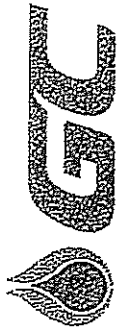


➤ 5ข

เอกสารคู่มือปฏิบัติงาน (Work Instruction)
เกี่ยวกับการระบายสาร 1,3 บิวทาไดอิน
ออกสู่บรรยากาศ

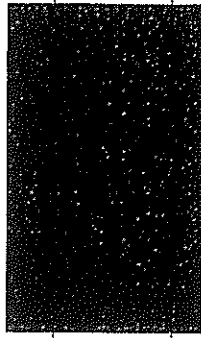
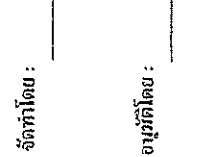




บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน)

Aromatics/Olefins Movement Operation

W-(U-CM-OP)-ETP1-013
Butadiene truck loading and weight scale operation

จัดทำโดย : 
อนุมัติโดย : 

รายชื่อผู้ทบทวน

ผู้ทบทวน	ตำแหน่ง	หน่วยงาน

รายการแก้ไข

ครั้งที่	วันที่ผลบังคับใช้	รายละเอียด	โดย
0	22/02/2020	Migrated (นำเข้าไฟล์ระบบ)	System
1	07/03/2021	เปลี่ยนชื่อผู้จัดทำและ Update ให้เป็นเนื้อหาปัจจุบันและเพิ่ม Work Flow	นางสาวสุวิมล วัฒนศิริกุล

หน่วยงานที่เกี่ยวข้อง

รหัสหน่วยงาน	ชื่อหน่วยงาน
U-CM-OP	Aromatics/Olefins Movement Operation

KPI ที่เกี่ยวข้อง

KPI Measure	Description / Calculation	Target (unit)

กฎหมายที่เกี่ยวข้อง


ชื่อกฎหมาย

เอกสารที่เกี่ยวข้องในระบบ

รหัสเอกสาร	ชื่อเอกสาร
M-(UTY)-001	คู่มือระบบการจัดการเบี่ยงเบนการหักคุณภาพ ความปลอดภัย ภาษีอากรและสิ่งแวดล้อม การผลิตและการจำหน่ายผลิตภัณฑ์ของกลุ่มผลิตภัณฑ์สารเคมีปิโตร

เอกสารอ้างอิงภายนอก

ชื่อเอกสาร
BD Transfer from FITG-3

	บริษัท ทีทีที โกลบอล เทคโนโลยี จำกัด (มหาชน)	W-(U-CM-OP)-BTFI-013: Butadiene Truck Loading and weight scale operation
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ประกาศใช้ครั้งที่ 1

เอกสารฉบับนี้เป็นทรัพย์สิน และกรรมสิทธิ์ทางกฎหมายของ บริษัท ทีทีที โกลบอล เทคโนโลยี จำกัด (มหาชน) และจะถือเป็นเอกสารที่มีค่า จำเป็นต้องเก็บรักษาไว้เป็นอย่างดี ห้ามเผยแพร่ ผลิตซ้ำ หรือดัดแปลงโดยไม่ได้รับอนุญาต

วันที่มีผลบังคับใช้ : 07/05/2021

	บริษัท ทีทีที โกลบอล เทมิคอก จำกัด (มหาชน)	W-(U-CM-OP)-BTFI-013: Bundlene track loading and weight scale operation
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1. วัตถุประสงค์

เพื่อให้เป็นวิธีปฏิบัติงานในการ Transfer Bundlene to truck loading and weight scale ให้เป็นไปอย่างถูกต้องมีประสิทธิภาพและปลอดภัย



ข้อมูลเพิ่มเติม: ข้อมูลทั่วไปที่เป็นประโยชน์ในการทำความเข้าใจแต่ละขั้นตอนของการปฏิบัติงาน



ข้อควรระวัง: ขั้นตอนทั้งหมดทำไม่ถูกต้องอาจทำให้เกิดอันตรายด้านความปลอดภัยที่นำไปสู่การบาดเจ็บส่วนบุคคลสร้างความเสียหายต่ออุปกรณ์หรือสิ่งแวดล้อมหรือเกิดความเสียหาย




คำเตือน: ขั้นตอนทั้งหมดทำไม่ถูกต้องอาจทำให้เกิดอันตรายร้ายแรงต่อความปลอดภัยส่วนบุคคลหรือทำให้เสียชีวิต บาดเจ็บถาวร สร้างความเสียหายต่ออุปกรณ์ที่สำคัญ เกิดไฟไหม้หรือสร้างผลกระทบต่อสิ่งแวดล้อมขนาดใหญ่

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นทรัพย์สิน และหากมีการเปลี่ยนแปลงโดยไม่ได้รับอนุญาต บริษัท โกลบอล เทมิคอก จำกัด (มหาชน) ขอสงวนสิทธิ์ในเอกสารนี้
 ชื่อ: ปณิศา ด้วงงา ตำแหน่ง: เจ้าหน้าที่ความปลอดภัยในการทำงาน

หน้า 1 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

	บริษัท ทีทีที โกลบอล เทมิคอก จำกัด (มหาชน)	W-(U-CM-OP)-BTFI-013: Bundlene track loading and weight scale operation
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2. ขอบเขต

ขั้นตอนการปฏิบัติงานที่ใช้สำหรับ U-CM-OP ที่ปฏิบัติงานในพื้นที่ PTGC7 ให้ทำตามขั้นตอนเฉพาะที่ระบุไว้ ซึ่งอาจไม่เพียงพอต่อการปลอดภัยถ้าปฏิบัติตามไม่ถูกต้อง

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นทรัพย์สิน และหากมีการเปลี่ยนแปลงโดยไม่ได้รับอนุญาต บริษัท โกลบอล เทมิคอก จำกัด (มหาชน) ขอสงวนสิทธิ์ในเอกสารนี้
 ชื่อ: ปณิศา ด้วงงา ตำแหน่ง: เจ้าหน้าที่ความปลอดภัยในการทำงาน

หน้า 2 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

5. รายละเอียดการดำเนินงาน

5.1 การปฏิบัติงานก่อนเริ่มเดินเครื่องจักร (Initial Startup)

- 5.1.1 Panel man ตรวจสอบ Cargo loading instruction ที่ได้รับ W-CM-OC ว่าถูกต้องและสอดคล้องกับปริมาณ Butadiene ภายใน Tank ที่ให้ load
- 5.1.2 Panel man ตรวจสอบตัวแปรของ Butadiene ที่ใช้ load คือ on spec
- 5.1.3 BTF Operators ทำการ ตรวจสอบอุปกรณ์เพื่อให้สามารถนำ Butadiene to tank car
- 5.1.4 Panel man ตรวจสอบอุปกรณ์ต่างๆ ที่เกี่ยวข้องซึ่งแสดงอยู่ในสภาพพร้อมใช้งาน เช่นระดับของ tank อย่างต่ำ ให้ปกติหรือไม่ ถ้าไม่ ต้องทำการแก้ไขให้เรียบร้อยก่อนที่จะมีการ load
- 5.1.5 รถ Tank Car ต้องผ่านการ Purge tank และต้องทำ Dew point ให้ได้ -40°C หรือต่ำกว่า
- 5.1.6 รถ Tank Car ต้องผ่านการตรวจสอบสภาพและมีเอกสารการตรวจสอบสภาพ จากหน่วยงาน Q-SME ก่อนนำมาเข้าจุดพื้นที่ทำงาน
- 5.1.7 พนักงานขับรถ Tank Car ต้องผ่าน Short brief และการตรวจเช็คสถานะทางเอกสารหลังจากหน่วยงาน Q-SME ก่อนเข้ามาเข้าจุดพื้นที่ทำงาน
- 5.1.8 BTF Operators check H/C เพื่อตรวจสอบ Tank car เข้าออกเพื่อไม่ให้ตรงตามแบ่งของ Station loading มีอะไรผิดปกติจะได้ดำเนินการแจ้งเตือนให้ทราบก่อน ขับเครื่อง ซึ่งรวมถึงมีอะไรผิดปกติหรือไม่ แจ้งเตือน นำข้อมูลแจ้งไปส่วนที่จุดควบคุมดูแลในระหว่างการทำงาน Loading ให้โดย Check H/C เป็นระยะ



- BTF Operators ควบคุมการทำงานขับรถก่อน check Dew Point Tank car ก่อนที่จะนำ Butadiene ที่นำ รถรับเข้ามาจะไรมา หรือรถไปทำการ bydro test มา เพราะว่า เกี่ยวเนื่องข้อมูลในการทำ Dew point ของ Tank car (ในกรณีที่กว่าจะเข้า Purge tank car)
- 5.1.9 BTF Operators ต้องสาย Ground Station Truck loading เข้ากับ tank car ให้เรียบร้อย
- 5.1.10 BTF Operators ต้อง Loading arm line liquid/ line vapour เข้ากับ Tank Car และทำการ build up pressure ด้วย Nitrogen test leak การต่อ loading arm ด้วยน้ำยา test leak
- 5.1.11 ในกรณีที่ tank car ที่นำ load ถังรถหรือรถคันทำการทำ Hydro test มา

1. Panel man watch F-6983 ตามเอกสารอ้างอิง W-(U-CM-OP)-5084 Butadiene EGF operation
2. BTF Operators ทำการ Release Pressure ใน Tank Car กด F-6983 BD Flare โดยเปิด Block Valve Line Liquid S-104, S-097 และ Line vapour S-105, S-346, by Pass PSV S-106 decompress ใน tank car ให้ 0.5 kg/cm2 แล้ว check Dew point ต้องได้ -40 °C หรือต่ำกว่า

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นความลับ และจะกลายเป็นเอกสารสาธารณะถ้าหากถูกเปิดเผยโดยไม่ได้รับอนุญาต จาก (หน่วยงาน) จัดทำโดย (หน่วยงาน) และเมื่อใดก็ตามที่ฉบับนี้ ถูกแก้ไข หรือเปลี่ยนแปลง จะต้องมีการแจ้งให้ทุกฝ่ายที่เกี่ยวข้องได้รับทราบ

หน้า 5 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

กว่าถ้า Dew point ของ tank car สูงกว่า -40 °C ให้ Shift supervisor แจ้ง Scheduler จัดรถใหม่

3. ในกรณีที่ Dew point tank car ถูกวัดสูงกว่า -40 °C และถูกแจ้งเตือนจาก BTF (GC7) Purge tank car เพื่อให้ Dew point tank car ได้ตาม spec
4. จากนั้นทำการเปิด Block Valve Line Liquid S-097 และ Line vapour by Pass PSV S-106 เพื่อให้ทำการ Purge tank car ไปยัง F-6983 BD Flare
5. BTF Operators ทำการตั้งจุด Meter N2 ก่อนใช้ Purge Tank Car ที่ Control Room ถ้า BTF Operators เปิด Valve N2 S-102 และ N/V 4" เพื่อให้ Dew Point โดย Pressure /Depressurize to Flare 3 ครั้งแล้วตรวจสอบ 5 kg/cm2 และวัดค่า Dew Point ให้ได้ -60 °C ถ้าวัด Dew Point ยังไม่ได้อ -60 °C ก็ให้ทำการกว่า จะได้ Dew Point -60 °C
7. เมื่อ Tank Car ได้ Dew Point -60 °C แล้ว ให้ Release Nitrogen ที่ถังอยู่ในถังออก Flare จนหมดโดยตรวจสอบที่ Tank Pressure ต้องอ่านได้เท่ากับศูนย์ จากนั้นทำการตั้งขนาด tank car
8. Panel man Stop F-6983 BD Flare ตามเอกสารอ้างอิง W-(U-CM-OP)-5084 Butadiene EGF operation

5.1.12 ในกรณีที่ tank car ที่นำ load เป็นประจำ

1. Panel man watch F-6983 ตามเอกสารอ้างอิง W-(U-CM-OP)-5084 Butadiene EGF operation
2. BTF Operators release pressure ใน tank car ให้เหลือ 0.3 kg/cm2
3. เมื่อ Tank Car กลั 0.3 kg/cm2 แล้วเปิด Nitrogen ได้ BD ที่ถังอยู่ในถัง
4. เมื่อ BTF อ่าน ได้ 0 Panel man Stop F-6983 ตามเอกสารอ้างอิง W-(U-CM-OP)-5084 Butadiene EGF operation

5.1.13 ขั้นตอนการใช้ Truck weighing

1. เปิดเครื่อง Computer
 2. เปิดโปรแกรม Win Weight 3.7 login เข้าโปรแกรม ด้วย password
- User

พิมพ์
- password

พิมพ์
- operatorตัวเล็ก


oper
- เลือก ชั่ง

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นความลับ และจะกลายเป็นเอกสารสาธารณะถ้าหากถูกเปิดเผยโดยไม่ได้รับอนุญาต จาก (หน่วยงาน) จัดทำโดย (หน่วยงาน) และเมื่อใดก็ตามที่ฉบับนี้ ถูกแก้ไข หรือเปลี่ยนแปลง จะต้องมีการแจ้งให้ทุกฝ่ายที่เกี่ยวข้องได้รับทราบ

หน้า 6 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

- 

Tank ที่ใช้ในการload เมื่อไม่มีการใช้ load tank car

 - Pressure safety valve tank car set ไว้ที่ 17.6 kg/cm2
 - Control Pressure tank car จะclose load ไม่ให้เกิน 7 kg/cm2.
- 5.2.2 BTF operator ตรวจสอบ Butadiene Truck Pump (P-6983-03A/R)
- BTF operator ทำการ fill pump P-6983-03A/R โดยเปิด vent to Tank ที่ใช้ในการ load Butadiene to truck load
 - Panel man manual close control valve 83-FV-006 set 12 m3/hr to 1 83-FV-007 เข้า into mode
 - BTF operator close U/V discharge Panel man Start pump P-6983-03A หรือ R ตรวจสอบ local ว่า Pump run ปกติหรือไม่ ถ้าพบถึงผิดปกติให้ Stop Pump ทันทีและรายงานเหตุ และดำเนินการแก้ไข ถ้า pump ปกติให้กด Open discharge ขึ้นมาให้ได้ 100% close vent pump หน้า Panel man

Mode	MCC		LCS	
	Auto	Manual	Remote	Local
Start-stop via DCS	1			
Start-stop via MCC		1		
Start-stop via LCS			1	

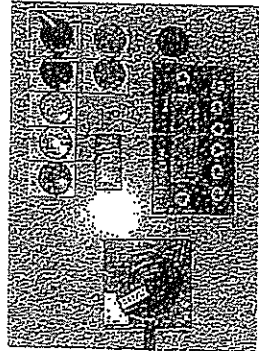


Figure 1: MCC panel

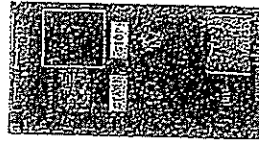
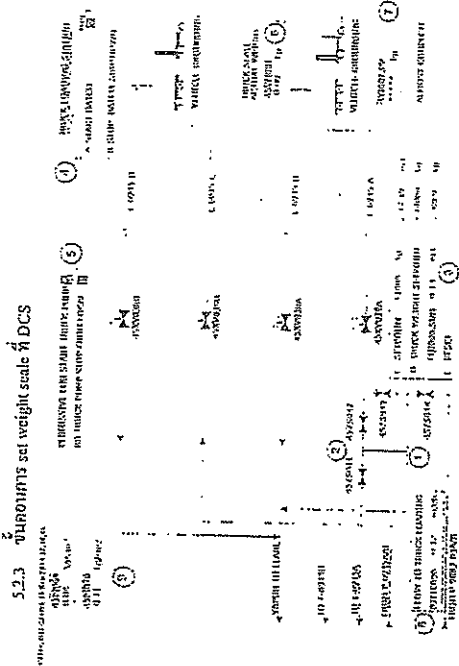


Figure 2: LCS panel



- Block Start /Stop batch control
- Interlock Start pump truck
- น้ำหนัก butadiene + น้ำหนักถ
- น้ำหนัก butadiene
- Flow butadiene to truck load
- Pressure rupture discs PSV line liquid และ line vapor

	บริษัท ทีทีที โกลบอล เติมโกลด์ จำกัด (มหาชน)
	W-(U-CM-OP)-BTF1-013: Butadiene truck loading and weight scale operation

- 5.2.3.1 reset ที่ 3 Block B RESET
- 5.2.3.2 ได้ตั้งเบรค loading arm ที่ Block D TRUCK WEIGHT SETPOINT
- 5.2.3.3 ได้ทำการเบรคและเช็ค load ที่ Block C SETPOINT (วิธี ทดสอบน้ำหนักเบรคและเช็ค load โดย ใช้ 25,000kg - มีการตั้งเบรค loading arm)

- รถเก็บส้ว ถูหมมาขอเช็คค่าให้ รถเก็บส้วบรรทุก ของได้ไม่เกิน 25,000kg (รวม น้ำหนักของรถส้ว)

- 5.2.3.4 Start batch ที่ DCS
- 5.2.3.5 BTF operator close valve unit 0945 proximity switches show open BTF operator open valve unit 0983 proximity switches show open
- 5.2.3.6 Panel truck load LED show Ready to start
- 5.2.3.7 BTF operator กดปุ่ม Start control valve 45-XV-039A, 45-XV-038A open
- 5.2.3.8 BTF operator Open S-061 load to truck load
- 5.2.3.9 Panel man open 83-FV-006 control flow load truck load ไม่ให้เกิน 30 M3/hr
 - Discharge pressure ประมาณ 10 kg/cm²
 - Pressure ที่ truck load ไม่เกิน 7 kg/cm²
- 5.2.3.10 83-FQI-006 ค่า sum และ W1001 เริ่มเพิ่มขึ้น
- 5.2.3.11 BTF operator ตรวจสอบ pressure truck load ไม่ให้เกิน 7 kg/cm² ถ้า pressure 147 kg/cm² ให้แจ้ง Panel man หยุด load


	บริษัท ทีทีที โกลบอล เติมโกลด์ จำกัด (มหาชน)
	W-(U-CM-OP)-BTF1-013: Butadiene truck loading and weight scale operation

- Operating window T-6983-01A/B
- การ Operate เกินกว่าค่า หรือ ล้ากว่าค่า ที่กำหนดใน Operating Window Sheet ให้ดำเนินการดังนี้
- เมื่อค่าเฉลี่ย parameters (level หรือ temperature) out of (เกินกว่าค่า หรือ ต่ำกว่าค่า) ที่กำหนด ใน Operating Control Guideline (OCG) เป็นเวลา 12 ชั่วโมง ให้ raise เป็น NC (Non Compliance)
 - เมื่อค่า parameters (level หรือ temperature) out of (เกินกว่าค่า หรือ ล้ากว่าค่า) ที่กำหนดใน Operating Window (OW) ให้ raise เป็น Incident (เมื่อถึงค่า OW จะนับเป็น Incident ที่ให้

Description	Tag No.	Unit	Control Guideline	
			Min	Max
Butadiene Tank (T-6983-01A)				
Temperature Tank	83-TF-001	°C	0	10.0
Pressure Tank	83-PIC-002	kg/cm ² g	0.3	3.8
Level Tank	83-LI-001	mm	2,450	14,100
Butadiene Tank (T-6983-01B)				
Temperature Tank	83-TF-003	°C	0	10.0
Pressure Tank	83-PIC-004	kg/cm ² g	0.3	3.8
Level Tank	83-LI-003	mm	2,450	14,100

Design Tank T-6983-01A/B

Internal Diameter	19,000	mm.
Full Capacity	3,591	m ³
Design Temperature	-5/65	°C
Design Pressure	5	kg/cm ²

	บริษัท ทีทีที โกลบอล เคมีคอล จำกัด (มหาชน)	W-(U-CM-OP)-BTF-013: Bulkdiene truck loading and weight scale operation
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Safe guarding System

Tank T-6983-01A

- 83-PV-002B Pressure setting for auto open N2 to tank @ 0.3 kg/cm²
- 83-PV-002A Pressure setting for auto open to flare @ 1.0 kg/cm²
- 83-PSV-018 Pressure setting for auto open to flare @ 4.2 kg/cm²
- 83-PSV-019 Pressure setting for auto open to flare @ 4.7 kg/cm²
- 83-PSV-020 Pressure setting for auto open to flare @ 5.0 kg/cm²
- Manual valve of deluge water ring system.
- Insulation fire proof 30 mm.

Tank T-6983-01B

- 83-PV-004B Pressure setting for auto open N2 to tank @ 0.3 kg/cm²
- 83-PV-004A Pressure setting for auto open to flare @ 1.0 kg/cm²
- 83-PSV-021 Pressure setting for auto open to flare @ 4.2 kg/cm²
- 83-PSV-022 Pressure setting for auto open to flare @ 4.7 kg/cm²
- 83-PSV-023 Pressure setting for auto open to flare @ 5.0 kg/cm²
- Manual valve of deluge water ring system.
- Insulation fire proof 30 mm.

Interlocking System

Tank T-6983-01A

- 83-LALL-002 Level setting for Stop P-6983-03A/R @ 2,000 mm

Tank T-6983-01B

- 83-LALL-004 Level setting for Stop P-6983-03A/R @ 2,000 mm

Pump P-6983-03A/R


- LALL-003, LALL-004 activated trip pump 2000 mm.
- Axial pump XT-007/008 alarm high.
- Bearing temperature TT-029/030 alarm high
- ROMi rotating direction.
- LSLL-015/016 level suction low trip.

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นเอกสารลับ และรวมเนื้อหาจากเอกสารลับอื่นที่เกี่ยวข้องทั้งหมด ทั้งนี้ โดยเอกสารลับนี้ จะใช้เฉพาะในโครงการเท่านั้น ห้ามเผยแพร่ ห้ามคัดลอก ห้ามทำซ้ำ และห้ามนำออกจากรายงานโดยไม่ได้รับอนุญาต

หน้า 13 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

	บริษัท ทีทีที โกลบอล เคมีคอล จำกัด (มหาชน)	W-(U-CM-OP)-BTF-013: Bulkdiene truck loading and weight scale operation
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- MCC interlock trip.
 - Trip signal from PLC of truck loading.
- Truck weighing and weight scale
- Loading arm over swing.
 - 45XV039A/45XV038A failed status.
 - ESD push button activated.
 - Gas detector alarm.
 - Alarm 45-UA-201 (ESD) to trip P-6983-03A/R
 - ESD interlock trip from I-5000 and I-5018 to stop batch control

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นเอกสารลับ และรวมเนื้อหาจากเอกสารลับอื่นที่เกี่ยวข้องทั้งหมด ทั้งนี้ โดยเอกสารลับนี้ จะใช้เฉพาะในโครงการเท่านั้น ห้ามเผยแพร่ ห้ามคัดลอก ห้ามทำซ้ำ และห้ามนำออกจากรายงานโดยไม่ได้รับอนุญาต


หน้า 14 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

	บริษัท ทีทีที โกลบอล เทคโนโลยี จำกัด (มหาชน)	W-(U-CM-OP)-BTT1-013: Buladiene truck loading and weight scale operation
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S.3 การปฏิบัติงานชั่วคราว (Temporary Operation)

N/A

	บริษัท ทีทีที โกลบอล เทคโนโลยี จำกัด (มหาชน)	W-(U-CM-OP)-BTT1-013: Buladiene truck loading and weight scale operation
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S.4 การปลดล็อคเครื่องในภาวะฉุกเฉิน (Emergency Shutdown)

N/A

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นทรัพย์สินของกรมส่งเสริมการค้าระหว่างประเทศ กระทรวงพาณิชย์ หากมีการแก้ไขหรือเปลี่ยนแปลงใดๆ ให้แจ้งกรมส่งเสริมการค้าระหว่างประเทศ กระทรวงพาณิชย์ ทราบ

หน้า 15 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

ประกาศใช้ครั้งที่ 1

เอกสารนี้เป็นทรัพย์สินของกรมส่งเสริมการค้าระหว่างประเทศ กระทรวงพาณิชย์ หากมีการแก้ไขหรือเปลี่ยนแปลงใดๆ ให้แจ้งกรมส่งเสริมการค้าระหว่างประเทศ กระทรวงพาณิชย์ ทราบ


หน้า 16 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

 บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน)	W-U-CM-OP-BTF1-013: Buadiene truck loading and weight scale operation
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5.5 การปฏิบัติงานในภาวะฉุกเฉิน (Emergency Operation)

N/A

 บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน)	W-U-CM-OP-BTF1-013: Buadiene truck loading and weight scale operation
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5.6 การเบรกเครื่องควบคุม (Normal Shutdown)

5.6.1 Batch load buadiene จะ auto stop ได้ดังต่อไปนี้

- Flow totalizer of FQ1006 (SUM) reach to set point (SP)
- Weight of W1001 (PV) reach to set point (SP)
- Operators stop batch manually.

5.6.2 เมื่อที่ผู้ขาย batch ควบคุม batch ควบคุม set point DCS ส่งสัญญาณ Stop pump P-6983-03A หรือ K และตั้งปิด control valve 45-XV-039A, 45-XV-038A



- ถ้า batch ถูก shut down โดย interlock ให้ทำดังนี้

เปลี่ยนน้ำหนัก ที่ TRUCK WEIGHT SETPOINT

เปลี่ยนจำนวน Buadiene ที่มาถึงไม่ได้ load ที่ SETPOINT

5.6.3 ถ้า operator ตรวจพบว่าน้ำหนัก Buadiene หลัง load เสร็จตรงตามจำนวน

5.6.4 BTF operator ทำการปิด Valve ที่ Loading Arm liquid, vapor หรือที่ปิด Valve ที่ Tank car หรือที่ปล่อยหัว ทำการ Empty loading arm โดยให้ N2 Pressure / Depressure to Tank car 5 ครั้ง

5.6.5 เมื่อ BTF operator ปิด Loading Arm ออกจาก Tank car ทั้ง Vapor และ Liquid แล้วให้ Loading Arm เข้าตำแหน่งเก็บ ให้เรียบร้อยแล้ว แล้วทำการ Set valve ที่ Tank car

5.6.6 BTF operator ตั้งน้ำหนัก Buadiene Truck Weight Scale และ BTF operator ทำการ Point Out ในถังเก็บที่จะ Point ให้รถออกมาและเช็คข้อมูลที่ได้ครบถ้วน

5.6.7 BTF operator ปล่อยรถ Groved ออกจาก Tank car และนำรถไปรับของแล้วนำ truck load ออกจาก truck load Station

5.6.8 BTF operator line up valve เพื่อ Balance line ถัดมา T-6983-01A เรือย ใช้เพื่อป้องกัน Line over pressure หลัง Load เสร็จ

ประกาศใช้ครั้งที่ 1
เอกสารนี้เป็นทรัพย์สินของบริษัทฯ และจะยังคงเป็นของบริษัทฯ จดทะเบียนแล้ว บริษัทฯ ขอสงวนสิทธิ์ในข้อมูลและข้อมูลอื่นที่เกี่ยวข้อง

หน้า 17 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021


ประกาศใช้ครั้งที่ 1

ประกาศใช้ครั้งที่ 1
เอกสารนี้เป็นทรัพย์สินของบริษัทฯ และจะยังคงเป็นของบริษัทฯ จดทะเบียนแล้ว บริษัทฯ ขอสงวนสิทธิ์ในข้อมูลและข้อมูลอื่นที่เกี่ยวข้อง

หน้า 18 จาก 21

วันที่มีผลบังคับใช้: 07/05/2021

ประกาศใช้ครั้งที่ 1

	บริษัท ทีทีที โกลบอล เคมีภัณฑ์ จำกัด (มหาชน)
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5.7 การเริ่มเดินเครื่องหลังการซ่อมบำรุงหรือหยุดเดินเครื่องตามปกติหรือหลังการเดินเครื่องในภาวะฉุกเฉิน


จากนั้นหลังจากซ่อมบำรุงหรือ Tank shutdown เครื่องวัดน้ำหนัก จะทำการ Box-up และ Final check จากนั้นหน่วยงานบำรุงรักษาจะตั้งรอบอุปกรณ์ที่เกี่ยวกับทาง Operation เพื่อเตรียมการในการ Start up อุปกรณ์ต่อไป

Pre-Commissioning

- 5.7.1 ตรวจสอบความพร้อมของพื้นที่ทำงาน
- 5.7.2 ทำการถอดปลด ออกโดยใช้อุปกรณ์ Equipment isolation check list และ Isolation plot
- 5.7.3 ทำการ Test leak หน้าปัดของถังหรือหัวถังด้วย Nitrogen
 - Built up N2 ขึ้น 0.5 kg/cm² Test leak ทวน้ำเปลี่ยน
 - Built up N2 ขึ้น 1.0 kg/cm² Test leak ทวน้ำเปลี่ยน
 - Built up N2 ขึ้น 1.5 kg/cm² Test leak ทวน้ำเปลี่ยน
- 5.7.4 หลังจาก Test leak ผ่านแล้ว ทำการ Release N2 เริ่มเข้าผู้ปล่อยของการ Dry out โดยเปิด Vent ออกตรงจุดของถังหรือท่อ และกั้นบริเวณ ติดป้ายเตือนอันตราย
- 5.7.5 ทำการ Dry out ที่ถังและหัวถังด้วย Nitrogen จน ได้ค่า Dew point ที่กำหนด (-60 Deg. DP) โดยวัดที่ Pressure <0.5 kg/cm² และอุณหภูมิสูงกว่า 10 องศาเซลเซียส และบันทึกผลการวัด
- 5.7.6 ทำการ Keep pressure ด้วย Nitrogen ในถังหรือท่อ 1.5 kg/cm² เพื่อรอการ Start up

Commissioning


- 5.7.7 ก่อนจะทำการ Commissioning หรือ Start up ให้อ่านคู่มือการตรวจสอบตาม PSSR (Pre-Startup Safety Review) จากหน่วยงานต่างๆที่เกี่ยวข้อง และ ให้อ่านการอนุมัติจาก VP ก่อน
- 5.7.8 ทำการ Line up valve เพื่อเปิด Liquid Butadiene เข้าถึงถังหรือท่อ โดยต้องให้ Pressure อยู่ในช่วงหรือต่ำกว่า 1.5 kg/cm² เพื่อลดการ Flash ของ Butadiene
- 5.7.9 ทำการปลด LOTO และ Line up Valve ต่างๆที่ผู้ดำเนินการเดินเครื่องตามปกติ
- 5.7.10 ตรวจสอบระบบ Interlock การ Bypass สัญญาณต่างๆ ในระบบ DCS product transfer, ESD System และ Firefighting อยู่ในสภาวะปกติ และพร้อมใช้งาน

	บริษัท ทีทีที โกลบอล เคมีภัณฑ์ จำกัด (มหาชน)
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ขั้นตอนการปฏิบัติงานของเครื่องวัดน้ำหนัก Butadiene

Butadiene (GHI)

สัญลักษณ์และ GHS pictogram



5455 (1-4), 5755 (1-4)

อันตรายจากสารเคมี

อันตราย: ความเป็นพิษเฉียบพลัน (H302)
 พิษเฉียบพลัน: อาจทำให้เกิดการระคายเคืองต่อผิวหนังและตา
 พิษเฉียบพลัน: อาจทำให้เกิดการระคายเคืองต่อระบบทางเดินหายใจ
 พิษเฉียบพลัน: อาจทำให้เกิดการระคายเคืองต่อระบบทางเดินหายใจ
 พิษเฉียบพลัน: อาจทำให้เกิดการระคายเคืองต่อระบบทางเดินหายใจ

คุณสมบัติของสารเคมี


ชื่อทางเคมี: 1,3-Butadiene
 สูตรเคมี: C₄H₆
 น้ำหนักโมเลกุล: 54.09 g/mol
 จุดเดือด: -4.4 °C
 จุดเยือกแข็ง: -105.5 °C
 ความดันไอ: 2.2 bar (20 °C)
 ความหนาแน่น: 0.62 g/cm³ (20 °C)
 ความหนาแน่นของเหลว: 0.62 g/cm³ (20 °C)
 ความหนาแน่นของแข็ง: 0.62 g/cm³ (20 °C)
 ความหนืด: 0.04 cP (20 °C)
 ความสามารถในการละลายน้ำ: 2.1 g/100 g (20 °C)
 ความสามารถในการละลายในน้ำ: 2.1 g/100 g (20 °C)

การปฐมพยาบาล

การสูดดม: ย้ายผู้ป่วยไปยังที่ที่มีอากาศบริสุทธิ์
 การกลืน: ดื่มน้ำมากๆ
 การสัมผัส: ล้างผิวหนังด้วยน้ำสะอาด
 การเข้าตา: ล้างตาด้วยน้ำสะอาด

การเก็บรักษา

เก็บในที่เย็นและแห้ง
 ไม่ควรเก็บในที่ที่มีประกายไฟ
 ไม่ควรเก็บในที่ที่มีประกายไฟ

<div>  </div> <div> บริษัท ซีทีที โกลบอล เคมิคอล จำกัด (มหาชน) </div>	W-(U-CW-OP)-BTE I-013: Bulkforce truck loading and weight scale operation
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6. ภาคผนวก

6.1 กู้จำข้อความ

6.2 ข้อมูลสนับสนุน

6.3 แผนการดำเนินงาน

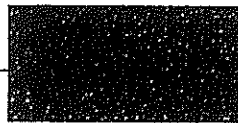


PTT Global Chemical Public Company Limited
Department Name

W-(R-MO-OP)-BD-001

**Butadiene transfer from PTTGC-3 to
T-6983.01A/R**

Prepared by:



Approved by:



Distribution List

Copy No.	Controller/Holder	Location
01	Quality Management (Q-QM-QU)	Intranet

Revision No.:(Rev No.)

Copy No.01

Date:(Effective Date)

Revision No. (Rev. 11/11) Copyright © Page:

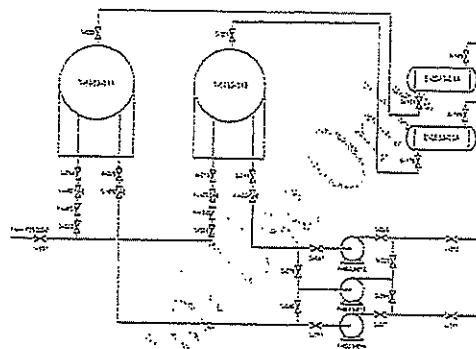
Revision No. (Rev. No.)	Copy No. 61	Page 11
Date Effective Date		

Revision No (Rev No) _____ Copy No 01 _____ Page 1 of 2
 Date Effective Date _____

Revision No (Rev. No) _____ Copy No _____ Page 2 of 3
 Date (Effective Date) _____

3. Roles and Responsibility

4. Workflow



5. Detailed Narrative of Workflow

5.1 Introduction

Butadiene from upstream plant (PTTGC3) is cooled with temperature 5 °C entering into buffer drums M-4050 and M-4051 with capacity 250 tons each and use P-4050A/S or P-4051A/S transfer butadiene through package G' approximately distance 7 kilometers loop to butadiene storage tanks at BTF.

T-50901A/S butadiene storage tanks located at BTF area with working capacity about 1,200 Metric tons.

Butadiene will be kept under controlled temperature 5°C and pressure 0.5 kg/cm² in order to minimize polymerization while receiving butadiene into storage tanks. Butadiene liquid will be displaced and cooled by chiller unit before return to tanks.

Each butadiene storage tanks equipped with pressure safety valves with setting pressure 4.24E50 kg/cm² respectively.

5.2 Preparation

Valves line up checking for normal operation.

5.2.1 Valves open status for receiving to T-50901A.

Valve	Open	Close
5.2.1.1	Open	Close
5.2.1.2	Open	Close
5.2.1.3	Open	Close
5.2.1.4	Open	Close
5.2.1.5	Open	Close
5.2.1.6	Open	Close
5.2.1.7	Open	Close
5.2.1.8	Open	Close
5.2.1.9	Open	Close
5.2.1.10	Open	Close
5.2.1.11	Open	Close
5.2.1.12	Open	Close
5.2.1.13	Open	Close
5.2.1.14	Open	Close
5.2.1.15	Open	Close
5.2.1.16	Open	Close
5.2.1.17	Open	Close
5.2.1.18	Open	Close
5.2.1.19	Open	Close
5.2.1.20	Open	Close

5.2.2 Valves close status for receiving to T-50901A.

Valve	Open	Close
5.2.2.1	Open	Close
5.2.2.2	Open	Close
5.2.2.3	Open	Close
5.2.2.4	Open	Close
5.2.2.5	Open	Close
5.2.2.6	Open	Close
5.2.2.7	Open	Close
5.2.2.8	Open	Close
5.2.2.9	Open	Close
5.2.2.10	Open	Close
5.2.2.11	Open	Close
5.2.2.12	Open	Close
5.2.2.13	Open	Close
5.2.2.14	Open	Close
5.2.2.15	Open	Close
5.2.2.16	Open	Close
5.2.2.17	Open	Close
5.2.2.18	Open	Close
5.2.2.19	Open	Close
5.2.2.20	Open	Close

5.2.3 Valves Open status for receiving to T-50901B.

Valve	Open	Close
5.2.3.1	Open	Close
5.2.3.2	Open	Close
5.2.3.3	Open	Close
5.2.3.4	Open	Close
5.2.3.5	Open	Close
5.2.3.6	Open	Close
5.2.3.7	Open	Close
5.2.3.8	Open	Close
5.2.3.9	Open	Close
5.2.3.10	Open	Close
5.2.3.11	Open	Close
5.2.3.12	Open	Close
5.2.3.13	Open	Close
5.2.3.14	Open	Close
5.2.3.15	Open	Close
5.2.3.16	Open	Close
5.2.3.17	Open	Close
5.2.3.18	Open	Close
5.2.3.19	Open	Close
5.2.3.20	Open	Close

5.2.4 Valves Close status for receiving to T-50901B.

Valve	Open	Close
5.2.4.1	Open	Close
5.2.4.2	Open	Close
5.2.4.3	Open	Close
5.2.4.4	Open	Close
5.2.4.5	Open	Close
5.2.4.6	Open	Close
5.2.4.7	Open	Close
5.2.4.8	Open	Close
5.2.4.9	Open	Close
5.2.4.10	Open	Close
5.2.4.11	Open	Close
5.2.4.12	Open	Close
5.2.4.13	Open	Close
5.2.4.14	Open	Close
5.2.4.15	Open	Close
5.2.4.16	Open	Close
5.2.4.17	Open	Close
5.2.4.18	Open	Close
5.2.4.19	Open	Close
5.2.4.20	Open	Close

5.2.5 Enforced Ground Flare is in alarm. See Enforced Ground Flare operation.

5.2.6 Chiller water and pump water system are ready. See chiller water system.

5.2.7 P-50901A/B circulation pumps are ready for BTO circulation system.

See connected number operation.

5.3 Receiving butadiene to storage tank.

5.3.1 Check the process plan and initial guideline from upstream plant information.

5.3.2 Check schedule for receiving butadiene with PTTGC3 including quantity.

5.3.3 Confirm COA of butadiene from PTTGC3 before receiving.

5.3.4 Line up valves from transfer line (L-4) to receiving tank. See table above.

5.3.5 Line up for butadiene circulation for receiving tank.

5.3.6 Start chiller system preparing for cooling butadiene of receiving tank.

5.3.7 Start circulation pump by interlocking P-50901A/B circulation pump operating instruction.

P-50901A/B current status L-4/L-502 of P-50901A or L-4/L-501 of P-50901B is activated.

5.3.8 Confirm PTTGC3 control room to notify readiness for receiving butadiene to storage tank.

5.3.9 PTTGC3 starts transferring butadiene to T-50901A or B and increasing flow rate slowly to maximum rate 50 t/hr.

5.3.10 BTF panel man monitors condition of butadiene process associated tank pressure around 0.5 kg/cm² and temperature of storage tank between 5 to 10 °C.

5.3.11 Tank elevation valve by high level 0.5 kg/cm² on initial receiving that might come from nitrogen remaining in storage tank. BTF panel man should decrease to release vapor from top tanks to EGF by opening control valve P-50901A, P-50901B, or P-50901C (P-50901A is to maintain pressure of storage tank between 0.567 kg/cm²).

5.3.12 When level of storage tank reaches to nearly Level Alarm High at 14,100 mm.

5.3.13 Notify PTTGC3 control room to slow down transferring rate and then switching to another tank or stop transferring at assumed capacity of each catch.

5.3.14 BTF panel man checks and records balance quantity after completion of receiving butadiene from PTTGC3.

5.3.15 BTF panel man commands to open XV-601, T-50901A, or XV-602, T-50901B to balance pressure from transfer line from PTTGC3 to storage tank in order to prevent thermal expansion.

5.4 Interlocking

5.4.1 T-50901A

• L-4/L-502 14,350 mm H₂O level started XV-601 will be closed.

• L-4/L-502 1,500 mm H₂O level started P-50901A/B will be stopped.

5.4.2 T-50901B

• L-4/L-501 14,350 mm H₂O level started XV-602 will be closed.

• L-4/L-501 1,500 mm H₂O level started P-50901A/B will be stopped.

6. Workflow KPI

7. Normative References

- 6523-PI-001
- 6523-PI-002
- 6523-PI-003
- Butadiene oxidation and Chlorine water system
- Chlorine pump operation
- Entrained Gas and Flare operation

8. Appendix

8.1 Storage tank data sheet

T-4933-01/A/C Data

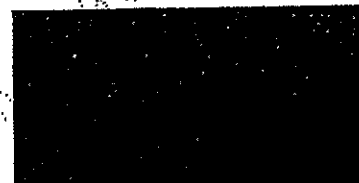
Design Code	ASME (U, S, V, H), Div. 2, Section 8, Class 1, Sub-section 1
Design Material	SA-516 Gr. 60, 0.35% C, 0.30% Mn, 0.01% S, 0.01% P, 0.005% Cu
Corrosion Allowance (CA)	2.0 mm
Thickness	25 mm
Weight	30,000 kg
Radius	12,000 mm
Height	12,000 mm (L=H)
Design Pressure	1.0 MPa
Design Temperature	150°C
Service Volume (m ³)	1,500 m ³
Design Liquid Level (L=H)	12,000 mm
Design Internal Pressure	1.0 MPa
Design External Pressure	0.1 MPa
Design Temperature (max/min)	150/50°C
Design Liquid Level (m)	12.0 m
Operating Pressure	0.8 MPa
Operating Temperature	150°C



PTT Global Chemical Public Company Limited
Department Name

W-R-MO-OP-BD-002

Butadiene transfers to ship



Distribution List

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01	Quality Management, QCM/QU	(In/Out)

Amendment List

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1. Purpose/Objective

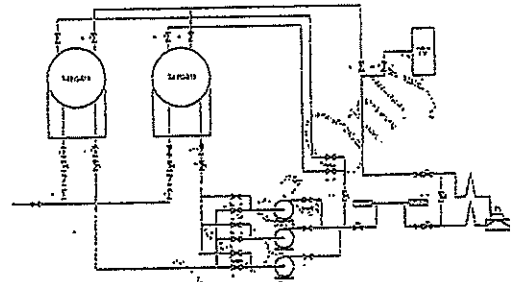
The purpose of this procedure is to outline the steps to be taken for the safe and efficient loading of baggage to start through Jett's machine.

2. Scope

This procedure uses the following symbols to draw the operators attention to steps in the procedure that are particularly important or may lead to safety hazards if performed incorrectly

3. Roles and Responsibility

4. Workflow



5. Detailed Narrative of Workflow

Introduction

Storage spheres consist of two spheres, T-0915-01A and B, each having a capacity to store 1,600 tons of cargo with a design pressure of 3.0 kg/cm² and temperature 5°C. The spheres are stored under pressure at temperature above 5°C. The pressure in the vessel is maintained by the vapor pressure and will vary in relation to the temperature of the contents in the vessel. The design pressure of the storage spheres is 3.0 kg/cm² and design temperature 5°C.

Line transfer line

The platform is connected to the onshore facilities by a 4200 m long, 10 inch diameter line. The pipeline is equipped with block valves on the platform end and on the onshore end which can be operated locally or remotely by the emergency shutdown system (ESD). The pipeline is 50°C maximum and 35°C minimum. The transfer line to the Jetty is via the bypassed transfer pump, P-0915-02A, B, R design for a flow rate of 200 T/hr at a pressure of 11.41 kg/cm².

During loading, the L-0825 (Line) is operated by the L-0825 operator. The loading arm L-0825 is hydraulically operated and all valves are equipped with lock out devices. When an emergency stop is required, both training and shutdown signals in the vessel (at the platform) are sent to the L-0825 operator. The arm has a hydraulic emergency stop valve which is mechanically locked to a second valve on the other side of the quick release coupling. A hydraulically powered emergency release coupling is also an integral part of the loading arm assembly. The quick release coupling is used to disconnect the loading arm from the storage spheres and the platform.

5.1 Preparation

- Check schedule of export plan and pre arrival information of vessel
- Check that all required documents have been submitted completely
- Jetty, loading arm, A/C equipment and transfer signal has been tested and be ready for export
- Provide appropriate safety with assigned surveyor to take samples before the line storage
- 100% before export

5.2 Valves in line

- After the vessel completes berthing at Jetty, loading master and related staff will perform ESD, with the Jetty Officer and agrees of loading plan including any agreement that comply with Jetty regulation
- Surveyor check condition of storage tank before loading
- Loading master confirms with Jetty Officer that the vessel is ready for loading
- Jetty and Jetty line up valves as following

For export from T-0915-01A

Tap	Description	Status
-----	-------------	--------

S-002, S-001, XV-001	Valves in line tank	Close
S-005, XV-002	Valves in line tank	Open
S-103, S-110, S-124	Subsea P-0915-02A, B, R	Open
S-112, S-123, S-130	Discharge P-0915-02A, B, R	Open depend on running pump
S-134, S-135	Block valves of FV003 min flow	Open
S-010	Block valves min flow to T-0915-01A	Open
S-114, S-115	Block valves of FV005	Open

For export from T-0915-01B

Tap	Description	Status
S-003, S-010, XV-002	Valves in line tank	Close
S-011, XV-004	Valves in line tank	Open
S-106, S-117, S-123	Subsea P-0915-02A, B, R	Open
S-112, S-123, S-130	Discharge P-0915-02A, B, R	Open depend on running pump
S-134, S-135	Block valves of FV003 min flow	Open
S-010	Block valves min flow to T-0915-01A	Open
S-114, S-115	Block valves of FV005	Open

Transfer line to Jetty

Tap	Description	Status
S-002, P-0915-02A, B, R, S-001, S-004	Block valves in transfer line to Jetty	Open
S-003	Block valves of RDV014	Fully keep close for 10 min
S-010	Block valves of RDV017 vapor line	Close
S-003, S-007, S-008	Block valves vapor line to tank	Open
S-003, S-103, S-110	Block valves vapor line to tank	Close

ESV012,ESV013,ESV016 | ESV valves | Open

- Connect loading arm to ship manifold and then service FERC and open double ball valve
 - Keep close position of S325 as block valve of ROV016 for 1st line stop
 - Keep close position of S325 as block valve of ROV017 for 2nd line pressure loss stop
 - Vapor line keep line up to flare and close block valves returning to storage tank to prevent contamination

5.3 Transfer mode for loading

- Select mode of transferring or circulation tank as "Transfer tank mode" and choose the right tank to be transferred
- Bypass and open ESROV022
- Send "Transfer request" to Jetty
- When loading master confirm readiness then send "Transfer Permission" back to BTF
- After ROV016, ROV017 open fully, DCS HMI/VOL access into "Transfer mode" and give start permission to transfer pump P-6903-02A/B
- Deactivate by pass of ESROV020 to set control valve back to CSO controlling

Tag	Description	Status
ESROV020	Remote operator valve BTF side	Open
ASROV016	Remote operator valve Jetty side	Open
ESROV017	Remote operator valve Jetty side	Open
ESROV018	Remote operator valve Jetty side	Close

5.4 Fill in bulk tank to Jetty transfer line

- Point out condition and level of storage tank before start fill in bulk tank into Jetty transfer line
- Set FIC001 minimum flow control valve to auto mode with set point will change to 20 m³/hr
- Set FV005 to manual mode and keep close position
- BTF operator prepare P-6903-02A/B to be ready for running. See Control pumps operation.
- Confirm to Jetty to be ready for line filling
- Start pump P-6903-02A/B at R and open discharge valve slowly until fully open
- Adjust opening of FV005 to increase rate of filling and maintain flow rate not more than 20 m³/hr

- Jetty operator monitor transfer line pressure from PIA01 at Jetty side. Jetty operator notify to BTF when pressure reaches to 14.5 kg/cm² or to notify Jetty by monitoring FIC005. FV005 will open to control minimum flow rate of pump at setpoint to m³/hr.
- Point out condition and level of storage tank for start filling condition

5.5 Loading position to ship

- Loading master gives notice to the vessel and confirms readiness of the vessel
- Operator Jetty open S263 slowly to commence loading readiness to ship
- Jetty operator monitor pressure of transfer line until pressure balanced to ship tank pressure
- Fully open S263 and inform BTF to increase flow rate step by step
- BTF increases flow rate by opening FV005 to maximum rate as step requested. P-6903-02 has operating flow rate: 150 m³/hr each pump and maximum flow rate for loading is about 300 m³/hr.

Setpoint of minimum flow FIC005 in auto mode will change to 120 m³/hr when P-6903-02 are running parallel automatically. See Control pumps operation.

- Panel man keeps monitoring condition of loading process and record to log sheet hourly
- Panel man keeps monitoring pressure of storage tank that should not be less than 0.5 kg/cm² to prevent occurring of cavitation to transfer pump. Whatever pressure of storage tank tends to be below 0.5 kg/cm², Panel man should consider to decrease loading rate by closing FV005 or stop by opening of P-6903-02A/B
- Check with pilot officer when loading is nearly nominated quantity
- Decrease flow rate step by step and confirm to stop loading when quantity reach to nominated by ship side
- Panel man continues to stop pump one by one and make normal shutdown signal to DCS with line transferring
- Point out condition and level tank after complete loading

5.6 Empty loading ship

- Unit up valves of cross over line of loading arm between liquid and vapor line by opening ESROV018 and S316
- Inform ship chief officer to start compressor for flushing loading arm through vapor line and discharge to ship tank
- Keep flushing at least 15 minute and check product detector of onboard board arm then empty
- Request chief officer to stop compressor for flushing and close ship manifold
- Jetty operator releases pressure from loading arm and piping prepare for disconnecting
- After surveyor completes calculation and figure agrees loading master confirms to be able to disconnect loading arm

- Jetty operator disconnect loading arm and connect to shore position
- After complete loading activity keep balance pressure of Jetty line to shore tank

5.7 Incident shutdown

5.7.1 At Jetty side will be shut down at following condition

- Select "Shutdown Mode" by DCS HMI
- ROV016, ROV017 not opened
- ESV015, ESV016 not opened
- PSN-036, ZS stop m³/hr

5.7.2 At BTF side will be shut down at following condition

- LALL-002B04 2000 mm H₂O level activated P-6903-02A stop
- ZSD-051 Opened and ZSC-050 closed (H₂O level activated P-6903-02A stop)
- LALL-002B04 2000 mm H₂O level activated P-6903-02B stop
- ZSD-052 Opened and ZSC-052 closed (H₂O level activated P-6903-02B stop)
- LALL-002B05 2000 mm H₂O level activated P-6903-02A stop
- ZSD-055 Opened and ZSC-054 closed (H₂O level activated P-6903-02A stop)
- Activated H5001, ESD Mode

6. Workflow KPI

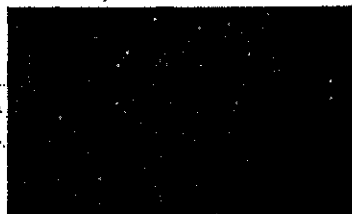
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Date: 12/06/2011



W-(R-MO.OP).BD003'

Butadiene circulation and Chilled water system



Distribution List

Copy No.	Controller/Holder	Location
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1. Purpose/Objective

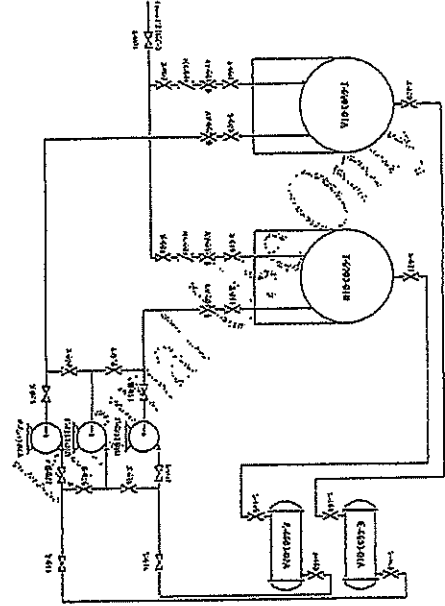
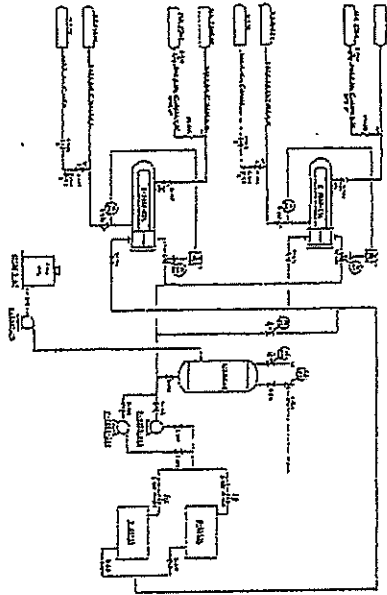
The purpose of this procedure is to outline the steps to be taken for the safe and efficient bar code activation and host visitor system.

2. Scope

This procedure uses the following symbols to describe the operation attention to steps in the procedure that are particularly important or may lead to safety hazards if performed incorrectly.

3. Roles and Responsibility

4. Workflow

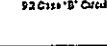
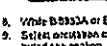


5. Detailed Narrative of Workflow

- 5.1 Introduction**
For indirect cooling system, use a chiller water system to cool down a 1st. Calcium Chloride solution is blended as Butadene refrigerant. Two steps should be followed when temperature of Butadene in Butadene Tank (T003-01A) is higher than 10°C. (T003-01A, T003-01B, T003-01C) for T003-01A, T003-01B, T003-01C.
- 5.1.1** To avoid exposure of calcium chloride liquid to the atmosphere, reducing the formation of calcium carbonate. (Nitrogen 12) step should be checked in the chiller expansion tank (V003-02). (Operating pressure set point at 1.6 bar abs.)
- 5.1.2** The chiller water is distributed by pump (P003-01A) to Refrigeration Package (B003-01A) and shall use of Butadene Cooler (E003-01A, E003-02A) in order to circulate chiller water in the system.
- 5.1.3** Monitor condenser in chiller water loop when condenser pressure is 6.0/6.5 bar abs. and pressure is 6 bar abs.
- 5.1.4** Start the refrigeration unit by following the vendor's package's procedure. After the chiller water pass through the refrigeration package, the temperature will be changed from 7°C to 7°C.
- 5.1.5** Then use 7°C of chiller water will be needed. Butadene from 6°C to 7°C at Butadene Cooler (E003-01A, E003-02A).
- BD storage tank (T003-01A/B).**
Butadene Tank shall be kept at 5-10°C. High temp alarm shall be set at 10°C. (T003-01A, T003-01B, T003-01C) for T003-01A, and T003-01B for T003-01B.
- Circulation Pump (P003-01A/B).**
Circulation pump (P003-01A) is used for circulating Butadene from T003-01A, pass through Butadene cooler (E003-01A).
Circulation pump (P003-01B) is used for circulating Butadene from T003-01B, pass through Butadene cooler (E003-01A).
A spare circulation pump (P003-01R) is installed for P003-01A or P003-01B failure.
- BD Cooler (E003-01A, E003-02A).**
Temperature control of Butadene shall be used for control flow rate of chiller water by: T003-01A control flow rate of chiller water pass through TV005 for E003-01A, set point of temperature alarm high 10°C.
T003-02 control flow rate of chiller water pass through TV006 for E003-02A, set point of temperature alarm high 10°C.
TV005 and TV006 set point of low flow rate of chiller water to the chiller water package, set point of low flow rate: 28 m³/hr.
- Chiller Expansion Drum (V003-02).**
Buffer tank design for fluctuating loads and provides buffer for the cooling system in the event of power trip - very useful for temperature sensitive applications.
The normal level of chiller water in drum is about 500-600 mm (normal liquid level).
For indirect cooling system, use a chiller water system to cool down a 1st. solution of calcium chloride is provided as Butadene cooler (E003-01A, E003-02A).

5.2 Chiller Water Package operation

- Local Mode**
- At emergency valve local panel, push mode selector switch to "Local" position to operate XV047 for B003-01A (NVC01) panel or XV047 for B003-01R (NVC02) panel.
 - Push selector switch to OPEN position (NVC01) to open XV047 or on NVC02 to open XV047.
 - Check status of INCV XV047 or XV047 show opening fully (ON lamp status on control panel).
 - Start chiller water pump (P003-01A or R) from LCS panel or Remote from DCS and slowly open discharge valve until full open.
 - When starting P003-01 or from LCS panel, MDC mode selector must be selected to Manual position.
 - Adjust flow rate of chiller water by FV015 by entering set point of FV015 to 84 m³/hr.
 - Check status of chiller water from Tracer panel before start.
 - Start B003-01A or B003-01R by pressing AWP start switch on Tracer local panel.



CHILLER EXPANSION DRUM
 CASE SELECT CASE 2
 CASE 2: 1. TANK A EXPANSION / 1.3.10
 CASE 2: 2. TANK B EXPANSION / 1.3.10

- When the temperature reaches the set point, chiller will disconnect compressor; and depending on heat load and keep running to maintain temperature according to set point.
- Stop chiller via Taser local panel when complete cooling down water or butadiene.
- Keep running P-6923A or P-6923B for cooling down water.

Remote Mode

- At motorized valve local panel, push mode select switch to "Remote" position to operate XV-045 for B-6923A-MVCH01 panel or to operate XV-047 for P-6923B-MVCH02 panel. XV-045 valve will close when XV-045 or XV-047 is selected to remote position.
- Check and reset any suspended up signal on Taser panel.
- Send temperature set point of butadiene to 7°C on DCS HMI Chiller package page.
- Bypass trip command via DCS HMI on Chiller Package page to override flow switch interlock and give permission to start chiller package.

Bypass trip command is a latched logic switch outlast 5 minutes.

- Check chiller status and any present alarm warning on DCS before start chiller package. Command to start B-6923A or B-6923B from DCS HMI on Chiller package page.

For normal operation, one chiller will be on duty for running and another for standby. Motorized valve XV-045 or XV-047 will be opened by interlocking from starting command.

XV-045 or XV-047 opening status will give permission to start P-6923-01A/R.

- Enter pressure set point value 1.6 kg/cm² to PV-050 via mode to maintain pressure of expansion drum. V-050 is set by 1/2 between 1.5-2.0 kg/cm².
- After XV-045 or XV-047 open fully, start chiller water pump P-6923-01A/R via DCS on Chiller Expansion Drum page.
- Adjust flow rate of butadiene water via FV-015 by entering auto setpoint of FV-015 to 84 m³/hr.
- B-6923A or B-6923B will start after select for bubble.
- Select circulation mode from DCS on Chiller Expansion Drum page for choosing case of butadiene cooling as following:
 101 Case "A" Circulation Tank A at 100...Max 65 m³/hr and Tank B at 50...Max 34 m³/hr
 102 Case "B" Circulation Tank B at 100...Max 65 m³/hr and Tank A at 50...Max 34 m³/hr.
- When the temperature reaches the set point, chiller will disconnect compressor circuit depending on heat load and keep running to maintain temperature according to set point.
- Keep running P-6923A or P-6923B for cooling down water.

53 Butadiene Circulation
 53.1 Valve In-loop for butadiene loop

S-001	1. HMI level for V-492102	Open
S-004-S-005	1. Motor valves at FV-015	Open
S-211-S-212	1. Motor valves at PV-050A	Open
S-235-S-236	1. Motor valves at PV-050B	Open
S-238	1. Chilled water level at E-5912-01A	Open
S-239-S-240	1. Motor valves at FV-015 and E-5912-01A	Open
S-241	1. Chilled water level at E-5912-01A	Open
S-242-S-243	1. Motor valves at FV-015 and E-5912-01A	Open
S-244	1. Discharge at P-6923-01A	Open
S-245	1. Discharge at P-6923-01B	Open
S-246	1. Discharge at P-6923-01R	Open
S-247-S-248	1. Chilled water level at E-5912-01A	Open
S-249-S-250	1. Chilled water level at E-5912-01A	Open

53.2 Minimum pressure of V-492102 Expansion Drum between 1.5-2.0 kg/cm² via PV-050A/B by auto mode.

53.3 Start chilled water pump P-6923-01A or R and chiller package B-6923A/CH-01 or R CH-02.

53.4 Preparing for butadiene circulation.
 The purpose of butadiene circulation is to maintain temperature of butadiene in storage tank from between 4-6 °C and maintain vapor pressure of butadiene in storage tank between 0.5-0.7 kg/cm² for normal operation.

- Ensure EGF is put in service for any trip-off.
- Preparing circulation pump P-6923-01A/R by following Command operation.
- Start-up valve at the following:

For P-6923-01A circulation			
S-005-XV-045	1. Chiller at P-6923-01A	Open	
S-007-S-008	1. Motor valves at FV-015	Open	
S-009-S-010	1. Motor valves at FV-015	Open	
S-011	1. Discharge at P-6923-01A	Open	
S-012	1. Discharge at P-6923-01B	Open	
S-013	1. Discharge at P-6923-01R	Open	
S-014	1. Discharge at P-6923-01A	Open	
S-015	1. Discharge at P-6923-01A	Open	

For P-6923-01B circulation			
S-011-XV-047	1. Chiller at P-6923-01B	Open	
S-007-S-008	1. Motor valves at FV-015	Open	
S-009-S-010	1. Motor valves at FV-015	Open	
S-011	1. Discharge at P-6923-01B	Open	
S-012	1. Discharge at P-6923-01B	Open	
S-013	1. Discharge at P-6923-01R	Open	
S-014	1. Discharge at P-6923-01A	Open	
S-015	1. Discharge at P-6923-01A	Open	

S-170	1. Motor valves at E-5912-01A	Open
S-001	1. Motor valves at E-5912-01B	Open

- Isolate temperature setpoint valve on auto mode of FV-015 to 84 m³/hr to 2 °C. In control temperature of butadiene circulation cooler at 2 °C before return to tank.
- Start circulation pump P-6923-01A/R by following Command operation.

When use P-6923-01R for circulation instead of P-6923-01A or B, permission to P-6923-01R must be selected to the right tank. In auto mode, this signal will be interlocking with suction valves at P-6923-01R to ensure that venturi has flow-up valves directly.

For butadiene circulation, mode can run circulation pumps for cooling of both tanks at the same time.

- Open discharge valve slowly and increase flow rate of circulation to be about 100 m³/hr.
- Keep circulation butadiene until temperature of butadiene in storage tank reaches 4 °C.
- Stop circulation pump P-6923-01A or B.

When receiving butadiene from PTTDC, butadiene circulation mode must keep running at the time to maintain temperature of receiving tank until completion.

- Stop chiller water package B-6923A/R and keep running P-6923-01A or B for butadiene circulation.

54 Chiller system interlocking

54.1 P-6923-01A/R

1. LALL-005 300 mm at 10...activated P-6923-01A/R will stop

2. FALL-015 26 m³/hr at 10...activated P-6923-01A/R will stop

55 Circulation pump interlocking

55.1 HS-100 DCS level butadiene storage tank at 15000.

55.2 HS-105 EGF ESD activated at 15000.

55.3 T-6923-01A

1. LALL-002 14,350 mm at 15000...activated XV-001 will be closed

2. LALL-002 14,350 mm at 15000...activated P-6923-01A/R will be stopped

55.4 T-6923-01B

1. LALL-004 14,350 mm at 15000...activated XV-002 will be closed

2. LALL-004 14,350 mm at 15000...activated P-6923-01B/R will be stopped

56 Butadiene cooling time

A. Time to receive butadiene circulation

Item	Butadiene flow	Butadiene flow	CO flow	Butadiene flow	Butadiene flow
Case	Flow	Flow	Flow	Flow	Flow
1. (0.5-1.0) m ³ /hr	14.350	14.350	14.350	14.350	14.350
2. (1.0-1.5) m ³ /hr	14.350	14.350	14.350	14.350	14.350
3. (1.5-2.0) m ³ /hr	14.350	14.350	14.350	14.350	14.350

C. Time to increase degree of butadiene

Item	Butadiene flow	Butadiene flow	CO flow	Butadiene flow	Butadiene flow
Case	Flow	Flow	Flow	Flow	Flow
1. (0.5-1.0) m ³ /hr	14.350	14.350	14.350	14.350	14.350
2. (1.0-1.5) m ³ /hr	14.350	14.350	14.350	14.350	14.350
3. (1.5-2.0) m ³ /hr	14.350	14.350	14.350	14.350	14.350

10 Workflow KP)

11 Normative References

- G003-FI001
- G003-FI002
- G003-FI003
- G003-FI005
- G003-PG005 (Instrument) desk design plus
- Control pump operation work instruction

12 Appendix



PTT Global Chemical Public Company Limited
Department Name

W-R-MO-OP-BD006

Butadiene truck loading and weigh
scale operation



Distribution List

Copy No.	Controller/Holder	Location
01	Quality Management (Q.M.O.U.)	Intranet

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8.2 Other Supporting Information	Error! Bookmark not defined.
8.3 Implementation Plan	Error! Bookmark not defined.

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4. Workflow

5. Detailed Narrative of Workflow

- Check schedule and work order from planner above; call of of brasserie with loading plan
- Ensure buildings that loading facilities are ready for service

S2 Entering the buccal root station

- After truck arrival to BTF site, it shall be inspected for equipment according to safety regulation of plant by safety staff
- Conduct AGT operator retraining tasks to the resident truck loading area
- After truck completes parking arrangement, advise truck driver stop engine and apply parking brake. Use logs to maintain under wheels of truck to prevent sliding
- Bring the starting key to keep at being house during loading
- BTF operator enquire information from truck driver to judge whether truck condition is ready for loading cargo and confirm whether it is correct
- BTF operator checks driver permit from trucker if the value is less than 40 °C °F
- Connect ground wire from truck to the grounding socket of truck station provided
- Connect hoses and vapor line of loading area to truck
- Check to ensure there is no leak at any connection

53 Valves per sq. ft.

2. Bore gases forcing to tank, if tank should be discharged from the tank which has been transferring to ship.
3. Bore gases vapor return from tank shall be fed up through vapor line of loading arm and return to adjacent tank to prevent high pressure at truck during loading.

Denver Inn 7-5952-014, 7-4723-016

5-005-5-011	Owlet T-693-01A-T-693-01B.	Open
XV-005-XV-005	Oxylon valve T-651-01A-T-651-01B.	Open
5-133-5-140	Suzlon P-693-01A-P-693-01R.	Open
5-137-5-124	Deching P-693-01A-P-693-01R.	Open
5-145-6-148	Block valves of PV-005	Open
5-150-5-151	Block valves of PV-007 non flow	Open
5-005-5-010	Isa flow return T-696-01A-T-696-01B	Open

Remittance (in Rs)
Date of Invoice Date

COM-1401

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53385437	Block valve BD to tank station	Open
53405431	Block valve from T4643/Process water lock	Close
453V039A	On/Off valve Lining BD truck station	Open
453V038A	On/Off valve Vapour BD truck station	Open
F-232	Block valve vapour return to storage tank	Open

54 Prepare unloading pump P55201AR to be ready for turning. See Canned pump
manual.

55 Field operators print out inbound weight sign before start loading. See truck weighing and weight scale operation below.

[illegible]

- BTF field operator confirm loading quantity to BTF panel main
- BTF Panel main reset parameter of batch control to reset new (time counter and weight counter) to zero value
- Enter "TRUCK WEIGHT SETPOINT" by using keyboard of truck
- Enter quantity to be loaded in digital display "SETPOINT"
- Click on RESET when register correct value

C	SPRINT	10.00	10	0.00	0.00
D	TRUCK WASHING SPRINT	1.00	10	0.00	0.00
E	EQ 1000.500	1.00	10	0.00	0.00

V1101.PV
 00

- Panel man checks signal to send transfer request signal to truck station
Panel operator at truck station observes transfer request signal from local control panel and checks
signal and then press "start" button on local control panel to open automatically
P-4510V032A
P-4510V032A, 45XV032A, open fully to allow road sensor transfer permission signal to
activate local control and entering into "Transfer mode" that give permission for starting
to P-4510Q34A
Panel man starts truck at point of P-4510Q34A maximum flow of truck dump at 12 m3/hr
P-4510Q34A require minimum flow 4 m3/hr
Panel man turn P-4510Q34A off to commence loading dump once in truck
See complete dump operation

Revision No. 107110-
Date: 1/1/80

Cost: \$16.00

9475-6 813

- Indicate loading rate to loadmaster by opening of PV408. Minimum loading rate is 25 m3/h
 - 1 Control discharge pressure above 8.8 kg/cm²
 - 2 Pressure at truck station about 0.25 kg/cm² Stop PFD on alarm.
- F4000 (F4000-2022-SJ11 and V4003) PV will start loading.
- Field operator at truck station keep monitoring at truck condition during loading operation.
- Watch will stop automatically in normal operation by the following
 - 1 Pressure at F4000-2022-SJ11 reach set point (SP).
 - 2 Weight of V4003-204 reach set point (SP).
 - 3 Operator stop batch manually.
- When batch control is stopped by interlock signal or batch completion, it will send shutdown command to close 45RV0306A, 45RV0308A, 45RV0309A, 45RV0307A or R automatically.
- DTF field operator shut out outdoor weigh platform, complete loading will start to truck.
- Coach on weight meter will track driver and load truck out of truck station.

57 Inspects pipeline to stop batch control at [illegible]

- c. Load up line error trap
- d. $43XV03A4$ & $43XV03A3$ set up status
- e. ESD push button activation
- f. Gas detector alarm
- g. Alarm $45UA20$: ESD to trip $P452-02AF$
- h. ESD will reset from $ES003$ and $ES016$ to stop batch control

5. A T-shirt with a large white smiley face on the front.

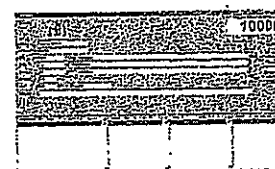
- 5.6.1 Open Win Vncop 37 software and enter user and password to login program as below
- User operator
- Password open
- 5.6.2 Drive work onto vncop scale for inbound vncop
- 5.6.3 Pick user interface choice "Vncop" from program
- 5.6.4 Enjoy or choose items from the form provided
- 5.6.4.1 Choose type of vncop

Raymond Ho after Ho
Dale Electra Dale.

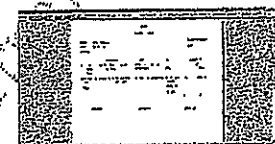
EARLY ADS

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- 5.6.4.2 Enter truck registration number
5.6.4.3 Enter customer name
5.6.4.4 Enter person name
5.6.4.5 Other information required
- When Weight scale shows ready for use and then click "Save" to record your weight measurement into list



- 2.3.6 Click item on the list, the program will show personal information and the chat "Exc" button to exit dialog window

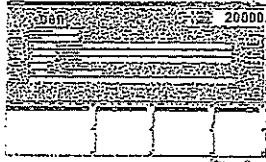


- 5.6.2 Start loading balance in truck via DCS batch control sequence
- 5.6.3 After complete loading, open "Weighing" interface and transfer item from register number column to open weighing outbound item
- 5.6.4 Wait weight scale show steady value and click "Save" to record outbound weighing

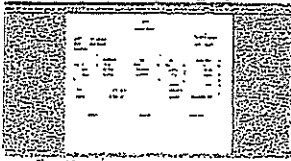
Revision No. Revision
Date, Effective Date

Easy 170 03

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5.8.10 Print out weight slip The program will show completed billing



5.8.11 Click "Exit" to weigh another truck, or exit program

6 Workflow KPI

7 Normative References

- SPS-P1001
- SPS-P1003
- SPS-P1005

8 Appendix

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เอกสารแผนซ่อมบำรุงรักษาเครื่องมือเครื่องจักร
ประจำปี 2567



Equipment	Description	Manufacturer	Mapping EI/ EQ Type	Maint/Inspection	Frequency	Plan date	Cycle	Status
N-69-MRE-05	SGS Marshalling Cabinet - EGF BTF	ESD Cabinet/System	6u (1) Endose Ground Flare, ทดสอบไฟลวด	1M Cabinet Visual Inspection	R55	Jan-24	301478059	Done
N-F-6923	FLARE FOR UNIT 6940, 6945,6900	ProcessFac-Flare	6u (1) Endose Ground Flare, ทดสอบไฟลวด	M1-OFF POWER SUPPLY TO FLARE	U14	Jan-24	301474291	Done
N-B-6940-01	ETHYLENE UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8hr	U11	Jan-24	301474282	Done
N-B-6940-101	FREON UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8hr	U11	Jan-24	301474751	Done
N-B-6940-11	ETHYLENE BOIL OFF COM.	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8hr	U11	Jan-24	301476380	Done
N-B-6940-111	FREON BOIL OFF COMP.	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8hr	U11	Jan-24	301474291	Done
N-P-6925-01R	FIRE WATER PUMP DIESEL ENGINE R	Centrifugal-Non API	6u (4) เครื่องจักรอัดแก๊ส เช่น Compressor, Pump, Etc.	M3- INSPECTION, 4hr	U11	Jan-24	301571055	Done
N-P-6925-07A	FIRE WATER PUMP A	Centrifugal-Non API	6u (4) เครื่องจักรอัดแก๊ส เช่น Compressor, Pump, Etc.	3M-INSPECTION	U11	Jan-24	301473771	Done
N-P-6925-07B	FIRE WATER PUMP B	Centrifugal-Non API	6u (4) เครื่องจักรอัดแก๊ส เช่น Compressor, Pump, Etc.	3M-INSPECTION	U11	Jan-24	301473774	Done
N-6982-GD-001	Gas Detector	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301473868	Done
N-6982-GD-002	Gas Detector	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301473870	Done
N-6982-GD-003	Gas Detector	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	PM FOR N-6982-GD-003 (3M)	R56	Jan-24	301473872	Done
N-6983-GD-003	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301473833	Done
N-6983-GD-004	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301474542	Done
N-6983-GD-005	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301473874	Done
N-6983-GD-006	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301473835	Done
N-6983-GD-007	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301474111	Done
N-6983-GD-008	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301475574	Done
N-6983-GD-009	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301474113	Done
N-6901A-AT-001	CCR HVAC gas detectors (VCM)	NOX ANALYZERS	6u (6) Gas Detector, Heat Detector	3M- Test and Calibration	R56	Jan-24	301474651	Done
N-6901A-AT-002	CCR HVAC gas detectors (BD)	NOX ANALYZERS	6u (6) Gas Detector, Heat Detector	3M- Test and Calibration	R56	Jan-24	301474797	Done
N-6901A-AT-003	CCR HVAC gas detectors (EDC)	NOX ANALYZERS	6u (6) Gas Detector, Heat Detector	3M- Test and Calibration	R56	Jan-24	301474805	Done
N-FA-CP-6901	Fire alarm Control Panel CCR System	GAS DETECTION SYSTEM	6u (6) Gas Detector, Heat Detector	6M- Check and function test	R56	Jan-24	301569124	Done
N-6925-DH-001	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579532	Done
N-6925-DH-002	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579756	Done
N-6925-DH-003	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301578419	Done
N-6925-DH-004	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579495	Done
N-6925-DH-005	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301590613	Done
N-6925-DH-006	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579811	Done
N-6925-DH-007	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579760	Done
N-6925-DH-008	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301578420	Done
N-6925-DH-009	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579496	Done
N-6925-DH-010	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301590614	Done
N-6925-DH-011	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579812	Done
N-6925-DH-012	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579761	Done
N-6925-DH-013	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301578421	Done
N-6925-DH-014	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579497	Done
N-6925-DH-015	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301590615	Done
N-6925-DH-016	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579813	Done
N-6925-DH-017	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579056	Done
N-6925-DH-018	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301578422	Done
N-6925-DH-019	GAS DETECTOR APC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579498	Done
N-6925-DH-020	GAS DETECTOR APC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301580205	Done
N-6925-DH-021	GAS DETECTOR TMC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Jan-24	301579814	Done
N-6925-DH-028	GAS DETECTOR BTF(T-6949)	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	m3 pm gas detector(I-6949)	R56	Jan-24	301578423	Done
N-6925-DH-029	GAS DETECTOR BTF(E-6940-03)	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	m3 pm gas detector (E-6940-03)	R56	Jan-24	301580134	Done
N-6925-DH-030	GAS DETECTOR T-6981	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301579792	Done
N-6925-DH-031	GAS DETECTOR T-6981	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Jan-24	301580206	Done
N-6925-DH-001	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600354421	Done
N-6925-DH-002	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600352472	Done
N-6925-DH-003	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600360135	Done
N-6925-DH-004	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600352735	Done
N-6925-DH-005	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600353528	Done
N-6925-DH-006	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600354422	Done
N-6925-DH-007	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600352473	Done
N-6925-DH-008	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600360136	Done
N-6925-DH-009	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600353609	Done
N-6925-DH-010	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600354851	Done
N-6925-DH-011	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600354423	Done
N-6925-DH-012	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600352474	Done
N-6925-DH-013	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600360137	Done
N-6925-DH-014	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600353610	Done
N-6925-DH-015	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600353529	Done
N-6925-DH-016	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600354424	Done
N-6925-DH-017	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600352475	Done
N-6925-DH-018	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	Y1-LAW STATUTORY FOR GAS DETE	R56	Jan-24	600354837	Done
N-6925-DH-019	GAS DETECTOR APC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	y1-law gas detector calibration	R56	Jan-24	600353611	Done
N-6925-DH-020	GAS DETECTOR APC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	y1-law gas detector calibration	R56	Jan-24	600351949	Done
N-6925-DH-021	GAS DETECTOR TMC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	y1-law gas detector calibration	R56	Jan-24	600353770	Done
N-6925-DH-028	GAS DETECTOR BTF(T-6949)	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	y1-law gas detector calibration	R56	Jan-24	600352476	Done
N-6925-DH-029	GAS DETECTOR BTF(E-6940-03)	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	y1-law gas detector calibration	R56	Jan-24	600354838	Done
N-6983-PSV-003	PSV OF 6983-P-036 3/4"-150C03-K-40	PSV/Conventional	6u (5) Safety Valve Control Valve	4Y-CALIBRATION AND TEST SAFETY	U11	Jan-24	600346359	Done
N-6940-PSV-085	PSV AT B-6940-01A DISCHARGE	PSV/ConventionBellow	6u (5) Safety Valve Control Valve	3Y- SAFETY VALVE INSPECTION	U11	Jan-24	600349120	Done
N-69-MRE-05	SGS Marshalling Cabinet - EGF BTF	ESD Cabinet/System	6u (1) Endose Ground Flare, ทดสอบไฟลวด	1M Cabinet Visual Inspection	R55	Feb-24	301580425	Done
N-6983-BX-121	EGF pilot burner	MISC. OUTPUT DEVICE	6u (1) Endose Ground Flare, ทดสอบไฟลวด	6M : Pilot Orifice cleaning	U13	Feb-24	301579724	Done
N-6983-BX-123	EGF pilot burner	MISC. OUTPUT DEVICE	6u (1) Endose Ground Flare, ทดสอบไฟลวด	6M : Pilot Orifice cleaning	U13	Feb-24	301579823	Done
N-6983-BX-124	EGF pilot burner	MISC. OUTPUT DEVICE	6u (1) Endose Ground Flare, ทดสอบไฟลวด	6M : Pilot Orifice cleaning	U13	Feb-24	301579942	Done
N-6983-BX-131	EGF pilot burner	MISC. OUTPUT DEVICE	6u (1) Endose Ground Flare, ทดสอบไฟลวด	6M : Pilot Orifice cleaning	U13	Feb-24	301579843	Done

Equipment	Description	Equipment Code	Mapping EU EQ Type	Manufacturer	Uptime	Plan date	Office	Status
N-6983-BX-132	EGF pilot burner	MISC. OUTPUT DEVICE	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	6M : Pilot Office cleaning	U13	Feb-24	301579844 Done
N-F-6983	Enclosed Flare	ProcessFac-Flare	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	1Y-Visual Internal& External Inspect	U21	Feb-24	600355243 Done
N-F-6923	FLARE FOR UNIT 6940, 6945,6800	ProcessFac-Flare	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	M1-OFF POWER SUPPLY TO FLARE.	U14	Feb-24	301578428 Done
N-B-6940-01	ETHYLENE UNLOADING COMPRESSOR	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Feb-24	301578899 Done
N-B-6940-101	FREON UNLOADING COMPRESSOR	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Feb-24	301579206 Done
N-B-6940-11	ETHYLENE BOIL OFF COM.	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Feb-24	301579793 Done
N-B-6940-111	FREON BOIL OFF COMP.	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Feb-24	301578901 Done
N-B-6921-01C	INSTRUMENT AIR COMPRESSOR C	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	Overhaul 15,000 hrs	U11	Feb-24	301580424 Done
N-PD-6925-01B	DIESEL ENGINE FOR P-6925-01B	Diesel	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION. 2Hr	U11	Feb-24	301579800 Done
N-PD-6925-01R	DIESEL ENGINE FOR P-6925-01R	Diesel	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION. 2Hr	U11	Feb-24	301580124 Done
N-GD-6904	V12 WATER-COOLED DIESEL ENGINE	Engine driven	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION.	U11	Feb-24	301590816 Done
N-B-6921-01A	INSTRUMENT AIR COMPRESSOR A	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION FOR AIR COMP. 1H	U11	Feb-24	301589928 Done
N-B-6921-01B	INSTRUMENT AIR COMPRESSOR B	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION FOR AIR COMP. 1H	U11	Feb-24	301590634 Done
N-B-6921-01C	INSTRUMENT AIR COMPRESSOR C	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION FOR AIR COMP. 1H	U11	Feb-24	301589929 Done
N-6945-XF-044A	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	3M-GAS DETECTOR CALIBRATION 1	R56	Feb-24	301578424 Done
N-6945-XF-044B	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	3M-GAS DETECTOR CALIBRATION 1	R56	Feb-24	301579889 Done
N-6925-PSV-029	SAFETY VALVE DISCHARGE PUMP P-692 PSV/Conventional	PSV/Conventional	6u (5)	Safety Valve Control Valve	1Y-INSPECTION OUTPUT PRESSURE	U11	Feb-24	301579815 Done
N-6922-PSV-012A	6922-N-300-G-150 TO ATMOSPHERE	PSV/ConventionalBellow	6u (5)	Safety Valve Control Valve	Y3- SAFETY VALVE INSPECTION.	U11	Feb-24	600358322 Done
N-69-HRE-05	SGS Marshaling Cabinet - EGF BIT	ESD Cabinet/System	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	1M Cabinet Visual Inspection	R55	Mar-24	301591055 Done
N-6983-BX-122	EGF pilot burner	MISC. OUTPUT DEVICE	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	6M : Pilot Office cleaning	U13	Mar-24	301590239 Done
N-F-6923	FLARE FOR UNIT 6940, 6945,6800	ProcessFac-Flare	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	M1-OFF POWER SUPPLY TO FLARE.	U14	Mar-24	301588377 Done
N-B-6940-01	ETHYLENE UNLOADING COMPRESSOR	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Mar-24	301589020 Done
N-B-6940-101	FREON UNLOADING COMPRESSOR	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Mar-24	301589435 Done
N-B-6940-11	ETHYLENE BOIL OFF COM.	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Mar-24	301590187 Done
N-B-6940-111	FREON BOIL OFF COMP.	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Mar-24	301589021 Done
N-PD-6925-01B	DIESEL ENGINE FOR P-6925-01B	Diesel	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION. 2Hr	U11	Mar-24	301594385 Done
N-PD-6925-01R	DIESEL ENGINE FOR P-6925-01R	Diesel	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION. 2Hr	U11	Mar-24	301595293 Done
N-53-PSV-733	PRESS. RELIEF VALVE ----> SEE TEXT	PSV/Conventional	6u (5)	Safety Valve Control Valve	Y4-SAFETY VALVE INSPECTION	U11	Mar-24	600359437 Done
N-6921-PSV-005C	SAFETY V.1 ST. STAGE B-6921C	PSV/Conventional	6u (5)	Safety Valve Control Valve	18M-SAFETY VALVE INSPECTION	U11	Mar-24	600358680 Done
N-6940-PSV-022A	PSV AT V-6940-03	PSV/ConventionalBellow	6u (5)	Safety Valve Control Valve	18M-SAFETY VALVE INSPECTION	U11	Mar-24	600360697 Done
N-6940-PSV-103	PSV AT B-6940-01 PURGE GAS	PSV/ConventionalBellow	6u (5)	Safety Valve Control Valve	Y3- SAFETY VALVE INSPECTION.	U11	Mar-24	600359239 Done
N-6940-PSV-003A	SAFETY V LIQUID ETHY TO T-6940	PSV/ConventionalBellow	6u (5)	Safety Valve Control Valve	Y3- SAFETY VALVE INSPECTION.	U11	Mar-24	600361242 Done
N-69-HRE-05	SGS Marshaling Cabinet - EGF BIT	ESD Cabinet/System	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	1M Cabinet Visual Inspection	R55	Apr-24	301595969 Done
N-F-6923	FLARE FOR UNIT 6940, 6945,6800	ProcessFac-Flare	6u (1)	Enclose Ground Flare, วัตถุประสงค์การใช้งาน	M1-OFF POWER SUPPLY TO FLARE.	U14	Apr-24	301591603 Done
N-B-6940-01	ETHYLENE UNLOADING COMPRESSOR	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Apr-24	301592345 Done
N-B-6940-101	FREON UNLOADING COMPRESSOR	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Apr-24	301592853 Done
N-B-6940-11	ETHYLENE BOIL OFF COM.	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Apr-24	301594348 Done
N-B-6940-111	FREON BOIL OFF COMP.	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-1M- INSPECTION 8Hr	U11	Apr-24	301592354 Done
N-P-6925-01R	FIRE WATER PUMP DIESEL ENGINE R	Centrifugal-Non API	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	M3- INSPECTION. 4Hr	U11	Apr-24	301592524 Done
N-P-6925-07A	FIRE WATER PUMP A	Centrifugal-Non API	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	3M-INSPECTION	U11	Apr-24	301591871 Done
N-P-6925-07B	FIRE WATER PUMP B	Centrifugal-Non API	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	3M-INSPECTION	U11	Apr-24	301591874 Done
N-B-6940-11	ETHYLENE BOIL OFF COM.	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	RCM-INSPECT PISTON & CLEAN VAL	U11	Apr-24	301595952 Done
N-GD-6904	V12 WATER-COOLED DIESEL ENGINE	Engine driven	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION.	U11	Apr-24	301595510 Done
N-B-6921-01A	INSTRUMENT AIR COMPRESSOR A	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION FOR AIR COMP. 1H	U11	Apr-24	301593542 Done
N-B-6921-01B	INSTRUMENT AIR COMPRESSOR B	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION FOR AIR COMP. 1H	U11	Apr-24	301595271 Done
N-B-6921-01C	INSTRUMENT AIR COMPRESSOR C	Reciprocating	6u (4)	เครื่องจักรที่ผลิตของเหลว เช่น Compressor, Pump, Etc.	2M- INSPECTION FOR AIR COMP. 1H	U11	Apr-24	301593547 Done
N-6946-AE-001A	GAS DETECTOR AT TANK T-6946A	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592221 Done
N-6946-AE-001B	GAS DETECTOR AT TANK T-6946A	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592117 Done
N-6946-AE-002A	GAS DETECTOR AT TANK T-6946B	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592223 Done
N-6946-AE-002B	GAS DETECTOR AT TANK T-6946B	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301594611 Done
N-6946-AE-003A	GAS DETECTOR AT PUMP P-6946A	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592225 Done
N-6946-AE-003B	GAS DETECTOR AT PUMP P-6946B	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592227 Done
N-6980-AE-1101	GAS DETECTOR TANK TOP MANIFOLD	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592119 Done
N-6980-AE-1102	GAS DETECTOR TANK OUTLET MANIFOLD	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592892 Done
N-6980-AE-1103	GAS DETECTOR PUMP PAD	Gas Detector	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301593527 Done
N-6982-GD-001	Gas Detector	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301591969 Done
N-6982-GD-002	Gas Detector	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301591972 Done
N-6982-GD-003	Gas Detector	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	PM FOR N-6982-GD-003 (3M)	R56	Apr-24	301591975 Done
N-6983-GD-003	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301591922 Done
N-6983-GD-004	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301592621 Done
N-6983-GD-005	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301591978 Done
N-6983-GD-006	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301591925 Done
N-6983-GD-007	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301592215 Done
N-6983-GD-008	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301593645 Done
N-6983-GD-009	GAS DETECTOR	GAS DETECTOR (H2)	6u (6)	Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301592218 Done
N-O-AIA-800-1	GAS DETECTOR NO.1 O-FAB11A	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592121 Done
N-O-AIA-800-10	GAS DETECTOR NO.10 O-FAB11F	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301591963 Done
N-O-AIA-800-2	GAS DETECTOR NO.2 O-FAB11B	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301591965 Done
N-O-AIA-800-3	GAS DETECTOR NO.3 FQCA811	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592034 Done
N-O-AIA-800-4	GAS DETECTOR NO.4 O-FAB11C	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592123 Done
N-O-AIA-800-5	GAS DETECTOR NO.5 O-FAB11D	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301591967 Done
N-O-AIA-800-6	GAS DETECTOR NO.6 O-FAB11E	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592125 Done
N-O-AIA-800-7	GAS DETECTOR NO.7 FQCA831	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592205 Done
N-O-AIA-800-8	GAS DETECTOR NO.8 O-FAB11F	Detector-Gas:HC	6u (6)	Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592127 Done

Equipment	Description	Category	Mapping EI/ EQ Type	Mapping Test	Frequency	Plan date	Order	Status
N-O-AIA-800-9	GAS DETECTOR NO.9 O-FA811F	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592036	Done
N-O-AIA-801-1	GAS DETECTOR NO.11 O-FA801A,B	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592129	Done
N-O-AIA-801-2	GAS DETECTOR NO.12 O-FA801B	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592131	Done
N-O-AIA-801-3	GAS DETECTOR NO.13 O-FA801D	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301593367	Done
N-O-AIA-801-4	GAS DETECTOR NO.14 O-FA801C,D	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301591961	Done
N-O-AIA-801-5	GAS DETECTOR NO.15 O-FA801E,F	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301591929	Done
N-O-AIA-801-6	GAS DETECTOR NO.16 O-FA801E	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301591208	Done
N-O-AIA-801-7	GAS DETECTOR NO.17 O-FA801F	Detector-Gas:HC	6u (6) Gas Detector, Heat Detector	M6-GAS DETECTOR CALIBRATION	R56	Apr-24	301592133	Done
N-6925-DH-001	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301593435	Done
N-6925-DH-002	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301594232	Done
N-6925-DH-003	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591546	Done
N-6925-DH-004	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301593319	Done
N-6925-DH-005	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591578	Done
N-6925-DH-006	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591422	Done
N-6925-DH-007	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	3015914235	Done
N-6925-DH-008	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591549	Done
N-6925-DH-009	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301593322	Done
N-6925-DH-010	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301595181	Done
N-6925-DH-011	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591425	Done
N-6925-DH-012	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301594238	Done
N-6925-DH-013	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591552	Done
N-6925-DH-014	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301593325	Done
N-6925-DH-015	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301595184	Done
N-6925-DH-016	GAS DETECTOR FOR C-2 S/O UNIT	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591428	Done
N-6925-DH-017	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301592681	Done
N-6925-DH-018	GAS DETECTOR BTF	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301591555	Done
N-6925-DH-019	GAS DETECTOR APC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301593328	Done
N-6925-DH-020	GAS DETECTOR APC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301595479	Done
N-6925-DH-021	GAS DETECTOR TMC	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION, 9	R56	Apr-24	301594431	Done
N-6925-DH-028	GAS DETECTOR BTF(E-6949)	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	m3-pm gas detector(E-6949)	R56	Apr-24	301591558	Done
N-6925-DH-029	GAS DETECTOR BTF(E-6940-03)	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	m3 pm gas detector (E-6940-03)	R56	Apr-24	301595327	Done
N-6925-DH-030	GAS DETECTOR T-6981	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301594343	Done
N-6925-DH-031	GAS DETECTOR T-6981	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	M3-GAS DETECTOR CALIBRATION	R56	Apr-24	301595482	Done
N-6945-XT-044A	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	3M-GAS DETECTOR CALIBRATION 1	R56	Apr-24	301591575	Done
N-6945-XT-044B	GAS DETECTOR	GAS DETECTOR (H2)	6u (6) Gas Detector, Heat Detector	3M-GAS DETECTOR CALIBRATION 1	R56	Apr-24	301594720	Done
N-6945-PSV-007A	PSV LIQUID PROPYL FROM JETTY	PSV/ConventionBellow	6u (5) Safety Valve Control Valve	Y3- SAFETY VALVE INSPECTION	U11	Apr-24	600361632	Done
N-69-MRE-05	SGS Marshalling Cabinet - EGF BTF	ESD Cabinet/System	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	1M Cabinet Visual Inspection	R56	May-24	301595970	Done
N-F-6923	FLARE FOR UNIT 6940, 6945,6800	ProcessFac-Flare	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	M1-OFF POWER SUPPLY TO FLARE	U14	May-24	301591604	Done
N-B-6940-01	ETHYLENE UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Ethylene Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	May-24	301592346	Done
N-B-6940-101	FREON UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Freon Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	May-24	301592854	Done
N-B-6940-11	ETHYLENE BOIL OFF COM.	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Ethylene Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	May-24	301594349	Done
N-B-6940-111	FREON BOIL OFF COMP.	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Freon Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	May-24	301592355	Done
N-6945-PSV-048	PRESSURE SAFETY VALVE	PSV/Conventional	6u (5) Safety Valve Control Valve	1Y-PRESSURE SAFETY VALVE 8 HRS	U11	May-24	600361465	Done
N-6961-PSV-003	SAFETY VALVE DISCH. P-6981A/R	PSV/Conventional	6u (5) Safety Valve Control Valve	18M-SAFETY VALVE INSPECTION	U11	May-24	600361828	Done
N-6982-PSV-004	Pressure Safety Valve	PSV/Pilot Operated	6u (5) Safety Valve Control Valve	4Y-CALIBRATION AND TEST SAFETY	U11	May-24	600361821	Done
N-PD-6925-01B	DIESEL ENGINE FOR P-6925-01B	Diesel	6u (4) เครื่องจักรอัดแก๊ส Diesel Compressor, Pump, Etc	2M- INSPECTION, 2Hr	U11	May-24	301594386	Done
N-PD-6925-01R	DIESEL ENGINE FOR P-6925-01R	Diesel	6u (4) เครื่องจักรอัดแก๊ส Diesel Compressor, Pump, Etc	2M- INSPECTION, 2Hr	U11	May-24	301595294	Done
N-B-6940-01	ETHYLENE UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Ethylene Compressor, Pump, Etc	RCM-INSPECT PISTON 4000 HRS	U11	May-24	301595964	Done
N-B-6940-101	FREON UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Freon Compressor, Pump, Etc	RCM-INSPECT PISTON 4000 HRS	U11	May-24	301595959	Done
N-69-MRE-05	SGS Marshalling Cabinet - EGF BTF	ESD Cabinet/System	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	1M Cabinet Visual Inspection	R56	Jun-24	301595971	Done
N-6983-PCV-115	EGF pressure regulator	Valve-Regulator	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	1Y-PRESSURE CONTROL VALVE CALI	U13	Jun-24	301595790	Done
N-6983-PCV-116	EGF N2 pressure regulator	Valve-Regulator	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	1Y-PRESSURE CONTROL VALVE CALI	U13	Jun-24	301595788	Done
N-6983-PCV-117	EGF Air pressure regulator	Valve-Regulator	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	1Y-PRESSURE CONTROL VALVE CALI	U13	Jun-24	301595789	Done
N-6983-PCV-125	EGF pressure regulator	Valve-Regulator	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	1Y-PRESSURE CONTROL VALVE CALI	U13	Jun-24	301595791	Done
N-F-6923	FLARE FOR UNIT 6940, 6945,6800	ProcessFac-Flare	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	1M-OFF POWER SUPPLY TO FLARE	U14	Jun-24	301591605	Done
N-BM-6983-B111	EGF BLOWER MOTOR B-111 WITH VSD	Low voltage motor	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	6M-INSPECTION	U14	Jun-24	301592691	Done
N-BM-6983-B112	EGF BLOWER MOTOR B-112	Low voltage motor	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	6M-INSPECTION	U14	Jun-24	301592693	Done
N-BM-6983-B113	EGF BLOWER MOTOR B-113	Low voltage motor	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	6M-INSPECTION	U14	Jun-24	301592671	Done
N-BM-6983-B114	EGF BLOWER MOTOR B-114	Low voltage motor	6u (1) Enclose Ground Flare, ฆากวนคุมโถงหาง	6M-INSPECTION	U14	Jun-24	301592659	Done
N-B-6940-01	ETHYLENE UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Ethylene Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	Jun-24	301592347	Done
N-B-6940-101	FREON UNLOADING COMPRESSOR	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Freon Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	Jun-24	301592855	Done
N-B-6940-11	ETHYLENE BOIL OFF COM.	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Ethylene Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	Jun-24	301594350	Done
N-B-6940-111	FREON BOIL OFF COMP.	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Freon Compressor, Pump, Etc	RCM-1M- INSPECTION 8Hr	U11	Jun-24	301592356	Done
N-PD-6925-01B	DIESEL ENGINE FOR P-6925-01B	Diesel	6u (4) เครื่องจักรอัดแก๊ส Diesel Compressor, Pump, Etc	RCM 1Y-INSPEC ENGINE OF FIRE W/	U11	Jun-24	301592832	Done
N-PD-6925-01R	DIESEL ENGINE FOR P-6925-01R	Diesel	6u (4) เครื่องจักรอัดแก๊ส Diesel Compressor, Pump, Etc	RCM 1Y-INSPEC ENGINE OF FIRE W/	U11	Jun-24	301592849	Done
N-GD-6904	V12 WATER-COOLED DIESEL ENGINE	Engine driven	6u (4) เครื่องจักรอัดแก๊ส Diesel Compressor, Pump, Etc	2M- INSPECTION	U11	Jun-24	301595511	Done
N-B-6921-01A	INSTRUMENT AIR COMPRESSOR A	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Instrument Air Compressor, Pump, Etc	2M- INSPECTION FOR AIR COMP, 1H	U11	Jun-24	301593543	Done
N-B-6921-01B	INSTRUMENT AIR COMPRESSOR B	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Instrument Air Compressor, Pump, Etc	2M- INSPECTION FOR AIR COMP, 1H	U11	Jun-24	301595272	Done
N-B-6921-01C	INSTRUMENT AIR COMPRESSOR C	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Instrument Air Compressor, Pump, Etc	2M- INSPECTION FOR AIR COMP, 1H	U11	Jun-24	301593548	Done
N-B-6921-01A	INSTRUMENT AIR COMPRESSOR A	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Instrument Air Compressor, Pump, Etc	Overhaul 10,000 hrs	U11	Jun-24	301595857	Done
N-6981-PSV-001A	SAFETY VALVE T-6981	PSV/Conventional	6u (5) Safety Valve Control Valve	Y1-LAW SAFETY VALVE INSPECTION	U21	Jun-24	600361375	Done
N-6981-PSV-001R	SAFETY VALVE T-6981	PSV/Conventional	6u (5) Safety Valve Control Valve	Y1-LAW SAFETY VALVE INSPECTION	U21	Jun-24	600361243	Done
N-O-SV802	SAFETY VALVE 3/4" x 1" EDC TRANSFER	PSV/ConventionBellow	6u (5) Safety Valve Control Valve	CALIBRATION AND TEST SAFETY VA	U11	Jun-24	600361291	Done
N-O-SV819	SAFETY VALVE VCM TRANSFER LINE 81	PSV/ConventionBellow	6u (5) Safety Valve Control Valve	CALIBRATION AND TEST SAFETY VA	U11	Jun-24	600361372	Done
N-6945-PSV-038	PRESSURE SAFETY VALVE	PSV/Conventional	6u (5) Safety Valve Control Valve	1Y-PRESSURE SAFETY VALVE 8 HRS	U11	Jun-24	600361709	Done
N-6940-PSV-160	PSV LIQUID ETHYLENE LINE FROM GC1	PSV/Conventional	6u (5) Safety Valve Control Valve	4Y-PSV CALIBRATION AND TEST	U11	Jun-24	600361857	Done
N-6981-PSV-005	SAFETY V. INLET TRANSFER LINE TO T	PSV/Conventional	6u (5) Safety Valve Control Valve	3Y-SAFETY VALVE INSPECTION	U11	Jun-24	301593238	Done
N-B-6921-01B	INSTRUMENT AIR COMPRESSOR B	Reciprocating	6u (4) เครื่องจักรอัดแก๊ส Instrument Air Compressor, Pump, Etc	Overhaul 15,000 hrs	U11	Jun-24	301591054	Done

เอกสารแผนซ่อมบำรุงรักษาเครื่องจักรที่มีเสียงดัง



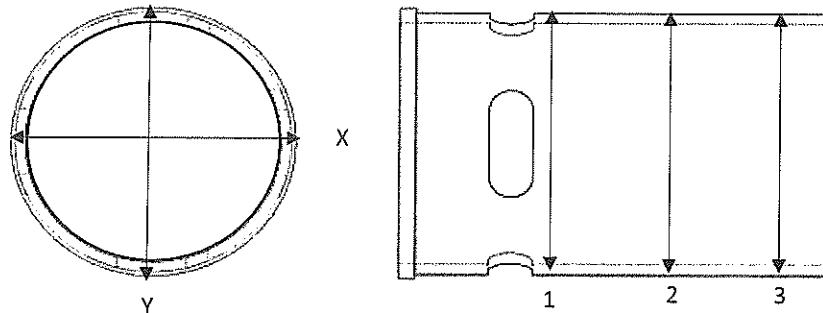


กลุ่มบริษัท พีทีที โกลบอล เคมิคอล
จำกัด (มหาชน)

W-(U-TM-CM)-M-XXX : XXXXXXXXXX

COMPRESSOR CLEARANCE INSPECTION

Cylinder liner dimension and Roughness (As found ID cylinder liner_Old)



		Measurement point			Remark
		1	2	3	
2nd	X	205.70	205.20	205.68	205.40
	Y	206.88	206.92	206.13	
Roughness (Ra)	X	0.58			0.1-0.2 Ra
	Y				

*** Follow requirement specification of GC

Specification:

Roughness surface finish 0.1 – 0.2 μm (Ra)

Remark: Old part_Hardness for ID liner is ____ HB and OD liner is ____ HB.

New part_Hardness for ID liner is 175 HB and OD liner is 244 HB.

Applicable Measurement Tools

☒ GCME ☐ GC

GCME:

Prachawut Ch.

GC:

DATE:

12/6/24



กลุ่มบริษัท พีทีที โกลบอล เคมิคอล
จำกัด (มหาชน)

W-(U-TM-CM)-M-XXX : XXXXXXXXXX

COMPRESSOR INSPECTION

Cylinder liner PMI Check

Cylinder	Picture		Remark
Old			
New			

Remark:

Applicable Measurement Tools

☒ GCME

☐ GC

GCME:

Prachawut Ch.

GC:

DATE:

13/6/24

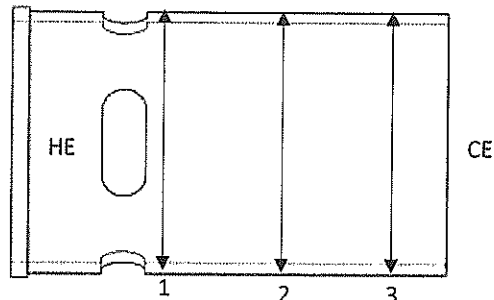
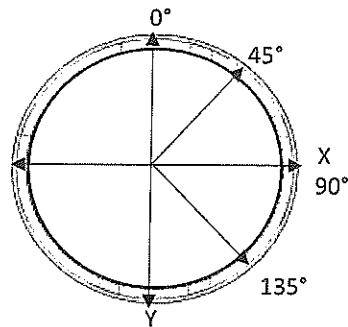


กลุ่มบริษัท พีทีที โกลบอล เคมิคอล
จำกัด (มหาชน)

W-(U-TM-CM)-M-XXX : XXXXXXXXXX

COMPRESSOR CLEARANCE INSPECTION

Cylinder liner dimension and Roughness (ID of Cylinder bore before repair and after repair finished)



	Measurement point				Remark
		1	2	3	
2 nd (Before)	0°	220.55	220.56	220.58	Don't repair
	45°	220.55	220.56	220.58	
	90°	220.55	220.56	220.58	
	135°	220.55	220.56	220.58	
Roughness (Ra)	X	~ 1.22 μm (Ra)			1.00-1.50 μm (Ra)
	Y	Wait confirm again after cleaning finished			
2 nd (After)	0°				Don't repair
	45°				
	90°				
	135°				
Roughness (Ra)	X				1.00-1.50 μm (Ra)
	Y				
OD liner (for shrinking fit)	X	220.73	220.73	220.72	+0.13 -0.16 mm.
	Y	220.73	220.73	220.72	
Roughness (Ra)	X	0.41	0.51	0.50	0.4 – 0.6 μm (Ra)
	Y	0.33	0.55	0.61	

*** Follow requirement specification of GC

Specification:

Roughness surface finish 1.00-1.50 μm (Ra)

Remark: (Control dimension OD liner 220.71-220.74 mm. roughness 0.4-0.6 μm (Ra))

** Confirmed and accepted dimension and roughness by GC (K. Chalermrit and K. Nares witness)

Applicable Measurement Tools

☒ GCME ☐ GC

GCME:

Prachawut Ch.

GC:

DATE:

14/6/24



กลุ่มบริษัท พีทีที โกลบอล เคมิคอล
จำกัด (มหาชน)

W-(U-TM-CM)-M-XXX : XXXXXXXXXX

COMPRESSOR CLEARANCE INSPECTION

Cylinder bore ID Concentric check and repair

	Measurement point						Remark
		Surface	Ø230	1 (Ø 220)	2 (Ø 220)	3 (Ref)	
Concentric check ID cylinder (Before)	0	0	0	0	0	0	
	45	-0.05	+0.04	+0.01	+0.01	+0.02	
	90	-0.05	+0.01	0	+0.01	+0.005	
	135	-0.01	+0.02	+0.015	+0.02	+0.02	
Concentric check ID cylinder (After)	0						Don't repair
	45						
	90						
	360						

Remark: Confirmed and accepted dimension and roughness by GC (K. Chalermrit and K. Nares witness)

Applicable Measurement Tools

☒ GCME

☐ GC

GCME:

Prachawut Ch.

GC:

DATE:

12/6/24

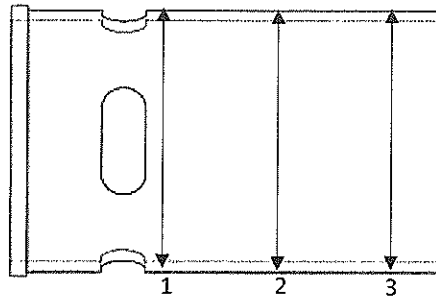
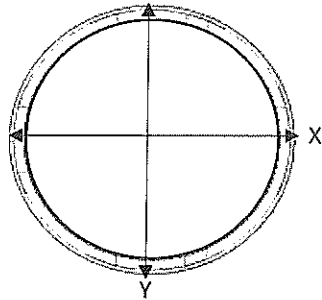


กลุ่มบริษัท พีทีที โกลบอล เคมิคอล
จำกัด (มหาชน)

W-(U-TM-CM)-M-XXX : XXXXXXXXXX

COMPRESSOR CLEARANCE INSPECTION

ID Cylinder bore after heat at 200°C and OD liner after cool down by dry ice (Final confirmed)



		Measurement point			Remark
		1	2	3	
Cylinder bore ID	X	220.80	220.85	220.83	220.55 - 220.58 mm. (Heat by heater)
	Y	220.80	220.85	220.85	
Liner OD	X	220.33	220.35	220.35	220.73 - 220.74 mm. (Cooldown by dry ice)
	Y	220.33	220.35	220.35	

Remark: Confirmed and accepted dimension and roughness by GC (K. Chalermrit and K. Nares witness)

Applicable Measurement Tools

☒ GCME

☐ GC

GCME:
Prachawut Ch.

GC:

DATE:
14/6/24

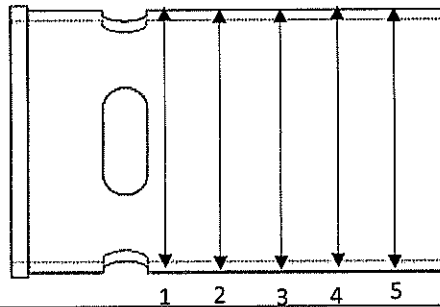
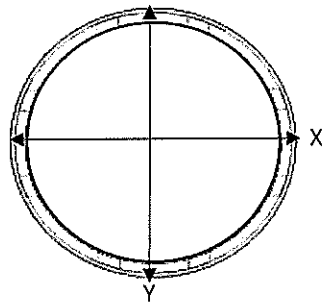


กลุ่มบริษัท พีทีที โกลบอล เคมิคอล
จำกัด (มหาชน)

W-(U-TM-CM)-M-XXX : XXXXXXXXXX

COMPRESSOR CLEARANCE INSPECTION

ID Cylinder liner dimension and Roughness (Final confirmed)



		Measurement point					Remark
		1	2	3	4	5	
2 nd (Final)	X	205.00	205.00	205.005	205.00	205.00	205.00-205.02
	Y	205.00	205.00	205.005	205.00	205.00	
Roughness (Ra)	X	0.13		0.13		0.16	0.10-0.20 μm (Ra)
	Y	0.11		0.14		0.18	

Remark: ***Confirmed and Witness by GC7 staff (Witness confirmed by K. Chalermrit and K. Nares)

Specification: Dimension finished 205.00-205.02 mm., Roughness surface finish 0.10-0.20 μm (Ra)

Hydro static test cooling water chamber 7.5 bars, hold 30 min result: Pass

PT test result: Pass don't have defect

Applicable Measurement Tools

☒ GCME

☐ GC

GCME:

Prachawut Ch.

GC:

DATE:

18-6-24

เอกสารแผนซ่อมบำรุงรักษา
ระบบถังเก็บผลิตภัณฑ์และระบบท่อ



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No.	Line no.	Size	Product.	Inspection plan 2024											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
147	L-6742										X				
148	X-6742										X				
149	5300-DL-001-2-150B01										X				
150	5300-FD-007-4-150B01										X				
151	5300-FD-008-0.75-150B01										X				
152	5300-FD-008-1-150B01										X				
153	5300-FD-009-0.75-150B01										X				
154	5300-GF-001-3-300B01										X				
155	5300-GF-001-1-300B01										X				
156	5300-GF-002-0.75-150B01										X				
157	5300-GF-003-2-150B01										X				
158	5300-GF-004-0.75-150B01										X				
159	5300-GF-005-2-150B01										X				
160	5300-GF-006-2.5-300B01										X				
161	5300-GF-007-2-300B01											X			
162	5300-GF-008-1-300B01											X			
163	5300-GF-009-1-300B01											X			
164	5300-ML-002-1-300B21-KV											X			
165	5300-ML-003-1-300B21-KV											X			
166	5300-ML-004-3-300B21-KV											X			
167	5300-ML-006-0.75-300B21-KV											X			
168	5300-ML-007-1-300B21-KV											X			
169	5300-ML-008-0.75-300B21-KV											X			
170	5300-ML-009-0.75-300B21-KV											X			
171	5300-ML-009-1-300B21-KV											X			

No.	Line no.	Size	Product.	Inspection plan 2024											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
122	6800-PB-501									X					
123	6800-PB-502									X					
124	6800-PB-503									X					
125	6800-PB-504									X					
126	6800-PB-505									X					
127	6800-PB-506									X					
128	6800-PB-507									X					
129	6800-PB-508									X					
130	6800-PB-509									X					
131	6800-PB-510									X					
132	K-6891									X					
133	L-6811									X					
134	L-6812									X					
135	L-6821									X					
136	L-6822									X					
137	L-6831									X					
138	L-6841									X					
139	L-6842									X					
140	6700-P-107-2-300H01									X					
141	6700-PE-108-10-300B01										X				
142	6700-PE-111-2-150B01										X				
143	6700-PE-112-1-150-M01										X				
144	6700-PE-121-2-150B01										X				
145	L-6731										X				
146	L-6741										X				

No.	Line no.	Size	Product.	Inspection plan 2024											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
97	6983-P-065-10-300C03-K-50							X							
98	6983-P-066-10-300C03-K-50							X							
99	6983-PA-663-1-150C01							X							
100	6940-FR-208-2-150H01-KV75							X							
101	6940-FR-210-3-1500M01								X						
102	6940-FR-212-2-150H01								X						
103	6940-FR-213-2-300C01-WP30								X						
104	6940-FR-218-1-150M01								X						
105	6946-DB-001-4-3X7								X						
106	6940-FR-201-300C01-WP30								X						
107	6940-FR-202-300H01-KV75								X						
108	6940-FR-203-150M01-KV75								X						
109	6940-FR-205-300C01-WP30								X						
110	6940-FR-206-150H01-KV75								X						
111	6800-FD-101-2-150B01-B								X						
112	6800-FO-101-2-150B01								X						
113	6800-FO-102-1.5-150B01								X						
114	6800-FO-105-1.5-150B01								X						
115	6800-P-114-4-300C03N								X						
116	6800-P-124-1-300H01								X						
117	6800-PB-149								X						
118	6800-PB-150								X						
119	6800-PB-152-6-300B01								X						
120	6800-PB-153-4-300B01-13								X						
121	6800-PB-202-2-300H01									X					

No.	Line no.	Size	Product.	Inspection plan 2024											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
73	6982-BT-021-0.75-150B01						X								
74	6982-BT-022-1-150B01						X								
75	6982-BT-023-0.75-300B01						X								
76	6982-BT-024-1-150B01						X								
77	6982-BT-025-3-150B01						X								
78	6982-BT-026-0.75-150B01						X								
79	6982-BT-027-1-150B01						X								
80	6982-BT-028-2-150B01						X								
81	6982-BT-029-0.75-150B01							X							
82	6982-BT-030-0.75-150B01							X							
83	6982-BT-030-2-150B01							X							
84	6983-FW-027-1-150C04							X							
85	6983-GF-104-2-300B01							X							
86	6983-GF-105-0.75-300B01							X							
87	6983-P-001-6-300C03-K-50							X							
88	6983-P-012-10-300C03-K-50							X							
89	6983-P-014-10-300C03-K-50							X							
90	6983-P-015-10-300C03-K-50							X							
91	6983-P-018-10-300C03-K-50							X							
92	6983-P-036-0.75-150C03-K-40							X							
93	6983-P-037-0.75-150C03-K-40							X							
94	6983-P-038-0.75-150C03-K-40							X							
95	6983-P-040-0.75-300C03-K-40							X							
96	6983-P-063-0.75-300C03-K-40							X							

No.	Line no.	Size	Product.	Inspection plan 2024											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
49	6981-PB-016-1-150B01					X									
50	6981-PB-017-0.75-150B01					X									
51	6981-PB-018-1-150B01					X									
52	6981-PB-019-0.75-150B01					X									
53	6981-PB-020-1-150B01					X									
54	6981-PB-020-1-150C01					X									
55	6981-PB-021-0.75-150B01					X									
56	6981-PB-022-0.75-150B01					X									
57	6981-PB-023-0.75-150B01					X									
58	6981-PB-024-2-150B01					X									
59	6981-PB-025-1-150B01					X									
60	6981-PB-025-3-150B01					X									
61	6981-PB-026-1-150C01						X								
62	6981-PB-028-0.75-300B01						X								
63	6981-PB-029-1-150B01						X								
64	6981-PB-031-3-300B01						X								
65	6981-PB-033-0.75-150B01						X								
66	6981-PB-034-0.75-150B01						X								
67	6982-BT-006-3-150B01						X								
68	6982-BT-007-3-150B01						X								
69	6982-BT-008-2-150B01						X								
70	6982-BT-013-3-150B01						X								
71	6982-BT-019-0.75-150B01						X								
72	6982-BT-020-1-150B01						X								

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**เอกสารแผนซ่อมบำรุงรักษาระบบ
Gas Detector& Flame Detector**





TEST AND CALIBRATION FOR GAS DETECTOR PTTGC-7 (TANK FARM)



Item	Tag	Location	Service Area	Manufacturer	Model	Type	Revised Target Gas	Recommend Cal Gas	Factor	Span	Calibration Results				Response Time (Sec)	Result	Calibrate date	Remark
											Before		After					
											Zero	Span	Zero	Span				
1	N-6925-DH-001	BTF	A-6925	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	17	Pass	10-Jan-24	
2	N-6925-DH-002	BTF	Road 4/2	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	49	-	-	18	Pass	10-Jan-24	
3	N-6925-DH-003	BTF	T-6940	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	44	0	50	16	Pass	10-Jan-24	
4	N-6925-DH-004	BTF	Road	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	45	0	50	18	Pass	10-Jan-24	
5	N-6925-DH-005	BTF	T-6945A,B	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	49	-	-	17	Pass	10-Jan-24	
6	N-6925-DH-006	BTF	Road 5/3	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	49	-	-	18	Pass	10-Jan-24	
7	N-6925-DH-007	BTF	T-6961	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	18	Pass	10-Jan-24	
8	N-6925-DH-008	BTF	Truck Load Road 6/3	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	46	0	50	19	Pass	10-Jan-24	
9	N-6925-DH-009	BTF	P-6488	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	54	0	50	17	Pass	10-Jan-24	
10	N-6925-DH-010	BTF	Road 6911	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	19	Pass	10-Jan-24	
11	N-6925-DH-011	BTF	PIG-STATION	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	44	0	50	17	Pass	10-Jan-24	
12	N-6925-DH-012	BTF	Corridor to go Jetty	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	19	Pass	10-Jan-24	
13	N-6925-DH-013	BTF	T-6923	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	46	0	50	19	Pass	10-Jan-24	
14	N-6925-DH-014	BTF	T-6980	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	46	0	50	17	Pass	10-Jan-24	
15	N-6925-DH-015	BTF	P-6488	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	44	0	50	17	Pass	10-Jan-24	
16	N-6925-DH-016	BTF	E-5303	GM	S4100C	Catalytic	Methane	Methane	1	50	0	49	-	-	18	Pass	10-Jan-24	
17	N-6925-DH-017	BTF	T-6945 A	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	18	Pass	10-Jan-24	
18	N-6925-DH-018	BTF	T-6945 B	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	17	Pass	10-Jan-24	
19	N-6925-DH-019	BTF	T-6966 A	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	19	Pass	10-Jan-24	
20	N-6925-DH-020	BTF	T-6966 A	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	16	Pass	10-Jan-24	
21	N-6925-DH-021	BTF	T-6949 A/Pump	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	19	Pass	10-Jan-24	
22	N-6925-DH-028	BTF	T-6949 A	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	18	Pass	10-Jan-24	
23	N-6925-DH-029	BTF	T-6940	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	19	Pass	10-Jan-24	
24	N-6925-DH-030	BTF	0142	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	46	0	50	19	Pass	10-Jan-24	
25	N-6925-DH-031	BTF	T-6981/Pump	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	44	0	50	18	Pass	10-Jan-24	
26	A-6925-DH-032	BTF	T-6981 Under Sphere	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	17	Pass	10-Jan-24	
27	A-6925-GD-032	BTF	T-6949/Pump	Dräger	Polytron-8000	Catalytic	Is-Butane	Methane	1	50	0	46	0	50	17	Pass	11-Jan-24	
28	A-6925-GD-033	BTF	E-5305A/B	GM	S5000	IR	Methane	Methane	1	50	0	48	-	-	17	Pass	10-Jan-24	



TEST AND CALIBRATION FOR GAS DETECTOR PTTGC-7 (TANK FARM)



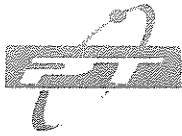
Item	Tag	Location	Service Area	Manufacturer	Model	Type	Revised Target Gas	Recommend Cal Gas	Factor	Span	Calibration Results				Response Time (T90%)	Result	Calibrate date	Remark
											Before	Zero	Span	After				
29	A-6945-XT-044 A	BTF	Truck load	Dräger	Polytron-8000	Catalytic	Methane	Methane	1	50	0	44	0	50	19	Pass	11-Jan-24	
30	A-6945-XT-044 B	BTF	Truck load	Dräger	Polytron-8000	Catalytic	Methane	Methane	1	50	0	46	0	50	19	Pass	11-Jan-24	
31	A-6925-AT-001	BTF	SWRO	Honeywell	Sensepoint XCD	Electrochemical	Oxygen	Oxygen	-	20.9	-	21.2	-	20.9	-	Pass	10-Jan-24	
31	A-6870-DH-701	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	44	0	50	18	Pass	12-Jan-24	
32	A-6870-DH-702	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	45	0	50	18	Pass	12-Jan-24	
33	A-6870-DH-703	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	53	0	50	17	Pass	12-Jan-24	
34	A-6870-DH-704	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	44	0	50	18	Pass	12-Jan-24	
35	A-6870-DH-705	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	41	0	50	19	Pass	12-Jan-24	
36	A-6870-DH-706	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	57	0	50	17	Pass	12-Jan-24	
37	A-6870-DH-707	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	45	0	50	19	Pass	12-Jan-24	
38	A-6870-DH-708	JETTY 1		Dräger	Polytron-5000	Electrochemical	Oxygen	Oxygen	-	20.9	-	21.1	-	20.9	-	Pass	12-Jan-24	
39	A-6870-DH-709	JETTY 1		Dräger	Polytron-8000	Catalytic	Methane	Methane	1	50	0	54	0	50	18	Pass	12-Jan-24	
40	A-6870-DH-710	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	45	0	50	19	Pass	12-Jan-24	
41	A-6870-DH-711	JETTY 1		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	44	0	50	19	Pass	12-Jan-24	
42	A-6770-DH-001	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	44	0	50	17	Pass	12-Jan-24	
43	A-6770-DH-002	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	52	0	50	17	Pass	12-Jan-24	
44	A-6770-DH-003	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	46	0	50	19	Pass	12-Jan-24	
45	A-6770-DH-004	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	46	0	50	18	Pass	12-Jan-24	
46	A-6770-DH-005	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	46	0	50	18	Pass	12-Jan-24	
47	A-6770-DH-006	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	45	0	50	19	Pass	12-Jan-24	
48	A-6770-DH-007	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	41	0	50	18	Pass	12-Jan-24	
49	A-6770-DH-008	JETTY 2		Honeywell	Universal XNX	Catalytic	Methane	Methane	1	50	0	52	0	50	19	Pass	12-Jan-24	



TEST AND CALIBRATION FOR GAS DETECTOR PTTGC-7 (TANK FARM)



Item	Tag	Location	Service Area	Manufacturer	Model	Type	Revised Target Gas	Recommend Cal Gas	Factor	Span	Calibration Results				Response Time (190Sec)	Result	Calibrate date	Remark
											Before	Span	Zero	After				
50	N-6983-GD-001	BTF	T-6983-01 B	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	49	-	-	19	Pass	10-Jan-24	
51	N-6983-GD-002	BTF	T-6983-01 A	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	46	0	50	21	Pass	10-Jan-24	
52	N-6983-GD-003	BTF	P-6983-04 R	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	49	-	-	18	Pass	10-Jan-24	
53	N-6983-GD-004	BTF	P-6983-02 A/R	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	46	0	50	19	Pass	10-Jan-24	
54	N-6983-GD-005	BTF	P-6983-03 A/B	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	17	Pass	10-Jan-24	
55	N-6983-GD-006	BTF	P-6983-01 B	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	42	0	50	20	Pass	10-Jan-24	
56	N-6983-GD-007	BTF	V-6983	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	18	Pass	10-Jan-24	
57	N-6983-GD-008	BTF	F-6983	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	45	0	50	19	Pass	10-Jan-24	
58	N-6983-GD-009	BTF	Truck loading	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	44	0	50	17	Pass	10-Jan-24	
59	N-6983-GD-010	BTF	Metering	GM	S5000	IR	Methane	Methane	1	50	0	50	-	-	19	Pass	10-Jan-24	
60	N-6983-GD-011	BTF	Metering	GM	S5000	IR	Methane	Methane	1	50	0	48	-	-	20	Pass	10-Jan-24	
NEW GAS DETECTOR ROOM																		
61	N-6982-GD-001	BTF	T-6982	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	18	Pass	10-Jan-24	
62	N-6982-GD-002	BTF	T-6982	Honeywell	Universal NNX	Catalytic	Methane	Methane	1	50	0	53	0	50	18	Pass	10-Jan-24	
63	N-6982-GD-003	BTF	P-6982 A/R	GM	IR 4000S	IR	Methane	Methane	1	50	0	48	-	-	19	Pass	10-Jan-24	
NEW GAS DETECTOR ROOM																		
64	N-6901A-AT-001	Control Room	Air Intake	Dräger	Polytron 7000	Electrochemical	VCM	Carbon Monoxide	1	100	0	91	0	100	23	Pass	11-Jan-24	
65	N-6901A-AT-002	Control Room	Air Intake	Dräger	Polytron 7000	Electrochemical	BTD	Carbon Monoxide	1	100	0	95	0	100	21	Pass	11-Jan-24	
66	N-6901A-AT-003	Control Room	Air Intake	Dräger	Polytron 8000	IR	EDC	Methane	1	50	0	44	0	50	18	Pass	11-Jan-24	
NEW GAS DETECTOR ROOM																		
67	6940-GD-101	BTF	COMPRESSOR	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	44	0	50	22	Pass	10-Jan-24	
68	6940-GD-102	BTF	COMPRESSOR	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	49	-	-	19	Pass	10-Jan-24	
69	6940-GD-103	BTF	COMPRESSOR	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	50	-	-	18	Pass	10-Jan-24	
70	6940-GD-104	BTF	COMPRESSOR	Dräger	Polytron-5000	Catalytic	Methane	Methane	1	50	0	48	-	-	18	Pass	10-Jan-24	
NEW GAS DETECTOR ROOM																		
71	6966-GD-101	BTF	T-6966B	Honeywell	Universal NNX	Catalytic	I-Butane	I-Butane	1	49	0	55	0	49	19	Pass	11-Jan-24	
72	6966-GD-102	BTF	T-6966B	Honeywell	Universal NNX	Catalytic	I-Butane	I-Butane	1	49	0	44	0	49	18	Pass	11-Jan-24	
73	6966-GD-103	BTF	T-6966B	Dräger	Polytron-5000	IR	I-Butane	I-Butane	1	49	0	46	0	49	19	Pass	11-Jan-24	



QUALITY FORM

TEST AND CALIBRATION FOR GAS DETECTOR

EFF DATE : 06/07/2020

Revision No.00

GAS DETECTOR CALIBRATION REPORT

CUSTOMER	: PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED	REPORT	: 1
PLANT	: PTTGC7		
DATE	: 10-Jan-2024		
TAG NO	: N-6925-DH-001	OUTPUT SIGNAL	: 4-20 mA
MANUFACTURER	: Drager	MEASUREMENT RANGE	: 0-100 %LEL
MODEL	: Polytron-5000	REVISED TARGET GAS	: Methane
TYPE	: Catalytic	RECOMMEND CAL.GAS	: Methane
LOCATION	: BTF	COMPENSATION FACTOR	: 1
SERVICE AREA	: A-6925	ERROR ALLOWANCE \pm	: 5 %LEL
		ALARM SETPOINT (L)	: 20 %LEL

STANDARD GAS DETAILS

CYLINDER NUMBER	: WO363134-2	CERTIFICATE DATE	: 16-Aug-22
CERTIFICATE NUMBER	: WO363134-2	EXPIRED DATE	: 16-Aug-27
PARAMETER	CONCENTRATION	UNIT	REMARK
METHENE	50	%LEL	-
AIR ZERO	0.0	%LEL	Verify By Certified Portable Gas Detector

CALIBRATION RESULTS

CALIBRATE GAS	UNIT	ZERO	SPAN
Methane	%LEL	0.0	50.0
Response Output	%LEL	0.0	50.0
AS Found	UNIT	ZERO	SPAN
Reading	%LEL	0.0	48.0
Error Reading	%LEL	0.0	-2.0
AS Left	UNIT	ZERO	SPAN
Reading	%LEL	-	-
Error Reading	%LEL	-	-

Test Result

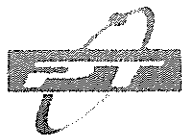
- ☒ Accept ☒ Test Alarm Signal
- ☐ Not Accept ☒ Test With Low Concentration STD Gas
- ☐ Accept And Note

Note :

Preventive Maintenance Period : 3 Months

Next Period for Calibration : 10-Apr-2024





QUALITY FORM

TEST AND CALIBRATION FOR GAS DETECTOR

EFF DATE : 06/07/2020

Revision No.00

GAS DETECTOR CALIBRATION REPORT

CUSTOMER : PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED REPORT : 2
PLANT : PTTGC7
DATE : 10-Jan-2024

TAG NO : N-6925-DH-002 OUTPUT SIGNAL : 4-20 mA
MANUFACTURER : Drager MEASUREMENT RANGE : 0-100 %LEL
MODEL : Polyttron-5000 REVISED TARGET GAS : Methane
TYPE : Catalytic RECOMMEND CAL GAS : Methane
LOCATION : BTF COMPENSATION FACTOR : 1
SERVICE AREA : Road 4/2 ERROR ALLOWANCE \pm : 5 %LEL
ALARM SETPOINT (L) : 20 %LEL

STANDARD GAS DETAILS

CYLINDER NUMBER : WO363134-2 CERTIFICATE DATE : 16-Aug-22
CERTIFICATE NUMBER : WO363134-2 EXPIRED DATE : 16-Aug-27

PARAMETER	CONCENTRATION	UNIT	REMARK
METHANE	50	%LEL	-
AIR ZERO	0.0	%LEL	Verify By Certified Portable Gas Detector

CALIBRATION RESULTS

CALIBRATE GAS	UNIT	ZERO	SPAN
Methane	%LEL	0.0	50.0
Response Output	%LEL	0.0	50.0
AS Found	UNIT	ZERO	SPAN
Reading	%LEL	0.0	49.0
Error Reading	%LEL	0.0	-1.0
AS Left	UNIT	ZERO	SPAN
Reading	%LEL	-	-
Error Reading	%LEL	-	-

Test Result

- ☒ Accept ☒ Test Alarm Signal
☐ Not Accept ☒ Test With Low Concentration STD Gas
☐ Accept And Note

Note :

Preventive Maintenance Period : 3 Months

Next Period for Calibration : 10-Apr-2024



Remark :



**เอกสาร The Ship/Shore Safety and Pollution Checklists
เพื่อตรวจสอบก่อนทำการขนถ่ายสารเคมี**





Dear Sir,

SAFETY AND ENVIRONMENTAL REQUIREMENTS

Responsibility for the safe conduct of operations whilst your ship/barge is at this Terminal rests jointly with you, as Master, and the responsible Terminal representative. We wish, before operations start, to seek your full co-operation and understanding on the safety requirements set out in the Ship/Shore Safety Check List which are based on safe practices widely accepted by government and by the oil and tanker industries.

We, therefore, expect you and all under your command to adhere strictly to them throughout your stay alongside this Terminal. We, for our part, will ensure that our personnel do likewise and co-operate fully with you in the mutual interest of safe and efficient operations.

In order to assure ourselves of your compliance with these safety requirements, we shall, before the start of operations and from time to time thereafter, for our mutual safety, a member of the Terminal staff, where appropriate together with a responsible officer, will make a routine inspection of your ship/barge to ensure that the questions on the Ship/Shore safety Check List can be answered in the affirmative. If we observe any infringement onboard your ship/barge of any of these requirements, we shall bring this immediately to the attention of yourself or your deputy for corrective action. If such action is not taken in a reasonable time, we shall adopt measures which we consider to be the most appropriate to deal with the situation and we, shall notify you accordingly.

Similarly, if you consider safety is endangered by any action on the part of terminal staff or cargo inspectors whether on the berth/jetty or onboard your ship/barge, please immediately to the notice of our Senior Terminal Representative. Should you feel that any immediate threat to the safety of your vessel arises from any action on our part, or from equipment under our control, you are fully entitle to demand an immediate cessation of operations.

The Senior Terminal

Telephone Number:

UHF/VHF Communi

In the event of your vessel's failure to comply with safety standards or our Jetty Safety Regulations, we reserve the right to stop all operations and to order your vessel off the Jetty for appropriate action to be taken by the vessel owners (and Charterers) concerned.

Please be reminded that if vessel has been ordered to leave a berth in accordance with the Conditions of Acceptance and fails to vacate that berth within 3 hours (tidal and weather conditions permitting), a fee, minimum 4,000 US\$ per hour, for berth occupancy may be levied by the Company at its discretion. The same fee may be levied in respects of a vessel permitted to utilize a berth for repairs, tank cleaning or other impractical / substandard operations.

Please acknowledge receipt of this letter and confirm you have a copy of this letter and Marine Terminal Safety Regulations by countersigning and returning the attached copy of this letter.

Signed for Terminal: _____

Signed for Ship: _____



FIRE INSTRUCTIONS

DO NOT HESITATE TO RAISE THE ALARM

Terminal Fire and Emergency Alarm Signal:

At this Terminal the Fire and Emergency Signal is: WAIL/ TONE (30 Seconds)

In case of Fire:

1. Sound one or more blasts of the ship's whistle each blast of not less than ten seconds duration supplemented by a continuous sounding of the general alarm system.
2. Contact the Terminal.

GC East Terminal : Telephone: +6638971433

GC West Terminal : Telephone: +6638975115

UHF Channel : 09 Jetty VHF Channel : 13

UHF Channel : 13 VHF Channel : 13

ACTION - SHIP

Fire on your Ship

- Raise the alarm
- Inform the Terminal
- Cease all cargo/ballast operations and close all valves
- Fight fire and prevent fire from spreading
- Standby to disconnect hoses or arms
- Bring engines to standby

Fire on other Ship or Ashore

Stand by, and when instructed:

- Cease all cargo operations
- Disconnect hoses or arms
- Bring engines and crew to standby, ready to unberth

ACTION - TERMINAL

Fire on a Ship

- Raise the alarm
- Contact ship
- Cease all cargo/ballast operations and close all valves
- Standby to disconnect all hoses and arms
- Standby to assist fire fighting
- Inform all ships
- Implement Terminal Emergency Plan

Fire Ashore

- Raise alarm
- Cease all cargo/ballast operations and close all valves
- Fight fire and prevent fire from spreading
- If required standby to disconnect hoses or arms
- Inform all ships
- Implement Terminal emergency plan

- For PTTGC East Terminal : Both shore assembly points are located at the main car park outside the marine building and beside the guard house, in case of emergency please proceed to those locations.
- ✓ For PTTGC West Terminal : Assembly point is located at the shuttle boat deck under the jetty 1, in case of emergency please proceed to that location.

The Ship/Shore Safety Check - List



GC East Terminal : ☐ GC 1 ☐ GC 2 ☐ GC 3

GC West Terminal : ☒ GC 1 ☐ GC 2

Time of Arrival: 16.00 LT

INSTRUCTIONS FOR COMPLETION:

The safety of operations requires that all questions should be answered affirmatively. If an affirmative answer is not possible, the reason should be given and agreement reached upon appropriate precautions to be taken between the ship and the terminal. Where any question is not considered to be applicable a note to that effect should be inserted in the remarks column.

The presence of the letters A, P and R in the column 'Code' indicates the following:

- A - the mentioned procedures and agreements shall be in writing and signed by both parties.
- P - in the case of a negative answer the operation shall not be carried out without the permission of the Port Authority.
- R - indicates items to be re-checked at intervals not exceeding four hours.

Part 'A' - Bulk Liquid General - Physical Checks

Bulk Liquid - General	Ship	Terminal	Code	Remarks
1. There is safe access between the ship and shore.	✓	✓	R	
2. The ship is securely moored.	✓	✓	R	
3. The agreed ship/shore communication system is operative.			A R	System: OMF-13 Backup System: VHF-13 1 METER ABOVE SEA
4. Emergency towing-off pennants are correctly rigged and positioned.	✓	✓	R	
5. The ship's fire hoses and fire-fighting equipment are positioned and ready for immediate use.	✓		R	
6. The terminal's fire-fighting equipment is positioned and ready for immediate use.		✓	R	
7. The ship's cargo and bunker hoses, pipelines and manifolds are in good condition, properly rigged and appropriate for the service intended.	✓			
8. The terminal's cargo and bunker hoses or arms are in good condition, properly rigged and appropriate for the service intended.		✓		
9. The cargo transfer system is sufficiently isolated and drained to allow safe removal of blank flanges prior to connection.	✓	✓		
10. Scuppers and save-alls on board are effectively plugged and drip trays are in position and empty.	✓		R	
11. Temporarily removed scupper plugs will be constantly monitored.	✓		R	
12. Shore spill containment and sumps are correctly managed.		✓	R	
13. The ship's unused cargo and bunker connections are properly secured with blank flanges fully bolted.	✓			
14. The terminal's unused cargo and bunker connections are properly secured with blank flanges fully bolted.		✓		
15. All cargo, ballast and bunker tank lids are closed.	✓			
16. Sea and overboard discharge valves, when not in use, are closed and visibly secured.	✓			
17. All external doors, ports and windows in the accommodation, stores and machinery spaces are closed. Engine room vents may be open.	✓		R	
18. The ship's emergency fire control plans are located externally.	✓			Location: P23 Entrance ACC.

If the ship is fitted, or is required to be fitted, with an inert gas system (IGS), the following points should be physically checked:

Inert Gas System	Ship	Terminal	Code	Remarks
19. Fixed IGS pressure and oxygen content recorders are working.	N/A		R	
20. All cargo tank atmospheres are at positive pressure with oxygen content of 8% or less by volume.	N/A		P R	

Part 'B' - Bulk Liquid General - Verbal Verification

Bulk Liquid - General	Ship	Terminal	Code	Remarks
21. The ship is ready to move under its own power.	✓	✓	P R	
22. There is an effective deck watch in attendance on board and adequate supervision of operations on the ship and in the terminal.	✓	✓	R	
23. There are sufficient personnel on board and ashore to deal with an emergency.	✓	✓	R	
24. The procedures for cargo, bunker and ballast handling have been agreed.			A R	NO DEBALLAST
25. The emergency signal and shutdown procedure to be used by the ship and shore have been explained and understood.			A	STOP & 3
26. Material Safety Data Sheets (MSDS) for the cargo transfer have been exchanged where requested.			P R	
27. The hazards associated with toxic substances in the cargo being handled have been identified and understood.				H2S Content: 0 Benzene Content: 0
28. An International Shore Fire Connection has been provided.				
29. The agreed tank venting system will be used.			A R	Method: MARUSP.
30. The requirements for closed operations have been agreed.			R	
31. The operation of the P/V system has been verified.				
32. Where a vapour return line is connected, operating parameters have been agreed.			A R	EMERGENCY ONLY 2 Line Clear
33. Independent high level alarms, if fitted, are operational and have been tested.			A R	
34. Adequate electrical insulating means are in place in the ship/shore connection.			A R	
35. Shore lines are fitted with a non-return valve, or procedures to avoid back filling have been discussed.			P R	
36. Smoking rooms have been identified and smoking requirements are being observed.			A R	Nominated smoking room: CLEAN MSDS ROOM ONLY.
37. Naked light regulations are being observed.			A R	
38. Ship/shore telephones, mobile phones and pager requirements are being observed.			A R	
39. Hand torches (flashlights) are of an approved type.	✓	✓		
40. Fixed VHF/UHF transceivers and AIS equipment are on the correct power mode or switched off.	✓			
41. Portable VHF/UHF transceivers are of an approved type.	✓	✓		
42. The ship's main radio transmitter aerials are earthed and radars are switched off.	✓			
43. Electric cables to portable electrical equipment within the hazardous area are disconnected from power.	✓	✓		
44. Window type air conditioning units are disconnected.	✓			
45. Positive pressure is being maintained inside the accommodation, and air conditioning intakes, which may permit the entry of cargo vapours, are closed.	✓			
46. Measures have been taken to ensure sufficient mechanical ventilation in the pump room.	✓		R	
47. There is provision for an emergency escape.	✓	✓		
48. The maximum wind and swell criteria for operations have been agreed.			A	Stop cargo at : 25 knots Disconnect at : 30 knots Unberth at : TBA 35 knots.
49. Security protocols have been agreed between the Ship Security Officer and the Port Facility Security Officer, if appropriate.			A	LEVEL-1
50. Where appropriate, procedures have been agreed for receiving nitrogen supplied from shore, either for inerting or purging ship's tanks, or for line clearing into the ship.			A P	

If the ship is fitted, or is required to be fitted, with an inert gas system (IGS), the following statements should be addressed:

Inert Gas System	Ship	Terminal	Code	Remarks
51. The IGS is fully operational and in good working order.	N/A		P	
52. Deck seals, or equivalent, are in good working order.	N/A		R	
53. Liquid levels in pressure/vacuum breakers are correct.	N/A		R	
54. The fixed and portable oxygen analysers have been calibrated and are working properly.	N/A		R	
55. All the individual tank IG valves (if fitted) are correctly set and locked.	N/A		R	
56. All personnel charge of cargo operations are aware that, in the case of failure of the inert gas plant, discharge operations should cease and the terminal be advised.	N/A			

If the ship is fitted with a Crude Oil Washing (COW) system, and intends to crude oil wash, the following statements should be addressed:

Oil Washing	Ship	Terminal	Code	Remarks
57. The Pre-Arrival COW check-list, as contained in the approved COW manual, has been satisfactorily completed.	N/A			
58. The COW check-lists for use before, during and after COW, as contained in the approved COW manual, are available and being used.	N/A		R	

If the ship is planning to tank clean alongside, the following statements should be addressed:

Oil Washing	Ship	Terminal	Code	Remarks
59. Tank cleaning operations are planned during the ship's stay alongside the shore installation.	Yes/No*	Yes/No*		
60. If 'yes', the procedures and approvals for tank cleaning have been agreed.	N/A			
61. Permission has been granted for gas freeing operations.	Yes/No*	Yes/No*		

* Delete Yes or No as appropriate

Part 'C' - Bulk Liquid Chemical - Verbal Verification

Bulk Liquid Chemical	Ship	Terminal	Code	Remarks
1. Material Safety Data Sheets are available giving the necessary data for the safe handling of the cargo.				
2. A manufacturer's inhibition certificate, where applicable, has been provided.			P	
3. Sufficient protective clothing and equipment (including self-contained breathing Apparatus) is ready for immediate use and is suitable for the product being handled.				
4. Countermeasures against accidental personal contact with the cargo has been agreed.				
5. The cargo handling rate is compatible with the automatic shutdown system, if in use.			A	
6. Cargo system gauges and alarms are correctly set and in good order.				
7. Portable vapour detection instruments are readily available for the products being Handled.				
8. Information on fire-fighting media and procedures has been exchanged.				
9. Transfer hoses are of suitable material, resistant to the action of the products being handled.				
10. Cargo handling is being performed with the permanent installed pipeline system.			P	
11. Where appropriate, procedures have been agreed for receiving nitrogen supplied Form shore, either for inerting or purging ship's tank, or for line clearing into the ship.			A P	

Part 'D' - Bulk Liquid Gases - Verbal Verification

Bulk Liquid Gases	Ship	Terminal	Code	Remarks
1. Material Safety Data Sheets are available giving the necessary data for the safe handling of the cargo.	✓	✓		
2. A manufacturer's inhibition certificate, where applicable, has been provided.	✓	✓	P	
3. The water spray system is ready for immediate use.	✓	✓		
4. There is sufficient suitable protective equipment (including self-contained breathing Apparatus) and protective clothing is ready for immediate use.	✓	✓		
5. Hold the inter-barrier spaces are properly inerted or filled with dry air, as required.	✓			
6. All remote control valves are in working order.				
7. The required cargo pumps and compressors are in good order, and the maximum working pressures have been agreed between ship and shore.			A	
8. Re-liquefaction or boil-off control equipment is in good order.				
9. The gas detection equipment has been properly set for the cargo, is calibrated, Has been tested and inspected and is in good order.	✓	✓		
10. Cargo system gauges and alarms are correctly set and in good order.	✓	✓		
11. Emergency shutdown system has been tested and are working properly.	✓	✓		
12. Ship and shore have informed each other of the closing rate of ESD valves, automatic valves or similar devices.			A	Ship: 25 sec Shore: 28 sec

Bulk Liquid Gases	Ship	Terminal	Code	Remarks
13. Information has been exchanged between ship and shore on the maximum/minimum temperatures/pressures of the cargo to be handled.			A	-10 → 45°C
14. Cargo tanks are protected against inadvertent overfilling at all times while any cargo operations are in progress.	✓			
15. The compressor room is properly ventilated, the electrical motor room is properly pressurized and the alarm system is working.	✓			Compressor AREA
16. Cargo tank relief valves are set correctly and actual relief valve setting are clearly and visible displayed. (Record settings below.)	✓	✓		

Tank No 1	✓ 17.4	Tank No 5		Tank No 8	
Tank No 2	✓ 17.4	Tank No 6		Tank No 9	
Tank No 3		Tank No 7		Tank No 10	
Tank No 4					

DECLARATION

We, the undersigned, have checked the above items in Parts A and B and where appropriate Part C or D, in accordance with the instructions, and have satisfied ourselves that the entries we have made are correct to the best of our knowledge.

We have also made arrangements to carry out repetitive checks as necessary and agreed that those items with code 'R' in the Check-List should be re-checked at intervals not exceeding 4 hours.

If to our knowledge the status of any item changes, we will immediately inform the other party.

For Ship		For Shore	
[Redacted]		[Redacted]	
Rank	C/O	Name	[Redacted]
Signature	[Redacted]	Position or Title	L/M [Redacted]
Date	19 MAY 2021	Signature	[Redacted]
Time	19:00 LT	Date	19 th MAY, 2024
		Time	19:00 LT



Record of repetitive checks

MT/MV "



"

Date	Time	Initials for ship	Initials for shore	Remark
19/may/24	16.00			
	20:00			
20/05/24	00.00			
	03:00			

Receipt for Shore Radio



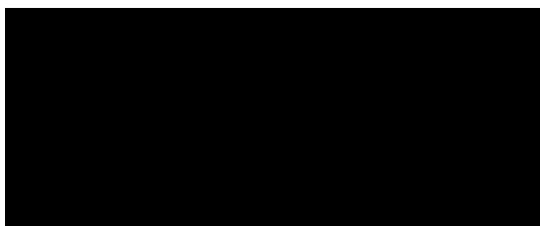
Vessel: PHUBAI NADDA 1

Date: 19th MAY 2024

Time: 17.00 LT.

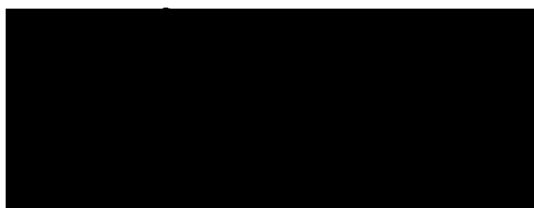
This is to confirm receipt of one piece **Shore Radio**, type VHF - 13.

including spare battery, in operation condition without any apparent damage, from PTT Global Chemical Public Company Limited.



I declare, that I will return above stated equipment upon completion of cargo and/or ballast operation but prior to departure to the Terminal Representative of PTT Global Chemical Public Company Limited.

This is to confirm receipt of returned walky talky including spare battery, in operating condition without any apparent damage, from above mentioned vessel.



TIME SHEET

Vessel: 'PHUBAI NADDA1

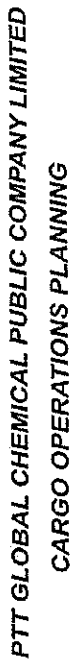
Trade : ☒ Domestic ☐ Foreign

GC East Terminal : ☐ GC 1 ☐ GC 2 ☐ GC 3

GC West Terminal : ☒ GC 1 ☐ GC 2

[illegible]

On Behalf of PTT Global Chemical Public Company Limited.



SHIP: 110001L NNDPA 1
GC East Terminal: ☐ GC 1 ☐ GC 2 ☐ GC 3
GC West Terminal: ☒ GC 1 ☐ GC 2
CARGO / JOB ID: TN, BD,
DATE: 19 MAY 2024

Additional Comments / Remarks				
01	CALCULATED MAX DRAFT AFTER LOADING	Fwd 5' 2 m.	Mean 5. am.	Aft 5. 2 m.
02	Other Points communicated at Pre-Operation Meeting : Emergency Procedures ; Precaution ; Cargo Emergency Shutdown (ESD) against Static Electrical Discharge in ship tanks; Relaxation Time prior to Sampling / Ullaging / Sounding			
03	RUN SHIP COMP. 22 10 ~ 18 00H, 00H			
04				
05				
06				
07				
08				

Ship's loading / Discharging sequence (attached page if required)		P	C	S
		FPT		
No. 1				
No. 2				
No. 3				
No. 4				
No. 5				
No. 6				
No. 7				
No. 8				

*deleted if not applicable

Loading / Discharging Plan

[illegible]

Chief Officer Page 10 of 12



PTT Global Chemical Public Company Limited.

F-(R-RM-OP)-1024
PRE BERTH CHECK LIST FORM

PRE BERTH CHECKS LIST

Vessel : PHUBAI NADDA 1 Date : 19th MAY 2024

GC East Terminal : ☐ GC 1 ☐ GC 2 ☐ GC 3

GC West Terminal : ☒ GC 1 ☐ GC 2

ETA : ETD : 20 May 2024 @ 03:00 hr

DESCRIPTION	CHECK	REMARK
1. CHECK BERTH FOR OVERALL VISUAL DAMAGE	✓	
2. GANGWAY IN STOWED POSITION, NO VISUAL DAMAGE AND CLEARED BETWEEN SHIP / SHORE (QUICK RELEASE HOOK RESET FOR PTTGC TERMINAL)	✓	
3. FIRE WATER PRESSURE CHECK, FIRE WATER MONITORS CORRECTLY SET, INCLUDED LIFE SAVING EQUIPMENT AVAILABLE	✓	
4. LOADING ARM READY FOR USE, O-RING, GASKET (INCLUDED SPARE) AND COUPLERS CHECKED (GC TERMINAL L/A ROPE HAND LINES IN GOOD CONDITION)	✓	
5. LOADING ARM NO PRESSURE AND PRODUCT REMAIN INSIDE (DRAIN OR VENT MAY NEED)	✓	

Remark: Ensure properly flush of lading arms which service for high viscosity such as FO, LSWR, Crude high pour point. Loading arms drain valves are working properly during / after flush and keep in close position while not in used.

Checked by [REDACTED] Signed [REDACTED] Date : 19th MAY 2024



The Master,



Vessel: PHOBAI NADDA 1

Date of arrival: 19th MAY 2024

GC East/West Terminal: JETTY-1

Dear Sir,

SAFETY AND ENVIRONMENTAL REQUIREMENTS

Responsibility for the safe conduct of operations whilst your ship/barge is at this Terminal rests jointly with you, as Master, and the responsible Terminal representative. We wish, before operations start, to seek your full co-operation and understanding on the safety requirements set out in the Ship/Shore Safety Check List which are based on safe practices widely accepted by government and by the oil and tanker industries.

We, therefore, expect you and all under your command to adhere strictly to them throughout your stay alongside this Terminal. We, for our part, will ensure that our personnel do likewise and co-operate fully with you in the mutual interest of safe and efficient operations.

In order to assure ourselves of your compliance with these safety requirements, we shall, before the start of operations and from time to time thereafter, for our mutual safety, a member of the Terminal staff, where appropriate together with a responsible officer, will make a routine inspection of your ship/barge to ensure that the questions on the Ship/Shore safety Check List can be answered in the affirmative. If we observe any infringement onboard your ship/barge of any of these requirements, we shall bring this immediately to the attention of yourself or your deputy for corrective action. If such action is not taken in a reasonable time, we shall adopt measures which we consider to be the most appropriate to deal with the situation and we, shall notify you accordingly.

Similarly, if you consider safety is endangered by any action on the part of terminal staff or cargo inspectors whether on the berth/jetty or onboard your ship/barge, please immediately to the notice of our Senior Terminal Representative. Should you feel that any immediate threat to the safety of your vessel arises from any action on our part, of from equipment under our control, you are fully entitle to demand an immediate cessation of operations.

Handwritten signature

In the event of your vessel's failure to comply with safety standards or our Jetty Safety Regulations, we reserve the right to stop all operations and to order your vessel off the Jetty for appropriate action to be taken by the vessel owners (and Charterers) concerned.

Please be reminded that if vessel has been ordered to leave a berth in accordance with the Conditions of Acceptance and fails to vacate that berth within 3 hours (tidal and weather conditions permitting), a fee, minimum 4,000 US\$ per hour, for berth occupancy may be levied by the Company at its discretion. The same fee may be levied in respects of a vessel permitted to utilize a berth for repairs, tank cleaning or other impractical / substandard operations.

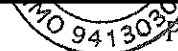
Please acknowledge receipt of this letter and confirm you have a copy of this letter and Marine Terminal Safety Regulations by countersigning and returning the attached copy of this letter.

Signed for Terminal:

Handwritten signature
[Redacted signature]

Signed for Ship:

[Redacted signature]





FIRE INSTRUCTIONS

DO NOT HESITATE TO RAISE THE ALARM

Terminal Fire and Emergency Alarm Signal:

At this Terminal the Fire and Emergency Signal is: WAIL/ TONE (30 Seconds)

In case of Fire:

1. Sound one or more blasts of the ship's whistle each blast of not less than ten seconds duration supplemented by a continuous sounding of the general alarm system.
2. Contact the Terminal.

GC East Terminal : Telephone: +6638971433

GC West Terminal : Telephone: +6638975115

UHF Channel : 09 Jetty VHF Channel : 13

UHF Channel : 13 VHF Channel : 13

ACTION - SHIP

Fire on your Ship

- Raise the alarm
- Inform the Terminal
- Cease all cargo/ballast operations and close all valves
- Fight fire and prevent fire from spreading
- Standby to disconnect hoses or arms
- Bring engines to standby

Fire on other Ship or Ashore

Stand by, and when instructed:

- Cease all cargo operations
- Disconnect hoses or arms
- Bring engines and crew to standby, ready to unberth

ACTION - TERMINAL

Fire on a Ship

- Raise the alarm
- Contact ship
- Cease all cargo/ballast operations and close all valves
- Standby to disconnect all hoses and arms
- Standby to assist fire fighting
- Inform all ships
- Implement Terminal Emergency Plan

Fire Ashore

- Raise alarm
- Cease all cargo/ballast operations and close all valves
- Fight fire and prevent fire from spreading
- If required standby to disconnect hoses or arms
- Inform all ships
- Implement Terminal emergency plan

- For PTTGC East Terminal : Both shore assembly points are located at the main car park outside the marine building and beside the guard house, in case of emergency please proceed to those locations.
- ✓ For PTTGC West Terminal : Assembly point is located at the shuttle boat deck under the jetty 1 ,in case of emergency please proceed to that location.

The Ship/Shore Safety Check-List

Vessel: PHUBAI NADDA 1
Date: 19th MAY 2024



GC East Terminal : ☐ GC 1 ☐ GC 2 ☐ GC 3

GC West Terminal : ☒ GC 1 ☐ GC 2

Time of Arrival: 16.00 LT

INSTRUCTIONS FOR COMPLETION:

The safety of operations requires that all questions should be answered affirmatively. If an affirmative answer is not possible, the reason should be given and agreement reached upon appropriate precautions to be taken between the ship and the terminal. Where any question is not considered to be applicable a note to that effect should be inserted in the remarks column.

The presence of the letters A, P and R in the column 'Code' indicates the following:

- A - the mentioned procedures and agreements shall be in writing and signed by both parties.
- P - in the case of a negative answer the operation shall not be carried out without the permission of the Port Authority.
- R - indicates items to be re-checked at intervals not exceeding four hours.

Part 'A' - Bulk Liquid General - Physical Checks

Bulk Liquid - General	Ship	Terminal	Code	Remarks
1. There is safe access between the ship and shore.	✓	✓	R	
2. The ship is securely moored.	✓	✓	R	
3. The agreed ship/shore communication system is operative.	✓	✓	A R	System: UHF-13 Backup System: VHF-13 1 METER ABOVE at SEA
4. Emergency towing-off pennants are correctly rigged and positioned.	✓	✓	R	
5. The ship's fire hoses and fire-fighting equipment are positioned and ready for immediate use.	✓		R	
6. The terminal's fire-fighting equipment is positioned and ready for immediate use.		✓	R	
7. The ship's cargo and bunker hoses, pipelines and manifolds are in good condition, properly rigged and appropriate for the service intended.	✓			
8. The terminal's cargo and bunker hoses or arms are in good condition, properly rigged and appropriate for the service intended.		✓		
9. The cargo transfer system is sufficiently isolated and drained to allow safe removal of blank flanges prior to connection.	✓	✓		
10. Scuppers and save-alls on board are effectively plugged and drip trays are in position and empty.	✓		R	
11. Temporarily removed scupper plugs will be constantly monitored.	✓		R	
12. Shore spill containment and sumps are correctly managed.		✓	R	
13. The ship's unused cargo and bunker connections are properly secured with blank flanges fully bolted.	✓			
14. The terminal's unused cargo and bunker connections are properly secured with blank flanges fully bolted.		✓		
15. All cargo, ballast and bunker tank lids are closed.	✓			
16. Sea and overboard discharge valves, when not in use, are closed and visibly secured.	✓			
17. All external doors, ports and windows in the accommodation, stores and machinery spaces are closed. Engine room vents may be open.	✓		R	
18. The ship's emergency fire control plans are located externally.	✓			Location: P23 Entrance ACC.

If the ship is fitted, or is required to be fitted, with an inert gas system (IGS), the following points should be physically checked:

Inert Gas System	Ship	Terminal	Code	Remarks
19. Fixed IGS pressure and oxygen content recorders are working.	N/A		R	
20. All cargo tank atmospheres are at positive pressure with oxygen content of 8% or less by volume.	N/A		P R	

Part 'B' - Bulk Liquid General - Verbal Verification

Bulk Liquid - General	Ship	Terminal	Code	Remarks
21. The ship is ready to move under its own power.	✓	✓	P R	
22. There is an effective deck watch in attendance on board and adequate supervision of operations on the ship and in the terminal.	✓	✓	R	
23. There are sufficient personnel on board and ashore to deal with an emergency.	✓	✓	R	
24. The procedures for cargo, bunker and ballast handling have been agreed.			A R	NO DEBA (HS)
25. The emergency signal and shutdown procedure to be used by the ship and shore have been explained and understood.			A	STOP 43
26. Material Safety Data Sheets (MSDS) for the cargo transfer have been exchanged where requested.	✓	✓	P R	
27. The hazards associated with toxic substances in the cargo being handled have been identified and understood.	✓	✓		H2S Content: 0 Benzene Content: 0
28. An International Shore Fire Connection has been provided.	✓	✓		
29. The agreed tank venting system will be used.			A R	Method: MARSUS.
30. The requirements for closed operations have been agreed.			R	
31. The operation of the P/V system has been verified.				
32. Where a vapour return line is connected, operating parameters have been agreed			A R	Emergency only 2 Line
33. Independent high level alarms, if fitted, are operational and have been tested.			A R	Clear
34. Adequate electrical insulating means are in place in the ship/shore connection.			A R	
35. Shore lines are fitted with a non-return valve, or procedures to avoid back filling have been discussed.			P R	
36. Smoking rooms have been identified and smoking requirements are being observed.			A R	Nominated smoking room: CLEAN ROOM only.
37. Naked light regulations are being observed.			A R	
38. Ship/shore telephones, mobile phones and pager requirements are being observed.			A R	
39. Hand torches (flashlights) are of an approved type.	✓	✓		
40. Fixed VHF/UHF transceivers and AIS equipment are on the correct power mode or switched off.	✓			
41. Portable VHF/UHF transceivers are of an approved type.	✓	✓		
42. The ship's main radio transmitter aerials are earthed and radars are switched off.	✓			
43. Electric cables to portable electrical equipment within the hazardous area are disconnected from power.	✓	✓		
44. Window type air conditioning units are disconnected.	✓			
45. Positive pressure is being maintained inside the accommodation, and air conditioning intakes, which may permit the entry of cargo vapours, are closed.	✓			
46. Measures have been taken to ensure sufficient mechanical ventilation in the pump room.	✓		R	
47. There is provision for an emergency escape.	✓	✓		
48. The maximum wind and swell criteria for operations have been agreed.			A	Stop cargo at : 25 knots Disconnect at : 30 knots Unberth at : TBA 35 knots.
49. Security protocols have been agreed between the Ship Security Officer and the Port Facility Security Officer, if appropriate.			A	LEVEL-1
50. Where appropriate, procedures have been agreed for receiving nitrogen supplied from shore, either for inerting or purging ship's tanks, or for line clearing into the ship.			A P	

If the ship is fitted, or is required to be fitted, with an inert gas system (IGS), the following statements should be addressed:

Inert Gas System	Ship	Terminal	Code	Remarks
51. The IGS is fully operational and in good working order.	N/A		P	
52. Deck seals, or equivalent, are in good working order.	N/A		R	
53. Liquid levels in pressure/vacuum breakers are correct.	N/A		R	
54. The fixed and portable oxygen analysers have been calibrated and are working properly.	N/A		R	
55. All the individual tank IG valves (if fitted) are correctly set and locked.	N/A		R	
56. All personnel charge of cargo operations are aware that, in the case of failure of the inert gas plant, discharge operations should cease and the terminal be advised.	N/A			

If the ship is fitted with a Crude Oil Washing (COW) system, and intends to crude oil wash, the following statements should be addressed:

Oil Washing	Ship	Terminal	Code	Remarks
57. The Pre-Arrival COW check-list, as contained in the approved COW manual, has been satisfactorily completed.	N/A			
58. The COW check-lists for use before, during and after COW, as contained in the approved COW manual, are available and being used.	N/A		R	

If the ship is planning to tank clean alongside, the following statements should be addressed:

Oil Washing	Ship	Terminal	Code	Remarks
59. Tank cleaning operations are planned during the ship's stay alongside the shore installation.	Yes/No*	Yes/No*		
60. If 'yes', the procedures and approvals for tank cleaning have been agreed.	N/A			
61. Permission has been granted for gas freeing operations.	Yes/No*	Yes/No*		

* Delete Yes or No as appropriate

Part 'C' - Bulk Liquid Chemical - Verbal Verification

Bulk Liquid Chemical	Ship	Terminal	Code	Remarks
1. Material Safety Data Sheets are available giving the necessary data for the safe handling of the cargo.				
2. A manufacturer's inhibition certificate, where applicable, has been provided.			P	
3. Sufficient protective clothing and equipment (including self-contained breathing Apparatus) is ready for immediate use and is suitable for the product being handled.				
4. Countermeasures against accidental personal contact with the cargo has been agreed.				
5. The cargo handling rate is compatible with the automatic shutdown system, if in use.			A	
6. Cargo system gauges and alarms are correctly set and in good order.				
7. Portable vapour detection instruments are readily available for the products being Handled.				
8. Information on fire-fighting media and procedures has been exchanged.				
9. Transfer hoses are of suitable material, resistant to the action of the products being handled.				
10. Cargo handling is being performed with the permanent installed pipeline system.			P	
11. Where appropriate, procedures have been agreed for receiving nitrogen supplied Form shore, either for inerting or purging ship's tank, or for line clearing into the ship.			A P	

Part 'D' - Bulk Liquid Gases - Verbal Verification

Bulk Liquid Gases	Ship	Terminal	Code	Remarks
1. Material Safety Data Sheets are available giving the necessary data for the safe handling of the cargo.	✓	✓		
2. A manufacturer's inhibition certificate, where applicable, has been provided.	✓	✓	P	
3. The water spray system is ready for immediate use.	✓	✓		
4. There is sufficient suitable protective equipment (including self-contained breathing Apparatus) and protective clothing is ready for immediate use.	✓	✓		
5. Hold the inter-barrier spaces are properly inerted or filled with dry air, as required.	✓			
6. All remote control valves are in working order.				
7. The required cargo pumps and compressors are in good order, and the maximum working pressures have been agreed between ship and shore.			A	
8. Re-liquefaction or boil-off control equipment is in good order.				
9. The gas detection equipment has been properly set for the cargo, is calibrated, Has been tested and inspected and is in good order.	✓	✓		
10. Cargo system gauges and alarms are correctly set and in good order.	✓	✓		
11. Emergency shutdown system has been tested and are working properly.	✓	✓		
12. Ship and shore have informed each other of the closing rate of ESD valves, automatic valves or similar devices.			A	Ship: 25 sec Shore: 28 sec

Bulk Liquid Gases	Ship	Terminal	Code	Remarks
13. Information has been exchanged between ship and shore on the maximum/minimum temperatures/pressures of the cargo to be handled.			A	-10 → 45°C.
14. Cargo tanks are protected against inadvertent overfilling at all times while any cargo operations are in progress.	✓			
15. The compressor room is properly ventilated, the electrical motor room is properly pressurized and the alarm system is working.	✓			Compressor AREA
16. Cargo tank relief valves are set correctly and actual relief valve setting are clearly and visible displayed. (Record settings below.)	✓	✓		

Tank No 1	✓ 17.4	Tank No 5		Tank No 8	
Tank No 2	✓ 17.4	Tank No 6		Tank No 9	
Tank No 3		Tank No 7		Tank No 10	
Tank No 4					

DECLARATION

We, the undersigned, have checked the above items in Parts A and B and where appropriate Part C or D, in accordance with the instructions, and have satisfied ourselves that the entries we have made are correct to the best of our knowledge.

We have also made arrangements to carry out repetitive checks as necessary and agreed that those items with code 'R' in the Check-List should be re-checked at intervals not exceeding 4 hours.

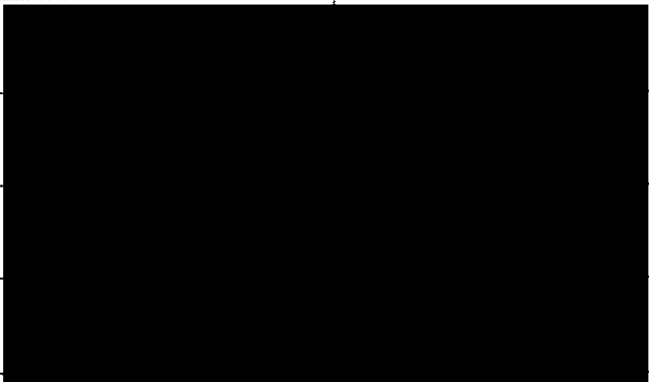
If to our knowledge the status of any item changes, we will immediately inform the other party.

For Ship	For Shore
<div style="background-color: black; width: 100%; height: 100px;"></div>	Name
	Position or
	Signature
Date 19 MAY 2022	Date 19 TH MAY, 2024
Time 19:00 LT	Time 19:00 LT



Record of repetitive checks

MT/MV " PHUBAI NADDA 1 "

Date	Time	Initials for ship	Initials for shore	Remark
19/MAY/24	16.00			
	20.00			
20/05/24	00.00			
	08.00			

Receipt for Shore Radio



Vessel: PHUBAI NADDA 1
Date: 19th MAY 2024
Time: 17.00 LT.

This is to confirm receipt of one piece **Shore Radio**, type VHF - 13.

including spare battery, in operation condition without any apparent damage, from PTT Global Chemical Public Company Limited.

Name: [REDACTED]
Position: [REDACTED]
Signature: [REDACTED]



I declare, that I will return above stated equipment upon completion of cargo and/or ballast operation but prior to departure to the Terminal Representative of PTT Global Chemical Public Company Limited.

This is to confirm receipt of returned walky talky including spare battery, in operating condition without any apparent damage, from above mentioned vessel.

Name: [REDACTED]
Position: [REDACTED]
Signature: [REDACTED]



TIME SHEET

Vessel: "PHUBAI NADDA1"

Trade : ☒ Domestic ☐ Foreign

GC East Terminal : ☒ GC 1 ☐ GC 2 ☐ GC 3

GC West Terminal : ☒ GC 1 ☐ GC 2

[illegible]

On Behalf of PTT Global Chemical Public Company Limited.



SHIP :
GC East Terminal : ☐ GC 1 ☐ GC 2 ☐ GC 3
GC West Terminal : ☒ GC 1 ☐ GC 2
CARGO / JOB ID : TH. *BD*
DATE : *19 MAY 2024*

Additional Comments / Remarks					
01	CALCULATED MAX DRAFT AFTER LOADING	Fwd 5.2 m.	Mean 5.2m.	Alt 5.2 m.	
02	Other Points communicated at Pre-Operation Meeting : Emergency Procedures ; Precaution ; Cargo Emergency Shutdown (ESD) against Static Electrical Discharge in ship tanks; Relaxation Time prior to Sampling / Ullaging / Sounding				
03	REN SHIP COMP. <u>2</u> 10 ~ 15 09/11 ¹¹				
04					
05					
06					
07					
08					

Ship's loading / Discharging sequence (attached page if required)		P	C	S
No. 1				
No. 2				
No. 3				
No. 4				
No. 5				
No. 6				
No. 7				
No. 8				

*deleted if not applicable

Loading / Discharging Plan

deleted if not applicable

Loading/ Discharging

Plan

Terminal

Master

Chief Officer Page 10 of 12



PTT Global Chemical Public Company Limited.

F-(R-RM-OP)-1024
PRE BERTH CHECK LIST FORM

PRE BERTH CHECKS LIST

Vessel : PHUBET NADDA 1 Date : 19th MAY 2024

GC East Terminal : ☐ GC 1 ☐ GC 2 ☐ GC 3

GC West Terminal : ☒ GC 1 ☐ GC 2

ETA : ETD : 20 May 2024 @ 08:00 hr

DESCRIPTION	CHECK	REMARK
1. CHECK BERTH FOR OVERALL VISUAL DAMAGE	✓	
2. GANGWAY IN STOWED POSITION, NO VISUAL DAMAGE AND CLEARED BETWEEN SHIP / SHORE (QUICK RELEASE HOOK RESET FOR PTTGC TERMINAL)	✓	
3. FIRE WATER PRESSURE CHECK, FIRE WATER MONITORS CORRECTLY SET, INCLUDED LIFE SAVING EQUIPMENT AVAILABLE	✓	
4. LOADING ARM READY FOR USE, O-RING, GASKET (INCLUDED SPARE) AND COUPLERS CHECKED (GC TERMINAL L/A ROPE HAND LINES IN GOOD CONDITION)	✓	
5. LOADING ARM NO PRESSURE AND PRODUCT REMAIN INSIDE (DRAIN OR VENT MAY NEED)	✓	

Remark: Ensure properly flush of lading arms which service for high viscosity such as FO, LSWR, Crude high pour point.
Loading arms drain valves are working properly during / after flush and keep in close position while not in used.

Date : 19th MAY 2024





เอกสารข้อกำหนด Jetty Regulation



PREFACE

This booklet may be updated from time to time in accordance with changes in regulations.

[illegible]

1. GENERAL INFORMATION

1.1 GENERAL

The terminal is referred to as " PTT Global Chemical Terminal ". The Terminal is owned and operated by PTT Global Chemical Public Company Limited (PTTGC).

It is situated on the Eastern Shore of the Gulf of Thailand approximately 220 kilometers from Bangkok.

Latitude - 12° 38' 08" North.
Longitude - 101° 08' 04" East.

The Marine Terminal consists of two berths for Importation / Exportation and Internal Distribution of Petrochemical / Chemical Products.

Berth No.1 is located approximately 4.2 kilometers off shore and connected by a pipeline jetty to Buffer Tank Farm on shore.

Berth No. 2 is extended from Berth No.1 to the Southwest side about 550 meters.

An anchorage area for the Pilot be onboard is defined at

Latitude - 12° 36' North.
Longitude - 101° 10' East.

This position shall be change according to the weather under the considerations of An Incharging Pilot.

1.2 OFFICIAL ADDRESS

PTT Global Chemical Terminal
PTT Global Chemical Public Company Limited
Map Ta Phut, Rayong 21150, Thailand.
Telephone 66-38-994-000
Facsimile 66-38-975-119

1.3 ACCEPTANCE CRITERIA

PTT Global Chemical Terminal consists of two berths. They are designed to serve vessels of various sizes and types of cargoes (see page no.24 and 25).

1.4 PILOTAGE

Pilots must be ordered for both inward and outward passages by the ship's agent.
VHF channel 16 is always monitored.

The pilot uses a service boat to board arriving vessels or vessels at anchorage.

1.5 TIDES

HAT + 3.50 m (Highest Astronomical Tide)
MHHW + 3.00 m (Mean Higher High Water)
MHW + 2.80 m (Mean High Water)
MSL + 2.20 m (Mean Sea Level)
MLLW + 1.40 m (Mean Lower Low Water)

LAT + 0.50 m (Lowest Astronomical Tide)

1.6 TIDAL CURRENTS

- * Pass from East to West during flood tides with mean velocities of 0.16 m/sec respectively maximum velocities of 0.34 m/sec and
- * Pass from West to East during ebb tides with mean velocities of 0.13 m/sec respectively maximum velocities of 0.23 m/sec

These tidal current velocities are without negative influence on ships approach as well as on ships berthing, but in contrary they favour the approach and berthing manoeuvres as the currents directions are passing the loading platform's front side nearly parallel.

1.7 WAVES

The wind-induced waves at the loading platform are mainly from South and Southwest directions.

The Maximum Height of Waves are 2.8 meters at wave period of 8 seconds.

1.8 WINDS

The Predominant Wind Directions are :

- * From the South during February to May
- * From the Southwest during June to September, and
- * From the North during October to January with.

Mean monthly wind speed of 13.9 km/h or 3.9 m/sec – Weak Breeze

Mean of maximum velocity of 135.3 km/h or 37.6 m/sec –

Typhoon in November from the North.

Strong winds of more than 10 m/sec are, however very infrequent in the area as well as the occurrence of Tropical Storms.

1.9 WATER DEPTHS

At Berth No. 1

Maximum Draft for Vessels arriving or departing can be stated as being 8.0 meters plus the height of the tide at that time.

The Existing Depth allowance for under keel clearance is required a minimum of 0.6 meter or 10% of vessel's draft once alongside at all times.

At Berth No. 2

Maximum Draft for Vessels arriving or departing can be stated as being 10.5 meters plus the height of the tide at that time.

The Existing Depth allowance for under keel clearance is required a minimum of 0.6 meter or 10% of vessel's draft once alongside at all times.

1.10 TUGS

Tug service is arranged for by the Ship's Agent / Ship's Owner / Ship's Charterer. Tugs are required for Mooring and Unmooring Operation.

One or two available fire monitors that can spray the water at least 20 meters are required for all tugs.

The number of tugs employed will vary according to the size of the vessel and prevailing weather conditions and/or according to the Notification of the Marine Department.

Under Normal Circumstances

One tug with Engine Power at least 2,400 HP. is required for Vessels up to an overall length of 110 meters.

Two tugs with Engine Power at least 2,400 HP. are required for all type of Vessels LOA longer than 110 meters.

In Monsoon Season

Two tugs with Engine Power at least 2,400 HP. are required for all type of Vessels to Mooring and Unmooring the Pier.

In case of Abnormal Circumstances, the number of tugs required will be under considerations of Pilot.

At least one tug with Engine Power at least 2,400 HP. must standby in the vicinity nearby at all time whilst vessel alongside.

(Except the Loaded Cargo is Nitrogen)

1.11 MOORING GANG

Running of mooring lines and release of mooring lines except in an Emergency is handled by mooring gang and are arranged for by the Ship's Agent / Ship's Owner.

For mooring the vessel at the Berth No.2 at least two mooring boats are required.

At least two mooring men have to standby on terminal at all time whilst vessel alongside. (Except the Loaded Cargo is Nitrogen)

2. VESSELS RESTRICTIONS / REQUIREMENTS

2.1 Vessels must have been properly cleared and accepted by PTT Global Chemical Terminal.

Only such liquefied gas and chemical vessels, which comply with the recommendations of IMO and have a valid certificate relating to:-

- * The code for existing ships carrying liquefied gases in bulk [Resolution A.329 (IX)].
- * The code for the construction and equipment for ships carrying liquefied gases in bulk [Resolution A.328 (IX)].
- * The international code for the construction and equipment of ships carrying liquefied gases in bulk (IGC) [Resolution MSC 5 (48)].
- * The code for the construction and equipment of ships carrying dangerous chemicals in bulk [Resolution A.212 (VII)] may operate at the berths.

2.2 Vessel must have given proper notices through the ship's agent to the Terminal by facsimile for Terminal approval to proceed to the berth prior to arrival. The notices of arrival should contain the following :-

- a) Name and call sign of the vessel.
- b) E.T.A. to PTT Global Chemical Terminal.
- c) Vessel's particulars.
- d) Details of cargo such as quantities, etc.
- e) Details of ship's manifold including type, size and numbers.
- f) Whether the ship has external impressed cathodic protection.
- g) Certificate of fitness.
- h) Safety Management Certificate.
- i) International Oil Pollution Prevention Certificate.
- j) International Ship Security Certificate.
- k) ISPS Code : Exchange of Information Form.

2.3 Vessel must be in good state of repair and all equipment properly functioning prior to proceeding to berth. Vessel must be presented in every respect ready to Load / Unload product at temperature and pressure in accordance with notice.

For Propylene / LPG Loading Ship (Fully Pressurized Vessel);

(Propylene / LPG Loading for Gassing Up Process is included)

To avoid the flashing of Liquid Propylene / LPG ; Pressure in Ship's Tank must be at least 3.0 Kg/cm² before commence to receive the cargo.

For Ethylene Loading Ship (Fully Refrigerated Vessel);

To avoid the increasing of Ship's Tank Pressure; The Temperature in Ship's Tank must be at least -80 °C before commence to receive the cargo.

For Ethylene Unloading Ship (Fully Refrigerated Vessel);

Cargo Temperature and Pressure in Ship's Tank must not be more than -103 °C and 0.04 Kg/cm². The ship have to maintain this good conditions until finish cargo unloading also.

For Methanol Vessel,

- Terminal required vessel equipped with full functional of Inert Gas system, cargo tanks to be reported under inert condition and O₂ contents must be measured and remain below 8% at all times.
- In case of Vessel not have Inert Gas system, Terminal required ship manifold to connect Nitrogen (N₂) size 6" ANSI 150

For Butadiene Vessel,

Ship tank temperature must not be more than 32 °C by Sea water spraying At top tank

For EDC Vessel,
Ship's vapor return line manifold must be prepared and ready to connect with Terminal's vapor return line before operation commence.

2.4 Vessel will not be acceptable for loading / unloading unless the tanks to be Loaded / Unloaded and ship's piping are free of any liquid or vapour which would knowingly contaminate or degrade the product.

3. BERTHING AND MOORING INFORMATION

3.1 BERTHING DETAILS

On the Jetties, the Fenders and Fendering Structures were *designed to absorb at normal working stress levels*, the energy impacted by vessels approaching the Jetty at a *maximum velocity of 20 cm/sec.* and a *nearly parallel approach to the berths.*

Design is based on a 9,000 DWT. vessel for the Berth No. 1 and based on a 35,000 DWT for the Berth No. 2

3.2 MOORING DETAILS - Berth No. 1

Max draft 8.0 meters. Max manifold height 11.5 meters.

Max berthing displacement 11,500 MT.

Vessel sizes may vary from 1,000 to 8,500 DWT with LOA 60 to 162 meters.

Six Mooring Dolphins are provided to take the Breast Lines, and the Head / Stern Lines from vessels.

The Spring Lines are led to the Two Breasting Dolphins.

The Mooring Dolphins are rigid structures consisting of circular piles with a concrete cap.

The Bollards are fixed on top of each Mooring Dolphin and Breasting Dolphin.

The Bollards are capable of withstanding a stress of 50 tons each.

3.3 MOORING DETAILS - Berth No. 2

Max draft 10.5 meters. Max manifold height 12.5 meters.

Max berthing displacement 42,000 MT.

Vessel sizes may vary from 8,000 to 35,000 DWT with LOA 90 to 270 meters.

The Mooring Dolphins (MD-51 and MD-52) are each fitted with 150 tons capacity quick release mooring hooks.

MD-53 and MD-54 are each fitted with 100 tons capacity quick release mooring hooks.

MD-55 and MD-56 are each fitted with 50 tons bollards.

The Breasting Dolphins (BD-51 and BD-52) are equipped with 70 tons bollards. The middle breasting dolphin (BD-53) is fitted with 35 tons bollard

4. BERTHING OPERATION AND TERMINAL FACILITIES

4.1 BERTHING PROCEDURE

- Berthing/Unberthing is permitted both daytime and nighttime.
The government pilot will board the vessel at anchorage area and will assist the Master in manoeuvring the vessel to berth.
- One or two tugs of adequate power (see item 1.10) will normally assist the vessel in Berthing / Unberthing. They will also standby in the vicinity nearby and ready to take the Master's or PTT Global Chemical Loading Master's order regarding abrupt change in weather condition.
- One or two mooring boats are used to send lines ashore.

IMPORTANCE NOTICES

- In the event of excessive high wind and/or disruptive sea condition, It shall be the decision of PTT Global Chemical Loading Master to allow docking to proceed. When such circumstance is deemed to become unsafe for berthing it shall be his authority to terminate docking activity. Cost arisen from such a case of vessel to be moored at the terminal either actual or calculated as business interruption shall not become accountable among parties involved.
- All mooring equipment and lines must be in top working condition.
- Synthetic tails without proper connection or spliced mooring lines are not allowed.
- Mixed mooring are occasionally acceptable as long as they are not used in the same direction or points.
- While manoeuvring for berthing PTT Global Chemical Terminal, It is very essential that the vessel's engine performs promptly and accurately. It is recommended that trial engine manoeuvres are tested before the vessel goes to the berth.
- Self tension winches fitted with automatic rendering and hauling should not be used in automatic mode while the vessel is moored. This is because they may not always hold in position while at berth.
- A sufficient number of personnel to deal with an emergency must present on board the vessel at all time during the vessel's stay at berth.
- While the vessel is at berth, her boilers, main engines, steering machinery and other equipment essential for manoeuvring should be maintained in condition that will permit the vessel to move away from the berth at short notice.
- All vessels while lying alongside PTT Global Chemical Terminal must strictly follow the terminal's rules and regulations.
- The maximum permissible drift parallel to the platform about the center of the appropriate Loading / Unloading Hose or Arm is 1.0 meter.
- In case of the Rubber Fender was damaged due to an Abnormal Berthing and /or The Rubbing Board was damaged due to scratching with the Ship's Water Draining Line which protrude from Ship's port or starboard side, The Terminal reserve the right to hold the Vessel / Owner fully responsible for all expenses occurred from the above matter.

4.2 WIND SPEED LIMITATION FOR LOADING ARM OPERATION

As safety operating procedure, when the terminal wind indicator indicates the wind is blowing at 18 m / sec. or more from any direction the terminal will take the following precautions actions

- Inform Vessel's Personnel to be alert on moorings.
- Stop Discharging / Loading.
- Drain Loading Arms.
- Disconnect Loading Arm.

The said limitation is to ensure that the disconnection of loading arms will be completed before the wind speed reaches the maximum limitation for operating conditions of the loading arms (21 m / sec.)

4.3 EMERGENCIES

a) Emergency Shutdown System (E.S.D.)

The berth is equipped with the E.S.D. System.

In an emergency, the operator can push a single button to stop loading operations (and obviously) the discharging operations at the berth. This button will stop shore's loading pumps and close all valves concerned.

It is imperative that a constant watch is maintained on deck while discharging.

In case the emergency shutdown is activated, Vessels have to stop immediately all cargo pumps.

b) Emergency Release Coupling (E.R.C.)

All the loading arms are equipped with the emergency release coupling (E.R.C.) system which hydraulically allows disconnection of arm flanges from ship's manifolds in the following cases :-

- When loading arm travels over the disconnection alarm point.
- When the emergency disconnection button is pressed at the loading arm control console on the gangway tower.

In the event of mishaps the loading will be stopped by emergency shutdown sequence. The closing speed (5-30 seconds) is controlled to restrict surge pressure after disconnection, the loading arm will be returned to safety area and will be locked

4.4 SHIP'S MANIFOLD REQUIREMENTS

No vessel's flexible hoses are allowed for connection with loading arms. Since the berth is equipped with loading arm of various types and sizes, therefore they should be used in accordance with their own operating limits. Loading arms limitations and cargo hoses limitations are shown in item 9.2 and 9.3 successively.

Due to limitation of working area of loading arms shown on page 26,27 and 28, the level of ship's manifold must be maintained to be lower than 11.5 meters and higher than 3 meters from water level during loading or unloading the cargo.

If the vessel's manifold is unfit to our loading arms after all possible attempts, we will accept no responsibility.

4.5 GANGWAY

Gangway was installed on Berth No.1 It consists of gangway, bulwark ladder and turntable. Length of gangway is adjustable in order to be operated more safely. Hooking up and down of gangway is performed by jib crane.

OPERATION CONDITION

<i>Weather conditions</i>	
Max. wind speed in operation	10 m/sec.
<i>Vessel conditions</i>	
Max. deck height	0.75 meters lower than the platform level
Min. deck height	9.55 meters lower than the platform level
<i>Gangway load conditions</i>	
Gangway	5 persons
Bulwark ladder	2 persons
(Assuming 75 kgs / person)	

RESTRICTION

- * When operating gangway, it is strictly prohibited to place persons and/or objects on it.
- * Loading limit must be kept strictly.
- * On operation of gangway the maximum number of persons on bridge at one time must be 5 persons
- * When any danger is supposed due to strong wind, gust and others, do not operate.
- * Roughly walking on bridge should be prohibited and resonance by walking should be prevented.
- * Turntable must be moved to the direction of sea without fail when operating the gangway.

4.6 CATHODIC PROTECTION

Impressed current cathodic protection system, if fitted , must be switched off at least three hours before mooring operations

4.7 FIRE FIGHTING EQUIPMENT

The fire fighting system at the jetty consists of elevated and tele controlled monitors. There are two monitors installed on the Berth No.1, one at the

monitor tower and one at the gangway tower. The monitors are mounted at a sufficient elevation to cover the manifold from the smallest vessel at fully loaded (lowest tide) and the largest vessel at light condition (highest tide).

One monitor was installed on the Berth No. 2 at the monitor tower.

The monitors and the fire pumps are remote controlled and can be used with foam and / or water compound At Berth No. 1, the monitors can also be used with dry powder.

Fixed water spray systems are provided for both monitor towers and gangway tower in order to protect them from heat radiation.

Several hydrants, portable fire and dry powder extinguishers are installed on operating platform. All tugs are fitted with fire fighting monitors for both water and foam.

5. CARGO CALCULATIONS, OPERATIONS AND EMERGENCY PROCEDURE

5.1 CARGO CALCULATIONS

Sampling, Ullaging and Quantity Calculations will be carried out after berthing concurrently with Immigration and Port Health Authority Formality or concurrently with the connection of Loading Arm. The calculations procedure will be attended by Custom Officials and Terminal's Representative.

5.2 SAFETY AND POLLUTION CHECK LISTS

Ship / Shore safety and pollution check lists are to be completed jointly between vessel and terminal representative prior to load or discharge. The loading master will coordinate cargo operations between the vessel and shore.

5.3 LOADING / UNLOADING CONDITIONS

Product	Activity	Max.Flowrate	Max.Pressure	Temperature
Propylene	Unloading	550 m3/hr.	16.0 kg/cm2	>0°C
	Loading	380 m3/hr.	16.0 kg/cm2	Ambient
Butene-1	Gassing-Up		Up to Ship's Request	
	Unloading	150 m3/hr.	12.0 kg/cm2	>10°C
LPG	Loading	150 m3/hr.	10.0 kg/cm2	Ambient
	Loading	375 m3/hr.	20.0 kg/cm2	Ambient
Ethylene	Gassing-Up		Up to Ship's Request	
	Unloading	500 m3/hr.	5.0 kg/cm2	-103°C (or Lower)
C4R (Raffinate)	Loading	300 m3/hr.	2.0 kg/cm2	-96 °C (or Lower)
	Gassing-Up		Up to Ship's Request	
EDC (Berth1)	Loading	320 m3/hr.	10.0kg/cm2	Ambient
	Unloading	240 m3/hr.	7.0 kg/cm2	Ambient
EDC(Berth2)	Unloading	240m3/hr	7.5kg/cm2	Ambient
	Unloading	225 m3/hr.	12.0 kg/cm2	>10°C
VCM (Berth-1)	Loading	225 m3/hr.	7.0 kg/cm2	Ambient
	Unloading			
VCM (Berth-2)	Loading	225 m3/hr.	12.0 kg/cm2	>10°C
	Loading	170 m3/hr.	8.0 kg/cm2	Ambient
Mix C4	Loading	180 m3/hr.	10.0 kg/cm2	Ambient
	Loading			
1,3 Butadiene	Loading	300 m3/hr.	3.5 kg/cm2	5-10 degree C
	Loading			
Nitrogen	Purging	550 Nm3/hr.	8.5 kg/cm2	Ambient
	Unloading	150 m3/hr	6 kg/cm2	Ambient
MEG(Berth1)	Load	200 m3/hr	2kg/cm2	Ambient
	Unloading	150 m3/hr	6 kg/cm2	Ambient
MEG(Berth2)	Load	180 m3/hr	2kg/cm2	Ambient
	Unloading			
Methanol(Berth1)*	Unloading	190 m3/hr	6 kg/cm2	Ambient
	Unloading			
Methanol(Berth2)*	Unloading	190 m3/hr	7 kg/cm2	Ambient
	Unloading			

*Methanol product required full control of O2 contents below 8% at all times

5.4 CARGO OPERATION REQUIREMENTS AND RESTRICTIONS

Following requirements and restrictions must be strictly complied with during discharge at PTT Global Chemical Terminal.

- a) Ensure that no water is pumped into the shore lines. All ship sea suction valves must be closed and sealed before discharge.
- b) Ship dirty ballasting is not allowed during discharge however, only separate ballast tanks may be used.
- c) Deballasting may be discharged to the sea and it is the Master's responsibility to ensure that his ballast is clean.
- d) Ship's mooring conditions.
 - i) It is the ship's responsibility to maintain a safe mooring at the berth at all times.
 - ii) The tension of mooring lines must be tight, and they must be fastened to the satisfaction of the Loading Master.
 - Any unsafe mooring equipment or conditions will result in discontinue cargo operations and possible loading arms disconnection. The time lost and cost of loading arms disconnection will be for the ship's account.
 - iii) The offshore anchor is always required while approaching the berth. The anchor should not be less than 4-6 shackles in the water.
 - iv) In the event of unsafe mooring situation created by ship's negligence or by weather conditions, tug boat(s) might be necessary for assistance as deemed by the Loading Master.

The cost of the tug boat (s) will be for the ship's account.

- e) During Cargo Operations : Ship must take responsibility to maintain Ship's Tanks Pressure/Temperature by running Ship's compressor(s) or any equipments in order to keep maximum transfer rate in the best condition or *take any actions as requested by Loading Master*
- f) After shutdown or stop transferring : Terminal must drain the product that remains in Loading Arm to Ship or Ship must take any actions as requested by Loading Master to disconnect Loading Arm properly.

5.5 EMERGENCY

In case of fire on board , discharging / loading operations must be stopped immediately.

General alarm should be given to the terminal for terminal's assistance to vacate the berth.

In case *the ship moved away from original mooring position*, the following procedure should be conducted to protect the Loading Arms from being damage :

- a) Stop cargo pumps.
- b) Close ship's manifold valve.

- c) Promptly utilize tug boat(s) for pulling / pushing the vessel in windward direction.
- d) Activate E.R.C. to release loading arm.

In the event of fire ashore

- * All loading / unloading and / or ballasting operations must be stopped immediately.
- * Close all tank openings and batten down.
- * Prepare vessel for immediate departure.
- * Await instruction from shore

Emergency escape

- i) The vessel's offshore life boat shall be rigged ready for immediate lowering as an emergency escape.
- ii) A pilot ladder shall be rigged or positioned on the outboard side of the vessel ready for immediate lowering as a means of escape in the event of an emergency.
- iii) The PTT Global Chemical Fire Fighting Water Monitors, controlled from the Jetty Control Room Panel, will give a water spray cover to vessel's gangway in event of them being required as a Means of Escape in a fire situation.

6. SAFETY REGULATIONS

The following regulations must be strictly followed by all vessels whilst alongside at the terminal.

6.1 NO SMOKING

Smoking on board the vessel may only take place in places specified by the Loading Master. Smoking outside the designated area is strictly prohibited. Cigarette butts must not be thrown over board or through the port holes. At any time, no match or lighter will be carried on the weather deck of the vessel.

6.2 SPARKS

While the vessel is at berth, boiler tubes must not be blown and every precaution must be taken to see that sparks do not at any time escape from the funnel. Should sparks and / or incandescent material be observed coming from the funnel, the discharge will be stopped until such offense ceases.

6.3 RADIO AND RADAR

The use of the radio transmitters using the main acrials is strictly forbidden while the vessel is at berth. Repairing of radio and radar equipment may be permitted subject to the prior permission from the Terminal.

6.4 USE OF SHIP'S GALLEY

Certain types of galley stoves are considered safe to use if mutually agreed between the Master and the Loading Master.

Oil-fired galley stoves are prohibited in all cases.

6.5 AIR CONDITIONING UNITS

For safety it is preferable that the air conditioning units recirculate the air within the accommodation. The drawing of air from outside the accommodation may be permitted only provided that the Master and Loading Master agree that there is no danger. Should any gas be detected within the accommodation or there may be any danger of gas being drawn in, stop the units and close the intakes.

The window type air conditioners are forbidden at all times.

6.6 READINESS TO MOVE

While the vessel is at berth, the main engine and auxiliaries that are essential for moving the vessel must remain in state of readiness in order to permit vacating the berth at short notice. No repair which will interfere with this requirement will be allowed. Should it be necessary to repair or overhaul the main engine or auxiliaries, such work must be done at the anchorage either before or after discharge.

6.7 VESSEL'S FIRE FIGHTING EQUIPMENTS

These equipments must be in constant readiness at all times with sufficient people on board for efficient operation.

6.8 SHIPBOARD WORK CONTROL

Shipboard work while the vessel is at berth must be closely observed. Approval must be obtained in advance from the Loading Master for any maintenance work, repairs, renewals, and including the following :

- a) Work that could effect the performance of the ship's main engines, deck steam / or fire fighting equipment.
- b) Inert gas system.
- c) Cargo pumping equipment, cargo tank cleaning equipment.
- d) Ballasting facilities.
- e) Mooring facilities.
- f) Any work whatsoever concerning shipboard safety control or radio.
- g) Any " HOT WORK " whatsoever.

It remains the responsibility of The Master to ensure that the work can be safely undertaken.

6.9 POSITION OF SHIP'S TANK HATCHES

For All Chemical Tankers : All Tank's Hatches have to fully close during all Cargo Operations and during Ship's alongside at Terminal.

6.10 SLIP TUBE GAUGE

The use of slip tube gauge for level reading of cargo tank is prohibited, granted only for emergency case.

6.11 SECURITY

No unauthorized visitors including local traders are allowed on board a vessel during the time moored at PTT Global Chemical Terminal. Failure to follow

this rule will be considered as a serious violation of our safety regulations and Discharging / Loading Operations will be suspended.

Any time lost will be for the Ship's Account.

Authorized visitors are Government Officials, PTT Global Chemical's Staff, Ship's Agent representative and PTT Global Chemical's Contractors.

PTT Global Chemical's Staff and PTT Global Chemical's Contractors will be identified with appropriate badge.

All ship's crews are not allowed to leave from the ship by entering the Terminal. The small boat(s) provided by Ship's Agent is required for the crew(s) who wish to go ashore. Crew lists approved from the Ship's Master / Ship's Agent and Immigration Documents (TM-33) have to lodge to Loading Master first. The permission to leave is belonging to Loading Master. Except the ones who have the medical requested that generates by the Ship's Master. In this case the crew(s) can go to see the doctor within the responsibility of Ship's Agent by shore's tram car.

The small boat is not allowed to alongside with vessel.

The small boat will berth at the small boat platform.

Failure to follow this rule will be considered as a serious violation of our safety regulations and Discharging / Loading Operations will be suspended.

Any time lost will be for the Ship's Account.

Sign on / Sign off crew(s) naming list and copy of all passport books are to be lodged to the Terminal by ship's agent before the arrival of a vessel. This will prevent inconvenience should any changing crew wish to enter and leave the Terminal in the interest of safety and security.

The entry of women to the Terminal is restricted.

Female members of a vessel's crew and wives of crew members who will be allowed to access only if they are in possession of a pass signed by the Master of the vessel and countersigned by the Appropriate Ship's Agent.

The Co-operation of the Masters and Ship's Agent is requested in the interest of safety.

It shall be a recognized gangway of approved pattern as means of access to a vessel. Provided it maintains a steep inclination and is properly secured and tended. A safety net shall at all time be in position and should be properly secured and tended.

A noticeboard shall be displayed in a prominent position near to the access to the vessel indicating

" No Admittance, Except On Business "
" No Smoking Allowed "

7. PREVENTION OF SEA POLLUTION

7.1 The Vessel's Master will always be responsible to ensure that no product or bilge shall be discharged or spilt into the sea. In the event of any discharge or spillage from the vessel the Master will without delay take all reasonable measure to contain or remove product and to minimize or mitigate damage to private and public properties or interests, including sea life.

7.2 Without prejudice to the foregoing the terminal reserves the full right to take, without consent of the Vessel's Master, any measures it considers necessary to contain or remove product discharged or spilt from the vessel and to minimize or mitigate damage to private and public properties or interests, including sea life.

All costs and expenses incurred therefore by the Terminal shall be borne and promptly refunded by the Vessel's Owners.

8. BUNKERING, STORING AND VICTUALLING OF VESSELS

8.1 No bunkering facilities are provided on the Terminal.

8.2 Bunkering, storing and victualling of vessels may be permitted during operations but only with permission of both the Loading Master and the Master of the Vessel provided that :

- i) Access to the Terminal is not obstructed.
- ii) Cargo operations remain adequately supervised.
- iii) Cargo operations which may allow vapours to escape on deck e.g. sampling, ullaging, deflexing etc. are suspended.
- iv) Drums of oil, paint, steel plates, gas cylinders or any other heavy metal parts which may cause a spark should be landed on rubber or other suitable matting and not directly onto vessel's deck. These items must not be dragged or rolled along the deck.
- v) If an oil spillage occurs, the oil shall be disposed of by mopping up or by a method agreed by PTT Global Chemical 's representative. Drip trays must always be used when pipeline connections are broken. Under no circumstances shall oil be washed overboard.
- vi) The platform crane is for hose-handling and other purposes. It may only be operated by the Terminal personnel and may only assist in loading items of stores provided that they are within the safe working limit of the crane and the Terminal personnel is available to operate without detriment to his other duties.
- vii) The appropriate document indemnifying PTT Global Chemical against all accidents has been signed.
- viii) The designated point for setting down of vessel's store is at the discretion of the Terminal personnel.
- ix) If the above criteria are not met , PTT Global Chemical reserves the right to refuse permission.
- x) The appropriate document indemnifying PTT Global Chemical against all accidents has been signed.
- xi) The designated point for setting down of vessel's store is at the discretion of the Terminal personnel.
- xii) If the above criteria are not met , PTT Global Chemical reserves the right to refuse permission.

8.3 SUPPLY VESSEL'S ALONGSIDE

No supply vessels are allowed alongside.

All supply vessels used for victualling will berth at the small bout platform.

8.4 BATHING AND FISHING

Bathing and fishing will not be permitted from the platform and approaches or from the vessel whilst alongside.

9. BERTHS CHARACTERISTICS AND CARGO ARMS OPERATING LIMITS.

9.1 BERTH CHARACTERISTICS

Characteristics	Max berthing Displacement (MT)	LOA (Meters)	CARGO
Berth No.1	11,500 (Max)	162 (Max) 60 (Min)	Propylene Butene-1 LPG Butadiene Ethylene EDC VCM Methanol Nitrogen MEG Mix C4 Raffinate
Berth No.2	42,000 (Max)	270 (Max) 90 (Min)*	EDC VCM Methanol MEG Propylene Butene-1 Mix C4 Raffinate

* Smaller or Larger Vessels may be accommodated , However;
Special approval must be obtained prior to scheduling

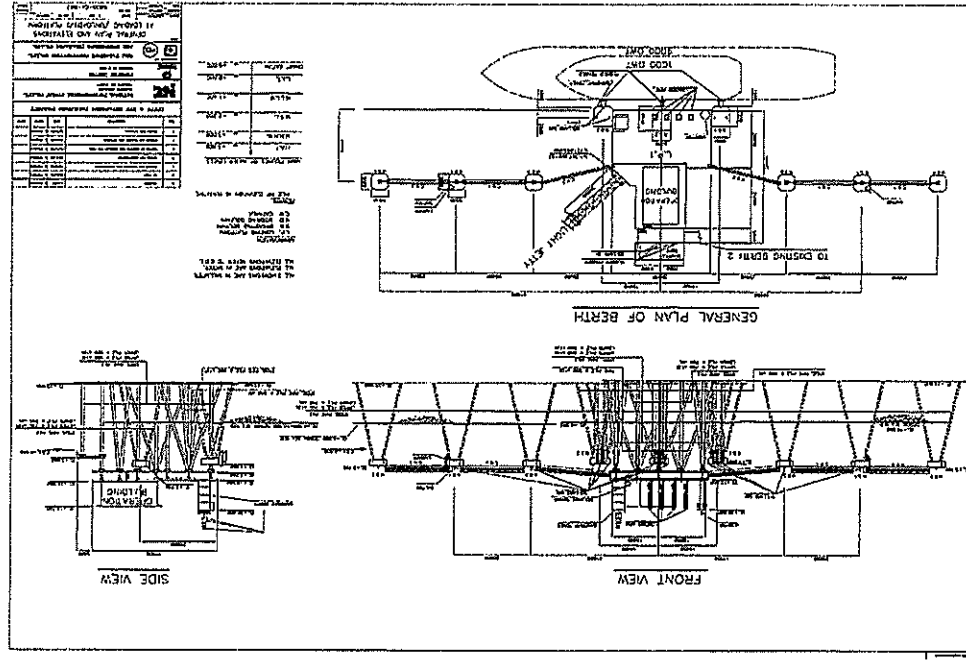
9.2 LOADING ARMS LIMITATIONS

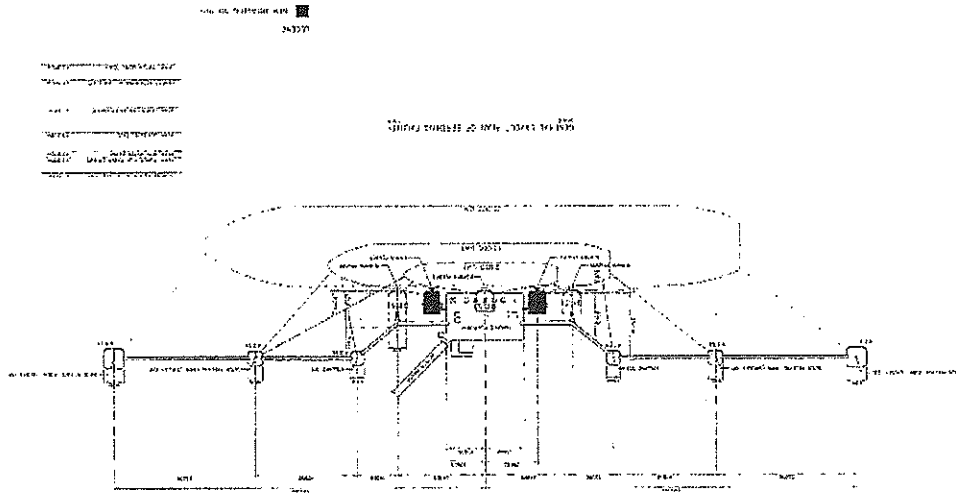
Products	Size of Ship's Flanges (Inches)	Type (ANSI)
Propylene, Butene-1, MixC4,LPG, Raffinate (Berth1) Liquid	8 x 1	300 RF
Vapour	4 x 1	300 RF
Ethylene Liquid	8 x 1	150 RF
Vapour	3 x 1	150 RF
EDC(Berth1,2) Liquid	8 x 1	150 RF
Vapour	6 x 1	150 RF
VCM (Berth-1,2) Liquid	6 x 1	150 RF
Vapour	3 x 1	150 RF
Butadiene(Berth1) Liquid	8 x 1	300 RF
Vapour	4 x 1	300 RF

9.3 CARGO HOSES LIMITATIONS

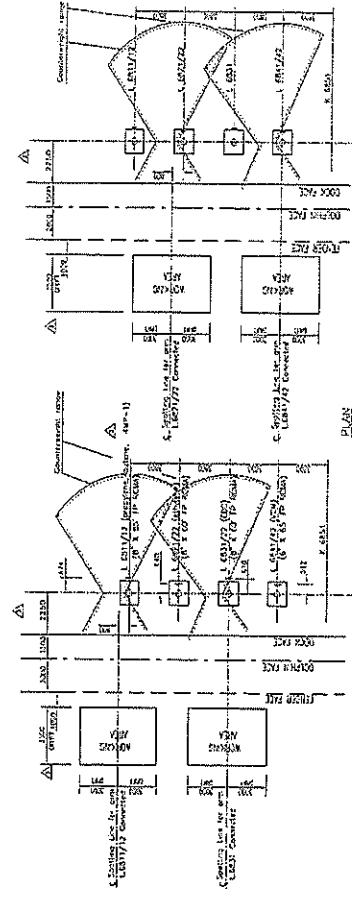
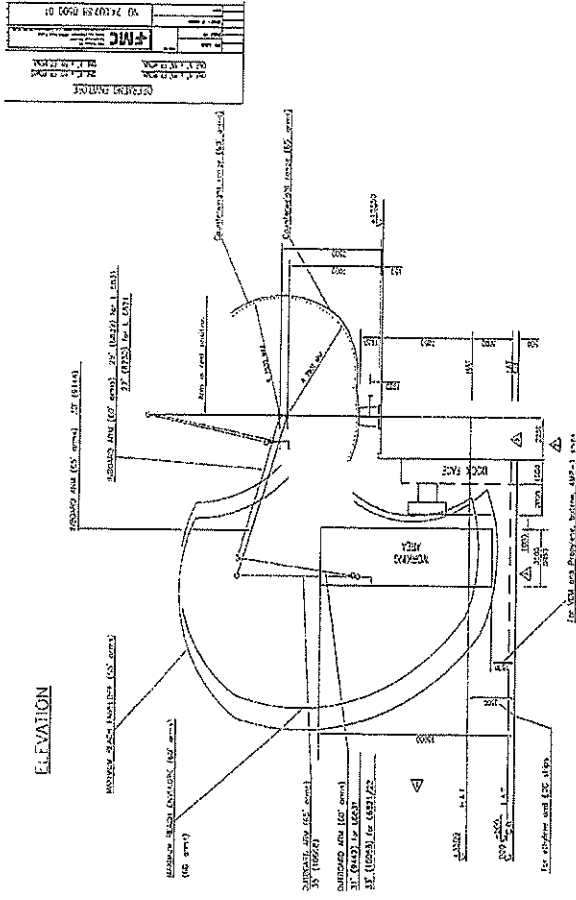
Products	Ship's Flanges Size (Inches)	Type (ANSI)	Hose Diameter (Inches)	Hose Length (Meters)	Hose Material
MEG	6 x 1	150 RF	6	18	Polypropylene
Methanol (Berth-1,2)	6 x 1	150 RF	6	18	Polypropylene
EDC (Berth1,2)	6 x 1	150 RF	6	18	Polypropylene

Berth No. 1





ELEVATION

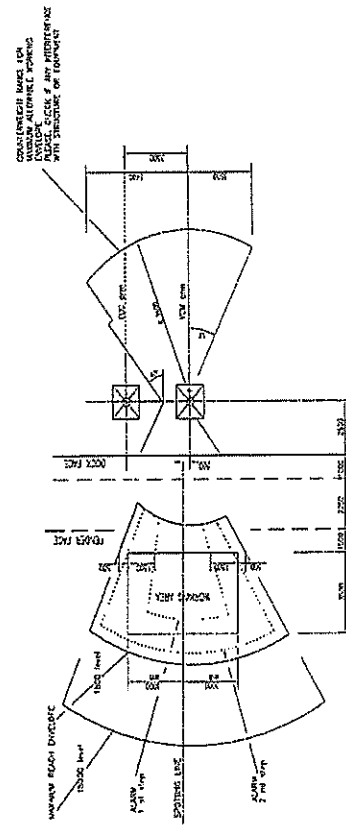
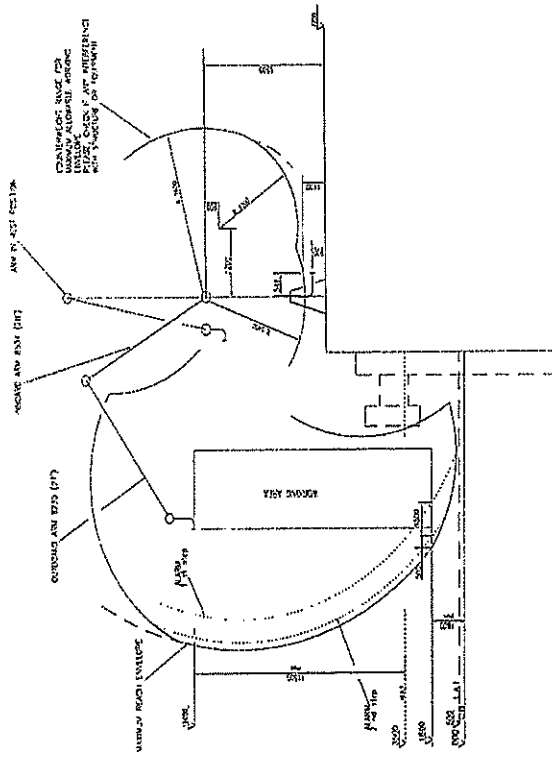


WORKING AREA OF LOADING ARMS ON BERTH NO. 1

PTTGC-JB

WEST JETTY REGULATIONS

PTTGC-JB	OPERATING ENVELOPE	Rev 1
NO. 24-001-35 2016 01	ONE 8' x 10' 10' RCUA	REV
PTTGC-JB	OPERATING ENVELOPE	Rev 1

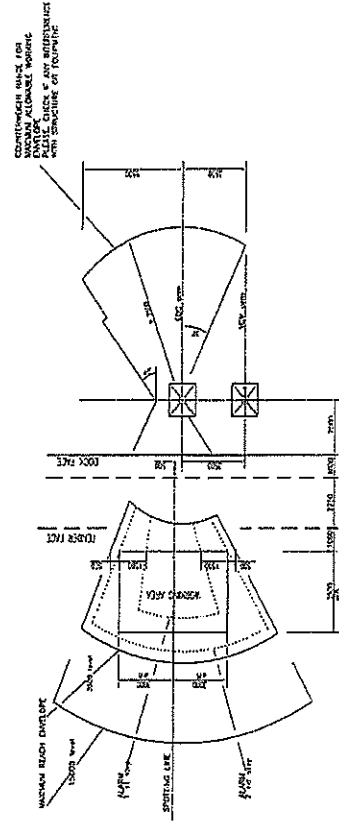
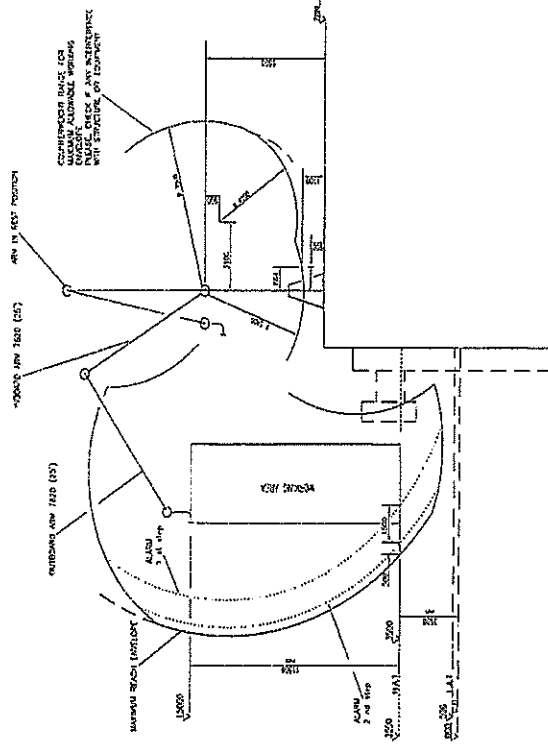


WORKING AREA OF VCM LOADING ARM ON BERTH NO. 2

PTTGC-JB

WEST JETTY REGULATIONS

PTTGC-JB	OPERATING ENVELOPE	Rev 1
NO. 24-001-35 2016 01	ONE 8' x 10' 10' RCUA	REV
PTTGC-JB	OPERATING ENVELOPE	Rev 1



WORKING AREA OF EDC LOADING ARM ON BERTH NO. 1