB S160 RTJ A105N	NE	B43V4	502	297	33,10	59,00	62	67	-29	151 155
79 7530140	4	BLIND 10 900LB RF A105N	NE	A03V4	519	332	25,90	45,00	58	63	-29	152 161

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

Heat No N°Coulée	Composition chimique													
	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	CEq %
A03V4	0,200	0,230	0,980	0,011	0,009	0,119	0,082	0,040	0,000	0,002	0,216	0,040	0,002	0,415
B28V4	0,190	0,270	1,030	0,015	0,004	0,060	0,080	0,013	0,001	0,002	0,210	0,026	0,000	0,396
B43V4	0,190	0,220	0,990	0,009	0,006	0,120	0,090	0,014	0,001	0,003	0,170	0,026	0,000	0,400
B44V4	0,190	0,200	1,010	0,010	0,008	0,100	0,100	0,012	0,001	0,002	0,140	0,024	0,000	0,397

- Las dimensiones y la condición superficial se hallaron satisfactorias.
- Dimension and surface condition were found acceptable.
- Les dimensions et états de surface sont satisfaisants.

- Los materiales citados cumplen las normas aplicables.
- Manufacturing requirements are satisfied.
- Les normes applicables sont respectées.

EL INSPECTOR
Works Inspector - L'Inspecteur

ULMA
Works Inspector - L'inspecteur

(*) OBSERVACIONES:
N NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR.

Remarks
Observations

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV
= ISO 9001 =

SEDE AMMINISTRATIVA E STABILIMENTO:
23861 CESANA BRIANZA (LC) - Italy
Via G. Parini, 28
Tel. +39 031.655441
Fax +39 031.655148
quality.mifofarmas.com

METALFAR
PRODOTTI INDUSTRIALI S.P.A.

ISTRAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INOSSIDABILI



3" CL 1500 W/N FLANGE RF XH BORE A105N

Cardfil. N.	1657	Doc/Dated	20.03.2013	Fattura / Invoice N.	1085	Doc/Dated	19.03.2013
DOT / Del Nota N.	1282	Doc/Dated	19.03.2013	No.Ord. / Our ref. N.		Doc/Dated	
TRANS AMI PIPING PRODUCTS LTD				Dest.: F.F.F. c/o TRANS AMI PIPING PRODUCTS LTD			
9335 ENDEAVOR DRIVE S.E.				9335 Endeavor Drive S.E.			
TSS 0A1 CALGARY, ALBERTA				TSS 0A1 CALGARY, ALBERTA			
CA				CA			

Pag. 3 - 33

[illegible]

CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE

[illegible]

CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE

PO# CB-154413 Item# 4
Heat Number: 12/34530
Tires Air Piping Products Ltd. - Rev'd By: SB
Shipments/Sec #13
1188

NOTE 100% MANUFACTURED IN ITALY NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-0175Z008 ISO 15165-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103Z012 - SOUR SERVICE	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL 
--	---	--	--



LONTRIN
YANGZHOU LONTRIN STEEL CO., LTD

MILL TEST CERTIFICATE (EN10204-3.1)

CUSTOMER: BOREALIS INDUSTRIAL SUPPLY LTD.

PRODUCT: STEEL LINE PIPES

PEC: CSA Z245.1-07 Grade 241/ASME SA106 Grade B/ASTM A106 Grade B/API5L Grade B

ISO REGISTRATION NO: 44 100

API 5L certification No: 0506

CONTRACT NO: BSI101013

CERTIFICATE NUMBER: 10441

TOTAL: 54 BUNDLES

1085 PIECES

95381 KG

PACKING IN BUNDLES

PIPE 3" SCH 80 A106 SMLS																	
O.	HEAT NO.	LOT NO.	STEEL GRADE	SIZE	PCS	WEIGHT Kg	CHEMISTRY/CHEMICAL COMPOSITION (Ladle Analysis) %										
							C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V.	N
1	13-112006	13113AR002	Grade B	3"×SCH40×6.1-6.4m	340	23588	0.18	0.23	0.52	0.024	0.008	0.02	0.01	0.02	0.001	0.001	0.00
2	H14468	13105AR289	Grade B	3"×SCH80×6.1-6.4m	104	9689	0.19	0.20	0.44	0.018	0.011	0.04	0.04	0.01	0.001	0.001	0.00
3	H14469	13105AR290	Grade B	3"×SCH80×6.1-6.4m	153	14255	0.20	0.19	0.43	0.015	0.012	0.04	0.03	0.01	0.001	0.001	0.00
4	H14450	13115AR140	Grade B	4"×SCH40×6.1-6.4m	36	3530	0.18	0.20	0.44	0.014	0.015	0.03	0.03	0.01	0.001	0.001	0.00
5	H14451	13115AR141	Grade B	4"×SCH40×6.1-6.4m	310	30396	0.19	0.21	0.42	0.016	0.013	0.02	0.03	0.01	0.001	0.001	0.00
5	H14445	13115AR142	Grade B	4"×SCH40×6.1-6.4m	142	13923	0.18	0.21	0.43	0.018	0.014	0.04	0.03	0.01	0.001	0.001	0.00
O.	MECHANICAL PROPERTIES					TECHNOLOGICAL PROPERTIES			NONDESTRUCTIVE TEST				SURFACE QUALITY		DIMENSIONAL TOLERANCE		
	REL (MPa) YIELD POINT	Rm (MPa) TENSILE STRENGTH	ELONGATION A%	HARDNESS HRB	IMPACT TEST 10"10"55mm L _y -45°C	FLATTENING TEST	FLARING TEST	BENDING TEST	H.T ≥55	ET	UT	IN	OUT	O.D.			
1	350	491	37	---	---	Satisfactory	---	---	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	
2	368	485	28	---	---	Satisfactory	---	---	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	
3	388	505	27	---	---	Satisfactory	---	---	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	
4	319	476	35	---	---	Satisfactory	---	---	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	
5	325	483	39	---	---	Satisfactory	---	---	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	
5	324	472	35	---	---	Satisfactory	---	---	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	

REMARKS:

ANALYZING REPRESENTATIVE:

STAMPER:

DATE:

December 05, 2



Heat # 4263

THREAD-O-LET 1" 3M# FS A105N



5482 43082621 Heat# 4263
BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY TAIWAN R.O.C.(81460)
 TEL : (886)7-3711536, 3710497, 3720260 FAX : (886)7-3713864, 3713886
 WEB SITE : <http://www.bothwell.com.tw> E-Mail : box@bothwell.com.tw

**MILL TEST & INSPECTION CERTIFICATE**

ACCORDING TO EN 10204 3.1

CUSTOMER : SEYBOLD INTERNATIONAL CORP.

PAGE : 78

CERT NO : 143016

INVOICE NO : 5200002809

DATE : 09/27/2014

ORDER NO : 7008567

L/C NO :

ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT CODE	QTY	DESC/GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION(%) MECHANICAL PROPERTIES. SUPPLIER.
176	0097737 4263	3,000 PCS	OUTLET STRAIGHT WAY A105 1"x2"-36" 3000# NPT C:0.19 SI:0.19 MN:0.93 P:0.016 S:0.005 CU:0.14 CR:0.06 NI:0.05 MO:0.01 V:0.001 NB:0.000 CE:0.37 TS(KSI):77.1 YS 0.2%(KSI):56.7 EL(%):33.4 R.A.(%):65.5 HARDNESS1(HBW):145 HARDNESS2(HBW):143

REMARK :

THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A105N -13, ASME SA105N-2013ED

THE FITTING SUPPLIED IDENTIFIED AS MSS SP-97 - 2012

THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION(SURFACE & DIM). : GOOD

FULLY KILLED AND FINE GRAIN PRACTICE

	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)
MIN	-	0.10	0.60	-	-	-	-	-	-	-	-
MAX	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-
	N	Al	Ti	Zr	CE	TS(KSI)	YS	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS(H)
MIN	-	-	-	-	-	70	-	36	22	30	-
MAX	-	-	-	-	0.43	-	-	-	-	-	187

HEAT TREATMENT : NORMALIZED: 900°C (1652°F) A.C.

STEEL MAKING PROCESS : ELECTRIC FURNACE

CONFORMS TO NACE MR0175-09/ISO15156-09/MR0103-12

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED,
 SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH THE
 SPECIFICATIONS SHOWN

C.C. Huang
 Q.C. MANAGER

C.L. Ko
 INSPECTOR



PACKING SLIP

Order: 200-029443-00
Location: DRAYTON VALLEY
Date: 2/27/2015
Page No: Page 1 of 3

Bill To: ARC RESOURCES GENERAL PARTNERSHIP
BOX 6330
DRAYTON VALLEY, AB T7A 1R8

Ship To: ARC RESOURCES GENERAL
PARTNERSHIP
BOX 6330
DRAYTON VALLEY, AB T7A 1R8



200-029443-00

Ordered By	Entered By	Location	AFE #	Customer PO
TIMM 918-9591	BrettH	2-13-48-08 W5M		

Charge Code	Order Date	Ship Via	Ship Date
	2/26/2015		2/26/2015

Line	Item	Quantity Shipped	Quantity Backorder	UOM	List	Disc %	Price	Net Total
001	I1A60315 2" 1500 RTJ BLIND FLANGE S.S	1.00	-	EA	-	-	-	-
002	I1B00069 FLANGE 3" 300# RFWN XH A105N - FK300-RFWNX Heat #: 4625146	12.00	-	EA	-	-	-	-
003	I1B00063 FLANGE 2" 300# RFWN XH A105N - FI300-RFWNX Heat #: 14/70770	2.00	-	EA	-	-	-	-
004	I1B00062 FLANGE 2" 1500# RTJWN XH A105N - FI1500-RTJWNX Heat #: A30T4	3.00	-	EA	-	-	-	-
005	I1B00073 FLANGE 3" 900# RTJWN XH A105N - FK900-RTJWNX Heat #: B43V4	2.00	-	EA	-	-	-	-
006	I1B00067 FLANGE 3" 1500# RFWN XH A105N - FK1500-RFWNX Heat #: 4573180	1.00	-	EA	-	-	-	-
007	I1B00032 ELBOW 3" 90D LR XH WELD A234-WPB - EK90-XHW Heat #: A448	8.00	-	EA	-	-	-	-
008	I1B00031 ELBOW 3" 45D LR XH WELD A234-WPB - EK45-XHW Heat #: 3422	1.00	-	EA	-	-	-	-
009	J1A00239 THREAD-O-LET 1" 3M# FS A105N - TLF-3FS Heat #: 4001	5.00	-	EA	-	-	-	-



PACKING SLIP

Order: 200-029443-00
Location: DRAYTON VALLEY
Date: 2/27/2015
Page No: Page 2 of 3

Bill To: ARC RESOURCES GENERAL PARTNERSHIP

BOX 6330
DRAYTON VALLEY, AB T7A 1R8

Ship To: ARC RESOURCES GENERAL
PARTNERSHIP
BOX 6330
DRAYTON VALLEY, AB T7A 1R8



200-029443-00

Ordered By	Entered By	Location	AFE #	Customer PO
TIMM 918-9591	BrettH	2-13-48-08 W5M		

Charge Code	Order Date	Ship Via	Ship Date
	2/26/2015		2/26/2015

Line	Item	Quantity Shipped	Quantity Backorder	UOM	List	Disc %	Price	Net Total
010	I1B00013 REDUCER CONCENTRIC 3" X 2" XH WELD A234-WPB - CRKXI-XHW Heat #: 8389	1.00	-	EA	-	-	-	-
011	P1B00020 PIPE 2" SCH 80 A106 SMLS - PI-SCH80 Heat #: 1424371	21.00	-	FT	-	-	-	-
012	P1B00027 PIPE 3" SCH 80 A106 SMLS - PK-SCH80 Heat #: H14489	105.00	-	FT	-	-	-	-
013	N1B00112 STUD 7/8" X 5-3/4" B7M - B7M78X5.75	24.00	-	EA	-	-	-	-
014	N1B00009 NUT 7/8" HEX 2HM - 2HM78	48.00	-	EA	-	-	-	-
015	N1D00007 BOLT UP 3" 300# B7M/2HM - BU3-300	6.00	-	EA	-	-	-	-
016	O1C00093 GASKET SPIRAL WOUND 3" 3-600# 316SS - FG3-600-316	6.00	-	EA	-	-	-	-
017	N1D00002 BOLT UP 2" 300# B7M/2HM - BU2-300	2.00	-	EA	-	-	-	-
018	O1C00071 GASKET SPIRAL WOUND 2" 3-600# 316SS - FG2-600-316	2.00	-	EA	-	-	-	-
019	S1G00011 TUBING SQUARE 4" x .25 WALL S TEEL 24'-LENGTHS - TUB-4-25	24.00	-	FT	-	-	-	-
020	S1D00003 WIDE FLANGE 6" 15LB/FT STEEL - WF6-15	20.00	-	FT	-	-	-	-



PACKING SLIP

Order: 200-029443-00
Location: DRAYTON VALLEY
Date: 2/27/2015
Page No: Page 3 of 3

Bill To: ARC RESOURCES GENERAL PARTNERSHIP

BOX 6330
DRAYTON VALLEY, AB T7A 1R8

Ship To: ARC RESOURCES GENERAL
PARTNERSHIP
BOX 6330
DRAYTON VALLEY, AB T7A 1R8



200-029443-00

Ordered By	Entered By	Location	AFE #	Customer PO
TIMM 918-9591	BrettH	2-13-48-08 W5M		

Charge Code	Order Date	Ship Via	Ship Date
	2/26/2015		2/26/2015

Line	Item	Quantity Shipped	Quantity Backorder	UOM	List	Disc %	Price	Net Total
021	S1F00003 CHANNEL IRON 4" X 5.4 LB/FT (20FT) - CHAN-4X54	20.00	-	FT	-	-	-	-
022	S1F00004 CHANNEL IRON 6" X 8.2 LB/FT (20FT) - CHAN-6X82	20.00	-	FT	-	-	-	-
023	O1C00183 GASKET RING R-24 316SS - RGR24316	10.00	-	EA	-	-	-	-
024	S1J00033 PIPE SHOE 2" CLAMP ON - CLA-SHOE-I	6.00	-	EA	-	-	-	-

TAX: GST 5%

TERMS: 1% NET 30 DAYS QUICK PAY CAD

NOTES: ATTN: KERRY CLEAVER
Total Stock Weight: 3.4900 lbs

GST Number: 83819 8174 RT

_____	Cartons/Bags	_____	Bundles
_____	Skids	_____	Lengths
_____		_____	Total

Received By

Date



Monday, 02-Mar-2015

From:

5504 58 Avenue
Drayton Valley, AB, Canada
T7A 1S4
Phone : 780-542-7135
Fax : 780-542-5678
Email : mtrs@monarchapex.com

To:

Ref #:

Document Summary Page

The MTR's are printed in the following order:

#	Heat #	Description	Product Cod
1	4625146	FLANGE 3" 300# RFWN XH A105N	FK300- RFWNX
2	14/70770	FLANGE 2" 300# RFWN XH A105N	FI300- RFWNX
3	A30T4	FLANGE 2" 1500# RTJWN XH A105N	FI1500- RTJWNX
4	B43V4	FLANGE 3" 900# RTJWN XH A105N	FK900- RTJWNX
5	A448	ELBOW 3" 90D LR XH WELD A234- WPB	EK90-XHW
6	3422	ELBOW 3" 90D LR XH WELD A234- WPB	EK90-XHW
7	4001	THREAD-O-LET 1" 3M# FS A105N	TLF-3FS
8	8389	REDUCER CONCENTRIC 3" X 2" XH WELD A234 WPB	CRKXI-XHW
9	1424371	PIPE 2" SCH 80 A106 SMLS	PI-SCH80
10	H14469	PIPE 3" SCH 80 A106 SMLS	PK-SCH80



SAN ENG STEEL FORGING CO. LTD.
311, Jen Heir Road, Jen Wu District
Kaohsiung, Taiwan, R.O.C.
TEL: 07-3724249; FAX: 07-3712923
URL: www.saneng.com.tw
e-mail: saneng@ksts.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50048/3.1.B)
Customer: SEYBOLD INTERNATIONAL CORP.
Order No.: 7007520(4)-CCITE

Certificate No.: SE-7520D
Date: 12/30/2013
Page: 1 OF 3

Po# 4893774

Heat # 4625146

FLANGE 3" 300# RFWN XH A105N

PRODUCT			MATERIAL SPECIFICATIONS				DIMENSIONAL SPECIFICATIONS													
FORGED CARBON STEEL FLANGES			ASTM A105-13/ASME SA-105-13				ASME B16.5-13 CSA Z245.12													
Item No.	CODE NO	DESCRIPTION	QUANTITY		CHEMICAL COMPOSITION (%)															CE(*)
			Min	Max	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N				
1	7534817	300 WNRFS XS 3" A105N	400 PCE		0.230	0.190	1.160	0.014	0.006	0.007	0.010	0.010	0.020	0.005	0.001	0.008	0.428			
2	7534884	300 WNRFS XS 16" A105N	10 PCE		0.200	0.200	1.100	0.014	0.008	0.130	0.110	0.070	0.020	0.010	0.002	0.008	0.425			
3	7534884	300 WNRFS XS 16" A105N	20 PCE		0.200	0.200	1.140	0.021	0.012	0.170	0.090	0.060	0.020	0.002	0.002	0.009	0.428			
4	7536232	300 SORF 4" A105N	25 PCE		0.180	0.210	1.070	0.012	0.002	0.180	0.080	0.070	0.014	0.001	0.001	0.008	0.394			
5	7536275	300 SORF 8" A105N	25 PCE		0.190	0.230	1.150	0.019	0.005	0.007	0.020	0.010	0.001	0.005	0.001	0.009	0.388			
6	7535582	300 THRF 1 1/2" A105N	25 PCE		0.227	0.260	1.010	0.018	0.016	0.017	0.035	0.059	0.002	0.011	0.005	0.005	0.410			
7	7530871	300 BLRF(1"NPT TAP) 2" A105N	25 PCE		0.210	0.220	1.150	0.021	0.005	0.007	0.020	0.010	0.002	0.008	0.001	0.007	0.408			
8	7530106	300 BLRF(2" NPT TAP) 3" A105N	120 PCE		0.210	0.220	1.160	0.016	0.004	0.007	0.010	0.010	0.003	0.006	0.001	0.007	0.408			
9	7535996	300 BLRF 4" A105N	100 PCE		0.220	0.220	1.130	0.017	0.003	0.010	0.020	0.010	0.003	0.008	0.001	0.007	0.416			
10	7530109	300 BLRF(2" NPT TAP) 4" A105N	26 PCE		0.212	0.250	1.050	0.011	0.013	0.018	0.045	0.046	0.005	0.037	0.005	0.005	0.409			
Item No.	Heat No.	T.S.(*) (MPa)	Y.S.(*) (MPa)	E.L.(*) (%)	Hardness (HB)	R.A.(*) (%)	Impact Test		Material Supplier	REMARKS										
							Temp: Minimum:	Joule												
1	4625146	543.0	383.0	36.8	155/153	68.6	1	2	3	ACOMINAS	880°Cx4HRS									
2	292404	525.6	383.4	35.8	154/151	72.1				SEAH BESTEEL	CONFORMS WITH NACE MR0103-12 AND NACE									
3	278364	525.6	371.7	34.0	154/154	67.7				SEAH BESTEEL	MR0175/ISO15156 2-09 CLAUSE 7.2.1.4 REGION 3									
4	95742	524.0	380.0	33.8	153/150	71.3				WEI CHIH STEEL	AND ANNEX A.									
5	4723484	518.0	362.0	37.0	152/150	71.3				ACOMINAS	CONFORMS WITH Z245.12 CAT I GR248 SOUR									
6	921028	519.8	339.3	32.8	159/156	64.0				NTMK	SERVICE-08/FOR USE AS WELDING NECK AND									
7	4723460	522.0	358.0	34.2	153/151	69.5				ACOMINAS	BLIND FLANGES ONLY									
8	467171	518.0	350.0	35.8	153/151	70.4				ACOMINAS	MIN TO C RATIO IS GREATER THAN 3.0"									
9	4703624	524.0	374.0	37.0	153/151	70.4				ACOMINAS										
10	21379	513.9	354.0	34.2	152/150	68.6				NTMK										
*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.																				
*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T.=Solution Treated, S.R.=Stress Relieved, A.C.=Air Cooled, F.C.=Furnace Cooled, W.C.=Water Cooled, O.C.=Oil Cooled.																				
*3: C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15																				
We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.											Manager of Quality Assurance Dept									



Heat # 14/70770

FLANGE 2" 300# RFWN XH A105N

 METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE + 39 031 655441 - FAX +39 031 655149 quality.mff@farmae.com		COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV = ISO 9001 = = ISO 14001 =	
INSPECTION CERTIFICATE EN 10204:2004 / 3.1		Nr^{A03} 2014-C_MFF-07857 Data / Dated 12.11.2014^{Z02}	
FORGED FLANGES & FITTINGS LTD CASTLE HOUSE - STATION ROAD EN5 1PE NEW BARNET/HERTFORDSHIRE		Ordine / PO FFF 4112/C Item 004 DDT / Delivery note 2014-3E301-0004707 Packing List 2014-3E401-0004199 Fattura / Invoice 2014-3E401-0004199 Ns. rif. / Our ref. 2014-3E201-0003316-0004	
Dest. F.F.F UK LTD - Canadian Branch TRADING AS - FFF CANADA 1811-66th Avenue, NW T6P 1M5 EDMONTON, ALBERTA (GST 80104 9834 RT0001)		GB	
Cod. colata^{B07} Heat Code		Nr. colata^{B07} Heat Nr	
Quantità^{B08} Quantity		Descrizione^{B01 - (B09 - B11)} Description	
14/70770		260,00 W/N 300 RF 2" XS A105N	

Mat. in acc. a / Mat. in acc. to^{B02} ASTM/ASME A 105/SA 105 M - 14 ASME CODE SECT. II, PART A, ED. 2013
 NACE MR-0175/2009 ISO 15156 - SOUR SERVICE
 NACE MR-0103/2012 - SOUR SERVICE
 Q.A.S. IN ACCORD. WITH PRESS. EQUIPM. DIRECT. 97/23/EC (PED) ANNEX I, PARAGRAPH 4.3
 CERT. 4687-2014-CE-ITA-ACCREDIA
 CSA Z245.12 GRADE 248 CAT. I SOUR SERVICE

FI 300-RFWN+

Elementi / Elements^(C71 - C82)															
LADLE ANALYSIS	C	SI	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N		
	0,190	0,230	0,900	0,009	0,015	0,200	0,070	0,020	0,020	0,200	0,003	0,002	0,000		
LADLE ANALYSIS	AI								CE LF	CE SF	F1	F2	PREN		
	0,026								0,403	0,340	0,493	0,220	--		
CE LF = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 CE SF = C+Mn/6 F1 = Cu+Ni+Cr+Mo+V F2 = Cr+Mo															
Provetta		Forma^{C10}		*C^{C03}		Snervamento > 0,2%^{C11}		Snervamento > 1,0%^{C11}		Rottura^{C12}		Allungamento^{C13}		Contrazione^{C15}	
Test specimen		Shape		Yield Strength > 0,2%		Yield Strength > 1,0%		Tensile		Elongation		Reduction of area			
Ses/Sect mm2 L. mm		1=O - 2=□		MPa		MPa		MPa		%		%			
126,60 50,80		1		20		326,0		--		523,0		34,0		58,0	
DUREZZA / HARDNESS^{C22}															
HBW		Tipo/Type^{C40}		Provetta / Test Specimen		*C^{C03}		1-Joule^{C42}		2-Joule^{C42}		3-Joule^{C42}		Media/Average^{C43}	
154,0 - 158,0		KV		10x10 mm		20		87		81		94		87,3	
Tratt. Term. / Heat treatment^{C70}				NORMALIZED AT 920 °C - COOLED IN STILL AIR										ELECTRIC FURNACE	
Dim in acc. a / Dim. acc. to^{B14}				ASME/ANSI B16.5 -2013 ASME/ANSI B36.10M -2004											
Finitura / Roughness				125/250 MICROINCH AARH											
Marcatura in acc.^{B06}				MSS SP25 Ed. 2013		Vis. & Dim.		SATISFACTORY		Origine		Origin of Steel		EUROPEAN UNION	
Marking in acc. to															

Note / Notes

100% MANUFACTURED IN ITALY
 MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION

VERIFIED TRUE COPY
 OF ORIGINAL
 FORGED FLANGES & FITTING
 LIMITED

UFFICIO CONTROLLO QUALITA'^{A05} QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO^{Z03} INSPECTION AUTHORITY	MARCHIO PRODUZIONE^{A04} MANUFACTURER'S SYMBOL 
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CLIENTE / Customer / Client

CCTF CORPORATION (EDMONTON)
5407 - 53 AVENUE NW
EDMONTON, AB T6B 3G2
CANADA

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

DIN EN 10204 / 3.1
ISO 10474 / 3.1

FECHA: 17/06/2014
Date: 17/06/2014

N.º 165446
No. 165446

HOJA: 2
Page: 2

PRODUCTO
Article - Produit

FLANGES
SU PEDIDO N.º
Your Order No. 4895083-00
Votre Cde. N.º

NORMAS APLICABLES
Requirements - Normes Applicables

ASME B16.5-13

MATERIAL CORRESPONDIENTE
Material Correspondent - Qualité

ASME SA105M-13, ASTM A105M-13

MODO DE FUSION (*)
Steel Making - Elaboration de l'acier
E = Elec. Y = Oxígeno básico

NACE MR0175/ISO15156-2-09 & MR0103-12
Clause 7.2.1.4, Annex A.2 and SSC Region 3.
CSA-Z245.12-13 GR248 CAT I-SS (WN & BLIND FLANGES ONLY)

Bº Zubillaga, 3 - Apdo. 14

20560 ONATI (Gipuzkoa) SPAIN
Tel.: 34 - 943 780552
Fax: 34 - 943 781808
E-mail: ulma@ulmapiping.com

Packing List: 110159



SGI 1921164
Management Systems certified by LRQAE

Certified acc. PED 97/23/EC-AD2000-WO
by TÜV Rheinland
N.º 01 202 E/Q 02 7443

MARCA DEL FABRICANTE
Mark of factory
Marque du fabricant



DEPARTAMENTO QUALITY ASSURANCE

Section
Département

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations	COLADA N.º Heat No N.º Coulée	RESISTENCIA T. Strength Resist Rupt	LIMITE ELAST Y. Strength 0.2 % N/mm²	ALARGAM. Elongation Lo. 4 d %	ESTRICCION Red. Area Striction %	RESILIENCIA Impact test Résilience Joules	PROB. TI. DE CARBON CHARY P V 10x10mm MEDIA Average Moyenne °C	DUREZA Hardness Dureté HBW
27 7531788	35	WN 2 1500LB XS/80 RTJ A105N	NE	A30T4	506	312	32.70	55.30			163 167
28 7531796	22	WN 3 900LB XS/80 RTJ A105N	NE	A29M4	541	379	29.70	53.90			166 170
29 7531796	13	WN 3 900LB XS/80 RTJ A105N	NE	C19T3	507	317	30.50	55.60			157 165
30 7531710	40	BLIND 2 1500LB RF A105N	NE	B58T3	511	315	31.10	52.80			153 160
33 7532318	34	WN 3 1500LB S160 RTJ A105N	NE	B73T3	510	317	32.00	50.70			157 162
34 7532210	6	BLIND 6 1500LB RF A105N	NE	A44T4	510	317	30.30	54.60			155 159

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

COLADA N.º Heat No N.º Coulée	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	CEq %
A29M4	0.170	0.250	1.250	0.009	0.005	0.050	0.080	0.012	0.006	0.072	0.160	0.024	0.000	0.421
A30T4	0.190	0.160	0.850	0.014	0.006	0.090	0.150	0.059	0.004	0.002	0.300	0.000	0.001	0.392
A44T4	0.200	0.190	0.870	0.016	0.015	0.080	0.150	0.047	0.003	0.002	0.340	0.000	0.001	0.403
B58T3	0.210	0.180	0.860	0.016	0.013	0.080	0.120	0.015	0.005	0.001	0.240	0.000	0.000	0.397
B73T3	0.200	0.200	0.920	0.019	0.015	0.070	0.110	0.017	0.005	0.002	0.290	0.000	0.000	0.398
C19T3	0.190	0.170	0.900	0.016	0.012	0.070	0.080	0.014	0.008	0.001	0.290	0.000	0.001	0.382

- Las dimensiones y la condición superficial se hallaron satisfactorias.
- Dimension and surface condition were found acceptable.
- Les dimensions et états de surface sont satisfaisants.
- Los materiales citados cumplen las normas aplicables.
- Manufacturing requirements are satisfied.
- Les normes applicables sont respectées.

EL INSPECTOR
Works Inspector - L'Inspecteur



ULMA PIPING S. COOP.
Dpto. de Garantía de calidad
Quality Assurance Dept.

(*) OBSERVACIONES:
Remarks
Observations

N.º NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR.



INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD.
Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
Spec : ASME SA 234/ASTM A234-13 WPB SS
NACE MR0175/ISO15156-2 Sour Service
Region 3 Annex A, MR0103 Sour**

(MILL TEST)
ACCORDANCE WITH EN 10204-3.1
CHUP Hsin ENTERPRISE CO., LTD.
17, TUNG U ROAD HSIAO KANG,
KAOHSIUNG, TAIWAN, R.O.C.
TEL: (07) 831-9157 FAX: (07) 821-7500, 831-2942

Certificate No : 00300053-0101
Order No : E000499
Date : 2014/08/22

ELBOW 3" 90D LR XH WELD A234-WPB

Heat # A448

Starting Material		Specification for Inspection				Visual Inspection		Dimensional Inspection										
ASTM A106 GR. B		ASME B16.9-2012				GOOD		GOOD										
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test											
							Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.								
1	90 E L/R SMIS STD	3																
3	90 E L/R SMIS STD	50	1545	331545	TIANJIN C102100010394													
5	90 E L/R SMIS XS	25	1915	311915	TIANJIN C102100010349													
6	90 E L/R SMIS XS	50	A448	321448	TIANJIN C102100010395													
7	45 E L/R SMIS STD	50	C103	331103	TIANJIN C102100010313													
		3	D237	331237	TIANJIN C102100010333													
Chemical Composition%																		
Specification	C	Si	Mn	P	S	CU	NI	Cr	Mo	V	Nb	C.E	YS	TS	E	Hardness Test	Heat Treatment	REMARK
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X100		P.S.I	P.S.I	%	HB		
Min.		10	29										35000	60000	30			
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197		
1	18	24	64	9	8	7	2	5	2	1	1	31	45852	71000	34.6	133	620°C TO 980°C HOT FORMED	**Service/ CSA ZZ45.11 GR 241 CAT I SS Region 3 Annex A.
3	15	27	105	13	7	8	3	5	0.8	3	1	35	58330	80100	48.0	136		
5	18	25	62	9	7	8	3	6	2	<1	<1	30	46577	71500	36.5	132		
6	18	23	65	10	4	2	2	4	1	<1	<1	30	43820	69400	37.5	134		
7	13	26	99	12	5	2	1	1	3	3	3	31	39757	67000	49.5	133		

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

L.S. Tsai



INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD.
Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
Spec : ASME SA 234/ASTM A234-11a WPB SS
NACE MR0175/ISO15156-2 Sour Service
Region 3 Annex A, MR0103 Sour **

(MILL TEST)
ACCORDANCE WITH EN 10204-3.1
CHUP HSIN ENTERPRISE CO., LTD.
1. TUNG LI ROAD HSIAO KANG,
KAOHSIUNG, TAIWAN, R.O.C.
TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

Certificate No : 00200048-0102
Order No : D000476
Date : 2013/09/04

Heat # 3422

ELBOW 3" 90D LR XH WELD A234-WPB

Starting Material		Specification for Inspection					Visual Inspection			Dimensional Inspection						
ASTM A106 GR.B		ASME B16.9-2007					GOOD			GOOD						
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test			Ave.						
							Test Temp	Size of specimen	Charpy V-Notch Impact Value							
16	90 E L/R SMLS STD	3	B502	J0L4502	SUMITOMO BYYM9223											
18	90 E L/R SMLS XS	3	3422	J0L3422	SUMITOMO BYYM8850											
20	90 E L/R SMLS STD	4	4641	J0L4641	SUMITOMO BYYM9225											
22	90 E L/R SMLS XS	4	A504	J0L4504	SUMITOMO BYYM9226											
24	45 E L/R SMLS STD	6	0547	J0L0547	SUMITOMO BYYM8270											
Specifi- cation	Chemical Composition%										Heat Treatment		REMARK			
	Tension Test										Hardness Test					
	C	Si	Mn	P	S	CU	Ni	Cr	Mo	V		Nb		C.E	Y.S	T.S
X100	X100	X100	X1000	X1000	X1000	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%	HB	
Min.		10	29									35000	60000	30		
Max.	22	135	50	58	40	40	40	40	15	80	20	50		95000	197	
16	18	24	55	8	5	2	2	3	1	0	0	28	45600	71100	40	138
18	18	23	54	7	3	2	2	4	2	0	0	28	44000	68900	40	138
20	18	24	54	10	6	3	3	5	2	0	0	29	45900	71400	40	138
22	17	25	55	8	3	3	3	3	2	0	0	28	41100	70200	40	137
24	14	28	99	13	4	6	18	11	2	0	0	35	55100	73300	41	137
620°C TO 980°C HOT FORMED																**Service/ CSA Z245.11 GR 241 CAT I SS Region 3 Annex A.

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

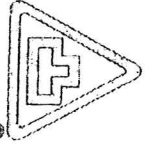
L.S. Tsai

Chief of Quality Assurance Section

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 :2004 3.1

CUSTOMER : SETBOLD INTERNATIONAL CORP.
 CERT. NO : 133657 L/C NO :
 ORDER NO : 7007510 DATE : 11/27/2013
 INVOICE NO : BM01310209103 PAGE : 2 ORIGIN : TAIWAN



拾緯鐵工股份有限公司
BOTHWELL STEEL FITTINGS CO., LTD.
 303 號 仁武區 橋林里 仁心路 303 號
 NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAHSIUNG CITY, TAIWAN R.O.C.(61460)
 TEL: +886-7-3711536, 3710497, 3720260 FAX: +886-7-3713864, 3713882
 Web site: <http://www.bothwell.com.tw> e-mail: box@bothwell.com.tw

THREAD-O-LET 1" 3M# FS A105N

Heat # 4001

ITEM	BW HT. CD.	RAW MATERIAL HEAT NO.	DESCRIPTION	QUANTITY	SPECIFICATION FOR		INSPECTION	
					MATERIAL	FITTING	SURFACE	DIM.
218	4000	332259	OUTLET STRAIGHT-WAY 1"x2"-36" 3000# NPT	2 PC	ASTM A105N -12	MSS SP-97 - 2006	GOOD	GOOD
218	4001	331979	OUTLET STRAIGHT-WAY 1"x2"-36" 3000# NPT -blank below-	2998 PC	ASME SA105N-2013ED			

ITEM	BW HT. CD.	CHEMICAL COMPOSITION (%)														Cb(Nb)	N	Al	Ti	Zr	CE	MATERIAL SUPPLIER
		C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V											
218	4000	0.35	0.10	0.60	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-	-	-	-	-	-	-	-	-	0.43	
Min		0.19	0.20	0.84	0.014	0.009	0.16	0.07	0.04	0.01	0.002	0.001	-	-	-	-	-	-	-	0.360		
Max		0.20	0.21	0.84	0.012	0.008	0.15	0.06	0.05	0.01	0.002	0.001	-	-	-	-	-	-	-	0.368		

ITEM	BW HT. CD.	MECHANICAL PROPERTIES										HEAT TREATMENT	ADDITIONAL TEST/REMARKS
		T. S. (KSI)	Y. S. (KSI)	EL. (%)	R of A (%)	Hardness (HRB/AVG)	Charpy Impact F / 0 °C (Joule)			MIN. AVG.			
218	4000	70	36	22	30	-	187	1	2	3	AVG.		
Min													
Max													

ITEM	BW HT. CD.	T. S. (KSI)	Y. S. (KSI)	EL. (%)	R of A (%)	Hardness (HRB/AVG)	Charpy Impact F / 0 °C (Joule)	HEAT TREATMENT	ADDITIONAL TEST/REMARKS
218	4000	76.4	49.3	36.0	66.5	144	141		
218	4001	76.2	50.0	35.4	64.5	144	142	900°C A.C.	

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

Q.C. MANAGER: *C.C. Huang* INSPECTOR: *Y.Y. Chang*
 CHEN CHI HSIANG YUAN YAO CHANG



INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD.
Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
Spec : ASME SA 234/ASTM A234-13 WPB SS
NACE MR0175/ISO15156-2 Sour Service
Region 3 Annex A, MR0103 Sour**

(MILL TEST)
ACCORDANCE WITH EN 10204-3.1
CHUP HSIN ENTERPRISE CO., LTD.
17, TUNG LI ROAD HSIAO KANG,
KAOHSIUNG, TAIWAN, R.O.C.
TEL: (07) 831-9157 FAX: (07) 821-7500, 831-2942

Certificate No : 00300065-0102
Order No : E000511
Date : 2014/08/22

Starting Material		Specification for Inspection				Visual Inspection		Dimensional Inspection										
ASTM A106 GR.B		ASME B16.9-2012				GOOD		GOOD										
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test											
							Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.								
17	CON RED SMLS STD	12 X 4	2	2968	JOL1296													
18	CON RED SMLS XS	3 X 1	1	302V	TIANJIN C102100010139													
18	CON RED SMLS XS	3 X 1	9	811A	TIANJIN C102100010185													
19	CON RED SMLS XS	3 X 2	25	8389	TIANJIN C102100010287													
Specification	Chemical Composition%										Tension Test			Hardness Test	Heat Treatment	REMARK		
	C	Si	Mn	P	S	CU	NI	Cr	Mo	V	Nb	C.E	Y.S				TS	E
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	PS.I	PS.I	%	HB		
Min.		10	29										35000	60000	30			
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197		
17	19	23	59	13	9	5	2	3	2	0	0	30	47500	69700	40.0	139	NORM. 910°C x0.5HR AC	**Service/ CSA Z245.11 GR 241 CAT I SS Region 3 Annex A.
18	15	23	86	11	3	6	2	4	1	2	1	31	41208	64100	31	136		
18	17	21	75	14	10	1	1	3	1	<1	<1	30	39612	64700	33	136		
19	19	25	66	9	1	4	3	4	1	<1	<1	31	44401	68300	38.4	133		

Heat # 8389

REDUCER CONCENTRIC 3" X 2" XH WELD A234-WPB

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15
We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

L.S. Tsai

Heat # 1424371

PIPE 2" SCH 80 A106 SMLS

9530025

PI-2480

HENGYANG VALIN
STEEL TUBE CO., LTD

MILL TEST CERTIFICATE

Add: 10 Daluincun, Hengyang City, Hunan, P.R. China P.C. 421001
Tel and Fax: +86 734 8873739
E-mail: hstee@hysteelhub.com

CUSTOMER		Ba-Chen Steel Corporation		CERTIFICATE NO.		C20142525-1	
CONTRACT-ITEM NO.		2111001258-05		P.O. NO.		RSC100090	
PRODUCT		SEAMLESS STEEL LINE PIPE		DELIVERY CONDITION		HR	
SPECIFICATION		SEE SPECIFICATION NOTE		HEAT TREATMENT			
GRADE		B.LX42 Grade 290		DIMENSIONS		NPS 2 XH 40FT	
TOTAL BUNDLES:		50		TOTAL LENGTH:		37864.844 ft	
		TOTAL PIECES:		946		TOTAL WEIGHT:	
						86.355 mt	

NO.	BATCH NO.	HEAT NO.	BUNDLES	PIECES	LENGTH ft	WEIGHT mt	TENSILE TEST ASTM A370				COLD BENDING TEST
							TS (psi)	YS (psi)	RT0.5	EL (%)	
1	947300813	1424371	17	320	12808.404	29.204	72935	50605	31.0	0.69	ACCEPTABLE
2	947300814	1424374	19	356	14249.349	32.490	68585	46400	30.0	0.68	ACCEPTABLE
3	947300815	1424372	14	270	10807.091	24.641	72210	50605	30.5	0.70	ACCEPTABLE

NO.	IMPACT TEST				NON METALLIC INCLUSION	GRAIN SIZE	HARDNESS TEST	
	NOTCH TYPE/ ORIENTATION/TEMPERATURE(C)/SIZE (mm):							
	AK1 (J)	AV (J)	% SHEAR AREA	LE	AK2 (J)	AV (J)	% SHEAR AREA	LE
1	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/
3	/	/	/	/	/	/	/	/

NOTES:

W1-THEORETICAL WEIGHT

W2-ACTUAL WEIGHT

NR-NORMALIZING ROLLED

AK1--ABSORB ENERGY FOR THE FIRST SET

AK2--ABSORB ENERGY FOR THE SECOND SET

SAMPLE ORIENTATION: L--LONGITUDINAL T--TRANSVERSE

SAMPLE TYPE: S--STRIP C--CLUBBED F--FULL-SECTION

Q&T--QUENCHING AND TEMPERING

N-NORMALIZING A-ANNEALING AV-AVERAGE LE--SIDE EXPANSION

HE-HOT EXPANDED

HR-HOT ROLLED

N&T--NORMALIZING AND TEMPERING

MTE Approved
Bri-SteelKenton Dechant
Klemp
2014 Oct 10

PIPE 2" SCH 80 A106 SMLS

**HENGYANG VALIN
STEEL TUBE CO.,LTD**

MILL TEST CERTIFICATE

[illegible]

Heat # 1424371

PIPE 2" SCH 80 A106 SMLS

Add: 10 Dalidun, Hongyang
City, Hunan, P.R. China P.C. 421001
Tel and Fax: +86 734 8873739
E-mail: hstee@hysteel.com

MILL TEST CERTIFICATE

HENGYANG VALIN
STEEL TUBE CO., LTD

(ACCORDING TO EN10204 3.1B)

CUSTOMER	Bri-Chem Steel Corporation	CERTIFICATE NO.	C201425625-1
CONTRACT-ITEM NO.	2111001258-05	P.O.NO.	BSC100090
PRODUCT	SEAMLESS STEEL LINE PIPE	DELIVERY CONDITION	HR
SPECIFICATION	SEE SPECIFICATION NOTE	HEAT TREATMENT	
GRADE	B X42 Grade 290	DIMENSIONS	NPS 2 XH 40FT
TOTAL BUNDLES: 50	TOTAL PIECES: 946	TOTAL LENGTH: 37864.844	# TOTAL WEIGHT: 86335 mt

REMARK: 1. ORIGIN: MADE IN CHINA 2. ALL ELEMENTS TO BE LISTED

SPECIFICATION NOTE	API 5L (45in) PS1, ASTM/ASME A/S A106B-2013, CSA Z245.1 GRADE 290 CAT 1-2014	
We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements. This certificate is issued by a computerized system and it is valid with electronic signature. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subject to the law. If you need to assure the authenticity of this certificate, please do not hesitate to contact Hongyang Valin Steel Tube CO., LTD. E-mail: hstee@hysteel.com CUSTOMER THIRD PARTY		
Quality Manager:		唐延娜
Certificate-maker:		唐延娜



LONTRIN
YANGZHOU LONTRIN STEEL TUBE CO., LTD

MILL TEST CERTIFICATE (EN10204-3.1)

YANGZHOU LONTRIN STEEL TUBE CO., LTD

CUSTOMER: BOREALIS INDUSTRIAL SUPPLY LTD.
PRODUCT: STEEL LINE PIPES

PEC: CSA Z245.1-07 Grade 241/ASME SA106 Grade B/ASTM A106 Grade B/API5L Grade B

ISO REGISTRATION NO: 44100
API SL certification No: 0506
CONTRACT NO: BSI01013
CERTIFICATE NUMBER: 10441

PIPE 3" SCH 80 A106 SMLS

Heat # H14469

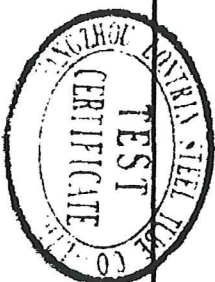
TOTAL: 54 BUNDLES			1085 PIECES			95381 KG			PACKING IN BUNDLES											
O.	HEAT NO.	LOT NO.	STEEL GRADE	SIZE	PCS	WEIGHT Kg	CHEMISTRY/CHEMICAL COMPOSITION (Ladle Analysis) %													
								C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V.	Nb		
1	13-112006	13113AR002	Grade B	3"xSCH40x6.1-6.4m	340	23588	0.18	0.23	0.52	0.024	0.008	0.02	0.01	0.02	0.001	0.001	0.00			
2	H14468	13105AR289	Grade B	3"xSCH80x6.1-6.4m	104	9689	0.19	0.20	0.44	0.018	0.011	0.04	0.04	0.01	0.001	0.001	0.00			
3	H14469	13105AR290	Grade B	3"xSCH80x6.1-6.4m	153	14255	0.20	0.19	0.43	0.015	0.012	0.04	0.03	0.01	0.001	0.001	0.00			
4	H14450	13115AR140	Grade B	4"xSCH40x6.1-6.4m	36	3530	0.18	0.20	0.44	0.014	0.015	0.03	0.03	0.01	0.001	0.001	0.00			
5	H14451	13115AR141	Grade B	4"xSCH40x6.1-6.4m	310	30596	0.19	0.21	0.42	0.016	0.013	0.02	0.03	0.01	0.001	0.001	0.00			
6	H14445	13115AR142	Grade B	4"xSCH40x6.1-6.4m	142	13923	0.18	0.21	0.43	0.018	0.014	0.04	0.03	0.01	0.001	0.001	0.00			
O.	MECHANICAL PROPERTIES						TECHNOLOGICAL PROPERTIES			H.T ≥5S	NONDESTRUCTIVE TEST			SURFACE QUALITY			DIMENSIONAL TOLERANCE			
	Rel (MPa) YIELD POINT	Rm (MPa) TENSILE STRENGTH	ELONGATION %	HARDNESS HRB	IMPACT TEST 10*10*55mm L, -45C	FLATTENING TEST	FLARING TEST	BENDING TEST	TEST			QUALITY								
									ET		UT	IN	OUT	O.D.	Y					
1	350	491	37	---	---	Satisfactory	---	---	---	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	Sat			
2	368	485	28	---	---	Satisfactory	---	---	---	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	Sat			
3	388	505	27	---	---	Satisfactory	---	---	---	2500PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	Sat			
4	319	476	35	---	---	Satisfactory	---	---	---	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	Sat			
5	325	483	39	---	---	Satisfactory	---	---	---	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	Sat			
6	324	472	35	---	---	Satisfactory	---	---	---	2240PSI	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Sat	Sat			
MARKS:																				

REMARKS:

AGING REPRESENTATIVE:

STAMPER:

DATE: December 05, 2



New start.



5504 - 58 AVENUE
DRAYTON VALLEY, AB
T7A 0B1
PHONE: 780-542-7135
FAX: 780-542-5678

ORDER # 29952

INV. #

PACKING SLIP ONLY

DV 380632

Initials
KR

ORDERED BY <i>Tim</i>	VIA:	DATE: <i>MAR-1-15</i>
PHONE: <i>918-9591</i>	E-MAIL:	
LOCATION <i>2-13-48-8 wsm.</i>		
AUTHORIZED PERSONNEL <i>Kerry CLEAVER</i>		
CHARGE CODE		
P.O. #	☐ CASH	☐ ON ACCOUNT ☐ CHEQ #

TO: *ARC*

QTY.	U / M	ITEM CODE	DESCRIPTION	UNIT PRICE	NET AMOUNT
1	ea		3x2 xH Swage WPB	8889	
1	ea		3" 300 RFFP Nace flange		
2	ea		3" 300 Bolt up / ft		
2	ea		3" 300 Flex Gasket		
4	ea		2" Grinnell Clamp		
2	ea		3" " "		
2	ea		3" Pipe shoe		
1	ea		4" 900 RTJWN xH A105	840629	8882
1	ea		4x3 xH flange WPB	5812	
1	ea		3" 900 RTJWN xH A105	843V4	
			3-2-15 ↓		
1			2" 90 xH ell wpb	13957	
1			3" 1500 RFWN xH A105	669948	
2			4L Spray Nine		
3			Water Deposit 5 Gallon		
3			Drinking Water 5 Gallon		
2			Regs. Flange		
6			WBell 2"		
20			3" 900 xH RTJWN A105N	843V4	12/34037
10			3" xH LR 90° EL WPB	14448	3442
2		V6✓	3" 900 RTJ NACE CHECK VALVE		
1		V6✓	3" 900 RTJFP NACE TAG BALL VALVE KF TRUNNION LF2		
1		V6✓	3" 1500 RTJFP " " KF TRUNNION TRUNNION LF2		
154			Flange 2x4H A333	1429355V	
1			Flange 1x4H S160 A733		
1			Flange 3" 500 xH RTJWN LF2		
1			Flange 3" 900 xH RFWN LF2	843V4	

please double check heat # w/ note.

L-Bull



PACKING SLIP ONLY DV · 380923

ARC.

QTY.	U / M	ITEM CODE	DESCRIPTION	UNIT PRICE	NET AMOUNT
1			eff 3" 45 SPO WPB		3422
1			1 1/2" SWAGE XH 4106		5/15

RECEIVED IN GOOD ORDER



Thursday, 05-Mar-201

From:

5504 58 Avenue
Drayton Valley, AB, Canada
T7A 1S4
Phone : 780-542-7135
Fax : 780-542-5678
Email : mtrs@monarchapex.com

To:

Ref #:

Document Summary Page

The MTR's are printed in the following order:

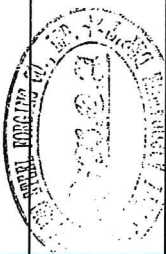
#	Heat #	Description	Product Cod
1	840699	FLANGE 4" 900# RTJWN XH A105N	FM900- RTJWNX
2	5812	REDUCER CONCENTRIC 4" X 3" XH WELD A234	CRMXX-XHW
3	B43V4	FLANGE 3" 900# RTJWN XH A105N	FK900- RTJWNX
4	B957	ELBOW 2" 90D LR XH WELD A234- WPB	EI90-XHW
5	669948	FLANGE 3" 1500# RFWN XH A105N	FK1500- RFWNX
6	A448	ELBOW 3" 90D LR XH WELD A234- WPB	EK90-XHW
7	12/34037	FLANGE 3" 900# RTJWN XH A105N	FK900- RTJWNX
8	3422	ELBOW 3" 90D LR XH WELD A234- WPB	EK90-XHW



EN10204-3.1.B(DIN50049/3.1.B)

Customer: SEYBOLD INTERNATIONAL CORP.
Order No.: 7007765(2)-CCTF

Certificate No.: SE-7765B
Date: 02/24/2014
Page: 3 OF 4

PRODUCT			MATERIAL SPECIFICATIONS			DIMENSIONAL SPECIFICATIONS												
FORGED CARBON STEEL FLANGES			ASTM A105-13/ASME SA-105-13			ASME B16.5-13 CSA Z245.12												
Item No.	CODE NO	DESCRIPTION	QUANTITY		CHEMICAL COMPOSITION (%)													
			Min	Max	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N	CE(*)	
21	7530560	600 WNRF S160 2" A105N	600 PCE		0.210	0.220	1.150	0.021	0.005	0.007	0.020	0.400	0.120	0.080	0.020	-	-	0.408
22	7531044	600 BLRF 2" A105N	350 PCE		0.203	0.260	1.090	0.014	0.019	0.009	0.042	0.054	0.005	0.022	0.005	0.005	0.007	0.403
23	7533042	900/1500 WNRF XXS 1" A105N	25 PCE		0.210	0.210	1.150	0.007	0.013	0.040	0.060	0.030	0.009	0.003	0.005	0.011	0.011	0.421
24	7530003	900/1500 WNRTJ STD 2" A105N	13 PCE		0.210	0.230	1.080	0.012	0.011	0.090	0.110	0.040	0.020	0.002	0.002	0.007	0.007	0.425
25	7530003	900/1500 WNRTJ STD 2" A105N	7 PCE		0.220	0.220	1.130	0.017	0.003	0.010	0.020	0.010	0.003	0.008	0.001	0.007	0.007	0.416
26	7531796	900 WNRTJ XS 3" A105N	18 PCE		0.210	0.220	1.100	0.011	0.006	0.140	0.040	0.040	0.013	0.010	0.001	0.007	0.007	0.418
27	7531796	900 WNRTJ XS 3" A105N	7 PCE		0.190	0.210	1.070	0.015	0.006	0.130	0.080	0.050	0.020	0.009	0.002	0.009	0.009	0.402
28	7531818	900 WNRTJ XS 4" A105N	9 PCE		0.180	0.190	1.030	0.015	0.006	0.160	0.070	0.060	0.013	0.002	0.001	0.009	0.009	0.383
29	7531818	900 WNRTJ XS 4" A105N	6 PCE		0.208	0.240	1.020	0.017	0.018	0.012	0.022	0.049	0.002	0.006	0.005	0.003	0.003	0.388
30	7531745	900 BLRF 6" A105N	10 PCE		0.183	0.185	1.029	0.012	0.002	0.093	0.195	0.079	0.032	0.002	0.002	0.008	0.008	0.412
Item No.	Heat No.	T.S.(*) (MPa) 485.0	Y.S.(*) (MPa) 250.0	E.L.(*) (%) 22.0	Hardness (HB) 187	R.A.(*) (%) 30.0	Impact Test		Material Supplier	HEAT TREATMENT(*)								
							Temp: Minimum: Joule	1 2 3		N	REMARKS							
21	4723460	522.0	358.0	34.2	153/151	69.5			ACOMINAS	880°C X4HRS CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156 2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.								
22	318900	510.0	335.0	36.6	152/150	68.6			NTMK									
23	13145	521.7	317.7	34.4	153/150	67.7			OEMK									
24	290114	549.0	372.0	33.6	155/153	66.8			UBE STEEL									
25	4703624	524.0	374.0	37.0	153/151	70.4			ACOMINAS									
26	83608	537.4	383.4	34.4	155/153	68.6			WEI CHIH STEEL									
27	94412	520.0	364.0	37.2	153/150	70.4			WEI CHIH STEEL									
28	98083	510.0	339.0	36.8	152/150	69.5			WEI CHIH STEEL									
29	840699	508.0	306.0	33.0	155/151	65.0			NTMK									
30	N00784	533.0	358.0	32.0	154/152	64.9			POSCO SPECIALTY									
*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.																		
*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.																		
*3: C.E. Value = C + (Mn/6) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15																		
We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.																		
Manager of Quality Assurance Dept																		

*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.

*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

*3: C.E. Value = $C + (Mn / 6) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15$

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

Customer	:	WPF FITTINGS & FLANGES (CANADA) LTD.	Certificate No	:	00300053-0102
Product	:	SEAMLESS CARBON STEEL BUTT WELD FITTINGS	Order No	:	E000499
Spec	:	ASME SA 234/ASTM A234-13 WPB SS NACE MR0175/ISO15156-2 Sour Service Region 3 Annex A, MR0103 Sour ^{re}	Date	:	2014/08/22

(MILL TEST)
ACCORDANCE WITH EN 10204-3.1
CHUP HSIN ENTERPRISE CO., LTD.
17, TUNG U ROAD HSIAO KANG,
KAOSHUNG, TAIWAN, R.O.C.
TEL: (07)821-9157 FAX: (07)821-7500, 831-2942

Starting Material		Specification for Inspection				Visual Inspection		Dimensional Inspection										
ASTM A106 GR.B		ASME B16.9-2012				GOOD		GOOD										
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test											
							Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.								
22	CON RED SMIS XS	3 X 1	10	811A	321811													
23	CON RED SMIS XS	4 X 3	10	5812	335812													
24	CON RED SMIS XS	6 X 3	10	7032	327032													
Chemical Composition%																		
Specification	C	Si	Mn	P	S	CU	NI	Cr	Mo	V	Nb	C.E	YS	TS	E	Hardness Test	Heat Treatment	REMARK
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%	HB		
Min.		10	29										35000	60000	30			
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197		
22	17	21	75	14	10	1	1	3	1	<1	<1	30	39612	64700	33	136	NORM. 910°C X0.5HR	**Service/ CSA
23	13	23	105	14	4	8	3	5	1	4	32	33	52336	74675	35.2	135		ZZ45.11 GR 241 CAT I
24	20	22	68	14	7	2	5	9	2	1	3	34	43820	70500	44.5	131		SS Region 3 Annex A.

$$\text{C.E.} = \text{C} + \text{Mn} / 6 + (\text{Cr} + \text{Mo} + \text{V}) / 5 + (\text{Ni} + \text{Cu}) / 15$$

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

L. S. Jai

INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD.
Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
Spec : ASME SA 234/ASTM A234-13 WPB SS
NACE MR0175/ISO15156-2 Sour Service
Region 3 Annex A, MR0103 Sour**

(MILL TEST)
 ACCORDANCE WITH EN 10204-3.1
CHUP HSIN ENTERPRISE CO., LTD.
 17, TUNG LI ROAD HSIAO KANG,
 KAOHSIUNG, TAIWAN, R.O.C.
 TEL: (07)831-9157 FAX: (07)821-7500, 831-2942

Certificate No : 00300053-0105
Order No : E000499
Date : 2014/08/22

C.E. = $\text{C} + \text{Mn} / 5 + (\text{Cr} + \text{Mo} + \text{V}) / 5 + (\text{Ni} + \text{Cu}) / 15$

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

L. S. Jai

Starting Material			Specification for Inspection				Visual Inspection			Dimensional Inspection							
ASTM A106 GR.B			ASME B16.9-2012				GOOD			GOOD							
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test										
							Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.							
2	90 E /LR SMIS STD	4	E375	321375	TIANJIN C102100010396												
4	90 E /LR SMIS XS	2	B957	331957	TIANJIN C102100010063												
74	90 E /LR SMIS STD	1 1/2	312C	322312	BAOSHAN 1102240000801												
75	90 E /LR SMIS XS	1	962C	331962	TIANJIN 13103607												
77	90 E /LR SMIS S160	2	388B	331388	TIANJIN 13103648												
Specification	Chemical Composition%										Tension Test		Hardness Test	Heat Treatment	REMARK		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E				Y.S	T.S
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	PS.I	PS.I	%	HB	
M/n.		10	29										35000	60000	30		
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197	
2	18	25	64	10	9	8	2	7	1	1	2	31	48899	70800	33.5	136	620°C TO 980°C HOT FORMED
4	19	22	65	8	6	4	2	5	1	<1	31	47756	70336	36.2	136		
74	17	23	52	13	9	3	3	9	1	1	28	49334	67900	31.5	135		
75	17	22	63	10	6	7	2	7	2	1	30	39032	67200	31.5	137		
77	18	22	63	10	7	7	2	5	1	1	2	30	46873	69214	36.8	136	**Service/ CSA Z245.11 GR 241 CMT I SS Region 3 Annex A.

Heat # 12/34037

FLANGE 3" 900# RTJWN XH A105N

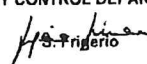
Heat Number: 12/34037
 Trans Am Piping Products Ltd. - Rev'd By: SB
 Shipment/Seq #: S 14 - 1499 25

3" CL 900 W/N FLANGE RTJ XH
 BORE A105N

 METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE +39 031 655441 - FAX +39 031 655149 quality.mff@farmas.com		A01 COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV = ISO 9001 = = ISO 14001 =																																																									
INSPECTION CERTIFICATE EN 10204:2004 / 3.1		A02 Nr ^{A03} 2014-C_MFF-06017 Data / Dated 23.07.2014 ^{Z02}																																																									
TRANS AM PIPING PRODUCTS LTD 9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA		A06 CA																																																									
Dest. TRANS AM "PROJECT" Warehouse 1711 - 66 Avenue T6P 1Y9 Edmonton, ALBERTA		A06 CA																																																									
Cod. colata ^{B07} Heat Code	Nr. colata ^{B07} Heat Nr	B08 W/N 900 RTJ 3" XS A105N	B01 - (B09 - B11) Descrizione Description																																																								
Mat. In acc. a / Mat. in acc. to ^{B02} ASTM/ASME A 105/SA 105 M - 13 ASME CODE SECT. II, PART A, ED. 2013 NACE MR-0175/2009 ISO 15156 - SOUR SERVICE NACE MR-0103/2012 - SOUR SERVICE Q.A.S. IN ACCORD WITH PRESS. EQUIP. DIRECT. 97/23/EC (PED) ANNEX I, PARAGRAPH 4.3 CERT. 4687-2014-CE-ITA-ACCREDIA CSA Z245.12 GRADE 248 CAT. I SOUR SERVICE																																																											
<table border="1"> <thead> <tr> <th>Elementi / Elements^(C71 - C92)</th> <th>C</th> <th>Si</th> <th>Mn</th> <th>S</th> <th>P</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> <th>Ti</th> <th>Cu</th> <th>V</th> <th>Nb</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>LADLE ANALYSIS</td> <td>0,200</td> <td>0,240</td> <td>0,970</td> <td>0,008</td> <td>0,011</td> <td>0,090</td> <td>0,050</td> <td>0,010</td> <td>0,017</td> <td>0,160</td> <td>0,002</td> <td>0,001</td> <td>0,000</td> </tr> <tr> <td>LADLE ANALYSIS</td> <td>Al</td> <td>0,025</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CE LF</td> <td>CE SF</td> <td>F1</td> <td>F2</td> <td>PREN</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0,396</td> <td>0,362</td> <td>0,312</td> <td>0,100</td> <td>--</td> </tr> </tbody> </table>				Elementi / Elements ^(C71 - C92)	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N	LADLE ANALYSIS	0,200	0,240	0,970	0,008	0,011	0,090	0,050	0,010	0,017	0,160	0,002	0,001	0,000	LADLE ANALYSIS	Al	0,025							CE LF	CE SF	F1	F2	PREN										0,396	0,362	0,312	0,100	--
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Tratt. Term. / Heat treatment ^{C70} NORMALIZED AT 920 C - COOLED IN STILL AIR ELECTRIC FURNACE																																																											
Dim in acc. a / Dim. acc. to ^{B14} ASME/ANSI B16.5 -2013 ASME/ANSI B36.10M -2004																																																											
Finitura / Roughness 63 MICROINCH AARH MAX																																																											
Marcatura in acc. ^{B06} Marking in acc. to	MSS SP25 Ed. 2013	Vis. & Dim.	SATISFACTORY																																																								
Origine Origin of Steel		EUROPEAN UNION																																																									

Note / Notes

100% MANUFACTURED IN ITALY
 MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION

UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL 
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INSPECTION CERTIFICATE

Customer : WFF FITTINGS & FLANGES (CANADA) LTD.
 Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
 Spec : ASME SA 234/ASTM A234-11a WPB SS
 NACE MR0175/ISO15156-2 Sour Service
 Region 3 Annex A, MRO103 Sour **

(MILL TEST)
 ACCORDANCE WITH EN 10204-3.1

CHUP HSIN ENTERPRISE CO., LTD.

1. TUNG LI ROAD HSIAO KANG,
 KAOHSIUNG, TAIWAN, R.O.C.
 TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

Certificate No : 00200048-0102
 Order No : D000476
 Date : 2013/09/04

Heat # 3422

ELBOW 3" 90D LR XH WELD A234-WPB

Starting Material		Specification for Inspection				Visual Inspection				Dimensional Inspection							
ASTM A106 GR.B		ASME B16.9-2007				GOOD				GOOD							
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test			Ave.							
							Test Temp	Size of specimen	Charpy V-Notch Impact Value								
16	90 E L/R SMLS STD	3	B502	JOL4502	SUMITOMO BYYM9223												
18	90 E L/R SMLS XS	3	3422	JOL3422	SUMITOMO BYYM8850												
20	90 E L/R SMLS STD	4	4641	JOL4641	SUMITOMO BYYM9225												
22	90 E L/R SMLS XS	4	A504	JOL4504	SUMITOMO BYYM9226												
24	45 E L/R SMLS STD	6	0547	JOL0547	SUMITOMO BYYM8270												
Specifi- cation	Chemical Composition%										Heat Treatment		REMARK				
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E		Y.S	T.S	E	Hardness Test
X100	X100	X100	X1000	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%		
Min.		10	29										35000	60000	30		
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197	
16	18	24	55	8	5	2	2	3	1	0	0	28	45600	71100	40	138	**Service/ CSA Z245.11 GR 241 CAT I SS Region 3 Annex A. 620°C TO 980°C HOT FORMED
18	18	23	54	7	3	2	2	4	2	0	0	28	44000	68900	40	138	
20	18	24	54	10	6	3	3	5	2	0	0	29	45900	71400	40	138	
22	17	25	55	8	3	3	3	3	2	0	0	28	41100	70200	40	137	
24	14	28	99	13	4	6	18	11	2	0	0	35	55100	73300	41	137	

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

L.S. Tsai

Chief of Quality Assurance Section



Thursday, 05-Mar-20

From:

5504 58 Avenue
Drayton Valley, AB, Canada
T7A 1S4
Phone : 780-542-7135
Fax : 780-542-5678
Email : mtrs@monarchapex.com

To:

Ref #:

Document Summary Page

The MTR's are printed in the following order:

#	Heat #	Description	Product Cod
1	3422	ELBOW 3" 45D LR XH WELD A234- WPB	EK45-XHW



Product : SEAMLESS CARBON STEEL BUTT WELD

CHUP HSIN ENTERPRISE CO., LTD.

Order No

Date : 2013/09/04

TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

FAX:(07)821-7500, 831-2942

Starting Material		Specification for Inspection				Visual Inspection		Dimensional Inspection									
ASTM A106 GR.B		ASME B16.9-2007				GOOD		GOOD									
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.			NDE	Impact Test								
									Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.					
8	90 E L/R SM15 STD	1 1/4	25	6878	J9L4687	SUMITOMO BYVM2071											
10	90 E S/R SM15 STD	2	25	A566	J0L7566	SUMITOMO BYVM8257											
11	90 E L/R SM15 XS	2	400	B422	J0L0422	SUMITOMO BYVM9209											
13	45 E L/R SM15 STD	3	100	B502	J0L4502	SUMITOMO BYVM9223											
14	45 E L/R SM15 XS	3	25	3422	J0L3422	SUMITOMO BYVM8850											
Specification	Chemical Composition%										Tension Test			Hardness Test	Heat Treatment	REMARK	
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E	Y.S				T.S
	X100	X100	X100	X1000	X1000	X100	X100	X100	X1000	X1000	X100		P.S.I	P.S.I	%	H8	
Min.		10	29										35000	60000	30		
Max.	22		135	50	58	40	40	40	15	80	20	50		95000		197	
8	18	23	51	22	13	7	3	6	1	0	0	29	40600	62800	40	134	620°C TO 980°C HOT FORMED **Service/CSA Z245.11 GR 241 CAT I SS Region 3 Annex A.
10	18	23	55	5	5	5	4	5	1	0	0	29	48000	73300	40	138	
11	18	23	54	7	3	2	2	4	2	0	0	28	42200	71100	40	138	
13	18	24	55	8	5	2	2	3	1	0	0	28	45600	71100	40	138	
14	18	23	54	7	3	2	2	4	2	0	0	28	44000	68900	40	138	



KF Industries

A Division of CIRCOR International, Inc.

1500 S.E. 89TH STREET

OKLAHOMA CITY, OK 73149

VALVE CERTIFICATION

ISO 10474

DIN EN 10204

MATERIAL CERTIFICATION 3.1

SECTION 1 OF 3

SOLD TO:	KF INDUSTRIES-CANADA	KF TICKET		QTY	5	Date:	1/28/2014
SHIPPED TO:	9331-39TH AVENUE,	CUSTOMER PO		TAG NO.			
PART NO.:	M413-299S2AG1CK(M413-299S2AG1.)	REF. PO		CERTIFICATE NO.		201457424	

VALVE DESCRIPTION			VALVE REQUIREMENTS		
VALVE SIZE (IPS)	3"FP	SERIES	M3	NON NACE:	☐ NACE - MRO175 LATEST REVISION ☒
VALVE PRESSURE CLASS	CL900	TYPE	TRUNNION	FIRE SAFE CERTIFIED:	☐ API 607 ☒ API 6FA ☐ API 6FD ☐
VALVE END CONNECTION	RTJ				

VALVE COMPONENT PARTS	VALVE COMPONENT MATERIAL	OPTIONS	CERTIFICATE OF CONFORMANCE
Body	LF2 class 1		IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS.
Adapter	LF2 class 1	☒	
Bonnet	LF2 class 1		
Ball	316		
Stem	316	☒	CERTIFICATE OF ORIGIN
Trunnion	316		IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA.
SeatRing	316	☒	

CERTIFIED TEST RECORD				API 6D ☒ API 6A ☐ API 598 ☐ ANSI B16.34 ☒ OTHER / SPECIFY ☐ 49 CFR Ch.1 PART192 CLASS 3 ☒			
TEST TYPE	PRESSURE (PSIG)	TIME IN MINUTES	TEST MEDIA	TEST RESULTS	INSPECTION	INSPECTION RESULTS	
HYDROSTATIC SHELL	3350	2	60/40 GLYCOL/WATER	ZERO LEAKAGE	DIMENSIONAL	GOOD	
HYDROSTATIC SEAT	2450	2	SAME	SAME	VISUAL	GOOD	
AIR SEAT			AIR	SAME	OPERATIONAL	GOOD	
FUNCTIONAL TEST							

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

Review & Approved by CVC Quality:	DATE	2014-1-28
KF QUALITY ASSURANCE:	DATE	2014-1-28
CUSTOMER INSPECTOR:	DATE	

P.O. Box 95249
1500 S.E. 89th STREET
OKLA. CITY, OK 73143

KF INDUSTRIES, INC.
VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
ISO 10474
DIN EN 10204

SECTION 2 OF 3

PART NO.:	M413-299S2AG1CK(M413-299S2AG1.)	QTY:	5	PAGE	1 of 1
P.O.NO.:	P31139			CERTIFICATE NO.:	201457424

COMPONENT HEAT CODES

	VALVE S/N	BODY	ADAPTER	BONNET	BALL	STEM	TRUNNION	SEAT RING	SEAT RING	ADAPTER2		
1	804894	FU3299	FB3184	FV130512	FD1590	EG51154	FPL0086	FV130517	FV130517	FB3184		
2	804895	FU3299	FB3184	FV130512	FD1590	EG51154	FPL0086	FV130517	FV130517	FB3184		
3	804896	FU3299	FB3184	FV130512	FD1590	EG51116	FPL0086	FV130517	FV130517	FB3184		
4	804897	FU3299	FB3184	FV130512	FD1590	EG51116	FPL0086	FV130517	FV130517	FB3184		
5	804898	FU3299	FB3184	FV130512	FD1590	EG51116	FPL0086	FV130517	FV130517	FB3184		
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IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

Review & Approved by CVC Quality:	<i>David Tong</i>	DATE	2014-1-28
QA AUTHORIZED SIGNATURE:	<i>Sword Duan</i>	DATE	2014-1-28
CUSTOMER INSPECTOR:		DATE	

P.O. Box 95249
1500 S.E. 89th STREET
OKLA. CITY, OK 73143

CIRCOR ENERGY PRODUCTS
MATERIAL TEST REPORT

3.1.B MATERIAL CERTIFICATION
ISO 10474
DIN EN 10204

SECTION 3 OF 3

DATE	2014-1-28	VENDOR No.	8622	PAGE	1 of 1	CERTIFICATE NO.:	201457424
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	HEAT CODE	MTR SPEC.	Chemical Test Results										Physical Test Results					Impact At -46°C (FT-LBS)			
			C	MN	SI	P	S	CR	NI	MO	V	CU	NB	TENSILE (PSI)	YIELD (PSI)	ELON. (%)	RED. (%)	BHN	1	2	3
1	EG51116	316	0.024	1.230	0.370	0.040	0.018	17.820	10.060	2.040		0.150		82650	40745	60	77	150			
2	EG51154	316	0.016	1.470	0.760	0.037	0.010	17.340	10.350	2.020		0.200		84245	41470	65	82	153			
3	FB3184	LF2	0.180	0.970	0.230	0.012	0.010	0.025	0.011	0.002	0.002	0.023	0.001	77865	52635	32	76	165	179.3	174.8	143.7
4	FD1590	316	0.023	0.929	0.390	0.039	0.003	16.470	10.080	2.059		0.450		82650	42050	65	74	156			
5	FPL0086	316	0.023	1.780	0.500	0.027	0.001	16.570	11.070	2.030				82650	42775	64	81	157			
6	FU3299	LF2	0.200	0.860	0.260	0.010	0.002	0.080	0.030	0.020	0.003	0.080	0.001	85550	65250	32	70	170	56.3	63.0	60.7
7	FV130512	LF2	0.200	0.940	0.230	0.010	0.017	0.042	0.020	0.003	0.012	0.230	0.002	89610	66265	30	75	175	137.0	140.7	133.3
8	FV130517	316	0.023	0.540	0.310	0.031	0.002	16.230	10.090	2.070				84970	43210	54	72	152			
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Review & Approved by CVC Quality:	<i>David Long</i>	DATE	###
QA AUTHORIZED SIGNATURE:	<i>Shond Dumas</i>	DATE	###



Continuity Log (2014)

WELDERS NAME AND ABSA FILE NO.	JOB NUMBER	WELDING PROCEDURE USED (WPS#)	COMPANY	DESCRIPTION OF PROJECT	DATE PROJECT COMPLETED
Fournier Morgan W-30257	NESL-DV1454	NESL 1(Rev 1)	ARC Resources	Polymer Injection Skid	Mar 13/15
	NESL-DV1435	NESL 1(Rev 1), NESL PL 2	Lightstream	Pipeline 04-10 to 13-03	Feb 19/15
	NESL-DV1434	NESL 1(Rev 1), NESL PL 2	Lightstream	2 Well Pad	Feb 19/15
	NESL-DV1437	NESL 1(Rev 1), NESL PL 2	Lightstream	Single Well Tie In	Feb 19/15
	NESL-DV1409	NESL 1(Rev 1), NESL PL 2	Lightstream	2 Well Tie In	Jan 21/15
	NESL-DV1418	NESL 1(Rev 1), NESL PL 2	Arc Resources	Injection Pipeline & Riser	Jan 20/15
	NESL-DV1408	NESL 1(Rev 1), NESL PL 2	Lightstream	01-16 Pipeline to 06-15 & Risers	Jan 23/15
	NESL-DV1394	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	01-28-048-11-W5M well Site Tie In	Dec 11/14
	NESL-DV1381	NESL 1(Rev 1), NESL PL 2	Lightstream	15-21-048-11-W5M Riser/Header	Dec 21/14
	NESL-DV1378	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	Risers & Headers	Jan 10/15
	NESL-DV1372	NESL PL 2	Baytex	Pipeline	Dec 18/14
	NESL-DV1371	NESL 1(Rev 1), NESL PL 2	NEP Canada	Battery Upgrade	Dec 22/14
	NESL-DV1368	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	Risers & Headers	Jan 09/15
	NESL-DV1317	NESL 1(Rev 1), NESL PL 2	Dee Three	Risers & Pig Barrel & Perm Piping	Sept 13/14
	NESL-DV1311	NESL 1(Rev 1), NESL PL 2	Arc Resources	Injection Pipeline & Riser	Jan 12/15
	NESL-DV1308	NESL 1(Rev 1), NESL PL 2	Dee Three	12-19 pipeline to 12-21	Nov 10/14
	NESL-DV1302	NESL 1(Rev 1), NESL PL 2	Mancal Energy	04-27 Pipeline to 03-27	Nov 30/14
	NESL-DV1301	NESL 1(Rev 1), NESL PL 2	Mancal Energy	04-27 Separator Tie In	Nov 30/14
	NESL-DV1300	NESL 1(Rev 1), NESL PL 2	Arc Resources	Tank Farm Modifications	Oct 16/14
	NESL-DV1287	NESL 1(Rev 1)	Blaze Energy	Replacment Spool	Sept 12/14
	NESL-DV1271	NESL 1(Rev 1), NESL PL 2	Mancal	4" Pipeline	Sept 11/14
	NESL-DV1266	NESL 1(Rev 1), NESL PL 2	Vermilion Energy	Water Inj Pump Tie In & Flex Pipe	Sept 05/14
	NESL-DV1266	NESL 1(Rev 1), NESL PL 2	Dee Three	Risers & Pig Barrel Systems	Sept 15/14



WELDERS LOG

WELDERS NAME AND ABSA FILE NO.	SYM BOL	PROCESS/ GMAW TRANSFER MODE	WELDING PROCEDURE (WPS#)	"P" NUMBER	"F" NUMBER	POSITION/ WELD PROGRESSION	MAX DEP. WELD METAL THK.	MIN. PIPE DIA.	EXPIRY DATE P.Q. CD.
Fournier, Morgan	"F"	SMAW	NESL-1 Rev. 1 NESL-2 Rev. 1 NESL-PL-2	P1	F3/F4	ALL	0.104" / Max	1"OD	Oct 07/16
W-30257									

GRB Enterprises Ltd
Edmonton Alberta

AOQP 7107(C)

WELDER PERFORMANCE QUALIFICATION CARD

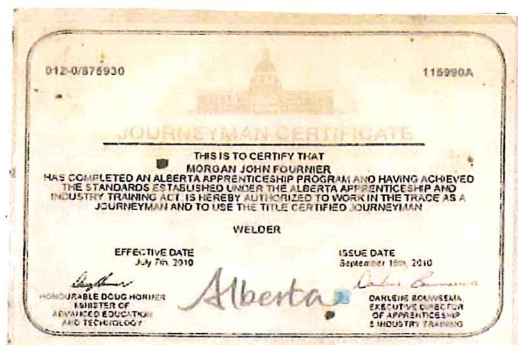
Name: Morgan J. Fournier W- 30257
ABSA File Number

This card is issued pursuant to the Safety Codes Act and the Pressure Welders Regulation. The performance qualification is in accordance with Section IX of the ASME BPV Code and subject to the limitations on the reverse side.

Date of Test: Oct 07-2014
 Welder Signature: [Signature]
 Welding Examiner (Print/Type): S.R. Belliveau GRB Card No: 21241

Performance Qualification GRB Card No. 21241

Process(es): SMAW Materials (P.No.): 7-1/2" P15F
 Filler Metal (F.No): F3 F4 Min. Outside Pipe Diameter: 1"OD
 Max Deposited Weld Metal: 9.104" Max Position(s) Qualified: ALL
 Backing: Without back with Backing Gas: N/A
 Progression: uphill 45°/90° #E00 022
 P.Q. Expiry Date: Oct-07-2016 Welding Examiner Signature: [Signature]



Alberta 25297 **ABSA**
the pressure equipment safety authority

Grade "B" Pressure Welder's Certificate of Competency

This is to certify that **Morgan Fournier** having complied with provisions of the Safety Codes Act, is authorized to engage in pressure welding in accordance with the prescribed Regulations.

Dated at Edmonton
June 22, 2012

File no. W-30257 [Signature]
Chief Inspector and Administrator



Continuity Log (2014)

WELDERS NAME AND ABSA FILE NO.	JOB NUMBER	WELDING PROCEDURE USED (WPS#)	COMPANY	DESCRIPTION OF PROJECT	DATE PROJECT COMPLETED
LePage, Clint W-20453	NESL-DV1454	NESL 1(Rev 1)	ARC Resources	Polymer Injection Skid	Mar 13/15
	NESL-DV1483	NESL 1(Rev 1)	Lightstream Resources	Header Modifications	Apr 30/15
	NESL-DV1453	NESL 1(Rev 1), NESL PL 2	Vermilion Energy	Facility	Mar 10/15
	NESL-DV1411	NESL 1(Rev 1), NESL PL 2	NEP Canada	On Lease Pipeline/ Risers	Jan 10/15
	NESL-DV1378	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	Risers & Headers	Jan 10/15
	NESL-DV1368	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	Risers & Headers	Jan 09/15
	NESL-DV1376	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	Pipeline to 16-21	Dec 17/14
	NESL-DV1375	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	Pipelines to 15-21	Dec 18/14
	NESL-DV1374	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	Pipeline to 16-21	Dec 21/14
	NESL-DV1370	NESL 1(Rev 1), NESL PL 2	Arc Resources	Satellite Modifications	Dec 20/14
	NESL-DV1381	NESL 1(Rev 1), NESL PL 2	Lightstream	15-21-048-11-W5M Riser/Header	Dec 21/14
	NESL-DV1367	NESL 1(Rev 1), NESL PL 2	Lightstream Resources	16-21-048-11-W5M (2 Well Tie In)	Dec 03/14
	NESL-DV1371	NESL 1(Rev 1), NESL PL 2	NEP Canada	Battery Upgrade	Dec 22/14
	NESL-DV1364	NESL 1(Rev 1), NESL PL 2	NEP Canada	Multi Well Pad	Dec 01/14
	NESL-DV1369	NESL 1(Rev 1), NESL PL 2	Whitcap	Lease Modifications	Nov 24/14
	NESL-DV1358	NESL 1(Rev 1), NESL PL 2	Dee Three	04-33 Pipeline to 04-34	Oct 25/14
	NESL-DV1226	NESL 1(Rev 1), NESL PL 2	Vermilion Energy	Water Inj Pump Tie In & Flex Pipe	Sept 05/14
	NESL-DV1299	NESL 1(Rev 1), NESL PL 2	Lightstream	Compressor/VRU Install	Oct 17/14
	NESL-DV1276	NESL 1(Rev 1), NESL PL 2	Dee Three	Single Well Tie In	Sep 09/14
	NESL-DV1270	NESL 1(Rev 1), NESL PL 2	Lightstream	Single Well Tie In	Sept 10/14
	NESL-DV1269	NESL 1(Rev 1), NESL PL 2	Bonterra Energy Corp.	Pig Barrel	Sept 01/14
	NESL-DV1256	NESL 1(Rev 1), NESL PL 2	Kingsmere	Pipeline to 15-35-047-02- W5M	Aug 27/14
	NESL-DV1250	NESL PL 2	Dee Three	Pipeline to 06-27	Aug 13/14



WELDERS LOG

WELDERS NAME AND ABSA FILE NO.	SYM BOL	PROCESS/ GMAW TRANSFER MODE	WELDING PROCEDURE (WPS#)	"P" NUMBER	"F" NUMBER	POSITION/ WELD PROGRESSION	MAX DEP. WELD METAL THK.	MIN. PIPE DIA.	EXPIRY DATE P.Q. CD.
LePage, Clint	"A"		NESL-1 Rev. 1 NESL-2 Rev. 1 NESL-PL-2	P1	F3/F4	ALL	0.188" / 0.500"	1"OD	Sep 09/15
W-20453									

Alberta
SOCIETY OF
WELDERS

ABSA

Clint LePage (Shawn)
Having completed with proficiency all the Safety Codes Act and the Pressure Welders
Regulation, and having achieved the standards of the ASME BPV Code and subject to the limitations on the reverse side.

July 29, 2002

W-20453

GRB Enterprises Ltd
Edmonton Alberta
WELDER PERFORMANCE QUALIFICATION CARD

AOQP 7107(C)

CLINT SHAWN
Name
LEPAGE

W-20453
ABSA File Number

This card is issued pursuant to the Safety Codes Act and the Pressure Welders
Regulation. The performance qualification is in accordance with Section IX of the
ASME BPV Code and subject to the limitations on the reverse side.

SEPT. 10, 2013

Date of Test

Welder Signature

BRUCE CORMIER

Welding Examiner (Print/Type)

19560

GRB Card No.

Performance Qualification GRB Card No. 19560

Process(es) SMAW P1 THROUGH P15F
Materials (P.No.)

Filler Metal (F.No) F3 F4 Min. Outside
Pipe Diameter 1"OD

Max Deposited 0.188" 0.500" Position(s) ALL
Weld Metal Qualified

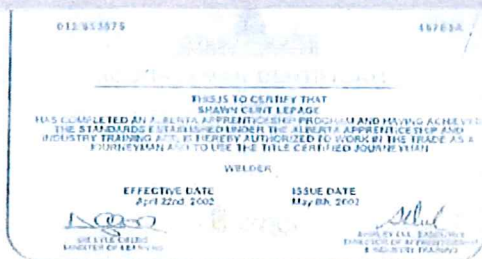
WITHOUT WITH WITH Backing Gas NONE
Backing

UPHILL UPHILL #E00 252
Progression Examiner File No.

SEPT. 10, 2015

P.Q. Expiry Date

Welding Examiner Signature



WELDING PROCEDURE SPECIFICATION NO.: _____ NESL-1 (Rev. 1)

WELDING PROCEDURE QUALIFICATION RECORD NO.(S): _____ NESL-1-1, NESL-1-2

QUALIFIED FOR

Base Metal (Typical): P1 Groups 1 & 2 to P1 Groups 1 & 2
(SA 333 Gr. 6, SA 350 Gr. LF2, SA 420 WPL6, SA 516 Gr. 70, etc.)
Process(es): SMAW Weld Types: GROOVE & FILLET
Position: ALL POSITIONS Diameter: ALL DIAMETERS
Filler Metal: E6010, E7018-1

BASE METAL CONDITIONS & GROOVE THICKNESS RANGE QUALIFIED:

NOTCH TOUGHNESS APPLICATIONS TO -46°C AS WELDED

BASE METAL THICKNESS RANGE 3.2 to 44.4 mm (0.125 to 1.750 in.) inclusive

COMBINED DEPOSITED WELD METAL THICKNESS

ASME B31.1	<u>19.1 mm (0.750 in.) maximum</u>
ASME B31.3	<u>19.1 mm (0.750 in.) maximum</u>
ASME SECT. VIII, DIV.1	<u>38.1 mm (1.50 in.) maximum</u>
CSA Z662 FABRICATION	<u>31.8 mm (1.25 in.) maximum</u>

ALBERTA BOILERS SAFETY ASSOCIATION	
PROVINCE OF ALBERTA	
SAFETY CODES ACT	
WELDING PROCEDURE	
Reg. No. WP	<u>2779.2</u>
Spec No.	<u>NESL-1 (REV.1)</u>
Weld Process	<u>SMAW</u>
Matl. Gr. P No.	<u>1 Gr. 1+2</u> to P No. <u>1 Gr. 1+2</u>
Elec. Gr. F No.	<u>3+4</u> A No. <u>1</u>
Th. Qual. For	<u>3.2 to 44.4 mm PWHT</u> <u>NO</u>
	<u>CVN -46°C</u>
Yr. <u>07</u> Mo. <u>02</u> Day <u>16</u> Signed <u>R. ROSEBERG</u>	
R. ROSEBERG, P.ENG. WELDING SPECIALIST	

PROVINCIAL REGISTRATION

Tracking Coupons

Purpose: The purpose of this procedure is to provide personnel with practical practices for tracking coupons when doing welding cut-outs. This procedure is to be used by all employees involved in the task.

Hazards:

Include but are not limited to:

- Damage to instrumentation

Practice:

1. Supervisor/Pipefitter will give drawing to welder(s)
2. Welder will save all coupons cut from pipe per drawing
3. Welder will return drawing upon completion with all coupons in hand to supervisor/pipefitter
4. Supervisor/pipefitter will number all coupons according to drawing or spool number
5. At any time upon request supervisor/pipefitter will be able to prove all coupons are accounted for
6. At the end of the job, oil company representative has the option of counting coupons and comparing to drawings
7. Supervisor pipefitter will document on field drawings that all coupons are accounted for.
8. Supervisor/pipefitter will check off punch list item at the end of the job stating that all coupons are removed from piping and accounted for in the Q.C. package.

(Reference welding procedure)

Reviewed by: _____

Signature

Date: July 3/14

- The information presented in this publication is intended for general use and may or may not apply to every circumstance. It is not a definitive guide to government regulations and does not relieve persons using this publication from their responsibilities under applicable legislation. Newforce Energy Services Ltd. does not guarantee the accuracy of, nor assume liability for, the information presented here.

Revised Jul 2014



CERTIFYING STATEMENT

I have reviewed the written practices, procedures, personal records and certification of:

Buffalo Inspection Services
8403 Davies Road
Edmonton, Alberta
T6E 4N3

In my opinion, they comply in all respects with the requirements of ASME Section V Nondestructive Examination, SNT-TC-1A or CGSB

Buffalo Inspection Services

Are appointed to perform

RT, MT, PT, and UT

Radiography (RT), Ultrasonics (UT), Liquid Penetrant (PT), Magnetic Particle (MT)

Nondestructive examinations for Newforce Energy Services Ltd.

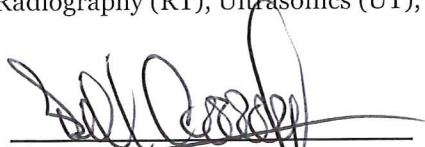
Robert Lewko

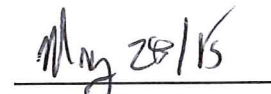
(Name of Subcontracted NDE companies Level III person)

Is by this statement, certified to act as the Level III person for Newforce Energy Services Ltd. to be responsible for the following nondestructive examination:

RT, MT, PT, and UT

Radiography (RT), Ultrasonics (UT), Liquid Penetrant (PT), Magnetic Particle (MT)


(Signature of QC Manager)


(Date)

List of NDT personnel currently certified by NRCan

Last update = April 15, 2015

come to the NRCan National Non-Destructive Testing (NDT) Certification Body's Directory of NDT Personnel.

Certifications Expiring December 31, 2014: NRCan is currently completing the processing of renewal requests for clients whose certifications will expire on December 31, 2014.

Please Note - NRCan NDT CB makes all reasonable efforts to ensure candidate applications, examination requests and certification submissions are completed as per service standard targets. Despite these efforts, the occurrence of errors, omissions and delays cannot be completely ruled out and NRCan is not responsible for any direct and indirect costs, expenses or delays which may arise.

Please note: All personnel appearing on the Certified Personnel list are currently certified even though they may not have received their updated certification card from NRCan.

IT IS RECOMMENDED THAT EMPLOYERS AND CUSTOMERS VERIFY THE CLAIMED CERTIFICATIONS OF THEIR NDT PERSONNEL.

Individuals and companies are encouraged to protect themselves from fraud and possible financial and legal entanglements by routinely checking the claimed certification status of individuals against this Internet list of NDT personnel currently certified by NRCan.

- Do not accept a facsimile image of a wallet card as proof of certification; directly verify the faxed information against this web site listing.
- In order to protect the reputation of CGSB/NRCan certification and to avoid potential legal or financial ramifications, you are requested to alert NRCan to any irregularities that you may perceive in the certification of individuals.

This list of NDT personnel, currently certified by NRCan, was produced at NRCan and was accurate on the date shown. Any alteration of this information is strictly prohibited and may be unlawful. Any use of this information for purposes other than intended by NRCan may be unlawful and/or in violation of the Code of Conduct for NDT Personnel.

Legend

Personnels certified according to standard CAN/CGSB-48.9712-2006 (IDT ISO 9712:2005)

PT = Liquid penetrant
MT = Magnetic particle
UT = Ultrasonics
ET = Eddy current
RT = Radiography
E = Sector Engineering Materials and Components
A = Sector Aerospace
L = Sector Light Alloy Castings and Forgings
H = Sector Heavy Alloy Castings and Forgings
W = Sector Welds and Weldments

Personnels certified according to the standard ISO 20807:2004

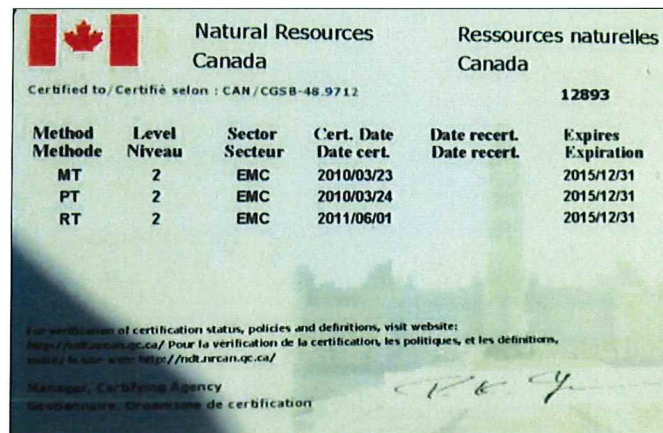
XF = X-ray Fluorescence

Name	Expiration	Method-Level-Sector	City	Prov
Leveille, Richard J.	Jun 23, 2012	XF1E	Montreal	QC
Leveille, Simon	Dec 31, 2015	MT2E UT2E	Montréal	QC
Levers, Jason	Jul 07, 2019	XF2E	Flin Flon	MB
Levesque, Benoit	Dec 31, 2015	PT2E MT2E	Repentigny	QC
Levesque, Cindy	Jan 27, 2019	XF1E	La Baie	QC
Levesque, Daniel	Dec 31, 2015	PT2E MT2E UT2E RT1E	Montreal	QC
Levesque, Daniel	Dec 31, 2015	RT1E	Lanoraie	QC
Levesque, Jacques	Dec 31, 2015	PT2E MT2E	Sept-Iles	QC
Levesque, Marc	Dec 31, 2015	MT2E	St-Jean-Chrysostome	QC
Levesque, Maxime	Dec 31, 2015	UT2E	Montreal	QC
Levesque, Priscilla	Dec 31, 2009	XF1E	Carleton Place	ON
Levesque, Yvon Robert	Dec 31, 2015	UT2E	Kingston	ON
Levesque Michaud, Maude	Aug 11, 2019	XF1E	Quebec	QC
Levey, Thomas A.	Dec 31, 2015	PT2E MT2E UT2E RT3E	Sherwood Park	AB
Levine, Brajadevi	Dec 31, 2015	PT2E	Vancouver	BC
Levitan, Joseph	Aug 23, 2013	XF1E	Ottawa	ON
Lewis, Bethany	Dec 31, 2015	PT2E MT2E UT2E ET1E	Oshawa	ON
Lewis, Bethany	Jul 08, 2019	XF1E	Oshawa	ON
Lewis, Brent T.	Dec 31, 2015	UT1E RT2E	Clairmont	AB
Lewis, James C.	Dec 31, 2015	PT2E MT2E UT1E RT1E	Surrey	BC
Lewis, Jordan	May 11, 2018	XF1E	White Rock	BC
Lewis, Lara	Feb 15, 2016	XF2E	Whitehorse	YT
Lewis, Linda Louise	May 22, 2019	XF1E	Destruction Bay	YT
Lewis, Matthew J.	Nov 19, 2017	XF2E	Fredericton	NB
Lewis, Miranda	Jan 04, 2014	XF2E	Vancouver	BC
Lewis, Ryan J.	Dec 31, 2015	PT2E MT2E UT1E	Whitby	ON
Lewis, Terry	Dec 31, 2015	MT2E UT2E RT2E	Fairview	AB
Lewis, Thomas W.	Dec 31, 2015	PT2E MT2E UT2E ET1E	Fort Saskatchewan	AB
Lewis, Thomas W.	Jun 13, 2019	XF2E	Fort Saskatchewan	AB
Lewko, Robert	Dec 31, 2015	PT3E MT3E UT1E RT3E	Burnaby	BC
L'Heureux, Trenton	Dec 01, 2019	XF1E	Fort Saskatchewan	AB
Li, Dong Sheng	Dec 31, 2015	PT2E MT2E UT2E RT1E	Kitchener	ON
Li, Lei	Dec 01, 2019	XF1E	Calgary	AB
Li, Weiguo	Dec 31, 2015	UT2E	Fort McMurray	AB
Li, Yan Shun	Dec 31, 2015	PT2E MT2E	Edmonton	AB
Li Fraine, Marco	Feb 08, 2019	XF2E	Lava	QC
Liaghat, Sassan	Jul 29, 2011	XF2E	Coquitlam	BC
Liang, Peter C.T.	Dec 31, 2015	PT2E MT2E	Edmonton	AB
Liang, Wayne	Dec 31, 2015	RT2E	Niagara Falls	ON
Liang, Wayne	May 19, 2016	XF1E	Niagara Falls	ON
Liao, Qiang	Dec 31, 2015	PT2E MT2E UT2E	Fort McMurray	AB
Liban, Michael	Dec 31, 2015	PT2E MT2E UT2E ET2E RT1E	Southampton	ON
Lichty, Kerry D.	Oct 28, 2019	XF1E	St. Catharines	ON
Liciu, Ioan	Feb 06, 2020	XF1E	Laval	QC
Liedtke, Audrey A.	Dec 31, 2015	PT2E ET1E	Eganville	ON

Name	Expiration	Method-Level-Sector	City	Prov
Menssa, Curt	Jan 25, 2019	XF2E	Beaumont	AB
Menz, Rogelio E.	Dec 31, 2015	PT2E MT2E	Edmonton	AB
lenzies, Carey L.	Dec 31, 2015	MT2E UT2E	Stony Plain	AB
Meo, Dennis	Dec 31, 2015	PT2E	Thunder Bay	ON
Mercer, Andrew	Dec 31, 2018	UT1E	Fort Saskatchewan	AB
Mercer, Gary	Dec 31, 2015	PT2E MT2E UT1E	Quispamsis	NB
Mercer, Greg J.	Dec 31, 2015	MT2E UT2E	Red Deer	AB
Mercer, Robert E.	Dec 31, 2015	PT2E MT2E UT1E RT1E	Erbs Cove	NB
Mercer, William	Jul 29, 2019	XF2E	Oakville	ON
Mercier-Langevin, Patrick	Sep 09, 2015	XF1E	Quebec	QC
Meredith, Travis D.	Jul 25, 2016	XF1E	Maple Ridge	BC
Meroniuk, Jason	Dec 31, 2015	MT2E UT2E RT2E	Abbotsford	BC
Mertz, Christian	Jul 30, 2019	XF1E	Edmonton	AB
Messervier, Dominic	May 04, 2020	XF1E	Longueuil	QC
Messier, Catia	May 04, 2015	XF1E	Longueuil	QC
Messina, Salvatore Mario	Dec 31, 2015	PT2E MT2E UT2E	Grimsby	ON
Mestdagh, Michael	Dec 31, 2015	PT2E MT2E	Winnipeg	MB
Meyer, Blaine M.	Dec 31, 2015	MT2E UT2E RT2E	Millet	AB
Meyer, Brian H.	Feb 13, 2019	XF1E	Nakusp	BC
Meyer, Nicholas H.	Dec 05, 2011	XF1E	Grande Prairie	AB
Mezei, Eric	Dec 31, 2015	PT2E MT2E RT2E	Medicine Hat	AB
Mian, Shahid	Dec 31, 2015	PT2E MT2E UT2E	Stoney Creek	ON
licali, Oana Cristina	Nov 12, 2019	XF1E	Longueuil	QC
Michaud, Adrian R.	Mar 08, 2020	XF2E	Orleans	ON
Michaud, Alexandre	Dec 31, 2015	PT2E MT2E	Cantley	QC
Michaud, Damien E.	Dec 31, 2015	MT2E	Fort McMurray	AB
Michaud, Eric	Dec 31, 2018	UT2E	Quispamsis	NB
Michaud, Gilles	Dec 31, 2015	PT2E MT2E UT2E RT2E	Drummondville	QC
Michaud, Melanie	Dec 31, 2015	PT2E MT2E UT2E	St Francois du lac	QC
Michaud, Travis	Dec 31, 2015	PT2E MT2E	St. Catherines	ON
Michaux, Daniel V.	Dec 31, 2015	PT2E MT2E UT2E	Fort Saskatchewan	AB
Michels, Christine Louise	Oct 12, 2013	XF2E	Ennismore	ON
Michels, Thomas J.	Dec 31, 2015	PT2E MT2E	Waterloo	ON
Michielin, Michael R.	Dec 31, 2015	MT2E UT1E	Edmonton	AB
Michiels, Robert	Dec 31, 2015	PT2E MT2E	Waterloo	ON
Mickelberry, Blair	Feb 19, 2020	XF1E	Red Deer	AB
Mickelson, Lloyd	Dec 31, 2015	RT2E	Saskatoon	SK
Mickelson, Lloyd	Feb 19, 2020	XF2E	Saskatoon	SK
Mickey, Alan	May 22, 2015	XF2E	Brandon	MB
Mickey, Alan	Dec 31, 2015	PT2E MT2E UT2E	Brandon	MB
Micovski, Vitko	Dec 31, 2015	PT2E	Hamilton	ON
Middlemass, Matthew C.	Dec 31, 2015	PT2E MT2E	Ladysmith	BC
iddleton, Jessica	Dec 31, 2015	UT1E	Calgary	AB
Middleton, Jessica	Jan 25, 2019	XF1E	Calgary	AB
Miessner, Hans-Peter	Dec 31, 2015	MT2E UT1E	Richmond	BC

Name	Eric Mezei
Type	Canadian General Standards Board (CGSB) :NRCan
Category	Industrial Non-destructive Examination (Materials)
Methods & Level	RT Level 2 MT Level 2 PT Level 2
Expiry Date	December 31, 2015
Current Position	Field Technician
Comments	

Photocopy Images



Updated: Mar 13, 2013

Brittney Burgardt

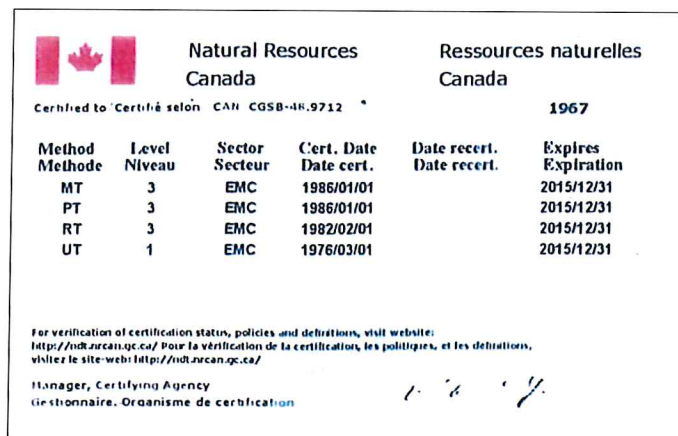
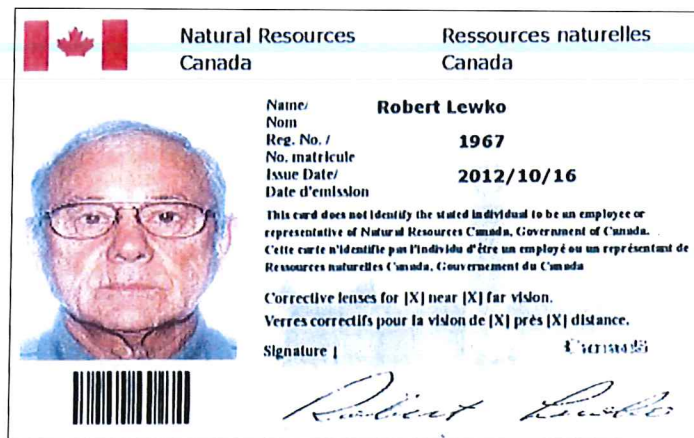


Buffalo Inspection Services

Certification Archives

Name	Robert Lewko
Type	Canadian General Standards Board (CGSB) Re: NRCan
Category	Industrial Non-destructive Examination (Materials)
Methods & Level	RT Level 3, MT Level 3, PT Level 3, UT Level 1
Expiry Date	December 31, 2015
Current Position	BIS Level 3 (RT, MT, PT)
Comments	Buffalo Inspection Services' Level 3 in RT, MT, PT

Photocopy Images



Updated: Jan 3, 2013
 Brittney Burgardt

Buffalo Inspection Services (2005) Inc.

8403 Davies Road NW, Edmonton, Alberta T6E 4N3 PH: 780-486-7344





Buffalo Inspection Services Inc.
8403 Davies Road NW Edmonton, Alberta T6E 4N3
Phone: (780) 486-7344 Fax: (780) 486-4685
Website: www.buffaloinspection.com

Report No: R271 01247E
Radiographic Examination Report

Client Name		Arc Resources		Project Name		NewForce	
Client Address				Purchase Order Number:			
Client Contact		Name		AFE Number:			
Information		Phone		Client Job Number:			
Work Date:		February 25, 2015		Cost Code:			
Work Location:		07-12-48-08W5M		Report Page Number		Page	1 of 1

Billing	Hours/Mileage					RT Procedure Number:	GP-RT-01	BUFFALO INSPECTION SERVICES (2005) INC.
	Regular	Overtime	Sub/Camp	ATV	Mileage(km)	RT Procedure Revision:	5	

Examination Details		Examination Parameters										Discontinuity Codes Legend		Status		
Film Number	Size & Thickness Plus Code Maximum Reinforcement	Welder Id	Material	Weld Identification	Reference Code	Technique Number	Source to Object Distance	Source Side of Object to Film Distance	Wall Viewing	Number of Exposures	IQI Reference	Client Control Number	Discontinuity Code and/or Comments	Severity Code	Accept	Reject
					1 to 10	See Back	Inches	Inches	SW DW							
	Fabrication															
1																
2	XF-1	4" S/80	F	P1	1	RT-4A	4.5"	.462"	SW	3	2	1			✓	
3	XF-2	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	1			✓	
4	XF-3	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	1	I.P.	1	✓	
5	XF-4	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	2			✓	
6	XF-5	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	2			✓	
7	XF-6	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	2	I.P.	1	✓	
8	XF-7	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	2	I.P.	1	✓	
9	XF-8	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	3			✓	
10	XF-9	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	3	I.P.	1	✓	
11	XF-10	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	4			✓	
12	XF-11	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	4			✓	
13	XF-12	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	4			✓	
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																
25																

Film Make/Brand:	Kodak Mx125/T200	Screens:	Lead	Maximum Recommended U/G:	0.02"
Film Class/Type:	1	Front:	0.010	Penetrometer (IQI hole type) Designation No:	
Film Density:	Min: 2 Max: 4	Rear:	0.010	Source Isotope:	Iridium 192 (Gamma)
Number Film/Cassette:	1	Processing:	Manual/Mobile Darkroom	Effective Focal Spot Size:	0.118 Inches

RT Technician:	Eric Mezel	CGSB Lvl:	2	Reg #	12893	SNT Level:	2	SNT No:	08105	Indicate TRAINEE in SNT No. If Assistant is a Trainee
RT Assistant #1:	Musle Ergaw	CEDO:		Reg #		SNT Level:	2	SNT No:	08112	
RT Assistant #2:		CEDO:		Reg #		SNT Level:		SNT No:		

Eric Mezel (403)952-7177 *Eric Mezel*
Technician Signature

25-Feb-2015
Date

Client Representative Signature

Evaluation Date

Kerry

Print Client Name

403-357-3818
Telephone No.

Penetrometer (IQI) Reference

- 1: ASTM A
- 2: ASTM B
- 3: ASTM C
- 4: ASTM D
- 5: DIN Set/Size 1 (Wire range 1 - 7)
- 6: DIN Set/Size 6 (Wire range 6 - 12)
- 7: DIN Set/Size 10 (Wire range 10 - 16)
- 8: DIN Set/Size 13 (Wire range 13 - 19)
- 9: Hole Type: Indicate IQI Designation Number

Codes Reference

- 1: ASME B31.3 N/S
- 2: ASME B31.3 S/C
- 3: CSA Z662 Clause 7.11
- 4: CSA Z662 Clause 16.6.9 (Sour)
- 5: ASME Sect VIII Div 1 UW51
- 6: ASME Sect VIII Div 1 UW52
- 7: ASME B31.1
- 8: API 620
- 9: API 650

Severity Code Reference:

1= Slight Indication 2= Medium Indication 3= Severe Indication

10: Other Code:

IMPORTANT: See reverse side of this form for the Buffalo Inspection Services (2005) Inc. Limited Liability Policy. NOTE: SNT refers to the SNT-TC-1A Recommended Practice. Buffalo Inspection Services follows the SNT-TC-1A Recommended Practice that defines the criteria for this certification.

Report Version EV-RT-02A/2011

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Technician Note: Ensure to print reverse reference information sheet on all reports

Clocktape marker and start arrow marked on weldment. It is the customer's responsibility to map welds on drawing.

**Buffalo Inspection Services (2005) Inc.**

8403 Davies Road NW Edmonton, Alberta T6E 4N3
Phone: (780) 486-7344 Fax: (780) 486-4685
Website: www.buffaloinspection.com

(c) Buffalo Inspection Services (2005) Inc.

Report No: M271 01247E**Magnetic Particle Examination Report**

Client Name		Arc Resources				Project Name		NewForce	
Client Address						Purchase Order Number:			
Client Contact Information		Name	Kerry			AFE Number:			
		Phone	403-357-3818			Client Job Number:			
Examination Date:		February 25, 2015				Cost Code:			
Work Location:		07-12-48-08W5M				Report Page Number		Page	1 of 1
Billing	Hours/Mileage					MT Procedure Number:		GP-MT-01	
	Regular	Overtime	Sub/Camp	ATV	Mileage	MT Procedure Revision:		1	
	0.0	0.0	0.0	0.0	0.0	MT Technique Number:		MT-2V/R1	
						Acceptance Standard:		B31.3N, Z662	
Examination Surface Information									
Surface Preparation:		Clean Bare Metal		Cleaning Details:		Solvent		Product Used for Cleaning:	
Surface Temperature:		0 - 50 Degrees Celcius				Surface Preparation		Enter comments	
Surface Contaminants:		None - Clean & Dry				Comments/Other Details:			
Examination/Equipment Details									
Method:		WET VISIBLE (CONTRAST)			Continuous/Residual:		Continuous		Particle Colour:
Particle Brand:		Magnaflux			Part/Product No:		7HF		Suspension:
Contrast Paint Brand:		Magnaflux			Part/Product No:		WCP-2		
Equipment:		AC	YOKE	Mag. Time:		3	Seconds	Demagnetization Required?	
Instrument:		Model:		Serial Number:		1671		Calibration Due Date:	
White Light Equipment:				Is >100fc @ Surface:				Ambient Light:	
Black Light Equipment:		Serial No.:		Output >1000uW/cm²					
Test Results/Record of Indications (at time of inspection)									
Weld ID	Welder	Thickness	Indications						
1 MT-1	F	1" TOL	ACCEPT						
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23			No rejectable or recordable indications were observed at time of examination.						
24									
25									
Drawing/Sketch/ISO/Photo Insert									
Continuance Report Attached:									
MT Technician:		Eric Mezei		CGSB Level	2	Reg #	12893	SNT Level:	2
MT Assistant:		Musie Ergaw		CGSB Level		Reg #		SNT Level:	
								SNT No:	08105

Eric Mezei

Technician Signature

Eric Mezei

25-Feb-2015

Date

Client Representative Signature

Evaluation Date

Kerry

Print Client Name

403-357-3818

Telephone No.

Scope of Services & Limits of Liability: Buffalo Inspection Services (2005) Inc. does not warranty or imply warranty of services stated herein and shall not be held liable for services rendered as per established service agreements. At no time shall liability be placed upon Buffalo Inspection Services (2005) Inc. of which exceeds the amount paid for said services. Buffalo Inspection Services shall utilize appropriate quality assurance measures, technical training, and safety parameters to assure services are provided to meet or exceed established NDE procedures, Practices and Industry expectations and at no time shall warranty excess NDE services except those established in writing beyond those established prior to the services provided herein.

NOTE: SNT refers to the SNT-TC-1A Recommended Practice. Buffalo Inspection Services follows the SNT-TC-1A Recommended Practice that defines the criteria for this certification.



Buffalo Inspection Services Inc.
8403 Davies Road NW Edmonton, Alberta T6E 4N3
Phone: (780) 486-7344 Fax: (780) 486-4685
Website: www.buffaloinspection.com

Report No: R271 01264E
Radiographic Examination Report

Client Name		Arc Resources										Project Name		NewForce			
Client Address												Purchase Order Number:					
Client Contact		Name		Kerry								AFE Number:					
Information		Phone		403-357-3818								Client Job Number:					
Work Date:		March 5, 2015										Cost Code:					
Work Location:		02-13, 15-01-48-08W5M										Report Page Number		Page	1	of	2

Billing	Hours/Mileage					RT Procedure Number:		GP-RT-01		BUFFALO INSPECTION SERVICES (2005) INC.	
	Regular	Overtime	Sub/Camp	ATV	Mileage(km)	RT Procedure Revision:		5			

Examination Details		Examination Parameters										Discontinuity Codes Legend		Status			
Film Number	Size & Thickness Plus Code Maximum Reinforcement	Welder Id	Material	Weld Identification	Reference Code	Technique Number	Source to Object Distance	Source Side of Object to Film Distance	Wall Viewing	Number of Exposures	IQI Reference	Client Control Number	Discontinuity Codes Legend		Severity Code	Accept	Reject
													1 to 10	See Back			
Discontinuity Codes Legend LF: Lack of Fusion IP: Incomplete Penetration IC: Internal Concavity HB: Hollow Bead BT: Burn Through TI: Tungsten Inclusion IUC: Internal Undercut EUC: External Undercut EP: Excessive Penetration P: Porosity S: Slag PH: Pinhole HL: High-Low RC: Recap C: Crack AB: Arc Burn LC: Low Cover																	
Discontinuity Code and/or Comments																	
1	Fabrication																
2	XF-1	4" S/80	F	P1	1	RT-4A	4.5"	.462"	SW	3	2	12					
3	XF-2	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	12	H.B. @ 23-25CM	3			X
4	XF-3	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	12	I.P.	1			
5	XF-4	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	8					
6	XF-5	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	8					
7	XF-6	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	8					
8	XF-7	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	8					
9	XF-8	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	6					
10	XF-9	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	5	I.P.	1			
11	XF-10	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	10					
12	XF-11	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	7	I.P.	1			
13	XF-12	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	9					
14	XF-13	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	7	I.P.	1			
15	XF-14	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	9					
16	XF-15	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	9					
17	XF-16	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	9					
18	XF-17	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	9					
19	XF-18	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	9					
20	XF-19	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	9	Slag @ 4-9CM	3			X
21	XF-20	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	10					
22	XF-21	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	10					
23	XF-22	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	10					
24	XF-23	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	10	WH @ 0cm	3			X
25	XF-24	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	5					

Film Make/Brand:		Kodak Mx125/T200		Screens:		Lead		Maximum Recommended U/G:		0.02"	
Film Class/Type:		1		Front:		0.010		Penetrometer (IQI hole type) Designation No:			
Film Density:		Min:	2	Max:	4	Rear:		0.010		Source Isotope:	
Number Film/Cassette:		1		Processing:		Manual/Mobile Darkroom		Effective Focal Spot Size:		0.118 inches	

RT Technician:		Eric Mezei		CGSB Lvl:		2		Reg #		12893		SNT Level:		2		SNT No:		08105		Indicate TRAINEE in SNT No. If Assistant is a Trainee	
RT Assistant #1:		Musie Ergaw		CEDO:				Reg #				SNT Level:		2		SNT No:		08112			
RT Assistant #2:				CEDO:				Reg #				SNT Level:				SNT No:					

Eric Mezei (403)952-7177		5-Mar-2015	
Technician Signature		Date	
Client Representative Signature		Evaluation Date	
Kerry		403-357-3818	
Print Client Name		Telephone No.	

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Technician Note: Ensure to print reverse reference information sheet on all reports		Clocktape marker and start arrow marked on weldment. It is the customer's responsibility to map welds on drawing.	

Penetrometer (IQI) Reference

1: ASTM A
2: ASTM B
3: ASTM C
4: ASTM D
5: DIN Set/Size 1 (Wire range 1 – 7)
6: DIN Set/Size 6 (Wire range 6 – 12)
7: DIN Set/Size 10 (Wire range 10 – 16)
8: DIN Set/Size 13 (Wire range 13 – 19)
9: Hole Type: Indicate IQI Designation Number

Codes Reference

1: ASME B31.3 N/S
2: ASME B31.3 S/C
3: CSA Z662 Clause 7.11
4: CSA Z662 Clause 16.6.9 (Sour)
5: ASME Sect VIII Div 1 UW51
6: ASME Sect VIII Div 1 UW52
7: ASME B31.1
8: API 620
9: API 650

Severity Code Reference:

1= Slight Indication 2= Medium Indication 3= Severe Indication

10: Other Code:

IMPORTANT: See reverse side of this form for the Buffalo Inspection Services (2005) Inc. Limited Liability Policy. NOTE: SNT refers to the SNT-TC-1A Recommended Practice. Buffalo Inspection Services follows the SNT-TC-1A Recommended Practice that defines the criteria for this certification.

**Buffalo Inspection Services Inc.**

8403 Davies Road NW Edmonton, Alberta T6E 4N3

Phone: (780) 486-7344 Fax: (780) 486-4685

Website: www.buffaloinspection.com

Report No: R271 01264E
Radiographic Examination Report

Client Name		Arc Resources		Project Name		NewForce	
Client Address				Purchase Order Number:			
Client Contact		Name		Kerry		AFE Number:	
Information		Phone		403-357-3818		Client Job Number:	
Work Date:				March 5, 2015		Cost Code:	
Work Location:				02-13, 15-01-48-08W5M		Report Page Number	
						Page 2 of 2	

Billing	Hours/Mileage					RT Procedure Number:	GP-RT-01	BUFFALO INSPECTION SERVICES (2005) INC.
	Regular	Overtime	Sub/Camp	ATV	Mileage(km)	RT Procedure Revision:	5	

Examination Details		Examination Parameters											Discontinuity Codes Legend		Status		
Film Number	Size & Thickness Plus Code Maximum Reinforcement	Welder Id	Material	Weld Identification	Reference Code	Technique Number	Source to Object Distance	Source Side of Object to Film Distance	Wall Viewing	Number of Exposures	IQI Reference	Client Control Number	Discontinuity Code and/or Comments		Severity Code	Accept	Reject
					1 to 10	See Back	Inches	Inches	SW	DW	1 to 9						
1	Fabrication																
2	XF-25 3" S/80	F	P1		1	RT-4A	3.5"	.425"	SW	3	2	6				✓	
3																	
4																	
5																	
6	Repairs																
7	XF-2R 3" S/80	F	P1		1	RT-4A	3.5"	.425"	SW	3	2	12				✓	
8	XF-19R 3" S/80	F	P1		1	RT-4A	3.5"	.425"	SW	3	2	9				✓	
9	XF-23R 3" S/80	F	P1		1	RT-4A	3.5"	.425"	SW	3	2	10				✓	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	

Film Make/Brand:	Kodak Mx125/T200	Screens:	Lead	Maximum Recommended U/G:	0.02"
Film Class/Type:	1	Front:	0.010	Penetrometer (IQI hole type) Designation No:	
Film Density:	Mln: 2 Max: 4	Rear:	0.010	Source Isotope:	Iridium 192 (Gamma)
Number Film/Cassette:	1	Processing:	Manual/Mobile Darkroom	Effective Focal Spot Size:	0.118 Inches

RT Technician:	Eric Mezel	CGSB Lvl:	2	Reg #	12893	SNT Level:	2	SNT No:	08105	Indicate TRAINEE in SNT No. If Assistant is a Trainee
RT Assistant #1:	Musle Ergaw	CEDO:		Reg #		SNT Level:	2	SNT No:	08112	
RT Assistant #2:		CEDO:		Reg #		SNT Level:		SNT No:		

Eric Mezel (403)952-7177

Technician Signature

Eric Mezel

5-Mar-2015

Date

Client Representative Signature

Evaluation Date

Kerry

Print Client Name

403-357-3818

Telephone No.

Penetrometer (IQI) Reference

- 1: ASTM A
- 2: ASTM B
- 3: ASTM C
- 4: ASTM D
- 5: DIN Set/Size 1 (Wire range 1 - 7)
- 6: DIN Set/Size 6 (Wire range 6 - 12)
- 7: DIN Set/Size 10 (Wire range 10 - 16)
- 8: DIN Set/Size 13 (Wire range 13 - 19)
- 9: Hole Type: Indicate IQI Designation Number

Codes Reference

- 1: ASME B31.3 N/S
- 2: ASME B31.3 S/C
- 3: CSA Z662 Clause 7.11
- 4: CSA Z662 Clause 16.6.9 (Sour)
- 5: ASME Sect VIII Div 1 UW51
- 6: ASME Sect VIII Div 1 UW52
- 7: ASME B31.1
- 8: API 620
- 9: API 650

Severity Code Reference:

1= Slight Indication 2= Medium Indication 3= Severe Indication

10: Other Code:

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Clocktape marker and start arrow marked on weldment. It is the customer's responsibility to map welds on drawing.

**Buffalo Inspection Services (2005) Inc.**

8403 Davies Road NW Edmonton, Alberta T6E 4N3
 Phone: (780) 486-7344 Fax: (780) 486-4685
 Website: www.buffaloinspection.com

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Report No: M271 01264E**Magnetic Particle Examination Report**

Client Name		Arc Resources		Project Name		NewForce	
Client Address				Purchase Order Number:			
Client Contact Information	Name	Kerry		AFE Number:			
	Phone	403-357-3818		Client Job Number:			
Examination Date:		March 5, 2015		Cost Code:			
Work Location:		02-13, 15-01-48-08W5M		Report Page Number		Page	1 of 1

Billing	Hours/Mileage					MT Procedure Number:	GP-MT-01	Acceptance Standard:
	Regular	Overtime	Sub/Camp	ATV	Mileage	MT Procedure Revision:	1	B31.3N, Z662
	0.0	0.0	0.0	0.0	0.0	MT Technique Number:	MT-2V/R1	

Examination Surface Information			
Surface Preparation:	Clean Bare Metal	Cleaning Details:	Solvent
Surface Temperature:	0 - 50 Degrees Celcius		Product Used for Cleaning:
Surface Contaminants:	None - Clean & Dry		Surface Preparation Comments/Other Details:

Examination/Equipment Details			
Method:	WET VISIBLE (CONTRAST)	Continuous/Residual:	Continuous
Particle Brand:	Magnaflux	Part/Product No:	7HF
Contrast Paint Brand:	Magnaflux	Part/Product No:	WCP-2
Equipment:	AC	YOKE	Mag. Time: 3 Seconds
Instrument:	Model:	Sentinel MP-A-2L	Serial Number: 1671
White Light Equipment:		Is >100fc @ Surface:	Ambient Light:
Black Light Equipment:	Serial No.:	Output >1000uW/cm²	Demagnetization Required? NO

Test Results/Record of Indications (at time of inspection)				Drawing/Sketch/ISO/Photo Insert
Weld ID	Welder	Thickness	Indications	
1 MT-1	F	1" TOL	ACCEPT	
2 MT-2	F	1" TOL	ACCEPT	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Comments/Additional Information:		Continuance Report Attached:	
MT Technician: Eric Mezei	CGSB Level: 2	Reg #: 12893	SNT Level: 2
MT Assistant: Musie Ergaw	CGSB Level:	Reg #:	SNT Level:

Eric Mezei
 Technician Signature

5-Mar-2015

Date

Client Representative Signature

Evaluation Date

Kerry

403-357-3818

Print Client Name

Telephone No.

Scope of Services & Limits of Liability: Buffalo Inspection Services (2005) Inc. does not warranty or imply warranty of services stated herein and shall not be held liable for services rendered as per established service agreements. At no time shall liability be placed upon Buffalo Inspection Services (2005) Inc. of which exceeds the amount paid for said services. Buffalo Inspection Services shall utilize appropriate quality assurance measures, technical training, and safety parameters to assure services are provided to meet or exceed established NDE procedures, Practices and Industry expectations and at no time shall warranty excess NDE services except those established in writing beyond those established prior to the services provided herein.

NOTE: SNT refers to the SNT-TC-1A Recommended Practice. Buffalo Inspection Services follows the SNT-TC-1A Recommended Practice that defines the criteria for this certification.

**Buffalo Inspection Services Inc.**

8403 Davies Road NW Edmonton, Alberta T6E 4N3

Phone: (780) 486-7344 Fax: (780) 486-4685

Website: www.buffaloinspection.com

Report No: R271 01273E**Radiographic Examination Report**

Client Name		Arc Resources		Project Name	NewForce	
Client Address				Purchase Order Number:		
Client Contact Information	Name	Kerry		AFE Number:		
	Phone	403-357-3818		Client Job Number:		
Work Date:		March 11, 2015		Cost Code:		
Work Location:		02-13-48-08W5M		Report Page Number	Page	1 of 2

Billing	Hours/Mileage					RT Procedure Number:	GP-RT-01	BUFFALO INSPECTION SERVICES (2005) INC.
	Regular	Overtime	Sub/Camp	ATV	Mileage(km)	RT Procedure Revision:	5	

Examination Details		Examination Parameters											Discontinuity Codes Legend				Status		
Film Number	Size & Thickness Plus Code Maximum Reinforcement	Welder Id	Material	Weld Identification	Reference Code	Technique Number	Source to Object Distance	Source Side of Object to Film Distance	Wall Viewing		Number of Exposures	IQI Reference	Client Control Number	Discontinuity Code and/or Comments	Severity Code	Accept	Reject		
					1 to 10	See Back	Inches	Inches	SW	DW	1 to 9								
	Fabrication																		
XF-1	3" S/80	F	P1		1	RT-4A	3.5"	.425"	SW	3	2	12				✓			
XF-2	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	14				✓			
XF-3	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	14				✓			
XF-4	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	17				✓			
XF-5	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	17				✓			
XF-6	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	14				✓			
XF-7	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	16				✓			
XF-8	3" S/80	F	P1		1	RT-4A	3.5"	.425"	SW	3	2	14				✓			
XF-9	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	15				✓			
XF-10	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	15				✓			
XF-11	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	15				✓			
XF-12	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	15				✓			
XF-13	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	13				✓			
XF-14	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	13				✓			
XF-15	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	13				✓			
XF-16	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	13				✓			
XF-17	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	13				✓			
XF-18	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	13				✓			
XF-19	3" S/80	F	P1		1	RT-4A	3.5"	.425"	SW	3	2	15				✓			
XF-20	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	16				✓			
XF-21	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	16				✓			
XF-22	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	16				✓			
XF-23	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	16	I.C.		1	✓			
XF-24	3" S/80	A	P1		1	RT-4A	3.5"	.425"	SW	3	2	16	I.C.		1	✓			

Film Make/Brand:	Kodak Mx125/T200	Screens:	Lead	Maximum Recommended U/G:	0.02"
Film Class/Type:	1	Front:	0.010	Penetrator (IQI hole type) Designation No:	
Film Density:	Min: 2 Max: 4	Rear:	0.010	Source Isotope:	Iridium 192 (Gamma)
Number Film/Cassette:	1	Processing:	Manual/Mobile Darkroom	Effective Focal Spot Size:	0.118 Inches
RT Technician:	Eric Mezel	CGSB Lvl:	2	Reg #	12893
RT Assistant #1:	Musie Ergaw	CEDO:		Reg #	
RT Assistant #2:		CEDO:		Reg #	
		SNT Level:	2	SNT No:	08105
		SNT Level:	2	SNT No:	08112
		SNT Level:		SNT No:	

Eric Mezel (403)952-7177	<i>Eric Mezel</i>	11-Mar-2015	Penetrator (IQI) Reference	Codes Reference
Technician Signature		Date	1: ASTM A 2: ASTM B 3: ASTM C 4: ASTM D 5: DIN Set/Size 1 (Wire range 1 - 7) 6: DIN Set/Size 6 (Wire range 6 - 12) 7: DIN Set/Size 10 (Wire range 10 - 16) 8: DIN Set/Size 13 (Wire range 13 - 19) 9: Hole Type: Indicate IQI Designation Number	1: ASME B31.3 N/S 2: ASME B31.3 S/C 3: CSA Z662 Clause 7.11 4: CSA Z662 Clause 16.6.9 (Sour) 5: ASME Sect VIII Div 1 UWS1 6: ASME Sect VIII Div 1 UWS2 7: ASME B31.1 8: API 620 9: API 650
Client Representative Signature		Evaluation Date	Severity Code Reference:	10: Other Code:
Kerry		403-357-3818	1= Slight Indication 2= Medium Indication 3= Severe Indication	
Print Client Name		Telephone No.	IMPORTANT: See reverse side of this form for the Buffalo Inspection Services (2005) Inc. Limited Liability Policy. NOTE: SNT refers to the SNT-TC-1A Recommended Practice. Buffalo Inspection Services follows the SNT-TC-1A Recommended Practice that defines the criteria for this certification.	
Report Version EV-RT-02A/2011	© Buffalo Inspection Services (2005) Inc. All Rights Reserved			
Technician Note: Ensure to print reverse reference information sheet on all reports		Clockface marker and start arrow marked on weldment. It is the customer's responsibility to map welds on drawing.		

**Buffalo Inspection Services Inc.**

8403 Davies Road NW Edmonton, Alberta T6E 4N3
 Phone: (780) 486-7344 Fax: (780) 486-4685
 Website: www.buffaloinspection.com

Report No: R271 01273E**Radiographic Examination Report**

Client Name		Arc Resources										Project Name		NewForce	
Client Address												Purchase Order Number:			
Client Contact Information	Name	Kerry										AFE Number:			
	Phone	403-357-3818										Client Job Number:			
Work Date:		March 11, 2015										Cost Code:			
Work Location:		02-13-48-08W5M										Report Page Number		Page	2 of 2

Billing	Hours/Mileage					RT Procedure Number:		GP-RT-01		BUFFALO INSPECTION SERVICES (2005) INC.	
	Regular	Overtime	Sub/Camp	ATV	Mileage(km)	RT Procedure Revision:		5			

Examination Details				Examination Parameters										Discontinuity Codes Legend				Status		
Film Number	Size & Thickness Plus Code Maximum Reinforcement	Welder Id	Material	Weld Identification	Reference Code	Technique Number	Source to Object Distance	Source Side of Object to Film Distance	Wall Viewing	Number of Exposures	IQI Reference	Client Control Number	Discontinuity Code and/or Comments		Severity Code	Accept	Reject			
													1 to 10	See Back				Inches	Inches	SW
	Fabrication																			
2	XF-25	3" S/80	A	P1	1	RT-4A	3.5"	.425"	SW	3	2	12								
3	XF-26	3" S/80	F	P1	1	RT-4A	3.5"	.425"	SW	3	2	12								
4	XF-27	2" S/80	F	P1	1	RT-4A	2.4"	.343"	SW	3	1	11	S		1					
5	XF-28	2" S/80	F	P1	1	RT-4A	2.4"	.343"	SW	3	1	11	I.P.		1					
6	XF-29	2" S/80	F	P1	1	RT-4A	2.4"	.343"	SW	3	1	11	I.P.		1					
7	XF-30	2" S/80	F	P1	1	RT-4A	2.4"	.343"	SW	3	1	11								
8	XF-31	2" S/80	F	P1	1	RT-4A	2.4"	.343"	SW	3	1	11	I.P.		1					
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				
21																				
22																				
23																				
24																				
25																				

Film Make/Brand:	Kodak Mx125/T200	Screens:	Lead	Maximum Recommended U/G:	0.02"
Film Class/Type:	1	Front:	0.010	Penetrameter (IQI hole type) Designation No:	
Film Density: Min: 2 Max: 4		Rear:	0.010	Source Isotope:	Iridium 192 (Gamma)
Number Film/Cassette:	1	Processing:	Manual/Mobile Darkroom	Effective Focal Spot Size:	0.118 Inches

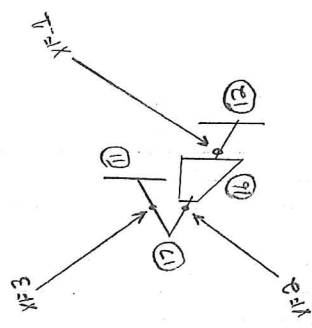
RT Technician:	Eric Mezel	CGSB Lvl:	2	Reg #	12893	SNT Level:	2	SNT No:	08105	Indicate TRAINEE in SNT No if Assistant is a Trainee
RT Assistant #1:	Musie Ergaw	CEDO:		Reg #		SNT Level:	2	SNT No:	08112	
RT Assistant #2:		CEDO:		Reg #		SNT Level:		SNT No:		

Eric Mezel (403)952-7177	<i>Eric Mezel</i>	11-Mar-2015
Technician Signature		Date
Client Representative Signature		Evaluation Date
Kerry		403-357-3818
Print Client Name		Telephone No.

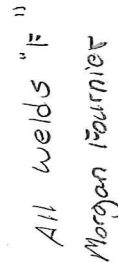
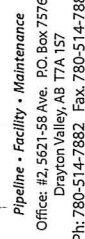
Penetrameter (IQI) Reference		Codes Reference	
1: ASTM A	1: ASME B31.3 N/S	2: ASME B31.3 S/C	3: CSA Z662 Clause 7.11
2: ASTM B	4: CSA Z662 Clause 16.6.9 (Sour)	5: ASME Sect VIII Div 1 UW51	6: ASME Sect VIII Div 1 UW52
3: ASTM C	7: ASME B31.1	8: API 620	9: API 650
4: ASTM D	10: Other Code:		
5: DIN Set/Size 1 (Wire range 1 - 7)			
6: DIN Set/Size 6 (Wire range 6 - 12)			
7: DIN Set/Size 10 (Wire range 10 - 16)			
8: DIN Set/Size 13 (Wire range 13 - 19)			
9: Hole Type: Indicate IQI Designation Number			
Severity Code Reference:			
1= Slight Indication 2= Medium Indication 3= Severe Indication			

IMPORTANT: See reverse side of this form for the Buffalo Inspection Services (2005) Inc. Limited Liability Policy. NOTE: SNT refers to the SNT-TC-1A Recommended Practice. Buffalo Inspection Services follows the SNT-TC-1A Recommended Practice that defines the criteria for this certification.

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HEAT NUMBER		PIPE				STUDS & W/				UNITS	
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
	1					29					
	2					30					
	3					31					
	4					32					
	5					33					
HEAT NUMBER		VALVES				NIPPLES & SWAGES					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
	6					34					
	7					35					
	8					36					
	9					37					
	10					38					
HEAT NUMBER		FLANGES				GASKETS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
134304	1	3"	900	80 RTJ W/ ANOS		39					
32939	1	4"	900	80 RTJ W/ ANOS		40					
						41					
						42					
						43					
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
5812	1	4x3	80	conc W/PB		44					
A448	1	3"	80	90° ELB W/PB		45					
						46					
						47					
						48					



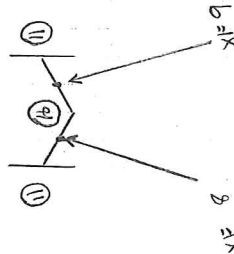
Ink Pot Ref# G4384

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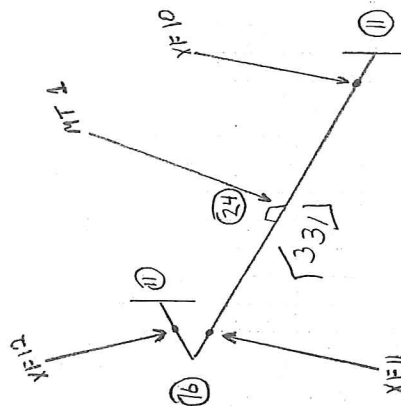
Ph: 780-514-7882 Fax: 780-514-7883



All welds 1/2"
Morgan

HEAT NUMBER	PIPE				STUL. 1/2 HEX NUTS	
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF
	1					29
	2					30
	3					31
	4					32
	5					33
HEAT NUMBER	VALVES				NIPPLES & SWAGES	
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF
	6					34
	7					35
	8					36
	9					37
	10					38
HEAT NUMBER	FLANGES				GASKETS	
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF
B43V4	11	2	3"	900 80	RTJWN ALB	39
	12					40
	13					41
	14					42
	15					43
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS	
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF
A448	16	1	3"	80	90° ELB WPT	44
	17					45
	18					46
	19					47
	20					48
	21					
	22					
	23					
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS	
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF
	24					
	25					
	26					
	27					
	28					
CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2 DES. PRESS: 2220 DES. TEMP: 225-330 OPER. PRESS: OPER. TEMP: HYDRO TEST PRESSURE: CA: 1.6 X-RAY: 100% STRESS REL: REF. PIP DWG: REF. MES DWG:						
DRAWN: Tim Schneider L.S.D.: 17-12-2-13-48-4 CHECKED: CLIENT: Arc Resources APPROVED: Kerry Cleaver W.P.# ☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL2 DATE: Feb 24 / 15 QC# 1454 SPEC: 0 SHEET No.: 3 REV:						

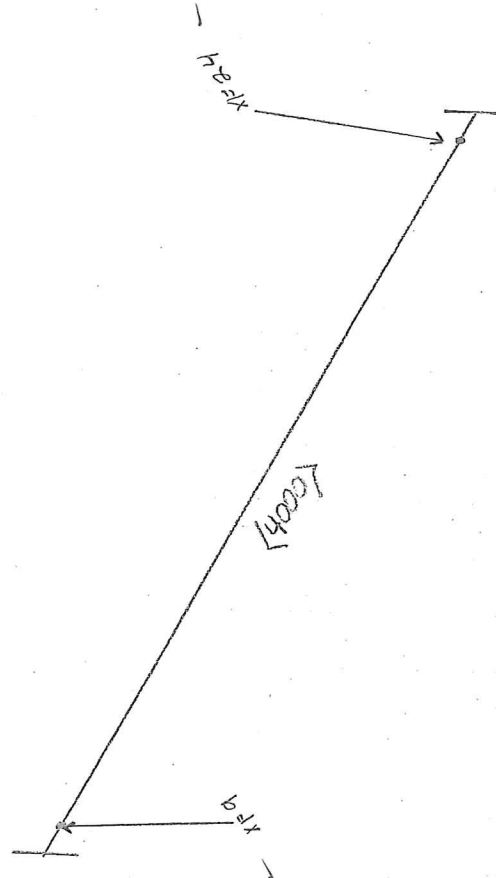
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All welds "F"
Morgan Paviour

HEAT NUMBER		PIPE			STUDS & NUTS		
No.	QTY.	SIZE	SCH	DESCRIPTION	S/F	No.	QTY. SIZE DESCRIPTION
14464S	1	3"	80	smis A106	S/F	29	
	2				S/F	30	
	3				S/F	31	
	4				S/F	32	
	5				S/F	33	
HEAT NUMBER		VALVES			NIPPLES & SWAGS		
No.	QTY.	SIZE	RATING	DESCRIPTION	S/F	No.	QTY. SIZE DESCRIPTION
	6				S/F	34	
	7				S/F	35	
	8				S/F	36	
	9				S/F	37	
	10				S/F	38	
HEAT NUMBER		FLANGES			GASKETS		
No.	QTY.	SIZE	RATING	SCH DESCRIPTION	S/F	No.	QTY. SIZE RME DESCRIPTION
1343V4	2	3"	900	80 RTT W N A105	S/F	39	
	12				S/F	40	
	13				S/F	41	
	14				S/F	42	
	15				S/F	43	
HEAT NUMBER		FITTINGS - BUTT WELD			MISCELLANEOUS		
No.	QTY.	SIZE	SCH	DESCRIPTION	S/F	No.	QTY. SIZE SCH DESCRIPTION
A448	1	3"	80	90° ELB W P B	S/F	44	
	17				S/F	45	
	18				S/F	46	
	19				S/F	47	
	20				S/F	48	
	21				S/F		
	22				S/F		
	23				S/F		
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD			DESIGN PARAMETERS		
No.	QTY.	SIZE	SCH	DESCRIPTION	S/F	DES. PRESS.	DES. TEMP.
4263	1	1"	3 M	TOL A106	S/F	DES. PRESS. 220	DES. TEMP. -25-35°C
	24				S/F	OPER. PRESS.	
	25				S/F	HYDRO TEST PRESSURE 330	
	26				S/F	CA: 1.6	
	27				S/F	X-RAY: 1 X D 10	STRESS REL:
	28				S/F	REF. PIP DWG:	
	29				S/F	REF. AWS D1WE	
DRAWN: Tim Schneider		L.S.D.: 17-12			2-13-48-8 WS		
CHECKED:		CLIENT: Arc Resources					
APPROVED: Kerry Cleaver		W.P.# [] NESL-1 (Rev.1) [] NESL-2 (Rev.1) [] NESL-PL-2					
DATE: Feb 24 /15		Q.C# 1454			SHEET No.: 4		

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All welds "F"
Morgan

HEAT NUMBER		PIPE				STUDS & NIPPLES				
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
144695	1	3"	80	SMS	APK	29				
	2					30				
	3					31				
	4					32				
	5					33				

HEAT NUMBER		VALVES				NIPPLES & SWAGES				
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
	6					34				
	7					35				
	8					36				
	9					37				
	10					38				

HEAT NUMBER		FLANGES				GASKETS					
No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
184314	11	2"	3#	80	FLANGE	APK	39				
	12						40				
	13						41				
	14						42				
	15						43				

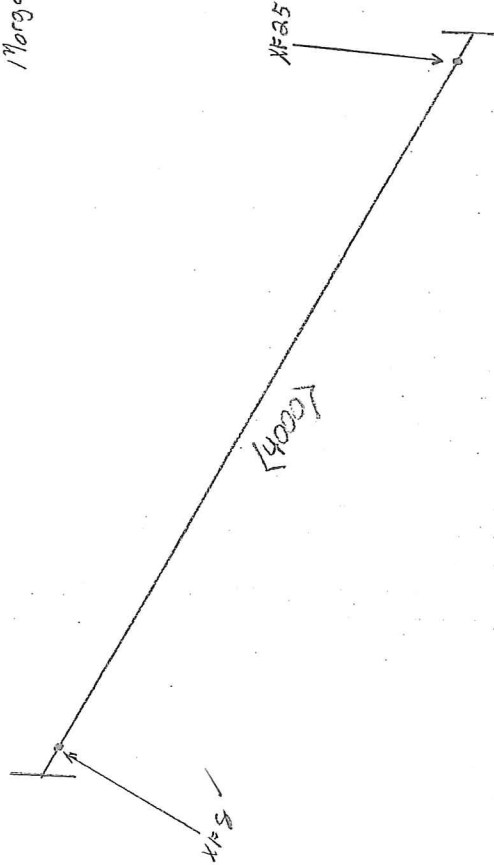
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS				
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
	16					44				
	17					45				
	18					46				
	19					47				
	20					48				

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
No.	QTY.	SIZE	RATING	DESCRIPTION	SF				
	21					CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2			
	22					DES. PRESS: 22.0			
	23					DES. TEMP: -29 - 33 °C			
	24					OPER. PRESS:			
	25					OPER. TEMP:			
	26					HYDRO TEST PRESSURE: 33.0			
	27					CL: 1.6			
	28					X-RAY: 100% STRESS REL.			
						FREE PIPE DWG:			
						FREE APP SWG:			

DRAWN: Tim Schneider	L.S.D.: 2-13-48-8 W5
CHECKED:	CLIENT: APC Resources
APPROVED: Kerry Cleaver	W.P.# ☒ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2
DATE: Mar 2/15	QC# 1454 SPEC: D SHEET No.: #3 REV:

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All welds "F"
Morgan



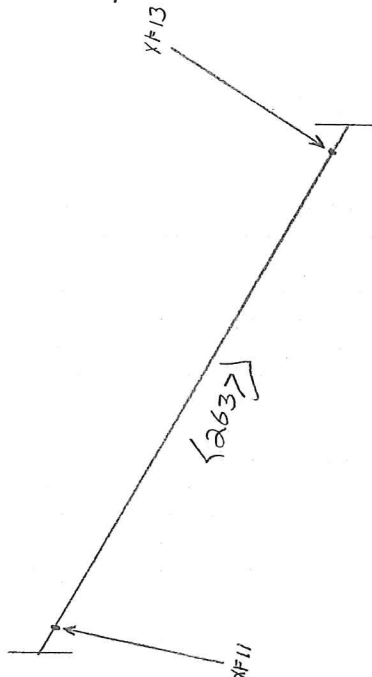
HEAT NUMBER		PIPE				STUDS & NUTS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
144695	1	3"	80	SO. S.W.S. A106		29					
	2					30					
	3					31					
	4					32					
	5					33					
HEAT NUMBER		VALVES				NIPPLES & SWAGES					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
	6					34					
	7					35					
	8					36					
	9					37					
	10					38					
HEAT NUMBER		FLANGES				GASKETS					
No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
13/34037	11	2"	3#	900	SO. RETURN A106		39				
	12						40				
	13						41				
	14						42				
	15						43				
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS					
No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF	
	16					44					
	17					45					
	18					46					
	19					47					
	20					48					
	21										
	22										
	23										
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS					
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE:	☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2 DES. PRESS: 222.0 DES. TEMP: -25 - 33C OPER. PRESS: OPER. TEMP: HYDRO TEST PRESSURE: 330 CS: 1.6mm X-RAY: 100% STRESS REL. REF. PIP. DWG. REWORKING:				
	24										
	25										
	26										
	27										
	28										
DRAWN: Tim Schneider		L.S.D.: 2-13-48-8 W5									
CHECKED:		CLIENT: Arc Resources									
APPROVED: Kerry Cleaver		W.P.# ☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2									
DATE: Mar 2/15		QC# 1454 SPEC: 0				SHEET No. 6 REV:					

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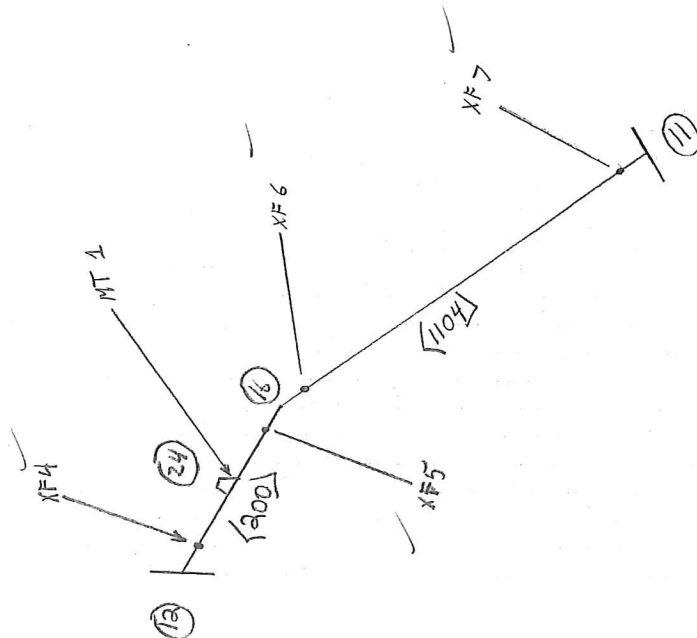
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Drayton Valley, AB T7A 1S7

Ph: 780-514-7882 Fax: 780-514-7883



All welds "F"
Margon Fornier

HEAT NUMBER	PIPE				STUDS & NUTS			
	No.	QTY.	SIZE	SCH.	No.	QTY.	SIZE	DESCRIPTION
144695	1	3	3"	80	SM13	1106		
	2							
	3							
	4							
	5							
HEAT NUMBER	VALVES				NIPPLES & SWAGES			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	6				34			
	7				35			
	8				36			
HEAT NUMBER	FLANGES				GASKETS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	11	2	3"	900	80	RTJWN	1105	
	12				40			
	13				41			
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS			
	No.	QTY.	SIZE	SCH.	No.	QTY.	SIZE	DESCRIPTION
	16				44			
	17				45			
	18				46			
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	24				47			
	25				48			
	26							
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	27				49			
	28							
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	29				50			
	30				51			
	31				52			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	32				53			
	33				54			
	34				55			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	35				56			
	36				57			
	37				58			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	38				59			
	39				60			
	40				61			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	41				62			
	42				63			
	43				64			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	44				65			
	45				66			
	46				67			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	47				68			
	48				69			
	49				70			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	50				71			
	51				72			
	52				73			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	53				74			
	54				75			
	55				76			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	56				77			
	57				78			
	58				79			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	59				80			
	60				81			
	61				82			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	62				83			
	63				84			
	64				85			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	65				86			
	66				87			
	67				88			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	68				89			
	69				90			
	70				91			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	71				92			
	72				93			
	73				94			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	74				95			
	75				96			
	76				97			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	77				98			
	78				99			
	79				100			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	80				101			
	81				102			
	82				103			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	83				104			
	84				105			
	85				106			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	86				107			
	87				108			
	88				109			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	89				110			
	90				111			
	91				112			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	92				113			
	93				114			
	94				115			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	95				116			
	96				117			
	97				118			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	98				119			
	99				120			
	100				121			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	101				122			
	102				123			
	103				124			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	104				125			
	105				126			
	106				127			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	107				128			
	108				129			
	109				130			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	110				131			
	111				132			
	112				133			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	113				134			
	114				135			
	115				136			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	116				137			
	117				138			
	118				139			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	119				140			
	120				141			
	121				142			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	122				143			
	123				144			
	124				145			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	125				146			
	126				147			
	127				148			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	128				149			
	129				150			
	130				151			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	131				152			
	132				153			
	133				154			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	134				155			
	135				156			
	136				157			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	137				158			
	138				159			
	139				160			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.	QTY.	SIZE	RATING	No.	QTY.	SIZE	DESCRIPTION
	140				161			
	141				162			
	142				163			
HEAT NUMBER	DESIGN PARAMETERS				DESIGN PARAMETERS			
	No.							



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HEAT NUMBER		PIPE					STUDS c/w 2 .NUTS			
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
A144645	1	3/4	80	SM13 A106			29			
	2						30			
	3						31			
	4						32			
	5						33			

HEAT NUMBER		VALVES					NIPPLES & SWAGES			
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
	6						34			
	7						35			
	8						36			
	9						37			
	10						38			

HEAT NUMBER		FLANGES					GASKETS				
No.	QTY.	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
669948	1	3"	1500	80	RFWN A105						
843V4	1	3"	900	80	RFWN A105						
	13										
	14										
	15										

HEAT NUMBER		FITTINGS - BUTT WELD					MISCELLANEOUS			
No.	QTY.	SIZE	SCH	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF
3422	1	3"	80	45° ELB			44			
	17						45			
	18						46			
	19						47			
	20						48			
	21									
	22									
	23									

HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD					DESIGN PARAMETERS			
No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE:	DES. PRESS:	DES. TEMP:	OPER. PRESS:	
4001	1	1"	3"	702 A105		KSMBE B31.1	2220	-25-33°C		
	24					KSMBE B31.3				
	25					CSA 246.2				
	26									
	27									
	28									

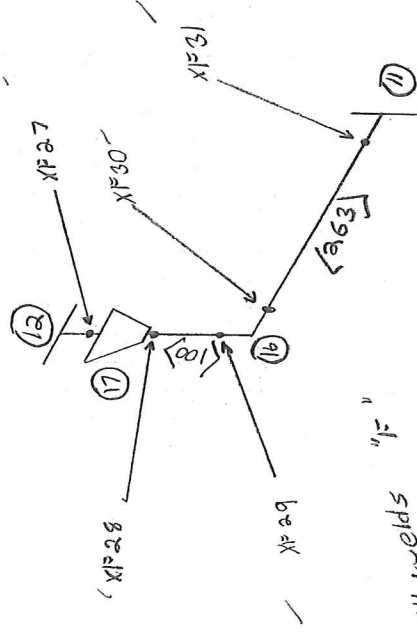
DRAWN:		L.S.D.:		CLIENT:	
Tim Schneider		2-13-48-8 W5		Art Resources	

APPROVED:		W.P.#		SPEC:		SHEET No.:		REV:	
Kerry Cleaver		W.P.#		1454		-48			

DATE:		QCF#		SPEC#		SHEET No.:		REV:	
Mar 2 15		1454		0		-48			



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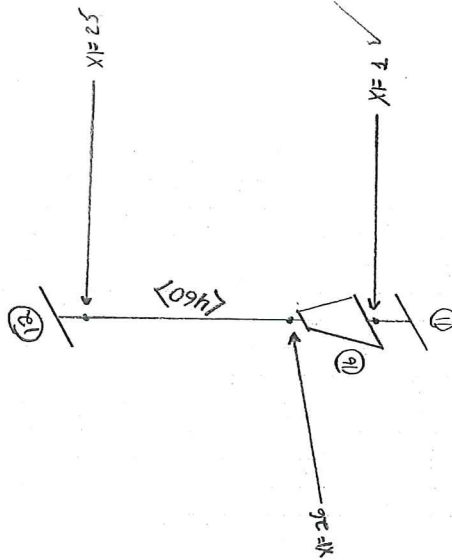


All welds
Morgan

HEAT NUMBER	PIPE				STUDS & NUTS			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
142-4371	1		2"	80	29			
	2			5mbs A106	30			
	3				31			
	4				32			
	5				33			
HEAT NUMBER	VALVES				NIPPLES & SWAGES			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
	6				34			
	7				35			
	8				36			
	9				37			
	10				38			
HEAT NUMBER	FLANGES				GASKETS			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
A3074	11	1	2"	1500 80 RTJ WIN A106	39			
	12	1	3"	900 80 RTJ WIN A106	40			
	13				41			
	14				42			
	15				43			
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS			
	No.	QTY.	SIZE	DESCRIPTION	No.	QTY.	SIZE	DESCRIPTION
B957	16	1	2"	80 90° ELB W.P.B	44			
	17	1	3x2	80 CONC W.P.B	45			
6889	18				46			
	19				47			
	20				48			
	21							
	22							
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS			
	No.	QTY.	SIZE	DESCRIPTION	CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA B66.2	DES. PRESS:	DES. TEMP:	OPER. PRESS:
	23					2220	-25, 53°C	
	24							
	25							
	26							
	27							
HEAT NUMBER	28							
	29							
	30							
	31							
	32							
DRAWN:	Tina Schneider				L.S.D.:			
	2-13-48-8 W5							
CHECKED:	CLIENT:				CLIENT:			
	APPROVED:				APPROVED:			
DATE:	Q/C#				SHEET No.: # //			
	REV:				REV:			

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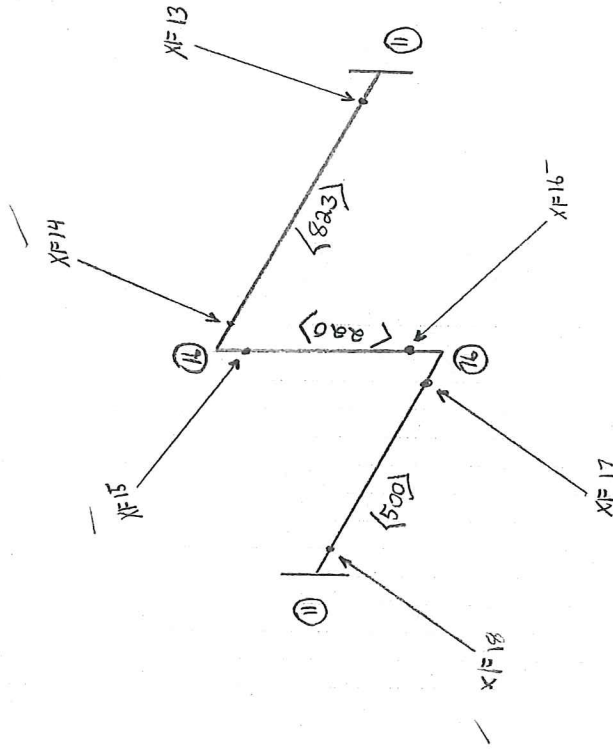


All welds "1" Morgan

HEAT NUMBER	PIPE				STUDS CWL				AUTS				
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.		SIZE	DESCRIPTION	SF	
14493	1		3"	80	SMs A106		29						
	2						30						
	3						31						
	4						32						
	5						33						
HEAT NUMBER	VALVES				NIPPLES & SWAGES								
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	
	6						34						
	7						35						
	8						36						
	9						37						
	10						38						
HEAT NUMBER	FLANGES				GASKETS								
	No.	QTY.	SIZE	RATING	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	BWG	DESCRIPTION	SF
766 V2	11	1	4"	900	80	REFURN A105	39						
B43 V4	12	1	3"	900	80	RTJWAL A105	40						
	13						41						
	14						42						
	15						43						
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS								
	No.	QTY.	SIZE	SCH.	DESCRIPTION	SF	No.	QTY.	SIZE	DESCRIPTION	SF		
5812	16	1	4x3	80	CONC WIPB	44							
	17					45							
	18					46							
	19					47							
	20					48							
	21												
	22												
	23												
HEAT NUMBER	FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS								
	No.	QTY.	SIZE	RATING	DESCRIPTION	SF	CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2						
	24						DES. PRESS: 2220						
	25						DES. TEMP: -29-38°C						
	26						OPER. PRESS:						
	27						HYDRO TEST PRESSURE: 3330						
	28						CR: 1.6						
							X-RAY: 100% STRESS REL:						
							REF. PPDWG:						
							REF. MFS DWG:						
DRAWN: Tim Schneider						L.S.D.: 2-13-48-8 W5							
CHECKED:						CLIENT: Arc Resources							
APPROVED: Kerry Cleaver						W.P.# ☐ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2							
DATE: Mar 2 /15						QC# 1454 SPEC: D SHEET No. 12 REV:							

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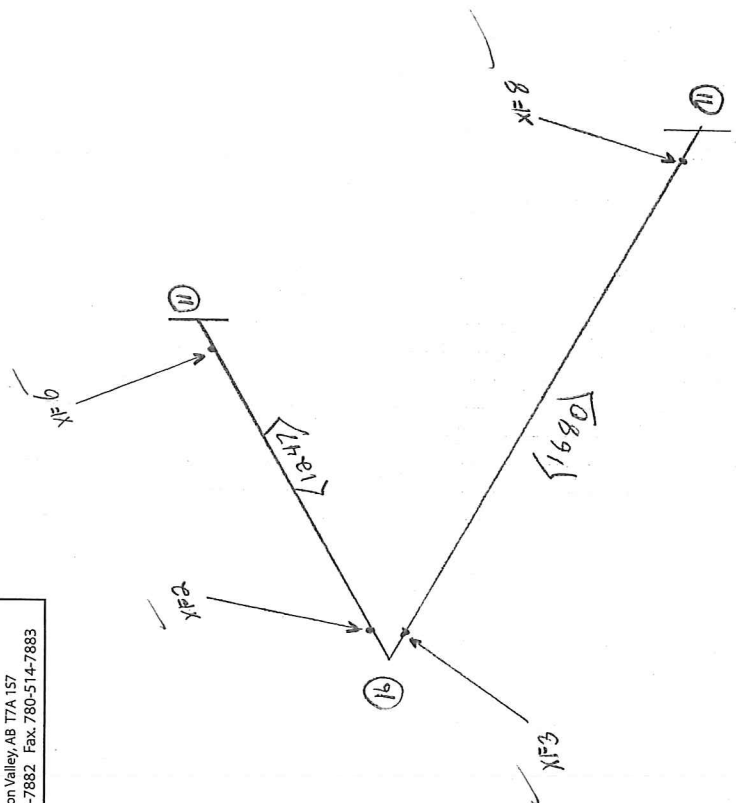
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All welds
Clint Lepage "A"

HEAT NUMBER	PIPE			STUDS C/W 2			JUTS
	No.	QTY.	DESCRIPTION	No.	QTY.	DESCRIPTION	
144695	1	3" 80	SMK A102	29			
	2			30			
	3			31			
	4			32			
	5			33			
HEAT NUMBER	VALVES			NIPPLES & SWAGES			S/F
	No.	QTY.	DESCRIPTION	No.	QTY.	DESCRIPTION	
	6			34			
	7			35			
	8			36			
	9			37			
	10			38			
HEAT NUMBER	FLANGES			GASKETS			S/F
	No.	QTY.	DESCRIPTION	No.	QTY.	DESCRIPTION	
12/34037	11	2	3" 900 80 RTJW A105	39			
	12			40			
	13			41			
	14			42			
	15			43			
HEAT NUMBER	FITTINGS - BUTT WELD			MISCELLANEOUS			S/F
	No.	QTY.	DESCRIPTION	No.	QTY.	DESCRIPTION	
A448	16	2	3" 80 90° 136 WPB	44			
	17			45			
	18			46			
	19			47			
	20			48			
HEAT NUMBER	FITTINGS - SCR'D & SOCKET WELD			DESIGN PARAMETERS			S/F
	No.	QTY.	DESCRIPTION	CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2	DES. PRESS: 2220	DES. TEMP: -25 - 33	
	21			DES. PRESS: 2220 <td></td> <td></td> <td></td>			
	22			DES. TEMP: -25 - 33 <td></td> <td></td> <td></td>			
	23			DES. TEMP: -25 - 33 <td></td> <td></td> <td></td>			
HEAT NUMBER	FITTINGS - SCR'D & SOCKET WELD			DESIGN PARAMETERS			S/F
	No.	QTY.	DESCRIPTION	CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA Z66.2	DES. PRESS: 2220	DES. TEMP: -25 - 33	
	24			DES. PRESS: 2220 <td></td> <td></td> <td></td>			
	25			DES. TEMP: -25 - 33 <td></td> <td></td> <td></td>			
	26			DES. TEMP: -25 - 33 <td></td> <td></td> <td></td>			
	27			DES. TEMP: -25 - 33 <td></td> <td></td> <td></td>			
	28			DES. TEMP: -25 - 33 <td></td> <td></td> <td></td>			
DRAWN: Tim Schneider				L.S.D.: 2-13-48-8			
CHECKED:				CLIENT: Arc Resources			
APPROVED: Kerry Cleaver				W.P.# ☐ NESI-1 (Rev.1) ☐ NESI-2 (Rev.1) ☐ NESI-PL-2			
DATE: Mar 10 /15				QC# 1454 SPEC: D SHEET No.: #13 REV:			

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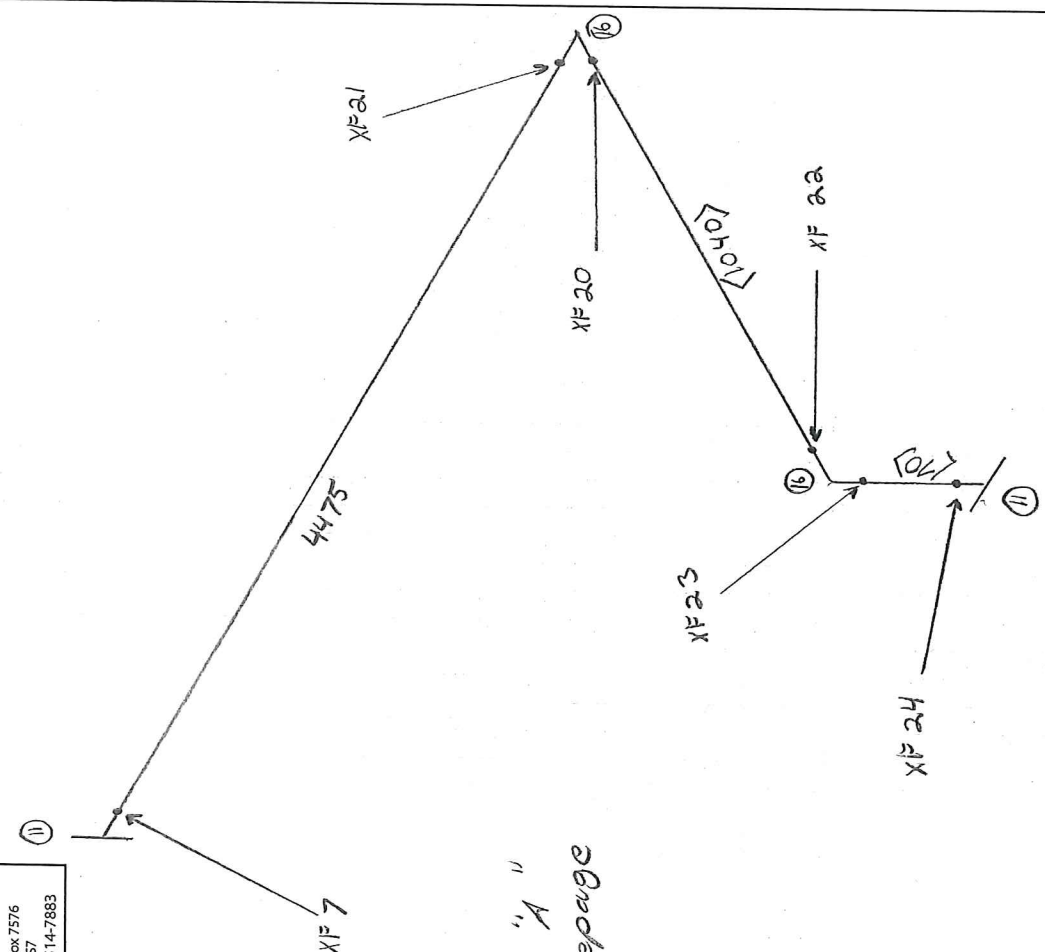


HEAT NUMBER	PIPE			STUDS & NUTS		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION
14469 S	1	2	3"	80 SMLS A106	29	
	2				30	
	3				31	
	4				32	
	5				33	
HEAT NUMBER	VALVES			NIPPLES & SWAGES		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION
	6				34	
	7				35	
	8				36	
	9				37	
	10				38	
HEAT NUMBER	FLANGES			GASKETS		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION
12/34037	11	2	3"	900 80 RTJWN A105	39	
	12				40	
	13				41	
	14				42	
	15				43	
HEAT NUMBER	FITTINGS - BUTT WELD			MISCELLANEOUS		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION
4448	16	1	3"	90 90° 1516 WPB	44	
	17				45	
	18				46	
	19				47	
	20				48	
	21					
	22					
	23					
HEAT NUMBER	FITTINGS - SCRP'D & SOCKET WELD			DESIGN PARAMETERS		
	No.	QTY.	SIZE	DESCRIPTION	SF	DESCRIPTION
	24					
	25					
	26					
	27					
	28					
				CODE: ☐ ASME B31.1 ☐ ASME B31.3 ☐ CSA Z66.2		
				DES. PRESS: 22.0		
				DES. TEMP: -28.33C		
				OPER. PRESS:		
				OPER. TEMP:		
				HYDROTEST PRESSURE: 33.50		
				CA: 16		
				X-RAY: 1 C090 STRESS REL:		
				REF. PIP DWG:		
				REF. AWS DWG:		
DRAWN: Tim Schneider				L.S.D.: 2-13-48-8 W5		
CHECKED:				CLIENT: Arc Resources		
APPROVED: Kerry Cleaver				W.P.# ☐ MESL-1 (Rev.1) ☐ MESL-2 (Rev.1) ☐ MESL-PL-2		
DATE: Mar 10/15				QC# 1454 SPEC: D		
				SHEET No. 14		
				REV:		

Hand-drawn schematic diagram of a pipeline system. The diagram shows a main horizontal line with a vertical branch. A long diagonal line extends from the main line to a point labeled "11". Various weld points are labeled: "XF10" at the top left, "XF11" at the top right, "XF12" at the bottom left, and "XF19" at the bottom right. A bracket labeled "3619" spans the diagonal line. A note on the right side reads "All welds 'A' Clint Lepage".

HEAT NUMBER		PIPE				STUDS C/W				ANUTS			
No.	QTY	SIZE	SCH	DESCRIPTION	SF	No.	QTY	SIZE	DESCRIPTION	No.	QTY	SIZE	DESCRIPTION
144695	1	3"	80	smis	A106		29						
	2						30						
	3						31						
	4						32						
	5						33						
HEAT NUMBER		VALVES				NIPPLES & SWAGES							
No.	QTY	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY	SIZE	SCH	DESCRIPTION		
	6						34						
	7						35						
	8						36						
	9						37						
	10						38						
HEAT NUMBER		FLANGES				GASKETS							
No.	QTY	SIZE	RATING	SCH	DESCRIPTION	SF	No.	QTY	SIZE	RAGE	DESCRIPTION	SF	
1213403	2	3"	4	80	HTJWN A105		39						
	12						40						
	13						41						
	14						42						
	15						43						
HEAT NUMBER		FITTINGS - BUTT WELD				MISCELLANEOUS							
No.	QTY	SIZE	SCH	DESCRIPTION	SF	No.	QTY	SIZE	SO	DESCRIPTION	SF		
4448	2	3"	80	90° 9/16 WPS			44						
	17						45						
	18						46						
	19						47						
	20						48						
	21												
	22												
	23												
HEAT NUMBER		FITTINGS - SCRD & SOCKET WELD				DESIGN PARAMETERS							
No.	QTY	SIZE	RATING	DESCRIPTION	SF	DES. PRESS:	DES. TEMP:	DES. TEMP:	DES. TEMP:				
	24					CODE: ☐ ASME B31.1 ☒ ASME B31.3 ☐ CSA 766.2	2220	-25	-33°C				
	25					OPER. PRESS:	OPER. TEMP:	OPER. TEMP:	OPER. TEMP:				
	26					HYDRO TEST PRESSURE:	3330						
	27					CA:	1-6						
	28					X-RAY:	1 0096	STRESS-REL:					
						REF. PIP DWG:							
						REF. LEE DWG:							
DRAWN: Tim Schneider		L.S.D.: 2-13-48-8 w5											
CHECKED:		CLIENT: Arc Resources											
APPROVED: Kerry Cleaver		W.P.# ☒ NESL-1 (Rev.1) ☐ NESL-2 (Rev.1) ☐ NESL-PL-2											
DATE: Mar 10 / 15		Q.C# 1454				SPEC: 0							
		SHEET No.: 4/15				REV:							

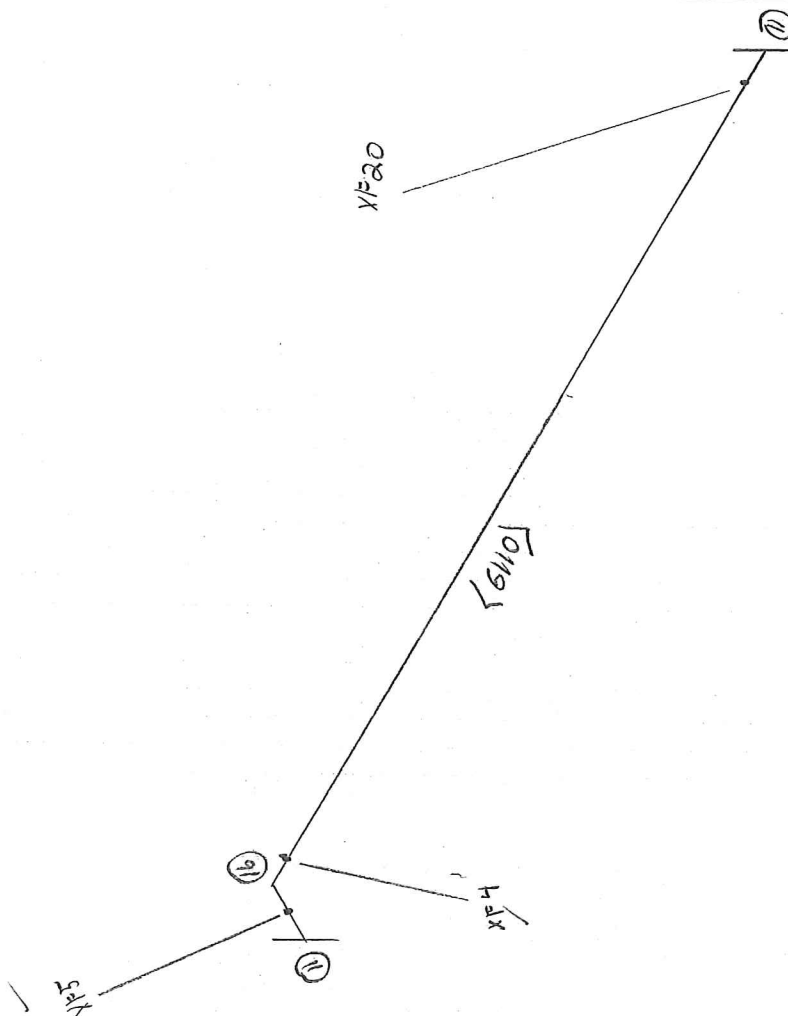
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All welds "A"
Cint Lepage

HEAT NUMBER	PIPE				STUDS & NUTS			
	No.	QTY.	SIZE	DESCRIPTION	SF	No.	QTY.	DESCRIPTION
144695	1		3" 80	SMs A106		29		
	2					30		
	3					31		
	4					32		
	5					33		
HEAT NUMBER	VALVES				NIPPLES & SWAGES			
	No.	QTY.	SIZE	DESCRIPTION	SF	No.	QTY.	DESCRIPTION
	6					34		
	7					35		
	8					36		
	9					37		
	10					38		
HEAT NUMBER	FLANGES				GASKETS			
	No.	QTY.	SIZE	DESCRIPTION	SF	No.	QTY.	DESCRIPTION
12/34037	11	2	3" 900 80	RTJ W/IN A105		39		
	12					40		
	13					41		
	14					42		
	15					43		
HEAT NUMBER	FITTINGS - BUTT WELD				MISCELLANEOUS			
	No.	QTY.	SIZE	DESCRIPTION	SF	No.	QTY.	DESCRIPTION
A 448	16	2	3" 80	90° 9516 WPB		44		
	17					45		
	18					46		
	19					47		
	20					48		
	21							
	22							
	23							
HEAT NUMBER	FITTINGS - SCR'D & SOCKET WELD				DESIGN PARAMETERS			
	No.	QTY.	SIZE	DESCRIPTION	SF	DES. PRESS.	DES. TEMP.	DES. PRESS.
	24					224.0	-25.33°C	
	25							
	26							
	27							
	28							
DRAWN: Tim Schneider					LSD: 2-13-48-8 w8			
CHECKED:					CLIENT: Arc Resources			
APPROVED: Kerry Cleaver					W.P.# [] NESL-1 (Rev.1) [] NESL-2 (Rev.1) [] NESL-PL-2			
DATE: Mar 10 / 15					QC# 1454 SPEC: D SHEET No. 1/6 REV:			

All welds "A"
clint lepage

Link Pot Ref# G4384



PRESSURE TEST

QC # : NESL-DV1454

Test #

	Q.C. INSP. ☒
EXAMINATION PRIOR TO PRESSURE TEST (PUNCHING)	
1. Pipe Materials; schedule and specification correct.	✓
2. Flange; ratings, schedule and material specification correct.	✓
3. Fittings; tees, return bends, reducers, couplings, weld-o-lets, etc. Correct schedule and materials specification.	✓
4. Valves; identification - Manufacture's name tag, etc., correct.	
5. Valves; installed correctly, flow direction, accesses, rising stems free from obstructions, clearance from removal adequate.	
6. Lubrication fittings, drains, etc., installed as required.	
7. Bolts, Studs, Nuts; length and material correct. Studs at least flush with heads (max. thread exposure beyond nut should be about 2 threads.)	✓
8. Gaskets are correct type, material, size, etc.	✓
9. All welding satisfactory and traceable to welders symbol.	✓
10. Seal welding complete - threads covered.	
11. All attachment weld satisfactory.	✓
12. All NDE, heat treatment complete, records filled.	✓
13. Guide anchors and shoes required installed correctly. (high temp. lines)	
14. Line supports adequate - supports to be checked against drawings.	✓
15. Spring hangers - correct type, correct installation.	
16. Lines have adequate allowance for expansion.	
17. Bellows type expansion joints - correct type. Pressure rating and correct installation.	
18. Required cold spring applied.	
19. Orifice runs have specified straight length of pipe - located correctly, etc.	
20. All deficiencies recorded on Punch List.	✓

Supervisor: TIM Schweiden

Date:

JB 22/15
Mm 4/15
Mm 07/15



NESL Quality Control # 1454

Client: Arc Resources

Location: 02-13-048-08 WSM

Description of Tested Product: Polymer Injection Pump

Pipeline License # _____ Test Point Elevation _____

Pipe Size: 2+3" OD x Sch 80 WT
Outer Diameter Wall Thickness

Pipe MOP: 2220 Psi/Kpa
Max Operating Pressure

Test Pressure: 3330 Psi/Kpa

Date: MARCH 04/15

Time On: 11:15 Time Off: 11:30

Temp Ambient/Medium/Pipe: Start _____ End _____

Hold Time of Test: 15 min

Test Medium: FRESH WATER
(Water / Air / Meth mix etc)

Recorder/Gauge _____ Deadweight Serial Number 33350 Recorder Range _____ (psi)
(Hand in Calibration Sheet)

Test Conducted by: TIM SCHWEIDER

Test Witnessed by: KERRY CLARKE

Results: _____

Owner's Rep. Witnessing Test: KERRY CLARKE

NESL Rep.: TIM S



NESL Quality Control # 1454

Client: ARC Resources

Location: 02-13-048-08-WSM

Description of Tested Product: Duffin Injection Pipeline

Pipeline License # _____ Test Point Elevation _____

Pipe Size: 3" OD x Sch 80 WT
Outer Diameter Wall Thickness

Pipe MOP: 2220 Psi/Kpa
Max Operating Pressure

Test Pressure: 3330 Psi/Kpa

Date: MARCH 07/15

Time On: 14:12 Time Off: 14:30

Temp Ambient/Medium/Pipe: Start _____ End _____

Hold Time of Test: 15 min

Test Medium: FRESH WATER
(Water / Air / Meth mix etc)

Recorder/Gauge _____ Deadweight Serial Number 31579 Recorder Range _____ (psi)
(Hand in Calibration Sheet)

Test Conducted by: Tim Schveden

Test Witnessed by: Kerry Cleave

Results: ✓

Owner's Rep. Witnessing Test: Robert Cleaver

NESL Rep.: Tim S.



NESL Quality Control # 1454

Client: AEE

Location: 2-13 048-08-WSM

Description of Tested Product: Aluminum INJECTION SKID P.D.N.G.

Pipeline License # _____ Test Point Elevation _____

Pipe Size: 3 OD x Sch 80 WT
Outer Diameter Wall Thickness

Pipe MOP: 2220 Psi/Kpa
Max Operating Pressure

Test Pressure: 3330 Psi/Kpa

Date: Feb 27 115

Time On: 10:00 Time Off: 10:15 am

Temp Ambient/Medium/Pipe: Start _____ End _____

Hold Time of Test: 15 min

Test Medium: FRESH WATER.
(Water / Air / Meth mix etc)

Recorder/Gauge _____ Deadweight Serial Number 37737 Recorder Range _____ (psi)
(Hand in Calibration Sheet)

Test Conducted by: Tim Schweika

Test Witnessed by: Kerry Cleaver

Results: ✓

Owner's Rep. Witnessing Test: Kerry Cleaver

NESL Rep.: Tim S

D.V.Meter

Division of Pyramid corporation

P.O.Box 7498, T7A 1S6

Drayton valley, AB

Tel. 780-542-2713

Fax 780-542-4343

Manufacturer	Falcon
Meter Type	Dead Weight
Serial Number	33737

Record Number	24277
Date	2/23/2015
Mechanic	JH
Signature	<i>J. Henry</i>

Static Test	Tested with
☒ DW	☐ Gauge
☐ kPa	☒ PSI
Test	Recorder
0	0
5000	5000
2500	2500
1000	1000
2000	2000
3000	3000
4000	4000

Temperature Test	Tested with
☐ Thermometer	☐ Recorder
☐ Centigrade	☐ Fahrenheit
Test	Recorder
N/A	N/A
N/A	N/A
N/A	N/A

CERTIFIED DEAD WEIGHT

MENSOR CPU5000

SERIAL # 50839

Traceable to the
National Standards and Technology (NIST)

D.V.Meter

Division of Pyramid corporation

P.O.Box 7498, T7A 1S6

Drayton valley, AB

Tel. 780-542-2713

Fax 780-542-4343

Manufacturer	Falcon
Meter Type	Dead Weight
Serial Number	33350

Record Number	24431
Date	3/5/2015
Mechanic	L.HEGEDUS
Signature	<i>Leon Hale</i>

Static Test	Tested with
☒ DW	☐ Gauge
☐ kPa	☒ PSI
Test	Recorder
0	0
10000	10000
5000	5000
2000	2000
4000	4000
6000	6000
8000	8000

Temperature Test	Tested with
☐ Thermometer	☐ Recorder
☐ Centigrade	☐ Fahrenheit
Test	Recorder
N/A	N/A
N/A	N/A
N/A	N/A

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MENSOR CPU5000

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P.O.Box 7498, T7A 1S6

Drayton valley, AB

Tel. 780-542-2713

Fax 780-542-4343

Manufacturer	Falcon
Meter Type	Dead Weight
Serial Number	31579

Record Number	24487
Date	3/11/2015
Mechanic	L.HEGEDUS
Signature	

Static Test	Tested with
☒ DW	☐ Gauge
☐ kPa	☒ PSI
Test	Recorder
0	0
5000	5000
2500	2500
1000	1000
2000	2000
3000	3000
4000	4000

Temperature Test	Tested with
☐ Thermometer	☐ Recorder
☐ Centigrade	☐ Fahrenheit
Test	Recorder
N/A	N/A
N/A	N/A
N/A	N/A

CERTIFIED DEAD WEIGHT

MENSOR CPU5000

SERIAL # 50839

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