

ภาคผนวกที่ 16  
เอกสารกำกับการขนส่งของเสียอันตราย

---

## ใบกำกับการขนส่งของเสีย

(Uniform Waste Manifest)

Rig 221, YMB-A08ST

## 1. ส่วนของผู้ก่อการเกิดของเสีย: This section must be completed by the Generator

1) ชื่อ : name : <u>บริษัท อีเอ็มพี จำกัด</u>		2) เลขประจำตัวผู้ก่อการเกิดของเสีย : Generator's ID : <u>010505</u>	
สถานที่กำเนิด : Generator Address : <u>อ.เมือง อ.เมือง อ.เมือง อ.เมือง อ.เมือง</u>		โทรศัพท์ : Phone : <u>010505</u> โทรสาร : Fax : <u>010505</u> กรณีฉุกเฉิน : Emergency : <u>010505</u>	
3) ผู้ขนส่งของเสีย : Transporter			
รายที่ 1 ชื่อบริษัท : First company name : <u>PM Logistics</u>		เลขประจำตัวผู้ขนส่งของเสีย รายที่ 1 : Transporter's ID : <u>010505</u>	
รายที่ 2 ชื่อบริษัท : Second company name : <u>PM Logistics</u>		เลขประจำตัวผู้ขนส่งของเสีย รายที่ 2 : Transporter's ID : <u>010505</u>	
4) ผู้เก็บรวบรวม บำบัด และกำจัดของเสีย : Treatment Storage Disposal Facilities (TSDFs)			
รายที่ 1 ชื่อบริษัท : First TSDF's name บริษัทปูนซิเมนต์ไทย (แ่งคอง) จำกัด		เลขประจำตัวผู้เก็บรวบรวม บำบัด และกำจัดของเสีย รายที่ 1 : <u>010505</u>	
รายที่ 2 ชื่อบริษัท : Second TSDF's name		เลขประจำตัวผู้เก็บรวบรวม บำบัด และกำจัดของเสีย รายที่ 2 : Disposer's ID	
5) รายละเอียดของของเสียที่ขนส่ง : <input type="checkbox"/> ของเสียไม่อันตราย (Non-Hazardous Waste) <input type="checkbox"/> ของเสียอันตราย (Hazardous Waste)			
ลำดับ : No.	รายละเอียด : Description	รหัสของเสีย : Waste ID	ภาชนะบรรจุ : Containers จำนวน : No. ชนิด : Type
1	Cutting	010505	4 SKIP
รวมปริมาณของเสียทั้งหมด : Total Quantity ของเหลว : Liquid ..... ลิตร/ลูกบาศก์เมตร : Liters/cu.m ของแข็ง : Solid ..... กิโลกรัม / ตัน : Kgs./tons			
6) การปฏิบัติที่มีลักษณะพิเศษ และข้อมูลเพิ่มเติม : Special handling Instructions and additional information			
7) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้ส่งมอบของเสียแล้วตามที่ระบุข้างต้น และมีการบรรจุติดป้ายกำกับของเสียอย่างถูกต้องตามข้อกำหนดของกฎหมายทุกประการ : Generator Certificate : I hereby certify that the contents of this consignment are accurately described and are in proper condition for transport according to regulations. ลงชื่อ Generator's name : <u>PM Logistics</u> ภายหลัง : Signature : <u>PM Logistics</u> วันที่ : Date : <u>01/05/2566</u> เดือน : Month : <u>05</u> พ.ศ. : Year : <u>2566</u>			

## 2. ส่วนของผู้ขนส่งของเสีย : This section must be completed by the Transporter

1) ชื่อผู้ขนส่งรายที่ 1 : Transporter's name <u>PM Logistics</u>		2) พาหนะที่ใช้ <input checked="" type="checkbox"/> รถบรรทุก <input type="checkbox"/> รถไฟ <input type="checkbox"/> เรือ <input type="checkbox"/> เครื่องบิน	
เลขประจำตัวผู้ขนส่ง : Transporter's ID : <u>010505</u>		Vehicle Truck Train Ship Plane	
โทรศัพท์ : Phone : <u>010505</u> โทรสาร : Fax : <u>010505</u> กรณีฉุกเฉิน : Emergency : <u>010505</u>		3) เลขทะเบียนพาหนะ : Vehicle ID <u>010505</u>	
4) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น และการขนส่งเป็นไปตามข้อกำหนดกฎหมายทุกประการ : Transport Certification : I hereby declare that I have received the type and quantity of waste as described above by the generator and that waste has been transported according to regulations. โดยขนส่งจากจังหวัด : From : <u>อ.เมือง</u> ไปยังจังหวัด : To : <u>อ.เมือง</u> ใช้ระยะเวลาประมาณ : Time spending ..... ชม./วัน : Hours/Day ลงชื่อผู้ขนส่งรายที่ 1 Transporter's name : <u>PM Logistics</u> ภายหลัง : Signature : <u>PM Logistics</u> วันที่ : Date : <u>01/05/2566</u> เดือน : Month : <u>05</u> พ.ศ. : Year : <u>2566</u>			
5) ชื่อผู้ขนส่งรายที่ 2 : Transporter's name <u>PM Logistics</u>		6) พาหนะที่ใช้ <input checked="" type="checkbox"/> รถบรรทุก <input type="checkbox"/> รถไฟ <input type="checkbox"/> เรือ <input type="checkbox"/> เครื่องบิน	
เลขประจำตัวผู้ขนส่ง : Transporter's ID : <u>010505</u>		Vehicle Truck Train Ship Plane	
โทรศัพท์ : Phone : <u>010505</u> โทรสาร : Fax : <u>010505</u> กรณีฉุกเฉิน : Emergency : <u>010505</u>		7) เลขทะเบียนพาหนะ : Vehicle ID <u>010505</u>	
8) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น และการขนส่งเป็นไปตามข้อกำหนดกฎหมายทุกประการ : Transport Certification : I hereby declare that I have received the type and quantity of waste as described above by the generator and that waste has been transported according to regulations. โดยขนส่งจากจังหวัด : From : <u>อ.เมือง</u> ไปยังจังหวัด : To : <u>อ.เมือง</u> ใช้ระยะเวลาประมาณ : Time spending ..... ชม./วัน : Hours/Day ลงชื่อผู้ขนส่งรายที่ 2 Transporter's name : <u>PM Logistics</u> ภายหลัง : Signature : <u>PM Logistics</u> วันที่ : Date : <u>01/05/2566</u> เดือน : Month : <u>05</u> พ.ศ. : Year : <u>2566</u>			

## 3. ส่วนของผู้ประกอบการสถานที่เก็บรวบรวม บำบัด และกำจัดของเสีย : This section must be completed by TSDFs

1) ชื่อผู้รับกำจัด TSDF's name : บริษัทปูนซิเมนต์ไทย (แ่งคอง) จำกัด		2) เลขประจำตัวผู้รับกำจัด : TSDF's ID : <u>010505</u>	
สถานที่กำจัด : TSDF's address : <u>อ.เมือง อ.เมือง อ.เมือง อ.เมือง อ.เมือง</u>		โทรศัพท์ : Phone : <u>010505</u> โทรสาร : Fax : <u>010505</u> กรณีฉุกเฉิน : Emergency : <u>010505</u>	
รวมปริมาณของเสียทั้งหมด : Total quantity <input type="checkbox"/> ของเหลว : Liquid ..... ตัน/ลิตร : Tons/Liters <input type="checkbox"/> ของแข็ง : Solid ..... ตัน : Tons			
3) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น : TSDF certificate of arrival : I hereby that I have received the reference load. และสามารถกำจัดของเสียได้ภายในระยะเวลาที่กำหนด : <input type="checkbox"/> วัน : Day <input type="checkbox"/> เดือน : Month <input type="checkbox"/> ปี : Year นับจากวันที่ได้รับของเสีย : Since the day that received waste ลงชื่อผู้รับกำจัด : TSDF's name : <u>PM Logistics</u> ภายหลัง : Signature : <u>PM Logistics</u> วันที่ : Date : <u>01/05/2566</u> เดือน : Month : <u>05</u> พ.ศ. : Year : <u>2566</u>			
4) กรณีของเสียไม่ตรงตามที่แจ้ง : Discrepancy Notification ประเภทของเสีย : Type of waste ..... ปริมาณ : Quantity ..... การดำเนินการ : Action taken <input type="checkbox"/> ส่งคืน : Returned <input type="checkbox"/> จัดประเภทใหม่ : Reclassified / รหัส : Waste ID ..... <input type="checkbox"/> รับกำจัด : Accepted เหตุผล : Reason of action ..... วันที่ส่งคืน : Date returned ..... (วันที่เดือนปี : dd/mm/yy) หมายเลขใบกำกับการขนส่งของเสียที่ส่งกลับ : Returned manifest no ..... ชื่อผู้ส่งคืน : TSDF's name ..... ภายหลัง : Signature : <u>PM Logistics</u>			

ฉบับที่ 1 (ต้นฉบับ) หน่วยงานกำกับดูแล

ฉบับที่ 2 ผู้กำเนิดของเสีย

ฉบับที่ 3 หน่วยงานกำกับดูแล

ฉบับที่ 4 ผู้ขนส่งของเสีย

ฉบับที่ 5 ผู้ประกอบการสถานที่เก็บรวบรวม บำบัด และกำจัดของเสีย

ฉบับที่ 6 ผู้กำเนิดของเสีย

ฉบับที่ 4



ใบกำกับการขนส่งของเสีย  
(Uniform Waste Manifest)

Rig 221 / 4ME-A10

I. ส่วนของผู้ก่อกำเนิดของเสีย: This section must be completed by the Generator

1) ชื่อ : <span style="background-color: black; color: black;">[REDACTED]</span> <span style="background-color: black; color: black;">[REDACTED]</span>		เลขประจำตัวผู้ก่อกำหนดของเสีย : Generator's ID : <span style="background-color: black; color: black;">[REDACTED]</span>					
สถานที่กำหนด : Generator Address : <span style="background-color: black; color: black;">[REDACTED]</span>		โทรศัพท์ : Phone : <span style="background-color: black; color: black;">[REDACTED]</span> โทรสาร : Fax : <span style="background-color: black; color: black;">[REDACTED]</span> กรณีฉุกเฉิน : Emergency : <span style="background-color: black; color: black;">[REDACTED]</span>					
3) ผู้ขนส่งของเสีย : Transporter : <span style="background-color: black; color: black;">[REDACTED]</span>							
รายที่ 1 ชื่อบริษัท : First company name : <span style="background-color: black; color: black;">[REDACTED]</span>		เลขประจำตัวผู้ขนส่งของเสีย รายที่ 1 :Transporter's ID : <span style="background-color: black; color: black;">[REDACTED]</span>					
รายที่ 2 ชื่อบริษัท : Second company name : <span style="background-color: black; color: black;">[REDACTED]</span>		เลขประจำตัวผู้ขนส่งของเสีย รายที่ 2 :Transporter's ID : <span style="background-color: black; color: black;">[REDACTED]</span>					
4) ผู้เก็บรวบรวม บำบัด และกำจัดของเสีย : Treatment Storage Disposal Facilities(TSDFs)							
รายที่ 1 ชื่อบริษัท : First TSDF's name บริษัทปูนซิเมนต์ไทย (แก่งคอย) จำกัด		เลขประจำตัวผู้เก็บรวบรวม บำบัด และกำจัดของเสีย รายที่ 1 :Disposer's ID 3-101-1/44 สบ.					
รายที่ 2 ชื่อบริษัท : Second TSDF's name <span style="background-color: black; color: black;">[REDACTED]</span>		เลขประจำตัวผู้เก็บรวบรวม บำบัด และกำจัดของเสีย รายที่ 2 :Disposer's ID <span style="background-color: black; color: black;">[REDACTED]</span>					
5) รายละเอียดของเสียที่ขนส่งเคลื่อนย้าย : <input type="checkbox"/> ของเสียไม่อันตราย (Non-Hazardous Waste) <input type="checkbox"/> ของเสียอันตราย (Hazardous Waste)							
ลำดับ : No.	รายละเอียด : Description	รหัสของเสีย : Waste ID.	ภาชนะบรรจุ : Containers		ปริมาณสุทธิ : Quantity	หน่วยน้ำหนัก : Unit Wt / Vol	รายละเอียดเพิ่มเติม : Additional Information
			จำนวน : No.	ชนิด : Type			
1	Cutting <del>metal</del> Contaminet	<del>010205</del> 150802HM	2	Roll off		M.T	
รวมปริมาณของเสียทั้งหมด : Total Quantity ของเหลว : Liquid..... ลิตร/ลูกบาศก์เมตร : Liters/cu.m ของแข็ง : Solid..... กิโลกรัม / ตัน : Kgs/ tons							
6) การปฏิบัติที่มีลักษณะพิเศษ และข้อมูลเพิ่มเติม : Special handling Instructions and additional information							
7) คำรับรอง : ข้าพเจ้าขอ <span style="background-color: black; color: black;">[REDACTED]</span> รับว่าข้างต้น และมีกรบรรจุติดป้าย <span style="background-color: black; color: black;">[REDACTED]</span> ข้อกำหนดของกฎหมายทุกประการ : Generator Certificate : <span style="background-color: black; color: black;">[REDACTED]</span> this consignment are accurately described and are in proper condition for transport according to regulations. ลงชื่อ Generator's name <span style="background-color: black; color: black;">[REDACTED]</span> ลงชื่อ : Signature <span style="background-color: black; color: black;">[REDACTED]</span> วันที่ Date 11 เดือน Month 2 พ.ศ. : Year 2563							

2. ส่วนของผู้ขนถ่ายของเสีย : This section must be completed by the Transporter

1) ชื่อผู้ขนส่งรายที่ 1 : Transporter's name ..... เลขประจำตัวผู้ขนส่ง : Transporter's ID : ..... โทรศัพท์ : Phone : ..... โทรสาร : Fax : ..... ฉุกเฉิน : Emergency : .....	2) พาหนะที่ใช้ Vehicle	<input checked="" type="checkbox"/> รถบรรทุก Truck	<input type="checkbox"/> รถไฟ Train	<input type="checkbox"/> เรือ Ship	<input type="checkbox"/> เครื่องบิน Plane
3) เลขทะเบียน พาหนะ : Vehicle ID					

4) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น และการขนส่งเป็นไปตามข้อกำหนดกฎหมายทุกประการ

Transport Certification : I hereby declare that I have received the type and quantity of waste as described above by the generator and that waste has been transported according to regulations

โดยขนส่งจากจังหวัด : From ..... ไปยังจังหวัด : To ..... ใช้ระยะเวลาประมาณ : Time spending ..... ชม./วัน : Hours/Day

ลงชื่อผู้ขนส่งรายที่ 1 Transporter's name ..... ลายเซ็น : Signature ..... วันที่ : Date ..... เดือน : Month ..... พ.ศ. : Year .....

5) ชื่อผู้ขนส่งรายที่ 2 : Transporter's name : ..... เลขประจำตัวผู้ขนส่ง : Transporter's ID : ..... โทรศัพท์ : Phone : ..... โทรสาร : Fax : ..... ฉุกเฉิน : Emergency : .....	6) พาหนะที่ใช้ Vehicle	<input checked="" type="checkbox"/> รถบรรทุก Truck	<input type="checkbox"/> รถไฟ Train	<input type="checkbox"/> เรือ Ship	<input type="checkbox"/> เครื่องบิน Plane
7) เลขทะเบียน พาหนะ : Vehicle ID					

8) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น และการขนส่งเป็นไปตามข้อกำหนดกฎหมายทุกประการ

Transport Certification : I hereby declare that I have received the type and quantity of waste as described above by the generator and that waste has been transported according to regulations.

โดยขนส่งจากจังหวัด : From ..... ไปยังจังหวัด : To ..... ใช้ระยะเวลาประมาณ : Time spending ..... ชม./วัน : Hours/Day

ลงชื่อผู้ขนส่งรายที่ 2 Transporter's name ..... ลายเซ็น : Signature ..... วันที่ : Date ..... เดือน : Month ..... พ.ศ. : Year .....

3. ส่วนของผู้ประกอบการสถานเก็บรวบรวม น้ำอัด และกำจัดของเสีย : This section must be completed by TSDFs

1) ชื่อผู้รับกำจัด TSDF's name : บริษัทปูนซิเมนต์ไทย (แม่ฮ่องสอน) จำกัด สถานที่กำจัด : TSDF's address : [Redacted] อ.มิตรภาพ ต.บ้านป่า อ.แม่ฮ่องสอน จ.สรวงบุรี 18110 รวมปริมาณของเสียทั้งหมด : Total quantity <input type="checkbox"/> ของเหลว : Liquid ..... ตัน/ลิตร : Tons/Liters <input type="checkbox"/> ของแข็ง : Solid ..... ตัน : Tons	2) เลขประจำตัวผู้รับกำจัด : [Redacted] โทรศัพท์ : Phone : [Redacted] โทรสาร : Fax : [Redacted] กรณีฉุกเฉิน : Emergency : [Redacted]
3) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามปริมาณที่ระบุข้างต้นนี้ : TSDF certificate of arrival : I hereby that I have received the reference load. และสามารถกำจัดของเสียที่รับมานี้ ได้ภายในระยะเวลา : Treatment period ..... <input type="checkbox"/> วัน : Day <input type="checkbox"/> เดือน : Month <input type="checkbox"/> ปี : Year นับจากวันที่ได้รับของเสีย : Since the day that received waste ลงชื่อผู้รับกำจัด : TSDF's name ..... [Redacted] ลายเซ็น : Signature ..... [Redacted] วันที่ : Date ..... 12 เดือน : Month ..... 02 พ.ศ. : Year ..... 23	
4) กรณีของเสียไม่ตรงตามที่แจ้ง : Discrepancy Notification ประเภทของเสีย : Type of waste ..... ปริมาณ : Quantity ..... การดำเนินการ : Action taken <input type="checkbox"/> ส่งคืน : Returned <input type="checkbox"/> จัดประเภทใหม่ : Reclassified / รหัส : Waste ID ..... <input type="checkbox"/> รับกำจัด : Accepted เหตุผล : Reason of action ..... วันที่ส่งคืน : Date returned ..... / ..... / ..... (วันที่เดือน/ปี : dd/mm/yy) หมายเลขใบกำกับการขนส่งของเสียที่ส่งกลับ : Retured manifest no ..... ชื่อผู้ส่งคืน : TSDF's name ..... ลายเซ็นผู้ส่งคืน : TSDF's Signature .....	

ฉบับที่ ๑ (ต้นฉบับ) หน่วยงานกำกับดูแล

ฉบับที่ 2 สักำเนิดของเสียบ

ฉบับที่ 3 หน่วยงานกำกับดูแล

ฉบับที่ 4 ผู้ขนส่งของเสีย

ฉบับที่ 5 ผู้ประกอบการสถานเก็บกัก น้ำบาด และกำจัดของเสีย

ฉบับที่ 6 ผู้กำเนิดของเสีย

ฉบับที่ 4



หมายเลขใบกำกับการขนส่งของเสีย : Manifest No.

## ใบกำกับการขนส่งของเสีย

(Uniform Waste Manifest)

## 1. ส่วนของผู้ก่อการเกิดของเสีย: This section must be completed by the Generator

1) ชื่อ : name		2) เลขประจำตัวผู้ก่อการเกิดของเสีย : Generator's ID	
สถานที่ตั้ง : Generator address		โทรศัพท์ : Phone	
3) ผู้ขนส่งของเสีย : Transporter		โทรสาร : Fax	
รายชื่อบริษัท : First company name		กรณีฉุกเฉิน : Emergency	
รายชื่อบริษัท : Second company name		เลขประจำตัวผู้ขนส่งของเสีย รายที่ 1 : Transporter's ID	
4) ผู้เก็บรวบรวม บำบัด และกำจัดของเสีย : Treatment Storage Disposal Facilities(TSDFs)		เลขประจำตัวผู้ขนส่งของเสีย รายที่ 2 : Transporter's ID	
รายชื่อบริษัท : First TSDF's name บริษัทปูนซิเมนต์ไทย (ลำปาง) จำกัด		เลขประจำตัวผู้เก็บรวบรวม บำบัด และกำจัดของเสีย รายที่ 1 : Disposer's ID DIW-D-055100010	
รายชื่อบริษัท : Second TSDF's name		เลขประจำตัวผู้เก็บรวบรวม บำบัด และกำจัดของเสีย รายที่ 2 : Disposer's ID	
5) รายละเอียดของเสียที่ขนส่ง : <input type="checkbox"/> ของเสียอันตราย (Hazardous Waste) <input type="checkbox"/> ของเสียไม่อันตราย (Non-Hazardous Waste)			
ลำดับ	รายละเอียด	รหัสของเสีย	รหัสวัสดุที่ไม่ใช่แล้ว
No.	(Description)	อันตราย : Waste ID.	รหัสวัสดุที่ไม่ใช่แล้ว
1	ของเสีย	010505	
รวมปริมาณของเสียทั้งหมด : Total Quantity		ของเหลว : Liquid	
		ลิตร/ลูกบาศก์เมตร : Liters/cu.m	
		ของแข็ง : Solid	
		กิโลกรัม / ตัน : Kgs/ tons	
6) การปฏิบัติที่ลักษณะพิเศษ และข้อมูลเพิ่มเติม : Special handling Instructions and additional information			
7) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้ส่งมอบของเสียแล้วตามที่ระบุข้างต้น และมีการบรรจุติดป้ายหรือฉลากอย่างเหมาะสมตรงตามข้อกำหนดของกฎหมายทุกประการ :			
Generator Certificate : I hereby certify that the contents of this consignment are accurately described and labeled and are in proper condition for transport according to regulations			
ลงชื่อ Generator's name			
ลายเซ็น : Signature			
วันที่ : Date			
เดือน : Month			
พ.ศ. : Year			

## 2. ส่วนของผู้ขนส่งของเสีย : This section must be completed by the Transporter

1) ชื่อผู้ขนส่งรายที่ 1 : Transporter's name		2) พาหนะที่ใช้		<input checked="" type="checkbox"/> รถบรรทุก	<input type="checkbox"/> รถไฟ	<input type="checkbox"/> เรือ	<input type="checkbox"/> เครื่องบิน
เลขประจำตัวผู้ขนส่ง : Transporter's ID		Vehicle		Truck	Train	Ship	Plane
โทรศัพท์ : Phone		โทรสาร : Fax		ฉุกเฉิน : Emergency			
3) เลขทะเบียน		พาหนะ : Vehicle ID					
4) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น และการขนส่งเป็นไปตามข้อกำหนดกฎหมายทุกประการ							
Transport Certification : I hereby declare that I have received the type and quantity of waste as described above by the generator and that waste has been transported according to regulations							
โดยขนส่งจากจังหวัด : From ไปยังจังหวัด : To ใช้ระยะเวลาประมาณ : Time spending ชม./วัน : Hours/Day							
ลงชื่อผู้ขนส่งรายที่ 1 Transporter's name							
ลายเซ็น : Signature							
วันที่ : Date							
เดือน : Month							
พ.ศ. : Year							
5) ชื่อผู้ขนส่งรายที่ 2 : Transporter's name		6) พาหนะที่ใช้		<input checked="" type="checkbox"/> รถบรรทุก	<input type="checkbox"/> รถไฟ	<input type="checkbox"/> เรือ	<input type="checkbox"/> เครื่องบิน
เลขประจำตัวผู้ขนส่ง : Transporter's ID		Vehicle		Truck	Train	Ship	Plane
โทรศัพท์ : Phone		โทรสาร : Fax		ฉุกเฉิน : Emergency			
7) เลขทะเบียน		พาหนะ : Vehicle ID					
8) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น และการขนส่งเป็นไปตามข้อกำหนดกฎหมายทุกประการ							
Transport Certification : I hereby declare that I have received the type and quantity of waste as described above by the generator and that waste has been transported according to regulations							
โดยขนส่งจากจังหวัด : From ไปยังจังหวัด : To ใช้ระยะเวลาประมาณ : Time spending ชม./วัน : Hours/Day							
ลงชื่อผู้ขนส่งรายที่ 2 Transporter's name							
ลายเซ็น : Signature							
วันที่ : Date							
เดือน : Month							
พ.ศ. : Year							

## 3. ส่วนของผู้ประกอบการสถานเก็บรวบรวม บำบัด และกำจัดของเสีย : This section must be completed by TSDFs

1) ชื่อผู้รับกำจัด TSDF's name บริษัทปูนซิเมนต์ไทย (ลำปาง) จำกัด		2) เลขประจำตัวผู้รับกำจัด	
สถานที่กำจัด : TSDF's address ตำบลบ้านสา อำเภอแจ้ห่ม จังหวัดลำปาง 52000		โทรศัพท์ : Phone	
รวมปริมาณของเสียทั้งหมด : Total quantity		โทรสาร : Fax	
		กรณีฉุกเฉิน : Emergency	
3) คำรับรอง : ข้าพเจ้าขอรับรองว่าได้รับของเสียแล้วตามที่ระบุข้างต้น : TSDF certificate of arrival : I hereby that I have received the reference load.			
และสามารถกำจัดของเสียที่รับมานี้ได้ภายในระยะเวลา : Treatment period <input type="checkbox"/> วัน : Day <input type="checkbox"/> เดือน : Month <input type="checkbox"/> ปี : Year นับจากวันที่ได้รับของเสีย : Since the day that received waste			
ลงชื่อผู้รับกำจัด : TSDF's name			
ลายเซ็น : Signature			
วันที่ : Date			
เดือน : Month			
พ.ศ. : Year			
4) กรณีของเสียไม่ตรงตามที่แจ้ง : Discrepancy Notification			
ประเภทของเสีย : Type of waste			
ปริมาณ : Quantity			
การดำเนินการ : Action taken <input type="checkbox"/> ส่งคืน : Returned <input type="checkbox"/> จัดประเภทใหม่ : Reclassified / รหัส : Waste ID <input type="checkbox"/> รับกำจัด : Accepted เหตุผล : Reason of action			
วันที่ส่งคืน : Date returned			
(วันที่/เดือน/ปี : dd/mm/yy) หมายเลขใบกำกับการขนส่งของเสียที่ส่งกลับ : Retured manifest no			
ชื่อผู้ส่งคืน : TSDF's name			
ลายเซ็นผู้ส่งคืน : TSDF's Signature			

ฉบับที่ 1 (ต้นฉบับ) หน่วยงานกำกับดูแล

ฉบับที่ 4 ผู้ขนส่งของเสีย

ฉบับที่ 2 ผู้ก่อการเกิดของเสีย

ฉบับที่ 5 ผู้ประกอบการสถานเก็บรวบรวม บำบัด และกำจัดของเสีย

ฉบับที่ 3 หน่วยงานกำกับดูแล

ฉบับที่ 6 ผู้กำจัดของเสีย

Running Number

28758



ภาคผนวกที่ 17  
บันทึกประเภทของเสียและปริมาณของเสีย  
(Waste Inventory Report)

---



## 2023 OTN Waste Inventory Report

[illegible]



ภาคผนวกที่ 18

Chemical Management Procedure

---





**PTTEP**

PTT Exploration and Production Public Company Limited

---

## **Chemical Management Procedure**

---

**Document Code: 12148-PDR-SSHE-505/38-R00**

**November 2019**



### Approval Register

**Document Subject** Chemical Management Procedure

**Document Code** 12148-PDR-SSHE-505/38-R00

**Document Owner** Safety Management Department (CSA)

**Prepared by** [REDACTED] Operational Safety Engineer

**Effective Date** November 2019

### Review and Approve

	Name	Signature	Date
Document Custodian	[REDACTED] CSA/O	[REDACTED]	14 NOV 2019
Technical Reviewer	[REDACTED] CPA	[REDACTED]	18 NOV 2019
	[REDACTED] CEN	[REDACTED]	18 NOV 2019
	[REDACTED] CEN/O	[REDACTED]	14 NOV 19
	[REDACTED] Occupational Health Officer	[REDACTED]	14 NOV 19
Document Owner	[REDACTED] CSA	[REDACTED]	18 NOV 2019
Approval Authority	[REDACTED] CSH	[REDACTED]	20/11/19

THIS DOCUMENT WILL BE REVIEWED EVERY 5 YEARS FROM DATE OF APPROVAL OR REVISED EARLIER IF NECESSARY.



## TABLE OF CONTENTS

<b>INTRODUCTION</b>	<b>1</b>
1. PURPOSE .....	1
2. SCOPE .....	1
<b>REQUIREMENTS</b>	<b>2</b>
3. CHEMICAL MANAGEMENT PROCESS .....	2
4. PRELIMINARY RISK ASSESSMENT FOR NEW CHEMICALS .....	2
4.1 IN CASE PTTEP IS THE CHEMICAL OWNER .....	2
4.2 IN CASE CONTRACTOR IS THE CHEMICAL OWNER UNDER WORK CONTRACT/SERVICE ORDER .....	3
4.3 CHEMICAL DOCUMENT PREPARATION AND PRE-REGISTRATION .....	3
4.4 CHEMICAL REVIEW AND VERIFICATION .....	4
4.5 BANNED SUBSTANCES .....	5
4.6 FINAL APPROVAL AND REGISTERED CHEMICALS .....	5
5. TRAINING .....	5
6. PURCHASING .....	5
7. LABELLING .....	6
8. TRANSPORTATION .....	6
9. STORAGE .....	7
9.1 CHEMICAL INVENTORY .....	7
9.2 STORAGE AREA .....	8
9.3 TEMPORARY STORAGE AREA AT WORKING AREAs .....	9
10. EMERGENCY RESPONSE AND INCIDENT REPORTING .....	9
10.1 EMERGENCY RESPONSE .....	9
10.2 CHEMICAL SPILL RESPONSE .....	9
10.3 DECONTAMINATION .....	10
10.4 INCIDENT REPORTING .....	10
11. WASTE MANAGEMENT AND DISPOSAL .....	10
12. PERSONAL PROTECTIVE EQUIPMENT (PPE) .....	10



## TABLE OF CONTENT (Continued)

<b>APPENDICES</b>	<b>11</b>
APPENDIX A: CHEMICAL MANAGEMENT PROCESS OVERVIEW (PTTEP CHEMICAL OWNER) .....	11
APPENDIX B: CHEMICAL MANAGEMENT PROCESS OVERVIEW (CONTRACTOR CHEMICAL OWNER).....	12
APPENDIX C: DECLARATION LETTER OF CONFORMITY (SAFE CHEMICAL) .....	13
APPENDIX D: PRELIMINARY RISK ASSESSMENT FOR NEW CHEMICAL REGISTRATION FORM (THAI DOMESTIC ASSET) .....	14
APPENDIX E: PROCESS OVERVIEW OF WEB-BASED CHEMICAL REGISTRATION.....	15
APPENDIX F: SAFETY DATA SHEET (SDS) .....	16
APPENDIX G: GHS LABELLING FORMAT .....	17
APPENDIX H: NFPA704 LABEL SYSTEM (FIRE DIAMOND) .....	20
APPENDIX I: TRANSPORTATION SIGNS AND GUIDANCE ON PLACARDS (UNRTDG CLASSIFICATION).....	23
APPENDIX J: CHEMICAL SEGREGATION FOR LAND STORAGE (THAI DOMESTIC ASSET) .	31
APPENDIX K: CHEMICAL SEGREGATION FOR LAND STORAGE (GUIDANCE FOR INTERNATIONAL ASSET).....	35
APPENDIX L: CHEMICAL SEGREGATION FOR MARINE STORAGE (IMDG).....	37
<b>ROLES AND RESPONSIBILITIES</b>	<b>38</b>
<b>DEFINITION AND ACRONYMS</b>	<b>43</b>
<b>REFERENCES</b>	<b>45</b>
<b>REVISION HISTORY</b>	<b>46</b>

## INTRODUCTION

### 1. PURPOSE

This Procedure specifies and guides the acceptable Safety management of chemicals from purchasing, storing, handling, transporting, spill responding to disposing of all chemicals which are used under PTTEP Assets, in order to comply with local law and regulations and International Standards.

The improper use, storage, handling and transport of chemicals may result in worker fatalities, chronic health disease, fire and explosions, environmental impact, and other community concerns. To prevent such events, it is necessary to put in place control measures. The controls of inherent hazards must be established to minimize the risks of incidents to As Low As Reasonably Practicable (ALARP) level.

### 2. SCOPE

This Procedure applies to all PTTEP Assets including onshore/offshore/support bases and overseas operations.

This Procedure considers chemicals that are used in PTTEP activities. Manufacture and delivery of raw chemicals directly to PTTEP working sites, storage sites, yards or warehouses by suppliers are not covered.

The following are exempted from this Procedure. However, the chemical owners/onsite supervisors are responsible for managing the risk of using chemicals to ALARP level by demonstration through risk assessment and following precautions of the Safety Data Sheet (SDS) strictly.

- Pesticides used by qualified Contractors and control by their Procedures.
- Household chemicals, fertilizers and weed killers.

**Remark:** In case there are conflicts implementing and managing chemicals to comply with this Procedure, either Thai Domestic Assets or overseas Assets shall fully manage chemicals to comply with the following documents, respectively:

- Local law and regulations.
- Memorandum of Understanding (MOU) and cross-country agreement/treaty of chemical management that each country signed and committed to.
- Acceptable International Standard and best practices.
- PTTEP Chemical Management Procedure.



## REQUIREMENTS

### 3. CHEMICAL MANAGEMENT PROCESS

The chemical management process can be classified into the following 2 main types:

- PTTEP is the chemical owner and PTTEP purchased chemicals from the manufacturer. Purchasing method can also be classified into 2 categories:
  - Stock purchases (via SAP); and
  - Direct purchases (via Purchase Requisition (PR) or Purchase Order (PO)).
- Contractor is the chemical owner and handling chemicals under a contract or work service order.

The chemical management process overview for PTTEP chemical owners and Contractor chemical owners is presented in Appendices A and B, respectively.

### 4. PRELIMINARY RISK ASSESSMENT FOR NEW CHEMICALS

#### 4.1 IN CASE PTTEP IS THE CHEMICAL OWNER

Before stock purchasing or direct purchasing of new chemicals, including free samples/trials from chemical suppliers, PTTEP chemical owners shall register for chemical pre-registration in order to proceed to the preliminary risk assessment for the new chemicals.

A verification team or committee shall be assigned and set up to verify chemicals during the preliminary risk assessment for new chemicals. The verification team members are to have expertise in multiple disciplines, but are not limited to:

- Safety Discipline;
- Health/Medic/Doctor Discipline;
- Environment Discipline; and
- Permit & License Discipline.

**For International Assets,** Assets shall have a specific system for preliminary risk assessment for new chemicals. The requirement shall cover, but is not limited to Safety, Health, Environment, and permit & license. Local law and regulations, cross-country agreements/treaties may be embedded in the preliminary risk assessment for new chemicals, as one of the requirements.

**For Thai Domestic Assets,** Chemical owners shall proceed to the existing system of preliminary risk assessment for new chemicals via either web-based chemical registration (Preferable) or hardcopy form. Details of the preliminary risk assessment process in each step is explained from Sections 4.3 to 4.6.

## **4.2 IN CASE CONTRACTOR IS THE CHEMICAL OWNER UNDER WORK CONTRACT/SERVICE ORDER**

Under a work contract or service order, the Contractor may import, possess, use, handle, store, and transport chemicals. For this case, the Contractor shall be considered as the chemical owner. Chemicals shall not be registered into the PTTEP chemical registration database.

### **Contractor Verification of Safe Chemicals**

In addition, during the pre-mobilization phase of Contractor management, the Contractor shall compile all chemical lists with an SDS which will be handled and used under a work contract/service order. Then, the Contractor shall submit the chemical lists with the SDS to the Contract Holder, Company site representative, site SSHE officer and site medic.

Similarly, the preliminary risk assessment process for new chemicals is applied to Thai Domestic Assets. Contractor shall verify and ensure that all chemicals used under the work contract/service order are safe to handle and manage before commencing work in PTTEP premises. For instance;

- Is the chemical banned based on local law and regulations;
- Is the chemical considered to be a hazardous or non-hazardous chemical based on local law and regulations;
- Etc.

After verification of safe chemicals, the Contractor shall sign the declaration letter of safe chemicals under the work contract/service order. This declaration letter shall be submitted to the Contract Holder, Company site representative, site SSHE officer and site medic before commencing work in PTTEP premises. Once the Contract Holder receives the letter he/she is to sign the letter for endorsement and acknowledgement. A guidance template for a declaration letter of conformity (safe chemicals) under work contract/service order is provided in Appendix C.

## **4.3 CHEMICAL DOCUMENT PREPARATION AND PRE-REGISTRATION**

Before purchasing chemicals, the chemical owner shall obtain the full details of the SDS from the chemical suppliers/manufacturers.

- The SDS for both a single substance and a mixing substance (mixture) must reveal 100% composition/ingredients of the chemical.
- The concentration of each composition can be presented in a range (Min to Max).
- In case there is a secret ingredient or Confidential Business Information (CBI), where the manufacturer does not permit revealing 100% composition/ingredients of a chemical, the chemical owner shall strictly enforce manufacturers to privately submit an SDS detailing 100% of the composition/ingredients of chemical with local authorities (For Thailand, Department of Industrial Work or DIW).



After they have obtained the full details of the SDS, the chemical owner shall proceed to pre-registration by completing/filling in the information for the chemical on web-based chemical registration or completing a hardcopy form and attaching it to the SDS. A sample of a web-based new chemical registration and hardcopy form is presented in Appendix D.

#### **4.4 CHEMICAL REVIEW AND VERIFICATION**

When pre-registration of new chemical is submitted via web-based system, this information is to be sent to notify the verification team of the preliminary risk assessment for new chemicals to conduct a chemical review and verification.

##### **4.4.1 Safety Discipline**

- Review and approve new chemicals through the web-based chemical registration.
- Identify National Fire Protection Association (NFPA) diamond signs.
- Identify hazardous chemicals and specify any required documents (SOR AOR 1) that are needed to submit to local authorities based on local law.
- Provide specific control or highlight measures that are very necessary to handle and store the chemical safely.

##### **4.4.2 Health/Medic/Doctor Discipline**

- Review and approve new chemicals through the web-based chemical registration.
- Identify the NFPA diamond signs.
- Identify and highlight health hazards.
- Provide advice and give comments for chemical owners/users in order to prevent Health hazards.

##### **4.4.3 Environment Discipline**

- Review and approve new chemicals through the web-based chemical registration.
- Provide advice and give comments for chemical owners/users to prevent environmental impact.

##### **4.4.4 Permit & License Discipline**

- Review and approve new chemicals through the web-based chemical registration.
- Identify dangerous goods in accordance with the local hazardous substance Act. Dangerous Goods type 4 are strictly banned/prohibited in Thailand (Exception: Certified Reference Materials (CRM) that are used for analytical laboratory analysis).
- Coordinate work with local authorities and prepare permit and licenses document to import chemicals before purchasing.

## 4.5 BANNED SUBSTANCES

**For Thai Domestic Assets**, all chemicals that are considered as Dangerous Goods Type 4 (Exception: CRM used for analytical laboratory analysis) shall be strictly banned/prohibited, in accordance with the hazardous substance Act.

**For International Assets**, all chemicals shall be considered as banned substances based on applicable local law and regulations, MOUs and cross-country agreement/treaties of chemical management that each country signed and committed to.

## 4.6 FINAL APPROVAL AND REGISTERED CHEMICALS

Chemicals can be purchased after approval from all disciplines during the preliminary risk assessment process. Web-based chemicals shall have an identity number generated, known as Registered Chemicals List (RCL) number, for approved chemicals. This RCL number is presented in the form of RCL-Approved Year-Running Number-Chemical Name. For example, RCL-2019-003-Methylene Chloride means Methylene Chloride has been finally approved and registered as the third chemical of year 2019.

There is no expiry date for RCL numbers. The RCL number of chemicals still remains valid until there is any change in composition. For this case, the chemical owner shall repeat the process of pre-registration and preliminary risk assessment for a new chemicals process.

The process overview of a web-based chemical registration is shown in Appendix E.

## 5. TRAINING

Everyone who is involved with chemicals, from purchasing, storing, handling, transporting, spill responding to disposing of all chemicals shall have a basic knowledge of chemical hazards and safe chemical handling. This basic knowledge of chemical hazards and safe chemical handling can be communicated and provided through appropriate training.

The chemical owner and site SSHE officer of each Asset shall identify the specific training requirements for everyone who is involved with chemicals and then assign the appropriate training.

Contractor shall provide basic knowledge of chemical hazards and safe chemical handling through either in-house or external training to their own Contractor personnel before commencing work with chemicals. Alternatively, the Contractor may seek support from PTTEP to provide the safe chemicals handling and storage for Train-the-Trainer. Afterwards, the Contractor trainer shall provide the training to their own personnel.

## 6. PURCHASING

Only chemicals with approval and RCL number can be purchased, including stock and direct purchasing. If there is any request for purchasing new chemicals without approval or RCL number from the chemical owner, the procurement team has the authority to reject this request.



If the new chemical has not been approved with an RCL number yet, the chemical owner must proceed to the preliminary risk assessment for a new chemical process which is explained earlier in Section 4.

### **Chemicals Delivery to Sites by Suppliers**

Chemicals delivery to sites/warehouses by suppliers may be considered as SSHE contract mode 3, in accordance with SSHE Contractor management Procedure. SSHE Contract mode 3 means the Contractor/Supplier operates within its own SSHE Management System (SSHE MS) that has no interfaces with the Company SSHE MS and they are not required to report SSHE performance data including incidents to PTTEP. However, this does not exclude the possibility that the EP Company may wish to guide and influence SSHE performance under the contract/service.

**Note:** Chemical owners/users and procurement shall inform all suppliers that:

- SDS are delivered with chemicals. The SDS is explained in more detail in Appendix F.
- All chemical containers/packages are supplied with Globally Harmonized System of Classification and Labelling of Chemicals (GHS) label.
- Required documents such as SOR AOR 1 by Thai Law shall be available with the chemicals, which are applicable to Thai Domestic Assets.
- Supplier delivery trucks that enter any PTTEP premises are to comply with local law & regulations as well as United Nations (UN) Recommendations on the Transport of Dangerous Goods (UNRTDG).

## **7. LABELLING**

All chemicals used in PTTEP premises shall be identified and their hazards are to be communicated through a GHS label. GHS label shall be applied to:

- All chemical drums/containers/packaging.
- Exception: chemical waste containers (Waste labels shall be applied in accordance with the PTTEP Waste Management Procedure).

GHS label description and format are shown in Appendix G.

**Remark:** The NFPA label is an optional step to be implemented for packaging/containers as well as transportation. The NFPA Label is explained more in detail in Appendix H.

## **8. TRANSPORTATION**

The Logistics team shall ensure that transportation of hazardous substances is implemented in compliance with local law & regulations as well as International regulations, The International Civil Aviation Organization (ICAO)/International Air Transport Association (IATA) for air transportation, International Maritime Dangerous Goods (IMDG) for marine transportation, European Agreement Concerning the International Carriage of Dangerous Goods by Rail (RID) for rail transportation and

European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) for land transportation.

**Remark:**

- Personnel, who are involved with transport of dangerous goods/hazard substances by air, shall be trained in dangerous goods and be kept up with recurrent training within 24 months of previous training. Dangerous goods training must be approved by the appropriate authority of the State of the Operator in accordance with the provisions of Annex 6 - Operation of Aircraft.
- Personnel who are involved with marine transport of dangerous goods/hazard substances shall pass the certified training from IMDG.

**Land Transportation**

The major concerned hazards of chemical spills during land transportation are physical, health, and environmental hazards. A chemical land transportation accident has the potential to affect PTTEP reputation and stakeholders.

- **Competency of Driver for Carriage of Hazardous Substance**

Drivers for carriage of hazardous substances shall be provided appropriate training and have a specific license, in accordance with local law & regulations and ADR requirement.

- **Land Transport Vehicle Specification**

Land transport vehicles for carriage of hazardous substances shall be specifically designed, tested, certified in accordance with local law & regulations and ADR requirement.

- **Mixed Loading Prohibition**

Packages bearing different danger labels shall not loaded together in the same vehicle or container unless mixed loading is permitted. Guidance on mixed loading in the same vehicle or container is presented in the ADR requirement.

- **Placarding**

Placarding and marking of containers, bulk containers, tank containers, portable tanks and vehicles shall be identified with clear visibility, in compliance with local law & regulations as well as the ADR requirement. Transportation signs and a guidance on placard (UNRTDG Classification) are shown in Appendix I.

## **9. STORAGE**

### **9.1 CHEMICAL INVENTORY**

Chemicals in a warehouse/material yard shall be recorded in the chemical inventory list and required documents such as the SDS and Emergency Response Plan shall be in place. The First-in and First-out method shall be implemented for dispatching chemicals to users. A Chemical inventory list should contain the following information as per the guidance:



- Date of receiving, dispatching, expiry.
- Volume, number of containers/packaging, size of container.
- SDS, required documents such as SOR AOR 1 by Thai Law, GHS Label.

## 9.2 STORAGE AREA

Chemical storage areas, including indoor and outdoor areas, shall be allocated and designated. Chemical storage area specifications for construction shall be well designed in accordance with local law & regulations. Before construction the following items/topics should be taken into account, but are not limited to:

- Wall and fire wall;
- Floor;
- Door and Emergency Exit Door;
- Roof;
- Spill Retention Arrangements;
- Drainage;
- Ventilation System;
- Lighting System, Emergency Lighting, Electrical Appliance;
- Lightning Protection System;
- Hazardous Area Determination;
- Alarm System;
- Fire-fighting system including active and passive system;
- Water storage system for supplying water for an emergency;
- Warning Signs and Safety Signs;
- Eye wash station;
- Traffic Route and Dispatching point; and
- Spill Response Equipment, etc.

Chemicals and hazardous substances shall be segregated properly in the store in compliance with local law and regulations. Appendix J presents the Chemical and Hazardous Substances Storage Table which is applicable for Thailand.

**Remark:** For International Assets, where in case of no applicable local law & regulation to follow or comply with for chemical and hazardous substances segregation in storage area, the segregation guidance is provided and presented in Appendix K.

For marine transportation (Storage), chemical segregation shall conform to the IMDG, which is presented in Appendix L.

### **9.3 TEMPORARY STORAGE AREA AT WORKING AREAS**

Sometimes, only a small and proper volume of chemicals is moved to a working area and left at the working area for stand-by use. For example, a scale inhibitor drum or container is left standing by the chemical injector tank to feed the production process. The onsite supervisor/chemical user shall pay attention to the following:

- Check the condition of packaging/container.
- SDS and GHS label is available at the working area.
- Segregate and identify the status of chemical containers whether “Full” or “Empty”.
- Empty chemical containers shall be returned to the warehouse/material yard for disposal.
- Barricade the temporary storage area at the working area to prevent access by unauthorized persons.
- Ensure availability of emergency eye wash station or portable eye wash.
- Chemical containers shall be placed inside the bund wall or on the spill canvas to prevent any chemical spill to the Environment.
- Provision of emergency response facilities (Spill and fire-fighting).

Contractor shall follow the above requirements and strictly follow the site rules about safe chemical handling and storage.

## **10. EMERGENCY RESPONSE AND INCIDENT REPORTING**

### **10.1 EMERGENCY RESPONSE**

The chemical owner and chemical user with the Asset team shall prepare and have an emergency response plan in place including for fire & explosion, spills to Environment, unintentional exposure to chemical users, etc., before using the chemical. The emergency response requirement is already given in the SDS of chemicals. Chemical users shall ensure that all emergency equipment and clean up equipment are available and functional on site. Emergency drills shall be scheduled and exercised periodically with support from Assets.

It is important to remark that when in doubt or in case of an emergency when handling or using chemicals, immediate contact with the chemical distributor or manufacturer shall be established.

### **10.2 CHEMICAL SPILL RESPONSE**

For spill response, the chemical owner and chemical user with the Asset team shall develop a chemical spill response plan and encounter spill based on the site requirements.

For International Assets, a chemical spill response plan shall be developed and handled for all tiers of chemical spill incidents in compliance with local legislation and in-country regulations.



### **10.3 DECONTAMINATION**

In case of a chemical spill to the Environment, the site SSHE officer shall arrive at the contamination area and assess the situation before the decontamination process. A specific decontamination plan shall be developed by site SSHE to comply with local legislation, International Standards, and SDS information.

### **10.4 INCIDENT REPORTING**

In case of a chemical spill to Environment or loss of containment, no matter how small the volume is, it shall be considered and reported as an incident in accordance with the PTTEP Incident Management Standard.

## **11. WASTE MANAGEMENT AND DISPOSAL**

When a chemical has expired or is no longer required for operations, including contaminated chemical containers/packages or contaminated chemical waste water, they shall be treated, managed and disposed of under the method in accordance with local legislation, International Standards as well as the PTTEP Waste Management Procedure.

Before transporting containers/packages to waste disposal locations which are approved by the local authority, all containers/packages that contain chemical waste shall be marked and controlled. A full set of SDS or brief SDS of disposed chemicals shall be handed in/submitted to both the transporting and waste disposal Service Companies for their safe operation.

## **12. PERSONAL PROTECTIVE EQUIPMENT (PPE)**

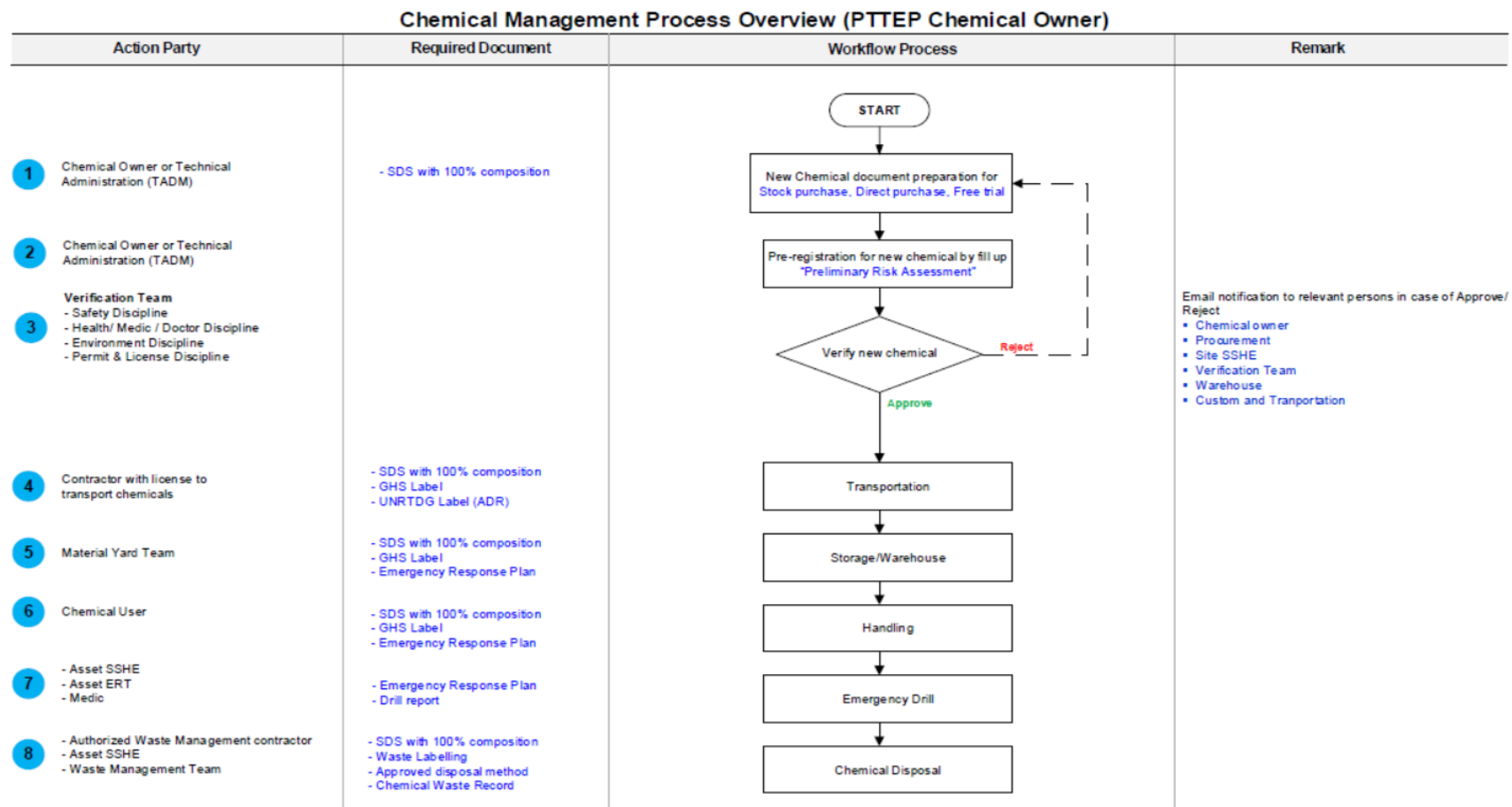
It is necessary to define and provide PPE for routine operations as well as for emergencies. It is mandatory to allocate appropriate PPE for specific chemical handling, as stated in the SDS.

Everyone who is involved with chemical handling shall be trained in the proper use and care of all necessary PPE.

For approved PPE Standards, this information can be obtained from PTTEP Operational Safety Management Standard, Appendix 1: Approved PPE Standard.

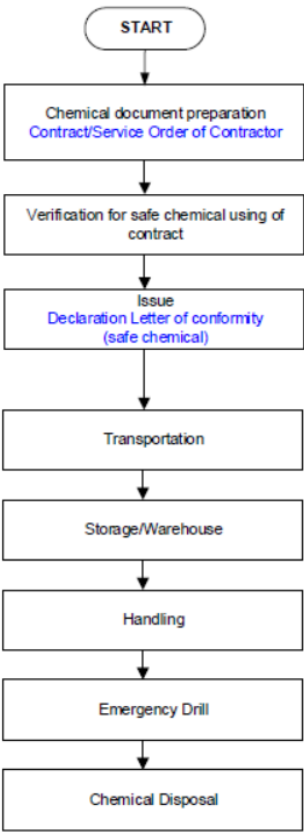
## APPENDICES

### APPENDIX A: CHEMICAL MANAGEMENT PROCESS OVERVIEW (PTTEP CHEMICAL OWNER)



## APPENDIX B: CHEMICAL MANAGEMENT PROCESS OVERVIEW (CONTRACTOR CHEMICAL OWNER)

**Chemical Management Process Overview (Contract/Service Order of Contractor)**

Action Party	Required Document	Workflow Process	Remark
<p><b>1</b> - Contract Holder - Contractor</p> <p><b>2</b> Contractor</p> <p><b>3</b> Contractor</p> <p><b>4</b> Contractor with license to transport chemicals</p> <p><b>5</b> - Contract Holder - Contractor</p> <p><b>6</b> Chemical User</p> <p><b>7</b> - Contractor - CSR - Asset SSHE - Asset ERT - Medic</p> <p><b>8</b> - Authorized Waste Management contractor - Asset SSHE - Waste Management Team</p>	<p>- SDS with 100% composition - GHS Label - List of chemical for Contract/Service Order</p> <p>- SDS with 100% composition - GHS Label</p> <p>- SDS with 100% composition - GHS Label - UNRTDG Label (ADR)</p> <p>- SDS with 100% composition - GHS Label - Emergency Response Plan</p> <p>- SDS with 100% composition - GHS Label - Emergency Response Plan</p> <p>- Emergency Response Plan - Drill report</p> <p>- SDS with 100% composition - Approved disposal method - Chemical Waste Record - Waste Labelling</p>	 <pre> graph TD     START([START]) --&gt; A[Chemical document preparation Contract/Service Order of Contractor]     A --&gt; B[Verification for safe chemical using of contract]     B --&gt; C[Issue Declaration Letter of conformity (safe chemical)]     C --&gt; D[Transportation]     D --&gt; E[Storage/Warehouse]     E --&gt; F[Handling]     F --&gt; G[Emergency Drill]     G --&gt; H[Chemical Disposal]           </pre>	<p>Verification in term of law/Regulations - Dangerous Goods type 1-4 - Hazardous chemical</p> <p>Issue to; - Contract Holder - Company Site Representative (CSR) - Asset SSHE - Medic</p> <p>Temporary storage at each site/project</p>



## APPENDIX C: DECLARATION LETTER OF CONFORMITY (SAFE CHEMICAL)

Updated Declaration Letter of Conformity (Safe Chemical) form is available on [SSHE Intranet > SSHE MS > SSHE MS Documents > Corporate Tools > Appendix: Chemical Management Procedure](#)

**Remark:** This form is editable for International Assets. It is designed for Contractors in Thailand only.

Company's Original Letterhead
-------------------------------

<b>Declaration Letter of Conformity Safe Chemical</b>
-----------------------------------------------------------

Date of Issue: DD/MM/YYYY

Type of Declaration: ☐ Under Contract ☐ Under Service Order

Purpose of Usage: ☐ Petroleum Industry ☐ Food & Drug ☐ Pest Control ☐ Household

☐ Others.....

### Confirmation of Declaration Statement from Company

1. We declare that the product(s) listed below:

Chemical Trade Name	Quantity/Weight/Volume Used in PTTEP Premises

Is/are manufactured/imported by us and we are aware that chemical composition(s) is/are revealed and secret composition(s), known as secret recipe or Confidential Business Information (CBI) in Safety Data Sheet, fully comply with the following requirement:

- ☐ Is/are not dangerous goods type 4 (Except, certificate reference material (CRM) is used for analytical laboratory), according to Hazardous Substance Act, which is applicable for Thailand.
- ☐ Is/are dangerous goods type 1, 2 or 3. We are fully aware that we comply with the further requirements of control/ mitigation according to Hazardous Substance Act, which is applicable for Thailand.
- ☐ Is/are not dangerous goods, according to Hazardous Substance Act, which is applicable for Thailand.
- ☐ Is/are not hazardous chemical, according to Notification of Department of Labor Protection and Welfare about Hazardous Chemical List, which is applicable for Thailand.
- ☐ Is/are not prohibited/ banned according to the memorandum of understanding (MOU) and cross-country agreement/treaty of chemical management that each country signed and committed.
- ☐ Has/have the full detail of Safety Data Sheet (16 Elements) as well as GHS labelling on packaging.
- ☐ Has/have safe design of chemical packaging in compliance with local law and regulation as well as ADR requirement.

2. We declare that the information given above is true and correct.

3. We are aware that under local law and regulation, making a false declaration shall be subjected to the penalty from local authorities/ government, as well as, PTTEP.

Sincerely,

Signature of Authorized Signatory from Contractor
------------------------------------------------------

Name of Authorized Signatory

Designation of Authorized Signatory


Signature of Authorized Signatory from PTTEP
-------------------------------------------------

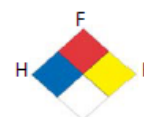
Name of PTTEP Contract Holder

PTTEP Acknowledgement

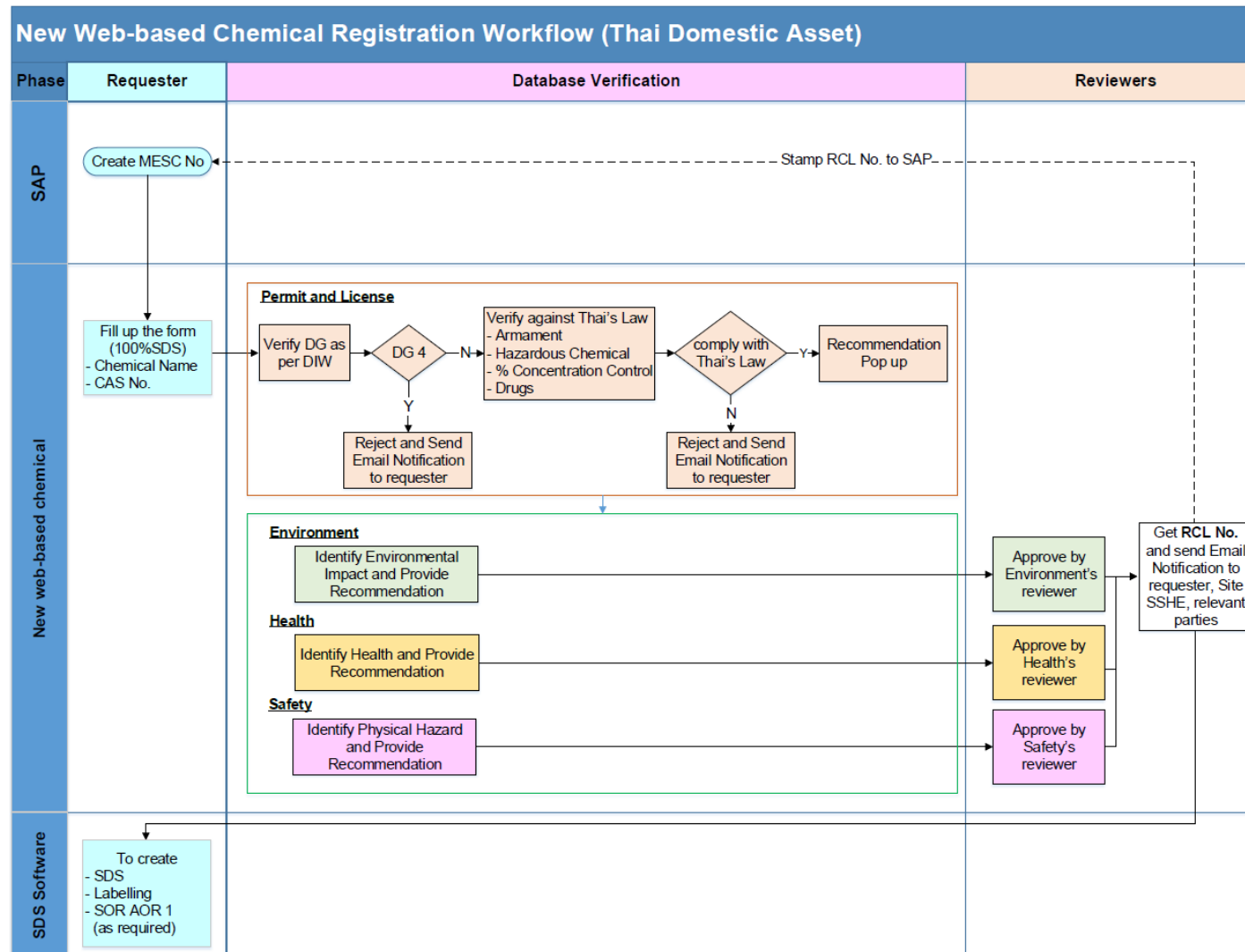
## APPENDIX D: PRELIMINARY RISK ASSESSMENT FOR NEW CHEMICAL REGISTRATION FORM (THAI DOMESTIC ASSET)

Updated Preliminary Risk Assessment for New Chemical Registration form is available on [SSHE Intranet > SSHE MS > SSHE MS Documents > Corporate Tools > Appendix: Chemical Management Procedure](#)

	<b>Preliminary Risk Assessment For New Chemical Registration Form (Thai Domestic Asset)</b>		PDR.Ref.No. 11038-PDR-SSHE-505/38-R03
			Rev.4      Date: Nov 2019
			Page 1 of 1
<b>PART 1: to be completed by chemical owner</b>			RCL No.
<b>Product name/Commercial/Chemical Name:</b>			
<b>Composition Name:</b>		<b>CAS Number:</b>	<b>Weight (%):</b>
<b>Manufacturer/Trader Name:</b> <input type="checkbox"/> Thai Domestic <input type="checkbox"/> International		<b>Working Location (Asset/worksite):</b>	
		<b>Unit Volume (Kg or Liter):</b>	
<b>Propose of Usage:</b>		<b>Total Purchase Volume (Kg or Liter):</b>	
		<b>Mean of Disposal:</b>	
<b>Packaging:</b>		<b>Chemical will be routed to process system or export/product system</b> <input type="checkbox"/> No <input type="checkbox"/> Yes, Please Specify .....	
<b>Type of Purchase</b> <input type="checkbox"/> Stock Purchase <input type="checkbox"/> Direct Purchase <input type="checkbox"/> Free Trial		<b>Special storage required?</b> <input type="checkbox"/> No <input type="checkbox"/> Yes, Please Specify.....	
<b>Chemical Owner Name:</b>		<b>Department:</b>	<b>Date:</b>
<b>PART 2: to be completed by verification team</b>			
<b>Permit and License</b>		<b>Environment</b>	
<input type="checkbox"/> Dangerous goods Type ..... <input type="checkbox"/> Non Dangerous goods		<b>Recommendation to prevent enironment impact:</b>	
Composition name ..... Cas No. ....			
Composition name ..... Cas No. ....			
Official authority .....			
Recommendation.....			
<b>Name:</b>	<b>Dept:</b>	<b>Date:</b>	
<b>Health</b>		<b>Safety</b>	
<input type="checkbox"/> Acute toxicity	<input type="checkbox"/> Germ cell mutagenicity	<input type="checkbox"/> Explosive	<input type="checkbox"/> Pyrophoric solids
<input type="checkbox"/> Skin corrosion/irritation	<input type="checkbox"/> Carcinogenicity	<input type="checkbox"/> Flammable gas	<input type="checkbox"/> Pyrophoric liquids
<input type="checkbox"/> Serious eye damage/eye irritation	<input type="checkbox"/> Reproductive toxicity	<input type="checkbox"/> Aerosols	<input type="checkbox"/> Self-heating substances &mixtures
<input type="checkbox"/> Aspiration hazard (Ingestion)	<input type="checkbox"/> Specific target organ toxicity - repeated exposure	<input type="checkbox"/> Flammable liquids	<input type="checkbox"/> Substances &mixtures, which in contact with water, emit flammable gases
<input type="checkbox"/> Specific target organ toxicity-single exposure	<input type="checkbox"/> Respiratory/skin sensitization	<input type="checkbox"/> Flammable solids	<input type="checkbox"/> Oxidizing liquids
Other/Recommendation.....		<input type="checkbox"/> Gas under pressure	<input type="checkbox"/> Oxidizing solids
		<input type="checkbox"/> Corrosive to metals	<input type="checkbox"/> Oxidizing gas
		<input type="checkbox"/> Self-reactive substances and Mixtures	<input type="checkbox"/> Organic peroxides
		<input type="checkbox"/> Desensitized Explosives	
Other/Recommendation.....			
<b>Name:</b>	<b>Dept:</b>	<b>Date:</b>	
<b>Approved</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Comment (if any).....</b>	



## APPENDIX E: PROCESS OVERVIEW OF WEB-BASED CHEMICAL REGISTRATION





## APPENDIX F: SAFETY DATA SHEET (SDS)

In accordance with Occupational Safety And Health Administration (OSHA), the Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012, requires that the chemical manufacturer, distributor, or importer provide SDSs (formerly MSDSs or Material Safety Data Sheets) for each hazardous chemical to downstream users to communicate information on these hazards. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent user-friendly, 16-section format which is explained below. The information contained in the SDS must be in **English** (although it may be in other languages as well).

1. Identification
2. Hazard(s) Identification
3. Composition/Information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal information
14. Transport information
15. Regulatory information
16. Other information

## APPENDIX G: GHS LABELLING FORMAT

GHS stands for the Globally Harmonized System of Classification and Labelling of Chemicals. The GHS defines and classifies the hazards of chemical products and communicates Health and Safety information on labels and SDSs. The goal is that the same set of rules for classifying hazards, and the same format and content for labels and SDSs will be adopted and used around the world.

GHS covers all hazardous chemicals and may be adopted to cover chemicals in the workplace, chemicals in transport, consumer products, pesticides and pharmaceuticals. The target audiences for GHS include workers, transport workers, emergency responders and consumers.

Classification of the hazards of chemicals based on the GHS rules can be classified into 3 major hazard groups, namely physical hazards, health hazards, and environmental hazards. Within each of these hazard groups there are classes and categories which are summarized in the below table:

**Table G1: GHS Hazard Classification**

Physical Hazards (17 Classes)	Health Hazards (10 Classes)	Environmental Hazards (2 Classes)
Explosives	Acute Toxicity	Hazardous to the Aquatic Environment
Flammable Gases	Skin Corrosion/Irritation	Hazardous to the Ozone Layer
Aerosols	Serious Eye Damage/Irritation	
Oxidizing Gases	Respiratory or Skin Sensitization	
Gases under Pressure	Germ Cell Mutagenicity	
Flammable Liquids	Carcinogenicity	
Flammable Solids	Reproductive Toxicity	
Self-reactive Substances and Mixtures	Specific Target Organ Toxicity Single Exposure	
Pyrophoric Liquids	Specific Target Organ Toxicity Repeated Exposure	
Pyrophoric Solids	Aspiration Hazard	
Self-heating Substances and Mixtures		
Substances and Mixtures which, in Contact with Water, Emit Flammable Gases		

Physical Hazards (17 Classes)	Health Hazards (10 Classes)	Environmental Hazards (2 Classes)
Oxidizing Liquids		
Oxidizing Solids		
Organic Peroxides		
Corrosive to Metals		
Desensitized Explosives		

### GHS-Compliant Label

In accordance with OSHA, chemical labels must include 6 distinct elements:



**Figure G1: Example of a GHS-Compliant Label**

- Product Identifier:** Normally placed in the upper left hand corner of the label, and corresponds with Section 1 of the SDS. It identifies the hazardous chemical by an appropriate term, and can include the chemical name, code number and/or batch number.
- Signal Word:** There are two types of signal words used to determine the severity of the hazard. For each label, either “Danger” (a more severe hazard) or “Warning” (a less severe hazard) must be used. There is only one word per label and, since hazards exist within a variety of classes, a “Danger”-level warning is used if it exists in any one class.
- Hazard Statement:** Describes the nature and degree of the hazard. Labels can contain multiple hazard statements, and should always be standardized and consistent within each hazard classification category.



4. **Precautionary Statement:** Instructs workers and users on measures for minimizing exposure and lowering the risk of harm from a chemical. There are four different types of precautionary statements that should be provided in the label: a prevention statement that describes how to minimize exposure, a response statement that describes what to do in case of exposure, a statement describing how the chemical should be stored, and a disposal statement with instructions for proper disposal of the chemical.
5. **Supplier Information:** Includes the name, address and telephone number of the chemical manufacturer, supplier or importer.
6. **Pictogram:** Composed of a hazard symbol surrounded by a red border to visually illustrate the hazards of a chemical so they are universally readable. There are currently nine pictograms, and depending on the chemical, a single label can contain multiple pictograms to specify multiple hazards.



**Figure G2: GHS Pictograms**

For more details, examples of GHS label arrangement on various types of packaging can be found and are presented in the globally harmonized system of classification and labelling of chemical (GHS), 7<sup>th</sup> revised edition.

## APPENDIX H: NFPA704 LABEL SYSTEM (FIRE DIAMOND)

NFPA 704 is a labelling system used to identify hazardous materials. It is published by the National Fire Protection Association (NFPA). NFPA 704 is a supplemental labelling system specifically intended for emergency responders, though other people can read and benefit from these labels in normal working conditions. This NFPA label is an **optional step** to be implemented for packaging/containers as well as for transportation.

The NFPA 704 label contains lots of information in a compact and easy-to-understand format, which is essential in emergency situations. The most recognizable part of the label is the diamond, which is further broken up into four smaller diamonds. Each of the diamonds is color-coded and represents a different type of hazard. Within the diamond is a number (with the exception of the white diamond). The number corresponds to the level of danger a chemical poses.

The lower the number, the lower the hazard. The numbers range from zero to four, with zero representing no hazard at all, and four representing an extreme hazard. Each number also has a specific meaning based on which diamond it is in.



**Figure H1: NFPA704 Label**

Rating the severity of a hazard in each small diamond shape is explained in the table below.

**Table H1: Criteria for Rating the Severity of the Hazard in each Small Diamond Shape**





Health (Blue)	
0	Poses no Health hazard, no precautions are necessary and would offer no hazard beyond that of ordinary combustible materials (e.g., water).
1	Exposure would cause irritation with only minor residual injury (e.g., acetone).
2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g., diethyl ether).
3	Short exposure could cause serious temporary or moderate residual injury (e.g., chlorine).
4	Very short exposure could cause death or major residual injury (e.g., hydrogen cyanide, phosphine, carbon monoxide).
Instability/Reactivity (Yellow)	
0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium).
1	Normally stable, but can become unstable at elevated temperatures and pressures (e.g. propene).
2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g., white phosphorus, potassium, sodium).
3	Capable of detonation or explosive decomposition, but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked (e.g. ammonium nitrate, chlorine trifluoride).
4	Readily capable of detonation or explosive decomposition at normal temperatures and pressures (e.g., nitro-glycerine, chlorine azide, chlorine dioxide).











**Table H1: Criteria for Rating the Severity of the Hazard in each Small Diamond Shape (continued)**

<b>Flammability (Red)</b>	
<b>0</b>	Materials that will not burn under typical fire conditions (e.g., carbon dioxide), including intrinsically non-combustible materials such as concrete, stone and sand. (Materials that will not burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes.).
<b>1</b>	Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur (e.g., mineral oil). Includes some finely divided suspended solids that do not require heating before ignition can occur. (Flash point at or above 93.4°C (200°F).
<b>2</b>	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g., diesel fuel) and some finely divided suspended solids that do not require heating before ignition can occur. Flash point between 38°C (100°F) and 93°C (200°F).
<b>3</b>	Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions (e.g., gasoline). Liquids having a flash point below 23°C (73°F) and having a boiling point at or above 38°C (100°F) or having a flash point between 23°C (73°F) and 38°C (100°F).
<b>4</b>	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily (e.g., acetylene, diethylzinc). Includes pyrophoric substances. Flash point below 23°C (73°F).
<b>Special (White)</b>	
The white "special notice" area can contain several symbols. The following symbols are defined by the NFPA 704 Standard.	
<b>OX</b>	Oxidizer (e.g., potassium perchlorate, ammonium nitrate, hydrogen peroxide).
<b>W</b>	Reacts with water in an unusual or dangerous manner (e.g., cesium, sodium, sulfuric acid).
<b>SA</b>	Simple asphyxiant gas. Specifically limited to the following gases: nitrogen, helium, neon, argon, krypton and xenon.




## APPENDIX I: TRANSPORTATION SIGNS AND GUIDANCE ON PLACARDS (UNRTDG CLASSIFICATION)




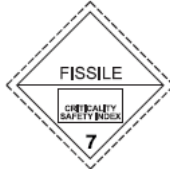
Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
<b>Class 1 hazard: Explosive substances or articles</b>						
1	Divisions 1.1, 1.2, 1.3	Exploding bomb: black	Orange	1 (black)		<b>**</b> Place for division – to be left blank if explosive is the subsidiary hazard <b>*</b> Place for compatibility group – to be left blank if explosive is the subsidiary hazard
1.4	Division 1.4	1.4: black Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm × 100 mm)	Orange	1 (black)		<b>*</b> Place for compatibility group
1.5	Division 1.5	1.5: black Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm × 100 mm)	Orange	1 (black)		<b>*</b> Place for compatibility group
1.6	Division 1.6	1.6: black Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm × 100 mm)	Orange	1 (black)		<b>*</b> Place for compatibility group




Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
<b>Class 2 hazard: Gases</b>						
2.1	Flammable gases	Flame: black or white (except as provided for in 5.2.2.2.1.6 d))	Red	2 (black or white) (except as provided for in 5.2.2.2.1.6 d))		-
2.2	Non-flammable, non-toxic gases	Gas cylinder: black or white	Green	2 (black or white)		-
2.3	Toxic gases	Skull and crossbones: black	White	2 (black)		-
<b>Class 3 hazard: Flammable liquids</b>						
3	-	Flame: black or white	Red	3 (black or white)		-

Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
<b>Class 4.1 hazard: Flammable solids, self-reactive substances, polymerizing substances and solid desensitized explosives</b>						
4.1	-	Flame: black	White with 7 vertical red stripes	4 (black)		-
<b>Class 4.2 hazard: Substances liable to spontaneous combustion</b>						
4.2	-	Flame: black	Upper half white, lower half red	4 (black)		-
<b>Class 4.3 hazard: Substances which, in contact with water emit flammable gases</b>						
4.3	-	Flame: black or white	Blue	4 (black or white)		-
<b>Class 5.1 hazard: Oxidizing substances</b>						
5.1	-	Flame over circle: black	Yellow	5.1 (black)		-



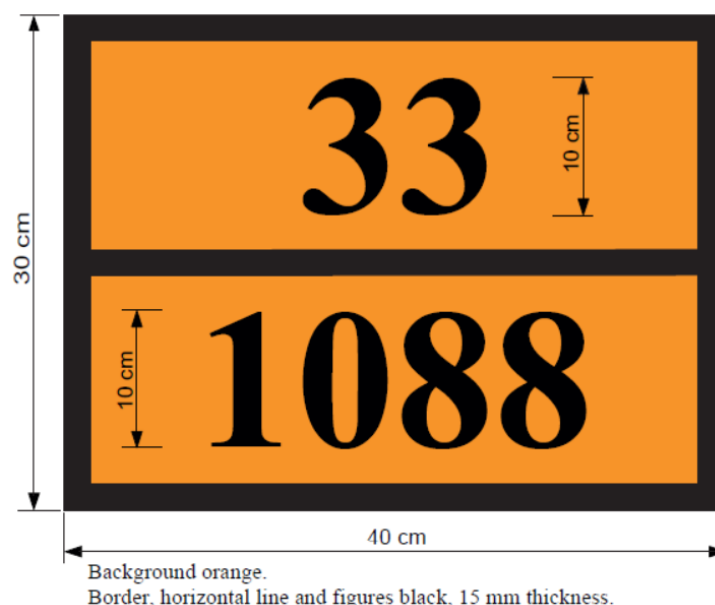
Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
<b>Class 5.2 hazard: Organic peroxides</b>						
5.2	-	Flame: black or white	Upper half red, lower half yellow	5.2 (black)		-
<b>Class 6.1 hazard: Toxic substances</b>						
6.1	-	Skull and crossbones: black	White	6 (black)		-
<b>Class 6.2 hazard: Infectious substances</b>						
6.2	-	Three crescents superimposed on a circle: black	White	6 (black)		The lower half of the label may bear the inscriptions: "INFECTIOUS SUBSTANCE" and "In the case of damage or leakage immediately notify Public Health Authority" in black colour

Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
<b>Class 7 hazard: Radioactive material</b>						
7A	Category I – WHITE	Trefoil: black	White	7 (black)		Text (mandatory), black in lower half of label: “RADIOACTIVE” “CONTENTS ...” “ACTIVITY ...” One red vertical bar shall follow the word: “RADIOACTIVE”
7B	Category II – YELLOW	Trefoil: black	Upper half yellow with white border, lower half white	7 (black)		Text (mandatory), black in lower half of label: “RADIOACTIVE” “CONTENTS ...” “ACTIVITY ...” In a black outlined box: “TRANSPORT INDEX”; Two red vertical bars shall follow the word: “RADIOACTIVE”
7C	Category III – YELLOW	Trefoil: black	Upper half yellow with white border, lower half white	7 (black)		Text (mandatory), black in lower half of label: “RADIOACTIVE” “CONTENTS ...” “ACTIVITY ...” In a black outlined box: “TRANSPORT INDEX”; Three red vertical bars shall follow the word: “RADIOACTIVE”
7E	Fissile material	-	White	7 (black)		Text (mandatory): black in upper half of label: “FISSILE”; In a black outlined box in the lower half of label: “CRITICALITY SAFETY INDEX”

Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
<b>Class 8 hazard: Corrosive substances</b>						
8	-	Liquids, spilling from two glass vessels and attacking a hand and a metal: black	Upper half white, lower half black with white border	8 (white)		-
<b>Class 9 hazard: Miscellaneous dangerous substances and articles, including environmentally hazardous substances</b>						
9	-	7 vertical stripes in upper half: black	White	9 underlined (black)		-
9A	-	7 vertical stripes in upper half: black; battery group, one broken and emitting flame in lower half: black	White	9 underlined (black)		-

### Orange-Colored Plate

Transport units carrying dangerous goods shall display two rectangular orange-colored plates conforming to ADR specifications, set in a vertical plane. They shall be clearly visible. An example of an orange-colored plate with a hazard identification number and UN number is presented in the figure below:



**Figure I1: Example of Orange-Colored Plate with Hazard Identification Number and UN Number**

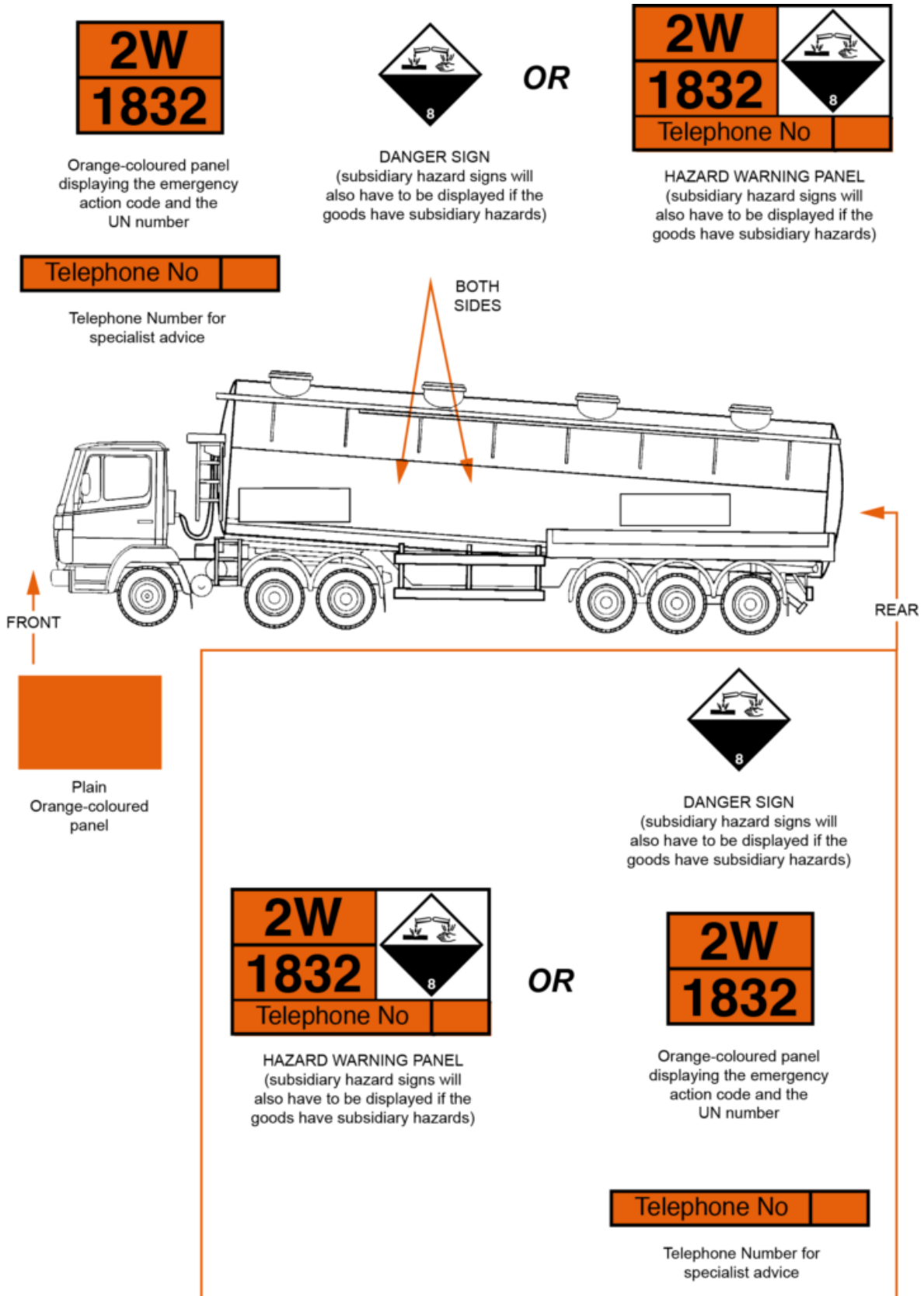
The upper part of the plate represents a hazard identification number, also known as the Kemler Code (2 or 3 figures preceded, where appropriate, by the letter X. The figures indicate the following hazards:

- 2 Emission of gas due to pressure or to chemical reaction
- 3 Flammability of liquids (vapors) and gases or self-heating liquid
- 4 Flammability of solids or self-heating solid
- 5 Oxidizing (fire-intensifying) effect
- 6 Toxicity or risk of infection
- 7 Radioactivity
- 8 Corrosivity
- 9 Risk of spontaneous violent reaction
- X Prefixed by the letter "X". Indicates that the substance will react dangerously with water.

The lower part of the plate represents the UN number. UN numbers (United Nations numbers) are four-digit numbers that identify hazardous materials, and articles (such as explosives, flammable liquids, oxidizers, toxic liquids, etc.) in the framework of International transport. Some hazardous substances have their own UN numbers (e.g. acrylamide has UN 2074).



## Example of Placarding and Marking of Vehicles



**Figure I2: Example of Placarding and Marking of Vehicles**

## APPENDIX J: CHEMICAL SEGREGATION FOR LAND STORAGE (THAI DOMESTIC ASSET)

Storage Class		1	2A	2B	3A	3B	4.1A	4.1B	4.2	4.3	5.1A	5.1B	5.1C	5.2	6.1A	6.1B	6.2	7	8A	8B	10	11	12	13
Explosive	1	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pressurized, liquefied, dissolved gases	2A	-	17	4	-	-	-	-	-	-	-	-	10	-	-	-	-	18	5	-	-	5	-	-
Pressurized Small Gas Containers (aerosol can)	2B	-	4	-	1	1	-	-	-	-	-	-	10	-	2	2	-	18	4	4	6	6	6	6
Flammable liquids	3A	-	-	1	17	-	-	-	-	-	-	-	-	-	-	-	-	18	9	9	-	3	-	-
	3B	-	-	1	-	-	12	4	-	4	-	-	-	7	-	-	-	18	-	-	-	-	-	-
Flammable solids	4.1A	-	-	-	-	12	17	12	-	-	-	-	-	14	-	-	-	-	12	12	12	12	12	12
	4.1B	-	-	-	-	4	12	-	4	4	-	-	-	13	8	-	-	18	-	-	-	-	-	-
Substances liable to spontaneous combustion	4.2	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	18	4	4	4	4	-	-
Substance which in contact with water emit flammable gases	4.3	-	-	-	-	4	-	4	4	-	-	-	-	-	-	-	-	18	4	4	4	4	4	-
Oxidizing substances	5.1A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.1B	-	-	-	-	-	-	-	-	-	-	-	10	-	15	15	-	18	11	-	11	11	-	-
	5.1C	-	10	10	-	-	-	-	-	-	-	10	17	-	-	-	-	18	10	10	10	10	10	10
Organic peroxides	5.2	-	-	-	-	7	14	13	-	-	-	-	-	17	-	-	-	-	-	-	16	16	16	16
Combustible toxic substances	6.1A	-	-	2	-	-	-	8	-	-	-	15	-	-	-	-	-	18	-	-	-	3	-	-
Non-combustible toxic substances	6.1B	-	-	2	-	-	-	-	-	-	-	15	-	-	-	-	-	18	-	-	-	3	-	-
Infectious substances	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radioactive substances	7	-	18	18	18	18	-	18	18	18	-	18	18	-	18	18	-	-	18	18	18	18	18	18
Combustible corrosive substances	8A	-	5	4	9	-	12	-	4	4	-	11	10	-	-	-	-	18	-	-	-	-	-	-
Non-combustible corrosive substances	8B	-	-	4	9	-	12	-	4	4	-	-	10	-	-	-	-	18	-	-	-	-	-	-
Combustible liquids (unless 3A or 3B)	10	-	-	6	-	-	12	-	4	4	-	11	10	16	-	-	-	18	-	-	-	-	-	-
Combustible solids	11	-	5	6	3	-	12	-	4	4	-	11	10	16	3	3	-	18	-	-	-	-	-	-
Non-combustible liquids	12	-	-	6	-	-	12	-	-	4	-	-	10	16	-	-	-	18	-	-	-	-	-	-
Non-combustible solids	13	-	-	6	-	-	12	-	-	-	-	-	10	16	-	-	-	18	-	-	-	-	-	-



mixed storage is permitted in principle



mixed storage is permitted under conditions specified by numbers



separated storage

### Storage Conditions according to the Storage Table

1. Mixed storage of flammable liquids and pressured gas container (aerosol) is permitted under the following conditions: The compartment must be ventilated and the total number of goods stored should not exceed 60 % of the useable capacity of the warehouse. The total quantity of flammable liquids and contents of the aerosol dispenser should not exceed 100,000 liters.
2. Pressurized gas containers can be stored together with toxic substances under the following conditions: The size of the fire compartment must be limited to 60 m<sup>2</sup> and the maximum capacity of the goods is limited to 60 % of the total capacity of the compartment. The temperature of the room should not exceed above 50 °C. The compartment must be ventilated and must have two emergency exits. At each exit a 6-kg ABC powder fire extinguisher must be available. If the compartment is bigger than 60 m<sup>2</sup> then these goods have to be segregated by appropriate measures or separated.
3. Materials that cause the rapid start or spread of fire, such as packaging materials, should be separated from toxic substances or flammable liquids.
4. Mixed storage is permitted if the products do not react with each other in the event of an incident. This can be achieved by segregated storage, e.g. physical separation, large gaps, separate containment basins, storage in safety cabinets.
5. In the storage room in which the maximum of 50 filled pressurized gas cylinders are permitted to store, out of these numbers, not more than 25 pressurized gas cylinders with flammable, oxidizing or toxic gases are permitted. Combustible substances (8A and 11) (excluding flammable liquids) may be stored if the storage area is separated from the pressurized gas cylinders by a wall with at least 2-m height made of non-combustible materials and the combustible substances is stored away from the wall at least 5 m.
6. Mixed storage is permitted if the safety requirements for the entire stock are applied to meet the requirements of storage class 2B.
7. Mixed storage is permitted for flammable liquids having a flash point above 61 °C provided that the mixed storage will not react in the dangerous way (combustion and/or evolution of considerable heat, evolution of flammable, asphyxiant, and/or toxic gases, formation of corrosive substances, the formation of unstable substances, or dangerous rise in pressure). In such case there must be safety distances (5 metres) between those goods.
8. Flammable toxic substances (6.1A) may be stored together with flammable solids (4.1B).
9. Flammable liquids and corrosive substances in breakable containers must not be stored together except that the preventive measures are adopted to prevent the interaction with each other in the event of an incident.
10. Mixed storage is permitted except with flammable gases.
11. Additional preventive measures are required to get approval from the Department of Industrial Works for the safety storage.
12. Flammable solids (4.1A) having explosive property may be stored together with other substances of class 3B, 4.1B, 8A, 8B, 10, 11, 12 or 13 if the safety distances designed to prevent any danger to the surroundings of a warehouse are adequate or may be required to increase. This must be checked in each case.
13. Mixed storage of organic peroxides (5.2) and flammable solids (4.1B) is permitted.
14. Mixed storage with propellants and radical initiators is permitted if they do not contain any heavy metals.
15. Oxidizing substances (5.1B) may be stored together with combustible toxic substances (6.1A) and non-combustible toxic substances (6.1B) up to a total quantity of 20 tons by taking the following safety measures: The warehouse must have a fire alarm system, an automatic fire extinguishing system and a company-run semi-professional fire brigade (employed only for firefighting with the company owned fire truck. Quantities up to 1 ton don't require these additional safety measures.
16. When organic peroxides are stored together with other chemical and hazardous substances, it is necessary to check in each case whether the safety distances (between the warehouse and the communities) designed around the warehouse is adequate to prevent any dangers or it is needed to be increased.
17. Specific safety requirements of each substance shall be considered.
18. Radioactive substances should be considered separately according to the IAEA Safety Standards and with the approval of the competent authority.

## Storage of Small-Quantity Substances

Storage of small-quantity substances in the storage facility means the storage of some specific chemical and hazardous substances in small quantities, which are substances in the storage classes 2B, 3A, 3B, 4.1B, 4.3, 5.1B, 5.1C, 5.2, 6.1A, 6.1B, 8A, 8B, 10, 11, 12 and 13 together with other kinds of substances of large quantities, where normally the mixed storage is prohibited but, if necessary, is temporarily permitted for storage in small quantities. However, it must be assured that:

1. The Safety measures necessary for other classes of chemical and hazardous substances are sufficient.
2. These small-quantity chemical and hazardous substances must not be interactive with other chemicals and hazardous substances already stored.
3. The distance measures are added, for example a 5-m safety distance, a safety cabinet or a special compartment for separate storage, etc.
4. A separation, e.g. walls or wire mesh, is installed for the storage of aerosols.

The storage of small-quantity chemicals and hazardous substances that are permitted shall be as per the following table:

**Table J1: Storage of Small-Quantity Chemicals and Hazardous Substances**

Storage Class	Storage Facility having storage capacity < 5,000 kg	Storage Facility having storage capacity > 5,000 kg
1	-	-
2A	-	-
2B	500 cans	500 cans
3A	Flammable liquids having flash point < 23°C, 100 liters; Flammable liquids having flash point between 23-60°C, 200 liters	Flammable liquids having flash point < 23°C, 100 liters; Flammable liquids having flash point between 23-60°C, 200 liters
3B	< 5,000 kg	5,000 kg
4.1A	-	-
4.1B	200 kg	200 kg
4.2	-	-
4.3	200 kg	-
5.1A	-	-
5.1B	200 kg	200 kg
5.1C	100 kg	-
5.2	100 kg (In small packaging with capacity of less than 100 g for solids and 25 ml for liquids only)	-



Storage Class	Storage Facility having storage capacity < 5,000 kg	Storage Facility having storage capacity > 5,000 kg
6.1A	50 kg	50 kg
6.1B	200 kg	200 kg
6.2	-	-
7	-	-
8A	< 5,000 kg	5,000 kg
8B	< 5,000 kg	5,000 kg
10	< 5,000 kg	5,000 kg
11	< 5,000 kg	5,000 kg
12	< 5,000 kg	5,000 kg
13	< 5,000 kg	5,000 kg





Storage classes 1, 2A, 4.1A, 4.2, 5.1A, 6.2, and 7, even in small quantities, are not permitted for mixed storage with other storage classes. They must strictly comply with the Chemical and Hazardous Substances Storage Table, presented earlier in Appendix H.

## APPENDIX K: CHEMICAL SEGREGATION FOR LAND STORAGE (GUIDANCE FOR INTERNATIONAL ASSET)

This chemical segregation of chemicals/dangerous substances table (*Reference: HSG71 Chemical warehousing, the storage of packaged dangerous substances*) is recommended and is a guide for International Assets, where in case there are no applicable local law & regulations to follow or comply with.

Chemicals stored according to this table must comply with the following instructions:

<b>Segregate from</b>	These combinations should not be kept in the same building compartment or outdoor storage compound. Compartment walls should be imperforate, of at least 30 minute fire resistance and sufficiently durable to withstand normal wear and tear. Brick or concrete construction is recommended. An alternative is to provide separate outdoor storage compounds with an adequate space between them.
<b>Separation may not be necessary</b>	Separation may not be necessary, but consult suppliers about requirements for individual substances. In particular, note that some types of chemicals within the same class, particularly Class 8 corrosives, may react violently, generate a lot of heat if mixed, or evolve toxic fumes.
<b>ISOLATE</b>	This is used for organic peroxides, for which dedicated buildings are recommended. Alternatively, some peroxides may be stored outside in fire resisting secure cabinets. In either case, adequate separation from other buildings and boundaries is required.
<b>KEEP APART</b>	Separate packages by at least 3 metres in the storeroom or storage area outdoors. Materials in non combustible packaging that are not dangerous substances and present a low fire hazard may be stored in the separation area. This standard of separation should be regarded as a minimum between substances known to react together readily, if that reaction would increase the danger of an escalating incident.
<b>Segregate from</b> <b>KEEP APART</b>	The lower standard refers to the outside storage of gas cylinders. Where non-liquefied flammable gases are concerned, the 3 metre segregation distance may be reduced to 1 metre.

CLASS		1	2			3	4			5		6	8
Chemical Segregation By Chemical Group.		 	 	 	 	 	 	 	 	 	 	 	 
Explosive	 1.0 Explosive		Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From
Compressed gases	2.1 Flammable	Segregate From		Keep Apart	Segregate From or Keep Apart	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	ISOLATE	Keep Apart	Keep Apart
	2.2 Non Toxic Non flammable	Segregate From	Keep Apart		Keep Apart	Keep Apart	Segregation may not be necessary	Segregate From	Segregation may not be necessary	Segregation may not be necessary	Segregate From	Segregation may not be necessary	Keep Apart
	2.3 Toxic	Segregate From	Segregate From or Keep Apart	Keep Apart		Segregate From	Keep Apart	Segregate From	Keep Apart	Segregation may not be necessary	Segregate From	Segregation may not be necessary	Keep Apart
Flammable liquids	 	Segregate From	Segregate From	Keep Apart	Segregate From		Keep Apart	Segregate From	Segregate From	Segregate From	ISOLATE	Keep Apart	Keep Apart
Flammable solids	4.1 Readily combustible	Segregate From	Segregate From	Segregation may not be necessary	Keep Apart	Keep Apart		Keep Apart	Segregate From	Segregate From	Segregate From	Keep Apart	Segregation may not be necessary
	4.2 Spontaneously combustible	Segregate From	Segregate From	Segregate From	Segregate From	Segregate From	Keep Apart		Keep Apart	Segregate From	ISOLATE	Keep Apart	Keep Apart
	4.3 Dangerous when wet	Segregate From	Segregate From	Segregation may not be necessary	Keep Apart	Segregate From	Segregate From	Keep Apart		Keep Apart	Segregate From	Segregation may not be necessary	Segregation may not be necessary
Oxidising substances	5.1 Oxidising substance	Segregate From	Segregate From	Segregation may not be necessary	Segregation may not be necessary	Segregate From	Segregate From	Segregate From	Keep Apart		Segregate From	Keep Apart	Keep Apart
	5.2 Organic peroxide	Segregate From	ISOLATE	Segregate From	Segregate From	ISOLATE	Segregate From	ISOLATE	Segregate From	Segregate From		Keep Apart	Keep Apart
Toxic	   TOXIC	Segregate From	Keep Apart	Segregation may not be necessary	Segregation may not be necessary	Keep Apart	Keep Apart	Keep Apart	Segregation may not be necessary	Keep Apart	Keep Apart		Segregation may not be necessary
Corrosive	 	Segregate From	Keep Apart	Keep Apart	Keep Apart	Keep Apart	Segregation may not be necessary	Keep Apart	Segregation may not be necessary	Keep Apart	Keep Apart	Segregation may not be necessary	

## APPENDIX L: CHEMICAL SEGREGATION FOR MARINE STORAGE (IMDG)

Class	1.1 1.2 1.5	1.3 1.6	1.4	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
Explosives 1.1 1.2 1.5	X	X	X	4	2	2	4	4	4	4	4	4	2	4	2	4	X
Explosives 1.3 1.6	X	X	X	4	2	2	4	3	3	4	4	4	2	4	2	2	X
Explosives 1.4	X	X	X	2	1	1	2	2	2	2	2	2	X	4	2	2	X
Flammable gases 2.1	4	4	2	X	X	X	2	1	2	X	2	2	X	4	2	1	X
Non-toxic, non-flammable gases 2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X
Toxic gases 2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X
Flammable liquids 3	4	4	2	2	1	2	X	X	2	1	2	2	X	3	2	X	X
Flammable solids 4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X
Substances liable to spontaneous combustion 4.2	4	3	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X
Substances which, in contact with water, emit flammable gases 4.3	4	4	2	X	X	X	1	X	1	X	2	2	X	2	2	1	X
Oxidizing substances (agents) 5.1	4	4	2	2	X	X	2	1	2	2	X	2	1	3	1	2	X
Organic peroxides 5.2	4	4	2	2	1	2	2	2	2	2	2	X	1	3	2	2	X
Toxic substances 6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X
Infectious substances 6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X
Radioactive materials 7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X
Corrosives 8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X
Miscellaneous dangerous substances and articles 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Numbers and symbols relate to the following terms as defined in this section:

1	1 – “Away from” or > 3 m
2	2 – “Separated from” or > 6 m
3	3 – “Separated by a complete compartment or hold form” or > 12 m
4	4 – “Separated longitudinally by an intervening complete compartment or hold from” or >24 m
X	X – The segregation, if any, is shown in individual schedules



## ROLES AND RESPONSIBILITIES

Roles	Responsibilities
Document Owner	<p>The owner of the Procedure is the VP, Safety Management Department, with responsibilities for:</p> <ul style="list-style-type: none"> <li>■ Issuing the Chemical Management Procedure and its revisions.</li> <li>■ Ensuring effective implementation of the Procedure.</li> </ul>
Document Custodian	<p>The custodian of the Procedure is the Manager, Operational Safety Section, with responsibilities for:</p> <ul style="list-style-type: none"> <li>■ Identifying deficiencies or potential improvements.</li> <li>■ Initiating periodic revision.</li> <li>■ Maintaining revision history and document status register.</li> </ul>
Asset Manager	<ul style="list-style-type: none"> <li>■ Ensure chemical management is maintained and implemented effectively to comply with this Procedure, local law, and International Standards.</li> <li>■ Ensure chemical management at site is audited and ensures that a chemical site inspection is conducted periodically.</li> <li>■ Ensure adequate and competent personnel to handle chemicals.</li> <li>■ Ensure proper storage space and equipment, including PPE are allocated</li> <li>■ Ensure chemical management at site meets the requirements of this Standard, local law, and International Standards.</li> <li>■ Ensure that a contingency plan and emergency response plan for chemicals are in place and effective.</li> </ul>
Chemical Owner (example: Project Owner, Project Engineer, Contract Holder, Superintendent, Supervisor, Technical Administration)	<ul style="list-style-type: none"> <li>■ Follow and comply with Chemical Management Procedure.</li> <li>■ Ensure all new chemicals obtain approval from a preliminary risk assessment.</li> <li>■ Ensure full details of the safety data sheet and labelling of all chemicals are available and easy to access for the chemical users, safety personnel and medics.</li> <li>■ Ensure all personnel who handle chemicals are competent and are provided training.</li> <li>■ Ensure all on-site chemicals are handled, stored, and disposed of safely.</li> </ul>

Roles	Responsibilities
Chemical Owner (continued)	<ul style="list-style-type: none"> <li>■ Prepare a contingency plan and emergency response plan for chemicals, with the Asset team, that are in place and communicated to chemical users and emergency responders. Ensure emergency drills are conducted periodically.</li> <li>■ Monitor and manage an inventory of chemicals and provide proper chemical containers in case of any volume transferring.</li> </ul>
Chemical User (example: Supervisor, Foreman, Operator, Technician)	<ul style="list-style-type: none"> <li>■ Pass training for chemical management as required by local law or appropriate training and be assessed as “Competent” to use, handle, store, transport chemicals.</li> <li>■ Strictly follow the SDS and clearly understand the details of the SDS before handling chemicals. SDS shall be easy to access at working areas, with the site medic and the site safety room.</li> <li>■ Ensure that globally harmonized system of classification and clear and visible labelling of chemicals (GHS label) and chemicals warning signs are place.</li> <li>■ Wear PPE properly and ensure it is in good condition.</li> <li>■ Maintain the “Chemical Inventory” record, so that it is kept updated during its life cycle.</li> <li>■ Identify chemical hazards &amp; risks, control measures in the Job Safety Analysis (JSA) and communicate the JSA to colleagues or line under command.</li> <li>■ Conduct emergency drills or chemical spill drills periodically with the Asset team.</li> <li>■ In case of a spill or emergency, stop the leak and perform chemical spill recovery.</li> </ul>
Corporate Safety	<ul style="list-style-type: none"> <li>■ Review and approve all new chemicals registration through a preliminary risk assessment. <ul style="list-style-type: none"> <li>□ For Thai Domestic Assets, a preliminary risk assessment for new chemicals shall be conducted and reviewed via the web-based chemical registration.</li> <li>□ For International Assets, a preliminary risk assessment for new chemicals shall be conducted and reviewed via a specific system. International Assets shall set up a verification team for preliminary risk assessment for new chemicals.</li> </ul> </li> <li>■ Monitor and review any updates of local law and International Standards periodically.</li> </ul>

Roles	Responsibilities
Corporate Safety (continued)	<ul style="list-style-type: none"> <li>■ Give advice to chemical owners for reviewing the preliminary risk assessment for new chemicals.</li> <li>■ Develop and provide chemical management training for personnel who are involved with chemicals.</li> <li>■ Monitor and conduct chemical audits in compliance with this Procedure.</li> </ul>
Corporate Environment	<ul style="list-style-type: none"> <li>■ Review and approve all new chemicals registration through a preliminary risk assessment. <ul style="list-style-type: none"> <li>□ Verify and provide advice to prevent any environmental impact in a preliminary risk assessment.</li> </ul> </li> </ul>
Corporate Health	<ul style="list-style-type: none"> <li>■ Review and approve all new chemicals registration through a preliminary risk assessment. <ul style="list-style-type: none"> <li>□ Verify and highlight Health hazards with specific controls in a preliminary risk assessment.</li> </ul> </li> </ul>
Site SSHE	<ul style="list-style-type: none"> <li>■ Support Asset manager to ensure that chemical management Procedure is followed and implemented effectively.</li> <li>■ Keep a record of chemical lists, SDS packages, GHS labels.</li> <li>■ Support Corporate safety to arrange or provide chemical management training for personnel who are involved with chemicals.</li> <li>■ Ensure implementing control of safe work practices and operational control in accordance with this Procedure.</li> <li>■ Advise chemical users at site on how to work with chemicals safely.</li> <li>■ Communicate chemical management Procedure and chemical awareness campaigns to personnel at site.</li> <li>■ Support chemical spill exercises and emergency during spill and clean-up.</li> </ul>
Chemical Purchaser	<ul style="list-style-type: none"> <li>■ Follow chemical management Procedure, especially section 6: Purchasing.</li> </ul>
Permit and License Team	<ul style="list-style-type: none"> <li>■ Review and approve all new chemicals registration through a preliminary risk assessment. <ul style="list-style-type: none"> <li>□ Verify all new chemicals used in PTTEP premises are not banned as dangerous good type 4 (Exception: CRM is used for analytical laboratory work), according to Hazardous Substance Act.</li> </ul> </li> <li>■ Coordinate with local authorities and prepare permit and licenses documents to import chemicals before purchasing.</li> </ul>

Roles	Responsibilities
Warehouse Personnel	<ul style="list-style-type: none"> <li>■ Maintain safe and good housekeeping for storing, handling and transporting chemicals both in the warehouse, including areas indoors and outdoors.</li> <li>■ Check and ensure that the SDS, GHS label and safety signs are in place and visible.</li> <li>■ Ensure chemicals are segregated and kept in storage/warehouse and chemical transportation in compliance with local law, this Standard, and International Standards.</li> <li>■ Ensure all fire protection systems, spill protection, ventilation systems are well designed and in place for the chemical storage area/warehouse.</li> <li>■ Ensure all personnel who are involved with chemicals are competent and have passed the appropriate training.</li> <li>■ Ensure that the contingency plan and emergency response plan for chemicals are in place and effective, and that the chemical spill drill and chemical-on-fire drills are conducted periodically with the Asset team.</li> </ul>
Customs and Transportation Support Team	<ul style="list-style-type: none"> <li>■ Identify safety scope for safe transportation of dangerous goods/chemicals in the contract and services order.</li> <li>■ Ensure that Contractors under contract/service order of transportation of dangerous goods/chemicals comply with local law and regulations as well as the ADR requirements.</li> </ul>
Contractor	<ul style="list-style-type: none"> <li>■ Strictly follow and manage chemicals used in the PTTEP premises are in compliance with this Procedure, local law, and International Standards.</li> <li>■ Collect and combine all chemicals documents including SDSs, GHS labels, and warning signs. Then, submit these documents to the Contract Holder, site safety, and site medic prior to commencing work.</li> <li>■ Under the contract/service order, conduct self-verification of safe chemicals and issue declaration letter of conformity of safe chemicals. Then, this document shall be submitted to the Contract Holder, Company site representative and Asset safety officer.</li> <li>■ Provide appropriate chemical awareness training to all personnel who are involved with chemicals. Maintain the record of training.</li> </ul>

Roles	Responsibilities
Contractor (continued)	<ul style="list-style-type: none"><li>■ Allocate equipment and proper PPE to personnel for managing and handling chemicals safely.</li><li>■ Provide emergency response equipment at work sites such as spill recovery kits, fire extinguishers, and eye wash stations/portable.</li></ul>



## DEFINITION AND ACRONYMS

Set out below are common specific terms presented in alphabetical order:

Term	Definition
As Low As Reasonably Practicable (ALARP)	A term used to define tolerable risk acceptance only where risk reduction is impractical or where a cost benefit analysis has been carried out and a judgment made that the cost of further risk reduction is grossly disproportionate when compared to the actual risk reduction that would be achieved.
Asset	Refers to an operating Asset, site, or location within a respective Function Group.
Certified Reference Materials	Reference material accompanied by a certificate, one or more of whose property values are certified by a Procedure which establishes its traceability to an accurate realization of the unit in which the property values are expressed, and for which each certified value is accompanied by an uncertainty at a stated level of confidence.
Corporate	Refers to the PTTEP business groups hierarchically above Asset level, and located in the PTTEP headquarters, Bangkok.
Department	A subgroup within a Function Group, Division or Asset.
Division	A business group may have one or more distinct groups within its hierarchy. These are referred to as Divisions.
Function Group	Refers to a Corporate level business group. These may have associated Divisions, Departments, or operational Assets within their hierarchy.
Hazard	A hazard is an intrinsic property of anything with the potential to cause harm. Harm includes ill-health, and injury, damage to property, plant, products or the Environment, production losses, or increased liabilities
Hazard Identification	The process to identify potential sources of harm to people, the environment, asset, reputation, business or schedule.
Risk Assessment	The process covering hazard identification, risk analysis and risk evaluation.
Waste	<p>a) Any discarded, rejected, abandoned, unwanted or surplus matter, whether or not intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the matter; or</p> <p>b) Anything declared by regulation to be waste, whether of value or not.</p>

Acronyms	Description
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARP	As Low As Reasonably Practicable
CBI	Confidential Business Information
CRM	Certified Reference Materials
DIW	Department of Industrial Work
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
HCS	Hazard Communication Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
JSA	Job Safety Analysis
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
OSHA	Occupational Safety And Health Administration
PO	Purchase Order
PPE	Personall Protective Equipment
PR	Purchase Requisition
RCL	Registered Chemicals List
RID	European Agreement Concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
SSHE MS	Safety, Security, Health and Environment Management System
UN	United Nations
UNRTDG	UN Recommendations on the Transport of Dangerous Goods

## REFERENCES

Document Code	Document Title
<b>PTTEP SSHE Controlling Documents</b>	
11038-STD-SSHE-305	SSHE Training and Competency Standard
11038-STD-SSHE-401	SSHE Risk Management Standard
SSHE-106-STD-540	Operational Safety Management Standard
SSHE-106-STD-560	Occupational Health Management Standard
11003-PDR-SSHE-403-001	Health Risk Assessment Procedure
SSHE-106-PDR-521	Waste Management Procedure
<b>Other Reference Documents</b>	
-	European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), 2019
-	Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 7 <sup>th</sup> Edition, 2017
-	Hazardous Substance Act BE 2562
-	International Maritime Dangerous Goods (IMDG) Code, 2018 Edition
-	Ministerial Regulation on the Prescribing of Standards for Administration, Management and Performance of Occupational Safety, Health and Work Environment in Relation to Hazardous Chemicals B.E.2556 (A.D.2013)
-	Notification of Department of Industrial Works for Safe Chemicals and Dangerous Goods Manual, BE 2550
HSG71	Chemical Warehousing, the storage of packaged dangerous substances, 4 <sup>th</sup> Edition, 2009.
NFPA 704	Standard System for the Identification of the Hazards of Materials for Emergency Response, 2017 Edition

## REVISION HISTORY

Rev.	Description of Revision
------	-------------------------

<b>0</b>	<b>Authorized by: CSH, Date: November 2019</b>
----------	------------------------------------------------

- |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>■ This new Procedure is downgraded from Standard.</li><li>■ Revised the number of physical, health, and environmental hazards elements in compliance with globally harmonized system of classification and labelling of chemicals (GHS), 7<sup>th</sup> Edition, issued Jul 2019.</li><li>■ Revised role and responsibility of personnel involved with chemical management</li><li>■ Revised scope of this Procedure, especially the exemption part.</li><li>■ Added hierarchy of document compliance in the scope.</li><li>■ Classified chemical management process into 2 main categories which are where PTTEP is the chemical owner and where Contractor is the chemical owner.</li><li>■ Revised preliminary risk assessment process for new chemicals.</li><li>■ Revised banned substances and removed the previous banned substance table.</li><li>■ Added Contractor Verification of Safe Chemicals before commencing work under contract/service order.</li></ul> |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# HSE



**GREATWALL DRILLING COMPANY**

## **OIL, CHEMICAL HANDLING AND EMERGENCY PLAN PROCEDURE**

**HSE-03-009**



## REVISION SHEET

Rev. N°	Reason For Revision	Date	Prepared By	Checked By	Approved By
01	Issued for comments	06.12.2001	LD/SD/XH		
02	Issued for approval	18.01.2002	LD/SD/XH		
03	Issued for comments	25.10.2010			
04	Issued for comments	19.06.2012			
05	Issued for comments	29.09.2019	NC		
05	Issued for comments	15.07.2020	NC		

## CONTROL OF THIS MANUAL

The HSE Department is responsible for the development and maintenance of this procedure.  
All subsequent revisions of the procedure shall be approved by the HSE Manager.

## REGISTRATION AND DISTRIBUTION

The procedure is issued as follows:

<u>Controlled copies</u>	<i>The controlled copies are distributed to personnel for regular use and shall be systematically updated. Controlled copies are issued to the GWDC library, clients (upon request), all sites/units and major subcontractors.</i>
<u>Uncontrolled copies</u>	<i>Uncontrolled copies are distributed for information and information purposes. Such manuals shall be properly marked, and are <b>NOT</b> subject to revisions.</i>

The HSE Department shall keep the track of the registration and distribution of the HSE Procedures. All controlled copies shall be registered and stamped as “CONTROLLED COPY” before delivery to the end user. The end user shall sign upon receipt of the controlled copy of the HSE Procedures. Every controlled copy shall be returned back to the HSE Department if the end user has no any further need for it. The HSE Department is responsible to send updates for all the controlled copies after revisions. This shall be achieved as replacement of the particular pages subjected to the revisions or as a replacement of the whole Procedure. Uncontrolled copy stamped as “CONTROLLED COPY” before delivery and is not subject to update upon revisions.

## CONTENT

<b>1</b>	<b>GENERAL .....</b>	<b>4</b>
1.1	PURPOSE AND SCOPE .....	4
1.2	RESPONSIBILITY .....	4
1.3	NON CONFORMANCE TREATMENT .....	4
<b>2</b>	<b>DEFINITIONS.....</b>	<b>5</b>
<b>3</b>	<b>FLUID TRANSFER GUIDELINES .....</b>	<b>6</b>
<b>4</b>	<b>LINER USE PROCEDURE .....</b>	<b>7</b>
4.1	OFF THE PAD .....	7
4.2	ON THE PAD .....	7
4.3	PARKING AREAS .....	8
<b>5</b>	<b>SECONDARY CONTAINMENT.....</b>	<b>8</b>
<b>6</b>	<b>NOTIFICATION AND REPORTING.....</b>	<b>9</b>
<b>7</b>	<b>RESPONSE .....</b>	<b>10</b>
7.1	REPORTING PROCEDURE .....	10
7.2	MINOR SPILLS WHICH DO NOT ENTER THE ENVIRONMENT .....	11
7.3	MINOR SPILLS WHICH ENTER THE ENVIRONMENT .....	11
7.4	MAJOR SPILL WHICH ENTER THE ENVIRONMENT .....	11

---

Doc. Title:	<b>OIL, CHEMICAL HANDLING AND EMERGENCY PLAN PROCEDURE</b>	Page:	4 of 12
		Rev.:	06
Doc. No.:	HSE-03-009	Date:	15.07.2020

---

## **1 GENERAL**

### **1.1 PURPOSE AND SCOPE**

This Procedure details oil and chemical handling procedures for oil and chemicals to proper handling and management spill situations arising out of any Greatwall Drilling Company drilling operation activity.

The “Oil, Chemicals handling and Emergency plan Procedure” is part of the Greatwall Drilling Company Emergency Response Documentation (ref. HSE-03-007).

Response capabilities and times (if applicable) are outlined in the well specific environmental risk analysis, which are usually provided by the Client. These analyses include details of the means to comply with, or exceed, the minimum requirements for oil spill recovery capability.

### **1.2 RESPONSIBILITY**

HSE Manager is responsible that this procedure is updated after the organizational or operational changes, if necessary.

### **1.3 NON CONFORMANCE TREATMENT**

All deviations from the guidelines given in this procedure shall be treated in accordance with HSE-03-014 “Non-Conformance and Corrective Action procedure”.

## 2 DEFINITIONS

For the purpose of response planning, Greatwall Drilling Company will recognize two categories of oil spill:

### 1. Minor

Spill can be handled by Rig site and/or area resources or it will disperse naturally and rapidly without posing any threat to sensitive areas or vulnerable resources.

### 2. Major

This category includes large incidents or ongoing spills (e.g. blowout) which have the potential to cause significant pollution impact. Spills which cannot be immediately dealt with using unit and/or area resources and require the mobilization of external equipment and personnel to facilitate clean-up and recovery. The term oil spill includes accidental or deliberate discharge of diesel, refined oils, crude, condensate, water with an oil content above statutory discharge limits, drilling mud base oils and oil based mud, drop-out from flares, chemicals etc.

### 3. Acute pollution

Acute pollution means significant pollution that occurs suddenly and that is not permitted. A spill greater than 1 m<sup>3</sup> (35 cf.) must always be considered as acute pollution.

### 4. Oil

Oil includes crude and refined hydrocarbons such as diesel, hydraulic fluid, and lube oil. It can also include oily sludge, oil refuse, or other petroleum-related products or by-products.

### 5. Hazardous substances

Hazardous substances include glycol, methanol, drilling mud, seawater, corrosion inhibitors, and produced water, essentially anything other than potable water. All chemical spills should be reported so that potential exposure hazards can be evaluated, and disposal can be managed safely.

### 6. On pad

On pad includes gravel pads and roads, well houses and unlined well cellars. Depending on the type of construction, some cellars are considered secondary containment.

### 7. Secondary containment

Secondary containment means built-in pits, dikes, berms, portable drip pans, liners, metal skids, or other impermeable devices. Reporting is required to ensure proper cleanup and disposal, but spills in secondary containment are not necessarily reportable to the local government.

### **3 OIL AND CHEMICAL HANDLING GUIDELINES**

Any incident that releases a contaminant into the environment can be considered a spill, and will be taken very seriously by Greatwall Drilling Company. The regulations that apply to spill prevention, reporting, and response are complex, and the penalties for noncompliance are severe.

Most of spills are small drips and leaks onto gravel pads, from vehicles and equipment, but preparation must be made to respond to the most catastrophic event. All spills in operating areas must be cleaned up to the satisfaction and the appropriate regulatory agencies.

Prevention shall be the first and most effective line of defense against spills and it is everyone's responsibility.

Many spills occur during routine fueling, pumping, and other fluid transfer operations. Most of these spills can be avoided by paying attention and taking simple precautions. Greatwall Drilling Company has established field-wide fluid transfer guidelines, which are summarized below.

1. Check all vehicles and equipment. If a leak is apparent, or there are other obvious problems with the equipment stop the job and have repairs done.
2. Surface liners may be used to contain leaks for a short time during critical operations; however, liners are not an acceptable substitute for maintenance.
3. Park vehicles and equipment away from water bodies, forest and wildlife habitat. Do not park on the edges of pads.
4. Position equipment so that valves, piping, tanks, etc are protected from damage by other vehicles or equipment.
5. Verify that adequate surface liners and sorbents are on hand.
6. Inspect hoses, connections, valves, etc., before starting any fluid transfers. Be sure that valves are in the proper on/off position and each connection is tightened properly.
7. Before starting, check all tank and container levels, valves, and vents to prevent overfilling or accidental releases.
8. Surface liners are required under all potential spill points.
9. Maintain a constant line-of-sight with critical components throughout the transfer procedure. Be prepared to stop the transfer immediately if you notice any leak. Do not attempt to fix a leak while fluid is being transferred.
10. Never leave fluid transfer operations unattended.
11. After the transfer is complete, continue to take these precautions while breaking connections.
12. When finished, check the area for spills. Report all spills immediately to the appropriate number in your operating area.



## **4 LINER AND CHEMICAL BUNDLING USE PROCEDURE**

Operating procedure for liner use and chemical bund must be followed at all Rig sites.

Each operating area can add site-specific requirements to the requirements for liners use.

Liners are not a substitute for good maintenance. Any unit that is dripping or leaking must be repaired as soon as possible.

### **4.1 OFF THE PAD**

Maximum protection of the soil and surface waters is the primary objective. Appropriately sized liners must be placed under the radiator, engine, or other areas of potential leakage whenever equipment is operating, or parked and running. Liners should be used as needed to prevent drips and small spills under parked and non-operating equipment. Equipment with known leaks must be immediately released from the job.

Liners are specifically required as follows:

- Under all support equipment (heaters, compressors, generators, etc.)
- Under heavy and light duty parked equipment (dozers, loaders, cranes, trucks, etc.)
- During all fluid transfers, at all connection points, from the beginning of hook-up through disconnection
- Under fuel/fluid storage containers
- Chemical sack and fluid containment out of concrete pad with temporary bundling.

### **4.2 ON THE PAD**

Gravel protection, good housekeeping, and spill prevention are the primary objectives. Equipment with known leaks must be immediately released from the job if liners are not available and properly used.

Surface liners or drip pans should only be used as a temporary measure until the equipment is repaired. "Known leakers" that are not repaired promptly will be removed from the job.

Appropriately sized liners must be placed under the radiator, engine, or other areas of potential spills/leaks as follows:

- Under well service equipment (wireline, slickline, coil tubing, etc.)
- Under all support equipment without built-in containment systems (heaters, compressors, bleed tanks, etc.)
- Under all stationary heavy equipment (loaders, cranes, etc.)

Doc. Title:	<b>OIL, CHEMICAL HANDLING AND EMERGENCY PLAN PROCEDURE</b>	Page:	8 of 12
		Rev.:	06
Doc. No.:	HSE-03-009	Date:	15.07.2020

- During all fluid transfers, at all connection points, from the beginning of hook-up through disconnection
- Under all drums used as primary containment for waste fluids (bleed backs, pressure relief, temporary storage)

#### **4.3 PARKING AREAS**

Appropriately sized surface liners or drip pans are required under any parked vehicle or equipment, whether it is running or not, if it is dripping engine oil or other fluids.

### **5 SECONDARY CONTAINMENT**

Secondary containment is required by law around many above ground storage tanks. In general, containment must be able to hold 110% of the volume of the largest tank.

All oil storage tanks larger than 660 gallons require impermeable containment (e.g., dikes or catchment basins) sized for the largest single compartment or tank. These tanks should be located to ensure that oil will not reach navigable water. All tanks larger than 10,000 gallons, including portable tanks, which contain petroleum-based products must have 110% containment.

#### Well cellars and well houses

Most new wells are equipped with steel- or concrete-lined cellars that effectively contain fluid. However, many older wells have unlined cellars that are not considered secondary containment. Well houses are not considered secondary containment either.

#### Temporary containment

Surface liners and drip pans provide portable protection under leaking equipment or connections. Secondary containment that is damaged, collapsed, or full of water cannot do its job.

## **6 NOTIFICATION AND REPORTING**

Anytime when the observer who observed any oil or solutions material are being to spilling or spreading are any matter of the volume of material have to responsibility to reporting to Client representative, Rig Manager or HSE officer to acknowledge in charging the situation. And if the situations a spill greater than 1 m<sup>3</sup> (35 cf.) has a duty to provide immediate notification in accordance with the applicable regulations.

Responsible for notification and reporting during activities is the Project manager. Normally it will be agreed with the Client that the Rig Manager will be delegated the responsibility for these activities.

Details of responsibility definition for notification and who should be notified, are given in the flow sheet in Appendix 1.

The following documentation contains information on notification and reporting of accidents/incidents in general:

1. Blowout Emergency Response procedure (HSE-03-019)
2. Emergency drill procedure (HSE-03-008)
3. Reporting, Handling and Documenting Accidents/Incidents procedure (HSE-03-013)
4. Investigation of the Major Accidents (HSE-03-025)

All serious accidents and near misses including spills during drilling activities shall be notified to the Authorities.

## **7 RESPONSE**

The appropriate response to a spill will depend on a number of factors and is situation specific.

### **7.1 REPORTING PROCEDURE**

To report a spill, call the appropriate number and provide the following information:

- Person responsible
- Contact phone number
- Substance spilled
- Location of spill
- Approximate amount spilled
- Possible cause of the spill
- Cleanup activities under way

A follow-up written report may be required. Documentation procedures vary between Projects depending on the law requirements and contract/Client requirements.

Greatwall Drilling Company requires reporting within 30 minutes of all spills, discharges, and releases of oil and hazardous substances in our operating areas. This ensures proper response, cleanup, disposal, and timely agency reporting. ADEC interprets “immediate” to mean.

Minor spills are not reportable to regulatory agencies, and some will not be counted as recordable incidents.

Spills that are on the pad, contained, under control, small in volume, and can be cleaned up by the spiller or the Greatwall Drilling Company site personnel, must be reported to the following Rig Manager, HSE Supervisor or Project Manager.

Spills involving injuries, fires or safety hazards, uncontrollable or continuously releasing material, blowouts, or spills into waterways must be reported to the following emergency number by Rig Manager/HSE Supervisor:

Position	Phone No:
Government Agency	
Client representative	
HSE dept.	

## **7.2 MINOR SPILLS WHICH DO NOT ENTER THE ENVIRONMENT**

The “spiller” may be able to take care of the minor spill cleanup, but Rig Manager and HSE supervisor should always be consulted.

Cleanup workers must be equipped with the correct personal protective equipment, such as rubber gloves, overall and boots. Spill may be collected mechanically in to the waste container bins or may be washed down with appropriate detergents and spilled by clean water, or recovered by using absorbents and steam cleaners. Use of detergents shall be minimized as much as possible.

Report to the Rig Manager and fill the form in accordance to HSE-03-013 Reporting, handling & documenting of accidents and incidents procedure.

## **7.3 MINOR SPILLS WHICH ENTER THE ENVIRONMENT**

### Response at Rig site

Access the rate of oil dispersion due to wind and wave action. If the spill threatens flora and fauna, the Rig manager will notify Project manager.

Maintain observation of spill status. Log events and keep the Client manager advised. Take corrective action to minimize further spill risk from similar sources.

## **7.4 MAJOR SPILL WHICH ENTER THE ENVIRONMENT**

### Response

In the case of spills greater than 1 m<sup>3</sup> (35 cf.) wind and weather conditions, the type of oil spilled, characteristics and location will determine the most appropriate response to the situation.

It will be the responsibility of the Project Manager, after consideration of all the facts, and following discussions with the Client representative, to initiate the appropriate response.

### Response at Rig site

Issue notification and assess the rate of spill dispersion due to wind and weather action. Advise with the Project Manager about the spill status and the requirement to mobilize oil spill clean-up equipment. If clean-up equipment is available at Rig site, commence deployment. Maintain observation of spill status. Log events.

---

Doc. Title:	<b>OIL, CHEMICAL HANDLING AND EMERGENCY PLAN PROCEDURE</b>	Page:	12 of 12
		Rev.:	06
Doc. No.:	HSE-03-009	Date:	15.07.2020

---

Response in Head office in Bangkok

Notify Authorities and mobilize the appropriate Emergency Response Team. Review the spill status and plan the most appropriate course of action. Mobilize resources as required. Establish the necessary support organization. On completion of the spill clearance operations, investigate and fully report the incident in accordance to HSE-03-013 *Reporting, handling & documenting of accidents and incidents procedure*.



ภาคผนวกที่ 19  
Spill Management Plan

---



**PTTEP**

PTT Exploration and Production Public Company Limited

---

## **Spill Management Plan**

---

**Document Number: 12146-PDR-SSHE-501/03-R03**

**March 2023**

Approval Register	
Document Subject	Spill Management Plan
Document Number	12146-PDR-SSHE-501/03-R03
Document Owner	Environment Management Department (CEN)
Prepared by	[REDACTED] (Engineer, Environment)
Effective Date	March 2023

Review			
	Name	Signature	Date
Document Custodian	[REDACTED] Manager, Operational Environment Section	[REDACTED]	16-Mar-2023
Document Reviewer	[REDACTED] VP, Safety Management Department		17-Mar-2023
	[REDACTED] VP, Process Safety and Assurance Department		17-Mar-2023
	[REDACTED] Team Leader, SSHE		18-Mar-2023

Approval			
	Name	Signature	Date
Document Owner	[REDACTED] VP, Environment Management Department	[REDACTED]	17-Mar-2023
Document Approval	[REDACTED] SVP, Safety, Security, Health and Environment Division		21-Mar-2023

This document shall be reviewed every 5 years from the date of approval or revised earlier if necessary.

Revision History			
Rev.	Description of Revision	Authorized by	Effective Date
0	New	CSH	December 2011
1	<ul style="list-style-type: none"> <li>Add list of approved dispersants in Thailand</li> <li>Add request form of dispersant application for approval in Thailand</li> <li>Add Tier2 Equipment Stockpile</li> <li>Update Role &amp; Responsibility of Corporate and asset during exploration drilling phase</li> <li>Update Role &amp; Responsibility of Corporate and asset during production drilling phase</li> <li>Update Role &amp; Responsibility of Corporate and asset for Tier 2 &amp; 3 Equipment Request</li> <li>Update Tier 2 and Tier 3 Communication Flow and appendices</li> </ul>	TSH	December 2016
2	<ul style="list-style-type: none"> <li>Add summary of spill management team leader</li> <li>Add minimum requirements of Asset Spill Response Plan preparation, response techniques, consequence analysis, training, and exercise</li> <li>Add list of Spill Response Equipment under PTTEP and the alliances</li> <li>Update document title and contents reorganization.</li> <li>Update contact number of Thailand and International Authority and Organization</li> </ul>	CSH	March 2018
3	<ul style="list-style-type: none"> <li>Added additional information about spill management for newly acquired asset, tool for self-assessment of spill capability, and example of Thai Offshore Oil Spill Crisis Response Plan in Appendix A.</li> <li>Clarified spill response responsibility for all E&amp;P phases.</li> <li>Updated content reorganization, SIMA tool, IESG response resources and request form, tier 3 resources mobilization, and spill exercise to align with international guideline.</li> </ul>	CSH	March 2023

## TABLE OF CONTENTS

INTRODUCTION .....	1
1.0 PURPOSE.....	1
2.0 SCOPE.....	1
3.0 DEFINITIONS AND ACRONYMS .....	1
3.1 TERMS AND DEFINITIONS .....	1
3.2 ACRONYMS .....	1
REQUIREMENTS.....	2
4.0 SPILL MANAGEMENT .....	2
ROLES AND RESPONSIBILITIES.....	16
REFERENCES .....	17
APPENDICES .....	18
APPENDIX A: EXAMPLE OF THAILAND OFFSHORE OIL SPILL CRISIS RESPONSE PLAN ....	18
APPENDIX B: EXTERNAL NOTIFICATION OF SPILL INCIDENT IN THAILAND.....	19
APPENDIX C: NATIONAL AND INTERNATIONAL AUTHORITIES AND ORGANIZATION CONTACT LIST.....	20
APPENDIX D: RECOMMENDED STRUCTURE OF ASSET SPILL RESPONSE PLAN .....	21
APPENDIX E: LIST OF RESPONSE TECHNIQUES .....	27
APPENDIX F: REQUEST FORM FOR APPROVAL OF DISPERSANT APPLICATION IN THAILAND.....	33
APPENDIX G: LIST OF APPROVED DISPERSANTS FOR THAILAND ASSETS .....	34
APPENDIX H: IESG OIL SPILL RESPONSE RESOURCES REQUEST FORM .....	37
APPENDIX I: LIST OF IESG RESOURCES .....	39
APPENDIX J: ESTIMATED MOBILIZATION TIME TO THAILAND OFFSHORE ASSET FOR NATIONAL ASSISTANCE FROM THE NEAREST IESG SITE .....	41
APPENDIX K: LIST OF PTTEP AUTHORIZED PERSONNEL FOR OSRL ACTIVATION (AS OF JANUARY 2023).....	42
APPENDIX L: IESG OIL SPILL RESPONSE RESOURCES REQUEST FORM.....	44
APPENDIX M: PTT GROUP MOBILIZATION AUTHORIZATION FORM .....	46
APPENDIX N: OSRL NOTIFICATION AND MOBILIZATION PROCEDURE .....	47
APPENDIX O: OSRL NOTIFICATION FORM .....	48



## Table of Contents (continue)

APPENDIX P: OSRL MOBILIZATION AUTHORIZATION FORM .....	50
APPENDIX Q: ESTIMATED MOBILIZATION AND FLIGHT TIME FOR OSRL'S AERIAL DISPERSANT CAPABILITY .....	51
APPENDIX R: SPILL CAPABILITY ASSESSMENT CHECKLIST .....	52



## INTRODUCTION

### 1.0 PURPOSE

The Spill Management Plan is developed to outline the preparation of response actions and resources needed for an spill incident. The necessary response actions include the following as a minimum; the requirements of the Asset Spill Response Plan preparation, the response organization and protocol, the notification and interface between PTTEP Headquarters and assets and/or the external agencies including government agencies and other related organizations, resources preparation, including capability assessment and document review and update. This plan guides PTTEP assets for preparation and implementation of an effective spill response.

The Asset Spill Response Plan discussed in this document is intended to include not only the operating asset spill response plan, but also the support functions, i.e. seismic, drilling exploration and drilling production response plan. In some cases, bridging documents from contractors who provide the main activities to PTTEP (i.e. seismic and drilling) are required in order to establish the interface between these organizations as well as ensuring the alignment and prompt response.

### 2.0 SCOPE

This plan applies to all PTTEP assets and support functions in preparation and implementation of the effective spill response in all activities of Exploration and Production (E&P) Phases, i.e. seismic exploration, exploration and production drilling, production and decommissioning activities, including the storage, offloading and logistics support.

Compliance with the requirements described in this plan is mandated for all PTTEP assets and their subsidiaries. In the countries where local regulations exist, this plan shall be read and implemented in conjunction with all relevant regulations or adopted as a minimum requirement if this plan is more stringent than the regulatory requirements. Where PTTEP is a joint venture partner or joint operator under PTTEP operational or financial control, compliance with this document is also mandated where PTTEP has legal obligations on the spill response and management, unless otherwise specified in the operational agreement.

### 3.0 DEFINITIONS AND ACRONYMS

#### 3.1 TERMS AND DEFINITIONS

All terms and definitions in this document can be reached at [SSHE Intranet > SSHE MS > SSHE Terms and Definitions](#).

#### 3.2 ACRONYMS

All acronyms in this document are available at [SSHE Intranet > SSHE MS > SSHE Acronym](#).

## REQUIREMENTS

### 4.0 SPILL MANAGEMENT

Generally, spill management in the oil and gas exploration and production business is classified based on the 3-tiered response system in accordance with the IPIECA-IOGP good practice guide related to oil spill preparedness and response.

Activation of each tier response and management team is based on the capability of response resources as defined below:

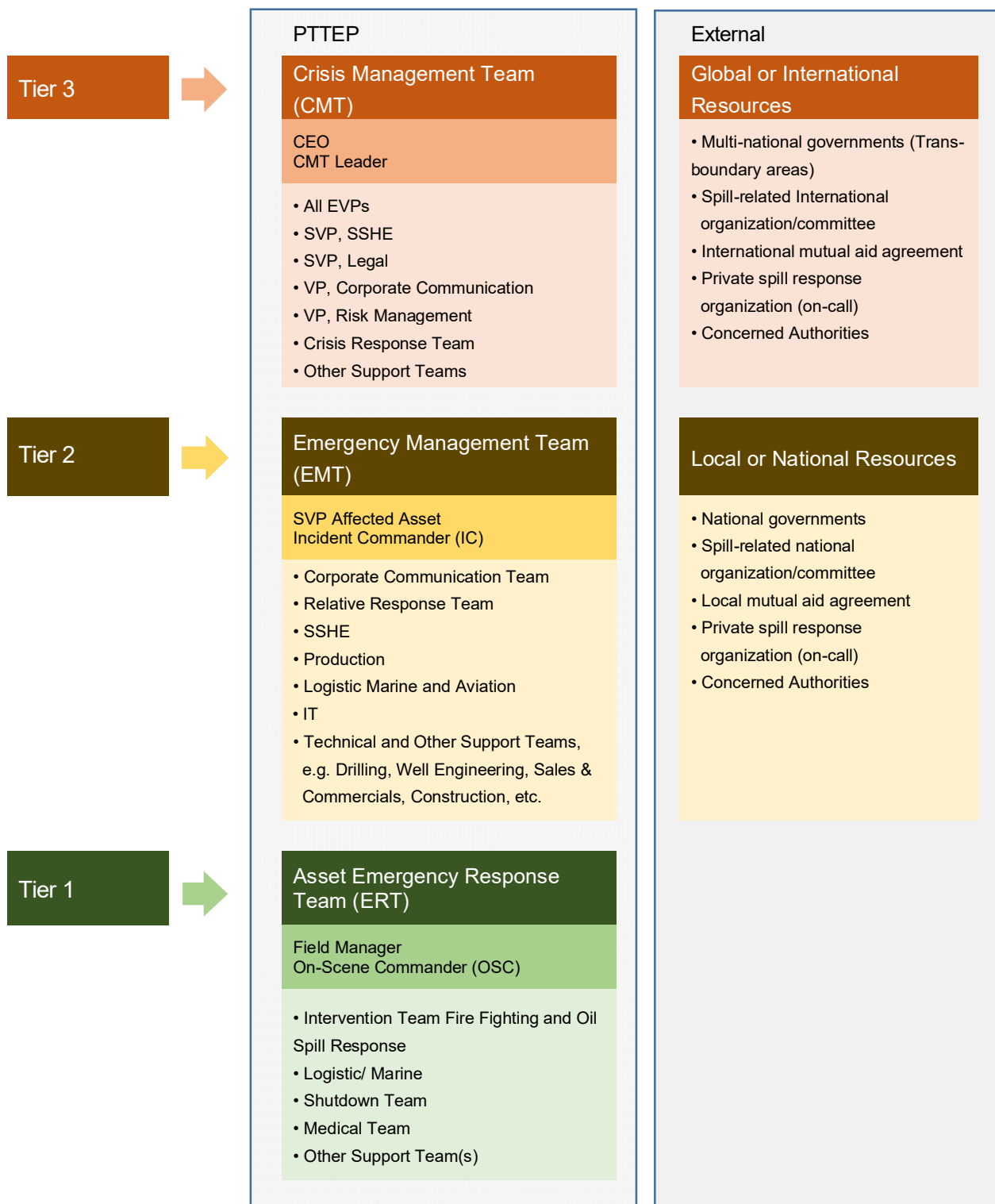
- Tier 1: Asset capability necessary to handle local spill and/or initial response
- Tier 2: Local and National capability to supplement a tier 1 response
- Tier 3: Global and International capability required due to scale, complexities, and/or global potential impact

Classification of tier responses shall follow the SSHE Risk Management Standard (11038-STD-SSHE-401), Emergency and Crisis Management Standard (11038-STD-SSHE-501), and PTTEP Incident Management Standard (11038-STD-SSHE-601) for more details and definition of severity or impact to people, environment, asset, and reputation as well as incident management and reporting protocol.

### 4.1 SPILL MANAGEMENT ORGANIZATION

#### 4.1.1 PTTEP 3-Tier Response

Figure 1 shows the 3-tier spill response organization as well as necessary internal and external resources. Tier 1 response requires internal resources whereas tier 2 and 3 responses require national and international resources, respectively. Members of each tier response team shall refer to the Emergency and Crisis Management Standard (11038-STD-SSHE-501).



**Figure 1: Tier Response Organization and Resources**

In case that Thailand offshore oil spill response is escalated to tier 3, the Crisis Management Team (CMT) shall be activated. The example of Oil Spill Crisis Response Plan (CRP) as presented in Appendix A can be referred to as guidance. For production assets under a Production Sharing Contract (PSC) scheme, linkage of emergency and crisis management organization between PTTEP and government agencies shall be defined and established.

#### 4.1.2 Spill Response and Management Team Duty

The authorized persons of E&P activities in each phase are different which results in different designated persons of spill response and management team leaders of each tier response as summarized in Table 1. Although the team leader is different, the team member of each Tier at each phase is commonly the same, except for the technical support, as listed in 3.1.1 in which their specific duties shall be described in the Asset Spill Response Plan. The technical support can be requested from each relevant discipline subject to the incident description.

**Table 1: Summary of Team Leaders**

Team Leader	Spill Management Team Leader of each E&P Phases			
	Seismic Exploration	Drilling Exploration	Drilling Production	Production
Tier 1: On-scene Commander	VP under Geosciences, Subsurface, and Exploration Division	<Spill on rig> Drilling Supervisor (DSV)		Field Manager
		<Spill to sea>		
		Drilling Supervisor (DSV)	Field Manager	
Tier 2: Incident Commander	SVP of affected asset (Thailand) Asset Country Manager (Overseas)			
Tier 3: CMT Leader	CEO or Designated Top Management			
Technical Support	VP/ Field manager of affected asset	Field manager of affected asset/ Drilling Contractor	VP of affected asset	
	Depends on incident situation and shall be requested from the affected asset			

#### 4.2 SPILL NOTIFICATION PROCESS

Initial internal and external notification of spill incidents shall follow the protocol and reporting requirements as determined in the Incident Management Standard (11038-STD-SSHE-601-R07) which covers the reporting channel, period, and organization to be notified within PTTEP and externally to the government agencies both for Thailand and International assets. External notification of spill incidents which have occurred within Thailand jurisdiction is summarized in Appendix B. Contact numbers of Thailand and International authorities and organization are provided in Appendix C.

For Thailand assets, the need of a National Oil Spill Response Plan activation shall be discussed during the initial notification to government agencies. Certain information shall be provided to the government agencies, e.g. estimated spill volume, sensitive environmental resources and facilities, other potential risks, etc.

It is the responsibility of the International assets to determine the in-country notification process of all internal and external communications for all tiers of spill incidents, including communication with PTTEP headquarters. The communication protocol shall be documented in the asset Spill Response Plan. The protocol shall include the communication channel to the authorities, notification timelines to the authorities, and the responsible person who is authorized to initiate the communication. The contact numbers of authorities in each operating country shall be provided and kept up to date in the asset Spill Response Plan.

For any updated situation to external media and relatives, refer to the Crisis Communication Guideline (12145-GDL-004) under Branding Communications and Knowledge Intelligence Division (CBK).

### **4.3 SPILL RESPONSE RESOURCES**

Spill response resources in this plan, are defined as spill response and management plan and other supporting documentation, trained personnel, and sufficient equipment and supplies which may come from local, regional, or international sources in accordance with 3-tier classification. These resources shall be identified in the Asset Spill Response Plan based on their operational risk assessment results, e.g. by conducting spill capability assessment, etc., regulatory requirements, international convention, e.g. MARPOL, etc., hydrocarbon amount and characteristic, nearby sensitive areas and supporting facilities, and planning scenarios.

The agreement or spill response organization for spill response resources at each asset and tier response is recommended to be prepared in advance to ensure the availability of the resources when spill incident has occurred.

#### **4.3.1 Asset Spill Response Plan Preparation**

PTTEP assets shall prepare and implement asset Spill Response Plans and supporting documentation. The Asset Spill Response Plan shall be scoped and scaled according to the type of operation undertaken, the level of risk associated with the operations, and assurance of compliance with applicable local and national regulations. Asset Spill Response Plan shall include the necessary information which assist assets to identify and specify the key processes and resources that are crucial to respond to the spill incidents, both for the initial and subsequent stages. PTTEP assets can develop their own plan, either integration with Asset Emergency Response Plan or separately, by following the requirements stated below. A recommended structure of the Asset Spill Response Plan is listed in Appendix D.

The Asset Spill Response Plan shall comply with the National Oil Spill Response Plan of the country of operation as well as relevant PTTEP standards and procedures. Each of asset's Spill Response Plans shall be reviewed by Corporate SSHE Division for advice and alignment with this plan and other compulsory documents.

### 4.3.2 Spill Scenario Consequence Analysis

Based upon the risk assessment results, the asset shall identify potential spill scenarios and documents in the asset Spill Response Plan, then the detailed consequence analysis shall be conducted to confirm consequences from the spill and identify resources at risk which include environmental and socio-economic resources that could be affected, and assess the degree of sensitivity of those resources, as well as impact mitigation and minimization measures, specifically for:

- Worst credible case of spill scenario(s) for oil type(s) that potentially have a significant contribution to the risk (high likelihood, high potential discharge volume or low likelihood but high severity)
- Any additional potential spill scenarios that generate essential planning factors.

Criteria for justification are referred to in the SSHE Risk Management Standard (11038-STD-SSHE-401).

#### 4.3.2.1 Spill Trajectory Model

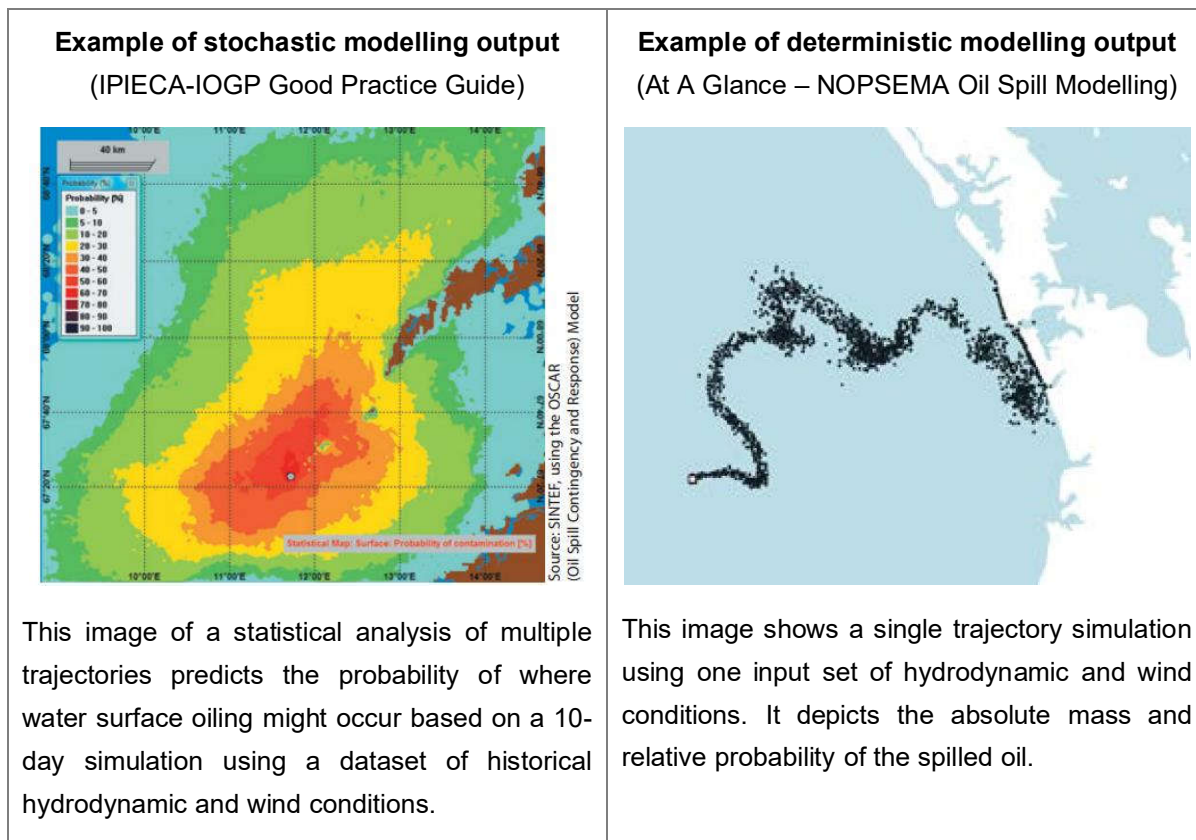
The objective of numerical simulation of spill fate and trajectory is to estimate the physical changes which spilled oil undergoes especially offshore or on open waters (i.e. the weathering processes which include evaporation, spreading, natural dispersion, emulsification, and shoreline stranding) and its potential pathways, travel times, surface distribution and associated volumes under the prevailing climate.

The spill trajectory model shall be developed based on the risk assessment results to provide the area of impact or consequence for consideration in the environmental and socio-economic severity and to guide decisions for a suitable response strategy.

Examples of 2 types of spill trajectory modelling output are shown in Figure 2:

- Stochastic models primarily are used for contingency planning purposes which apply historical wind and current conditions to simulate multiple spill trajectories that together give a statistical output
- Deterministic models typically are used in both response and contingency planning scenarios, which utilize a single set of wind and current conditions (for example the most probable) to simulate a single spill trajectory





**Figure 2: Example of Spill Modelling Output**

#### 4.3.2.2 Sensitivity Mapping

Once asset has identified the spill scenario, the trajectory of the oil, and how it behaves in the environment, it is necessary to identify and characterize relevant sensitive resources and receptors within the influence area.

Mapping of ecological and socio-economic resources allows the identification of those which may lie in the trajectory of spill. Mapping shall be performed within the influence area of the potential spill. The IPIECA/IMO/IOGP Good Practice Guidance on Sensitivity Mapping for Oil Spill Response (Revision 2016) provides examples of mapping both ecological and socio-economic resources. Environmental impact assessments and monitoring data can provide valuable input to the mapping of resources and sensitive receptors. With confidential agreement, operators within the same area are encouraged to share information on ecological and socio-economic resources to secure efficient mapping and consistent input.

The assessment of potential consequences is recommended to be made for time periods (i.e. monthly, seasonal or yearly) as relevant for the activity or operation that is posing the risk. It is also recommended that a full year field activity at least should have a seasonal resolution in the consequence assessment as this can provide important information and input to risk management and advice on risk reducing measures for time-limited operations.

The available information such as the Environmental Sensitivity Index (ESI), Environmental Sensitivity Maps (ESM), etc. can be accessed from published sources or national database or equivalent. The sensitivity map from the environmental impact assessment report can be partially applied.

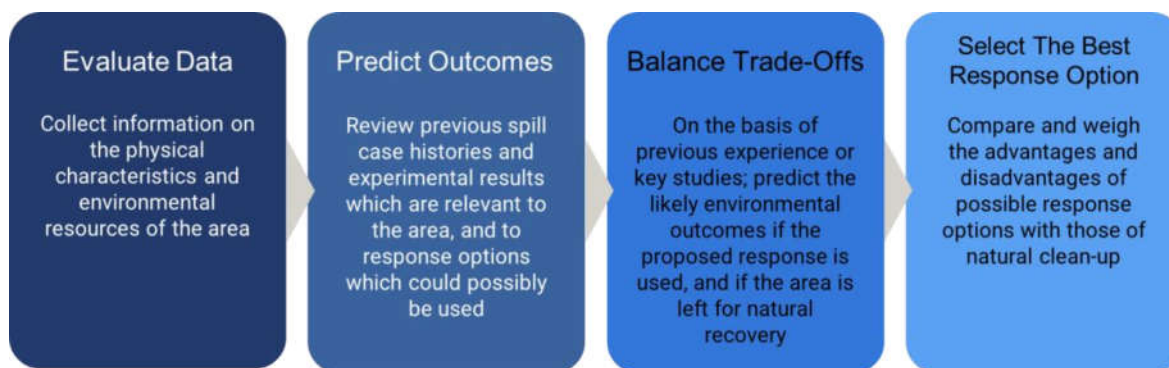
### 4.3.3 Response Strategy Development

Following the identification of sensitive resources and priority protection sites, PTTEP assets shall identify the appropriate response strategies, which are comprised of viable response techniques which can adequately mitigate the impact and consequences of each oil spill scenario.

A response strategy can consist of a single response technique or a combination of techniques. A list of the response techniques and its requirements are listed in Appendix E. The response strategy should be established in consultation with the relevant authorities and stakeholders, with consideration given to Spill Impact Mitigation Assessment (SIMA).

#### 4.3.3.1 Spill Impact Mitigation Assessment (SIMA)

When considering the suitable response technique, the SIMA shall be considered to determine the best response options that are the most effective, feasible and will minimize the impact from the selected planning scenario on the environment and the community including ecological, socio-economic, and cultural aspects. As such, the Asset Spill Response Plan shall document the following information as shown in Figure 3 when selecting the response option.



**Figure 3: Steps of Net Environmental Benefit Analysis (NEBA)**

Assets shall ensure that the response priorities selected are aligned with the national or regional register of priority areas. Where different protection priority ranking is assigned to a specific resource compared to these national or regional register, justifications for the difference is to be specified.

It is important to note that the SIMA process is generally applicable to larger or higher consequence oil spill scenarios where multiple spill response options are being considered. It is not value-added to conduct SIMA for smaller, lower consequence spills where only one or two response options are contemplated or feasible.

#### **4.3.4 Spill Response Resources**

##### **4.3.4.1 Tier 1 - Asset Resources**

PTTEP Assets shall provide and ensure the availability of spill response resources on each location as identified in their planning scenario. The identification of necessary spill response resources shall be documented in the asset Spill Response Plan. Asset representative shall ensure the readiness of the Asset Spill Response Plan and the sufficient equipment and resources for combating spill up to a Tier 1. A preventive maintenance plan of spill response equipment shall be established and followed for prompt spill response. Asset ERT members shall be trained to promptly respond and become familiar with all available spill response equipment.

For seismic exploration, the spill response equipment and services from reliable local contractors is recommended to prepare by Geosciences, Subsurface, and Exploration Division under the advisory guidance of the Corporate SSHE Division.

For drilling exploration and production, the drilling contractor shall provide on-site spill response equipment and personnel as per their contract agreement to ensure that tier 1 can be handled. Drilling contractor is responsible for any spills occurring within the boundary of the rig itself, while Corporate SSHE and assets are responsible for the spills reaching the environment for drilling exploration and production respectively.

In case dispersant application is required for Thailand assets, it is the asset's responsibility to request the approval from the Pollution Control Department (PCD) before use when the water depth is less than 10 meters referred from Nation Oil Spill Plan. The request form for approval of dispersant application in Thailand and list of approved dispersants for Thailand assets is provided in Appendix F and G, respectively. To expedite the approval period, the completeness of information and appropriate volume of dispersant application filled in the form shall be provided. In general, the consideration result would be sent to the requestor within 5 hours after submitting the request to PCD. For the International assets, this process could be different which may require the different approval process to comply with local regulations as well as any prohibition of using some dispersant in some country.

In case the incident reaches tier 2 and 3, the Corporate SSHE Division will be responsible for dispersant application approval process.

##### **4.3.4.2 Tier 2 – Local and National Resources**

###### **Thailand Asset**

Corporate SSHE Division shall provide and seek other available equipment and resources to support asset spill response including all E&P phases. These resources, i.e. equipment, personnel, and logistic support, specified in the following documents, but not limited to, shall be included in asset Spill Response Plan.

- Onshore Operating Asset: Local contract availability, National level regulators or agencies and National Oil Spill Response Organizations (OSROs)

- Offshore Operating Asset: Nearby operators, regional operators, national level regulators or agencies and National Oil Spill Response Organizations (OSROs)

Pre-arrangement or exercises to test the mobilization is highly recommended to conduct by asset to ensure the availability and validity of Tier 2 resources and secure spill response support.

PTT Group is a member of the Oil Industry Environmental Safety Group Association (IESG) in Thailand. All PTTEP assets in Thailand are able to request additional resources and the trained personnel from outsource under IESG's contract via corporate by using Oil Spill Response Resources Request Form as provided in Appendix H. PTTEP authorized personnel for IESG including tier 2 resources support activation, which is recommended to be asset SVP, SSHE Manager or Corporate SSHE SVP/VP, shall be included asset Spill Response Plan. The list of IESG available resources is shown in Appendix I and the estimated mobilization time to Thailand offshore asset for national assistance from the nearest IESG site is shown in Appendix J.

Further, assets in Thailand may also request resources from the Marine Department through activation of the National Oil Spill Response Plan. This allows the asset to have access to the national resources, which include equipment, vessels, and technical specialists. PTTEP assets shall identify tier 2 resources in Asset Spill Response Plan for the purpose of pre-assessment whether the available resources are sufficient to handle with tier 2 spills or otherwise refer to this plan. When resources from in-country mutual aid agreement is required to respond to the spill, the National Oil Spill Response Plan will be incorporated with the company plan. The role and responsibility of the emergency response team and support team will be in accordance with both plans.

#### **International Asset**

It is recognized that some International assets may also be legally bounded to attain membership for their local tier 2 organizations or Contractors as specified by laws and regulations of the country where PTTEP operates in all E&P phases (e.g. PIMMAG, OSCT, etc.). All assets shall adhere to the in-country legislative requirements and ensure the familiarity of the call-out procedure for the respective tier 2 organizations or contractors.

Similar to Thailand assets, the international assets should ascertain similar processes to access to the national resources of their country. PTTEP authorized personnel for tier 2 resources provider activation, which is recommended to be Country Manager or SSHE Manager, shall be included in the asset Spill Response Plan.

#### **4.3.4.3 Tier 3 – Global and International Resources**

Currently, the international service provider for PTTEP is the Oil Spill Response Limited (OSRL) Group for which PTTEP has access to their resources via PTT Group membership. The OSRL activation can be done through PTT Group as per the following steps, in which is a list of PTTEP authorized personnel is provided, Appendix K.

- PTTEP Authorized Personnel shall fill out the PTT Group Notification form and Mobilization Authorization Form submit to PTT for their information as provided in Appendix L and M, respectively

- Then, the OSRL Notification and Mobilization Procedure shall be followed as described in Appendix N. PTTEP Authorized Personnel shall fill out the OSRL Notification Form and Mobilization Authorization Form, and submit it to OSRL for requesting their services as provided in Appendix O and P, respectively

Corporate SSHE is responsible for assisting the asset in securing OSRL resources for their prompt response. OSRL resources available for membership can be found in the OSRL website.

For planning purposes, the assets shall take into account the lead time required for mobilization of OSRL resources in their asset Spill Response Plan. However, the global alliance from PTTEP and OSRL requires lead time for internal preparation and logistic arrangement.

### Equipment Mobilization

PTTEP is responsible for the logistics of any resources from OSRL from the point of handover whilst OSRL handles the equipment transfer up to the point of handover (i.e. at OSRL base or departure airport/port) where there is a transfer of responsibility. Mobilization time for air and sea transport is dependent on availability and location of the chartered aircraft or supply vessel. Table 2 summarizes the various mobilization methods of OSRL's equipment.

**Table 2: OSRL's Equipment Mobilization Method**

Mobilization by	Remarks
Land	This refers to the use of truck/lorries for transportation of equipment from OSRL's nearest base before subsequent transfer to vessels.
Sea	Depending on location of spill, the supply vessel can also be chartered in-country where the nearest OSRL base is located. Equipment is loaded at the OSRL base and sails directly to the spill site.
Air	Equipment is loaded into chartered cargo aircraft which will then fly into the identified airport of entry upon the clearance of permits and customs etc.

### Aerial Dispersant Aircraft Mobilization

Two types of aerial dispersant aircraft provided by OSRL can be mobilized in a spill: C130 departing from Senai, Malaysia and B727 departing from Doncaster, UK. OSRL's nearest support site to PTTEP's country of operations, the nearest airport to PTTEP asset's location, estimated mobilization time and flight time from OSRL's base to these airports are summarized in Appendix Q. However, contingency time, e.g. custom clearance and immigration, are not included.

#### 4.3.5 Spill Training and Exercise

Asset shall develop spill training and exercise programs with consultation from Corporate SSHE Division based on the applicable national and local regulations as well as the requirements stated in this plan and SSHE Training and Competency Standard (11038-STD-SSHE-305). The training and exercise program shall include the personnel with their role and responsibility to manage and respond to the spill incident.

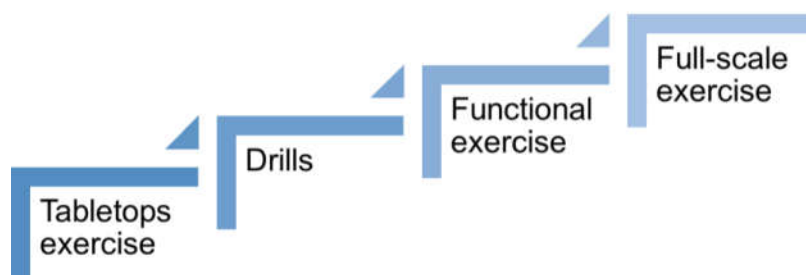
It is recommended to consider determining the frequency and number of personnel to be trained in each role and involved in exercises and factors such as staff turnover rate, staff rotation to prepare for a prolonged response, and stand-by requirements for on duty responders as well as backup staff to support an ongoing response.

Asset shall organize the spill exercise to be in accordance with the applicable national and local regulation. Exercise activities may be undertaken using a variety of types as shown in Table . The estimated duration and frequency provided as guidance excludes the time of planning and preparation, which may be significant. An exercise can contain a mix of these types.

- Oil field asset: it is mandatory to conduct the spill exercises to cover all types of exercise as shown in Table 3.
- Gas field asset: the spill exercise arrangement is depended on asset's spill risk profile and scenario. However, it is recommended to conduct any types of spill exercise at least once a year, e.g. following to asset emergency exercise, pre-fire plan, etc.

These exercises may be conducted separately or in conjunction with other exercises as long as they are well documented. The training and exercise programs and records shall be documented for further tracking and reference. Opportunities for improvement and actions arising from these activities shall be documented and recorded in close-out exercise or audit report to ensure that the actions are being implemented in a timely manner.

Asset shall also ensure that the monitoring for training with expiration date and requires refresher periodically is being done and documented properly to ensure the sustainability of personnel knowledge and competence.



**Figure 4: The progressive of the development of exercise program**



**Table 3: Types of Spill Exercise (IPIECA-IOGP, 2016)**

Type	Detail Exercise	Frequency	Responsible party
Tabletop Exercises (Duration: 2 to 4 hrs.)	<ul style="list-style-type: none"> <li>• Discussion of simulated scenario in the asset spill response plan/contingency plan</li> <li>• Build competency and confidence in the implementation of the asset spill response and contingency plan</li> <li>• Predetermine set of specific objectives</li> <li>• Be part of functional exercise preparation</li> </ul>	At least once per asset/year	Site SSHE/ Asset SSHE
Drills (Duration: 2 to 4 hrs.)	<ul style="list-style-type: none"> <li>• Validate a specific function or capability in a single organization</li> <li>• Be commonly used to provide training on new equipment, validate procedures to practice and maintain current skills, e.g.</li> <li>• For example, test the notification and alert procedures in an oil spill response plan, test a tactical booming plan, dispersant spraying practice, etc.</li> </ul>	At least once per asset/year	Site SSHE/ Asset SSHE
Functional Exercises (Duration: 4 to 8 hrs.)	<ul style="list-style-type: none"> <li>• Validate and evaluate capacities, multiple functions, or interdependent groups of functions</li> <li>• Be conducted in a realistic or real-time environment movement of personnel and equipment is usually simulated.</li> <li>• Can be integrated with Annual Emergency/ Crisis Management Exercise</li> </ul>	At least once per asset/year	Asset SSHE
Full scale exercise (Duration: 8 to 72 hrs.)	<ul style="list-style-type: none"> <li>• May involve multiple authorities, relevant organizations, and jurisdictions, and can validate many elements of preparedness.</li> <li>• Test plans and procedures across the span of asset's crisis management and emergency response arrangements</li> <li>• Can involve national capability (Tier 2) and regional or international support (Tier 3), i.e., trans-boundary response issues</li> <li>• Include personnel and resources mobilization and deployment</li> </ul>	Once every five years, however, it is subject to resource's availability	Asset SSHE/ Corporate SSHE

#### 4.3.6 Spill Capability Assessment

An asset shall plan to conduct the capability assessment with the consultation of the Corporate SSHE Division. The spill capability assessment shall be carried out for newly acquired assets to assess and ensure that the asset spill response meets the operation's risk level. The frequency of the capability assessment depends on the results of the risk assessment and consideration of the following:

- When there is any significant change in oil spill risk profile, e.g. new assets are introduced
- Upon any significant oil spill incident occurrence
- When new information on spill management is known

It is recommended that the capability review process is in line with the IPIECA-IOGP industry good practice guidelines for tiered response and includes the following assessments as a minimum:

- Review of oil Spill Response Plans and relevant tactical plans including SIMA
- Availability and suitability of oil spill response tier 1 (onsite) resources
- Availability of tier 2 and tier 3 resources
- Review of logistical arrangements
- Review of training and exercise program

For an effective tier 2 and tier 3 capability assessment, PTTEP shall utilize a third party to conduct the activities. The assessment results shall identify the gaps and recommendations for improving of the asset and Company spill response capability. The gaps and recommendations shall be followed up following to Audit and Review Standard (1038-STD-SSHE-701).

Spill capability assessment checklists are available to assist PTTEP assets to self-assess their level of preparedness to respond to an oil spill incident, including notification and mobilization of tier 2 and 3 resources and identification of infrastructure required to support the response. The spill capability assessment checklist is provided in Appendix R or can be found in OSRL's website (<https://www.oilspillresponse.com/tools/ready-check/>).

#### 4.3.7 Asset Spill Response Plan Review and Update

Where the national or local regulation dictates a system of review and evaluation for approved plans, it shall take precedence. In the absence of regulatory guidance, asset shall develop and implement a program for review to ensure sustained readiness and competency to align at least with document review period or significant deviation following to SSHE Documentation Management Procedure (11038-PDR-SSHE-304/01).

The review and update to Asset Spill Response Plan shall be undertaken when there are any updates from, but not limited to:

- Oil spill risk profile e.g. new assets are introduced, or additional oil types are identified

- Response arrangements, including any changes to external notification and response contractors
- Location of operation (e.g. drilling campaigns) and sensitive resources
- Legislation or regulations in the country of operation
- International standards and industry good practices
- Relevant PTTEP corporate standards and procedures

Where applicable, if major changes occurred that could potentially affect the validity or effectiveness of the plan, resubmission to the approving authority in the country of operations shall be undertaken as required per local regulations and PTTEP corporate.

## ROLES AND RESPONSIBILITIES

Roles and Responsibilities of relevant personnel shall follow the Emergency and Crisis Management Standard (11038-STD-SSHE-501), Emergency Management Plan (12148-PDR-SSHE-501/02), and Crisis Management Plan (12148-PDR-SSHE-501/01).

## REFERENCES

Document Number	Document Title
<b>PTTEP Controlling Documents</b>	
11038-STD-SSHE-305	SSHE Training and Competency Standard
11038-STD-SSHE-401	SSHE Risk Management Standard
11038-STD-SSHE-501	Emergency and Crisis Management Standard
11038-STD-SSHE-601	Incident Management Standard
12148-PDR-SSHE-501/01	Crisis Management Plan
12146-PDR-SSHE-503/01	Waste Management Procedure
12148-PDR-SSHE-501/02	Emergency Management Plan
<b>Other Reference Documents</b>	
-	Guidelines on implementing spill impact mitigation assessment (SIMA); International Petroleum Industry Environmental Conservation Association (IPIECA); 2017
-	National Plan for Oil Spill Protection (TH only); Ministry of Transport; 2002
-	Oil Spill Exercises Good Practice Guidelines for the Development of an Effective Exercise Programme; International Petroleum Industry Environmental Conservation Association (IPIECA); 2016
-	Oil Spill Response Field Guides; Oil Spill Response Limited (OSRL); 2013

## APPENDICES

### **APPENDIX A: EXAMPLE OF THAILAND OFFSHORE OIL SPILL CRISIS RESPONSE PLAN**

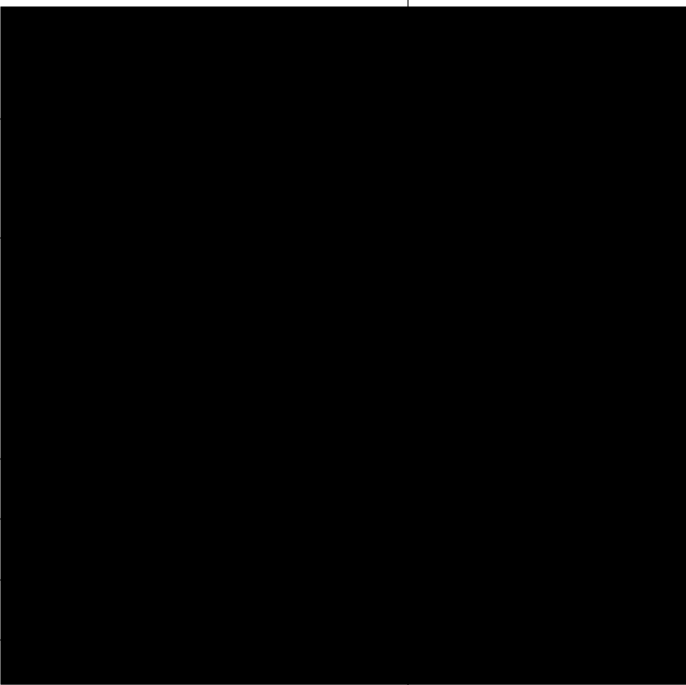
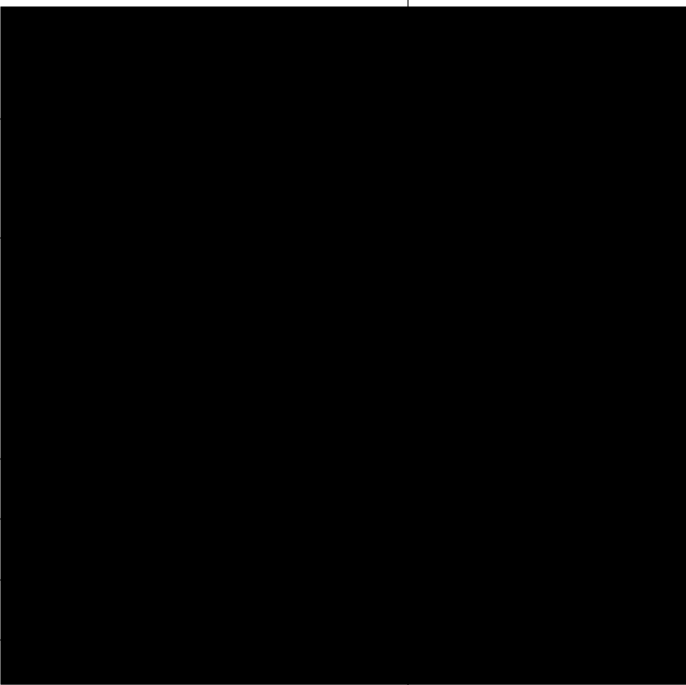
An example of Thailand Offshore Oil Spill Crisis Response Plan is available on [SSHE Intranet > SSHE MS > SSHE MS Documents > Corporate Tools > Appendix–Spill Management Plan](#).



## APPENDIX B: EXTERNAL NOTIFICATION OF SPILL INCIDENT IN THAILAND

Spill Incident Volume	Notify	Reporting timescale	Reported by
>1 bbl	<ul style="list-style-type: none"> <li>Department of Mineral Fuels (DMF)</li> <li>Marine Department (MD) for spill to water</li> </ul>	Initial report by phone or e-mail within 24 hrs. and followed by a written report within 72 hrs.	Asset SSHE
> Approx. 149.75 bbls (20 tonnes) or Local and National capability to supplement a Tier 1 response	<ul style="list-style-type: none"> <li>Department of Disaster Prevention and Mitigation (DDPM) for spill on land</li> <li>PTT Group</li> <li>IESG</li> <li>OSRL for Tier 3</li> </ul>	Initial report by phone or e-mail within 24 hrs.	EMT for Tier 2 and CMT for Tier 3/ Corporate SSHE Division by Operational Safety Section

## APPENDIX C: NATIONAL AND INTERNATIONAL AUTHORITIES AND ORGANIZATION CONTACT LIST

Organization	Tel	Fax
Department of Mineral Fuels (DMF)		
Department of Disaster Prevention and Mitigation		
Marine Department (MD)		
Pollution Control Department (PCD)		
IESG		
PTT Command Centre		
OSRL Singapore base		

## APPENDIX D: RECOMMENDED STRUCTURE OF ASSET SPILL RESPONSE PLAN

Note: ✓ = Required  
 + = Recommended (may depend on the planning scenario)  
 X = Not required

Section	Description	Offshore	Onshore
<b>1. Introduction</b>			
1.1 Objective	<ul style="list-style-type: none"> <li>Describe the overall purpose of the Spill Response Plan</li> <li>Include statement of PTTEP's guiding principles of protecting people, environment, asset, and reputation</li> </ul>	✓	✓
1.2 Scope	A summary description of operations and facilities covered by the Spill Response Plan	✓	✓
1.3 Interface with Other Plan	<ul style="list-style-type: none"> <li>Identify other plans the Spill Response Plan interfaces with</li> <li>Demonstrate how it integrates with other plans. These plans include, but not limited to:               <ul style="list-style-type: none"> <li>Crisis management plan</li> <li>Emergency management plan</li> <li>Environmental Impact Assessment Report</li> <li>Bridging documents / Well control plans</li> </ul> </li> </ul>	✓	✓
1.4 Document Control	<ul style="list-style-type: none"> <li>Specify approval dates and sign-offs by internal management, plan custodian, distribution list, review and update records</li> <li>Include approvals obtained from authority, if applicable</li> </ul>	✓	✓
<b>2. Notifications and Reporting</b>			
2.1 Internal Notification	<ul style="list-style-type: none"> <li>Develop a clear written procedure to immediately notify and report to internal stakeholders and initiate a response showing appropriate response levels, as well as response escalation procedure</li> <li>Include contact details, notification method (e.g. phone, fax, email, etc.) and team/person responsible for performing the notification. This may be reflected in the form of a flowchart</li> </ul> <p><i>Refer to Emergency and Crisis Management Standard (1038-STD-SSHE-501-R05) for emergency notification standard</i></p>	✓	✓

Section	Description	Offshore	Onshore
2.2 External Notification	<ul style="list-style-type: none"> <li>Develop a clear written procedure to notify and report to external stakeholder which needs to be done at the early stage of the incident i.e. authorities, shareholders, OSROs and other contractors</li> <li>Include contact details, notification method (e.g. phone, fax, email, etc.) and team/person responsible for performing the notification</li> </ul>	✓	✓
<b>3. Assessments</b>			
3.1 Site Assessment	Provide a checklist/guideline to conduct initial site safety and spill assessment	✓	✓
	Provide key facility information	✓	✓
	Identify environmental and socio-economic sensitivities	✓	✓
	Determine current and forecasted meteorological and hydrodynamic conditions	✓	✗
3.2 Volume and Trajectory Assessment	A summary or checklist of: <ul style="list-style-type: none"> <li>Spill surveillance methods (aerial surveillance, tracking buoys, etc.)</li> <li>Spill observation and assessment guidance</li> <li>Spill trajectory and modelling including required input data</li> </ul>	✓	+
3.3 Tier Assessment	Evaluate the scale, Tier level, and impact of the incident (following the National Oil Spill Contingency Plan, if any or as described in this Guideline) as well as the escalation potential	✓	✓
<b>4. Response Management</b>			
4.1 Response Organization	<ul style="list-style-type: none"> <li>Include organization of the response teams (ERT, EMT, CMT) and their relationship with each other</li> <li>Include overall responsibility of the team and management of processes and procedures within each team</li> <li>Include the response management facility location and activation procedure</li> </ul> <i>Refer to Emergency Management Plan (12148-PDR-SSHE-501/02-R04) and Incident Management Standard (11038-STD-SSHE-601-R07)</i>	✓	✓

Section	Description	Offshore	Onshore
4.2 Roles and Responsibilities	Main role and responsibility of the key personnel in the response team, including action checklist described for each stage of response. <i>Refer to Emergency Management Plan (12148-PDR-SSHE-501/02-R04) and Incident Management Standard (11038-STD-SSHE-601-R07)</i>	✓	✓
<b>5. Action Checklist</b>			
Establish initial action checklists for key personnel in the EMT as follows, as a minimum:			
<ul style="list-style-type: none"> <li>Initial response priorities and objectives</li> <li>Initial actions and strategy decision guide</li> <li>Activation of response management team</li> <li>Activation and deployment of resources</li> </ul>		✓	✓
<b>6. Response Strategy</b>			
6.1 Response Strategies	<ul style="list-style-type: none"> <li>Develop strategy decision guidance (flow charts, scenario matrix, and NEBA/SIMA decision guidance)</li> <li>Include scenario-specific response strategy summaries and regulatory pre-approvals and/or approval application procedures if any</li> </ul>	✓	✓
6.2 On Water Response	Offshore and near-shore response capabilities and general tactical plans	✓	✗
6.3 Shoreline Response	Shoreline response capabilities and general tactical plans.	+	✗
6.4 Inland Response	Inland waterway and onshore response capabilities and general tactical plans.	✗	✓
<b>7. Sensitive Areas</b>			
Provide summary of sensitivities identified in the area and the protection priorities. Maps may be included for ease of reference. This information should be supported with the Baseline Environmental Settings information in the Reference Material.		✓	✓
<b>8. Response Resources</b>			
8.1 Tier 1 Capability	Include a summary and reference to Tier 1 resources inventories including required logistics support, internal contact information and mobilization timescale	✓	✓

Section	Description	Offshore	Onshore
8.2 Tier 2 Arrangement	Provide a summary and reference to Tier 2 Arrangement including, but not limited to: <ul style="list-style-type: none"> <li>Contracted resources inventories and services list</li> <li>Mobilization procedure and timeframes</li> <li>Contact information including authorized personnel for resources activation</li> <li>Required logistics support</li> <li>Additional non-contracted resources and services list including government resources, vessels of opportunity, local labor sources and volunteers, and subject matter experts or specialty expertise</li> <li>Resourcing procedures for non-contracted services</li> </ul>	✓	✓
8.3 Tier 3 Arrangement	Include a summary and reference to Tier 3 arrangements, including accessing international mutual aid, contact information, contracted OSRO mobilization procedures, resources, and response timeframes. Procedures for immigration and customs, and any emergency dispensation information for cross-border movement of personnel, equipment and material	✓	✓
<b>9. Supporting Response Element</b>			
9.1 Waste Management Procedure	Provide guidance for handling oily waste.	✓	✓
9.2 Oiled Wildlife Response	Provide guidance for handling wildlife impacted by oil spill.	+	+
9.3 Stakeholder Engagement and Communications	Provide guidance for engaging and communicating with Stakeholders.	+	+
9.4 Economic Assessment and Compensation	Provide guidance for conducting economic assessment and compensation.	+	+
9.5 Environmental Impact Assessment (Including Sampling)	Provide guidance for conducting environmental impact assessment.	+	+

Section	Description	Offshore	Onshore
<b>10. Decontamination</b>			
10.1 Requirement	Summarize health, safety, and environmental requirement for decontamination.	✓	✓
10.2 Decontamination Procedure	<ul style="list-style-type: none"> <li>• Provide guidance for developing a spill-specific decontamination plan including standard procedures of setting up decontamination area, zoning, etc. and list of approved cleaning agents</li> <li>• Provide information on pre-designated decontamination sites, if any</li> </ul>	✓	✓
<b>11. Termination of Response</b>			
11.1 Demobilization Procedure	<ul style="list-style-type: none"> <li>• Provide guidance for developing a spill-specific demobilization plan</li> <li>• Provide standard procedures for demobilizing resources e.g. final equipment and vessel inspections, personnel checkout, resupply of consumables, claims for repairs, return of hired gear, etc.</li> </ul>	✓	✓
11.2 Response Termination	<ul style="list-style-type: none"> <li>• Provide guidance on establishing treatment end points and response termination criteria</li> <li>• Include information regarding the roles with authority to sign off on completed areas and approve termination of the response</li> </ul>	✓	✓
11.3 Response Debrief	<ul style="list-style-type: none"> <li>• Include responsibilities and guidelines for conducting post-response debrief, conducting post-spill analysis and develop report, etc.</li> <li>• Include documentation requirements.</li> </ul> <p><i>Refer to Incident Management Standard (11038-STD-SSHE-601-R07)</i></p>	✓	✓
<b>Supporting Documentation or Appendices</b>			
Site- Specific Tactical Response Plan	Provide operational maps identifying the sensitivity the site-specific tactical plans that cover the area to be protected, worksite configuration, and other considerations and useful information necessary to facilitate rapid and effective response	+	+



Section	Description	Offshore	Onshore
Reference Material	<p>Consist of the Spill Response Plan justification and other preparedness material including but not limited to:</p> <ul style="list-style-type: none"> <li>• Oil spill risk assessment result and scenario planning</li> <li>• Applicable requirement from international convention, national and local regulations on oil spill response</li> <li>• Operational overview which describes the facility and/or operations (including facility information, oil types and volumes handled, oil properties and weathering data, etc.)</li> <li>• Oil spill modelling result</li> <li>• Baseline environmental settings including meteorological and hydrodynamic information and socio-economic information</li> <li>• Training and exercise program</li> <li>• Plan and equipment review and audit schedule</li> </ul>	✓	✓
Directories	<p>Provide directories of resources and contact that are potentially needed during response including, external contractors, response organization, vessel of opportunity, logistics contractors, etc. This may be updated frequently.</p>	✓	✓

## APPENDIX E: LIST OF RESPONSE TECHNIQUES

Response Technique Options	Requirements
Source Control	<p>Source control techniques are usually linked with other emergency response plans/documents which provide specific actions to stop or minimize the release of oil from the source. Details in the Spill Response Plan or supporting documents shall include a description of the interface between the Spill Response Plan and other specific internal/external emergency response documents. For the incident management, the Spill Response Plan should describe how the source control team interface with the spill response team. Where specialized resources are required, the Spill Response Plan shall inform EMT/CMT in advance for the availability of these resources.</p> <p>Source control technique shall be considered for the following scenarios:</p> <p>For spills originating from the well, source control techniques are linked to Well Blowout/Source Control Contingency Plan which should have already detailed the emergency response procedures in the event of an incident involving the well. Specialized resources include vessels and technical specialists who are trained in conducting well control management are often required for such spills. Confirm availability or provide contact of the specialized resources e.g. support vessels equipped with dynamic positioning and cranes with appropriate lifting capacity.</p> <p>For spills originating from vessels (e.g. oil tankers, FPSOs, etc.), source control techniques onboard are linked with SOPEP which shall be executed by the vessel captain and vessel emergency response team, while on-water spills shall include containment by booming around the source and on-water recovery. Deployment techniques will be the same as At Sea Containment and Recovery. Communication linkage and mobilization period between spill site and support site is recommended to exercise to ensure the readiness and effectiveness.</p> <p>For spills from stationary offshore storage tanks or pipelines, the source control measures shall consider loss of primary containment. The response techniques are linked with the site Emergency Response procedures to shut down, contain and recover the spill. Migration of oil from the source is managed with the same techniques as At Sea Containment and Recovery. Communication linkage and mobilization period between spill site and support site is recommended to exercise to ensure the readiness and effectiveness.</p>

Response Technique Options	Requirements
Source Control (continue)	<p>For spills from onshore storage tanks, pipelines or land transports, the source control measures shall consider the loss of primary containment. The response techniques are linked with the site Emergency Response procedures to shut down, contain and recover the spill. Migration of oil from the source is managed with the same techniques as Inland Response.</p>
Surveillance, Modelling and Visualization	<p>Description of the surveillance platform (e.g. aircraft, vessels, installations, on-foot, vehicles, subsea) and trained observers to support the implementation of the response technique. If specialist monitoring and/or remote sensing techniques (e.g. satellite imagery, oil detecting radar) are available to supplement surveillance methods, these shall be described in the Spill Response Plan or supporting documentation. However, safety shall be considered as the first priority when monitoring at spill site. Remote sensing observation is recommended for safety issue found while entering the spill area.</p> <p>When spill modelling is intended to be used together with the surveillance capability, the model shall be capable of being recalibrated regularly as new field data is generated. Communication methods to relay information between response teams (strategic (EMT) and tactical/field (ERT) shall be described in a plan or supporting documentation.</p>
Offshore Dispersant Application Surface and Subsea	<p>Pre-approval from applicable regulators/authorities for the use of surface and/or subsea-applied dispersant, or where no formal pre-approval mechanism exists, seek approval on the basis that such approval may be granted by or at the time of a spill incident response. Authorized person who asking for approval will indicated in Corporate Spill Contingency Plan.</p> <p>Confirm that the capability includes dispersant(s) for surface and/or subsea application that are effective for the oil type(s) included in the selected spill planning scenarios and are identified in the applicable country-approved list of dispersants (if available). Confirm that any applicable country-specific legal and regulatory restrictions on applying dispersant (e.g. water depth, distance from shore) are known, are described in the Spill Response Plan, and that the intended dispersant use complies with those restrictions.</p> <p>Confirm local availability of on-site stocks of dispersant to support an initial response to the selected spill planning scenarios and identify supplementary dispersant stocks and supply chains needed to maintain on-going dispersant operations. Exercise the mobilization period for additional dispersant from support site to spill area. Confirm the means to monitor the effectiveness of the oil-dispersant mix.</p>

Response Technique Options	Requirements
Offshore Dispersant Application Surface and Subsea (continue)	Confirm the availability of suitable subsea dispersant injection devices and related ancillaries, and the platforms for transport and deployment.
In Situ Burning	<p>Pre-approval from applicable regulators/authorities for the use of in situ burning, or where no formal pre-approval mechanism exists, seek approval on the basis that such approval may be granted by or at the time of a spill incident response.</p> <p>Consider the weather conditions and limitations prior to burn.</p> <p>Confirm the availability of resources such as vessels and boom designed for burning operations, ignition sources and related ancillaries.</p> <p>Confirm the means to monitor the effectiveness of the burning operations and atmospheric dispersion.</p>
At Sea (Offshore and Nearshore) Containment and Recovery	<p>Describe in the Spill Response Plan or supporting documentation, the availability of specialist and non-specialist resources, including:</p> <ol style="list-style-type: none"> <li>Vessels, booms, and skimmers suitable for the prevailing operating conditions and oil characteristics</li> <li>Offshore temporary storage available for recovered oil and water</li> <li>Methods to transfer recovered oil and water and pre-separation</li> <li>Onshore reception and temporary storage facilities for recovered oil and water</li> <li>Surveillance aircraft to locate oil, direct the vessels and monitor effectiveness</li> </ol>
Protection of Sensitive Resources (Offshore, Shoreline and Inland)	Identify environmental and socioeconomic sensitivities and agree on priorities for protection with applicable stakeholders and in accordance with regulatory requirements. Information regarding environmental and socio-economic sensitivity can be found in the environmental impact assessment report. A summary of this and initial response actions shall be presented in the Spill Response Plan or supporting documentation as site-specific tactical response plans.
Shoreline and Inland Assessment	If planning scenarios show there is potential for shoreline oiling, describe them in the Spill Response Plan or supporting documentation, the capability for carrying out a Shoreline Clean-up Assessment Technique (SCAT).
Shoreline Clean-up	If planning scenarios show there is potential for shoreline oiling, describe them in the Spill Response Plan or supporting documentation the roles and responsibilities for shoreline clean-up operations with national and provincial agencies/authorities. Clean-up resources shall be identified, including potential contractors and sources of plant/labour etc.

Response Technique Options	Requirements
Shoreline Clean-up (continue)	Reception and temporary storage facilities for recovered oil and materials shall be described in the Spill Response Plan or supporting documentation. Describe the processes to locate oil, direct the clean-up operations and monitor effectiveness.
Inland Response	<p>If planning scenarios show there is potential for an inland response, whether they are on land or on inland waterway, describe them in the Spill Response Plan or supporting documentation, the range of logistical issues that could influence the response implementation (e.g. access, remoteness of operations, special precautions for designated, private and/or sensitive areas) and the availability of resources for the response. The communication system shall be available 24/7 and exercise as scheduled, especially mobile carriers.</p> <p>For spill scenarios at a fixed location (drilling well pad, storage tank, product pipeline, pump house or other fixed structures): Confirm the availability of specialist and non-specialist resources, including, vehicles, heavy machinery, equipment and tools for the environment, terrain, and hydrological and geological conditions, above and below ground. Reception and temporary storage facilities for recovered oil and materials shall be described in the Spill Response Plan or supporting documentation.</p> <p>Describe the processes to locate oil, direct the clean-up operations and monitor effectiveness. Specialist and non-specialist equipment to monitor on/below ground and groundwater contamination as determined by the selected spill planning scenarios shall be described, along with the means to measure the quantities of recovered oil and other materials.</p> <p>For spill scenarios on mobile carriers on land (e.g. road / rail tankers) : Map out the available resources and critical sensitive area/receptor within the known transportation route. Provide estimated response times of nearest specialist and non-specialist resources, including vehicles, heavy machinery, equipment and tools to respond to different types of environments, terrain, and hydrological and geological conditions. The processes to locate oil, direct clean-up operations and conduct monitoring program shall be similar with the processes described for fixed structures.</p>

Response Technique Options	Requirements
Oiled Wildlife Response	<p>If planning scenarios identify the potential for oiled wildlife or the presence of endangered or legally protected species, then identify the available oiled wildlife specialists (whether locally available or internationally available) to respond to the incident. This may be sourced from the relevant government authorities, response organizations or non-governmental organizations. Critical information to be included in the Spill Response Plan or supporting oiled wildlife response plan are the notification procedures to engage these specialists, arrangements for wildlife protection and the response methodology for oiled wildlife.</p>
Waste Management	<p>Identify any country-specific or local legal and regulatory requirements pertaining to hazardous and non-hazardous waste management (including notification requirements, and how to set up temporary storage areas). Local availability of sufficient waste storage equipment and approved waste contractors for transportation of hazardous wastes shall be identified with contractual agreements for these services in place. Further, the final waste disposal location for each type of waste stream shall be identified with verification that the facility has the capability to accept the estimated volume of waste as identified in the planning scenario.</p> <p>Refer to the PTTEP's Waste Management Procedure for further guidance in waste management procedure (2146-PDR-SSHE-503/01).</p> <p>A summary of this information shall be presented in the Spill Response Plan or supporting documentation as the site-specific tactical response plans.</p>
Stakeholder Engagement and Communications	<p>Identify stakeholders who share the risk and maintain a database of these stakeholders and their contact information. A program shall be drawn to conduct regular communication with the stakeholders based on country-specific or local legal requirements and the duration of the operation. The frequency and need of stakeholder's engagement should be specified in the Spill Response Plan or supporting documents for engagement during the planning process or in a response stage.</p>

Response Technique Options	Requirements
Economic Assessment and Compensation	<p>Identify environmental and socioeconomic sensitivities that may be potentially impacted by spill from the operations. The Spill Response Plan or supporting documents should include a process for mobilizing resources to assess the impacts, to evaluate and to process claims and compensation to impacted communities. This shall include documentation preservation processes and any associated legal requirements of records and data. General information of socio-economic can be found in environmental impact assessment report related organization in operating country.</p>
Environmental Sampling, Monitoring and Assessment	<p>A monitoring program shall be implemented before, in between and after accidents to aid in decision making, to monitor technique effectiveness or to determine the extent of spill impact to the environment.</p> <p>Confirm the capability of subject matter experts, qualified sampling organizations and laboratories, and the equipment and logistics required to execute the monitoring program. This shall include the local compliance requirements for environmental monitoring.</p> <p>The sampling and monitoring procedures and the resources to support this assessment shall be included in the Spill Response Plan or supporting documents.</p>



## APPENDIX F: REQUEST FORM FOR APPROVAL OF DISPERSANT APPLICATION IN THAILAND

### กรมควบคุมมลพิษ คำขออนุญาตใช้สารเคมีจัดการน้ำมัน

เขียนที่.....  
วันที่.....เดือน.....พ.ศ.....

เรียน อธิบดีกรมควบคุมมลพิษ

หน่วยงาน.....  
ขออนุญาตใช้สารเคมีจัดการน้ำมันชนิด.....  
เพื่อจัดการน้ำมันที่รั่วไหลจากสาเหตุ.....  
สถานที่เกิดเหตุ.....  
พิกัด.....  
วันที่เกิดเหตุ.....เดือน.....พ.ศ.....เวลา.....  
ชนิดน้ำมันที่รั่วไหล.....ปริมาตร.....ลิตร  
น้ำมันรั่วไหลมาแล้ว.....วัน โดยทางหน่วยงานมีความประสงค์ในการใช้สารเคมีจัดการ  
น้ำมันชนิดดังกล่าวข้างต้นเพื่อจัดการน้ำมันบริเวณ.....  
จำนวน.....ลิตร โดยวิธี.....

ลงชื่อ.....ผู้ยื่นคำขอ  
(.....)

ตำแหน่ง.....

สถานที่ติดต่อของผู้ยื่นคำขอ.....

โทรศัพท์.....โทรสาร.....

Pager.....e-mail .....

สถานที่ติดต่อกรมควบคุมมลพิษ

ในเวลาราชการ

นอกเวลาราชการ

กรมควบคุมมลพิษ 92 ซอยพหลโยธิน 7 ถนนพหลโยธิน แขวงสามเสนใน เขตพญาไท กรุงเทพฯ 10400	อธิบดีกรมควบคุมมลพิษ	0 2521 8682 / 0 1896 3594
	รองอธิบดีกรมควบคุมมลพิษ	0 2235 6536 / 0 1938 8018
	รองอธิบดีกรมควบคุมมลพิษ	0 2465 8938 / 0 1442 2661
	ผอ. สำนักจัดการคุณภาพน้ำ	0 2411 1341 / 0 1622 4124
	ผอ. ส่วนแหล่งน้ำทะเล	0 2973 4088 / 0-1816-4280

## APPENDIX G: LIST OF APPROVED DISPERSANTS FOR THAILAND ASSETS

รายชื่อสารเคมีขจัดคราบน้ำมันที่อนุญาตให้ใช้ในประเทศไทย  
กรณีแก้ไขปัญหาน้ำมันรั่วไหล

ลำดับที่	ชื่อสารเคมี	บริเวณที่ อนุญาตให้ ใช้ได้ <sup>1</sup>	วันหมดอายุ	วันจดทะเบียน/ วันที่ปรับปรุง	หน่วยงานที่ อนุญาต <sup>2</sup>
1	Accell Clean® DWD	*		18 กรกฎาคม 2554	U.S. EPA.
2	Agma DR 379	S B RS	20 มิถุนายน 2559		MMO
3	Agma OSD 569	S B RS	20 มิถุนายน 2559		MMO
4	BIODISPERS (FROMERLY PETROBIODISPERS)	*		28 มิถุนายน 2545	U.S. EPA.
5	Caflon OSD	S B RS	20 ธันวาคม 2561		MMO
6	CHEMAX 307 oil spill dispersant	*	-	-	TISI
7	COREXIT® EC9500A	S	12 ธันวาคม 2561	13 เมษายน 2537/ 18 ธันวาคม 2538	MMO U.S. EPA.
8	COREXIT® EC9500B	*		1 สิงหาคม 2556	U.S. EPA.
9	COREXIT EC9527A (Formerly Corexit 9527)	*		10 มีนาคม 2521/ 18 ธันวาคม 2538	U.S. EPA.
10	DASIC SLICKGONE NS/ Slickgone NS	S B RS	20 กุมภาพันธ์ 2562		AMSA / MMO
11	DASIC SLICKGONE EW/ Slickgone EW	S B RS	25 เมษายน 2561		AMSA / MMO
12	DISPERSIT SPC 1000TM	*		22 เมษายน 2542	U.S. EPA.
13	FFT-Solution®	*		1 พฤศจิกายน 2554	U.S. EPA.
14	Finasol OSR 51	S B RS	27 มิถุนายน 2560		AMSA MMO
15	Finasol OSR 52	S B RS	18 มีนาคม 2563	30 มกราคม 2546	MMO U.S. EPA.
16	JD-109	*		20 กันยายน 2543	U.S. EPA.

ลำดับที่	ชื่อสารเคมี	บริเวณที่อนุญาตให้ใช้ได้ <sup>1</sup>	วันหมดอายุ	วันจดทะเบียน/วันที่ปรับปรุง	หน่วยงานที่อนุญาต <sup>2</sup>
17	JD-2000™	*		6 สิงหาคม 2544	U.S. EPA
18	MARE CLEAN 200	*		23 กุมภาพันธ์ 2531/ 26 มกราคม 2539	U.S. EPA
19	MARINE D-BLUE CLEAN™	*		23 เมษายน 2555	U.S. EPA
20	NEOS AB3000	*		22 เมษายน 2528/ 26 มกราคม 2539	U.S. EPA
21	NOKOMIS 3-AA	*		31 กรกฎาคม 2551	U.S. EPA
22	NOKOMIS 3-F4	*		4 มีนาคม 2545	U.S. EPA
23	OSD/LT Oil Spill Dispersant	S B RS	20 มิถุนายน 2559		MMO
24	OSR 4000	S B RS	7 สิงหาคม 2561		MMO
25	Radiagreen OSD	S	19 กุมภาพันธ์ 2563		MMO
26	SAF-RON GOLD (a/k/a SF-GOLD DISPERSANT	*		3 มกราคม 2548	U.S. EPA
27	SEA BRAT #4	*		26 พฤศจิกายน 2545	U.S. EPA
28	SEACARE ECOSPERSE	S B RS	20 มีนาคม 2560		MMO
29	SEACARE ECOSPERSE 52 (see FINASOL OSR 52)	S B RS	25 เมษายน 2561	30 มกราคม 2546	MMO U.S.EPA
30	Seacare Ecosperse LT23	S B RS	28 ตุลาคม 2561		MMO
31	SEACARE E.P.A. (see Dispersit SPC 1000™)	*		22 เมษายน 2542	U.S. EPA
32	Seacare OSD	S B RS	10 พฤษภาคม 2561		MMO
33	Seacare OSD2	S B RS	28 ตุลาคม 2561		MMO

ลำดับที่	ชื่อสารเคมี	บริเวณที่อนุญาตให้ใช้ได้ <sup>1</sup>	วันหมดอายุ	วันจดทะเบียน/วันที่ปรับปรุง	หน่วยงานที่อนุญาต <sup>2</sup>
34	SF-GOLD DISPERSANT (see SAF-RON GOLD)	*		3 มกราคม 2548	U.S.EPA
35	Super-dispersant 25	S B RS	17 มีนาคม 2563		MMO
36	SUPERPERSE <sup>TM</sup> WAO2500	*		23 มีนาคม 2554	U.S.EPA
37	ZI-400	*		16 มิถุนายน 2548	U.S.EPA
38	ZI - 400 OIL SPILL DISPERSANT (see ZI-400)	*		16 มิถุนายน 2548	U.S.EPA

ปรับปรุงข้อมูลล่าสุด 19 พฤษภาคม 2558

#### หมายเหตุ

##### <sup>1</sup> อนุญาตให้ใช้ในพื้นที่

- S ■ Sea ทะเล
- B ■ Beach ชายหาดทราย
- RS ■ Rocky shore ชายหาดหิน
- \* ■ ไม่ได้ระบุ

##### <sup>2</sup> หน่วยงานที่อนุญาต

- Marine Management Organisation : MMO สหราชอาณาจักร
- U.S. Environmental Protection Agency : U.S. EPA สหรัฐอเมริกา
- Australian Maritime Safety Authority : AMSA ประเทศออสเตรเลีย
- Thai Industrial Standards Institute : TISI ประเทศไทย

## APPENDIX H: IESG OIL SPILL RESPONSE RESOURCES REQUEST FORM



Oil Spill Response Assistance and Interface Procedure

### Appendix F: OSR Resources Request Form

แบบฟอร์มการขอรับการสนับสนุนในการขจัดคราบน้ำมันสำหรับสมาชิก

#### ส่วนที่ 1 Contact Details

ชื่อผู้ขอการสนับสนุน.....

ตำแหน่ง.....บริษัท/หน่วยงาน.....

หมายเลขโทรศัพท์.....หมายเลขโทรสาร.....

อีเมล.....

ที่อยู่ Command Center .....

รายการอุปกรณ์ที่ขอการสนับสนุน.....

.....

.....

.....

.....

.....

.....

รายการอื่นๆ ที่ขอการสนับสนุน.....

.....

.....

สถานที่จัดส่ง

☐ รับเอง

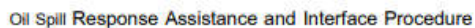
☐ จัดส่งให้ (โปรดระบุสถานที่จัดส่ง).....

ลายเซ็น.....

ลงชื่อผู้ร้องขอ(ตัวบรรจง).....

วันที่.....เวลา.....





รายการอุปกรณ์ที่ให้การสนับสนุน

รายการอื่นๆ ที่ให้การสนับสนุน

**หมายเหตุ** ให้บันทึกการรายการอุปกรณ์ให้ครบถ้วนหรือใช้แบบฟอร์มที่สะดวกกว่า

ลงชื่อ.....ผู้ยืนยันให้นำของออก/ให้การสนับสนุน

ตำแหน่ง \_\_\_\_\_ วันที่ \_\_\_\_\_ เวลา \_\_\_\_\_

โทรศัพท์

## APPENDIX I: LIST OF IESG RESOURCES

Type of Equipment	Size or Capacity	Total Quantity	Sattahip	Songkhla	Insurance Value	Daily rate		Daily rate		
						Government		Non-member		
						In Use	Stand-by Baht	In Use	Stand-by Baht	
OIL CONTAINMENT BOOMS										
Complete set and ready to deploy										
1. Offshore Boom Air inflatable Auto Boom Lamor LAN 1500 in set composed with Hydraulic reel, power pack and air blower	200 m.	8	6	2	3,954,000	39,875	19,940	79,750	39,875	
2. Offshore Boom Air inflatable Auto Boom Lamor LAN 1800 in set composed with Hydraulic reel, power pack and air blower	200 m.	1	1		4,032,000	42,085	21,045	84,170	42,085	
3. Nearshore boom Air inflatable LAMOR ILB 1100 in set composed with Hydraulic reel, power pack and air blower	200 m.	10	8	2	2,565,650	65,225	32,615	130,450	65,225	
4. Sea Sentinel Boom Vikoma Sentinel 900 in set composed with Hydraulic reel, power pack and air blower	200 m.	4	2	2	2,589,000	63,025	31,515	126,050	63,025	
5. Beach Boom Desmi Ro Beach 800 in set composed with water pump and air blower	100 m.	3	2	1	1,064,000	33,150	16,575	66,300	33,150	
6. Shore Guardian 400 In set composed with water pump, air blower (diesel engine)	100 m.	2	1	1	1,303,500	28,080	14,040	56,160	28,080	

Type of Equipment	Size or Capacity	Total Quantity	Sattahip	Songkhla	Insurance Value	Daily rate		Daily rate	
						Government		Non-member	
						In Use	Stand-by Baht	In Use	Stand-by Baht
7. Solid Boom SK-Boom model SK-C105U	200 m.	2		2	759,000	25,300	12,650	50,600	25,300
8. Solid Boom SK-Boom model SK-C90U	200 m.	2		2	706,200	23,550	11,775	47,100	23,550
9. Solid Boom SK-Boom model SK-C75U (Bangkok)	200 m.	1			663,400	22,120	11,060	44,240	22,120
10. Solid Boom Supermax	150 m.	1	1		783,860	26,130	13,065	52,260	26,130
11. Solid Boom Flexi 900	200 m.	2		2	660,000	22,000	11,000	44,000	22,000
<b>Booms</b>									
Offshore Boom Air inflatable Auto Boom Lamor LAN 1800 w/ winder and build -in power pack	200 m.	1	1		3,544,000	39,375	19,690	78,750	39,375
Offshore Boom Air inflatable Auto Boom Lamor LAN 1500 w/ winder	200 m.	7	5	2	3,223,900	35,825	17,915	71,650	35,825
Nearshore boom Air inflatable LAMOR ILB 1100 w/ winder	200 m.	10	8	2	1,835,000	61,175	30,590	122,350	61,175
Sea Sentinel Boom Vikoma Sentinel 900 w/ winder	200 m.	4	2	2	1,751,000	58,365	29,185	116,730	58,365
Beach Boom Desmi Ro Beach 800	100 m.	3	2	1	884,000	29,475	14,750	58,950	29,475
Shore Guardian 400	100 m.	2	1	1	749,500	25,000	12,500	50,000	25,000

Type of Equipment	Size or Capacity	Total Quantity	Sattahip	Songkhla	Insurance Value	Daily rate		Daily rate	
						Government		Non-member	
						In Use	Stand-by Baht	In Use	Stand-by Baht
Boom components									
Air Blower ; "LAMOR", DAB70Y - 3 KW Diesel Engine, Capacity 400 m3/hr		8	6	2	441,700	2,450	1,225	4,900	2,450
Air Blower ; Elastec, 7 HP Diesel Engine, capacity 3000 CFM		4	2	2	488,000	2,710	1,355	5,420	2,710
Air inflator LBP 350				1	350,000	1,950	975	3,900	1,950
Back pack air blower Gasoline Engine, Capacity 1200 m3/hr		3	3		120,000	675	350	1,350	675
Power pack with build-in air blower (Auto boom LAN 1500)		2	2		556,000	3,100	1,550	6,200	3,100
Hydraulic Power Pack LPP7 - 7 KW Diesel Engine, Hi press 170 bar		5	4	1	288,900	1,600	800	3,200	1,600
Hydraulic power pack (for Sea Sentinel Boom)		4	2	2	350,000	1,950	975	3,900	1,950
Power pack SN P750-3222 (for offshore boom Auto LAN 1500)			1		122,500	700	350	1,400	700
Pacer water pump for beach boom		5	4	1	66,000	370	185	740	370



Type of Equipment	Size or Capacity	Total Quantity	Sattahip	Songkhla	Insurance Value	Daily rate		Daily rate	
						Government		Non-member	
						In Use	Stand-by Baht	In Use	Stand-by Baht
OIL RECOVERY SKIMMERS									
Complete set and ready to deploy									
12. Lamor Brush - Weir Skimmer LWS 500 W/P in set composed with Oil Transfer pump GTA70 and Hydraulic power pack LPP35K 35KW, Diesel engine	70 m3/hr.	1	1		3,519,000	19,550	9,775	39,100	19,550
13. Multi skimmer, LAMOR LMS/P in set composed with oil transfer pump GT A30 and Hydraulic power pack LPP250	30 m3/hr.	3	1	1 - BKK 1 - SKL	3,416,938	19,000	9,500	38,000	19,000
14. Weir Skimmer Desmi 250 in set composed with oil transfer pump and power pack			1		3,505,000	19,475	9,740	38,950	19,475
15. Brush Disc Skimmer Lamor Minimax 12 in set composed with Power pack with pump Spate C75	12 m3/hr.	4	3	1	822,400	4,570	2,285	9,140	4,570
16. Disc Skimmer T12 in set composed with Power pack with pump Spate C75	12 m3/hr.	4	3	1	616,800	3,425	1,713	6,850	3,425
17. Rope Mob Skimmer		3	2	1	680,000	3,350	1,675	6,700	3,350
18. Power Vac Skimmer		6	4	2	453,900	2,525	1,265	5,050	2,525
19. Weir Skimmer, Desmi Mini-Max in set composed with spate pump 75C	12 m3/hr.	1		1	580,000	3,225	1,613	6,450	3,225
20. Floating Suction Head, Vikoma Delta Head in set composed with spate pump 75C	12 m3/hr.	1		1	427,395	2,375	1,188	4,750	2,375

Type of Equipment	Size or Capacity	Total Quantity	Sattahip	Songkhla	Insurance Value	Daily rate		Daily rate		
						Government		Non-member		
						In Use	Stand-by Baht	In Use	Stand-by Baht	
OIL DISPERSANT SPRAYERS										
Complete set and ready to deploy										
21. Dispersant Spray Set; Lamor Boat Spray 100 Dual AFEDO nozzles in set composed with pump unit and 2 AFEDO nozzles	100 L/min.	8	6	2	800,500	4,445	2,223	8,890	4,445	
22. Portable Dispersant Sprayer		4	3	1	120,000	675	340	1,350	675	
OIL STORAGE TANKS										
Complete set and ready to deploy										
23. Oil storage tank Lamor LCT TSC11.4	10 m3	4	2	2	318,900	5,315	2,660	10,630	5,315	
24. Fast Tank 2000	10 m3	6	4	2	358,950	5,980	2,990	11,960	5,980	
ANCILLARIES - OTHERS										
25. Spate pump C75					377,400	2,100	1,050	4,200	2,100	
26. 10 ft. 2 doors Storage containers for offshore					334,000	1,850	925	3,700	1,850	
27. Cargo Basket (70"x70"x50")					184,000	1,025	513	2,050	1,025	

## APPENDIX J: ESTIMATED MOBILIZATION TIME TO THAILAND OFFSHORE ASSET FOR NATIONAL ASSISTANCE FROM THE NEAREST IESG SITE

Asset	IESG Nearest Site	Nearest Airport to PTTEP Assets	In-land Preparation & Mobilization time (hrs.)	Vessel Mobilization time (hrs.)	Total time (hrs.)
ART	Songkhla	Hat Yai (HDY)	6	16	22
G2/61	Songkhla	Hat Yai (HDY)	6	18	24
G1/61	Songkhla	Hat Yai (HDY)	6	18	24

## APPENDIX K: LIST OF PTTEP AUTHORIZED PERSONNEL FOR OSRL ACTIVATION (AS OF JANUARY 2023)

No.	Name	Position/Job Title	Telephone	Mobile	Email Address
1		SVP, Thai Offshore 1 Asset			
2		SVP, Thai Offshore 2 Asset			
3		SVP, Thai Offshore 3 Asset			
4		Acting SVP, Thai Onshore Asset			
5		SVP, Safety, Security, Health & Environment Division			
6		SVP, Exploration Project Division			
7		SVP, Development Project Division			
8		Acting SVP, Myanmar Asset			
9		VP, Algeria Development Project			
10		Country Manager, Malaysia Asset			
11		VP, Safety Management Department			
12		VP, Environment Management Department			
13		SSHE Manager, Myanmar Asset			
14		SSHE Manager, Myanmar Asset (Yadana)			



No.	Name	Position/Job Title	Telephone	Mobile	Email Address
15		SSHE Manager, Algeria Hassi Bir Rekaiz Project			
16		Co-HSE Manager, Algeria Groupement BIR-SEBA (GBRS)			
17		Head of SSHE Section, Malaysia Asset			
18		Head of SSHE Operations and Project Support, Malaysia Asset			

**APPENDIX L: IESG OIL SPILL RESPONSE RESOURCES REQUEST FORM**

PTT Public Company Limited (PTT)

**Communication Centre:**

Oil Spill Response and East Asia Response Limited (OSRL)

**Singapore Base:****Southampton Base:****Notification Form – Page 1 of 2**

<b>To:</b> PTT Communication Center	<b>Date:</b>
<b>Cc:</b> OSRL	<b>Warning!</b> Ensure telephone contact has been established with the Duty Manager before using Email communication.
<b>From:</b>	<b>Position:</b>
<b>Company:</b>	<b>Contact Number:</b>
<b>Subject: For Your Information</b>	<b>Incident name:</b>
<b>OBLIGATORY INFORMATION REQUIRED – COMPLETE ALL DETAILS</b>	
Name of person in charge	
Position	
Company	
Contact telephone number	
Contact fax number	
Email address	
<b>Spill Details</b>	
Location of spill	
Description of slick (size/direction appearance)	
Latitude / Longitude	
Situation (cross box)	
Date & Time of spill	
<b>Source of spill</b>	
<b>Quantity</b> (if know)	
<b>Spill status</b> (cross box)	
<b>Action taken so far</b>	
<b>Oil type &amp; characteristics</b>	
Name	
Viscosity	
API/SG	
Pour point	
Asphaltene	
<b>Weather</b>	
Wind speed and direction	
Sea state	
Sea temperature	
Tides	
Forecast	



PTT Public Company Limited (PTT)

**Communication Centre:**

Oil Spill Response and East Asia Response Limited (OSRL)

**Singapore Base:****Southampton Base:**

## Notification Form – Page 2 of 2

ADDITIONAL INFORMATION REQUIRED – COMPLETE DETAILS IF KNOW	
<b>Resources at risk</b>	
<b>Clean up resources</b>	
<b>On site / Ordered</b>	
<b>Nearest airport (if know)</b>	
Runway length	
Handling facilities	
Customs	
Handling agent	
<b>Vessel availability</b>	
Equipment deployment	
Recovered oil storage	
<b>Equipment logistics</b>	
Transport	
Secure storage	
Port of embarkation	
Location of command centre	
Other designated contacts	
<b>Special requirements of country</b>	
Security	
Visa	
Medical advise	
Vaccinations	
Others (specify)	
<b>Climate information</b>	

**APPENDIX M: PTT GROUP MOBILIZATION AUTHORIZATION FORM****Mobilisation Authorisation**

<b>To:</b> PTT Communication Center	<b>Date:</b>
<b>Tel:</b> [REDACTED]	
<b>From:</b>	<b>Position:</b>
<b>Company:</b>	<b>Contact Number:</b>
<b>Subject: Mobilisation of OSRL</b>	<b>Incident name:</b>

I, \_\_\_\_\_ (Name in Block Capitals)  
hereby authorise to request PTT for the activation of OSRL and its resources in connection  
with the oil spill incident of \_\_\_\_\_ (Name of Ship/Oil Rig or Terminal)  
as of \_\_\_\_\_ (Time) on \_\_\_\_\_ (Date)

OSRL shall work under the direction of:

Name: \_\_\_\_\_  
Position: \_\_\_\_\_  
Company: \_\_\_\_\_

Signature \_\_\_\_\_ Position \_\_\_\_\_  
Company name \_\_\_\_\_

<b>To: OSRL</b>	<b>Date:</b>
[REDACTED]	[REDACTED]
<b>From: PTT Public Company Limited</b>	<b>Contact Number:</b> [REDACTED]
<b>Subject: Mobilisation of OSRL</b>	<b>Incident name:</b>

I, \_\_\_\_\_ (Name in Block Capitals)  
hereby authorize the activation of OSRL and its resources in connection with the oil spill  
incident of \_\_\_\_\_ (Name of Ship/Oil Rig or Terminal)  
as of \_\_\_\_\_ (Time) on \_\_\_\_\_ (Date)

Signature \_\_\_\_\_ Position \_\_\_\_\_  
PTT Public Company Limited



## APPENDIX N: OSRL NOTIFICATION AND MOBILIZATION PROCEDURE

### OSRL Request Step

PTTEP is a participant member with OSRL, and therefore has immediate access to Tier 3 technical advice, resources and expertise 365 days a year on a 24-hour basis. The following steps should be followed to request OSRL's support:

- In the event of an incident, a call should be placed to one of the following numbers. The Duty Manager (DM) will call Client back within 10 minutes of receiving notification of the call.

**Emergency Contact (TELEPHONE)**

[REDACTED]

[REDACTED]

**Emergency Contact (FAX)**

[REDACTED]

[REDACTED]

- Complete the Notification (Appendix L) and Mobilization Authorization forms (Appendix M) as necessary, which can be sent to OSRL by fax or email.
- Under the Participant Member Agreement which governs the mobilization of resources from OSRL, OSRL must receive official notification to mobilize from one of PTTEP's Nominated Call-out Authorities, summarized in Appendix H. These are individuals within PTTEP who have been appointed to approve the expenditure of mobilizing Tier 3 equipment.

## APPENDIX O: OSRL NOTIFICATION FORM



### OSRL Notification Form

(Initial Incident Information)

**Warning! Please telephone the Duty Manager before e-mailing or faxing this form**

To	Duty Manager		
OSRL Base	Southampton, UK	Loyang, Singapore	Fort Lauderdale, USA
Telephone			
Emergency Fax			
Email			

**Guidance:** This information will be used to develop and recommend the most appropriate response strategy. If new information should become available, or the situation changes, please inform the Duty Manager as soon as possible.

Section 1 – Contact Details					
Member Company					
Name of Person Notifying OSRL					
Job Title (Designation)					
Direct Phone Number	Country code		Number		
Mobile Number	Country code		Number		
Fax Number					
Email Address					
Command Centre Address					
Date and Time of Notification	Date and Time		Time Zone		
Section 2 – Location					
Country / Region of Spill					
Latitude of spill (north/south)					
Longitude of Spill (east/west)					
Area Affected	<input type="checkbox"/> Offshore	<input type="checkbox"/> Subsea	<input type="checkbox"/> Shoreline	<input type="checkbox"/> Estuary	<input type="checkbox"/> Other
	<input type="checkbox"/> Port	<input type="checkbox"/> Harbour	<input type="checkbox"/> Inland	<input type="checkbox"/> River	
Water Depth (if applicable)					
Section 3 – Spill Details					
Date and Time of Spill				Time Zone	
Source of Spill					
Cause of Spill					
Status of Spill	<input type="checkbox"/> Secured		<input type="checkbox"/> Uncontrolled		<input type="checkbox"/> Unknown
Product Properties	Product Name / Type				State Units Provide an assay sheet if available. <input type="checkbox"/> Assay sheet provided
	Specific Gravity	API			
	Pour Point				
	Wax Content				
	Asphaltene				
	Sulphur Content				
Type of Release	Viscosity	Reference Temperature		°C	State Units
	Instantaneous Release	<input type="checkbox"/>	Volume		
	OR				
	Continuous Release	<input type="checkbox"/>	Release Rate		

Section 3 – Spill Details continued				
Description of Observed Spill	Estimated Quantity			State Units
	Size			
	Appearance			
	Direction of Travel			
Section 4 – Weather and Modelling				
Weather forecast provided? e.g. Excel/Word	<input type="checkbox"/> Yes	<input type="checkbox"/> No, OSRL to source a weather forecast		
Sea Temperature			State Units	
Sea State				
Visibility				
Cloud Base				
Do you require Oil Spill Trajectory Modelling?	<input type="checkbox"/> Surface 2D	<input type="checkbox"/> Sub-surface 3D Additional time and costs apply	<input type="checkbox"/> Not at this time	
Sub-surface 3D Modelling Information if requested	Gas to Oil Ratio	Sm <sup>3</sup> /m <sup>3</sup>	Release Hole Diameter	m
Section 5 – Safety and Security				
Highlight any known safety or security risks e.g. high levels of H <sub>2</sub> S, high risk country				<input type="checkbox"/> Not Applicable
Describe security arrangements for OSRL staff				<input type="checkbox"/> Not Applicable
Section 6 – Resources at Risk (if available)				
Environmental or socio-economic sensitivities that may be impacted. Provide the relevant oil spill contingency plan and sensitivity maps if available.				<input type="checkbox"/> Contingency plan included <input type="checkbox"/> Sensitivity maps included
Section 7 – Equipment (if available)				
Equipment already deployed or being mobilised (other than OSRL resources)				
Section 8 – Further Information				

OSRL 027 - Issue 9, 4-Aug-16

## APPENDIX P: OSRL MOBILIZATION AUTHORIZATION FORM



### Mobilisation Authorisation Form

**Please do not hesitate in contacting the duty manager at the earliest opportunity in the event of an incident or potential incident. Please ensure you telephone the Duty Manager before e-mailing or faxing this completed form**

#### Safety and Security

Oil Spill Response Limited's safety policy requires us to work closely with the mobilising party to ensure all aspects of safety and security are addressed for our personnel.

To	Duty Manager		
OSRL Base	Southampton, UK	Loyang, Singapore	Fort Lauderdale, USA
Telephone			
Emergency Fax			
Email			

Details of Authorised Contact			
Incident Name			
Mobilising Company			
Name of Person Authorising OSRL			
Position of Authorising Representative			
Direct Phone Number	Country Code	Number	
Mobile Number			
Fax Number			
Email Address			

Invoice Address if available	
Purchase Order Number	

I, the above named Authorising Representative for the Mobilising Company, approve activation of Oil Spill Response Limited and its resources in connection with the above incident under the terms of the Agreement in place between the above stated Company and Oil Spill Response Limited.

Signature:		Date / Time:	
------------	--	--------------	--

**If Oil Spill Response Limited personnel are to work under another party's direction please complete details below:**

Directing Party's Details	
Company	
Contact Name	
Position in Incident	
Direct Phone Number	
Mobile Number	
Fax Number	
Email Address	

## APPENDIX Q: ESTIMATED MOBILIZATION AND FLIGHT TIME FOR OSRL'S AERIAL DISPERSANT CAPABILITY

Country	OSRL Nearest Site	Nearest Airport to PTTEP Assets	Mobilization time (hrs)	Flight time (hrs)	Total time (hrs)
<b>Algeria</b>	United Kingdom	Houari Boumediene (DAAG)	6	9	15
<b>Australia</b>	Singapore	Darwin	6	8	14
<b>Canada</b>	United Kingdom	1st day to St John's (YYT) 2nd day to Calgary International (YCC)	6	15.5	>25
<b>Mozambique</b>	United Kingdom	Maputo	6	20.5	25.5
<b>Myanmar</b>	Singapore	Yangon	6	4	10
<b>Thailand</b>	Singapore	Suvarnabhumi Airport	6	3	9
		Hat Yai Airport	6	2.25	8.25
<b>Malaysia</b>	Singapore	Senai Airport	6	0.4	6.4

## APPENDIX R: SPILL CAPABILITY ASSESSMENT CHECKLIST

### Section 1 Management Organization & Training

It is essential that there is a robust management structure to lead the response to any incident. The members of the response team should be aware of their individual roles and responsibilities and trained in oil spill response. The team should be aware of how IESG and its members interface with their response organization. The organization should be regularly exercised.

Management Organization & Training		1	2	3
Reference document – OSCP				
M1	Is there a management structure for dealing with an oil spill incident?			
M2	Are all members of the team aware of their individual Roles and Responsibilities?			
M3	Is there a Response management System in place?			
M4	Have all of the team members been trained in oil spill response?			
M5	Have members of the management team been briefed in how IESG and its member operate and their respective responsibilities?			
M6	When was the management team last exercise?			

### Section 2 Planning

There should be a contingency plan in place to co-ordinate the response to an oil spill which will bring together various elements of the response, including cleanup equipment. It should be kept up to date and tested on a regular basis. The plan should interface with other adjacent plans. And, should have an appropriate and relevant risk assessment and identify where resources to support tier 1, 2 and 3 response can be accessed.

Planning		1	2	3
Reference document – OSCP				
P1	Is there a contingency plan in place?			
P2	When was it last review/update?			
P3	When was the plan last exercise?			
P4	Does the plan integrate with IESG response?			
P5	Does the plan interface with national and other adjacent local plans?			
P6	Does the plan risk assessment reflect the scope of the operation and anticipate credible level of IESG and its members' involvement?			
P7	Does the credible Tier 1 spill scenario identified?			
P8	Does the cleanup equipment appropriate with the Tier 1 spill scenario?			
P9	Does the equipment maintenance and test program in place?			
P10	Does the equipment mobilization & deployment logistics been planned and tested?			

### Section 3 Notification and Mobilization

An effective response is dependent upon an effective notification and mobilization system to alert the responders. This section deals with the alerting system, and ensures that all parties are aware of the required information and authorities to mobilize the support response from IESG and its members.

Notification and Mobilization		1	2	3
Reference document – OSCP				
N1	Is there a procedure in place to notify IESG of an incident?			
N2	When was it last review/update? ( <i>notification procedure</i> )			
N3	When was the procedure last exercise?			
N4	Is there a procedure in place to mobilize IESG support in the event of an incident?			
N5	When was it last review/update? ( <i>mobilization procedure</i> )			
N6	When was the system last exercise?			
N7	Are you aware of the information needed by IESG & members to mobilize a response?			
N8	Are you aware of the advice and information support that can be accessed from IESG?			
N9	Are you aware of the response time likely to be achieved in the event of a call?			



## Section 4 Response

In order for IESG and its members to be able to respond effectively with the member (spill owner) there is a need for infrastructure items to support the response. This section deals with these elements.

Response		1	2	3
Reference document – OSCP				
R1	Is there a safety management plan in place for response operations?			
R2	Have response personnel been trained in the safety aspects of oil spill response?			
R3	Is there a communications system to enable effective co-ordination of the response?			
R4	Have secure equipment stockpile areas been identified?			
R5	Have the logistical arrangements been identified to import and deploy additional equipment delivered by IESG and its members?			
R6	Has a waste management plan been developed for the response operation?			
R7	When was the system last exercise?			

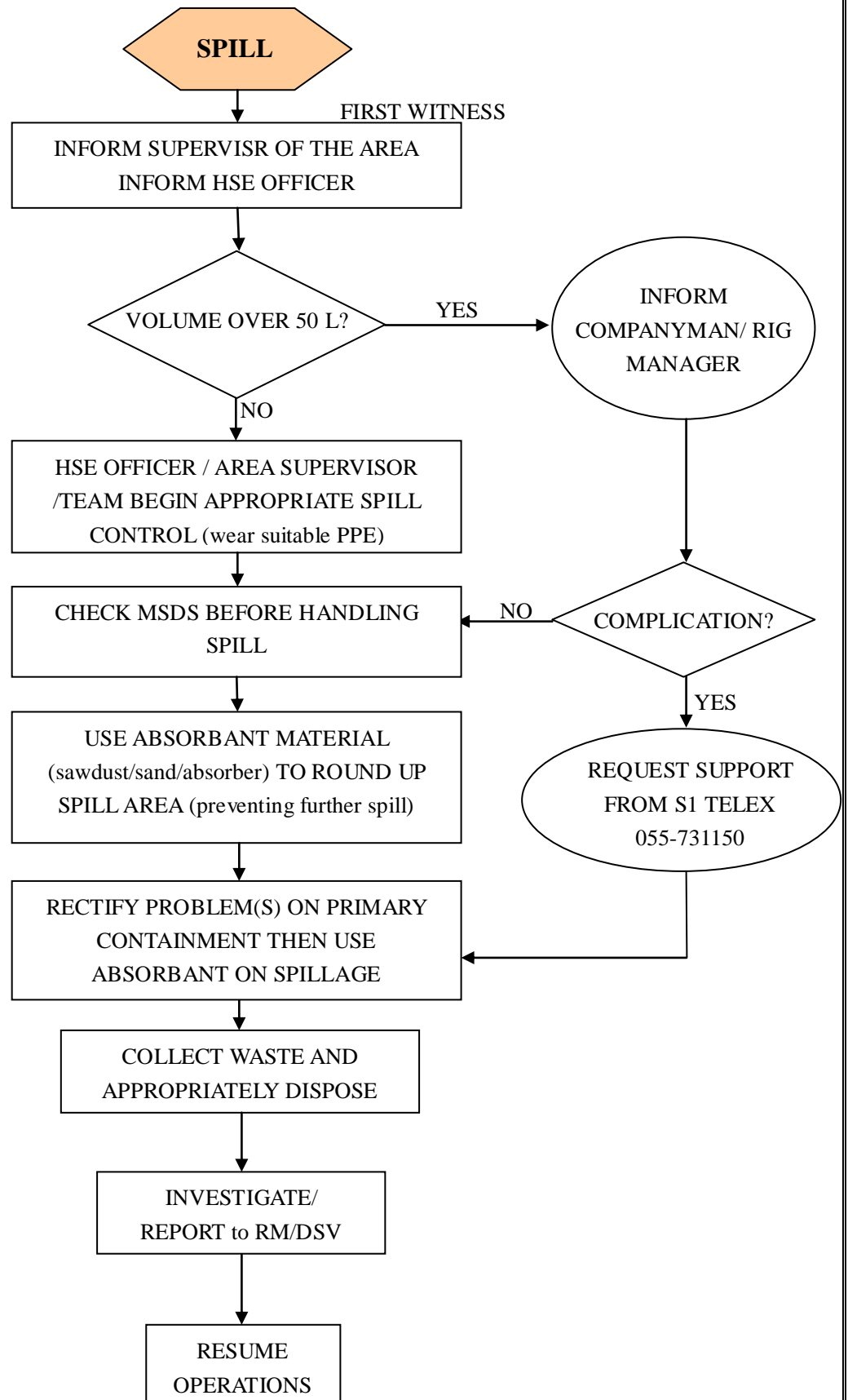
Answers to the questions are recorded on a numerical matrix indicating whether the issue is considered to be adequately addressed. Certain aspects are considered critical success factors, and failure in these areas would be

material to the ability of IESG and its members to assist the member (spill owner), or more importantly, for the member to be able to respond effectively. The answers should be dependent upon the question context.

Answers	Status
Yes / Satisfactory / this year	1
In need of action / Review / last year	2
No / Unsatisfactory/ Before last year	3



### **GW80 Flow chart when spill happen**



ภาคผนวกที่ 20  
บันทึกการตรวจวัดแอลกอฮอล์และสารเสพติด

---

**ALCOHOL TESTING REPORT (RIG GW-221)**  
**Company : Greatwall drilling Company Limited.**

Location YMG-A

Date : 15/1/23 TIME : 5:30 AM, 5:30 PM

TIME : 5:30 PM, 5:30 AM

EQUIPMENT DETAILS  
 NAME : DRAGER Alcotest 6510 plus  
 LAS CALIBRATION DAE 26-Dec-22  
 RESULT FROM TEST NO.#

TYPE : 8317910

EQUIPMENT DETAILS  
 NAME : DRAGER Alcotest 6510 TYPE : 8317910  
 LAS CALIBRATION DATE 26-Dec-22  
 RESULT FROM TEST NO.#

TYPE : 8317910

DAY SHIFT A						Night Shift B							
NO.	POSITION	NAME	SIGNATURE OF PERSON TESTED	TEST (mg%)		REMARK	NO.	POSITION	NAME	SIGNATURE OF PERSON TESTED	TEST (mg%)		REMARK
				1	2						1	2	
1	Tool pusher						1	Tool pusher					
2	Driller						2	Driller					
3	Mechanic Helper						3	Welder					
4	Welder						4	Crane Driver					
5	Electrician						5	A/D					
6	Electrician						6	F/M (Roughneck)					
7	Crane Driver						7	F/M (Roustabout)					
8	A/D						8	F/M (R/B) Asst.					
9	A/D						9	F/M (Extrahand)					
10	F/M (Roughneck)						10	Derrickman					
11	F/M (Roustabout)						11	D/M Asst.					
12	Roustabout						12	Roughneck					
13	F/M (Extrahand)						13	Roughneck					
14	Derrickman						14	Roughneck					
15	D/M Asst.						15	Roustabout					
16	Roughneck						16	Roustabout					
17	Roughneck						17	New Extrahand					
18	Roustabout						18	New Extrahand					
19	Extrahand						19	New Extrahand					
20	New Extrahand						20	Radio Operator					
21	New Extrahand												
22	New Extrahand												
23	New Extrahand												
24	Radio Operator												
25	HSE Officer												
26	HSE Trainee												
27	Medic												
28	Driver												
29	Driver												
30	Roomlady												
31	Roomboy												
	<b>MM LOGISTICS</b>							<b>MM LOGISTICS</b>					
1	Supervisor						1	Supervisor					
2	Operator						2	Operator					
3	Operator						3	Operator					
4	Operator						4	Operator					
5	Fram Tractor						5	Fram Tractor					
6	Trailer Driver						6	Trailer Driver					
7	Trailer Driver						7	Trailer Driver					
8	Sup						8						
9	Crane						9						
	<b>SECURITY GUARD</b>							<b>SECURITY GUARD</b>					
1	Security Guard						1	Security Guard					
2	Security Guard						2	Security Guard					
3	Security Guard						3	Security Guard					

Medic GW-221

HSE-Office GW-221


GW-221 . (Rig Manager)

PTTEP Rep.(Drilling supervisor)

ภาคผนวกที่ 21

การสำรวจและวางแผนเส้นทางขนส่งวัสดุอุปกรณ์และเครื่องจักร


---




ROUTE AND LOCATION SURVEY CHECK LISTS


LOCATION : \_\_\_\_\_ YMG-A \_\_\_\_\_  
DATE : \_\_\_\_\_ 07 Nov 2022 \_\_\_\_\_


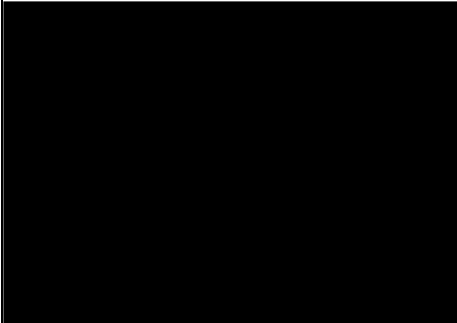
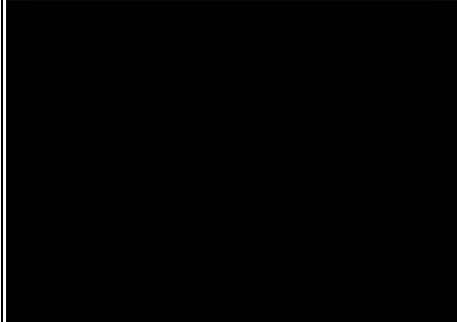
Contractor GW221 บริษัท GW221		GW221	Rig move from เคลื่อนย้ายจาก	NMM-B	To ไปที่	YMG-A	Distance ระยะทาง	14.3	Km. ก.ม.
Traffic control personal point จำนวนจุดตามทางแยกขอให้จัดเจ้าหน้าที่เพื่อควบคุมการจราจร		5	Total manpower จำนวนเจ้าหน้าที่	6	DSV/WOS Name LKU Field Sup. Name				
Detail (รายละเอียด)				Safe ปลอดภัย	Unsafe ไม่ปลอดภัย	N/A ไม่เกี่ยวข้อง	Remark หมายเหตุ		
Well Site or Rig Camp (พื้นที่ภายในฐานผลิต หรือ พื้นที่พักปฏิบัติงาน)	1	Any materials obstruct on location during operation ex. X-mas tree, Working beampump, Control equipment, mound soil etc. (มีวัสดุ อุปกรณ์ เครื่องมือ ที่กีดขวางระหว่างการทำงาน เช่น หัวบ่อหลุมน้ำมัน, บั้มหัวโยก, ที่ควบคุมอุปกรณ์, กองดิน และอื่นๆ)			×		Please see detail in the site survey report.		
	2	Identify the site layout with include the electrical cable line, underground utilities on the location. Grounding installation point identifies and verifies by production and construction team. Develop the mitigation plan to control. (ระบุแผนผังของฐานผลิต จุดที่มีสายไฟฟ้าติดตั้ง ระบบสาธารณูปโภคใต้ดิน จุดติดตั้งสายดินจะต้องถูกรับและตรวจสอบโดยทีมการผลิตและทีมงานก่อสร้าง รวมทั้งระบบมาตรการป้องกันในการจัดการความเสี่ยง)  **Remark : Found high voltage pole at back side of rig camp. พบเสาไฟฟ้าแรงสูงบริเวณด้านหลังที่พักพนักงาน			×		Request site layout include the electrical cable line.		
	3	Earthing pit installation point identifies and verifies by production and construction team the electrical. จุดติดตั้งบ่อกราวจะต้องถูกรับและตรวจสอบโดยทีมการผลิตและทีมงานก่อสร้าง			×		Don't have Earthing pit		
	4	Develop equipment layout fix with site location map. (กำหนดการจัดวางอุปกรณ์แต่ละตัวในพื้นที่ของฐานผลิต)		✓					
	5	Requires a sound barrier for preventing the impacts with the community accordance with the measures set out in the environmental impact assessment. (กำหนดให้มีติดตั้งกำแพงกันเสียง กรณีมีผลกระทบกับชุมชนตามมาตรการที่กำหนดไว้ในการประเมินผลกระทบทางสิ่งแวดล้อม)		✓					
	6	Well cellars are considered empty and no spill potential. (Well cellar ต้องไม่มีของเหลวภายใน ที่มีโอกาสส่งผลกระทบต่อกราว์โฮล)		✓					
	7	Concrete pit in good condition and water in pit without oil contamination. (บ่อคอนกรีตต้องไม่ชำรุด อยู่ในสภาพพร้อมใช้งานและสภาพน้ำในบ่อไม่ปนเปื้อนน้ำมัน)			×		Move all safety sign, clean & clear concrete pit.		
	8	Earth bund in good condition for cutting. (สภาพคันดินสำหรับเศษดินเศษหินจากการขุดเจาะอยู่ในสภาพพร้อมใช้งาน)			×		No earth pit and earth bund.		
	9	The condition of the ground and cement pad in the location are in good condition and smoothly. Consider installing a steel plate for Sub base. (สภาพของพื้นดินในฐานผลิตอยู่ในสภาพพร้อมใช้งาน ไม่มีความต่างระดับของพื้นที่ พิจารณาการติดตั้งแผ่นเหล็กสำหรับรองฐานอุปกรณ์ Subbase)			×		Need to install steel plate 59 m.		
	10	Water supply lines install on location.(มีการติดตั้งท่อน้ำ)			×		Need provide water supply and install water supply lines on location.		
	11	Waste water from cabin can drain to septic tank. (น้ำเสียจากที่พักสามารถระบายลงน้ำถังบำบัดน้ำเสีย)			×		Prepare septic tank and soakaway pit in good condition.		
	12	Route inside location is in good condition. (ถนนภายในฐานผลิตอยู่ในสภาพพร้อมใช้งาน)			×		Compact and smooth on the ground		
	13	Concrete gutter is not clogged.(รางน้ำคอนกรีตไม่มีการอุดตัน)			×		Please see detail in the site survey report.		
	14	Well site perimeter fencing in good condition.(รั้วรอบอยู่ในสภาพดี)			×		Cut the grass on fence around location.		
	15	Emergency Shutdown Systems (ESD) installation is required before rig operation. (กำหนดให้มีการติดตั้ง ESD ก่อนดำเนินการขุดเจาะ)		✓					
	16	The level of Earth bund must be higher than surface of location.(especially during the rainy season) (ตรวจสอบระดับของคันดินต้องอยู่สูงกว่าระดับของพื้นดินในขั้นต้น) โดยเฉพาะช่วงหน้าฝน			×		Please see detail in the site survey report.		
	17	Other concerns (รายละเอียดที่เกี่ยวข้องอื่นๆ)							
Route (เส้นทาง)	1	Electric cables are lower than 5.50 meters or the highest equipment level. (สายไฟ/สายโทรศัพท์ต่ำกว่า 5.5 เมตร หรือระดับความสูงของอุปกรณ์ที่สูงที่สุด)			×		Please see detail in the route survey report.		
	2	Tree branch are lower than 5.50 meter and not obstruct at either side. (กิ่งไม้ต่ำกว่า 5.5 เมตร และไม่มีกีดขวางเส้นทาง)			×		Please see detail in the route survey report.		
	3	Route to location is in good condition. Identify rig move route, u-turn and traffic control. (ถนนอยู่ในสภาพดี ระบุเส้นทางการเดินทาง จุดกลับรถและมาตรการควบคุมจราจร)		✓					
	4	Water truck spraying water on the road to prevent the dust might be spread in air. (รถบรรทุกน้ำฉีดพ่นน้ำบนท้องถนนเพื่อป้องกันฝุ่นละอองอาจแพร่กระจายไปในอากาศ)		✓					
	5	Community clearance, local rules, regulation; to be informed and well coordinated with local leader/officers/police officer for traffic to understand situation coming up period of moving equipment into the area. (กฎระเบียบท้องถิ่น ประสานงานกับผู้นำท้องถิ่น / เจ้าหน้าที่ / เจ้าหน้าที่ตำรวจเพื่อให้เข้าใจถึงสถานการณ์ที่กำลังเคลื่อนย้ายอุปกรณ์เข้ามาในพื้นที่)			×		DSV to inform PTTEP Public Relations about move date.		
	6	Emergency response team and emergency contacts are updated. (ทีมตอบสนองฉุกเฉินและเบอร์ติดต่อในกรณีฉุกเฉินอัปเดต)		✓					
	7	Journey management planning (ระบุการวางแผนการเดินทาง)		✓					
	8	Other concerns (รายละเอียดที่เกี่ยวข้องอื่นๆ)							


		LOCATION SURVEY DESCRIPTION																				
		LOCATION		YMG-A																		
		DATE		7-Nov-22																		
		DISTANCE		14.3 km.																		
Detail (รายละเอียด)			Hazard description (รายละเอียดของอันตราย)		Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ		
					People	Asset	Envi.	Reputation	Frequency			Risk	People	Asset	Envi.	Reputation					Frequency	Risk
1	X-mas tree obstructive on location during operation (Catwalk area). พบ X-mas tree กีดขวางระหว่างดำเนินการตั้งแท่นขุดเจาะบริเวณแคทวอล์ก		- Property damage (อุปกรณ์เสียหาย) - Hydrocarbon leak (สารไฮโดรคาร์บอนรั่วไหล)		2	2	2	3	B	M	- Please remove X-mas tree at Well YMG-A01T (Cellar A) and YMG-A02T (Cellar B) <b>below 2.8 meters.</b> ( กรุณาย้าย X-mas tree ออกจากหลุม YMG-A01T (Cellar A) และ YMG-A02T (Cellar B) <b>ให้ต่ำกว่า 2.8 เมตร</b>		1	1	1	1	B	L	incomplete	Before rig move	Well service	
2	The well cellar not ready to use for drilling operation. well cellar E,F,G,H,I และ J ไม่พร้อมสำหรับการดำเนินการขุดเจาะ		- Property damage (อุปกรณ์เสียหาย) - Slip and trip hazard. (เกิดอุบัติเหตุจากการลื่นล้มและหกล้ม)		2	2	2	3	B	M	- Please prepare the well cellar ready to use for drilling operations. ( กรุณาเตรียม well cellar ให้อยู่ในสภาพพร้อมใช้งาน )		1	1	1	1	B	L	incomplete	Before rig move	Construction	


		LOCATION SURVEY DESCRIPTION																					
		LOCATION		YMG-A																			
		DATE		7-Nov-22																			
		DISTANCE		14.3 km.																			
Detail (รายละเอียด)			Hazard description (รายละเอียดของอันตราย)		Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ			
					People	Asset	Envi.	Reputation	Frequency			Risk	People	Asset	Envi.	Reputation					Frequency	Risk	
3	Found concrete gutter is clogged and damaged around location. พบรางน้ำอุดตันและเสียหาย		- waste water spill on the ground. (ของเสียจากกระบวนการขุดเจาะรั่วไหลลงสู่พื้นดิน) - Slip and trip hazard. (เกิดอุบัติเหตุจากการลื่นล้มและหกล้ม)		3	1	3	3	3	B	M	- Please clean and clear concrete gutter around location and fix gutter damaged . (กรุณาทำความสะอาดร่องน้ำที่อุดตัน และซ่อมแซมร่องน้ำที่เสียหาย)		1	1	1	1	B	L	incomplete	Before rig move	Construction	





<div></div>		LOCATION SURVEY DESCRIPTION															
		LOCATION		YMG-A													
		DATE		7-Nov-22													
		DISTANCE		14.3 km.													
Detail (รายละเอียด)	Hazard description (รายละเอียดของอันตราย)	Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)	Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ	
		People	Asset	Envi.	Reputation	Risk		People	Asset	Envi.	Reputation	Risk					
4	No earth pit and earth bund for drilling operation. ไม่มีบ่อดินและคันดินสำหรับงานขุดเจาะ	- waste water spill on the ground. (ของเสียจากกระบวนการขุดเจาะรั่วไหลลงสู่พื้นดิน)					- Please prepare earth pit good condition and volume enough for drilling operation. - Please compact all earth bund for ready to use drilling operation. (กรุณาเตรียมบ่อดินให้พร้อมใช้งานสำหรับงานแท่นขุดเจาะและปริมาณรองรับพอสำหรับการขุดเจาะ กรุณา อัดดินเสริมบริเวณขอบบ่อดิน)	1	1	1	1	A	L	incomplete	Before rig move	Construction	
5	Found the ground on location not smooth for MML transpotation. พบพื้นดินไม่เรียบ สำหรับเส้นทางรถขนส่งMML	- Property damage (อุปกรณ์เสียหาย)					- Please compact the ground to smoothly and cut grass area for MML transpotation. (กรุณาปรับพื้นที่ให้แน่น และ เรียบสำหรับเส้นทางรถขนย้ายอุปกรณ์ และ การเดินรถรวมถึงตัดหญ้าบริเวณโดยรอบ)	1	1	1	1	B	L	incomplete	Before rig move	Construction	


<div></div> <div>PTTEP</div>		LOCATION SURVEY DESCRIPTION																				
		LOCATION		YMG-A																		
		DATE		7-Nov-22																		
		DISTANCE		14.3 km.																		
Detail (รายละเอียด)			Hazard description (รายละเอียดของอันตราย)		Initial Risk ความเสี่ยงก่อนควบคุม				Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังหลังควบคุม				Status	Tatget date	Action By	Remark หมายเหตุ				
					People	Asset	Envi.	Reputation	Frequency	Risk			People	Asset	Envi.	Reputation	Frequency	Risk	สถานะ	กำหนดแล้วเสร็จ	รับผิดชอบโดย	
6	Found the contaminated fluid in concrete pit. พบน้ำมันเบื้อนในบ่อคอนกรีต		- Property damage (อุปกรณ์เสียหาย) - slip hazards (เกิดอุบัติเหตุจากการลื่นล้ม)		3	1	3	3	B	M	- Need to suck the contaminated fluid out and clear concrete pit. (กรุณาดูดน้ำมันเบื้อนออกจากบ่อคอนกรีตและ ทำความสะอาดบ่อคอนกรีต)		1	1	1	1	A	L	incomplete	Before rig move	Construction	
																						
7	Found safety sign around concrete pit. พบป้ายเตือนระวังบ่อน้ำลึกที่ติดตั้งรอบบ่อคอนกรีต		- Property damage (อุปกรณ์เสียหาย) - slip hazards (เกิดอุบัติเหตุจากการลื่นล้ม)		3	1	3	3	B	M	- Please remove all safety sign around concrete pit . (กรุณาดึงหรือป้ายเตือนระวังบ่อน้ำลึกที่ติดตั้งรอบบ่อคอนกรีตออก)		1	1	1	1	A	L	incomplete	Before rig move	Construction	
																						

		LOCATION SURVEY DESCRIPTION																	
		LOCATION		YMG-A															
		DATE		7-Nov-22															
		DISTANCE		14.3 km.															
Detail (รายละเอียด)		Hazard description (รายละเอียดของอันตราย)		Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ
				People	Asset	Envi.	Reputation	Frequency			Risk	People	Asset	Envi.	Reputation				
8	<div>Water full inside the soakaway pit and too much grasses around soakaway pit area. พบ น้ำในบ่อซึม และมีหญ้าขึ้นรอบบริเวณบ่อซึม สำหรับรองรับน้ำเสียจากห้องน้ำของพนักงานแท่นชุดเจาะ</div> <div></div>	<div>- Waste water spill on the ground. (ของเสียจากห้องน้ำไหลบนดินในพื้นที่) - Slip hazard. (เกิดอุบัติเหตุจากการลื่นล้ม)</div>	3	1	3	3	B	M	<div>- Please suck waste water out and check the condition of earth bund around the soakaway pit in good condition for storage waste water from toilet. (กรุณา ดูดน้ำเสียออก และ ตรวจสอบสภาพของการบดอัดดิน รอบ ๆ บริเวณ บ่อซึม ให้พร้อมใช้งาน เพื่อ รองรับน้ำเสียจากห้องน้ำของพนักงานแท่นชุดเจาะ) - Cut grasses around the soakaway pit area. ( กรุณา ตัดหญ้าที่ขึ้นรอบบริเวณบ่อซึม )</div>	1	1	1	1	A	L	incomplete	Before rig move	Construction	
9	<div>Found septic tank ready to use for rig camp. พบบ่อเกรอะไม่พร้อมใช้งาน</div> <div></div>	<div>- Waste water spill on the ground. (ของเสียจากห้องน้ำไหลบนดินในพื้นที่) - Slip hazard. (เกิดอุบัติเหตุจากการลื่นล้ม)</div>	3	1	3	3	B	M	<div>- Septic tank is ready to use for rig camp and toilet. ( บ่อเกรอะพร้อมใช้งาน สำหรับรองรับของเสียจากห้องน้ำของพนักงานแท่นชุดเจาะ ) - Cut grasses around the septic tank area. ( กรุณา ตัดหญ้าที่ขึ้นรอบบริเวณบ่อเกรอะ )</div>	1	1	1	1	A	L	incomplete	Before rig move	Construction	

		LOCATION SURVEY DESCRIPTION																				
		LOCATION		YMG-A																		
		DATE		7-Nov-22																		
		DISTANCE		14.3 km.																		
Detail (รายละเอียด)			Hazard description (รายละเอียดของอันตราย)		Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ		
					People	Asset	Envi.	Reputation	Frequency			Risk	People	Asset	Envi.	Reputation					Frequency	Risk
10	Don't have water supply line on YMG-A location. ไม่มีท่อส่งน้ำที่ไซต์หลุมทั้งยังเมือง		- Biological hazard. (เกิดอันตรายทางชีวภาพ/ สุขภาพของพนักงาน)		3	4	1	1	A	M	- Please provide water control unit , water supply and install water supply line for rig camp and drilling operation. (กรุณาจัดเตรียมตู้ควบคุม ,น้ำ และ ติดตั้งท่อ ส่งน้ำสำหรับที่พักของพนักงานและการขุด เจาะ)		1	1	1	1	A	L	incomplete	Before rig move	Construction	
11	The location in rig site area not ready use found control unit and equipment in drilling operation area. พื้นที่ในบริเวณไซต์งาน ไม่พร้อมใช้งาน พบตู้ควบคุมและอุปกรณ์ในพื้นที่สำหรับ ดำเนินการติดตั้งแท่นขุดเจาะ		- Property damage (อุปกรณ์เสียหาย) - Slip and trip hazard. (เกิดอุบัติเหตุจากการล้ม และหกหล่น)		2	2	2	3	B	M	- Please remove the control unit and equipment for ready to use drilling operation. (กรุณานำตู้ควบคุมและอุปกรณ์ออก สำหรับ การดำเนินการติดตั้งแท่นขุดเจาะ)		1	1	1	1	B	L	incomplete	Before rig move	Construction	

		LOCATION SURVEY DESCRIPTION																				
		LOCATION		YMG-A																		
		DATE		7-Nov-22																		
		DISTANCE		14.3 km.																		
Detail (รายละเอียด)			Hazard description (รายละเอียดของอันตราย)		Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ		
					People	Asset	Envi.	Reputation	Frequency			Risk	People	Asset	Envi.	Reputation					Frequency	Risk
12	The location in rig site area not ready use for drilling operation. พื้นที่ในบริเวณไซต์งาน ไม่พร้อมสำหรับการดำเนินการตั้งแท่นขุดเจาะ		- Property damage (อุปกรณ์เสียหาย) - Slip and trip hazard. (เกิดอุบัติเหตุจากการลื่นล้มและหกล้ม)		2	2	2	3	B	M	- Please prepare the location for ready to use drilling operation. (กรุณาเตรียมพื้นที่ในบริเวณไซต์งานให้พร้อมสำหรับการดำเนินการตั้งแท่นขุดเจาะ)		1	1	1	1	B	L	incomplete	Before rig move	Construction	
13	No grounding pit for rig camp and rig site. ไม่มีจุดต่อกราวด์ สำหรับแคมป์พนักงานและอุปกรณ์แท่นขุดเจาะ		- Property damage (อุปกรณ์เสียหาย)		2	2	2	3	B	M	- Please install grounding pit for rig equipment and rig camp. (กรุณาดัดตั้งจุดต่อกราวด์ (บ่อกราวด์) สำหรับอุปกรณ์แท่นขุดเจาะและแคมป์พนักงาน)		1	1	1	1	B	L	incomplete	Before rig move	Construction	

		LOCATION SURVEY DESCRIPTION																	
		LOCATION		YMG-A															
		DATE		7-Nov-22															
		DISTANCE		14.3 km.															
Detail (รายละเอียด)		Hazard description (รายละเอียดของอันตราย)	Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)	Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ		
			People	Asset	Envi.	Reputation	Frequency		Risk	People	Asset	Envi.	Reputation					Frequency	Risk
14	<div>The condition of the ground and cement pad in the location are not in good condition and smoothly.Need to installing a steel plate for rig skidding. พื้นที่สำหรับตั้งแท่นขุดเจาะไม่มีแผ่นเหล็กสำหรับ Rig skid.</div> <div></div>	- Property damage (อุปกรณ์เสียหาย)	3	1	3	3	B	M	- Please install steel plate for rig skidding from edge of well <b>cellar Q to well cellar J = 27 meter add more steel plate form edge of well cellar Q = 20 meter and add more steel plate form edge of well cellar J = 12 meter Total = 59 Meters.</b>  ** According to the picture. กรุณาติดตั้งแผ่นเหล็กสำหรับ Rig skid ระยะจากขอบของ <b>cellarQ ไปยัง well cellar J = 27 เมตร และ ติดตั้งเพิ่มจาก well cellar Q ไปอีก 20 เมตร และ ติดตั้งเพิ่มจาก well cellar J ไปอีก 12 เมตร รวมระยะทั้งหมด 59 เมตร (ตามรูปภาพ)</b>	1	1	1	1	B	L	incomplete	Before rig move	Construction	

		LOCATION SURVEY DESCRIPTION																				
		LOCATION		YMG-A																		
		DATE		7-Nov-22																		
		DISTANCE		14.3 km.																		
Detail (รายละเอียด)			Hazard description (รายละเอียดของอันตราย)		Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ		
					People	Asset	Envi.	Reputation	Frequency			Risk	People	Asset	Envi.	Reputation					Frequency	Risk
15	No secondary containment bund around earth pit area. ไม่มีคันดินรอบ ๆ บ่อดิน อาจทำให้มีสารเคมีหกรั่วไหลออกนอกพื้นที่ได้		<div></div> <div>- waste water spill on the ground. (ของเสียจากกระบวนการผลิตจะรั่วไหลลงสู่พื้นดิน)</div>		1	1	3	4	A	M	- Please prepare the good secondary containment bund for ready to use drilling operation. (กรุณาเตรียมคันดินรอบๆพื้นที่ และอัดดินให้แน่นให้พร้อมใช้งาน)		1	1	1	1	A	L	incomplete	Before rig move	Construction	
16	Found the grass in the rig camp area not ready to use. พบหญ้าในพื้นที่บริเวณที่จะติดตั้งแคมป์พักพนักงาน ไม่พร้อมสำหรับดำเนินการ				<div></div> <div>- Property damage (อุปกรณ์เสียหาย) - Slip and trip hazard. (เกิดอุบัติเหตุจากการลื่นล้มและหกล้ม)</div>		2	2	2	3			B	M	-Please cut the grass in rig camp area. (กรุณาคัดหญ้าออกในบริเวณที่จะติดตั้งแคมป์พักพนักงาน)		1	1	1	1	B	L



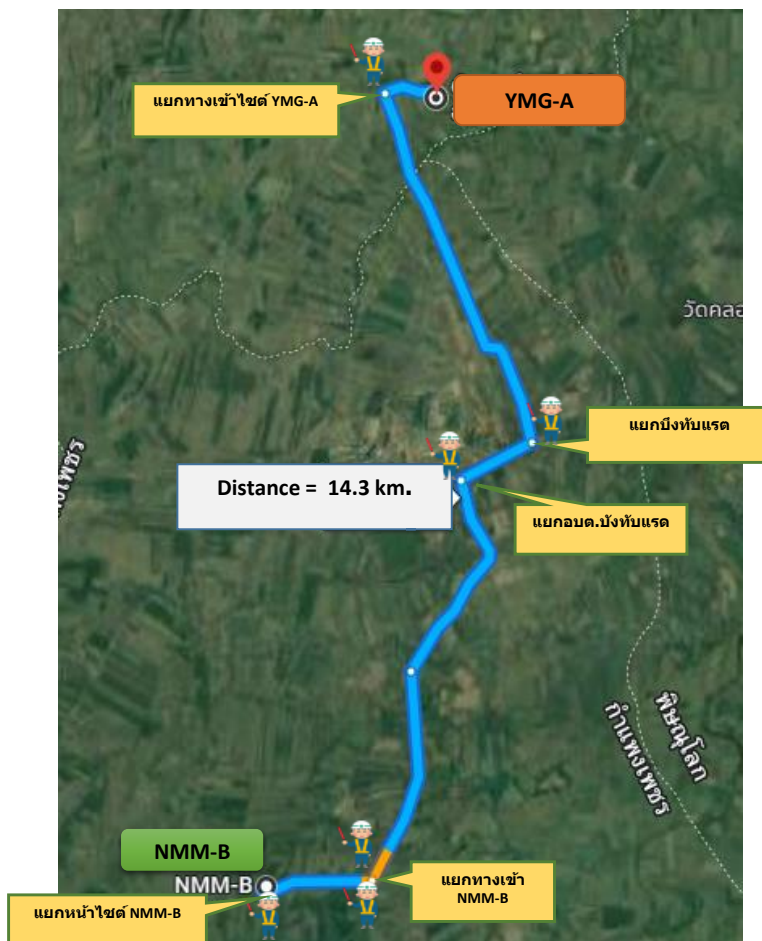


# ROUTE AND LOCATION SURVEY CHECK LISTS

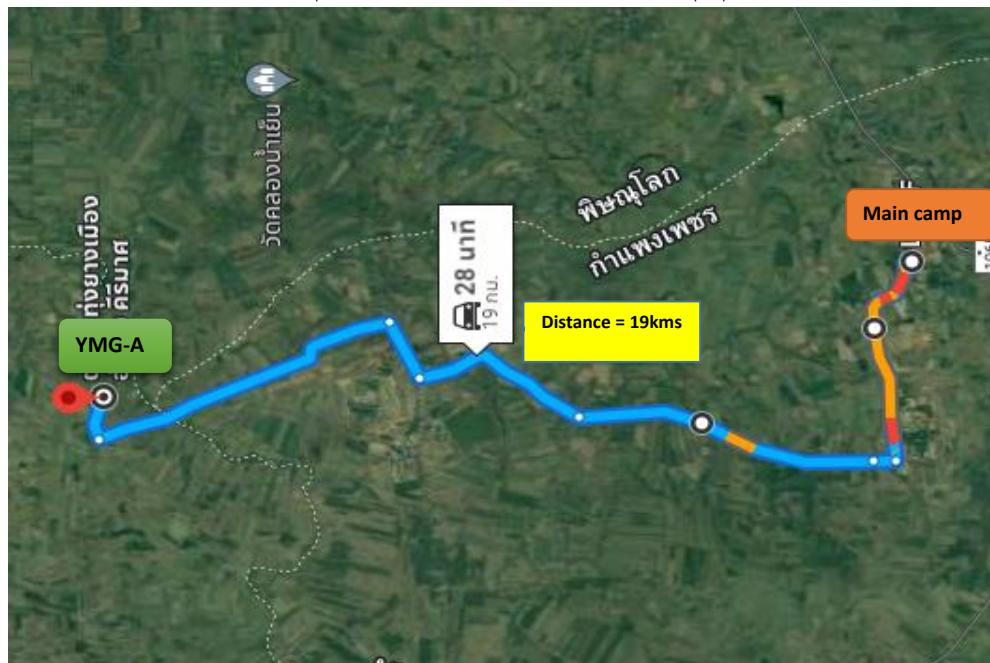
LOCATION : NMM-B to YMG-A  
6-Nov-22



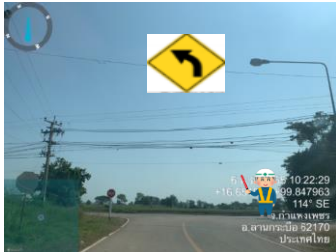

Contractor : Greatwall drilling company  
 บริษัท เกรทวอลล์ ดริลลิ่ง คัมปะนี (ประเทศไทย)  
 จำกัด





GW221	Rig move from เคลื่อนย้ายจาก	NMM-B	To ไปที่	YMG-A	Distance ระยะทาง	14.3	Km. ก.ม.
-------	---------------------------------	-------	-------------	-------	---------------------	------	-------------










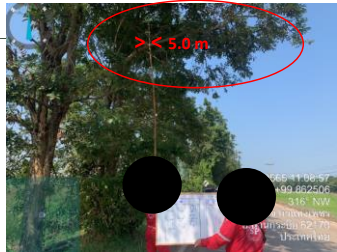
The route for transportation minibus and food car from rig site to main camp and main camp to rig site, distance 19 km. เส้นทางสำหรับการขนส่งอาหารและรับส่งพนักงานแท่นขุดเจาะจากที่พักสำหรับพนักงาน ไปที่ไซต์หลุมทุ่งยางเมืองเอ19 กิโลเมตร



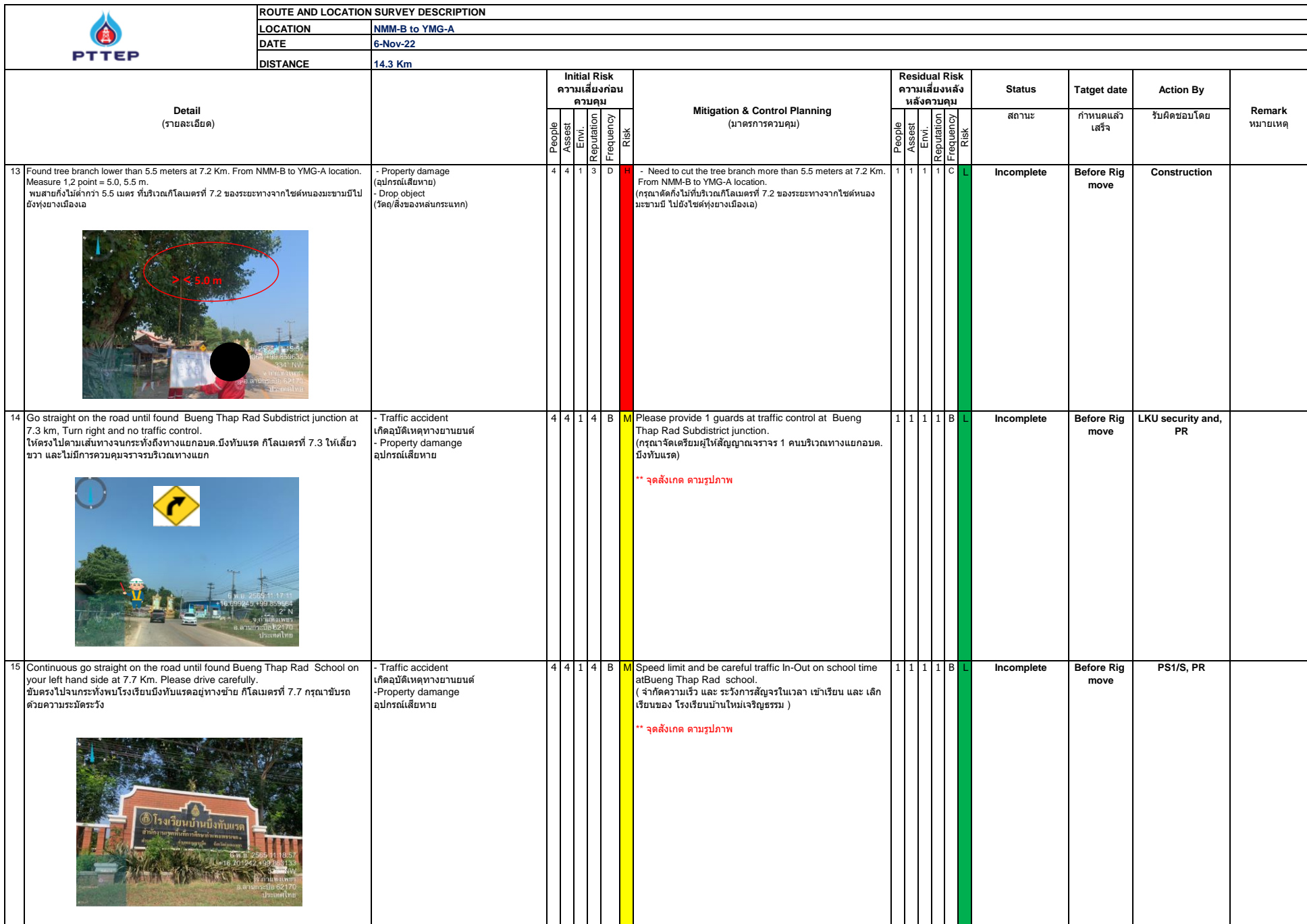
<div></div>		ROUTE AND LOCATION SURVEY DESCRIPTION																	
		LOCATION		NMM-B to YMG-A															
		DATE		6-Nov-22															
		DISTANCE		14.3 Km															
Detail (รายละเอียด)			Initial Risk ความเสี่ยงก่อน ควบคุม						Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลัง หลังควบคุม				Status	Tatget date	Action By	Remark หมายเหตุ	
	People	Asset	Envi.	Reputation	Frequency	Risk	People	Asset			Envi.	Reputation	Frequency	Risk	สถานะ	กำหนดแล้ว เสร็จ	รับผิดชอบโดย		
1	Strat from NMM-B location at 0.0 km. and no traffic control. เริ่มจากทางแยกหน้าทางเข้าไซด์หนองมะขามบี กิโลเมตรที่ 0 และไม่มีการควบคุมจราจรบริเวณทางแยก.  	- Traffic accident เกิดอุบัติเหตุทางยานยนต์ - Property damange อุปกรณ์เสียหาย	4	4	1	4	B	M	Please provide 1 guards at traffic control at entrance NMM-B location junction. (กรุณาจัดเตรียมผู้ให้สัญญาณจราจร 1 คนบริเวณทางแยกเข้าหน้าไซด์หนองมะขามบี)  ** จุดสังเกต ตามรูปภาพ	1	1	1	1	B	L	Incomplete	Before Rig move	LKU security and, PR	
2	Go straight on the road from NMM-B location until NMM-B junction at 1.3 km, Turn left and no traffic control. ให้ตรงไปตามเส้นทางจนกระทั่งถึงทางทางเข้าไซด์หนองมะขามบี กิโลเมตรที่ 1.3 ให้เลี้ยวซ้าย และไม่มีการควบคุมจราจรบริเวณทางแยกทางเข้าไซด์  	- Traffic accident เกิดอุบัติเหตุทางยานยนต์ - Property damange อุปกรณ์เสียหาย	4	4	1	4	B	M	Please provide 1 guards at traffic control at entrance NMM-B location junction. (กรุณาจัดเตรียมผู้ให้สัญญาณจราจร 1 คนบริเวณทางแยกเข้าไซด์หนองมะขามบี)  ** จุดสังเกต ตามรูปภาพ	1	1	1	1	B	L	Incomplete	Before Rig move	LKU security and, PR	
3	Continuous go straight on the road until found School on your right hand side at 3.1 Km. Please drive carefully. ขับตรงไปจนกระทั่งพบโรงเรียนเด่นพระทางขวา กิโลเมตรที่ 3.1 กรุณาขับรถด้วยความระมัดระวัง  	- Traffic accident เกิดอุบัติเหตุทางยานยนต์ -Property damange อุปกรณ์เสียหาย	4	4	1	4	B	M	Speed limit and be careful traffic In-Out on school time at school. ( จำกัดความเร็ว และ ระวังการสัญจรในเวลา เข้าเรียน และ เลิกเรียนของโรงเรียน )  ** จุดสังเกต ตามรูปภาพ	1	1	1	1	B	L	Incomplete	Before Rig move	PS1/S, PR	

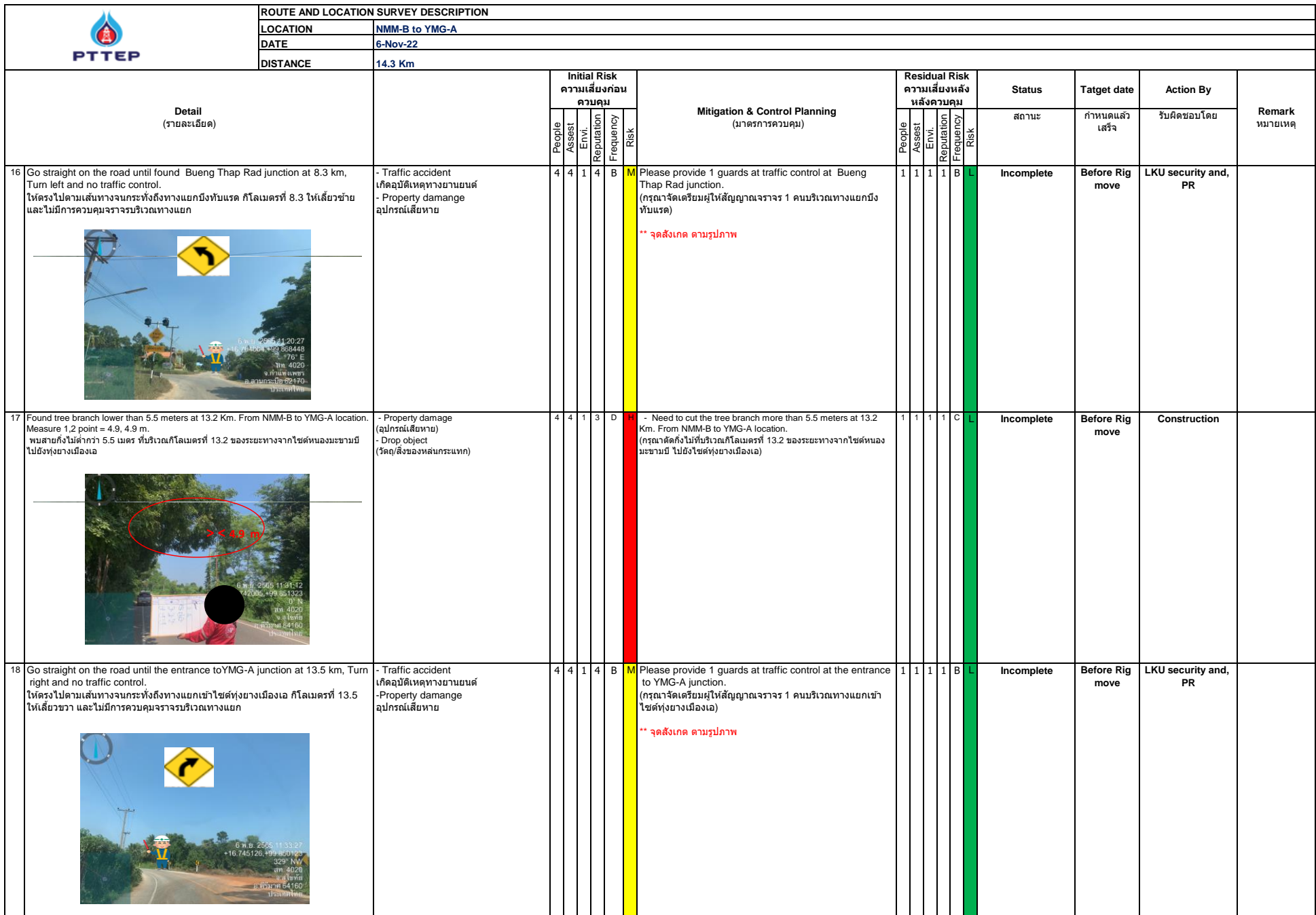
<div></div>		ROUTE AND LOCATION SURVEY DESCRIPTION																						
		LOCATION		NMM-B to YMG-A																				
		DATE		6-Nov-22																				
		DISTANCE		14.3 Km																				
Detail (รายละเอียด)				Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)					Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ		
				People	Assest	Envi.	Reputation	Frequency						Risk	People	Assest	Envi.	Reputation					Frequency	Risk
4		Found electric cables lower than 5.5 meters at 4.2 Km.From NMM-B to YMG-A location. Measure 1,2,3 point = 5.6, 5.5, 5.6 m. พบสายไฟฟ้าต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 4.2 ของระยะทางจากไซต์หนองมะขามมีไปยังทุ่งยางเมืองเอ				- Property damage (อุปกรณ์เสียหาย) - Electric shock. (ไฟฟ้าดูด/ไฟฟ้าช็อต) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)					- Need to move up electric cable more than 5.5 meters at 4.2 Km.from NMM-B to YMG-A location.. (กรุณา ให้อยกสายไฟความสูงมากกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 4.2 ของระยะทางจากไซต์หนองมะขามมี ไปยังทุ่งยางเมืองเอ)					1 1 1 1 1 C L					Incomplete	Before rig move	Construction	
5		Go straight on the road until clock tower junction at 4.3 km, Turn right and please be careful at junction ให้ตรงไปตามเส้นทางจนกระทั่งถึงทางแยกหอนาฬิกากิโลเมตรที่ 4.3 ให้เลี้ยวขวา และโปรดระมัดระวังรถทางแยก				- Traffic accident เกิดอุบัติเหตุทางยานยนต์ -Property damage อุปกรณ์เสียหาย					Strictly, comply with traffic rules and control speed limit. ปฏิบัติตามกฎจราจรและจำกัดความเร็วอย่างเคร่งครัด  ** จุดสังเกต ตามรูปภาพ					1 1 1 1 1 B L					Incomplete	Before Rig move	PS1/S, PR	
6		Go straight on the road until found narrow bridge at 4.6 km ให้ตรงไปตามเส้นทางจนกระทั่งพบสะพานแคบ กิโลเมตรที่ 4.6				- Traffic accident เกิดอุบัติเหตุทางยานยนต์ -Property damage อุปกรณ์เสียหาย					Please be careful of cars on the way and control speed limit. (โปรดระมัดระวังรถที่สวนทางมา ชับช้าๆ)  ** จุดสังเกต ตามรูปภาพ					1 1 1 1 1 B L					Incomplete	Before Rig move	GWDC/SP	

		ROUTE AND LOCATION SURVEY DESCRIPTION																			
		LOCATION		NMM-B to YMG-A																	
		DATE		6-Nov-22																	
		DISTANCE		14.3 Km																	
Detail (รายละเอียด)				Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)		Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ		
				People	Asses	Envi.	Reputation	Frequency			Risk	People	Asses	Envi.	Reputation					Frequency	Risk
7	Found tree branch lower than 5.5 meters at 5.1 Km. From NMM-B to YMG-A location. Measure 1,2 point = 5.4,5.3 m. พบสายกิ่งไม้ต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 5.1 ของระยะทางจากไซต่นองมะขามปี้ไปยังทุ่งยางเมืองเอ			- Property damage (อุปกรณ์เสียหาย) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)	4	4	1	3	D	H	- Need to cut the tree branch more than 5.5 meters at 5.1 Km. From NMM-B to YMG-A location. (กรุณาดัดกิ่งไม้ที่บริเวณกิโลเมตรที่ 5.1 ของระยะทางจากไซต่นองมะขามปี้ ไปยังไซต่งยางเมืองเอ)	1	1	1	1	C	L	Incomplete	Before Rig move	Construction	
8	Found tree branch lower than 5.5 meters at 5.3 Km. From NMM-B to YMG-A location. Measure 1,2 point = 5.2,5.5 m. พบสายกิ่งไม้ต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 5.3 ของระยะทางจากไซต่นองมะขามปี้ไปยังทุ่งยางเมืองเอ			- Property damage (อุปกรณ์เสียหาย) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)	4	4	1	3	D	H	- Need to cut the tree branch more than 5.5 meters at 5.3 Km. From NMM-B to YMG-A location. (กรุณาดัดกิ่งไม้ที่บริเวณกิโลเมตรที่ 5.3 ของระยะทางจากไซต่นองมะขามปี้ ไปยังไซต่งยางเมืองเอ)	1	1	1	1	C	L	Incomplete	Before Rig move	Construction	
9	Found tree branch lower than 5.5 meters at 5.3 Km. From NMM-B to YMG-A location. Measure 1,2 point = 5.1 m. พบสายกิ่งไม้ต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 5.3 ของระยะทางจากไซต่นองมะขามปี้ไปยังทุ่งยางเมืองเอ			- Property damage (อุปกรณ์เสียหาย) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)	4	4	1	3	D	H	- Need to cut the tree branch more than 5.5 meters at 5.3 Km. From NMM-B to YMG-A location. (กรุณาดัดกิ่งไม้ที่บริเวณกิโลเมตรที่ 5.3 ของระยะทางจากไซต่นองมะขามปี้ ไปยังไซต่งยางเมืองเอ)	1	1	1	1	C	L	Incomplete	Before Rig move	Construction	


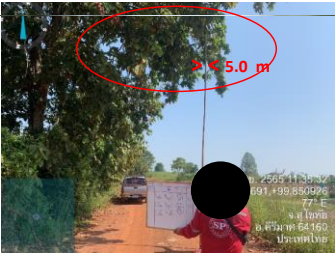
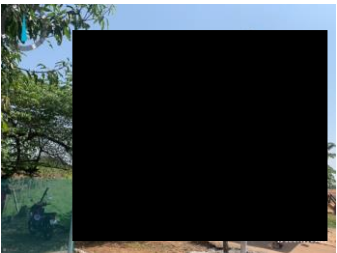
<div></div>		ROUTE AND LOCATION SURVEY DESCRIPTION																		
		LOCATION		NMM-B to YMG-A																
		DATE		6-Nov-22																
		DISTANCE		14.3 Km																
Detail (รายละเอียด)			Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)	Residual Risk ความเสี่ยงหลังหลังควบคุม					Status สถานะ	Tatget date กำหนดแล้วเสร็จ	Action By รับผิดชอบโดย	Remark หมายเหตุ			
			People	Asset	Envi.	Reputation	Frequency		Risk	People	Asset	Envi.	Reputation					Frequency	Risk	
10	Found tree branch lower than 5.5 meters at 5.9 Km. From NMM-B to YMG-A location. Measure 1,2 point = 5.0, 5.2 m. พบสายกิ่งไม้ต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 5.9 ของระยะทางจากไซต่อนองมะขามปี้ไปยังทุ่งยางเมืองเอ		- Property damage (อุปกรณ์เสียหาย) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)	4	4	1	3	D	H	- Need to cut the tree branch more than 5.5 meters at 5.9 Km. From NMM-B to YMG-A location. (กรุณาดัดกิ่งไม้ที่บริเวณกิโลเมตรที่ 5.9 ของระยะทางจากไซต่อนองมะขามปี้ ไปยังไซต่อนองมะขามปี้)	1	1	1	1	C	L	Incomplete	Before Rig move	Construction	
11	Found tree branch lower than 5.5 meters at 6.0 Km. From NMM-B to YMG-A location. Measure 1,2 point = 5.2, 5.5 m. พบสายกิ่งไม้ต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 6.0 ของระยะทางจากไซต่อนองมะขามปี้ไปยังทุ่งยางเมืองเอ		- Property damage (อุปกรณ์เสียหาย) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)	4	4	1	3	D	H	- Need to cut the tree branch more than 5.5 meters at 6.0 Km. From NMM-B to YMG-A location. (กรุณาดัดกิ่งไม้ที่บริเวณกิโลเมตรที่ 6.0 ของระยะทางจากไซต่อนองมะขามปี้ ไปยังไซต่อนองมะขามปี้)	1	1	1	1	C	L	Incomplete	Before Rig move	Construction	
12	Found tree branch lower than 5.5 meters at 6.4 Km. From NMM-B to YMG-A location. Measure 1,2 point = 5.0, 5.5 m. พบสายกิ่งไม้ต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 6.4 ของระยะทางจากไซต่อนองมะขามปี้ไปยังทุ่งยางเมืองเอ		- Property damage (อุปกรณ์เสียหาย) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)	4	4	1	3	D	H	- Need to cut the tree branch more than 5.5 meters at 6.4 Km. From NMM-B to YMG-A location. (กรุณาดัดกิ่งไม้ที่บริเวณกิโลเมตรที่ 6.4 ของระยะทางจากไซต่อนองมะขามปี้ ไปยังไซต่อนองมะขามปี้)	1	1	1	1	C	L	Incomplete	Before Rig move	Construction	









<div></div>		ROUTE AND LOCATION SURVEY DESCRIPTION																		
		LOCATION		NMM-B to YMG-A																
		DATE		6-Nov-22																
		DISTANCE		14.3 Km																
Detail (รายละเอียด)			Initial Risk ความเสี่ยงก่อนควบคุม					Mitigation & Control Planning (มาตรการควบคุม)	Residual Risk ความเสี่ยงหลังหลังควบคุม					Status	Tatget date	Action By	Remark หมายเหตุ			
			People	Assest	Envi.	Reputation	Frequency		Risk	People	Assest	Envi.	Reputation					Frequency	Risk	
19	Found tree branch lower than 5.5 meters at 13.7 Km. From NMM-B to YMG-A location. Measure 1,2 point = 5.0, 5.0 m. พบสายกิ่งไม้ต่ำกว่า 5.5 เมตร ที่บริเวณกิโลเมตรที่ 13.7 ของระยะทางจากไฮด์รอนมระขามบี ไปยังทุ่งยางเมืองเอ		- Property damage (อุปกรณ์เสียหาย) - Drop object (วัตถุ/สิ่งของหล่นกระแทก)	4	4	1	3	D	H	- Need to cut the tree branch more than 5.5 meters at 13.7 Km. From NMM-B to YMG-A location. (กรณีตัดกิ่งไม้ที่บริเวณกิโลเมตรที่ 13.7 ของระยะทางจากไฮด์รอนมระขามบี ไปยังไฮด์ทุ่งยางเมืองเอ)	1	1	1	1	C	L	Incomplete	Before Rig move	Construction	
20	Arrived at YMG-A location at 14.3 km.		- Traffic accident เกิดอุบัติเหตุทางยานยนต์ -Property damage อุปกรณ์เสียหาย	4	4	1	4	B	M	Speed limit follow the traffic rules. ( จำกัดความเร็ว ปฏิบัติตามกฎหมายจราจร) <b>** จุดสังเกต ตามรูปภาพ</b>	1	1	1	1	B	L	Incomplete	Before Rig move	GWDC/SP	

ภาคผนวกที่ 22

S1 Emergency Response Plan

---



**PTTEP**

PTT Exploration and Production Public Company Limited

---

## **S1 Emergency Response Plan**

---

**Document Code: 13247-PDR-SSHE-501/08-R03**

**November 2019**

### Approval Register

**Document Subject** S1 Emergency Response Plan  
**Document Code** 13247-PDR-SSHE-501/08-R03  
**Document Owner** S1 Production Operations Department (PS1)  
**Prepared by** [REDACTED], SSHE Engineer  
**Effective Date** November 2019

### Review and Approve

	Name	Signature	Date
<b>Document Custodian</b>	[REDACTED] PS1/S	[REDACTED]	21/11/19
<b>Technical Reviewer</b>	LKU Production Superintendent		
	PS1/P	[REDACTED]	21/11/19
	[REDACTED] PS1/O	[REDACTED]	21/11/19
	[REDACTED] PS1/L	[REDACTED]	21/11/19
	[REDACTED] PTN/A	[REDACTED]	22/11/19
	[REDACTED] HRC/O	[REDACTED]	21/11/19
	[REDACTED] PLG/M	[REDACTED]	21/11/19
	[REDACTED] ETN <i>CEIN Workshop</i>	[REDACTED]	25/11/19
<b>Document Owner</b>	[REDACTED] PS1	[REDACTED]	13/12/19
<b>Approval Authority</b>	[REDACTED] PS1	[REDACTED]	13/12/19

THIS DOCUMENT WILL BE REVIEWED EVERY 5 YEARS FROM DATE OF APPROVAL OR REVISED EARLIER IF NECESSARY.

## TABLE OF CONTENTS

<b>INTRODUCTION</b>	<b>1</b>
1. PURPOSE.....	1
2. SCOPE.....	2
<b>REQUIREMENTS</b>	<b>4</b>
3. EMERGENCY MANAGEMENT .....	4
3.1 PTTEP EMERGENCY AND CRISIS CLASSIFICATION.....	4
3.2 S1 EMERGENCY RESPONSE TEAM ORGANIZATION.....	6
3.3 ROLES AND RESPONSIBILITIES .....	17
3.4 EMERGENCY RESPONSE ACTION .....	33
3.5 COMMUNICATION DURING EMERGENCY .....	34
3.6 MUSTER POINT .....	37
3.7 FACILITIES .....	38
3.8 PRESS RELEASE .....	43
3.9 DEACTIVATION AND POST EMERGENCY ACTIONS.....	44
3.10 TRAINING AND EXERCISE .....	46
3.11 S1 DUTY ROSTER GUIDELINE .....	46
<b>APPENDICES</b>	<b>51</b>
APPENDIX A: EMERGENCY CALL MESSAGE FROM LKU TELECOM OFFICER .....	51
APPENDIX B: INITIAL EMERGENCY REPORT FORM.....	52
APPENDIX C: EMERGENCY LOG SHEET .....	53
APPENDIX D: LOCATION OF PREDETERMINED MUSTER POINTS .....	55
APPENDIX E: EXAMPLES OF COMMUNICATION TOOLS.....	61
APPENDIX F: EXAMPLE OF S1 DUTY ROSTER.....	65
APPENDIX G: INCIDENT GUIDELINE FOR EMERGENCY SITUATIONS .....	66
<b>ROLES AND RESPONSIBILITIES</b>	<b>67</b>
<b>DEFINITION AND ACRONYMS</b>	<b>68</b>
<b>REFERENCES</b>	<b>71</b>
<b>REVISION HISTORY</b>	<b>72</b>

## INTRODUCTION

### 1. PURPOSE

In the context of S1 Emergency Response Plan (herein referred to as “Plan”), an emergency is any event, happening with or without advance warning, causing, or which may cause, death or injury, damage to property or the environment or disruption to the community and/ or business within PTTEP S1 onshore operation premises.

The plan is developed for guiding S1 asset personnel to clearly understand the roles and responsibilities of the S1 Emergency Response Team (ERT) during an actual or potential emergency that could cause an impact to S1 asset and its associated stakeholders, especially staff, contractors and surrounding communities. The emergency response shall be actioned to align with the plan as well as related Thai laws and regulations. Apart from S1 ERT member roles and responsibilities and their responsive actions outlined in this document, the emergency preparedness, resources, training and competency, drills & exercises, and recovery/mitigation measures should be also included in this document for ensuring effective emergency management.

- The objectives of emergency response are to:-
- prevent fatalities and injuries;
- reduce damage to plants, facilities, and equipment;
- protect the communities and the environment; and
- accelerate the resumption of normal operations.

The development of the Emergency Response Plan (ERP) begins with a vulnerability assessment. The results of study:-

- Identifies the emergency situations likely to occur and threaten life, environment, community, and S1 operations;
- Identifies means and resources necessary for a given emergency situation;
- Defines S1 emergency organization and key personnel involved with their roles & responsibilities;
- Defines the actions to be taken by S1 ERT members for the emergency preparedness and response;
- Defines the actions to be taken by S1 Community & Media Response Team (CMRT) and Relative Response Team (RRT) for emergency preparedness and response;
- Defines the correct and clear lines of command and reporting in an emergency;
- Describes the guidelines for community handlings in an emergency; and
- Defines interface between S1 ERT and PTTEP corporate Emergency Management Team (EMT) and Crisis Management Team (CMT) and other external parties.

The plan should ensure an integrated response at the appropriate level to any related emergency situations and to minimize the potential impact on People, Environment, Legal Compliance, Asset & Property, and Reputation.

The response of S1 ERT at all levels of the organization will follow the following priorities.

1. Protection of People
2. Protection of Environment
3. Protection of Asset and Property (including infrastructure, machinery, equipment, and facilities)
4. Protection of Reputation and Business

## **2. SCOPE**

This plan applies to all emergency situations occurred within PTTEP S1 and L22/43 Operation premises owned or controlled by PTTEP subsidiaries.

This also includes other relevant agencies that may be requested to provide assistance or expertise to cope with PTTEP S1 emergency situations.

Scope of S1 emergency response covers all operating areas of S1 asset and L22/43 concession areas as well as the activities outside the owned premises, but under the responsibility of S1 asset e.g. land or rail transports, accommodating facilities, etc.

The areas which S1 ERP shall cover are:-

- LKU flow station including crude process area, LPG process, spheres & loading area, and LKU crude depot;
- Production sub-stations including NTM-A, STN-A, and NSG-A;
- Active production well locations;
- Non-productive well locations;
- Flow lines connecting to well locations;
- Bung Pra depot;
- S1 well services workshop;
- S1 material yard and material storage locations;
- Chong Non See (CNS) rail tanker inspection and maintenance workshop; and
- PHS housing compounds.

The activities which S1 ERP shall cover are:-

- Production operation;
- Brownfield construction project activities;



- Drilling activities;
- Well service activities;
- Maintenance & inspection activities;
- Land transports including oil movement, materials and personnel transportation; and
- Other emergency situations which may arise e.g. community concerns, security concerns, natural disasters, etc.

Pertaining to other operations in S1 concession area e.g. drilling, greenfield construction, seismic survey, rig camps, etc. within the scope of S1 concessionaire's liability that have their own emergency organization, they shall establish their own On-Scene Commander (OSC) and responsive team.

The OSC shall report all incidents to S1 Emergency Response Team (ERT) primarily via S1 telecom officer. In any case when situation becomes uncontained by site emergency response organization, S1 ERT comes to take over the command. The OSC constantly report to Deputy Emergency Team Leader (DERTL).

Note: All appendices of this document shall cover:-

- Appendix A: Emergency Call Message from LKU Telecom Officer
- Appendix B: Initial Emergency Report Form
- Appendix C: Emergency Log Sheet
- Appendix D: Locations of Predetermined Muster Points
- Appendix E: Examples of Communication Tools
- Appendix F: Example of S1 Duty Roster
- Appendix G: Incident Guideline for Emergency Situations
- Appendix H: Prompt Cards
- Appendix I: Emergency Contact Lists and Numbers

All appendices of this document shall be reviewed and endorsed by the document owner, Vice President (VP) of S1 Production Operations Department. The appendices will be amended and added without requirements for the document's revision and approval endorsement.

## REQUIREMENTS

### 3. EMERGENCY MANAGEMENT

#### 3.1 PTTEP EMERGENCY AND CRISIS CLASSIFICATION

With reference to the 3-Tier definition of Emergency & Crisis in PTTEP Emergency Crisis Management Standard (SSHE-106-STD-500), emergency covers the situations in tier 1 and tier 2; whereas, a crisis situation is classified as and treated by **a tier 3 response level**.

##### Tier 1:

- The situation involves a problem, which has limited impact and minimal potential for escalating, poses a threat to the safety & the environment **and poses no threat to the general public**.
- The situation can be handled by the on OSC with the site operation team and/or intervention team within a reasonable timeframe. Tier 1 emergency response can be totally managed by DERTL, being appointed based on the area affected by an incident. After tier 1 emergency situation can be managed and resumed to normal operation, the situation and response details shall be reported to the duty officer and ERTL respectively.

Examples of tier 1 emergency situations in the S1 operation area are, but not limited to, the following.

- Small manageable fires and/or gas leaks, accidents or safety & security threats;
- No hazard to the public in adjacent areas exists;
- Minor injuries may have occurred (treatable through first aid); and
- Danger to the environment is minimal, however, the potential for escalation exists.

##### Tier 2:

- The situation involves an emergency with greater magnitude and major severity in nature or has the potential to escalate and continue for a significant period of time, or cause a significant impact to public or environment that requires sophisticated implications with external parties.
- The situation involves damage to S1 facilities/assets and/or impact on 3rd parties and may pose a significant threat to safety, environment, and facilities/assets.
- The situation may request external assistance from local authorities in the affected areas i.e. local fire brigade, Sub-district Administrative Office (SAO), local hospital/public health center, Oil Industry Environment Safety Group Association of Thailand (IESG) or the nearby external organizations, and etc.
- The situation may result in the activation of S1 Asset EMT in BKK.

For tier 2 emergency situations, ERT will respond to the emergency site while S1 asset EMT in BKK may be established to manage and provide relevant support to the S1 ERT and/or the affected site.

S1 asset EMT members should include the top management/authorized person of the S1 asset and other key positions from various disciplines that are, but not limited to, the following.

1. EMT Leader – Thai Onshore Asset Senior Vice President (SVP) acts as EMT Leader;
2. Common members such as BKK S1 asset duty, logistic duty, SSHE duty, corporate RRT duty, communication team, IT duty, administration team duty, event logger, etc.
3. Specific members such as drilling duty, construction duty, well operation duty, etc.

Examples of tier 2 emergency situations in S1 operation area are the followings:

- Employees, contractors, service providers, visitors, community, the environment, property, facilities (or any combination of these) are exposed to a significant hazard.
- Non-essential personnel in adjacent areas of S1 operating areas such as LKU flow station, production sub-stations, active well sites, flow lines, BPR depot and etc will need to be evacuated.
- Deaths, and/or multiple serious injuries may have occurred (ambulance and/or medivac may be required).
- There may be significant environmental impacts such as the large volume of hydrocarbon leaks to site surrounding areas.

### **Tier 3:**

- Involves a catastrophic scenario resulted in multiple injuries, fatalities, major fires, environmental damage, toxic gas release, significant business interruption and poses a significant threat to the environment or damage to PTTEP assets and finally brings in significant media attention.
- Requests external assistance from aboard or international resources i.e. the Oil Spill Response Limited Company (OSRL) and the East Asia Response Limited Company (EARL), etc.
- Results in the activation of CMT.

The CMT members consist of the PTTEP top management at the Corporate Level and other supporting functions. Their responsibilities and procedures are defined in the PTTEP CMP (12148-PDR-SSHE-501).

PTTEP Risk Assessment Matrix (RAM) demonstrated in appendix D of PTTEP SSHE risk management standard (11038-STD-SSHE-401) can be used as a guideline to consider the initial appropriate levels of response to any particular event.

### 3.2 S1 EMERGENCY RESPONSE TEAM ORGANIZATION

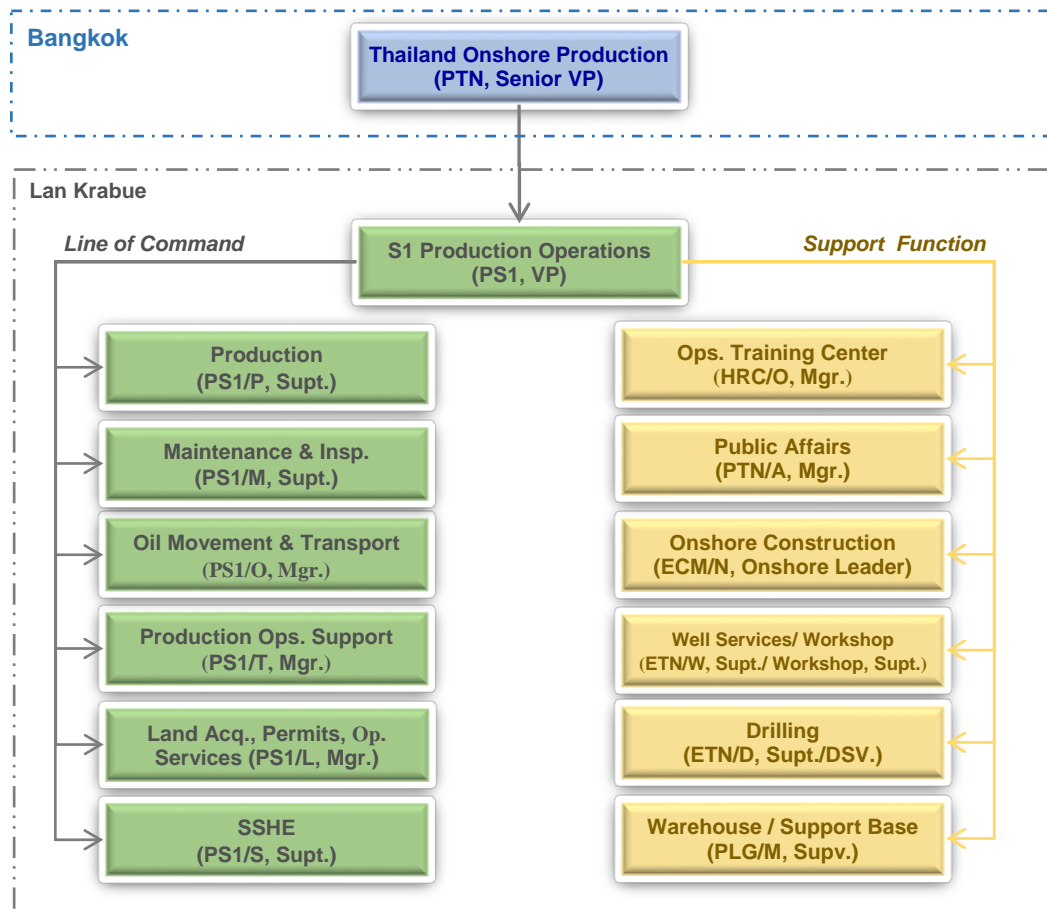
S1 production operations are governed by Vice President (VP) of S1 Production Operations Department with a total of six (6) sections of the followings:

1. Production Section (PS1/P);
2. Maintenance Section (PS1/M);
3. Oil Movement and Transportation Section (PS1/O);
4. Production Operations Support Section (PS1/T);
5. Land Acquisition, Permits & Operation Services Section (PS1/L); and
6. Safety, Security, Health, and Environment (SSHE) Section (PS1/S).

Additionally, there are eight (8) support functions providing supports to S1 production operations. These support functions consist of:

1. Public Affairs Section (PTN/A)
2. Operations Training Center Section (HRC/O)
3. Onshore Construction Execution Section (ECM/N)
4. Drilling Operations Section (ETN/D)
5. Well Services Section (ETN/W)
6. Well Services Workshop (ETN)
7. Lan Krabue Support Base Section (PLG/M)
8. Lifting Equipment & Services (PLG/L)

An organigram of S1 production operations is illustrated in **Figure 1**.



**Figure 1: Organigram of S1 production Operations**

S1 production operations management team including VP, section heads and representatives from support functions specified in the above organigram is assigned to take roles and responsibilities in ERT depicted in the following paragraphs of this document.

ERT is lead by VP and consists of staff with roles and responsibilities necessary for responding to emergency situations likely to occur in S1 production operations as well as with the conjoined activities e.g. drilling, well workover, project construction, road transport, etc.

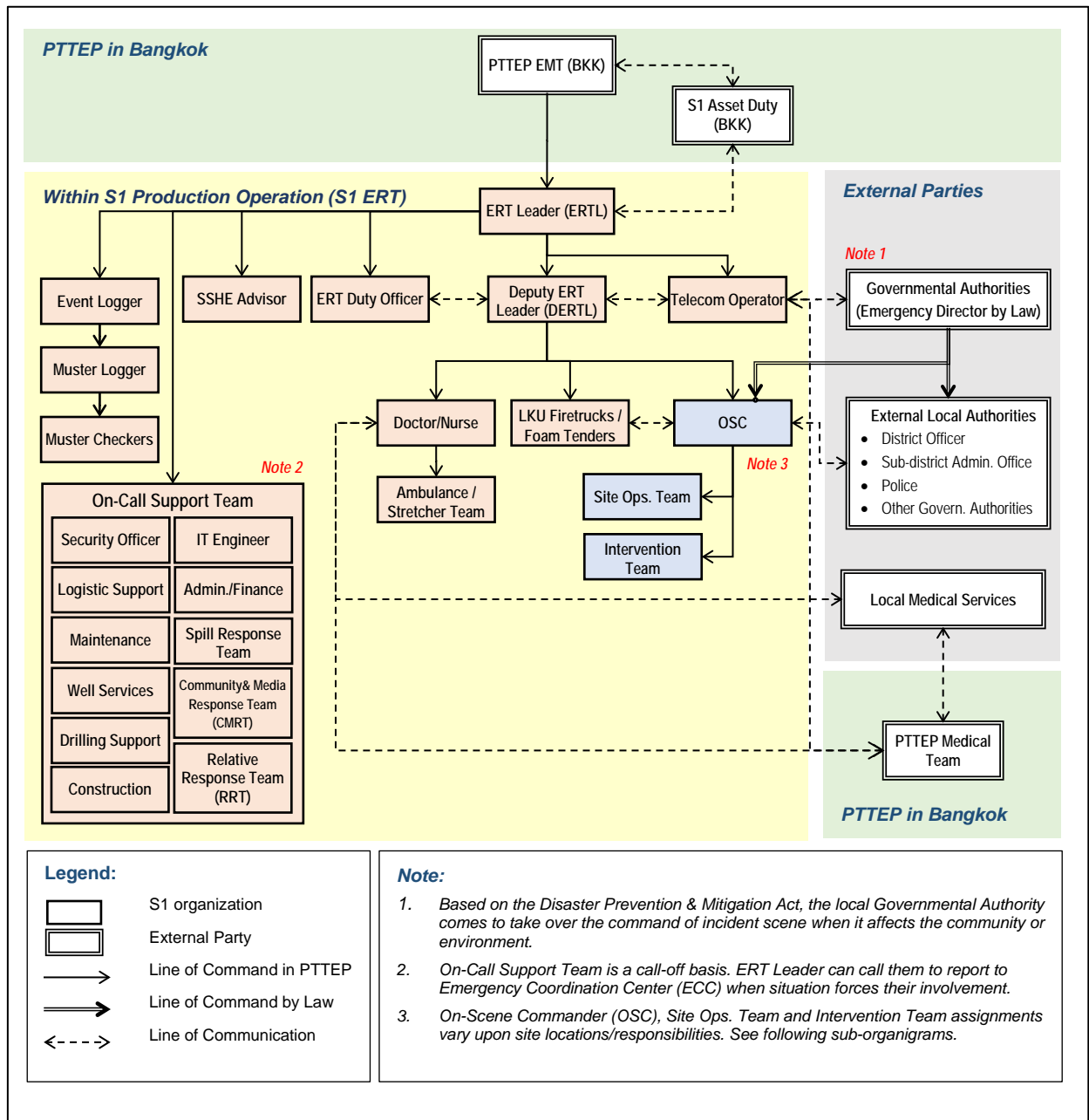
ERT assesses the occurring emergency situation & consequences, then determines & prioritize the potential impacts and responsive actions to ensure that emergency operations are conducted in a safe manner while the given emergency situation is sufficiently contained and controlled. To do so, ERT directs, supports and collaborates with the on-scene responsive team, concerned external parties e.g. local authorities, local communities, media, staff's relatives, contractors, customers, etc. In parallel, ERT communicates and collaborates with S1 asset duty person and EMT.

ERT members are:-

1. Emergency Response Team Leader (ERTL) – Vice President of S1 production operations department;
2. Deputy Emergency Response Team Leader (DERTL) – appointed by ERTL, by default the top authority of the area affected by the given emergency situation otherwise specifically appointed by ERTL;
3. Duty Officer – S1 production superintendent otherwise specifically appointed by ERTL;
4. S1 SSHE Advisor – S1 SSHE superintendent or his delegate;
5. Event Logger – S1 production engineer;
6. Muster Logger / Deputy Muster Checker – S1 SSHE officer (operational safety);
7. Muster Checkers – the trained persons assigned to the given muster points;
8. On-scene Commander (OSC) – appointed persons in charge of site location affected by the given emergency situation;
9. Site Operation Team – Normally regular staff who are working at site location;
10. Intervention Team/Firefighting Team – Trained staff who are competent in emergency, fire and rescue operations appointed by ERTL;
11. Medical Team – LKU Doctor/Nurse, Ambulance, and Stretcher Team;
12. LKU Telecommunication Officer (24/7); and
13. On-call Support Team – includes transportation/logistic, drilling, well service, construction, maintenance, IT/Telecom, spill response team, medical response team (CMRT), relative response team (RRT), security, and administration & finance.

The organigram of S1 ERT is illustrated in **Figure 2**.

ERT member assignments for the areas under S1 premise are illustrated in **Table 1 - 5**.



**Figure 2: Overall S1 Emergency Response Team Organization**



**Table 1: ERT Assignment for LKU Flow Station, Workshops and Offices**

ERT Assignment for LKU Flow Station, Workshops and Offices		
Role	Assigned to:	Primary Master Point
ERT Leader	VP, S1 Production Operations	ECC
ERT Duty Officer	Production Superintendent	ECC
Deputy ERT Leader	Production Superintendent Workshop Superintendent (Well Service Workshop)	ECC
SSHE Advisor	SSHE Superintendent	ECC
Telecom Operator	On duty telecom Operator	Telecom Room
Event Logger	Production Engineer	ECC
<u>LKU Flow Station and Offices</u>		
On-Scene Commander (OSC)	LKU Plant Supervisor	LKU CCR
Main Muster Logger	SSHE Officer (operation safety)	ECC
Muster Checker 1	Wellsite Supervisor 2	Main Muster Point @ Fire station
Muster Checker 2	Public Affairs Officer	Muster Point #2 @ PNEC Building
Muster Checker 3	LKU Plant Foreman	Muster Point #3 @ LKU CCR
<u>Well Services Workshop</u>		
On-Scene Commander (OSC)	Workshop Supervisor	Well Services Workshop
Area Muster Logger	Workshop Team Leader	Well Services Workshop
Muster Checker	Snr. Tech. (Workshop and General Services)	Muster Point @ In front of the workshop
<u>Material Yard and Material Storage Locations</u>		
On-Scene Commander (OSC)	LKU Support Base Supervisor	Material Yard
Area Muster Logger	Warehouse & Material Yard Team Leader	Material Yard
Muster Checker	Snr. Store Keeper	Muster Point @ In front of the material yard
ERT Assignment Details		
Doctor/Nurse	Doctor/Nurse	Clinic
Ambulance	On duty Ambulance Driver	Clinic
LKU Fire Truck FT01	SSHE Officer (Emergency)	Fire Station
LKU Fire Truck FW01	SSHE Senior Tech. (Emergency)	Fire Station
LKU Foam Tender Truck 1	LKU Depot Operator #1	LKU Depot
LKU Foam Tender Truck 2	LKU Depot Operator #2	LKU Depot
<b>Site Operations Team:</b> <ul style="list-style-type: none"> <li>- Production Supervisor</li> <li>- Power Plant Operator</li> <li>- Panel Operator</li> </ul>	LKU Plant Supervisor Maintenance Power Plant Operator Lead Production Operator (CCR) Senior Production Operator (CCR)	LKU CCR LKU Switchgear Room LKU CCR LKU CCR

ERT Assignment for LKU Flow Station, Workshops and Offices		
<b>Intervention Team:</b>  Fire Chief  Fireteam Leader 1 - Fireteam 1 member - Fireteam 1 member  Fireteam Leader 2 - Fireteam 2 member / Crude/LPG Fire Pump - Fireteam 2 member  Fireteam Leader 3 (Backup – F/S) - Fireteam 3 member - Fireteam 3 member  Fireteam Leader 4 (Backup – West Well Sites) - Fireteam 4 member - Fireteam 4 member  Fireteam Leader 5 (Backup – East Well Sites) - Fireteam 5 member - Fireteam 5 member - Fireteam 5 member	Lead Production Operator (LKU Flow Station)  On-duty Production Operator #1 On-duty Production Operator #2 On-duty Production Operator #3 On-duty Production Operator #4 On-duty Production Operator #5 On-duty Lab Technician  Off-duty Production Operator #1 Off-duty Production Operator #2 Off-duty Production Operator #2  On-duty Production Operator #1 On-duty Production Operator #2 On-duty Production Operator #3  On-duty Production Operator #1 On-duty Production Operator #2 On-duty Production Operator #3 On-duty Production Operator #4	LKU CCR  LKU Flow Station LKU Flow Station LKU Flow Station LKU Flow Station LKU Flow Station LKU Flow Station  LKU Accommodation LKU Accommodation LKU Accommodation  West Well Sites West Well Sites West Well Sites  East Well Sites East Well Sites East Well Sites East Well Sites
<b>On-Call Support Team:</b>  - Security Officer - IT Engineer - Logistics Support - Admin./Finance - Construction - Maintenance - Spill Response Team - Community & Media Response Team - Relative Response Team	GGI security Supervisor IT and Telecommunications Supervisor Oil Movement and Transportation Manager Cost Coordination Officer Onshore Execution Team Leader Maintenance Superintendent BRK Intertransport Co., Ltd. Public Affairs Manager Operations Training Center Manager	LKU Gate 1 Officer  Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station BRK Office Main Muster Point @ Fire Station Main Muster Point @ Fire Station

**Table 2: ERT Assignment for Well Sites and MPFs (West, East & North)**

ERT Assignment for Well Sites and MPFs (West, East & North) including DDC training center		
Role	Assigned to:	Primary Master Point
ERT Leader	VP, S1 Production Operations	ECC
ERT Duty Officer	Production Superintendent	ECC
Deputy ERT Leader	Production Superintendent	ECC
SSHE Advisor	SSHE Superintendent	ECC
Telecom Operator	On duty telecom Operator	Telecom Room
Event Logger	Production Engineer	ECC
Muster Logger	SSHE Officer (operation safety)	ECC
Muster Checker	Assigned Operator	Affected Well Site / MPF
Doctor/Nurse	Doctor/Nurse	Clinic
Ambulance	On duty Ambulance Driver	Clinic
LKU Fire Truck FT01 LKU Fire Truck FW01	SSHE Officer (Emergency) SSHE Senior Tech. (Emergency)	Fire Station
LKU Fire Truck FT02 LKU Fire Truck FW02	Fire Truck Driver (Emergency) Fire Truck Driver (Emergency)	NTM-A
LKU Foam Tender Truck 1 LKU Foam Tender Truck 2	LKU Depot Operator #1 LKU Depot Operator #2	LKU Depot LKU Depot
On-Scene Commander (OSC)	Affected Area Supervisor (Field Supervisors – North, East, West)	LKU Office
<b>Site Operations Team:</b> <ul style="list-style-type: none"> <li>- Production Supervisor</li> <li>- Production Operator</li> <li>- LKU CAO Operator</li> <li>- NTM CCR Operator</li> <li>- STN CCR Operator</li> </ul>	Field Supervisors (North including NTM-A & STN/A, East, West) Affected Area Operators (MPFs) Lead Production Operator (CAO) Production Operator (CAO) Production Operator (NTM-A) Production Operator (STN-A)	LKU Office Affected Well Site / MPF CAO Room NTM-A STN-A
<b>Intervention Team (Well Sites):</b> <ul style="list-style-type: none"> <li>- Fire Chief</li> <li>- Fireteam Leader 1 <ul style="list-style-type: none"> <li>- Fireteam 1 member</li> <li>- Fireteam 1 member</li> </ul> </li> <li>- Fireteam Leader 2 (Back-up – Well Sites) <ul style="list-style-type: none"> <li>- Fireteam 2 member</li> <li>- Fireteam 2 member</li> <li>- Fireteam 2 member</li> </ul> </li> <li>- Fireteam Leader 3 (Back-up – Well Sites) <ul style="list-style-type: none"> <li>- Fireteam 3 member</li> </ul> </li> </ul>	<b>Well Sites in a radius of 30 km from LKU Flow Station including DDC training center</b> Lead Production Operator (Well Sites) On-duty Production Operator #1 On-duty Production Operator #2 On-duty Production Operator #3 On-duty Production Operator #1 On-duty Production Operator #2 On-duty Production Operator #3 On-duty Production Operator #4	Affected Well Sites Affected Well Sites Affected Well Sites Affected Well Sites Other Well Sites Other Well Sites Other Well Sites Other Well Sites Other Well Sites LKU Accommodation

ERT Assignment for Well Sites and MPFs (West, East & North) including DDC training center		
<ul style="list-style-type: none"> <li>- Fireteam 3 member</li> <li>- Fireteam 3 member</li> </ul>	Off-shift duty Production Operator #1  Off-shift duty Production Operator #2  Off-shift duty Production Operator #3  Off-shift duty Production Operator #4	LKU Accommodation  LKU Accommodation  LKU Accommodation
<b>Intervention Team (NTM-A):</b> <ul style="list-style-type: none"> <li>- Fire Chief</li> <li>- Fireteam Leader 1 <ul style="list-style-type: none"> <li>- Fireteam 1 member</li> <li>- Fireteam 1 member</li> <li>- Fireteam 1 member</li> <li>- Fireteam 1 member</li> </ul> </li> <li>- Fireteam 2 member</li> </ul>	Lead Production Operator (NTM-A) On-duty Production Operator #1 Off-shift duty Production Operator #1 Off-shift duty Production Operator #2 Off-shift duty Production Operator #3 Off-shift duty Production Operator #4 Operators assigned to LKU Flow Station, E&W well sites	NTM-A NTM-A NTM-A Accommodation NTM-A Accommodation NTM-A Accommodation NTM-A Accommodation LKU Flow Station, East/West Well Sites
<b>Intervention Team (STN-A):</b> <ul style="list-style-type: none"> <li>- Fire Chief <ul style="list-style-type: none"> <li>- Fireteam 3 member</li> </ul> </li> </ul>	On-duty Production Operator #1 Production Operators assigned to NTM-A, east & west well sites	STN-A East/West Well Sites, NTM-A
<b>Intervention Team (MPFs):</b>	Request support by nearby production hub and/or external local authorities	The other production hub
<b>On-Call Support Team:</b> <ul style="list-style-type: none"> <li>- Security Officer</li> <li>- IT Engineer</li> <li>- Logistics Support</li> <li>- Admin./Finance</li> <li>- Construction</li> <li>- Maintenance</li> <li>- Spill Response Team</li> <li>- Community &amp; Media Response Team</li> <li>- Relative Response Team</li> </ul>	GGI security Supervisor IT and Telecommunications Supervisor Oil Movement and Transportation Manager Cost Coordination Officer Onshore Execution Team Leader Maintenance Superintendent BRK Intertransport Co., Ltd. Public Affairs Manager Operations Training Center Manager	LKU Gate 1 Officer Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station BRK Office Main Muster Point @ Fire Station Main Muster Point @ Fire Station

**Table 3: ERT Assignment for Bung Pra (BPR) Depot**

ERT Assignment for Bung Pra (BPR) Depot		
Role	Assigned to:	Primary Master Point
ERT Leader	VP, S1 Production Operations	ECC
ERT Duty Officer	Production Superintendent	ECC
Deputy ERT Leader	Oil Movement and Transportation Manager	ECC
SSHE Advisor	SSHE Superintendent	ECC
Telecom Operator	On duty telecom Operator	Telecom Room
Event Logger	Production Engineer	ECC
Main Muster Logger	SSHE Officer (operation safety)	ECC
Affected Area Muster Logger	BPR Depot Operator	BPR Depot
Muster Checker (Road Side)	BPR Depot Senior Security Guard	Muster Point @ In front of T-904
Muster Checker (Rail Side)	BPR Depot Security Guard	Muster Point @ In front of security guardhouse
Doctor/Nurse	Doctor/Nurse	Clinic
Ambulance	On duty Ambulance Driver	Clinic
LKU Fire Truck FT01 LKU Fire Truck FW01	SSHE Officer (Emergency) SSHE Senior Tech. (Emergency)	Fire Station
NTM Fire Truck FT02 NTM Fire Truck FW02	Fire Truck Driver (Emergency) Fire Truck Driver (Emergency)	NTM-A
LKU Foam Tender Truck 1 LKU Foam Tender Truck 2	LKU Depot Operator #1 LKU Depot Operator #2	LKU Depot LKU Depot
On-Scene Commander (OSC)	BPR Depot Supervisor	BPR Depot
<b>Site Operations Team:</b> - Depot Supervisor	BPR Depot Supervisor	BPR Depot
<b>Intervention Team:</b> - Fire Chief - Fireteam Leader 1 - Fireteam 1 member - Fireteam 1 member - Fireteam 1 member - Fireteam 1 member - Fireteam Leader 2 - Fireteam 1 member - Fireteam 1 member - Fireteam 1 member - Fireteam 1 member - Fire Water Pump Operator - First Aider	BPR Depot Operator Rail Side Loader Foreman Rail Side Loader North #1 Rail Side Loader North #2 Rail Side Loader North #3 Rail Side Loader North #4 Rail Side Loader South #1 Rail Side Loader South #2 Rail Side Loader South #3 Rail Side Loader South #4 Road Side Loader Road Side Loader Foreman Tractor Driver	BPR Depot BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Rail Side) BPR Depot (Road Side) BPR Depot (Rail Side)
<b>On-Call Support Team:</b> - Security Officer	GGI security Supervisor	LKU Gate 1 Officer

ERT Assignment for Bung Pra (BPR) Depot		
- IT Engineer	IT and Telecommunications Supervisor	Main Muster Point @ Fire Station
- Logistics Support	Oil Movement and Transportation Manager	Main Muster Point @ Fire Station
- Admin./Finance	Cost Coordination Officer	Main Muster Point @ Fire Station
- Construction	Onshore Execution Team Leader	Main Muster Point @ Fire Station
- Maintenance	Maintenance Superintendent	Main Muster Point @ Fire Station
- Spill Response Team	BRK Intertransport Co., Ltd.	BRK Office
- Community & Media Response Team	Public Affairs Manager	Main Muster Point @ Fire Station
- Relative Response Team	Operations Training Center Manager	Main Muster Point @ Fire Station

**Table 4: ERT Assignment for CNS Rail Tanker Inspection and Maintenance Workshop**

ERT Assignment for CNS Rail Tanker Inspection and Maintenance Workshop		
Role	Assigned to:	Primary Master Point
ERT Leader	VP, S1 Production Operations	ECC
ERT Duty Officer	Production Superintendent	ECC
Deputy ERT Leader	Oil Movement and Transportation Manager	ECC
SSHE Advisor	SSHE Superintendent	ECC
Telecom Operator	On duty telecom Operator	Telecom Room
Event Logger	Production Engineer	ECC
Main Muster Logger	SSHE Officer (operation safety)	ECC
Affected Area Muster Logger	CNS Site Manager (contractor)	CNS
Muster Checker	CNS Safety Officer (contractor)	Muster Point @ In front of security guardhouse
Doctor/Nurse	Doctor/Nurse	-
On-Scene Commander (OSC)	Depot Supervisor (BCP/ TOC/ PTTGC) or CNS Site Manager (contractor)	CNS
Intervention Team	Request support by external local authorities such as BKK metropolitan officer, sub-district office, local medical services, police and/or other government authorities	External local authorities
<b>On-Call Support Team:</b> <ul style="list-style-type: none"> <li>- Security Officer</li> <li>- IT Engineer</li> <li>- Logistics Support</li> <li>- Admin./Finance</li> <li>- Construction</li> <li>- Maintenance</li> <li>- Spill Response Team</li> <li>- Community &amp; Media Response Team</li> <li>- Relative Response Team</li> </ul>	GGI security Supervisor IT and Telecommunications Supervisor Oil Movement and Transportation Manager Cost Coordination Officer Onshore Execution Team Leader Maintenance Superintendent BRK Intertransport Co., Ltd. Public Affairs Manager Operations Training Center Manager	LKU Gate 1 Officer Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station BRK Office Main Muster Point @ Fire Station Main Muster Point @ Fire Station

**Table 5: ERT Assignment for PHS Housing Compounds**

ERT Assignment for PHS Housing Compounds		
Role	Assigned to:	Primary Master Point
ERT Leader	VP, S1 Production Operations	ECC
ERT Duty Officer	Production Superintendent	ECC
Deputy ERT Leader	Production Superintendent	ECC
SSHE Advisor	SSHE Superintendent	ECC
Telecom Operator	On duty telecom Operator	Telecom Room
Event Logger	Production Engineer	ECC
Main Muster Logger	SSHE Officer (operation safety)	ECC
Affected Area Muster Logger	Security Guard	PHS Housing Compounds
Muster Checker	Security Guard	Muster Point @ In front of security guardhouse
Doctor/Nurse	Doctor/Nurse	Clinic
Ambulance	On duty Ambulance Driver	Clinic
LKU Fire Truck FT01 LKU Fire Truck FW01	SSHE Officer (Emergency) SSHE Senior Tech. (Emergency)	Fire Station
NTM Fire Truck FT02 NTM Fire Truck FW02	Fire Truck Driver (Emergency) Fire Truck Driver (Emergency)	NTM-A
On-Scene Commander (OSC)	Operation Services Supervisor	LKU office
Intervention Team	Request support by external local authorities such as district officer, -sub-district office, -local medical services, -police and/or -other government authorities	External local authorities
<b>On-Call Support Team:</b> <ul style="list-style-type: none"> <li>- Security Officer</li> <li>- IT Engineer</li> <li>- Logistics Support</li> <li>- Admin./Finance</li> <li>- Construction</li> <li>- Maintenance</li> <li>- Spill Response Team</li> <li>- Community &amp; Media Response Team</li> <li>- Relative Response Team</li> </ul>	GGI security Supervisor IT and Telecommunications Supervisor Oil Movement and Transportation Manager Cost Coordination Officer Onshore Execution Team Leader Maintenance Superintendent BRK Intertransport Co., Ltd. Public Affairs Manager Operations Training Center Manager	LKU Gate 1 Officer Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station Main Muster Point @ Fire Station BRK Office Main Muster Point @ Fire Station Main Muster Point @ Fire Station



### 3.3 ROLES AND RESPONSIBILITIES

This section advises each S1 ERT member of their roles and responsibilities in dealing with emergency situations.

<b>Emergency Response Team Leader (ERTL)</b>	
Responsible Person	Vice President of S1 Production Operations Department
Work Station	S1 LKU Emergency Coordination Centre (ECC) room
Responsibilities	<p>Protect life, environment, plant, production, and reputation by taking effective actions; managing the S1 ERT and collaborating with PTTEP EMT and necessary external parties to ensure the potential for escalation and risk of injury and damage is minimised. S1 ERT leader shall:-</p> <ul style="list-style-type: none"> <li>• Ensure all ERT, CMRT &amp; RRT have received adequate training to cope with their assignments;</li> <li>• Maintain a state of readiness;</li> <li>• Assess the situation;</li> <li>• Take effective actions;</li> <li>• Maintain communication;</li> <li>• Delegate authorities to act;</li> <li>• Manage team performance; and</li> <li>• Deal with stress.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Establish early contact with PTTEP EMT and S1 asset duty persons;</li> <li>• Consider to activate Emergency Coordination Centre (ECC) and call in the ERT members and the On-Call Support Team as deemed necessary.</li> <li>• Manage and coordinate the activities of all S1 ERT members;</li> <li>• Develop an incident response strategy;</li> <li>• Control the incident to prevent escalation;</li> <li>• Maintain communications with PTTEP EMT, SVP of S1 asset, and necessary external parties;</li> <li>• Minimize risk to personnel including intervention team, S1 staff, contractors, and 3<sup>rd</sup> parties;</li> <li>• Minimize impact on the environment;</li> <li>• Ensure sufficient resources are available to support all response teams;</li> <li>• Plan the delegations of ERT members for rests if the emergency situation has been prolonged;</li> <li>• Plan and prepare for safe evacuation when necessary;</li> <li>• Keep closely informed and monitor the emergency situation, response, and recovery;</li> <li>• Provide any advice and support requested by the operating site;</li> </ul>

Emergency Response Team Leader (ERTL)	
	<ul style="list-style-type: none"> <li>• Be a focal point to report and update the emergency situation to BKK S1 Asset Duty by phone as specified in the S1 weekly duty roster or direct report to BKK PTTEP EMT;</li> <li>• Maintain records of events through Event Logger;</li> <li>• Utilise "Time Outs" to update EMT of ongoing situation including: <ul style="list-style-type: none"> <li>- The exact status of the event at the accident scene and evacuation details.</li> <li>- Status and priority of supports provided to the site such as firefighting, medical evacuation, transportation, etc.</li> <li>- Brainstorming and resolving key issues/problems faced.</li> </ul> </li> </ul> <p>For Tier 2 and 3 other than above:</p> <ul style="list-style-type: none"> <li>• Activate S1 Emergency Coordination Center (ECC) and call in all ERT members and necessary On-Call Support Team.</li> </ul> <p>In case of a press release to local media or communities:</p> <ul style="list-style-type: none"> <li>• Call in CMRT to support in dealing with media and community;</li> <li>• Consult with the Crisis Communication Team (CCT) Leader on the general approach to be taken when speaking to the media;</li> <li>• Be a spokesperson for disclosure of information and public statement to local media or communities;</li> <li>• Represent the company externally, in interviews, and at a press conference;</li> <li>• Ensure aid materials (charts, maps, etc) &amp; Technical Advisor are available;</li> <li>• Assess the effectiveness of the press conference with the CCT Leader; and</li> <li>• Log own actions, messages on communication, involved party, and time on the log sheet and pass it to event logger.</li> </ul>

ERT Duty Officer	
Responsible Person	The person appointed by ERTL, or by default, the S1 Production Superintendent
Responsibilities	<ul style="list-style-type: none"> <li>• Take a role and responsibility as ERTL until his/her arrival (see ERTL responsibility); and</li> <li>• Keep ERTL informed of the emergency situation, response, and recovery.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Act as ERTL until his/her arrival (see Roles and Responsibilities of ERTL);</li> <li>• Share workloads of ERTL as directed; and</li> <li>• Direct and approve for the mobilization of ambulance, firetrucks, and Spill Response Team.</li> </ul>

<b>Deputy Emergency Response Team Leader (DERTL)</b>	
Responsible Person	<p>The person appointed by ERTL based on the area affected by an incident.</p> <ul style="list-style-type: none"> <li>• PS1/P for LKU flow station, well sites, MPF locations, workshops, offices, material yard and material storage locations, PHS housing compounds and DDC training center.</li> <li>• PS1/O for BPR depot in Phitsanulok Province and CNS rail tanker inspection and maintenance workshop in BKK.</li> </ul>
Responsibilities	<ul style="list-style-type: none"> <li>• Minimise injury, environmental pollution, asset/property damage and reputation;</li> <li>• Assist ERTL to manage and direct actions of the emergency response team, medical team, and incident support function to contain and control the emergency situation;</li> <li>• Collaborate with local external parties; and</li> <li>• Coordinate with RRT and CMRT when necessary.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Update the situation with OSC and assess for the effective response strategy;</li> <li>• Provide the resources e.g. manpower, fire/foam trucks, spill response team, financial support, etc. required for the emergency response to OSC, medical team and affected area;</li> <li>• Provide technical advice to OSC, ERTL/ERT Duty Officer;</li> <li>• Closely report to and take constant directions from ERTL/ERTL Duty Officer for uninterrupted and effective management of the emergency situation.</li> <li>• Communicate, directly or through Telecom Operator, with local external parties e.g. governmental authorities, community, etc involving in the emergency situation;</li> <li>• Support in collaboration between OSC and external parties;</li> <li>• Communicate and collaborate with CMRT and RRT when the situation requires; and</li> <li>• Log own actions, messages on communication, involved party, and time on the log sheet and pass it to event logger.</li> </ul>

On-scene Commander (OSC) or Deputy OSC		
Responsible Person	The person appointed by DERTL based on the area affected by an incident.	
	<b>Location</b>	<b>OSC</b>
	LKU flow station, workshops, offices	LKU Plant Supervisor
	Well sites and MPFs including DDC training center	Affected Area Supervisors (Field Supervisors – West, East & North)
	Well services workshop	Workshop Supervisor
	Material yard and material storage locations	LKU Support Base Supervisor
	BPR Depot	BPR Depot Supervisor
	CNS rail tanker inspection and maintenance workshop	Depot Supervisor (BCP/ TOC/ PTTGC) or CNS Site Manager (contractor)
	PHS housing compounds	Operation Services Supervisor
Responsibilities	<ul style="list-style-type: none"> <li>• Protect personnel including staff, contractors, community, intervention &amp; medical teams;</li> <li>• Minimise the impact to environment and community in the vicinity;</li> <li>• Assess the situation and establish the tactical response;</li> <li>• Take commands of all immediate responsive activities on the incident scene;</li> <li>• Report to and provide constant updates of the situation to DERTL;</li> <li>• Collaborate with involving local authorities; and</li> <li>• Maintain records of events.</li> </ul>	
Key Actions	<ul style="list-style-type: none"> <li>• Assess the current emergency situation, associated hazards, impacts, and their potentials;</li> <li>• Establish tactical response plan e.g. isolation, blowdown, spill containment, evacuation, intervention, etc;</li> <li>• Command the site operation, intervention &amp; medical teams on the scene;</li> <li>• Provide necessary resources to site operation, intervention and medical teams;</li> </ul>	

On-scene Commander (OSC) or Deputy OSC	
	<ul style="list-style-type: none"> <li>• Ensure all personnel are adequately protected against arising hazards, especially site operation and intervention teams;</li> <li>• Regularly call “time out” to update and assess the current status of the situation and changes, then direct site operation, intervention, &amp; medical teams as appropriate;</li> <li>• Initiate site evacuation if necessary;</li> <li>• Provides necessary initial information to immediate local authority e.g. SAO, police, hospital, etc;</li> <li>• In consultation with PTN/A (public affairs), assess the impacts and inform the nearby community as necessary;</li> <li>• In consultation with DERTL, consider community evacuation if situation deemed dangerous or has potential to cause danger;</li> <li>• Plan the staff change over for site operation, intervention and medical teams if the situation is prolonged;</li> <li>• Keep DERTL updated with situation, changes, progress, and potentials; and</li> <li>• Log own actions, messages on communication, involved party, and time on the log sheet and pass it to event logger.</li> </ul> <p>According to the “Disaster Prevention and Mitigation Act”, when emergency situation poses or has potential to pose the significant danger to community and environment, the governmental authority of the affected area will overtake the command of overall emergency response as “Emergency Director”.</p> <ul style="list-style-type: none"> <li>• When a situation deemed as in the above condition, provides initial information on the emergency situation to the local authority;</li> <li>• When local authority comes to take over the command, report to Emergency Director, and in parallel collaborate with ERT for effective emergency response and recovery; and</li> <li>• Provide necessary technical advice to the Emergency Director and teams.</li> </ul>

Site Operation Team	
Responsible Person	The staff assigned by OSC to operate and/or control the affected facility and area. In an emergency, they assist OSC to recover or make safe the facility and area by operating the facility, isolating & removing the arising hazards and providing necessary supports to the intervention team to contain the situation.
Responsibilities	<ul style="list-style-type: none"> <li>• Be under command of the OSC;</li> <li>• Operate/control/stabilize the affected facility and area; and</li> <li>• Support the intervention and medical teams.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Provide detailed current status of facility and area to the OSC e.g. process &amp; area condition, process safety system, F&amp;G system, firefighting system, etc;</li> <li>• Control and stabilize the facility and area e.g. shutdown, isolation, blowdown, inhibit/override of system, removal of hazards, etc;</li> <li>• Maintain safe conditions of facilities and area throughout emergency situation;</li> <li>• Notify hazards associated with process, facility, and area to OSC and intervention team;</li> <li>• Keep OSC updated with changes in conditions of the process, facilities, and area; and</li> <li>• Log own actions, messages on communication, involved party, and time on the log sheet and pass it to event logger as applicable.</li> </ul>

Intervention Team Leader (ITL)	
Responsible Person	The person assigned to lead the intervention team and direct tactical intervention activities e.g. firefighting, rescue, recovery of distressed personnel, etc.
Responsibilities	<ul style="list-style-type: none"> <li>• Provide a frontline response to the incident scene as directed by OSC;</li> <li>• Lead intervention team in coordination with site operation and medical teams.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Update the status of situation and potential with OSC and intervention team;</li> <li>• Take priority on the safety of the intervention team and others;</li> <li>• Consider the hazards and potentials of a gas cloud, oil spill, fire, boil over, BLEVE, collapse of structure &amp; vessel, traffic, etc.;</li> <li>• Size up the situation and establish tactical frontline action plan;</li> <li>• Utilize automatic system e.g. fire pumps, monitor, deluge, etc.</li> <li>• Ensure adequate and effective communication amongst the intervention team and with others;</li> <li>• Establish the forward control point for intervention and medical teams as necessary;</li> <li>• Collaborate with other supporting teams e.g. site operation &amp; medical team, and others e.g. fire brigade, police, etc.;</li> <li>• Brief the intervention team on the situation, potentials, target of achievement, and tactical action plan;</li> <li>• Direct the intervention team to accomplish the tactical action plan;</li> <li>• Monitor closely the intervention actions and assess the result. The intervention action plan may change upon the upcoming changes with the situation;</li> <li>• Make regular contact with the intervention team and OSC for updates and changes; and</li> <li>• Request external supports and resources when necessary.</li> </ul>



<b>Intervention / Fire Team Member</b>	
Responsible Person	The persons assigned as an intervention team member shall be adequately trained and competent to conduct the hand-on intervention activities e.g. firefighting, rescue, oil spill response, etc.
Responsibilities	<ul style="list-style-type: none"> <li>• Ensure the safety of own and others;</li> <li>• Under command of ITL</li> <li>• Provide frontline responsive actions on the emergency situation as directed.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Wear adequate and proper PPE to conduct the assigned task e.g. firefighting, rescue, chemical intervention, oil spill, etc.;</li> <li>• Receive a briefing on the situation, hazards, preventive measures and responsive action plan from ITL;</li> <li>• Conduct the actions assigned by ITL in a safe manner that may involve: <ul style="list-style-type: none"> <li>- Reconnaissance of incident scene;</li> <li>- Operating the automatic firefighting device;</li> <li>- Conducting firefighting task;</li> <li>- Conducting rescue, extraction, recovery, and handling of casualties; and</li> <li>- Assisting in control of traffic and access.</li> </ul> </li> </ul>

<b>Medical Team</b>	
Responsible Person	Medical Team consists of <ol style="list-style-type: none"> <li>1. LKU Doctor/Nurse</li> <li>2. Ambulance Driver</li> <li>3. Off-shift Duty Ambulance Driver</li> <li>4. Stretcher Team</li> </ol>
Responsibilities	<ul style="list-style-type: none"> <li>• Safety of own and others;</li> <li>• Size up the situation and activate the appropriate medical procedure;</li> <li>• Stabilize the casualties and initiate the transfer of casualty to hospital/medical centre in a safe manner as necessary;</li> <li>• Assess the extents of injuries and provide advice to the DERTL and/or OSC for appropriate treatment and further supports and resources required;</li> <li>• Assist in arranging medical evacuation/referral;</li> <li>• Coordinate with the PTTEP medical team and casualty-receiving hospitals; and</li> <li>• Log all actions, communication made, detail &amp; number of injury, time, etc. on the log sheet.</li> </ul>

<b>Medical Team</b>	
Key Actions	<p><b>LKU Nurse</b></p> <ul style="list-style-type: none"> <li>• Make ready, at all times, the medical equipment, and supplies at the clinic, in portable packs, and on the ambulance required for emergency response;</li> <li>• Size up the situation and take appropriate actions and give adequate first aid/initial medical treatment;</li> <li>• Utilize the available supporting staff in casualty handling e.g. intervention team, stretcher team, etc.;</li> <li>• For multiple casualties, consider to activate triage procedure and request for support from the selected hospital and medical service centre;</li> <li>• Seek advice from PTTEP medical team when necessary;</li> <li>• Assess and advise on the appropriate medical evacuation/referral to OSC and/or DERTL;</li> <li>• Coordinate with PTTEP medical team and hospital receiving the casualty to ensure the appropriate treatment and followup; and</li> <li>• Keep records of casualties and treatments.</li> </ul> <p><b>On-Duty Ambulance Driver</b></p> <ul style="list-style-type: none"> <li>• Have undergone the defensive driving and advanced first aid training courses;</li> <li>• Have ensured the ambulance is in ready &amp; clean condition with adequate fuel (minimum half a tank);</li> <li>• Get familiarized with the routes for transport;</li> <li>• Drive the ambulance in a safe manner based on defensive driving principle;</li> <li>• Assist the handling of casualties under supervision of doctor/nurse; and</li> <li>• Make entries into a driving log. This information includes injured persons'/ patients' names and addresses, trip times, mileage, and services performed.</li> </ul> <p><b>Off-Duty Ambulance Driver</b></p> <ul style="list-style-type: none"> <li>• Assist doctor/nurse to provide first aid treatment and handling of casualties.</li> </ul> <p><b>Stretcher Team</b></p> <ul style="list-style-type: none"> <li>• Assist medical team in manual transfer of casualty.</li> </ul> <p>Remark: In case of PTTEP ambulance absence, a back-up van having medical equipment as equal to the ambulance should be available.</p>

<b>SSHE Advisor</b>	
Responsible Person	Superintendent, SSHE of S1 Asset or his delegation
Responsibilities	<ul style="list-style-type: none"> <li>• Advise ERTL, DERTL, ERT duty officer, OSC, etc on SSHE matters and procedures relevant to emergency response &amp; management;</li> <li>• Observe the situation, taken actions, deficiencies, gaps for improvement, and advise ERTL &amp; ERT duty officer;</li> <li>• Ensure the procedure and actual practice are consistent and appropriate to regulations; and</li> <li>• Collect all information for the summary report to be further issued.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Evaluate the hazards and potentials of the incident and impacts;</li> <li>• Provide necessary information to ERTL, ERT duty officer and other members in ECC room;</li> <li>• Observe the ERP, relevant legislations, and the actual actions taken along with the emergency response process, then identify discrepant and deficiency and inform ERTL and/or DERTL;</li> <li>• Take note of all observations;</li> <li>• Support and liaise with event logger to ensure all necessary information and correct timeline are logged;</li> <li>• Ensure personnel accountability including those deployed to the emergency scene;</li> <li>• Provide technical advice on equipment, resources, and method to control, contain, and prevent the emergency situation, escalation &amp; impact;</li> <li>• Communicate with and seek advice from corporate SSHE division as necessary;</li> <li>• Call in other members of S1 SSHE staff to support as necessary;</li> <li>• After the emergency is over, collect all information, papers, photographs, other evidence of the emergency and response process. Compile a summary report for Vice president of S1 production operations department; and</li> <li>• Log own actions, messages on communication, involved party, and time on the log sheet and pass it to event logger.</li> </ul>

Telecom Officer	
Responsible Person	Telecommunication Operator
Responsibilities	<ul style="list-style-type: none"> <li>Be available, at all times, to receive an emergency call;</li> <li>Make accurate communication with internal and external parties as specified in ERP and instructed by ERTL; and</li> <li>Record details of all calls made in and out with the timeline.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>Maintain up-to-date emergency contact numbers for all internal and external parties;</li> <li>Make weekly call tests with S1 duty roster numbers;</li> <li>Ensure all telecommunication equipment in telecommunication room is readily available at all times;</li> <li>Upon receiving the emergency information, immediately report to ERT duty officer, ERTL, OSC, SSHE duty respectively;</li> <li>Upon confirmation from ERTL or ERT duty officer, report to EMT duty person;</li> <li>Upon request from ERTL or ERT duty officer, call in ERT members to report to ECC room;</li> <li>Support ERT in making calls to internal and external parties; and</li> <li>Log details of calls received and made on the log sheet.</li> </ul>

Event Logger	
Responsible Person	S1 Production Engineer
Responsibilities	<ul style="list-style-type: none"> <li>Log details of the situations and actions on the event log boards/sheets; and</li> <li>Ensure the logged information logged are accurate and adequate with what, when, where, who, whom &amp; how questions principle.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>Liaise with all ERT members to obtain significant and accurate information;</li> <li>Observe and listen to the communication made in ECC and take necessary information;</li> <li>Avoid interrupting ERT members when they are occupied with work;</li> <li>Log the received information in the chronological order on the event log boards/sheets in an accurate and clear manner;</li> <li>Update the status board e.g. mustering, mobilization of firetrucks &amp; other resources, etc.;</li> <li>Maintain the trailing records and update the current information of the situation; and</li> <li>Assist ERTL or ERT duty officer to feed necessary information in "time out".</li> </ul>

Muster Logger / Deputy Muster Checker	
Responsible Person	S1 SSHE Officer (Operational Safety)
Responsibilities	<ul style="list-style-type: none"> <li>Obtain and consolidate the personnel counts from each muster point (muster checkers);</li> <li>Communicate with muster points;</li> <li>Monitor and record the movements of personnel when called for duty;</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>Communicate with all muster checkers to obtain personnel counts;</li> <li>Together with muster checkers, identify the missing person;</li> <li>Update status of personnel counts to event logger;</li> <li>Coordinate with muster checkers for evacuations;</li> <li>Log own actions, messages on communication, involved party, and time on the log sheet and pass it to event logger; and</li> <li>Assist event logger for event logs.</li> </ul>

Muster Checker	
Responsible Person	Persons appointed to responsible muster points
Responsibilities	<ul style="list-style-type: none"> <li>Personnel counts at the designated muster point;</li> <li>Identifying missing person;</li> <li>Ensure safety and order of personnel at the muster point to be in order;</li> <li>Control and lead the evacuation of the designated muster point; and</li> <li>Communicate with a muster logger.</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>Ensure the mustered personnel are safe and remain in order;</li> <li>If the designated muster point is not safe, coordinate with muster logger for alternative muster point;</li> <li>Take a headcount of personnel at the designated muster point and report the result to muster logger;</li> <li>Identify the missing person with muster logger;</li> <li>Observe the mustered personnel for illness or injury and provide necessary supports;</li> <li>Coordinate with muster logger for personnel called from muster point for duty during an emergency;</li> <li>Encourage mustered personnel to calm down and be positive;</li> <li>Release persons for specific duty as requested by ER Team Leader and Muster Logger informed of this update/change; and</li> </ul>

Muster Checker	
	<ul style="list-style-type: none"> <li>Ensure all personnel remains at muster point during an emergency, it is not safe or receives instruction from ERTL, ERT duty officer or DERTL.</li> </ul>

Fire Warden (Building)	
Responsible Person	Persons working in building assigned to take the role of fire warden.
Responsibilities	In evacuation, ensure all personnel leaves area in a safe manner to muster points
Key Actions	<ul style="list-style-type: none"> <li>Direct all personnel in the designated area to leave the area for musters in a safe manner using appropriate routes and exits;</li> <li>Assist handicaps e.g. elderlies, children, injured, pregnant, disable, etc.</li> <li>Check all accessible spaces in their area, including the bathroom, store, pantry, etc, to make sure everyone has evacuated – this should be done on the way out of the building so that the fire warden does not put himself/herself at risk by re-entering the evacuated area;</li> <li>Close doors to help suppress or hinder the fire;</li> <li>Guide personnel to the muster points and assist in checking personnel having arrived safely at muster points; and</li> <li>Update with the list of staff stationed in the building given by PS1/S (emergency team).</li> </ul>

On-Call Support Team	
Responsible Person	The persons selected are the representatives of each discipline to support ERT when needed.
Responsibilities	<p>The On-Call Support Team comprises of representatives from a number of various disciplines. They are specialized and act as advisors and communication links.</p> <p>The On-Call Support Team consists but not limited to the following members:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Logistic Support;</li> <li><input type="checkbox"/> Well Service;</li> <li><input type="checkbox"/> Maintenance;</li> <li><input type="checkbox"/> Security Supervisor;</li> <li><input type="checkbox"/> Community &amp; Media Response Team;</li> <li><input type="checkbox"/> Relative Response Team.</li> <li><input type="checkbox"/> Drilling;</li> <li><input type="checkbox"/> Construction;</li> <li><input type="checkbox"/> IT/ Telecom Supervisor;</li> <li><input type="checkbox"/> Spill Response Team;</li> </ul>
Key Actions	<ul style="list-style-type: none"> <li>• Be ready on call, able to report to ECC within 2 hours when called by ERTL or ERT duty officer;</li> <li>• Be the link of communication between ERT and their assigned sections, departments, contractors;</li> <li>• Advise ERT on their specialized matters;</li> <li>• Collaborate with the assigned discipline on request;</li> <li>• Execute the task to support emergency response requested by ERT;</li> <li>• Receive briefing from ERTL or delegation;</li> <li>• Advise ERT members on matters relating to their discipline matters;</li> <li>• Call in or consult with other staff in their disciplines as required;</li> <li>• Provide support to ERT members as required; and</li> <li>• Log own actions, messages on communication, involved party and time on the log sheet and pass it to event logger.</li> </ul>



<b>Community &amp; Media Response Team (CMRT)</b>	
Responsible Person	Manager, Public Affairs Section and Team
Responsibilities	<p>Act as a point of contact and advise on all press related issues in supporting ERTL for appropriate communication with media and community.</p> <p>Note: Mobilize the team to Communication &amp; Media Response Room (CMRR) at LKU Building #1 Room #2 when Tier 2 and 3 emergency level is activated.</p>
Key Actions	<ul style="list-style-type: none"> <li>• Establish a proactive media liaison and public affairs strategy;</li> <li>• Seek advice, work closely and maintain communication with PTTEP Crisis Communication Team (CCT) for information review prior to delivering a response to local media and community;</li> <li>• Brief ERTL on local media interest, issues developing and requests from the media for information;</li> <li>• Assist in developing/delivering a response to the local media and community as directed by ERTL;</li> <li>• Maintain a log of media activity identifying the line of questioning being adopted by the media and issues developing and pass this information to ERTL;</li> <li>• Maintain a personal log of events undertaken during the incident life cycle and pass completed log sheets to Event Logger;</li> <li>• Ensure that Event Logger has a record of all contact with authorities;</li> <li>• Establish contact numbers where the media can call for information;</li> <li>• Pass any press releases to ERTL for approval process;</li> <li>• Update ERTL on all media and external affairs issues;</li> <li>• Monitor media related to an emergency; and</li> <li>• Liaise with ERTL if there is a requirement to confront any press interviews/conference.</li> </ul>

Relative Response Team (RRT)	
Responsible Person	Manager, Operations Training Center Section and Team
Responsibilities	<p>Act as a point of contact and advise on all human resources related issues.</p> <p>Provide support for human resource issues handling.</p> <p>Note: Mobilize the team to Relative Response Room (RRR) at LKU Building #2 Meeting Room when Tier 2 and 3 emergency level is activated.</p>
Key Actions	<ul style="list-style-type: none"> <li>• Have information on staff's selected relative's contact number for emergency;</li> <li>• Seek advice, work closely and maintain communication with PTTEP HR department for the information on the status of staff injuries, company welfare, legal concerns, and additional support required;</li> <li>• Advise ERTL on personnel and welfare issues relating to staff.</li> <li>• Hold the information on the status of ERT members, staff and contractors affected by the incident and emergency e.g. injured, deceased, locations, etc.</li> <li>• Coordinate with PTTEP HHR (Human resources) division;</li> <li>• Coordinate with hospitals for treatment of injured persons and provide the additional support required;</li> <li>• Consider mobilising RRT to interface with family or relatives of the impacted staff;</li> <li>• Make a note and maintain a personal log of all relevant information received and the consequential activity performed and pass each note to Event Logger;</li> <li>• Assist the Event Logger in tracking personnel on the status boards and ensure accuracy of information; and</li> <li>• Establish the requirement for counselling services for those affected by the emergency (open to all employees and contractors).</li> </ul>

Each ERT member shall record the details of message/events upon receiving in to the emergency log sheet form (**Appendix C**).

### 3.4 EMERGENCY RESPONSE ACTION

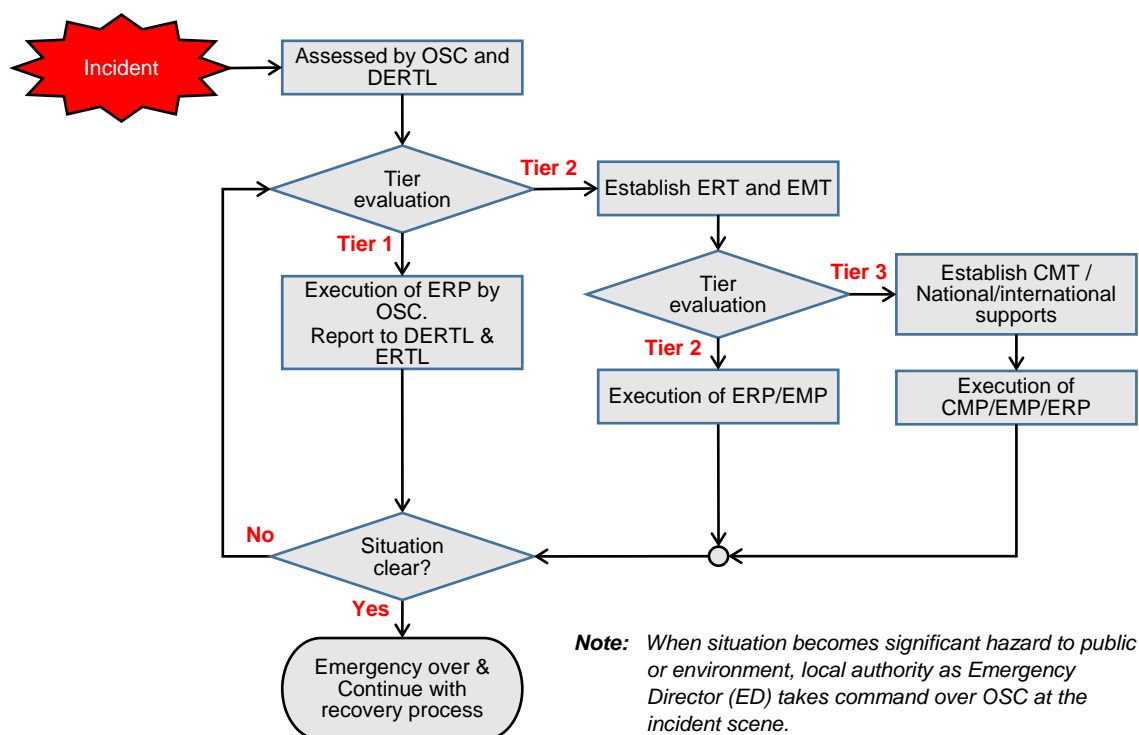
The response action of an emergency situation occurring at S1 operating sites can be summarized in flowing details.

1. When an emergency occurs, OSC with the site operation team and intervention team responds to the emergency situation as soon as possible.
2. OSC will evaluate the tier of emergency in consultation with the ERT duty officer.
  - a. Even though the emergency situation is within tier 1, localized and can be handled by site staff (OSC, site operation, intervention, and medical team), yet OSC shall immediately report to ERT duty officer for further justification;
  - b. If the emergency falls into tier 2,
    - i. Upon receiving the emergency information, ERTL or ERT duty officer shall activate ERT and ECC room. LKU telecom officer shall immediately call the duty persons of S1 ERT (see Section 3.2) to meet together at the S1 ECC room.
    - ii. ERTL or ERT duty officer shall lead ERT, in responding to the emergency situation.
    - iii. ERTL or ERT duty officer shall immediately contact BKK S1 asset duty and/or EMT Leader (SVP.). EMT will be established to manage and provide relevant supports to the asset in the tier 2 emergency situation.
    - iv. ERTL or ERT duty officer reported the emergency situation to the local governmental authority of the affected area.
    - v. DERTL or OSC may establish direct contacts for supports with external parties in the area e.g. SAO, police, hospital, medical service centers, provincial electricity authority, etc.
    - vi. The affected local government authority takeovers the emergency management by acting as Emergency Director (ED) if the emergency significantly affects the community or environment according to the Disaster Prevention and Mitigation Act.
    - vii. Even though OSC takes the command from ED, OSC yet carries on with emergency response on the scene in an effective way. The ED could be the executive chief of affected SAO or higher.
    - viii. OSC, while taking command from ED, collaborates with ERT for supports and information updates.
  - c. If the emergency escalates to tier 3, the situation goes beyond the capability of EMT, ERT & OSC to handle, the CMT shall be established in BKK. Emergency response and management shall be conducted according to PTTEP Emergency and Crisis Management Standard (SSHE-106-STD-500) and Crisis Management Plan (SSHE-106-PDR-501).

In case of emergency with S1 external organization in S1, but not directly under responsibility of S1 production operations department (PS1), e.g. new drilling site, new construction site, seismic survey, etc., the Company Site Representative (CSR) shall act as OSC for their responsible location and report directly to S1 DERTL.

Apart from the normal function line reporting procedure, CSR as OSC shall report all incidents to S1 telecom officer and ERT duty officer.

The Emergency Tier Evaluation & Response Flowchart is shown in **Figure 3**.



**Figure 3: Emergency Tier Evaluation & Response Flowchart**

### 3.5 COMMUNICATION DURING EMERGENCY

During an emergency, communications can be executed by the following methods.

- Radio;
- Landline Telephone;
- Mobile Phone;
- E-mail; or
- Fax

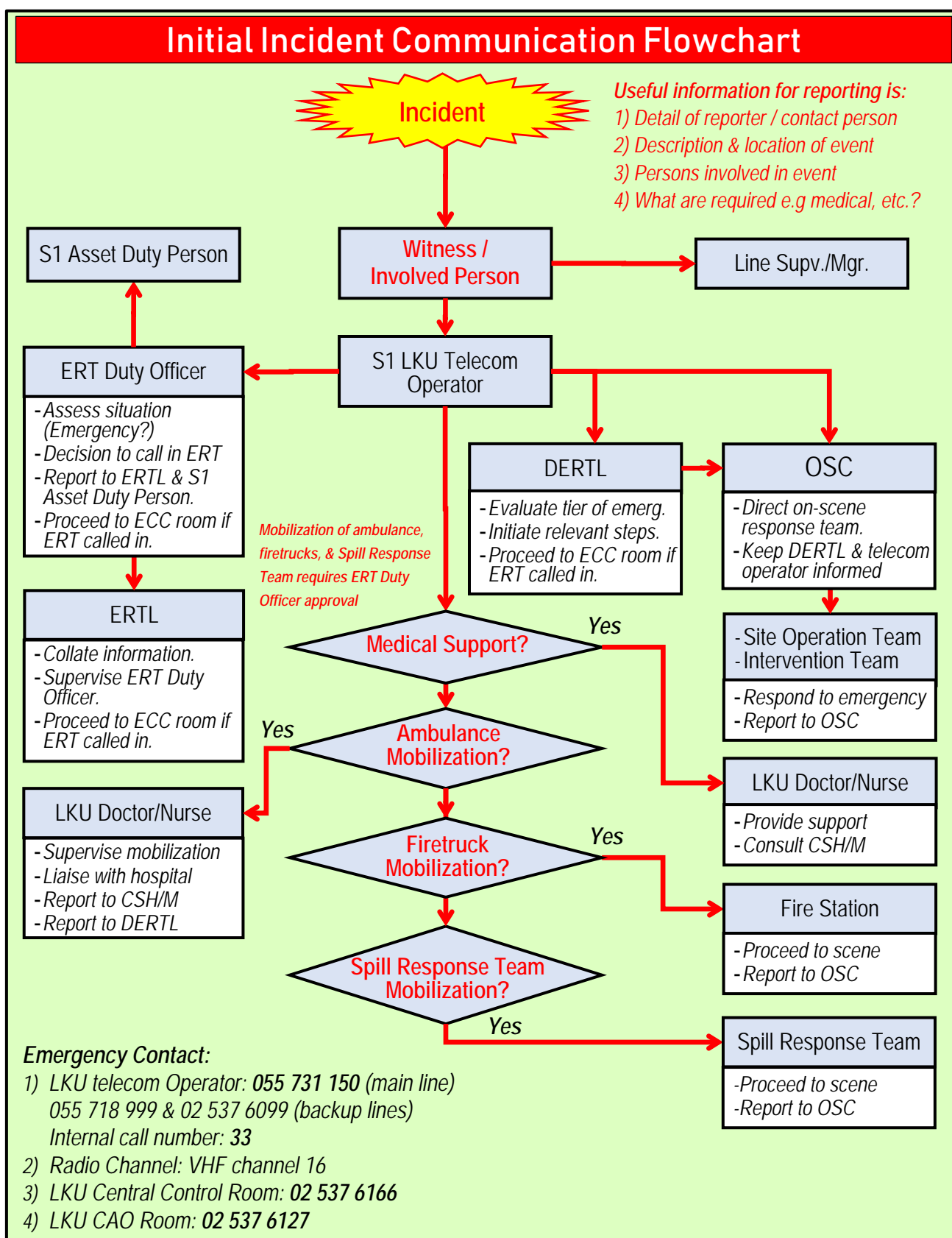
Portable radios (VHF) are provided to S1 operational staff and assigned as the primary option for emergency communication. In normal situations, all handheld radio users are on channel 15. In emergency situations, telecom operator broadcasts to all stations involving an emergency e.g. ERT, OSC, affected site operation, intervention & medical teams to switch to channel 16 for emergency communication. Others not related to emergency may remain on channel 15 for their normal operational communication.

Besides, the external and internal telephone numbers are provided to support both normal and emergency communication. The S1 emergency numbers (external: 055 731 150, internal: 33) are provided at the telecom room which is manned 24 hours every day for all emergency calls from S1 internal and from external parties e.g. community, governmental bodies, etc. Telecom operator is responsible to respond to all calls, take & log precise messages on the given log sheet and relay it to responsible persons (see roles and responsibilities of telecom operator in section 3.3).

The formal emergency call messages that need to be informed to Emergency Response Team, on-call support team and involved parties by LKU Telecom. Operator are shown in **Appendix A**. The emergency report form which will be logged by LKU Telecom. Operator on receiving notification of emergency is illustrated in **Appendix B**.

Email; LKUtelexRoom@pttep.com and fax; 02 537 6212 are available to support informative communication e.g. text, photographs, etc.

Most of the emergency cases, they begin with the incidents then escalate into an emergency. Therefore, the appropriate and timely notification of incidents can improve the responsive actions to the incident and attenuate the situation not to become an emergency. The initial emergency communication flow is illustrated in **Figure 4**.



**Figure 4: S1 Initial Incident Communication Flowchart**

### 3.6 MUSTER POINT

The muster point is the predetermined place where is at a safe distance from the potential hazards and with adequate space for gathering and counting personnel in an emergency situation.

#### 3.6.1 Type of Muster Point

##### a) Primary Muster Point

The primary muster points are for personnel to take an initial assembly when the emergency situation requests to muster e.g. LKU CCR is a primary muster point for flow station operation & intervention teams, ECC room is a primary muster point for ERT, area behind fire station is a primary point for all personnel not involving the emergency response actions. The assigned muster checker (and backup muster checker) shall be present to keep muster in order, for personnel movement control, for personnel counts, and for communication with muster logger.

##### b) Backup Muster Point

The backup muster point is the secondary muster point where personnel gathers in case they cannot safely proceed to the primary muster points. The backup muster point is not always necessary for all locations if alternative escape routes to primary muster point can be assured.

Depending on emergency situation, the predetermined muster points of all S1 locations are displayed in **Appendix D**.

#### 3.6.2 Mustering Action

All personnel at S1 shall be briefed on their designated muster point and action to take at muster point that shall include, but not limited to:

For all personnel:

- On hearing/knowning mustering alarm or notification, make worksite safe proceed to the designated muster point. Walk fast and do not run;
- Observe the safety of the passage. Take the fastest route to proceed to the designated primary muster point. If it is not safe, take an alternative route;
- If there is no safe alternative route, proceed to the predetermined backup muster point, call S1 emergency number 055 731 150 or radio VHF channel 15, and standby for instruction; and
- At the primary muster point, stay calm and keep noise low. Respond to the muster checker and report any information necessary to emergency handling.

Note: Security guards on duty at all gates remain at gates and support access control during emergency otherwise it is not safe to do so.



For muster checker:

- At the muster point, stay calm and take control of the muster;
- Initiate the predetermined personnel count procedure;
- Observe and provide support to the mustered persons e.g. injury, fear, panic, etc.;
- Report the number of mustered persons, missing persons, injury, etc. to the muster logger when requested;
- Maintain muster in order and ensure the comfort of mustered persons as practical. No person should leave the muster point without instruction from ERT. Take record of mustered person movement when called out by ERT;
- When the muster point is deemed unsafe, consult the muster logger to move the muster point to the safe place as practical; and
- Only when the muster logger instructs, release the mustering.

The locations of predetermined muster points, positions of Muster Checker and Muster logger of each S1 operating location are summarized in **Appendix D**.

### **3.7 FACILITIES**

The facilities shall be provided to support activities by the OSC team, ERT, CMRT, and RRT. These facilities shall be adequately equipped for the effective performance of the designed team, especially for communication and information management. All ICT equipment in those rooms shall be well maintained and checked by PS1/M (ICT) to ensure all ICT equipment is always readily available and fully functioning. All materials and documents in those rooms are prepared and made ready for prompt use by the PS1/S section.

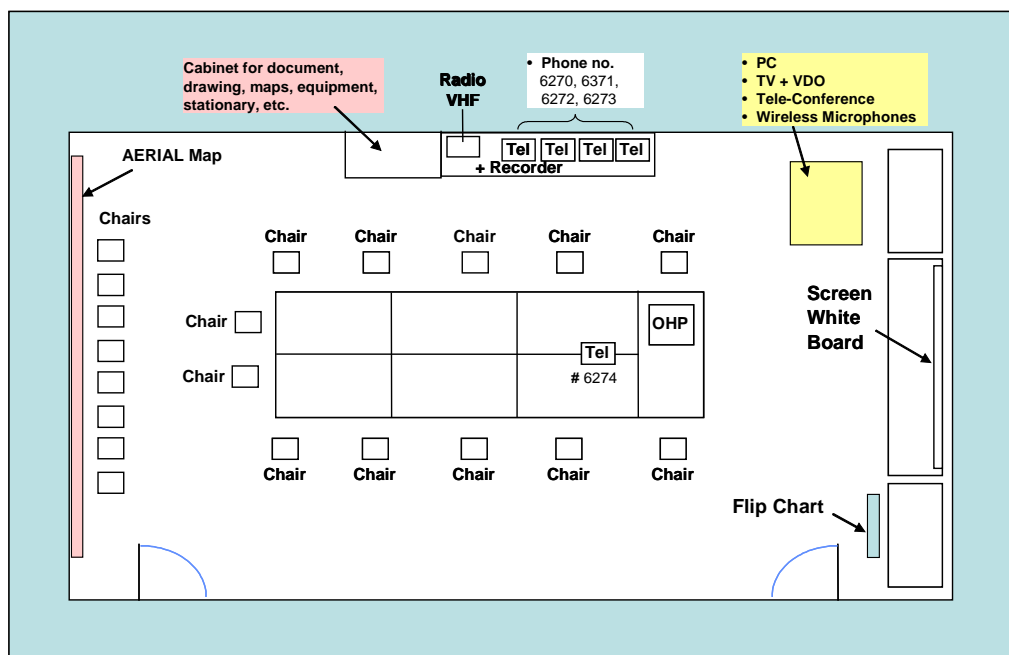
At LKU office, 4 separate rooms are provided for:-

1. Emergency Coordination Centre (ECC) room for ERT to occupy for their duties;
2. Relative Response Room (RRR) for RRT to occupy for their duties;
3. Communication and Media Response Room (MRR) for CMRT to occupy for their duties;  
and
4. Press Release Room (PRR) for the press release and media interfaces.

Other than the aforementioned rooms, the LKU CCR and CAO rooms are to be ready with ICT, materials, and documents ready for emergency response as well. PS1/P section is in charge of ensuring they are readily available.

#### **3.7.1 Emergency Coordination Centre (ECC)**

ECC is located at LKU building #1 meeting room #1. The ECC is arranged for S1 ERT and on-call support team to gather and use for their emergency duties.



**Figure 5: Simplified Layout of Emergency Control Room**

### Emergency Coordination Centre (ECC) – First In Actions

- Shift the magnet bar for register/muster;
- Switch on and ensure that the PC is working correctly;
- Lower the projection screen and turn on the digital projector;
- Log on the main PC using appropriate user name & password (kept in the cupboard);
- Check that all telephones are working correctly;
- Checks all required documents are available and updated (tel. directory, duty roster list, drawings, etc.);
- Take the briefing from ERTL or ERT duty officer and refer to individual role checklists.

### ECC Equipment List

<b>Telephones:</b>	5 PABX telephone extensions {810-6270, 6272, 6273, 6274, 6371}
<b>Display boards:</b>	Casualties' status, the sequence of events, POB status, weather condition, and status of emergency resources.
<b>Information Board:</b>	1 board showing POB information, authorised delegates, Duty Rosters, stationery and forms
<b>Documentation:</b>	<ol style="list-style-type: none"> <li>1. Corporate Emergency Management Plan</li> <li>2. Corporate Crisis Management Plan</li> <li>3. S1 Emergency Response Plan</li> <li>4. Key Site Drawings of Facilities and Installations</li> <li>5. Emergency Log Sheets</li> <li>6. Telephone directory</li> <li>7. S1 Emergency Reporting Flowchart</li> <li>8. S1 Duty Roster List</li> </ol>

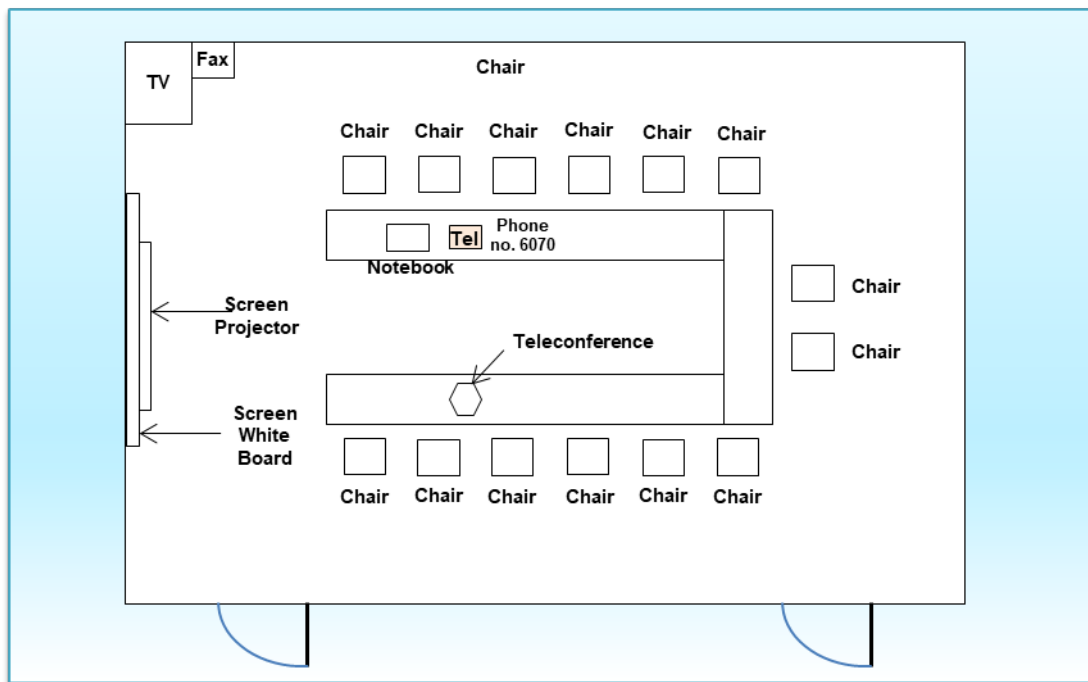
In case the ECC room at LKU building #1 meeting room #1 cannot be utilized when an emergency occurs such as fire or bomb threat at the office building, flooding, road blockage, the predetermined alternative venues are:

1. The meeting room at well services workshop; and
2. PHS housing.

Upon such a situation, ERTL or ERT duty officer announces to all ERT members to report to an alternative ECC room.

### 3.7.2 Community and Media Response Room (CMRR)

CMRR is located at LKU Building #1 Room #2 for CMRT to utilize for their emergency duties e.g. information preparation, press compilation, communication, etc. S1 Public Affairs (PTN/A) staff take roles and responsibilities as CMRT.



**Figure 6:** Simplified Layout of Media Response Room (MRR)

### Community and Media Response Room (CMRR) – First In Actions

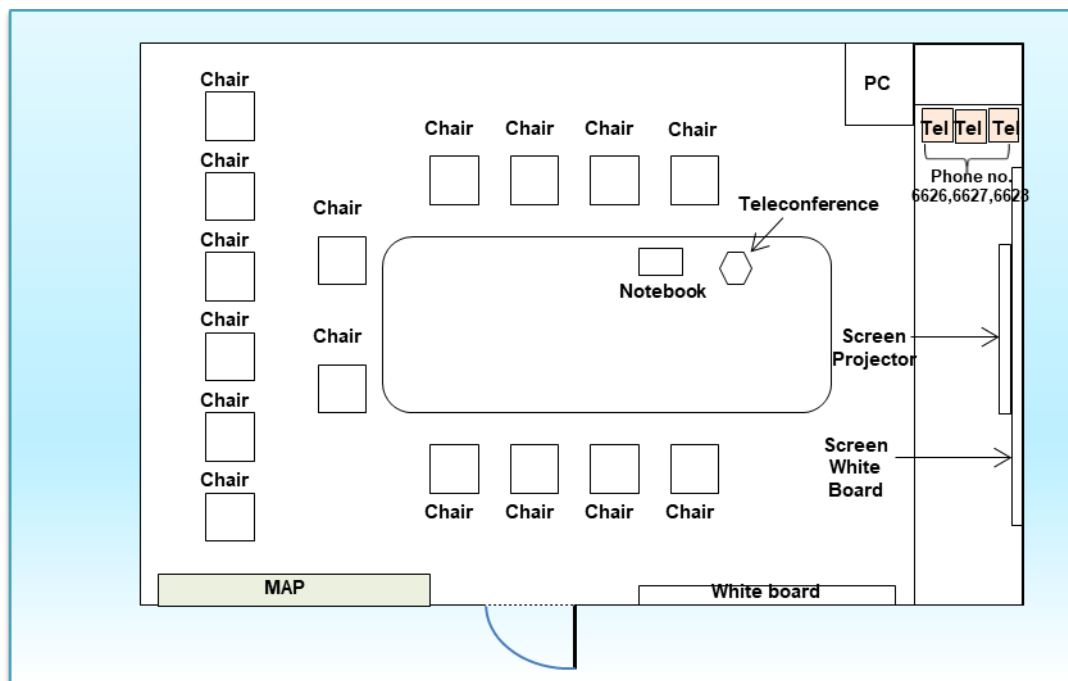
- Ensure that the PC is working correctly;
- Log on the main PC using appropriate user name & password (kept in the cupboard);
- Ensure all required document e.g. emergency contact list, community contact list, etc. are available;
- Check that all telephones are working correctly;
- Await the briefing from Manager, Public Affairs Section.

### CMRR Equipment List

- Telephones:** 1 PABX telephone extensions No. 810-6070
- Information Board:** 1 board for preparation on the media press release
- Documentation:**
1. S1 Emergency Response Plan
  2. List of local media with telephone directory
  3. List of Corporate Community & Media Response Team with telephone directory
  4. S1 Emergency Reporting Flowchart
  5. S1 Duty Roster List

### 3.7.3 Relative Response Room (RRR)

Relative Response Room (RRR) is located at LKU Building #2 Meeting Room. RRR is arranged for the Relative Response Team (RRT) for preparation on information and coordination with relatives of staff and contractors who are injured or deceased. Operations Training Center (HRC/O) staff take roles and responsibilities as RRT.



**Figure 7: Simplified Layout of Relative Response Room (RRR)**

### Relative Response Room (RRR) – First In Actions

- Ensure that the PC is working correctly;
- Ensure accessibility to staff database and contract holder list;
- Log on the main PC using appropriate user name & password (kept in cupboard);
- Check that all telephones are working correctly;
- Await the briefing from manager, Operations Training Center Section

### RRR Equipment List

- Telephones:** 3 PABX telephone extensions {810-6626, 6627, 6628}
- Information Board:** Staff and contractor status board
- Documentation:**
1. S1 Emergency Response Plan
  2. List of focal point of S1 department staff and contractors with telephone directory
  3. List of Corporate Relative Response Team with telephone directory
  4. S1 Emergency Reporting Flowchart
  5. S1 Emergency Duty Roster List

### 3.7.4 Press Release Room (PRR)

Press Release Room (PRR) is located at a room of 1<sup>st</sup> floor, 30th Year Building. The room is used for information disclosure and issuing public statements to local media or communities in case of emergency.



**Figure 8:** Photo of Press Release Room (PRR)

### 3.8 PRESS RELEASE

In the event of an emergency and/or a crisis, a special communication task force is to be set up. The team comprises, at least, a media spokesperson and the Crisis Communications Team (CCT). Their responsibilities include communication with external audiences that are media, authorities, and local communities.

According to PTTEP Delegation of Authority & Signature (DAS), only the President and Chief Executive Officer (CEO) and/or designated representatives of the organization are authorized to disclose information and issue public statements in case of an emergency. The level of spokesperson shall be as the following chart.



In case of an emergency at S1 asset, VP of S1 Production Operations Department (ERTL) or designated representative has the authority as a media spokesperson for disclosure of information and public statement to local media or communities, according to Crisis Communication Guideline (12145-GDL-004-R04) and PTTEP DAS. The information and/or public statement is prepared by S1 CMRT and reviewed & approved by PTTEP Crisis Communication Team (CCT) and EMT Leader prior to the press release. ERTL will provide the press release to local media or communities at Press Release Room (PRR) located at S1 SSHE Induction Room.

Examples of communication tools (as follows) are illustrated in **Appendix E**.

- Key Messages
- Media Release Template
- 1st Telephone Message to Answer Media and Investor Enquiries
- Holding Statement

### **3.9 DEACTIVATION AND POST EMERGENCY ACTIONS**

#### **3.9.1 Deactivation**

The EMT Leader, in consultation with S1 ERTL, is the sole authority for deactivating an emergency declaration. Deactivation should only be called when S1 ERTL and EMT Leader agree that the emergency has been contained, and satisfactorily safe in all respects.

The activities and procedures which must be undertaken to recover from an emergency, the EMT Leader shall ensure the conducting of the following activities include, but are not limited to:

- The cleanup, maintenance, and testing of equipment;
- The re-commissioning of facilities, plant, and equipment;
- The replenishment of stocks (such as firefighting foam, spill clean-up materials, replacement parts);
- The accounting for all expenses incurred as a result of the incident;
- The filing of insurance claims; and
- Preparation and dispatch of final reports to relevant Shareholders, Government, and Local Authorities.

#### **3.9.2 Emergency End and Final Actions**

Once a decision has been made that no further actions are outstanding and that an emergency is over, many issues need to be considered before standing down. There is a need to consider the following:

- If the severe impact taken place with the production continuity as a result of incident, the S1 Business Continuity Plan (BCP) shall be activated referring to Thai Onshore Asset (PTN) Business Continuity Plan (BCP) (Document Code: 63984.1/2017)
- Ascertain the current position of each team member as regards their role, responsibilities and any ongoing/ outstanding actions;
- Identify and assign any outstanding actions including debriefing of interested external parties, such as authorities, community, etc;
- Put in place an emergency situation review to ensure the completion of outstanding actions;
- Understand any outstanding human resource issues and ensure that the necessary information is provided and the appropriate steps are being taken;
- Ensure that all staff are aware of the emergency close out and update them regarding the short and long-term issues affecting the company (if known);
- Ensure that all information has been captured and recorded;

- Have a team debrief before staff leave or return to normal duties;
- Ensure the plan of a future debrief time when all actions can be analysed. This can usually be within 24 - 48 hours of emergency closeout. Consider including the participation of independent reviewers; and
- This review should also address the sensitivity of the report information and determine the most appropriate means of secure storage.

After the review, a closeout report should be prepared. The report should cover the following:

- Understand and document the cause(s) of the emergency;
- Document all involved parties and details of participating personnel;
- Analyse the response and identify any learning points to be incorporated into the appropriate procedures and/or to be shared with other parts of the Business;
- Incorporate a full picture of the costs incurred as a result of the incident; and
- Review the effectiveness of all actions taken.

### **3.9.3 Incident Investigation**

Incident investigation shall be conducted in accordance with Incident Management Standard (SSHE-106-STD-600) as soon as possible and when safe to do so. It should be conducted right after the emergency situation has been cleared in order to collect all evidence & facts and capture actual causes of the incident for proper analysis to define the effective mitigations and improvements for recurrence prevention and emergency/crisis response strategy.

### **3.9.4 Post Emergency Review**

A post-emergency review is required for conducting to examine the response to the emergency. The EMT Leader and/or S1 ERTL should convene an emergency review meeting. Those attending the review meeting shall include the EMT & ERT members, and all other support team members. Minutes of the review meeting shall be recorded and archived for future analysis. The review meeting shall determine (but not limited to) the following:

- Were employees properly informed of S1 ERP and relevant corporate standards/procedures?
- Did employees respond according to S1 ERP and relevant corporate standards/procedures?
- Were employee's responses timely?
- Were the procedures adequate?
- What were the problems encountered during the response activities?
- What can be improved?



- How can similar events be avoided in the future?

If public emergency services were involved, they shall be invited to participate in the critique.

### **3.10 TRAINING AND EXERCISE**

All concerned personnel who are assigned as the emergency response team shall be trained and have competency for their emergency response roles and responsibilities. Training requirements for personnel involving emergency response are illustrated in S1 SSHE Training and Competency Procedure (13247-PDR-SSHE-305/01) and PTTEP SSHE Training and Competency Standard (SSHE-106-STD-340).

Emergency exercise shall be regularly performed by S1 emergency response team members according to the set plan agreed by S1 management. These emergency exercises and drills are to enhance the knowledge & skills of the members and to test the effectiveness of existing ERP for improvement.

### **3.11 S1 DUTY ROSTER GUIDELINE**

The S1 duty roster is designed to provide effective support around the clock for resolving the emergency situation. The duty persons are appointed by the ERT members in each discipline to act on their behalf when they are not readily available to respond to emergency calls. They shall be trained and competent to respond to emergency in their given discipline's roles.

All duty persons are expected to be contactable at all times during their duty period. All duty persons shall respond to all emergency call and take their given roles to support the emergency. When called in, they shall proceed to their designated emergency station the soonest within 2 hours.

The ERT duty persons shall act in emergency response until released by the ERT member in the given discipline.

The duty roster consists of two groups as follows:

#### **3.11.1 ERT Duty Roster**

##### **ERT Essential Duty Group:**

The ERT essential duty group is the main group that will always be called in when emergency tier 2 & 3 is initiated. The ERT essential duty group comprises the following persons:

- Domestic Onshore Asset Duty (S1, PTTEP1 and SPH)
- Duty Officer
- Event Logger
- SSHE Officer
- SSHE Duty
- Logistics Duty

- Maintenance Duty
- IT/ Telecom Services
- Security Services
- Medical Team
- Community & Media Response Team (CMRT) Duty
- Relative Response Team (RRT) Duty

For the essential duty group, the duty officer (S1 Production Superintendent) is a key person for coordination with other duty persons including on-call support team on emergency supports.

#### **On-Call Support Team Duty Persons:**

The On-Call Support Team Duty Group will be assigned from various disciplines' representatives working within S1 operation premise. The selected persons will be called in when their related discipline has sustained an emergency or ER Team Leader / EMT requires assistance. The On-Call Support Team Duty Group is comprised of (but not limit to) the following groups:

- Drilling Duty – ETN SSHE
- Well Services Duty
- Construction Duty
- Material Yard Duty

In addition to above duty groups, the register of S1 duty roster shall include other support staffs of S1 operation department for fulfilling support on emergency situation as required.

Depending on the different roles and responsibilities of duty staff, mobilization time to LKU office for support emergency are varied as follows:

- Available immediately (restricted to shift staff working on facilities including duty officer, event logger, SSHE officer, security services, medical team, well services duty);
- Within 2 hours (key support staff e.g. SSHE duty, logistic duty, maintenance duty, CMRT duty, RRT duty, drilling duty, construction duty, material yard duty, IT/Telecom).

The example of S1 duty roster for emergency response as per duty group classification and mobilization period is illustrated in **Appendix F**.

#### **Back-up Duty Roster Team:**

If an emergency takes long time to last, ER Team Leader and/or Duty Officer shall consider having a relieve team. The Duty Roster Team in a later week will be called for backup.

In the event of two emergencies happen at the same time, the Back-up Team will be called.

### 3.11.2 Duty Roster Nomination

Staff are nominated by their line managers/supervisors for duty roster for a period 7 consecutive calendar days, starting on Monday at 12:00 hrs. The duty roster will be updated to all duty staff and Corporate SSHE division by S1 SSHE department as per weekly basis. The roster will be distributed every Thursday to the following week's duty holders, and the personnel who will be on duty during the following weeks. This will include key personnel such as Telecom Officer. The assigned Department Focal Points are responsible for providing the Corporate SSHE Division with information regarding the forward planning of the Duty Roster. Changes during a Duty Roster Week are allowed, but it shall be the responsibility of the person scheduled for duty. The change must be amicably agreed by the nominated recipient and shall be communicated, by the person requesting the change, to S1 SSHE Department focal point (Officer, Data Management (SSHE) or assigned person). The requested change shall only be to another qualified duty person in the group.

### 3.11.3 Communication for Duty Roster Personnel

Staff on Duty Roster will receive an Emergency Duty Book which consists of a log book and contact list. Details of all calls, received and transmitted, should be entered into the log book. The Emergency Duty Book must be handed over to the next person of duty.

#### 1. DUTY ROSTER MOBILE PHONE TEST

The Duty Roster mobile phone will be tested by LKU Telecom Officer every Monday at 13:00 hrs. The message will be;

- "Duty Telephone Test, please confirm it is working ... over".

(ทดสอบการติดต่อโทรศัพท์ ครับ ไม่ทราบว่าจะชัดเจนหรือไม่ ครับ)

This is to ensure that the mobile phones are workable and also to remind duty persons that they are on duty.

If by 16.00 hrs. the Duty Person has not been phoned, he/ she must ring LKU Telecom Officer and report that they did not receive the test call.

The Operator, Telecom Services will then test that number again.

#### 2. GENERIC DUTY ROSTER RESPONSIBILITIES

- Be available and be within the mobilization time radius of LKU Office at all times;
- Carry the duty mobile phone at all times;
- Ensure that the mobile telephones are always working;
- Be aware of specific responsibilities during an emergency;
- When receiving an emergency call, respond as directed by the call message;
- Immediately report any problems with duty communications equipment to Operator, Telecom Services;

- Inform S1 SSHE Department focal point (Officer, Data Management (SSHE)) of any changes to the published duty roster;
- Must not have a blood alcohol level above the National legal limit;
- Notify S1 SSHE Department focal point (Officer, Data Management (SSHE)) of any changes in mobile telephone numbers.

### **3. DUTY ROSTER PERSONNEL QUALIFICATION REQUIREMENT**

The Duty Roster personnel shall be qualified and be approved by SVP, Thai Onshore Asset (EMT Leader). Each discipline is required to have the following qualifications;

- Duty Roster Team members shall be assigned from experience and competence personnel of each discipline;
- Expertise in their areas of responsibility, including knowledge and experience;
- Understand the PTTEP EMP and S1 Emergency Response Plan and know the response process under his/her responsibilities;
- Bilingual – Fluent in both written & spoken Thai & English;
- Has no record of disabilities that may impair his/her ability to perform the functions assigned to them;

All Duty Roster Personnel shall receive training and participate in the emergency response exercise as indicated **Table 6**.

**Table 6:** Training Requirement and Exercises of S1 Duty Roster

Training Course	Recommended for	Frequency	Responsible Parties
PTTEP Emergency Management Plan (EMP) Introduction and Incident Command Introduction	All new Duty Roster personnel	Yearly	Corporate Security Section
S1 Emergency Response Plan Introduction	All new Duty Roster personnel	Yearly	S1 SSHE Department
Exercise	Recommended for	Frequency	Responsible Parties
Table Top	Selected from Weekly Duty Roster personnel	As appropriated or at least yearly	S1 SSHE Department
Tier 2	Selected from Weekly Duty Roster Team	Yearly	Corporate Security Section and S1 SSHE Department
Tier 3	Duty Roster Team and Crisis Management Team	Yearly	Corporate Security Section and S1 SSHE Department
Note: For table top exercises, to ensure that all duty persons understand and confidence to deal with the real emergency, the frequency of table top exercises shall be more frequency. The exercises can be both informing in advance and surprising without advance informed.			

## APPENDICES

### APPENDIX A: EMERGENCY CALL MESSAGE FROM LKU TELECOM OFFICER

The emergency call messages that need to be informed to Emergency Response Team, on-call support team and involved parties by LKU Telecom Officer are as follows:

- Tier 1 Emergency at.....For information and standby.  
(ขณะนี้เหตุการณ์ฉุกเฉิน ระดับ 1 ที่.....แจ้งเพื่อทราบ และเตรียมความพร้อม)
- Tier 2 Emergency at.....Go to S1 Emergency Coordination Centre (ECC) immediately.  
(ขณะนี้เหตุการณ์ฉุกเฉิน ระดับ 2 ที่..... กรุณามาที่ศูนย์ประสานงานเหตุฉุกเฉินทันที)
- Tier 3 Emergency at.....Go to S1 Emergency Coordination Centre (ECC) immediately.  
(ขณะนี้เหตุการณ์ฉุกเฉิน ระดับ 3 ที่..... กรุณามาที่ศูนย์ประสานงานเหตุฉุกเฉินทันที)
- Emergency is over. (ขณะนี้เหตุการณ์เข้าสู่ภาวะปกติ)

## APPENDIX B: INITIAL EMERGENCY REPORT FORM

This form will be completed by LKU Telecom. Operator on receiving notification of an emergency.

แบบฟอร์มการแจ้งเหตุการฉุกเฉินเบื้องต้น				
รายละเอียดผู้แจ้งเหตุฉุกเฉิน				
ชื่อผู้แจ้งเหตุ:		เบอร์โทรศัพท์ผู้แจ้งเหตุ:		
วันและเวลาที่แจ้งเหตุ:				
รายละเอียดเหตุฉุกเฉิน				
วันและเวลาที่เกิดเหตุ:				
สถานที่เกิดเหตุ:				
ประเภทของเหตุฉุกเฉิน	<input type="checkbox"/> ไฟไหม้ <input type="checkbox"/> ระเบิด <input type="checkbox"/> ก๊าซรั่วไหล <input type="checkbox"/> สารเคมี/น้ำมันรั่วไหล <input type="checkbox"/> อุบัติเหตุทางถนน <input type="checkbox"/> การก่อการร้าย <input type="checkbox"/> อื่นๆ โปรดระบุ			
รายละเอียดของเหตุฉุกเฉิน:				
ผู้แจ้งเหตุต้องการความช่วยเหลือหรือไม่	<input type="checkbox"/> ใช่ <input type="checkbox"/> ไม่ใช่			
ความช่วยเหลือที่ต้องการ	<input type="checkbox"/> การช่วยทางการแพทย์ <input type="checkbox"/> การค้นหาผู้สูญหาย/การช่วยชีวิต <input type="checkbox"/> การตอบสนองต่อการรั่วไหล <input type="checkbox"/> การช่วยเหลือด้านเทคนิค <input type="checkbox"/> อื่นๆ โปรดระบุ			
รายละเอียดด้านบุคคล				
รายละเอียด	พนักงาน ปตท.สม.	ผู้รับเหมา	บุคคลที่สาม	ไม่ทราบ/ไม่สามารถระบุได้
จำนวนผู้เสียชีวิต				
จำนวนผู้บาดเจ็บ				
จำนวนผู้สูญหาย				
รายละเอียดด้านสิ่งแวดล้อม				
ระบุชื่อวัสดุที่รั่วไหล				
ปริมาณการรั่วไหล (ถ้ามี)				
รายละเอียด ณ จุดเกิดเหตุ				
มีตัวแทนของบริษัทฯ อยู่ ณ จุดเกิดเหตุหรือไม่	<input type="checkbox"/> มี <input type="checkbox"/> ไม่มี ถ้ามี โปรดระบุ ชื่อ เบอร์ติดต่อกลับ			
การดำเนินการ ณ จุดเกิดเหตุ				
ชื่อผู้บันทึกเหตุ	วันและเวลาที่บันทึกเหตุ:			



## **APPENDIX C: EMERGENCY LOG SHEET**

See next page.








รายละเอียดเหตุการณ์			ชื่อผู้บันทึก: ตำแหน่งผู้บันทึก: วันที่:	
เวลา	ข้อความ		รายละเอียดของเหตุการณ์	หมายเหตุ
	จาก	ถึง		




## **APPENDIX D: LOCATION OF PREDETERMINED MUSTER POINTS**




The locations of predetermined muster points, positions of Muster Checker and Muster logger of each S1 operating location are shown in below table.


**Table 1:** The muster points, positions of Muster Checker and Muster logger of each S1 operating location

No.	S1 Operating Location	Location of Muster Point	Mustered Person	Position of Muster Checker	Position of Muster Logger	Photo of Muster Point
1	LKU Flow Station, accommodation, maintenance workshop, officer	Behind Fire Station Building	Emergency Response Team, personnel working in LKU Flow Station, personnel working in the office area, maintenance workshop, visitors	Well Site Supervisor #2	S1 SSHE Officer (Shift)	
		In front of CCR	Emergency Response Team within LKU Flow Station	LKU Plant Foreman	S1 SSHE Officer (Shift)	
		In front of Piyachat Nithat (PNEC) Building	Persons working at PNEC building and their visitors Persons working at OJT center building and their visitors	Public Affair Staff	S1 SSHE Officer (Shift)	

No.	S1 Operating Location	Location of Muster Point	Mustered Person	Position of Muster Checker	Position of Muster Logger	Photo of Muster Point
2	NTM-A	By the security guardhouse at the main gate.	Persons working at NTM-A, contractors, visitors	NTM-A Security Guard	NTM-A Production Lead Operator	
		In front of NTM-A control room	Site Operation Team/ Emergency Response Team	NTM-A Production Operator	NTM-A Production Lead Operator	-
3	STN-A	Beside security guardhouse by the main gate.	Persons working in STN-A, contractors, visitors	STN-A Security Guard	STN-A Production Operator	
		In front of STN-A control room	Site Operation Team/ Emergency Response Team	STN-A Production Operator	STN-A Production Operator	-

No.	S1 Operating Location	Location of Muster Point	Mustered Person	Position of Muster Checker	Position of Muster Logger	Photo of Muster Point
4	Well Sites	Outside by the main gate	Persons working within well sites, contractors, visitors	Security Guard	Area Operator	
5	BPR Depot	In front of T-904 (Road tanker area)	Emergency Response Team, persons working at road tanker area within BPR Depot, visitors	Security Guard (Road tanker area)	BPR Depot Operator	
		In front of the security guardhouse (Rail tanker area)	Emergency Response Team, persons working at rail side area within BPR Depot, visitors	Security Guard (Rail tanker area)	BPR Depot Operator	

No.	S1 Operating Location	Location of Muster Point	Mustered Person	Position of Muster Checker	Position of Muster Logger	Photo of Muster Point
6	Well Service Workshop	In front of the main gate	Persons working within well service workshop, visitors	Senior Technician (workshop)	Well Service Supervisor	
7	Material Yard	In front of the main gate	Persons working within the material yard, visitors	Senior Store Keeper	Team Leader, Warehouse and Material Yard	
8	PHS Housing Compounds	Car park area	Persons living in PHS housing compounds, persons working (gardeners, housekeepers), visitors	Security Guard	Security Guard	

No.	S1 Operating Location	Location of Muster Point	Mustered Person	Position of Muster Checker	Position of Muster Logger	Photo of Muster Point
9	CNS Rail Tanker Maintenance Workshop	In front of the security guardhouse	Persons working CNS rail tanker maintenance workshop, visitors	CNS Contractor (JS TECH) SSHE Officer	CNS Contractor (JS TECH) Site Manager	

## APPENDIX E: EXAMPLES OF COMMUNICATION TOOLS

### 1. Key Messages

These key messages should be conveyed in all communications to all stakeholders of PTTEP.

- In conducting exploration and production of petroleum and other activities in accordance with its mission, PTTEP, strives at all times to achieve a manner ensures that incidents affecting the health and safety of its employees, contractors and member of the public, the environment and the integrity of its assets shall not occur.
- PTTEP's primary concern in all incidents of this nature is for the people involved. PTTEP staff have been trained to strictly follow the emergency plan to ensure maximum safety for themselves, partners and rescue workers.
- The nature of PTTEP's business demands the most stringent Safety, Security, Health, and Environmental standards and the company remains committed to maintaining the highest possible standards in this vital area in all its activities.

#### ข้อความการสื่อสารหลัก


ข้อความการสื่อสารหลักสำหรับผู้มีส่วนได้ส่วนเสียของ ปตท.สผ. กลุ่มต่างๆ

- ในการดำเนินการสำรวจและผลิตปิโตรเลียมรวมทั้งกิจกรรมอื่นๆ ปตท.สผ. มีแนวทางปฏิบัติเพื่อป้องกันมิให้เกิดเหตุการณ์ที่จะส่งผลกระทบต่อสุขภาพและความปลอดภัยของพนักงานบริษัทฯ ผู้รับเหมาและบุคคลทั่วไป รวมทั้งสภาพแวดล้อมและทรัพย์สินของบริษัทฯ
- ในสถานการณ์ดังกล่าว ปตท.สผ. ห่วงใยในสวัสดิภาพของพนักงานที่เกี่ยวข้อง อย่างไรก็ตาม พนักงานของ ปตท.สผ. ทุกคนได้ผ่านการฝึกฝนให้ปฏิบัติตามแผนการในภาวะฉุกเฉินโดยเคร่งครัด เพื่อให้เกิดความมั่นใจ
- ในความปลอดภัยสูงสุดของพนักงาน พันธมิตรธุรกิจ และเจ้าหน้าที่กู้ภัย ด้วยลักษณะของธุรกิจของ ปตท.สผ. บริษัทฯ ยึดถือหลักเกณฑ์และมาตรฐานที่เข้มงวดที่สุดด้านสุขภาพ ความปลอดภัย และสิ่งแวดล้อม บริษัทฯ มุ่งมั่นปฏิบัติตามหลักการดังกล่าวมาโดยตลอด เพื่อรักษามาตรฐาน สูงสุดในการปฏิบัติงานด้านดังกล่าว



## 2. Media Release Template

The Media Release Template gives an overview of the structure and content of a press release or a statement, in line with the common way press releases are written. Using this template helps the Writer develop a press release or a statement quickly and in a consistent way. The Writer and Media Relations Team work closely together to ensure they receive all information as per the template.



### News Release

ข่าวประชาสัมพันธ์

Date : \_\_\_\_\_  
Time : \_\_\_\_\_

**Headline (subject matter)**

What happened : \_\_\_\_\_  
Where it happened : \_\_\_\_\_  
When did it happen (date, time) : \_\_\_\_\_  
Services involved : \_\_\_\_\_  
Current situation as verified by facts : \_\_\_\_\_  
Effect on stakeholders (JVs, partners, government, suppliers, public) : \_\_\_\_\_  
Status of investigation/recovery : \_\_\_\_\_  
Which government agencies are involved : \_\_\_\_\_  
Any additional information : \_\_\_\_\_

For further information, please contact : \_\_\_\_\_  
Contact details \_\_\_\_\_  
Name and designation \_\_\_\_\_  
Tel : \_\_\_\_\_  
Fax : \_\_\_\_\_  
Email : \_\_\_\_\_

**Disclaimer**  
The information, statements, forecasts and projections contained herein reflect the Company's current views with respect to future events and financial performance. These views are based on assumptions subject to various risks. No assurance is given that these future events will occur, or that the Company's future assumption are correct. Actual results may differ materially from those projected.

บริษัท ปตท.สำรวจและผลิตปิโตรเลียม จำกัด (มหาชน)  
PTT Exploration and Production Public Company Limited

www.pttep.com

ปตท.มุ่งมั่นเพื่อความยั่งยืน | Passion to Explore for a Sustainable Future

### 3. 1<sup>st</sup> Telephone Message to Answer Media and Investor Enquiries

Based on the latest report on \_\_\_\_\_(date) at \_\_\_\_\_(time 24 hours) we obtained, there was a/an \_\_\_\_\_ at \_\_\_\_\_. The cause of the incident is still unclear. However, the company is doing its best (to evacuate all staff) (and extinguish then fire/control the spill). Please tell me your name, the publication you represent, the telephone number and email address. For any further update on this situation, please visit [www.pttep.com](http://www.pttep.com). Thank you.

#### ข้อความแรกในการตอบโทรศัพท์สื่อมวลชน

จากรายงานที่บริษัท ปตท.สำรวจและผลิตปิโตรเลียม จำกัด (มหาชน) ได้รับเมื่อเวลา\_\_\_\_\_วันที่\_\_\_\_\_ได้เกิดเหตุ \_\_\_\_\_ ขึ้นที่ \_\_\_\_\_ สาเหตุของอุบัติเหตุยังไม่ทราบแน่ชัด อย่างไรก็ตาม บริษัทฯ กำลังดำเนินการอย่างเต็มที่เพื่อ \_\_\_\_\_ (อพยพพนักงาน และดับเพลิง หรือกำจัดคราบน้ำมัน) ขอทราบชื่อของคุณ ชื่อสื่อที่สังกัด หมายเลขโทรศัพท์ และ e-mail ทั้งนี้ คุณสามารถติดตามรายละเอียดความคืบหน้าของเหตุการณ์ได้ที่เว็บไซต์ [www.pttep.com](http://www.pttep.com)ค่ะ/ครับ

### 4. Holding Statement

#### Tips on Writing a Holding Statement

- Three paragraphs
  - Keeps to facts
  - What is being done
  - Some context about the company
- Keep it short and factually accurate
- Avoid emotive language
- Don't prompt further questions
- Avoid digging holes which you can fall into later
- Don't commit to anything - unless it is your intention to do so
- State date (time) and contact details

#### Note:

Never make statements like "There was no loss of life or injury to staff members resulting from the incident." unless this is confirmed.

Such statements made prematurely will reflect badly on the company if ultimately deaths and/or injuries have occurred.

If not yet confirmed, say something like: "Up till now, we have not received reports of any loss of life or injuries." Then you may add: "Information is still coming in and we will update you as and when we get it."

**หมายเหตุ:**

ไม่ควรระบุว่า "ไม่มีการบาดเจ็บหรือเสียชีวิตจากเหตุการณ์ที่เกิดขึ้น" จนกว่าจะมีการยืนยันแน่นอน มิฉะนั้นจะส่งผลเสียอย่างมากต่อบริษัท หากยังไม่ได้รับการยืนยันที่แน่นอนว่า มีผู้เสียชีวิต และ/หรือ ผู้บาดเจ็บจริง ควรชี้แจงว่า "จนถึงขณะนี้ เรายังไม่ได้รับรายงานเกี่ยวกับผู้เสียชีวิตหรือผู้บาดเจ็บ" และเสริมว่า "ข้อมูลเพิ่มเติมจะมาถึงในเร็วๆ นี้" และบริษัทฯ จะแจ้งความคืบหน้าให้ท่านทราบทันทีที่ได้รับข้อมูล"

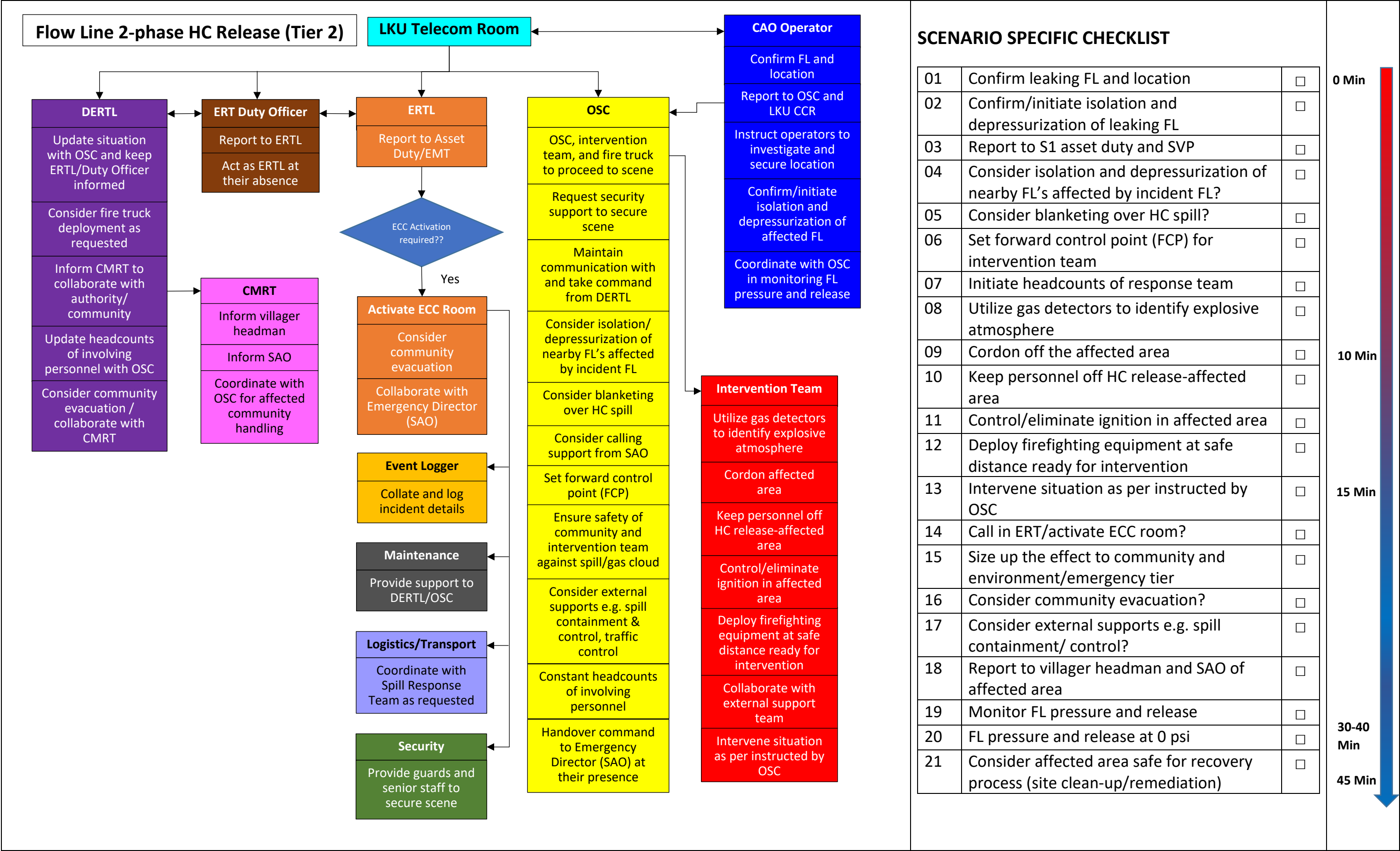
## APPENDIX F: EXAMPLE OF S1 DUTY ROSTER

S1 Duty Roster for Emergency Response					
	24-Jun-2019		To	01-Jul-2019	
Operator, Telecom. Services (LKU)					
First point of call	LKU Office			055-731150, 055-718-999, 02-537-6099 Internal line 33 or 810-6099	
ERT Main Duty Group					
Pool Field (Available immediately in the Field)					
Role	From	To	Name	Office	Mobile
Duty Officer	24/06/19	1/7/2019		810-6238	
Event Logger	24/06/19	1/7/2019		810-6187	-
SSHE Officer	24/06/19	1/7/2019		810-6100, 810-6163	
Security Services	-	-	-	810-6045, 810-6069	-
Medical Team (LKU Nurse/Ambulance)	-	-	-	810-6038	
Contactable 24 hours, Mobilize in 2 hours					
Role	From	To	Name	Office	Mobile
Domestic Onshore Asset Duty	24/06/19	1/7/2019		800-4616	
SSHE Duty	24/06/19	1/7/2019		810-6298	
Logistics Duty	24/06/19	1/7/2019		810-6190	
Maintenance Duty	24/06/19	1/7/2019	-	810-6150 (Officer hour)	(After office hour)
IT/Telecom Services	24/06/19	1/7/2019		6304	
Community & Media Response Team (CMRT) Duty	24/06/19	1/7/2019		810-4507	
Relative Response Team (RRT) Duty	24/06/19	1/7/2019		810-6292	XXXXXXX
On-Call Support Team Duty Persons					
Pool Field (Available immediately in the Field)					
Role	From	To	Name	Office	Mobile
Well Services (Superintendent)	24/06/19	1/7/2019		810-6082, 810-6006	
ETN SSHE Duty	24/06/19	1/7/2019		810-6118	
Contactable 24 hours, Mobilize in 2 hours					
Construction Duty	24/06/19	1/7/2019		810-6168	
Material Yard Duty	24/06/19	1/7/2019	-	810-6064	



## **APPENDIX G: INCIDENT GUIDELINE FOR EMERGENCY SITUATIONS**

<< File embedded in PDF >>



## ROLES AND RESPONSIBILITIES

Roles	Responsibilities
Document Owner	<p>The owner of the S1 Emergency Response Plan is VP, S1 Production Operations Department, with responsibilities for:-</p> <ul style="list-style-type: none"> <li>■ Issuing the S1 Emergency Response Plan and its revisions;</li> <li>■ Issuing the S1 Emergency Response Plan and its revisions; and</li> <li>■ Ensuring effective implementation of the plan.</li> </ul>
Document Custodian	<p>The custodian of the S1 Emergency Response Plan is Superintendent, SSHE, with responsibilities for:-</p> <ul style="list-style-type: none"> <li>■ Identify deficiencies or potential improvements;</li> <li>■ Initiating periodic revision; and</li> <li>■ Maintaining revision history and document status register.</li> </ul>

## DEFINITION AND ACRONYMS

Set out below are common specific terms presented in alphabetical order:

Term	Definition
Asset	Refers to an operating Asset, site, or location within a respective Function Group.
Corporate	Refers to the PTTEP business groups hierarchically above Asset level, and located in the PTTEP headquarters, Bangkok.
Division	A business group may have one or more distinct groups within its hierarchy. These are referred to as Divisions.
Department	A subgroup within a Function Group, Division or Asset.
Function Group	Refers to a corporate level business group. These may have associated Divisions, Departments, or operational Assets within their hierarchy.
Crisis	<p>is a major or catastrophic event (out of control emergency). A crisis could result in sustained national impacts over a prolonged period of time; almost immediately exceeds resources normally available to the company, local authorities, and country in the impacted area; and significantly interrupts governmental operations and emergency services to such an extent that national security could be threatened. The crisis may challenge the ability and capacity of the company, community, and country to achieve a timely recovery.</p> <p>Crisis situations include terrorism that results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, company reputation, national morale, and/ or government functions. In PTTEP, a crisis situation is treated by a <b>tier 3 response level</b>.</p>
Crisis Management Team (CMT) Leader	The Chief Executive Officer (CEO) of the company who has the top authority to the overall management of a group/ company impact related to any crisis situations. He has the authority to activate the Corporate Crisis Management Team and work closely with the Asset Emergency Management Team Leader.
Emergency	is an occurrence or event, natural or human-caused, that requires an emergency response under the determination of affected asset leader or acting person, to protect life, environment, property, and reputation or to lessen or avert the threat of a major or catastrophe in any part of the company premises. The external assistance may or may not be needed to supplement the company's efforts and



Term	Definition
	<p>capabilities to save lives, environmental, protect property, public health and safety.</p> <p>Emergency situations can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, fires, floods, oil, and hazardous material spills, marine vessels and aircraft accidents, earthquakes, tropical storms, typhoon, war-related disasters, an outbreak of diseases and medical emergencies, and etc.</p> <p>In PTTEP emergency situations can be evaluated and treated by using <b>a tier 1 – 2 response level</b>.</p>
S1 Emergency Management Team Leader (EMT Leader)	<p>S1 asset's SVP or the acting person who has overall authority and responsibility for supporting and providing tactical advice, activities, and action plans to the S1 ERT or On-Scene Commander (OSC), including the development of strategic objectives. EMT leader also sets priorities and defines the organization of the EMT and the overall action plans for a particular response. He/she has to work closely with asset EMT.</p>
S1 Emergency Response Team Leader (ERT Leader)	<p>S1 VP with responsibility for all onsite responses, especially providing directions and onsite tactical operations and always retaining the authority to determine the appropriate course of response actions. S1 ERT leader has the authority to activate the S1 ERT.</p>

Acronyms	Description
DERTL	S1 Deputy Emergency Response Team Leader
ECC	Emergency Coordination Centre
ERP	S1 Emergency Response Plan
ERT	S1 Emergency Response Team
ERTL	S1 Emergency Response Team Leader
CMRT	S1 Community & Media Response Team
OSC	S1 On-Scene Commander
RRT	S1 Relative Response Team
EMT	S1 Asset Emergency Management Team
CMT	PTTEP Crisis Management Team
SAO	Sub-district Administrative Office
OSRL	Oil Spill Response Limited Company
EARL	East Asia Response Limited Company
IESG	Oil Industry Environment Safety Group Association of Thailand
LKU	Area of Lan Krabue District, Kampanget Province
ITL	Intervention Team Leader
NTM	Nong Tum Sub-district, Kong Krai Lad District, Sukhothai Province
PHS	Phitsanulok Province
CNS	Chong Nonsi, Bangkok
CCT	PTTEP Crisis Communication Team
CMRR	Communication and Media Response Room
VP.	Vice President

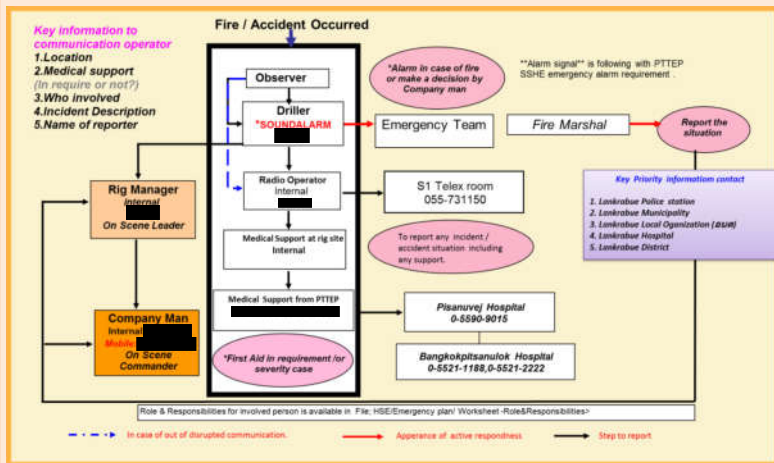
Acronyms	Description
SVP.	Senior Vice President
CSR	Company Site Representative

## REFERENCES

Document Code	Document Title
<b>PTTEP SSHE Controlling Documents</b>	
11038-STD-SSHE-000	PTTEP SSHE Management System
11038-STD-SSHE-401	PTTEP SSHE Risk Management Standard
SSHE-106-STD-500	PTTEP Emergency and Crisis Management Standard
12148-PDR-SSHE-501	PTTEP Crisis Management Plan
SSHE-106-PDR-502	PTTEP Emergency Management Plan
SSHE-106-STD-340	PTTEP SSHE Training and Competency Standard
11003-GDL-SSHE-501-003	PTTEP Medical Emergency Management Guideline
12145-GDL-004-R04	PTTEP Crisis Communications Guideline
13247-PDR-SSHE-305/01	S1 SSHE Training and Competency Procedure
63984.1/2017	Thai Onshore Asset (PTN) Business Continuity Plan (BCP)
<b>Other Reference Documents</b>	
-	Disaster Prevention and Mitigation Act B.E.2550 พรบ.ป้องกันและบรรเทาสาธารณภัย พ.ศ. 2550

## REVISION HISTORY

Rev.	Description of Revision
<b>0</b>	<p><b>Authorized by: -, Date: -</b></p> <p>New issue.</p>
<b>1</b>	<p><b>Authorized by: DSA, Date: August 2010</b></p> <p>Key changes from the previous version are as follows:-</p> <ul style="list-style-type: none"> <li>■ Re-formatted from SSHE-ER-01, S1 Emergency and Crisis Response Plan;</li> <li>■ Aligned with new PTTEP SSHE MS, ISO14001:2004 and OHSAS18001:2007 requirements;</li> <li>■ Current ERC (PS1/P) is changed to OSC (On-Scene-Commander) as per corporate guideline;</li> <li>■ Current OSC is changed to Intervention Team Leader(s);</li> <li>■ Added emergency plan for Protesting/Demonstration &amp; Terrorist; and</li> <li>■ Updated Organizational Indicators.</li> </ul>
<b>2</b>	<p><b>Authorized by: DSA, Date: November 2013</b></p> <p>Key changes from the previous version are as follows:-</p> <ul style="list-style-type: none"> <li>■ Assigned new document code;</li> <li>■ Aligned with Corporate Emergency and Crisis Management Standard and Plan;</li> <li>■ Changed back OSC to be at the incident scene;</li> <li>■ S1 IC is to be at ECC;</li> <li>■ Revised role &amp; responsibilities; and</li> <li>■ Updated emergency contact numbers.</li> </ul>
<b>3</b>	<p><b>Authorized by: PS1, Date: November 2019</b></p> <p>Major amendment of the whole procedure. Key changes from the previous version are as follows:-</p> <ul style="list-style-type: none"> <li>■ Aligned with the Corporate Emergency Management Plan and Crisis Management Plan;</li> <li>■ Revised S1 Emergency Response Team Organization with their roles and responsibilities;</li> <li>■ Revised emergency response action; and</li> <li>■ Included sections of S1 duty roster guideline, must points and press release.</li> </ul>

**Emergency Communication Plan****Evacuation Route and Muster Point**

On Scene Commander OSC : .....  
PTTEP Supervisor

**Emergency Signals****General Instructions**

1. Personnel arriving for the first time are required to attend a safety induction by Safety officer upon arrival.
2. Each person shall familiarize themselves with their assigned as shown on the Station Bill immediately upon reporting onboard.
3. All crew members shall be thoroughly familiar with the duties they are assigned to perform in the event of an emergency.
4. All personnel will participate in all as if it were an actual emergency. All personnel will report to the muster area and dressed in full work attire including general PPE
5. **Any person discovering an emergency, accident or incident must be reported immediately to DSV.**

**Abandonment**

- STEP 1: Rig or life threatening event occurs  
STEP 2: Rig manager consults with DSV  
STEP 3: Rig manager sounds rig abandonment alarm  
STEP 4: Rig manager directs/consults with rig evacuation team  
STEP 5: All personnel assemble at mustering point awaiting for instruction.  
STEP 6: All personnel abandon rig site

**Fire**

- STEP 1: Observe fire or emergency situation.  
STEP 2: Observer shall sound alarm.  
STEP 3: Observer shall notify Rig manager.  
STEP 4: Rig manager shall contact the DSV.  
STEP 5: Rig manager shall direct the emergency squad's actions.  
STEP 6: Rig manager shall contact fire fighting services and project manager

**Well Control**

- STEP 1: Driller suspects kick and flow check  
STEP 2: Driller confirms flow  
STEP 3: Driller closes the BOP  
STEP 4: Driller sounds the well control alarm  
STEP 5: Driller informs Rig manager and DSV  
STEP 6: Driller, Rig manager and DSV figure out kill sheet  
STEP 7: Rig manager informs project manager  
STEP 8: DSV/Rig Manager supervises operation

**Injury**

- STEP 1: Witness observes injury  
STEP 2: The observer notifies Rig manager and DSV  
STEP 3: Witness remains with the injured person  
STEP 4: Rig manager directs Injury Response Team  
STEP 5: Rig manager, with help of Medic, contacts hospital if necessary  
STEP 6: Rig manager contacts appropriate evacuation transportation

**H2S Gas**

- STEP 1: Driller detect or suspect H2S.  
STEP 2: Driller informs Rig manager .  
STEP 3: Rig manager consults with DSV.  
STEP 4: Driller sounds the gas alarm.  
STEP 5: All personnel assemble at upwind mustering point.  
STEP 6: Driller, Rig manager and DSV continue monitor levels whilst circulation control well

**Rig ERT Structure**

Fire Fighting Team 1 Muster Station: Fire Suit Station		Fire Fighting Team 2 Stand By	
Rig Manager	Person In Charge	Rig Manager	Person In Charge
Assistance Driller	Fire Marshal	Assistance Driller	Fire Marshal
Foreman Extra hand	Fire Pump Control	Foreman Extra hand	Fire Pump Control
Extra hand (On Duty)	Fire man with fire gun	Roustabout (On Duty)	Fire man with fire gun
Extra hand (On Duty)	Fire man	Roustabout (On Duty)	Fire man
Extra hand (On Duty)	Fire man	Roustabout (On Duty)	Fire man

Medical Team Muster Station: Clinic		Well Control Team Muster Station: Drill Floor	
Rig Manager	Direct Operation	Rig Manager	Person In Charge
Medic	On scene leader	Driller	Recognize - Detect indication of kick
Foreman Roughneck	Assists as directed	Assistance Driller	Check equipment for possible failure
Roughneck (On Duty)	Assists as directed	Derrick man	Mans the mud room
Roughneck (On Duty)	Assists as directed	Foreman Extra hand	Check flow line, BOP, hydraulic lines, kill/choke manifold, mud samples
Roughneck (On Duty)	Assists as directed		

Muster Checker & Support	
Radio operator	Muster Checker / Coordinator

**Persons Without Emergency Duties**

Stop work and make area safe.  
Proceed to designated Muster Point, collect your T-Card, stand in line and follow instructions from Muster Checker  
Wait for further instructions