

KNOCK_OUT INSPECTION REPORT**Inspection Report**

Notification Number 6080898 ✓
Notification Desc FLARE KNOCK OUT DRUM
Tasklist Operation (5Y Inspection Interval) 5Y Code Inspection Flare KO Closed Sys

Work Order
Maintenance Plan

6084328 ✓
QPKO0267

[Print](#)[Back](#)[Cancel](#)**Equipment Static Data**

Equipment Number 66126579 Equipment Description FLARE KNOCK OUT DRUM
Class KNOCK_OUT Tag Number
Serial Number 07-2933-0001 Year Built 2007
Manufacturer PYRAMID CORPORATION
Location FH-FW-013-00006 Location Description ANSELL PLANT #2 07-27-051-19W5
Provincial Number 0563306 PM Activity Code
Status Codes NOPR ORAS Equipment Status In Service - Fully Utilized

CRN Number U1205.21 Code Stamp Fluid Description
Fluid Service SWEET Internal Coating Exists Length 23.25 FOOT
MDMT - Min. Design Metal Temp -48 DEGF Shell MAWP 50 PSI Stress Relief
Vessel Diameter 78.0 " Volume X-Ray

PRD Static Data

Equip ID	Location	Size		Set Pressure	Capacity	Manufacturer	Serial Number	Model Number	Next Service Date
		Inlet	Outlet						

Process Data

Product Description Fluid Service ☒ Sweet ☐ Sour PPM
Operating Pressure KPA Operating Temperature °C

Pressure Test

Test Completed ☐ Yes ☒ No Test Acceptable ☐ Yes ☐ No Test Report #

PSV Data

Tag/Serial No.	Location	Size		Set Pressure	Capacity	Model / Type	Service Date
		Inlet	Outlet				

Inspection History

Inspected By MARCHAK, BOB Inspection Date 2008.05.14

Inspection Summary

An external inspection was carried out to verify the integrity of the flare knock out drum.
No concerns were noted and the knock out drum is considered acceptable for continued service.

Recommendations

None.

Repairs Completed**Equipment Status**

Integrity Status ☒ Suitable for Continued Service ☐ Immediate Repairs Required ☐ Replace
☐ Future Repairs Required
Inventory Status ☒ In Service - Fully Utilized ☐ Idle ☐ Surplus ☐ Scrap

QA Activities

☒ Leave As-Is ☐ Weld Overlayed ☐ Part / Component Replaced
☐ Equipment Replaced ☐ Grind Dressed ☐ Patch Installed
☐ MAWP Derated ☐ Coating - Cleaned & Patched ☐ Coating - Removed & Replaced
☐ Defect Removed & Rewelded ☐ Part Cleaned ☐ Lapped & Dressed
☐ Epoxy Patched

Noncompliances or Inspection Deficiencies Issued**External Visual Inspection**

The nameplate is attached and legible with the A# stamped on it.
The vessel is insulated and the cladding is in as new condition.
The piping, bolting and external attachments are all in good condition with no concerns noted.

The vessel is is open to the flare stack and subsequently does not have a PSV.

The vessel appears to be secure and level. The anchor bolts are tight and the saddles securely bolted to the skid, which is welded to the pilings. The ground wire is securely attached.
The overall condition of this vessel is good.

External NDE Examination

Internal Visual Inspection

Internal NDE Examination

Data Integrity

The following changes are required in SEIM:

RT1 ✓

Number of Manways: 1 - 24" ✓

Volume: 713 cu.ft. ✓

Orientation: Horizontal ✓

Inspection Interval

The inspection interval is to be set at 5 years.

Damages

Inspector Certification

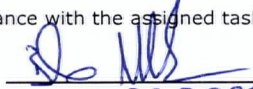
I, the undersigned certify that the above equipment has been inspected in accordance with the assigned task list and that statements within this report are correct and represent inspection findings.

Inspector Name MARCHAK, BOB

Inspector Signature

Inspection Company HUSKY ENERGY

Date


01-29-2009

Lead Inspector's Acceptance & Schedule Confirmation

Lead Inspector Bob Marchak Signature

Date 01-29-2009

Vessel Inspection Interval 5

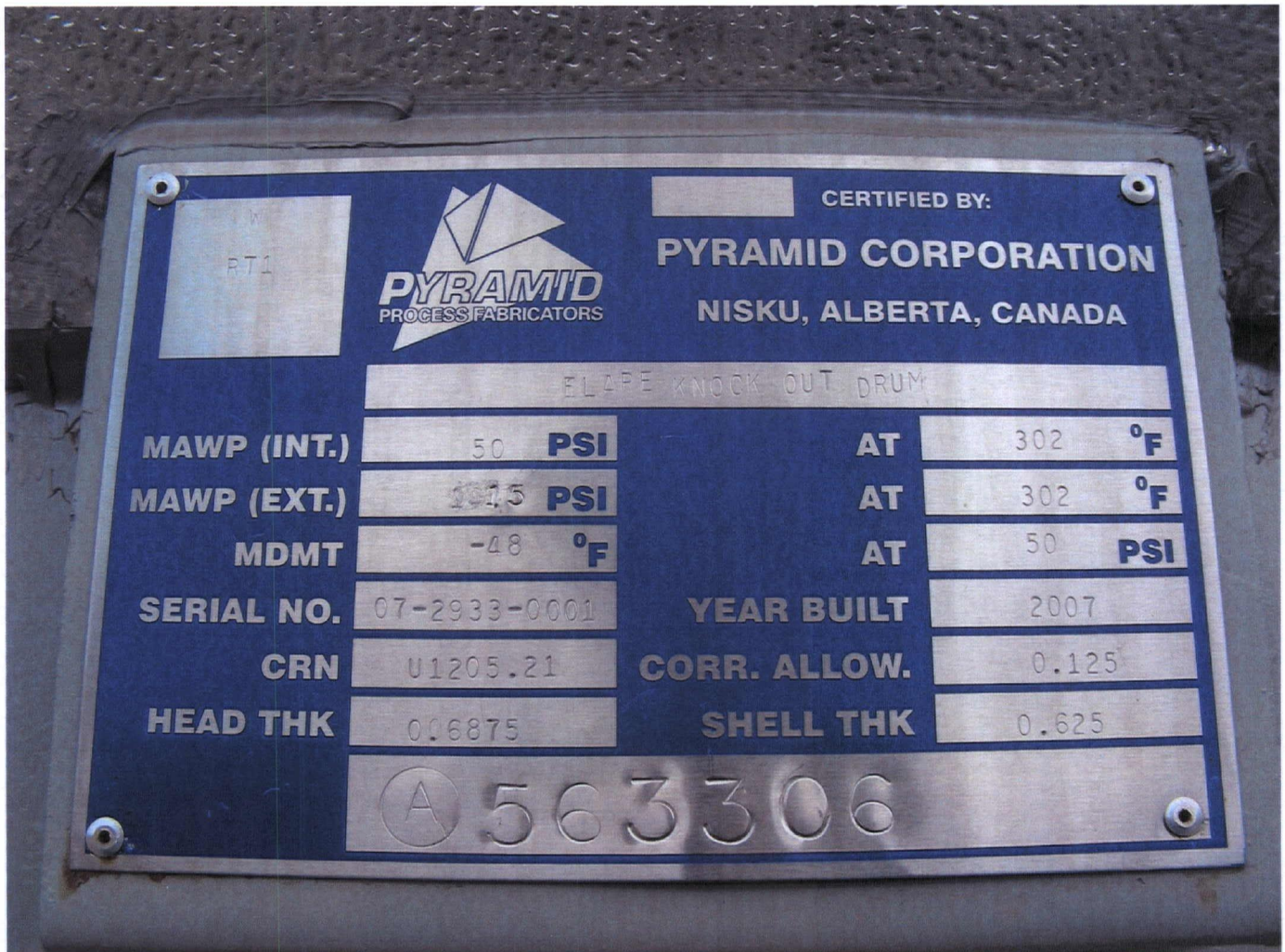
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PSV Inspection Interval _____

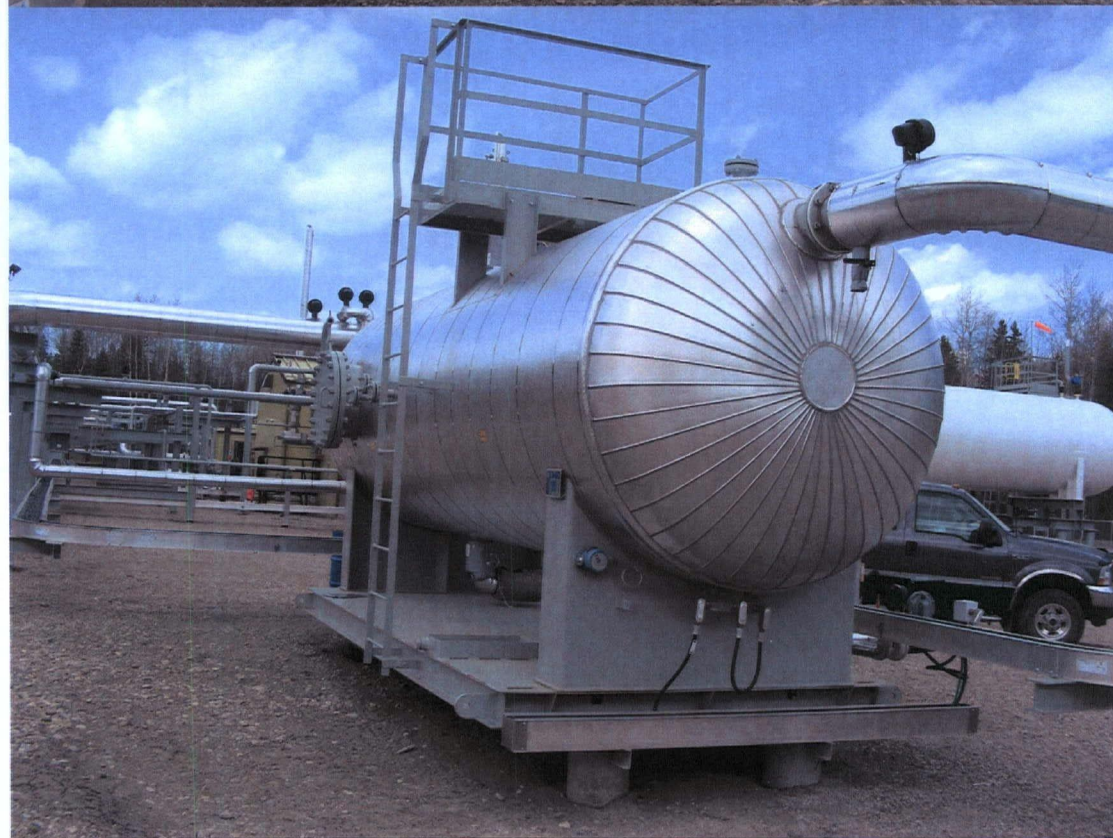
☐ Leave as-is / Change to: _____

Top

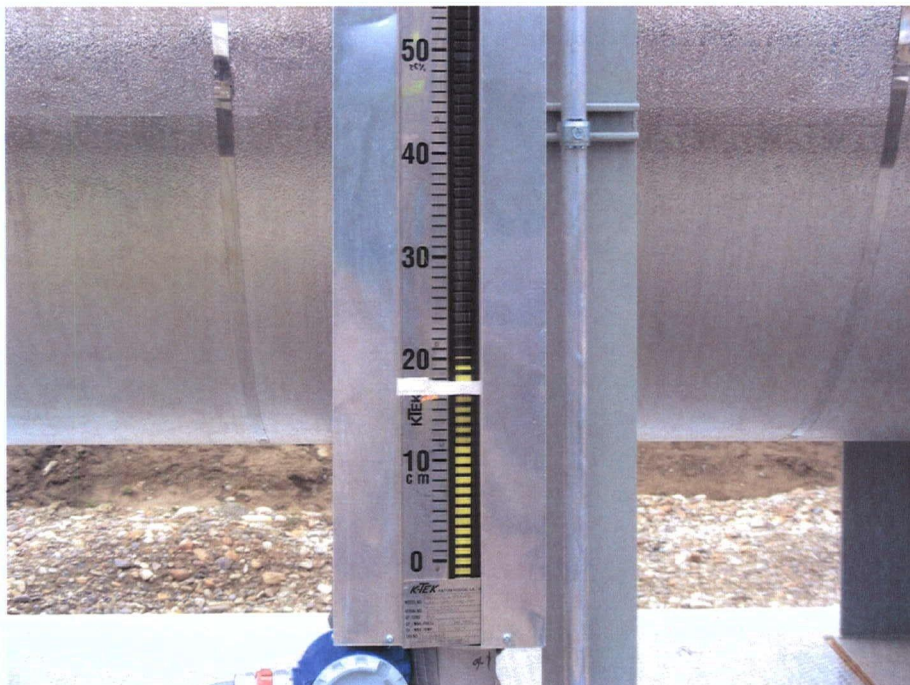
Flare KO Drum Photos, A563306



Flare KO Drum Photos, A563306



Flare KO Drum Photos, A563306



Tube Section/ Faisceau tubulaire

(A) 563 306

AB-25 (Side 2)

Tube sheet/ Plaque tubulaire	Material/ Matériau	Diameter/ Diamètre	Nominal Thickness Épaisseur nominale	Corr. Allow. Surépais. corrosion	Attachment Mode d'attachement
Tube material/ Matériau des tubes	Diameter/ Diamètre	Nominal Thickness (gauge) Épaisseur nominale (calibre)	Number/ Nbre	Type (Straight or U) Type (Droit ou U)	Heating Surface Surface de chauffe

Jacket/ Chemise

Type of jacket/ Genre de chemise	Jacket closure Fermeture de chemise	Proof Test Pression d'épreuve	Heating Surface Surface de chauffe	Sketch/ Schéma
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Safety Valve Outlets/ Soupapes de sûreté

Number/ Nombre	Dimension	Location/ Endroit
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Nozzles and Openings/ Tubulures et ouvertures

Purpose/ But	Number Nombre	Dimension	Type	Material Matériau	Nominal Thickness Épaisseur nominale	Reinforcement material Matériau de renfort	How attached Genre d'attaches	Location/ Endroit
See Attached AB-25A								

A: 563 306

Supports/ Supports

Skirt/ Jupe Yes/ Oui No/ Non ☐ ☐	Lugs/ Oeilles No./ Nbre	Legs/ Pieds No./ Nbre	Other/ Autres (Description) Saddles	Attached/ Attaches (Where and How/ Méthode et endroit) Shell By Welding
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Remarks/ Observations (Cubical capacity/ Volume)

Vessel Fabricated to Dwg # D-07-2933-0001-001 Rev.4
Vessel Volume = 713 cu. ft (20.19 cu. m)
Vessel Impact Test Exempt per UCS-66 Curve 'D', UCS-66(g) and UCS-66 Note (e)
Production Impact Tests per UG-84(i)

Certificate of Compliance/ Certificat de conformité

We certify that the statements made in this data report are correct and that the said vessel has been constructed in accordance with the Provincial Registered design below and the requirements of standard CSA B51.

Nous certifions que les données de la déclaration de conformité sont correctes et que l'appareil a été construit en accord avec l'enregistrement provincial ci-dessous et les exigences de la norme ACNOR B51.

Provincial Registered Design
Enregistrement provincial U1205.21

Manufacturer
Constructeur Pyramid Corporation

Signature [Signature] Date June 7/07

Certificate of Compliance - Field Work/ Certificat de conformité - Installation au chantier

We certify that the field installation of all parts of the vessel conforms with the requirements of Provincial Regulations.

Nous certifions que l'installation au chantier de toutes les composantes de l'appareil est conforme aux règlements provinciaux.

Installer's Name
Nom de l'installateur _____

Signature _____

Date _____

Certificate of Shop Inspection/ Certificat d'inspection en usine

I, the undersigned, a duly authorized Boiler and Pressure Vessel Inspector
Je, soussigné, inspecteur autorisé de chaudières et appareil sous pression
employed by
employé par ABSA

of/ de Alberta

have inspected the above vessel and state that to the best of my knowledge and belief, the manufacturer has constructed the vessel in accordance with the Provincial registration CRN U1205.21 and the requirements of standard CSA B51.

ai inspecté l'appareil précité et autant que je sache, crois que le constructeur a construit l'appareil en accord avec l'enregistrement provincial NEC _____ et les exigences de la norme ACNOR B51.

Inspector's Name
Nom de l'inspecteur Brian Gray AB#256A

Signature [Signature] Date June 7/07

Certificate of Field Inspection/ Certificat d'inspection - Installation au chantier

I, the undersigned, a duly authorized Boiler and Pressure Vessel Inspector
Je, soussigné, inspecteur autorisé de chaudières et appareil sous pression
employed by _____

have inspected the items not covered by the Shop Inspection Certificate and the installation of the items and state that to the best of my knowledge and belief the construction and assembly of the items are in accordance with the Provincial Regulations.

ai inspecté les composantes non couvertes par le certificat d'inspection en usine et l'installation de l'appareil et, autant que je sache, la construction et l'assemblage de l'appareil sont en accord avec les règlements provinciaux.

Inspector's Name
Nom de l'inspecteur _____

Signature _____ Date _____

ALBERTA MUNICIPAL AFFAIRS

ABSA, the pressure equipment safety authority

9410 - 20th Avenue

Edmonton, AB T6N 0A4

Partial/ Partiel ☐

(A)563 306

AB-25 (Side 1) 2006/04

MANUFACTURER'S DATA REPORT

FOR PRESSURE VESSEL

DÉCLARATION DE CONFORMITÉ DU CONSTRUCTEUR

D'APPAREILS SOUS PRESSION

Upon shipment of a pressure vessel, this form fully and correctly filled in must be mailed to the office of the Chief Inspector in the province of installation in accordance with the regulations under the Act, governing the construction and installation of pressure vessels.

Au moment de l'expédition d'un appareil sous pression, ce formulaire complété correctement, doit être envoyé au bureau de l'inspecteur en chef de la province d'installation tel que prévu dans les règlements de la loi sur les appareils sous pression.

Manufactured by Construit par	Name and address of Manufacturer/ Nom et adresse du constructeur Pyramid Corporation; 2308-8th Street, Nisku, Alberta, T9E 7Z2
Manufactured for Construit pour	Name and address of Purchaser or Consignee/ Nom et adresse du client ou de son représentant Husky Oil Operations Ltd.; 707 - 8th Avenue S.W., Calgary, Alberta, T2P 1H5
Ultimate owner Utilisateur	Name and address/ Nom et adresse Husky Oil Operations Ltd.; 707 - 8th Avenue S.W., Calgary, Alberta, T2P 1H5
Location of installation Lieu d'installation	Address/ Adresse Ansell Compression Expansion; LSD: 07-27-51-19 W5M

Pressure vessel/ Appareil

Type/ Genre Flare Knock Out Drum	Overall Length/Longueur totale 23'-3"	Serial No./ N° de série 07-2933-0001	Year built/Année de fabrication 2007
Provincial Registration No. - C.R.N./N° d'enregistrement provincial - N.E.C. U1205.21		National Board No./ N° National Board	Drawing No./ N° de dessin D-07-2933-0001-001 Rev 2

The chemical and physical properties of all parts meet the requirements of material specifications of the A.S.M.E. Code.

Les propriétés chimiques et physiques de toutes les composantes respectent les exigences des spécifications de matériaux de code ASME.

The design, construction and workmanship conform to CSA B51. La conception, la construction et la façon sont conformes à ACNOR B51.	ASME Section VIII	Division 1	Addenda/Supplément 2004 Edition, 2006 Addenda	Code case No. N° de cas
Manufacturer's partial data reports properly identified and signed by authorized inspectors have been furnished for the following items of the report, and attached to this report: Les rapports partiels du constructeur adéquatement identifiés et signés par les inspecteurs autorisés ont été produits pour les items suivants du rapport, et attachés à ce rapport:				
Names of parts/ Nom de la composante	Item No./ N° d'item	Manufacturer's Name/ Nom du constructeur	Identifying Stamp/ Estampe d'identification	

Shell/ Virole

Description	Material Matériau	Thickness Épaisseur	Corr. Allow. Surépais. de corr.	Diameter Diamètre	Longitudinal Joints Joints longitudinaux			P.W.H.T. Traitement therm		Girth Joints Joints de circonférence		Number of courses Nombre de sections
					Type	R.T. Radiog.	Efficiency Efficacité	Temp.	Time Durée	Type	R.T. Radiog.	
Shell Section # 1	SA-516-70N	0.625"	0.125"	78" ID	1	RT-1	1.0			1	RT-1	2

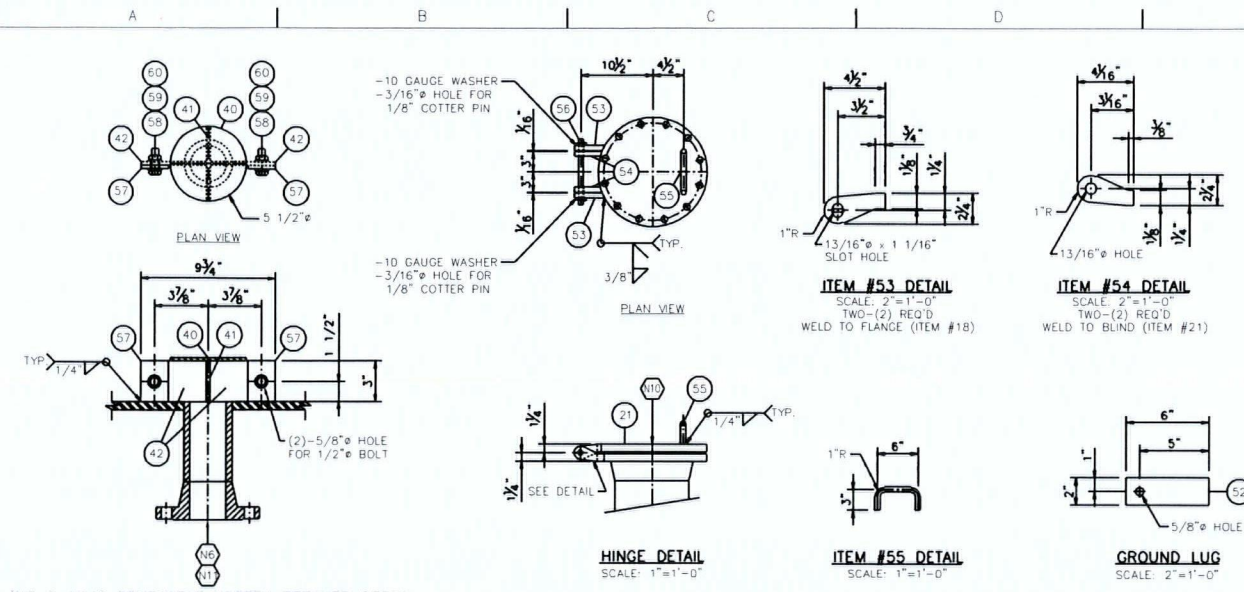
Heads/ Tetes

Description	Material Matériau	Min. Thickn. Épais minim.	Corr. Allow Surép. Corr.	Crown. Radius Rayon couron.	Knuckle Radius Petit rayon	Ellipse Ratio Rapp. ellipse	Conical Apex Angle Angle conique	Hemisph. Radius Ray. Hémisph	Flat Diameter Diam.plat	Side to pressure Côte sous pression
Left Head	SA-516-70N	0.6875"	0.125"			2:1				Concave
Right Head	SA-516-70N	0.6875"	0.125"			2:1				Concave
Removable bolts used (describe other fastenings) Boulons amovible utilisés (décrire tout autre attache)					Mat'l Spec./ Spéc. du mat.			Grade		Size/ Dimension

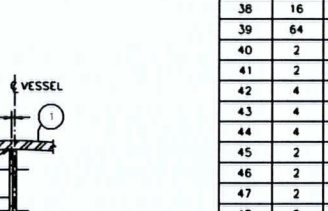
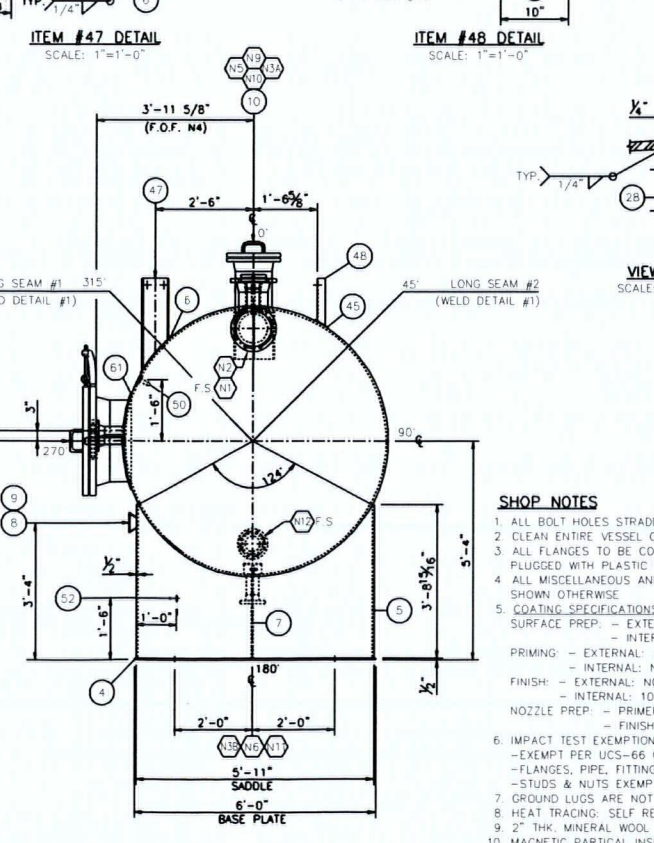
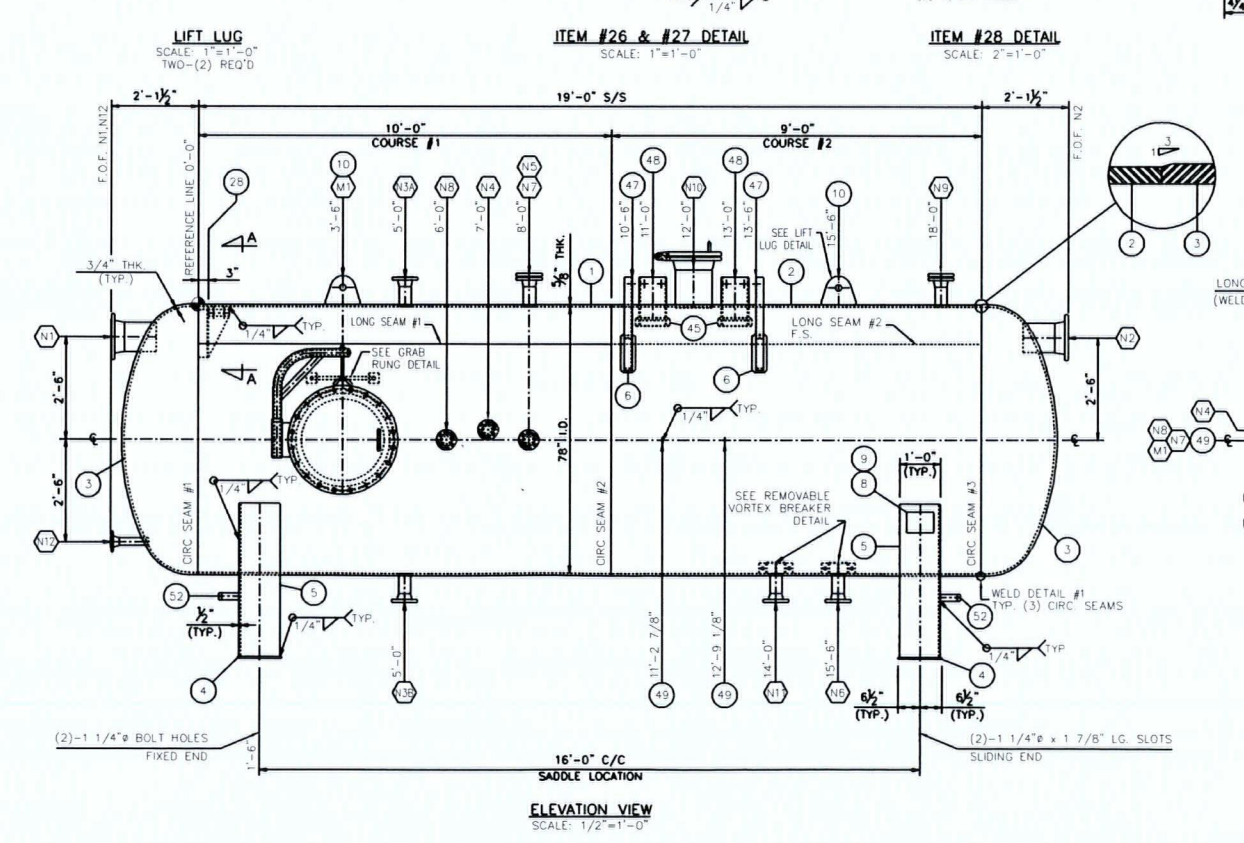
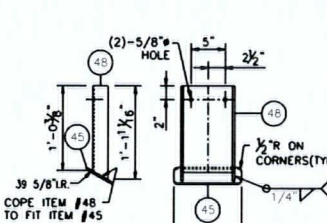
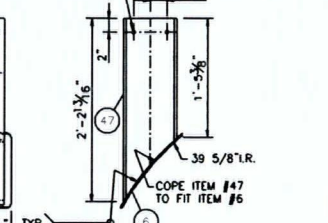
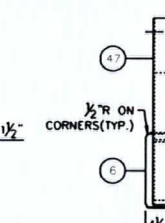
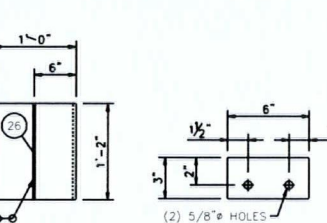
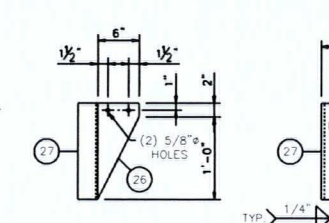
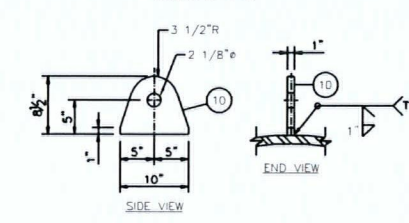
Pressure - Temperature/ Pression - température

Pressure Vessel Part Partie de l'appareil	Constructed for max. allowable working pressure Construit pour une pression maximale de marche permise	At max. temp. A une temp. max.	Min. Temp. (when less than -29°C) Temp. min. (inférieure à -29°C)	Test pressure (hydro-pneumatic or combination) Pression d'épreuve (hydro-pneumatique ou combinaison)
Flare Knock Out Drum	50 PSIG INT. 15 PSIG EXT.	302 F	-48 F	65 PSIG

66126579
A# 563306



(N6 & N11) REMOVABLE VORTEX BREAKER DETAIL



SHOP NOTES

- ALL BOLT HOLES STRADDLE HORIZONTAL AND VERTICAL CENTER LINES
- CLEAN ENTIRE VESSEL OF WELD SLAG AND OTHER FOREIGN MATERIAL
- ALL FLANGES TO BE COVERED WITH FLANGE COVERS, ALL CPLG/T.O.L.'S TO BE PLUGGED WITH PLASTIC PLUGS PRIOR TO SHIPPING
- ALL MISCELLANEOUS AND ATTACHMENT WELDS SHALL BE 1/4" FILLET WELDS UNLESS SHOWN OTHERWISE
- COATING SPECIFICATIONS
SURFACE PREP: - EXTERNAL: SSPC-SP6
- INTERNAL: SSPC-SP5
PRIMING: - EXTERNAL: 3-4 MILS RUSTOLEUM 7086 (GREY)
- INTERNAL: NONE
FINISH: - EXTERNAL: NONE
- INTERNAL: 10-12 MILS DEVICHEM 253
NOZZLE PREP: - PRIMER: 1.5-2 MILS RUSTOLEUM 7086 (GREY)
- FINISH: 1.5-2 MILS RUSTOLEUM 906 (SILVER GREY)
- IMPACT TEST EXEMPTION(S)
- EXEMPT PER UCS-66 CURVE 'D'
- FLANGES, PIPE, FITTINGS EXEMPT PER UCS-66(g)
- STUDS & NUTS EXEMPT PER UCS-66 NOTE(e)
- GROUND LUGS ARE NOT TO BE PAINTED; LEAVE AS BARE METAL
- HEAT TRACING: SELF REGULATING ON BOTTOM HALF OF VESSEL
- 2" THK. MINERAL WOOL c/w SMOOTH 0.02" ALUMINUM CLADDING, ON ALL VESSEL BODY
- MAGNETIC PARTICAL INSPECTION: WET VISIBLE TECHNIQUE, 100% ON ALL LIFT LUGS
- REGISTER VESSEL IN ALBERTA & BC
- ALL NOZZLE LENGTHS INCLUDE 1/8" WELD CAP, ADDITIONAL 1/8" GIVEN TO ALL NOZZLE LENGTHS.
- PRODUCTION IMPACT TESTS REQUIRED PER UG-84(i) AND UCS-67(a)(2) AT -48°F.
- INSULATION SUPPORT RINGS SHALL BE IN ACCORDANCE WITH HUSKY STANDARD DRAWING A4-SD-0009-02.

- ATTACHMENT WELDS SHALL CLEAR ALL VESSEL WELD SEAMS BY A MINIMUM OF 50mm.
- SEAM SHALL BE ORIENTATED TO AVOID MANWAY, NOZZLES, REINFORCEMENT PAD.
- ANY OPENING OR ATTACHMENT AND ITS REINFORCEMENT PAD SHALL NOT APPROACH WITHIN 50mm OF ANY WELD SEAM OR 50mm OF ANY PIPE GRTH WELD.
- ALL ATTACHMENT WELDS SHALL BE CONTINUOUSLY FILLET WELDED ALL AROUND.
- FLANGE FACES CLASS 150-900# IS RF WITH CONTACT FACE FINISH ARRH.
- FABRICATION TOLERANCES SHALL BE IN ACCORDANCE WITH HUSKY STANDARD DRAWING A4-SD-0009-01 OR A4-SD-0009-02.

DESIGN DATA	
CONSTRUCTION:	ASME SECTION VIII DIV 1 2004 ED., 2006 ED.
INTERNAL DESIGN PRESSURE:	50 PSIG @ 302°F (MAX)
EXTERNAL DESIGN PRESSURE:	15 PSIG @ 302°F (MAX)
HYDROTEST PRESSURE:	CHART RECORDED: 65 PSIG (ONE HR. MIN.)
MINIMUM DESIGN METAL TEMP.:	-48°F @ 50 PSIG
CORROSION ALLOWANCE:	1/8" RADIOGRAPHY: FULL PER UW-11(a)
P.W.H.T.:	NONE VOLUME: 71311.1
WEIGHT (EMPTY):	16,600 LBS WEIGHT (TEST): 61,100 LBS
C.R.N.:	U1205.21 SERIAL NO.: 07-2933-0001

1. SEAMS	2. NOZZLE TO WN FLG.	3. SET-IN NOZZLE/CPLG	4. SET-THRU NOZZLE/CPLG w/REPAD	5. SET-ON NOZZLE/CPLG	6. O'LET	7. MISCELLANEOUS	8. SOCKET WELD
WPS: PEC-21R1	WPS: PEC-21R1	WPS: PEC-21R1	WPS: PEC-21R1			WPS: PEC-21R1	

REFERENCE DRAWINGS		REVISIONS	
5	RG DM RE AS BUILT	JUN 26/07	JOB No.: 2933-0001
4	DK DM RE REVISED DESIGN DATA	JUN 07/07	P.O. NO.: A8039-002-M1100-001
3	RG DM RE REVISED NOZZLES N4,N7,N8 & NOTES	MAY 03/07	UNITS REQ'D: ONE (1)
2	DK DM RE REVISED RADIOGRAPHY	APR 24/07	DRAWN: F.L.
1	DK DM RE REVISED AS SHOWN	APR 23/07	DATE: APR. 12/07
DRAWING NO. DESCRIPTION		CHECKED: DK	
REV. BY: DESIGN PROJECT ENGINEER		APP'D: JM	
SCALE: 1/2"=1'-0"		SCALE: 1/2"=1'-0"	

PYRAMID CORPORATION
Nisku • Alberta • Canada

78" I.D. x 19'-0" S/S x 50 PSIG
FLARE KNOCK OUT DRUM

SITE: ANSEL COMPRESSION EXPANSION L.S.D.: 07-27-51-19-WSM
CLIENT: HUSKY OIL OPERATIONS LTD. c/o INV PROJECTS INC.

DRAWING NUMBER: 0-07-2933-0001-001 REV # 5

PLANT 2 FKO