

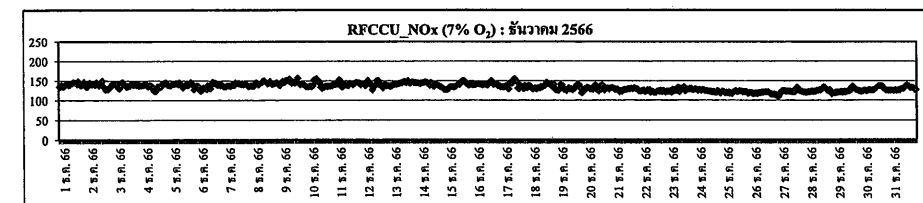
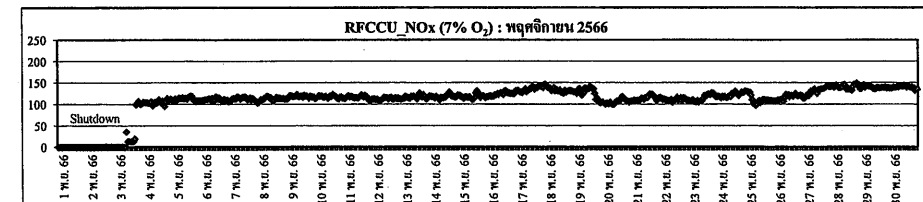
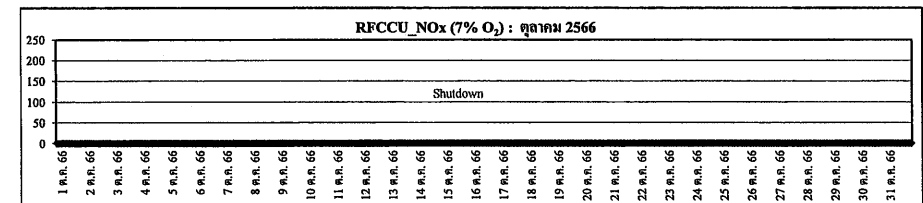
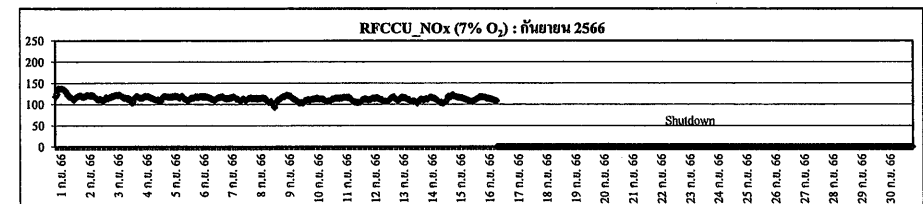
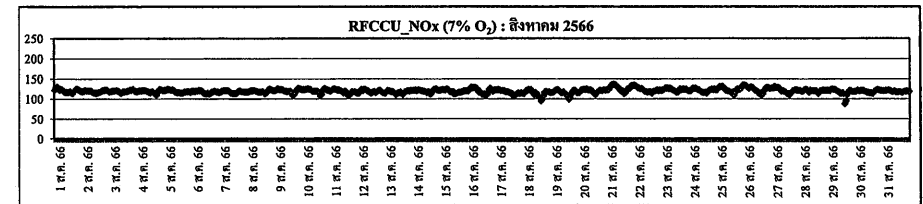
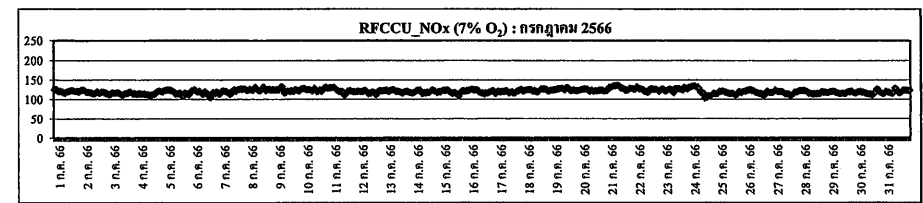
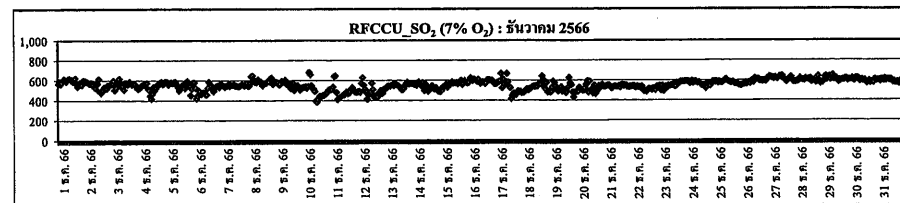
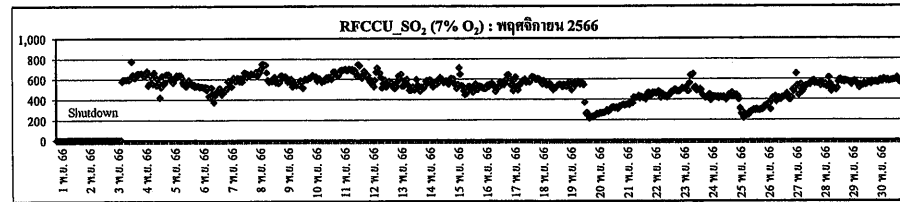
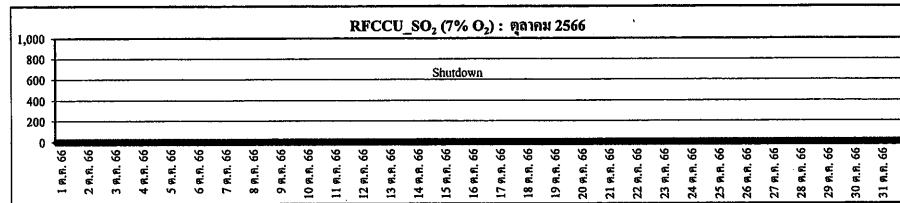
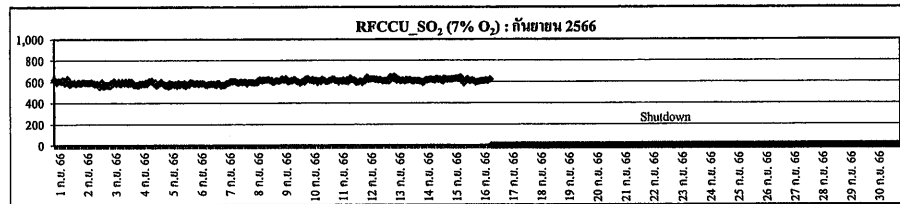
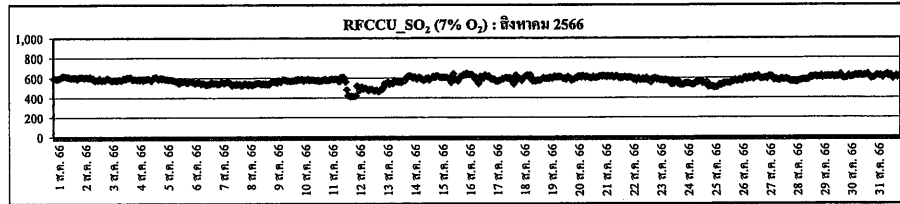
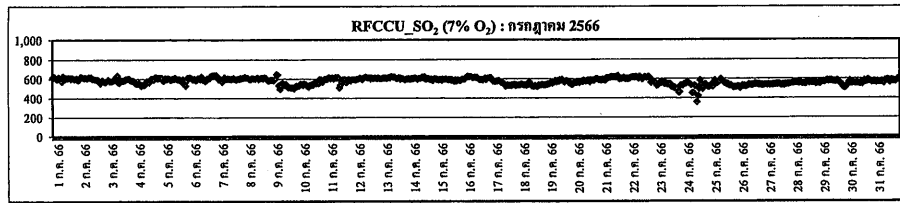
ภาคผนวก ข.15

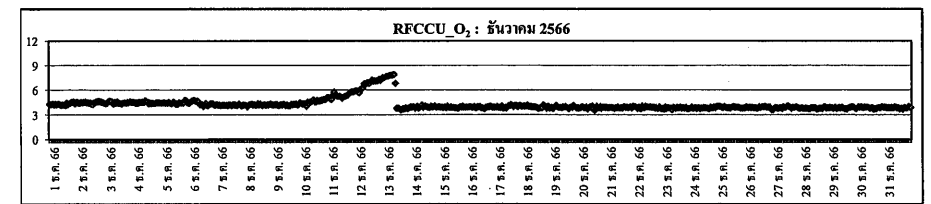
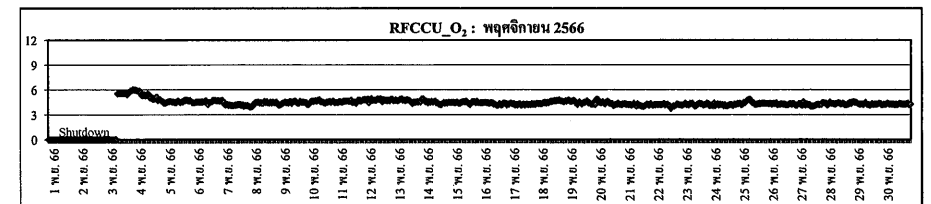
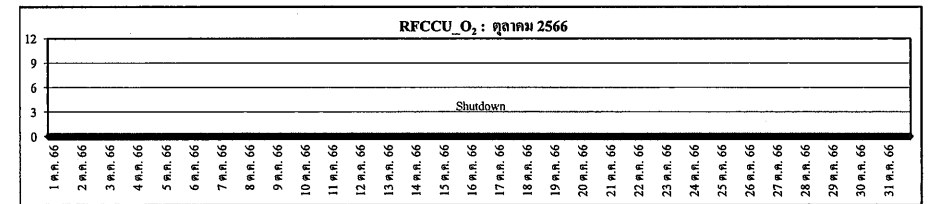
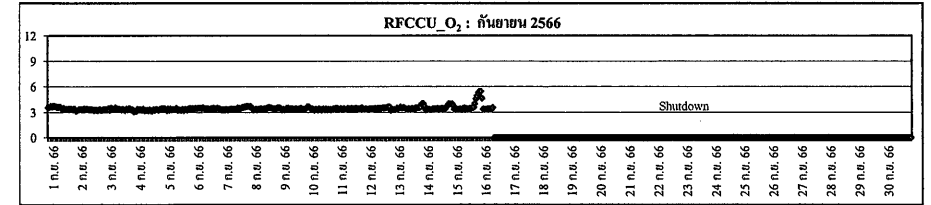
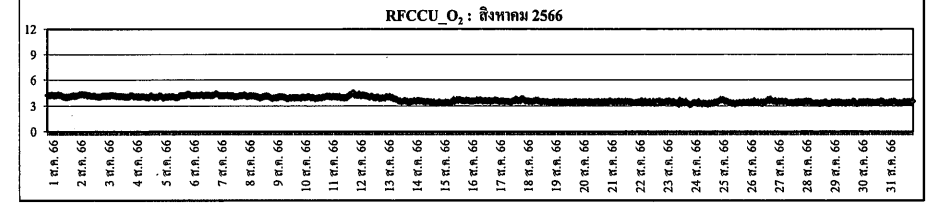
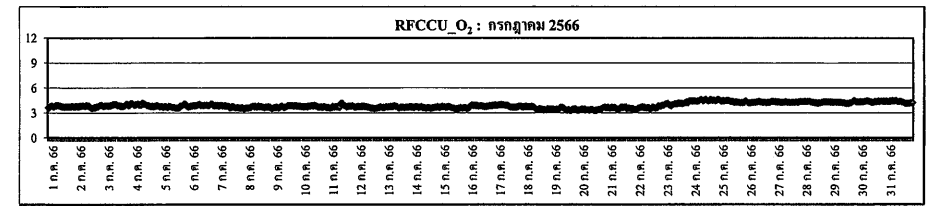
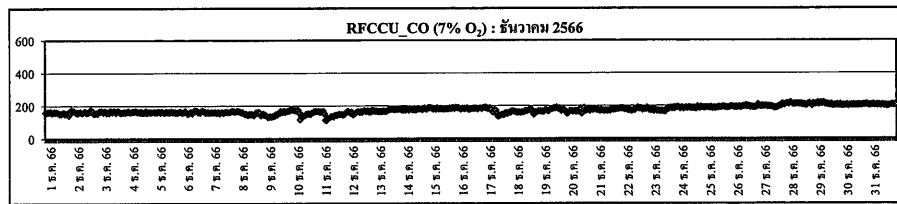
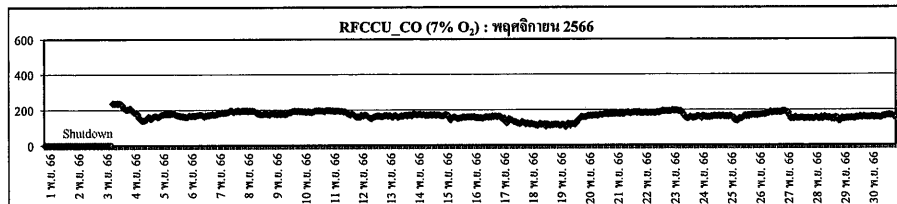
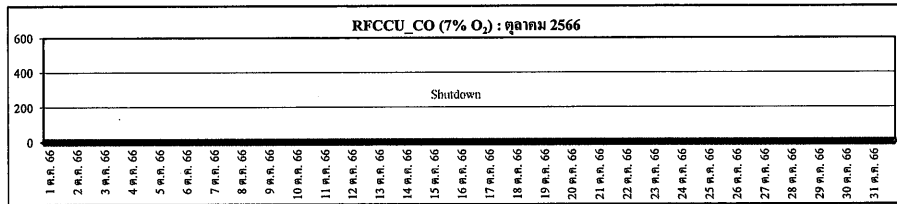
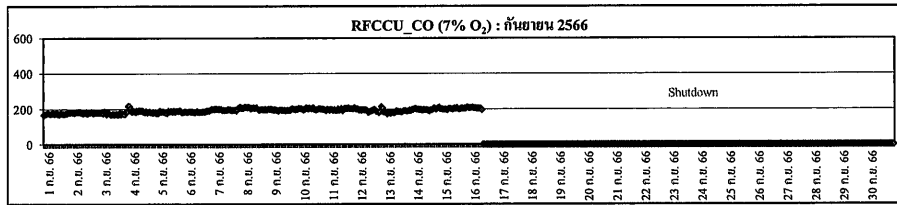
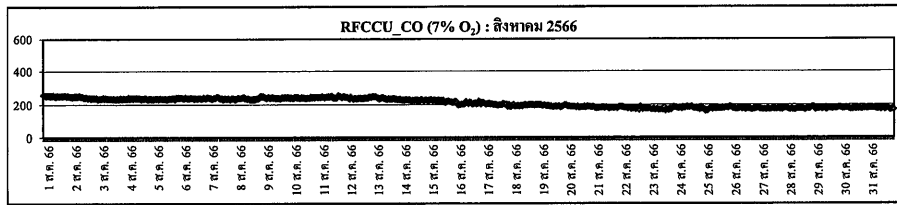
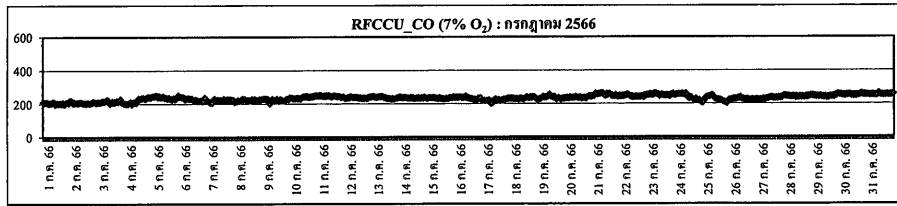
ผลการติดตามตรวจสอบการระบายสารมลพิษแบบต่อเนื่อง (CEMS)
ระหว่างเดือนกรกฎาคม ถึงธันวาคม พ.ศ.2566

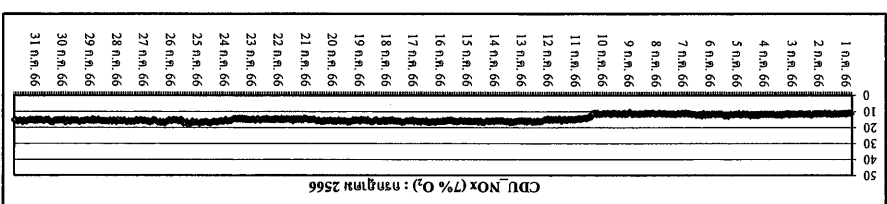
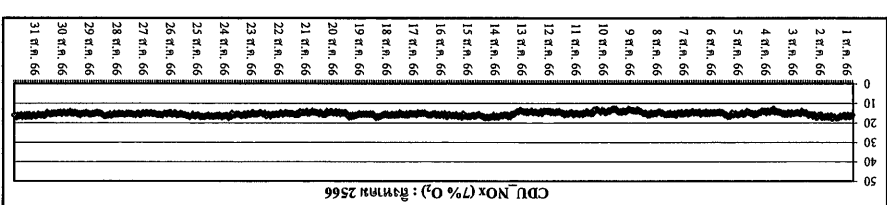
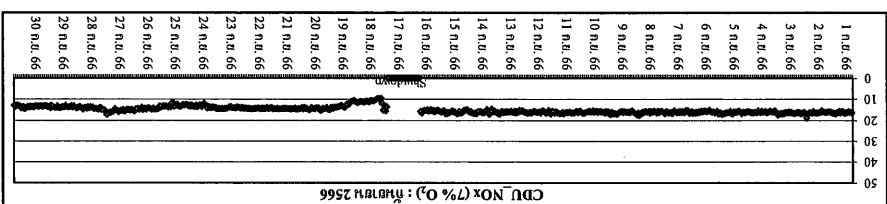
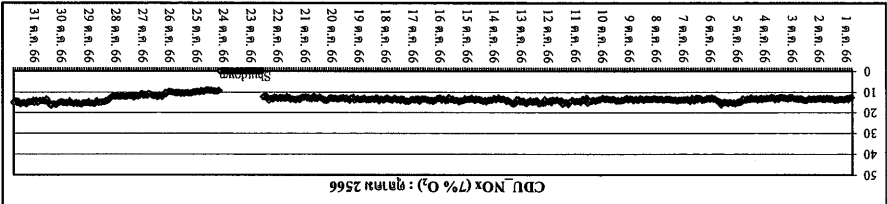
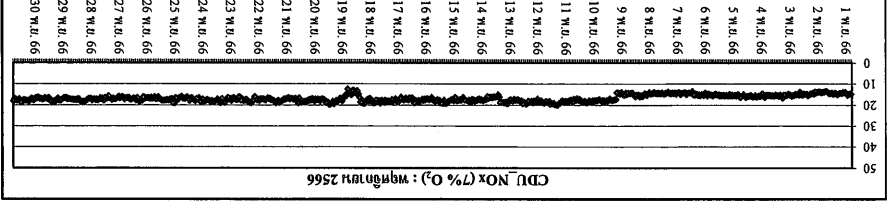
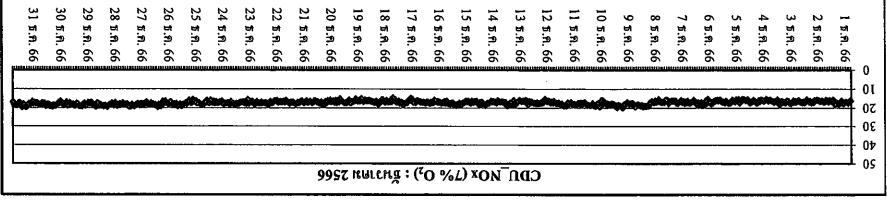
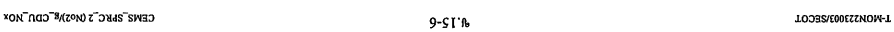
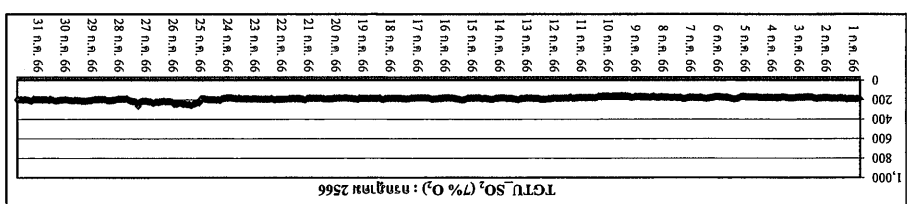
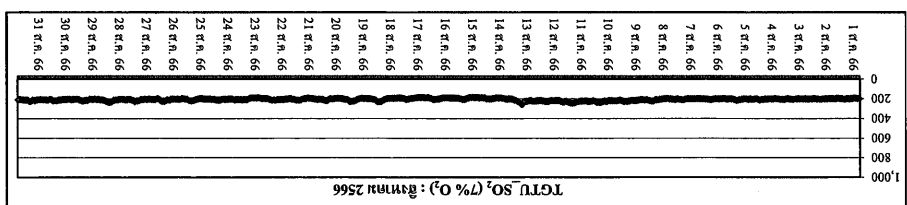
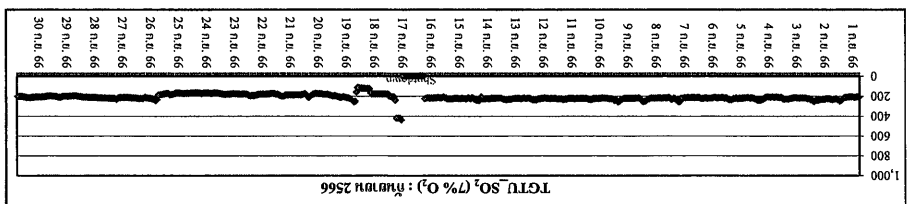
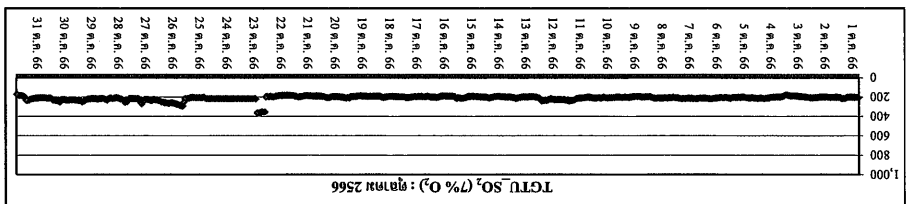
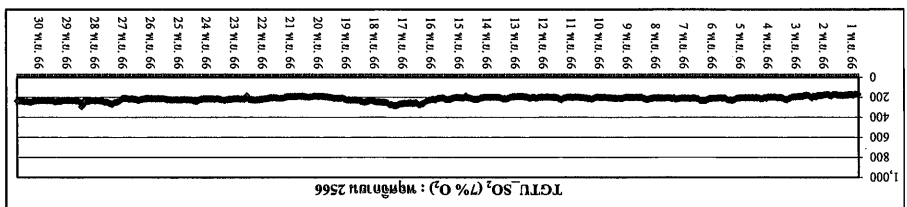
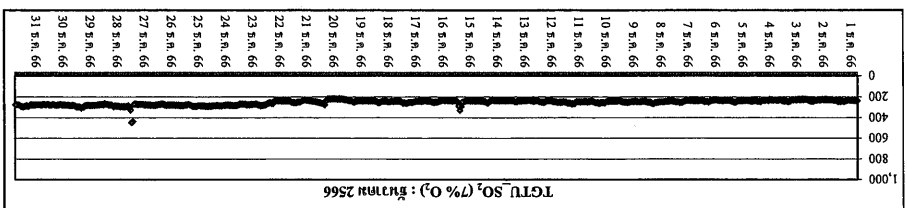
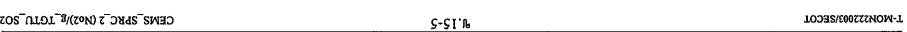
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	RFCCU SO2 at 7% Oxygen	RFCCU NOx at 7% Oxygen	RFCCU CO at 7% Oxygen	O2 EMISSION RFCCU	TGTU SO2 at 7%	TGTU H2S	CDU Furnace fuel gas	2F101 CELL 1OXYGEN	VDU NOx at 7% Oxygen	3F101 CELL 1OXYGEN	NHTU/CCR NOx at	NHTU O2 furnace stack dry	HRSG1 NOx at 7%	HRSG2 NOx at 7%	F103 STACK O2	F104 STACK O2	Boiler1 NOx at 7%	Boiler2 NOx at 7%	F101 FLUE GAS O2	F102 FLUE GAS O2	Boiler3 Nox at 7% Oxygen	40S105 STACK OXIGEN	
	ppm	ppm	ppm	%	ppm	ppm	ppm	vol%O2	ppm	vol%O2	ppm	Vol % O2	ppm	ppm	mol%O2	mol%O2	ppm	ppm	mol%O2	mol%O2	ppm	%	
	700	250	554	-	500	100	25		25		120		160	160			120	120			55		
Jul	Min	356.6	103.4	197.9	3.3	159.9	0.0	10.5	3.0	11.0	4.1	24.5	3.1	53.3	80.6	14.2	14.3	61.3	79.4	3.6	3.8	30.2	6.7
	Max	649.4	137.2	264.5	4.6	263.4	0.0	18.2	6.7	20.3	8.2	33.8	5.4	122.0	118.6	14.5	14.7	101.1	79.4	4.0	3.8	44.1	7.8
Aug	Min	414.6	87.7	161.1	3.2	187.3	0.0	13.1	2.9	15.2	4.0	23.9	3.1	57.2	34.4	14.1	14.2	51.7	79.4	3.3	3.8	27.7	6.7
	Max	646.6	137.1	259.1	4.5	259.0	0.0	17.8	6.4	20.8	7.9	34.4	7.7	129.5	80.2	15.6	17.1	78.4	79.4	4.2	3.8	44.7	8.4
Sep	Min	553.0	93.3	168.4	3.1	113.1	0.0	9.6	2.9	12.6	3.8	23.0	3.6	41.1	27.0	14.1	14.2	45.3	69.4	3.7	3.4	23.7	6.8
	Max	651.4	136.9	217.8	5.5	439.1	0.4	18.9	7.7	21.7	7.6	31.8	8.4	118.3	139.1	16.5	17.0	76.5	87.3	5.5	4.3	36.4	9.0
Oct	Min	SD	SD	SD	SD	172.3	0.0	9.0	3.2	4.9	3.4	0.1	1.9	25.5	15.0	14.2	14.3	17.6	30.9	3.6	3.3	23.7	6.2
	Max	SD	SD	SD	SD	365.3	2.9	16.6	6.3	22.0	9.8	29.7	8.2	118.5	123.1	16.9	16.7	68.8	81.3	9.9	4.9	34.9	9.8
Nov	Min	216.4	13.1	102.8	3.8	169.9	0.0	12.6	2.8	14.0	3.9	22.4	0.8	72.3	55.3	14.2	14.3	28.2	36.2	3.4	3.3	25.0	6.0
	Max	777.2	148.7	237.2	6.0	295.3	0.0	20.0	5.2	19.9	5.7	29.7	8.2	138.9	128.7	15.8	16.9	81.0	85.0	5.1	5.0	42.0	7.5
Dec	Min	385.6	110.1	112.6	3.5	217.7	0.0	14.7	3.1	15.1	4.0	23.8	1.1	76.3	67.0	14.0	13.6	46.3	51.3	3.4	3.2	28.8	5.7
	Max	681.9	156.8	219.1	7.9	446.8	0.0	19.9	4.2	20.7	5.2	37.2	5.2	130.0	123.1	16.1	16.0	92.2	92.2	4.9	3.9	42.0	8.8
	Min	216.4	13.1	102.8	3.1	113.1	0.0	9.0	2.8	4.9	3.4	0.1	0.8	25.5	15.0	14.0	13.6	17.6	30.9	3.3	3.2	23.7	5.7
	Max	777.2	156.8	264.5	7.9	446.8	2.9	20.0	7.7	22.0	9.8	37.2	8.4	138.9	139.1	16.9	17.1	101.1	92.2	9.9	5.0	44.7	9.8

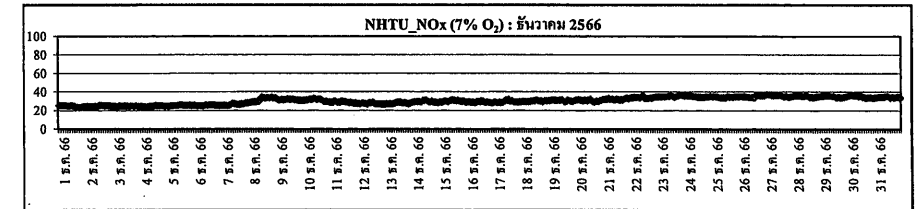
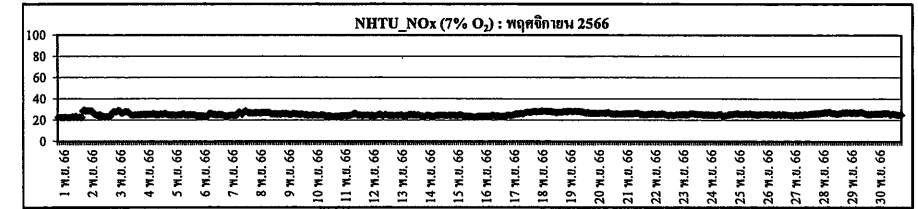
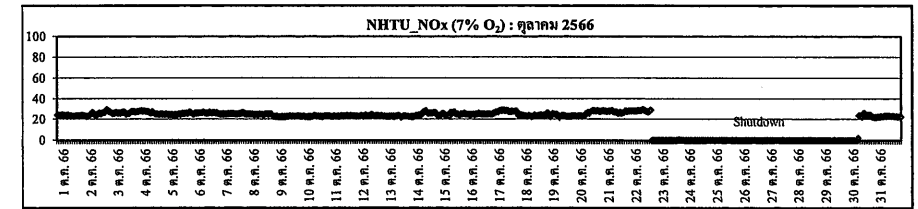
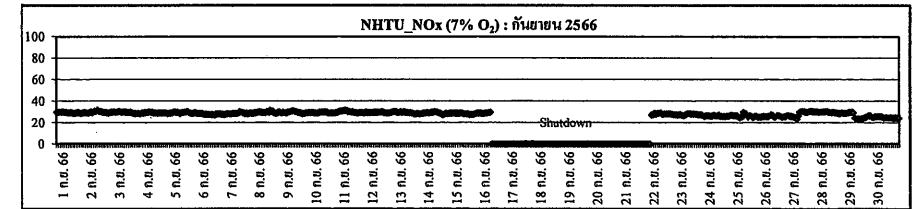
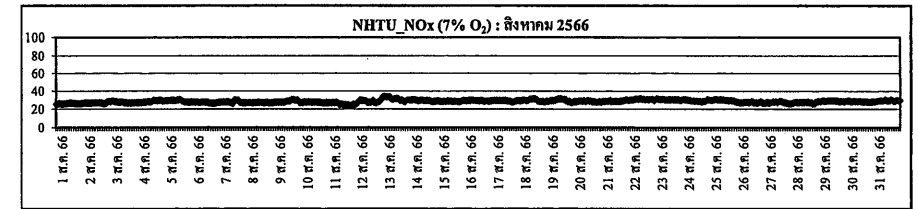
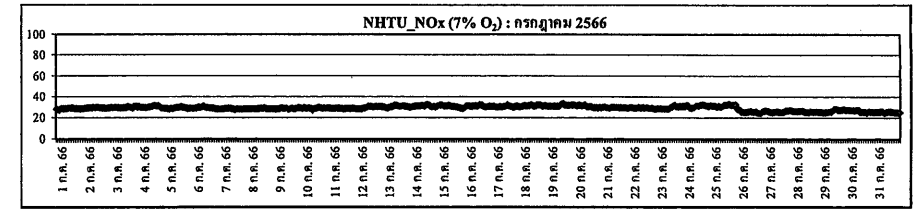
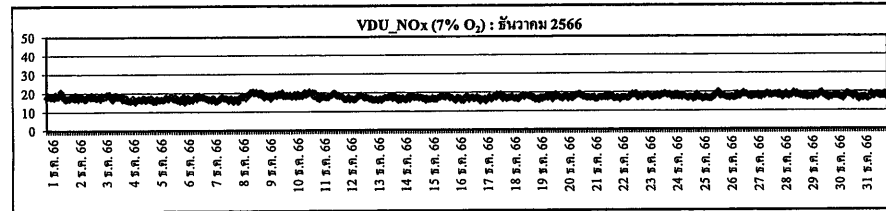
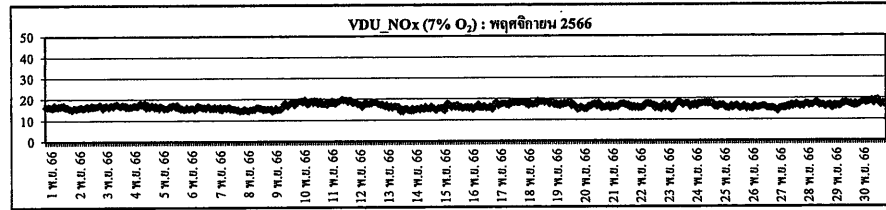
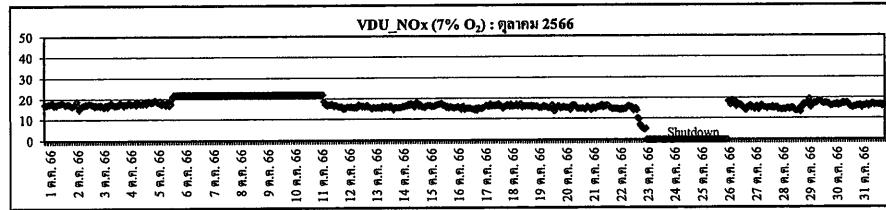
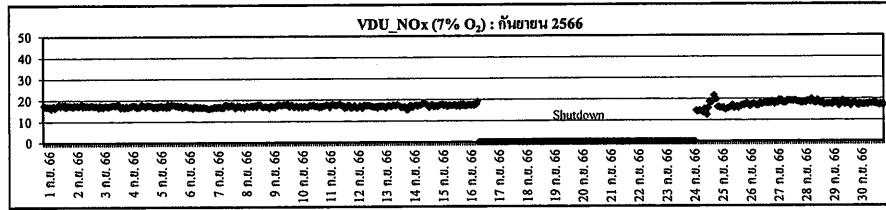
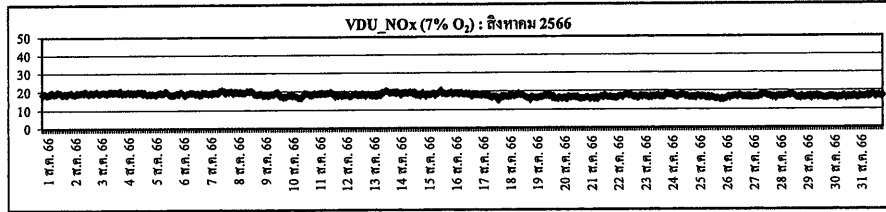
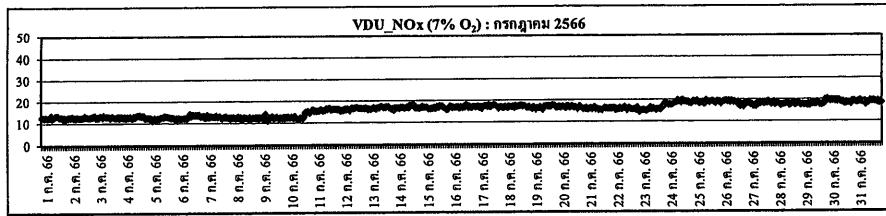
Stack	Parameter	Date	Time	Details	Cause
RFCCU	All	16-Sep-3 Nov		Reading Error	เกิดเหตุไฟฟ้าดับ ทำให้หยุดกระบวนการผลิตทั้งหมด
RFCCU/ NHTU/ VDU/ CDU	NOx	16-Sep เป็นต้นไป		Reading Error	เกิดเหตุไฟฟ้าดับ ทำให้หยุดกระบวนการผลิตทั้งหมด
All	All	22-Oct เป็นต้นไป		Reading Error	เกิดเหตุไฟฟ้าดับ ทำให้หยุดกระบวนการผลิตทั้งหมด
RFCCU	SO2	8-Nov-23	07.00-11.00	SO2 exceed standard	เนื่องจากในช่วง start up มีความจำเป็นต้องเดิมตัวเร่งปฏิกิริยาซึ่งมีขนาดเล็กมากในระบบมากขึ้น ทำให้ท่อสำเลียงตัวเร่งปฏิกิริยาเกิดการอุดตัน ส่งผลให้ไม่สามารถเดิมตัวเร่งปฏิกิริยาที่ใช้ความคุมค่า SO2 (DeSOx Catalyst) เข้าสู่ระบบได้ โครงการดำเนินการแก้ไขการอุดตันภายในท่อ หลังจากนั้นค่ากลับเข้าสู่ภาวะปกติ
RFCCU	SO2	11/12/15 Nov		SO2 exceed standard	เนื่องจากในช่วง start up มีความจำเป็นต้องใช้ Feed ที่มาจาก VDU โดยตรงซึ่งมีคุณสมบัติที่มีความผันผวนสูง ส่งผลทำให้การควบคุม SOx ที่ระบายออกยาก
HRSG1	NOx	22-Nov-23		Reading Error	หยุดซ่อมบำรุง
Boiler 3	NOx	13-Dec-23	22.00 เป็นต้นไป	Reading Error	หยุดซ่อมบำรุง

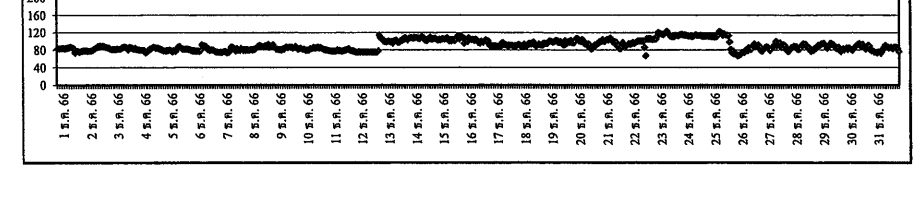
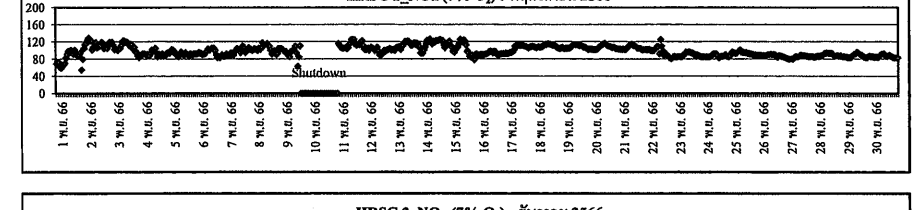
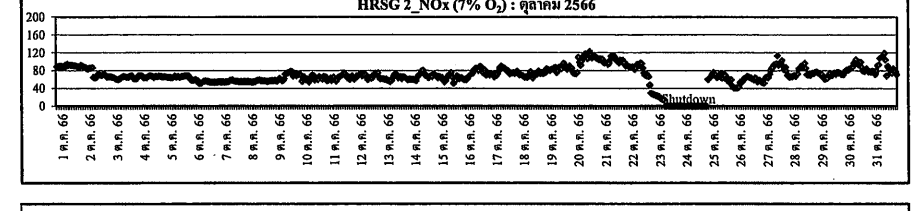
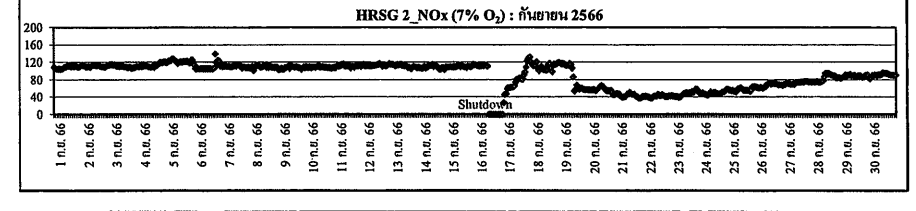
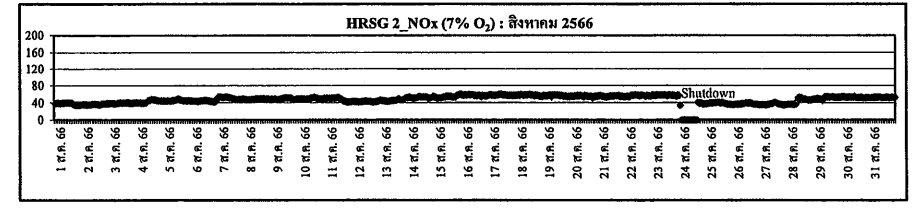
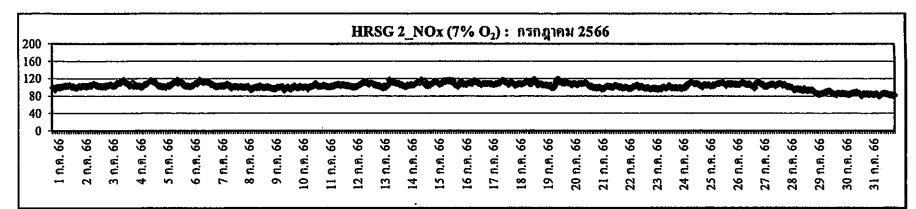
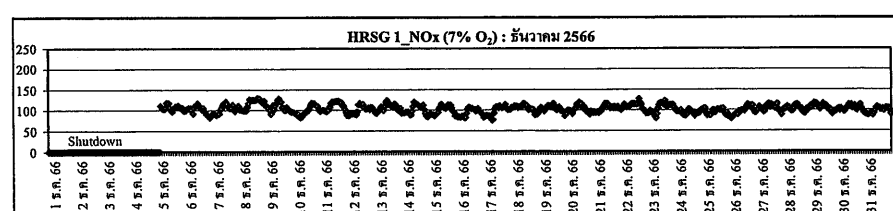
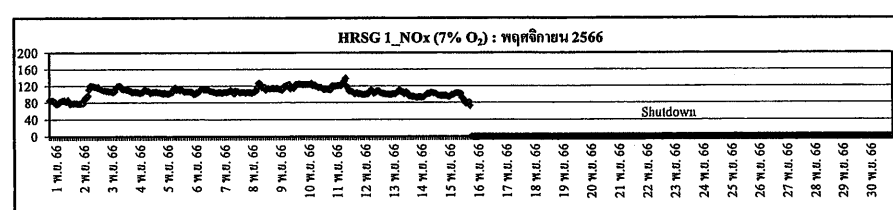
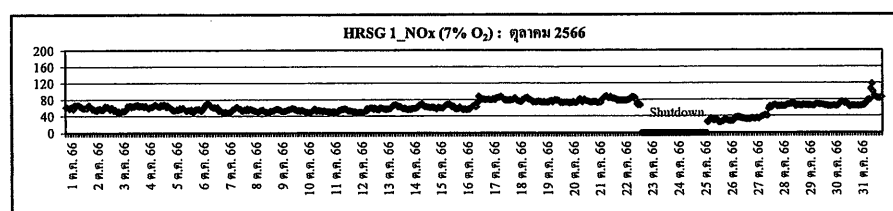
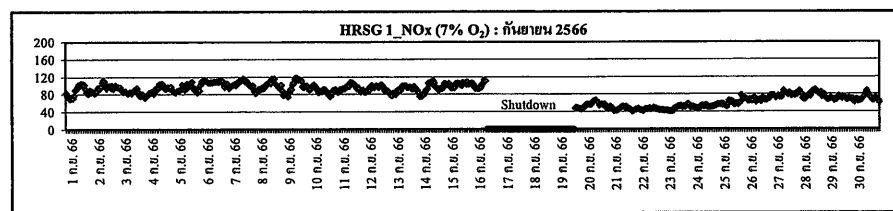
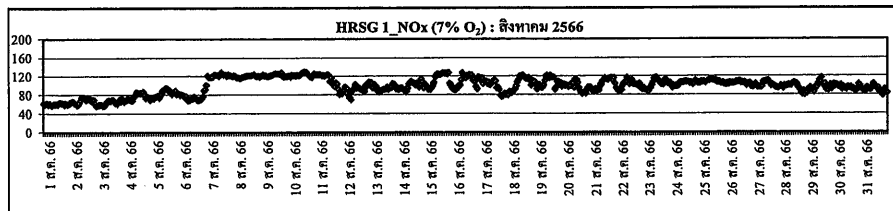
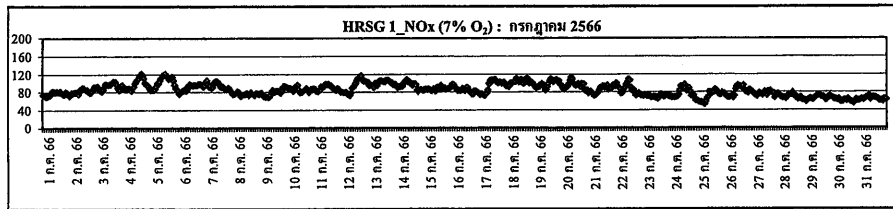
16 Sep เกิดเหตุไฟฟ้าดับ ทำให้หยุดกระบวนการผลิตทั้งหมด

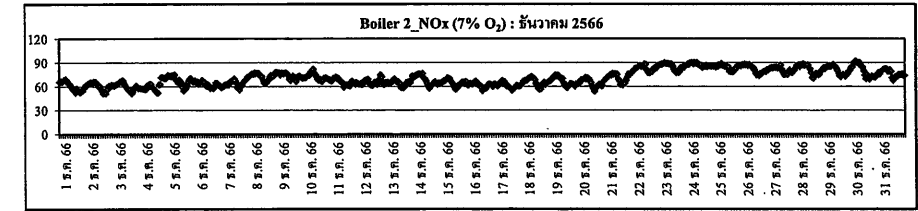
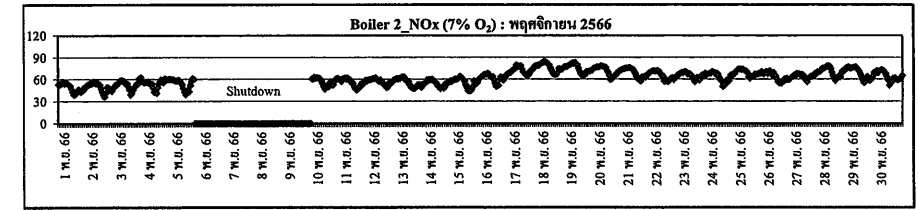
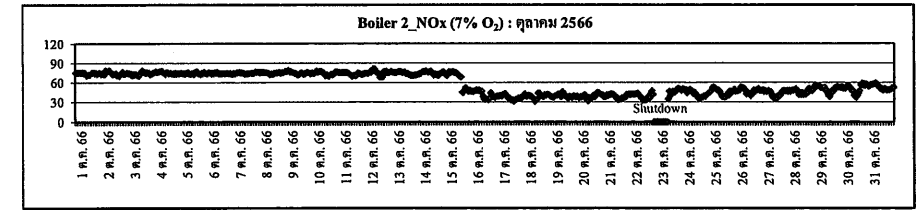
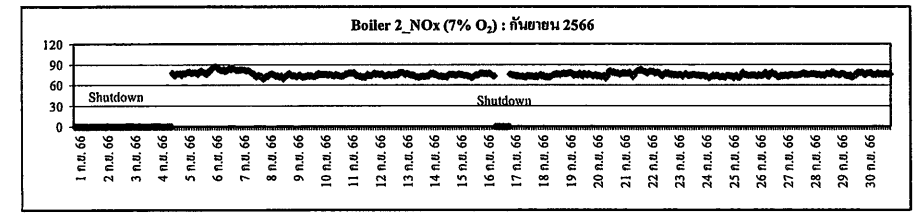
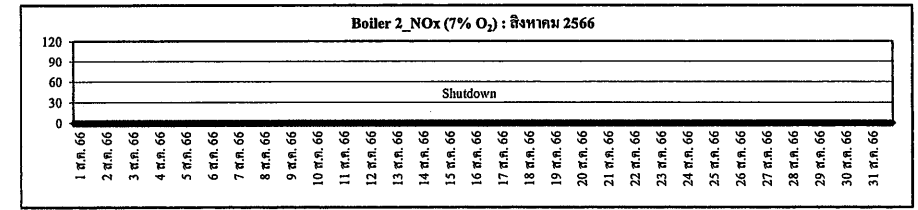
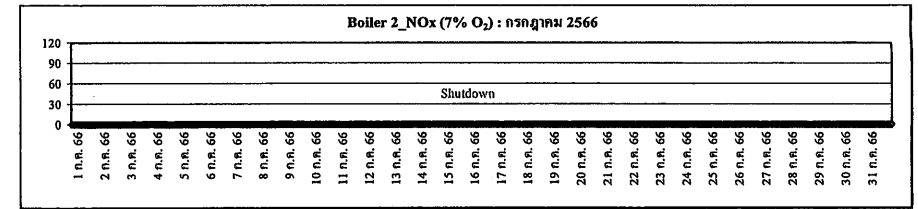
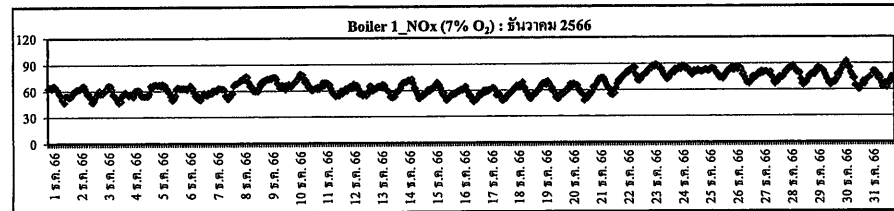
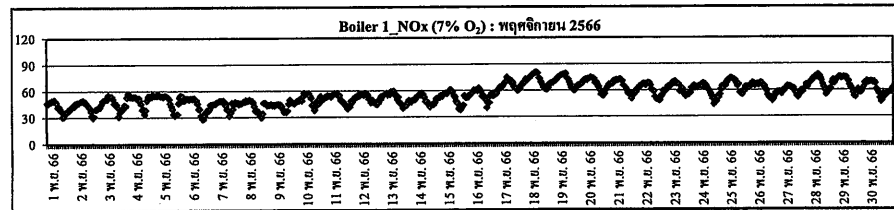
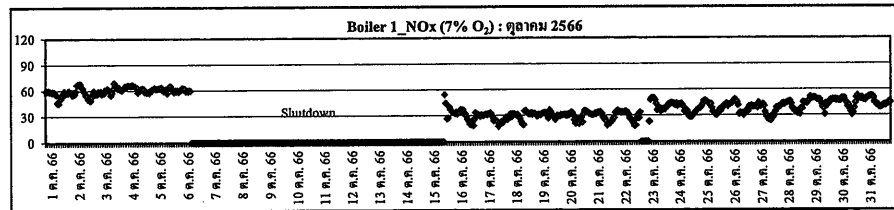
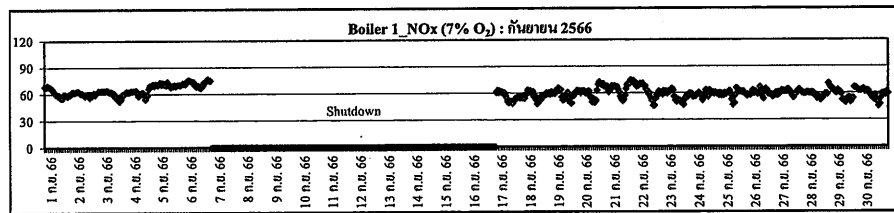
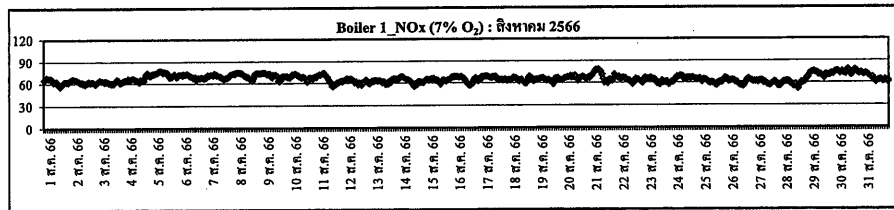
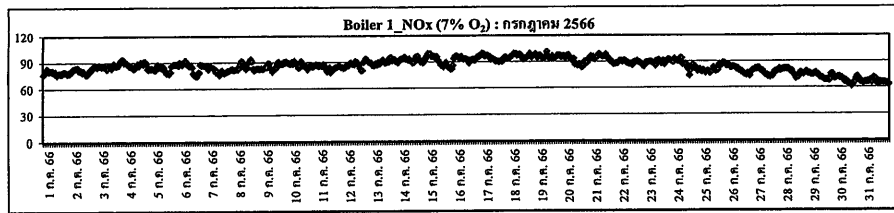


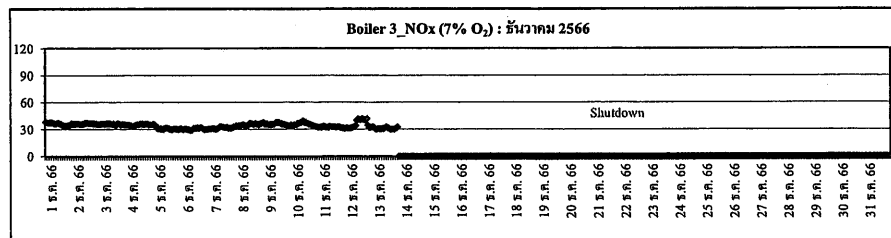
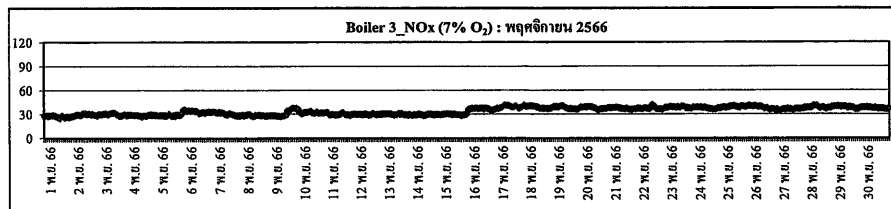
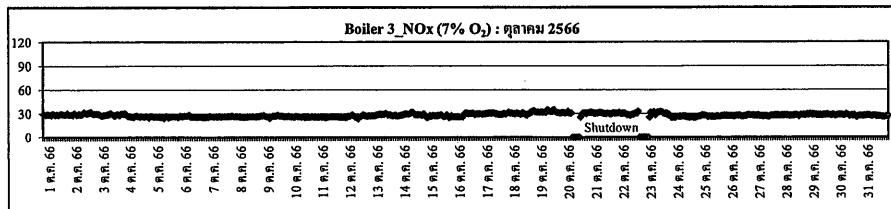
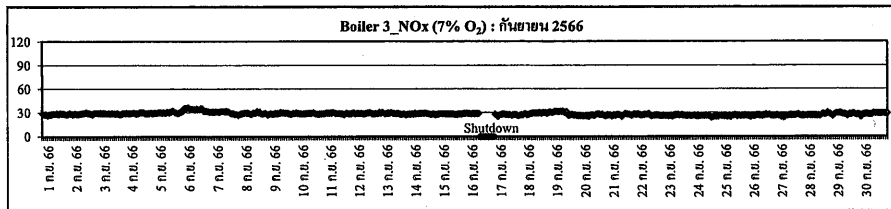
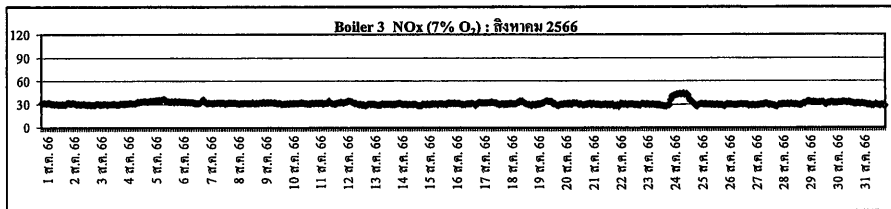
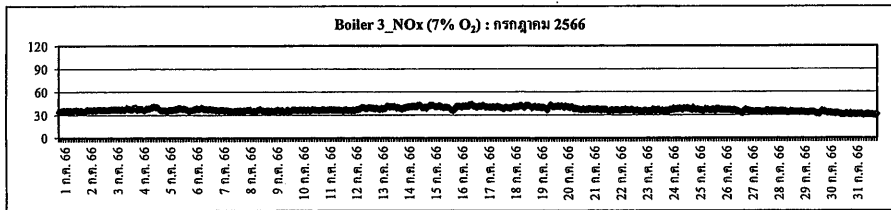












ภาคผนวก ข.16

**การควบคุมการทำงานของ Fume Hood ที่ Sulfur Pelletizer และ
Caustic Scrubber ที่ Sulfur Molten/Pelletizer**

Gas Fume Scrubber

DATE	TIME	CENTRIFUGAL BLOWER Inlet Pressure H149 Inch H2O Low 5 Inch H2O/OP=3.8 InchH2O						SCRUBBER 1						SCRUBBER 2						WATER COOLER		CAUSTIC Level	Vac. Pres. Inlet Gas 68D101 Tank	Vac. Pres. Inlet Gas 68E101 Truck	Vac. Pres. Inlet Gas 68F101 Sulfur Pt.	NOTE			
		Selector Switch	Pan 1	Pan 2	68K101A Inch H2O	68K101B Inch H2O	Dis.Press 68G101 Kg/cm ²	Off.Press Packing Inch H2O	Water Ctr pH	Caustic Stock 68G101 %	Bottom Level	KmCl Refill 20 min	Blow Down	Dis.Press 68G101 Kg/cm ²	Vac.Press Inlet Gas Inch H2O	Water Ctr pH	Caustic Stock 68G101 %	Bottom Level	KmCl Refill 20 min	Blow Down	Damper Position						Outlet P. 68D101 Kg/cm ²	Inlet T. 68E101 degree C	
		Lead/Lag	Lead/Lag	Lead/Lag	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0	7.4-9.0						7.4-9.0	7.4-9.0	
July-01-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	4.1	35/30	98	2.3	3.0	Off Service	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)
	D	14:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	4.2	34/29	95	2.3	3.0	Off Service	
July-03-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	4.1	35/28	70	2.3	3.0	Off Service	
	D	14:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	4.2	34/29	67	2.3	3.0	Off Service	
July-04-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.1	65	60	Done	Done	100	80	4.1	35/28	63	2.3	3.0	Off Service	
	C	14:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	4.2	36/29	58	2.3	3.0	Off Service	
July-05-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	4.1	35/28	55	2.3	3.0	Off Service	
	A	14:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	4.2	36/30	52	2.3	3.0	Off Service	
July-06-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	4.1	35/28	48	2.3	3.0	Off Service	
	A	14:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	4.2	36/30	45	2.3	3.0	Off Service	
July-07-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	4.0	35/28	42	2.3	3.0	Off Service	
	B	14:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	4.0	36/30	100	2.3	3.0	Off Service	
July-08-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	8.2	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	4.0	32/26	97	2.3	3.0	Off Service	
	B	14:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	4.0	33/27	93	2.3	3.0	Off Service	
July-09-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	8.2	65	75	Done	Done	3.4	3.0	7.3	70	70	Done	Done	100	80	4.0	32/26	90	2.3	3.0	Off Service	
	B	15:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.7	70	70	Done	Done	100	80	4.0	33/27	87	2.3	3.0	Off Service	
July-10-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.2	70	70	Done	Done	100	80	4.0	33/27	84	2.3	3.0	Off Service	
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.4	70	70	Done	Done	100	80	4.0	34/28	80	2.3	3.0	Off Service	
July-14-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.7	70	70	Done	Done	100	80	4.0	33/27	45	2.3	3.0	Off Service	
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.8	70	70	Done	Done	100	80	4.0	35/29	100	2.3	3.0	Off Service	
July-15-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.4	70	70	Done	Done	100	80	4.0	33/27	85	2.3	3.0	Off Service	
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.7	70	70	Done	Done	100	80	4.0	35/29	80	2.3	3.0	Off Service	
July-17-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.9	70	70	Done	Done	100	80	4.0	35/29	75	2.3	3.0	Off Service	
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	70	70	Done	Done	100	80	4.0	34/28	70	2.3	3.0	Off Service	
July-18-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.7	70	70	Done	Done	100	80	4.0	35/28	65	2.3	3.0	Off Service	
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	70	70	Done	Done	100	80	4.0	35/28	60	2.3	3.0	Off Service	
July-19-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.8	70	70	Done	Done	100	80	4.0	34/27	55	2.3	3.0	Off Service	
	D	15:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.4	70	70	Done	Done	100	80	4.0	35/28	50	2.3	3.0	Off Service	
July-20-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.3	70	70	Done	Done	100	80	4.0	35/28	45	2.3	3.0	Off Service	
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.6	70	70	Done	Done	100	80	4.0	36/29	40	2.3	3.0	Off Service	
July-22-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.1	70	70	Done	Done	100	80	4.0	32/26	100	2.3	3.0	Off Service	
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.7	70	70	Done	Done	100	80	4.0	33/27	95	2.3	3.0	Off Service	
July-25-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	70	70	Done	Done	100	80	4.0	33/27	75	2.3	3.0	Off Service	
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.8	70	70	Done	Done	100	80	4.0	34/29	70	2.3	3.0	Off Service	
July-26-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.5	70	70	Done	Done	100	80	4.0	32/26	65	2.3	3.0	Off Service	
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.1	70	70	Done	Done	100	80	4.0	35/28	60	2.3	3.0	Off Service	
July-27-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.6	70	70	Done	Done	100	80	4.0	33/27	55	2.3	3.0	Off Service	
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.4	70	70	Done	Done	100	80	4.0	35/28	100	2.3	3.0	Off Service	
July-29-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.9	70	70	Done	Done	100	80	4.0	33/27	75	2.3	3.0	Off Service	May-23
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.5	70	70	Done	Done	100	80	4.0	35/30	70	2.3	3.0	Off Service	
July-31-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.2	70	70	Done	Done	100	80	4.0	33/27	55	2.3	3.0	Off Service	

Gas Fume Scrubber

DATE	SHIFT	CENTRIFUGAL BLOWER Inlet Pressure H1=6 Inch H2O/ Low= 3 jinch H2O/OP=0.8 InchH2O						SCRUBBER 1						SCRUBBER 2						WATER COOLER		CAUSTIC Level	Vac. Pres.	Vac. Pres.	Vac. Pres.	NOTE		
		TIME	Selector Switch	Inlet Pressure	Dis.Press	Diff Pres	Water Clr	Caustic Stock	Bottom	KMnO4 Refill	Blow Down	Dis.Press	Vac.Press	Water Clr	Caustic Stock	Bottom	KMnO4 Refill	Blow Down	Damper Position	Outlet P.	Inlet T.							
																											Fan 1	Fan 2
		Lead/Lag	Lead/Lag	Inch H ₂ O	Inch H ₂ O	Kg/cm ²	Inch H ₂ O	7.5-9.0	%	%	0.5Kg	20 min	Kg/cm ²	6.5-7.5	%	%	0.5Kg	20 min	100	100	Kg/cm ²	degree C	%	Tank	Loading	Sulfur Pit	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)	
C	15:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.7	70	70	Done	Done	100	80	4.0	34/28	50	2.3	3.0	Off Service	

Gas Fume Scrubber

DATE	Shift	TIME	CENTRIFUGAL BLOWER Inlet Pressure H ₂ O 3 inch H ₂ O/Low 3 inch H ₂ O/OP=3.8 inch H ₂ O				SCRUBBER 1							SCRUBBER 2							WATER COOLER				CAUSTIC Level	Vac. Pres. Inlet Gas 68D101	Vac. Pres. Inlet Gas Truck 68D101	Vac. Pres. Inlet Gas 88S102	NOTE	
			Selector Switch		Inlet Pressure		Dis. Press.	Oil Pres.	Water Cl.	Caustic State	Bottom	KOH-4 Refill	Blow Down 20 min	Dis. Press.	Vac. Pres.	Water Cl.	Caustic State	Bottom	KOH-4 Refill	Blow Down 20 min	Damper Position	Outlet P.	Inlet T.							
			Fan 1	Fan 2	68K101A	68K101B	68G104	Packing	pH	68G105	%	%	0.5Kg	Inlet Gas	pH	68G108	%	%	0.5Kg	20 min	68D101	TTLT	68E101							
			Lead/Lag	Lead/Lag	Inch H ₂ O	Inch H ₂ O	Kg/cm ²	Inch H ₂ O	7.5-9.0	%	%	0.5Kg	Done	Kg/cm ²	Inch H ₂ O	6.5-7.5	%	%	0.5Kg	Done	100	100	Kg/cm ²	degree C						
Aug-01-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	4.1	33/27	45	2.3	3.0	Off Service	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)	
	D	14:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	4.2	36/29	40	2.3	3.0	Off Service		
Aug-02-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.8	32/26	38	2.3	3.0	Off Service		
	D	14:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.9	65	60	Done	Done	100	80	3.8	34/27	35	2.3	3.0	Off Service		
Aug-05-2023																													Shut Down Unit	
																													Shut Down Unit	
																													Shut Down Unit	
																													Shut Down Unit	
																													Shut Down Unit	
																													Shut Down Unit	
																													Shut Down Unit	
Aug-12-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	70	70	Done	Done	100	80	4.0	33/27	95	2.3	3.0	Off Service		
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.8	70	70	Done	Done	100	80	4.0	34/29	90	2.3	3.0	Off Service		
Aug-13-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.3	70	70	Done	Done	100	80	4.0	33/27	85	2.3	3.0	Off Service		
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.7	70	70	Done	Done	100	80	4.0	33/29	80	2.3	3.0	Off Service		
Aug-14-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.3	70	70	Done	Done	100	80	4.0	34/28	75	2.3	3.0	Off Service		
	B	15:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	2.2	7.7	70	70	Done	Done	100	80	4.0	36/31	70	2.3	3.0	Off Service		
Aug-15-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	7.5	70	70	Done	Done	100	80	4.0	33/26	65	2.3	3.0	Off Service		
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	2.2	7.2	70	70	Done	Done	100	80	4.0	36/29	63	2.3	3.0	Off Service		
Aug-16-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	2.2	7.6	70	70	Done	Done	100	80	4.0	35/28	60	2.3	3.0	Off Service		
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	2.2	7.4	70	70	Done	Done	100	80	4.0	36/29	57	2.3	3.0	Off Service		
Aug-17-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	2.2	7.5	70	70	Done	Done	100	80	4.0	35/28	54	2.3	2.5	Off Service		
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.3	65	75	Done	Done	3.4	2.2	7.7	70	70	Done	Done	100	80	4.0	36/31	50	2.3	2.5	Off Service		
Aug-18-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.2	65	75	Done	Done	3.4	2.2	7.8	70	70	Done	Done	100	80	4.0	35/28	47	2.3	2.5	Off Service		
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	2.2	7.3	70	70	Done	Done	100	80	4.0	36/31	45	2.3	2.5	Off Service		
Aug-19-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	2.2	7.6	70	70	Done	Done	100	80	4.0	35/28	42	2.3	3.0	Off Service		
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	2.2	7.4	70	70	Done	Done	100	80	4.0	36/29	40	2.3	3.0	Off Service		
Aug-20-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	6.5	70	70	Done	Done	100	80	4.0	35/28	38	2.3	3.0	Off Service		
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	2.2	7.5	70	70	Done	Done	100	80	4.0	36/29	36	2.3	3.0	Off Service		
Aug-21-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	2.2	7.6	70	70	Done	Done	100	80	4.0	34/28	100	2.3	3.0	Off Service		
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	2.2	7.8	70	70	Done	Done	100	80	4.0	36/29	97	2.3	3.0	Off Service		
Aug-22-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	2.2	7.4	70	70	Done	Done	100	80	4.0	34/27	94	2.3	3.0	Off Service		
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	2.2	7.7	70	70	Done	Done	100	80	4.0	36/29	90	2.3	3.0	Off Service		
Aug-23-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	2.2	7.2	70	70	Done	Done	100	80	4.0	34/27	86	2.3	3.0	Off Service		
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	7.8	70	70	Done	Done	100	80	4.0	35/28	83	2.3	3.0	Off Service		
Aug-24-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	2.2	7.6	70	70	Done	Done	100	80	4.0	34/29	80	2.3	3.0			
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	2.2	7.7	70	70	Done	Done	100	80	4.0	33/27	75	2.3	3.0			
Aug-25-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	7.9	70	70	Done	Done	100	80	4.0	33/27	70	2.3	2.5			
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.3	65	75	Done	Done	3.4	2.2	7.6	70	70	Done	Done	100	80	4.0	36/29	65	2.3	2.5			
Aug-28-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	2.2	7.6	70	70	Done	Done	100	80	4.0	35/28	45	2.3	2.5			
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	7.5	70	70	Done	Done	100	80	4.0	36/29	40	2.3	2.5			May-23
Aug-29-2023	C	9:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	2.2	7.7	70	70	Done	Done	100	80	4.0	34/27	38	2.3	2.5			
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	2.2	7.4	70	70	Done	Done	100	80	4.0	36/28	100	2.3	2.5			

Gas Fume Scrubber

DATE	TIME	CENTRIFUGAL BLOWER Inlet Pressure Min 8 inch H2O / Low 3 inch H2O / OP=3.5 inch H2O				SCRUBBER 1								SCRUBBER 2								WATER COOLER		CAUSTIC Level	Vac. Pres.	Vac. Pres.	Vac. Pres.	NOTE
		Selector Switch		Inlet Pressure		Dis. Press.	Oil Pres.	Water Cr.	Caustic Stock	Bottom	KM/O4 Refill	Blow Down	Dis. Press.	Vac. Pres.	Water Cr.	Caustic Stock	Bottom	KM/O4 Refill	Blow Down	Damper Position	Outlet P.	In/O4.T	69E101	69E101	Level	Inlet Gas.	Inlet Gas.	Inlet Gas.
		Fan 1	Fan 2	68K101A	68K101B	68G104	Packing	pH	68G105	Level			68G103	Inlet Gas	pH	68G105	Level				68D101	T.T.T	68E101	68E101	%	68D101	Truck	68S102
		Lead/Lag	Lead/Lag	Inch H2O	Inch H2O	Kg/cm ²	Inch H2O	7.5-9.0	%	%	0.5Kg	20 min	Kg/cm ²	Inch H2O	6.5-7.5	%	%	0.5kg	20 min	100	100	Kg/cm ²	degree C	%	Tank	Loading	Sulfur P4	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)
Aug-30-2023	A 9:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	7.2	70	70	Done	Done	100	80	4.0	35/28	95	2.3	2.5		
	A 15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	7.6	70	70	Done	Done	100	80	4.0	36/29	90	2.3	2.6		
Aug-31-2023	A 9:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	2.2	7.5	70	70	Done	Done	100	80	4.0	34/27	85	2.3	2.5		
	A 15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	2.2	7.9	70	70	Done	Done	100	80	4.0	35/28	80	2.3	2.5		

Gas Fume Scrubber

DATE	TIME	CENTRIFUGAL BLOWER Inlet Pressure H ₂ O (1/4" 5" Inch H ₂ O) OP#3 8 Inch H ₂ O				SCRUBBER 1										SCRUBBER 2										WATER COOLER		CAUSTIC Level	Vac. Pres. Inlet Gas 68D101	Vac. Pres. Inlet Gas 68D101	Vac. Pres. Inlet Gas 68D102	NOTE
		Selector Switch	Fan 1 Lead/Lag	Fan 2 Lead/Lag	Inlet Pressure 68K101A Inch H ₂ O	Inlet Pressure 68K101B Inch H ₂ O	Dis. Press. 68G104 Kilom ²	Dis. Press. 68G104 Inch H ₂ O	Water Cr. pH	Caustic Stock 68G105 %	Bottom Level	KWH-04 Refill 0.5kg	Blow Down 20 min	Dis. Press. 68G103 Kilom ²	Vac. Pres. Inlet Gas Inch H ₂ O	Water Cr. pH	Caustic Stock 68G105 %	Bottom Level	KWH-04 Refill 0.5kg	Blow Down 20 min	Damper Position 68D101	Position TTLT	Outlet P. 68E101 Kilom ²	Inlet T. 68E101 degree C								
		Lead/Lag	ON	ON	Inch H ₂ O	Inch H ₂ O	Kilom ²	Inch H ₂ O	7.6-9.0	%	%	0.5kg	20 min	Kilom ²	Inch H ₂ O	6.5-7.5	%	%	0.5kg	20 min	100	100	Kilom ²	degree C								
Sep-01-2023	B 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	4.1	35/27	75	2.3	2.5	Off Service	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)			
	B 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	4.2	36/29	70	2.3	2.5	Off Service				
Sep-02-2023	B 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	4.1	34/27	65	2.3	2.5	Off Service				
	B 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	4.2	36/29	60	2.3	2.5	Off Service				
Sep-03-2023	B 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	4.1	34/27	55	2.3	2.5	Off Service	Shut Down Unit			
	B 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	4.2	36/29	100	2.3	2.5	Off Service	Shut Down Unit			
Sep-04-2023	D 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	4.1	34/27	95	2.3	2.5	Off Service	Shut Down Unit			
	D 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	4.2	35/28	90	2.3	2.5	Off Service				
Sep-05-2023	D 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	4.1	34/27	85	2.3	2.5	Off Service				
	D 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	4.2	35/28	80	2.3	2.5	Off Service				
Sep-06-2023	C 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	35/28	75	2.3	2.5	Off Service				
	C 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	36/29	70	2.3	2.5	Off Service				
Sep-07-2023	C 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	35/28	65	2.3	2.5	Off Service				
	C 14:30	OFF	ON	ON	0	3.0	2.30	0.2		65	75	Done	Done	3.4	3.0		65	60	Done	Done	100	80	3.6	36/29	100	2.3	2.5	Off Service				
Sep-09-2023	A 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	35/28	75	2.3	2.5	Off Service				
	A 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	36/29	70	2.3	2.5	Off Service				
Sep-10-2023	A 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	35/28	70	2.3	2.5	Off Service				
	A 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	36/29	65	2.3	2.5	Off Service				
Sep-11-2023	B 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	35/28	60	2.3	2.5	Off Service				
	B 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	36/29	55	2.3	2.5	Off Service				
Sep-12-2023	B 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	34/26	50	2.3	2.5	Off Service				
	B 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	37/28	45	2.3	2.5	Off Service				
Sep-13-2023	D 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	34/27	100	2.3	2.5	Off Service				
	D 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	36/28	95	2.3	2.5	Off Service				
Sep-14-2023	D 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/27	90	2.3	2.5	Off Service				
	D 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	37/29	85	2.3	2.5	Off Service				
Sep-15-2023	C 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	35/27	80	2.3	2.5	Off Service				
	C 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	36/28	75	2.3	2.5	Off Service				
Sep-16-2023	C 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	35/27	100	2.3	2.5	Off Service				
	C 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	36/29	95	2.3	2.5	Off Service				
Sep-18-2023	A 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	34/27	80	2.3	2.5	Off Service				
	A 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	36/29	75	2.3	2.5	Off Service				
Sep-19-2023	A 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	8.1	65	60	Done	Done	100	80	3.6	33/27	70	2.3	2.5	Off Service				
	A 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	36/29	65	2.3	2.5	Off Service				
Sep-20-2023	B 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.9	65	60	Done	Done	100	80	3.6	34/28	60	2.3	2.5	Off Service				
	B 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	32/25	55	2.3	2.5	Off Service				
Sep-21-2023	B 9:30	OFF	ON	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/28	60	2.2	2.4	Off Service	May-23			
	B 14:30	OFF	ON	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	36/28	45	2.2	2.4	Off Service				

Gas Fume Scrubber

DATE	SHIFT	CENTRIFUGAL BLOWER Inlet Pressure Nit=6 Inch H2O/Lux 3 Inch H2O/KPa=8.8 InchH2O								SCRUBBER 1								SCRUBBER 2								WATER COOLER				GAUSTIC Level	Vib. Pres.	Vac. Pres.	Vac. Pres.	NOTE
		TIME		Selector Switch		Inlet Pressure		Dis.Press.		Of Press.		Water Oil		Caustic Stock		Bottom Level		Kw/Ch Refill		Blow Down		Dampers Position		Outlet P.		Inlet T.								
		Run 1	Run 2	Lead/Lag	Lead/Lag	68K/101A	68K/101B	Pa/Kg	Pa/Kg	Inch H2O	7.5-8.0	%	%	6.5-7.5	%	%	20 min	20 min	68K/101	68K/101	7.1	7.1	68K/101	68K/101	degrees C	%	%	Test	Leakage					
Sep-22-2023	D	9:30	OFF	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	33/27	40	2.2	2.4	Off Service	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)					
	D	14:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	35/28	100	2.2	2.4	Off Service						
Sep-23-2023	D	9:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	34/27	95	2.2	2.4	Off Service						
	D	14:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	36/29	90	2.2	2.4	Off Service						
Sep-26-2023	D	9:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	35/25	75	2.2	3.0	Off Service						
	D	14:30	OFF	ON	0	3.0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	36/27	70	2.2	3.0	Off Service						
Sep-27-2023	D	9:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	35/25	65	2.2	3.0	Off Service						
	D	14:30	OFF	ON	0	3.0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	36/27	60	2.2	3.0	Off Service						
Sep-29-2023	B	9:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	35/26	85	2.2	3.0	Off Service						
	B	14:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	36/26	80	2.2	3.0	Off Service						
Sep-30-2023	B	9:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/27	75	2.2	3.0	Off Service						
	B	14:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	36/29	70	2.2	3.0	Off Service						

Gas Fume Scrubber

DATE	Shift	CENTRIFUGAL BLOWER Inlet Pressure H=6 Inch H ₂ O / L=3 Inch H ₂ O/D=3.8 Inch H ₂ O						SCRUBBER 1						SCRUBBER 2						WATER COOLER				CAUSTIC Level	Vac. Pres. Inlet Gas 68D101	Vac. Pres. Inlet Gas Truck 68D102	Vac. Pres. Inlet Gas 68D102	NOTE			
		Selector Switch		Inlet Pressure		Dis. Pres. 68D101A	Dis. Pres. 68D101B	Dis. Pres. 68D104	Packing Inlet H ₂ O	Water Circ. pH	Caustic Stock %	Bottom Level %	KOH Refill 0.5kg	Blow Down 20 min	Dis. Pres. 68D103	Vac. Pres. Inlet Gas Inlet H ₂ O	Water Circ. pH	Caustic Stock %	Bottom Level %	KOH Refill 0.5kg	Blow Down 20 min	Dampers Position 68D101 TTLT	Outlet P. 68E101 Kg/cm ²						Inlet T. 68E101 degree C	%	Tank
		Fan 1 Lead/Lag	Fan 2 Lead/Lag	68K101A Inch H ₂ O	68K101B Inch H ₂ O	Rpm	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C						°C	°C	°C
Oct-03-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	34/26	55	2.2	3.0	Off Service	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)		
	D	14:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	8.2	65	60	Done	Done	100	80	3.6	32/25	50	2.2	3.0	Off Service			
Oct-05-2023	D	9:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/26	45	2.2	3.0	Off Service			
	D	14:30	ON	OFF	3.0	0	2.30	0.2	8.2	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	35/27	40	2.2	3.0	Off Service			
Oct-06-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	34/26	35	2.2	3.0	Off Service	Shut Down Unit		
	A	14:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	32/25	30	2.2	3.0	Off Service	Shut Down Unit		
Oct-07-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.9	65	60	Done	Done	100	80	3.6	33/26	100	2.2	3.0	Off Service	Shut Down Unit		
	A	14:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	35/27	95	2.2	3.0	Off Service	Shut Down Unit		
Oct-08-2023	A	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	34/26	90	2.2	3.0	Off Service			
	A	14:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	32/25	85	2.2	3.0	Off Service			
Oct-09-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	32/25	85	2.2	3.0	Off Service			
	B	14:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	33/26	83	2.2	3.0	Off Service			
Oct-10-2023	B	9:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	33/26	80	2.2	3.0	Off Service			
	B	14:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	33/26	75	2.3	3.0	Off Service			
Oct-11-2023	B	10:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	34/26	70	2.2	3.0	Off Service			
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	32/25	65	2.3	3.0	Off Service			
Oct-12-2023	B	10:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	33/25	60	2.2	3.0	Off Service			
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	35/26	55	2.3	3.0	Off Service			
Oct-13-2023	C	10:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	34/27	50	2.2	3.0	Off Service			
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	36/29	100	2.3	3.0	Off Service			
Oct-14-2023	C	10:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.1	65	60	Done	Done	100	80	3.6	34/27	95	2.2	3.0	Off Service			
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	36/28	93	2.3	3.0	Off Service			
Oct-15-2023	C	10:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	33/26	90	2.2	3.0	Off Service			
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	36/29	87			Off Service			
Oct-16-2023	A	10:30	ON	OFF	3.0	0	2.30	0.2	8.2	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	33/26	84	2.2	3.0	Off Service			
	A	15:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	36/29	80	2.2	3.0	Off Service			
Oct-17-2023	A	10:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.9	65	60	Done	Done	100	80	3.6	34/27	75	2.2	3.0	Off Service			
	A	15:30	ON	OFF	3.0	0	2.30	0.2	6.9	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	36/29	70	2.2	3.0	Off Service			
Oct-18-2023	B	10:30	ON	OFF	3.0	0	2.30	0.2	8.2	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	33/26	65	2.2	3.0	Off Service			
	B	15:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	36/29	63	2.2	3.0	Off Service			
Oct-20-2023	D	10:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	8.2	65	60	Done	Done	100	80	3.6	34/28	85	2.2	3.0	Off Service			
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	36/29	82	2.2	3.0	Off Service			
Oct-22-2023	D	10:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/28	80	2.2	3.0	Off Service			
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	36/28	77	2.2	3.0	Off Service			
Oct-23-2023	C	10:30	ON	OFF	3.0	0	2.30	0.2	8.2	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	33/27	74	2.2	3.0	Off Service			
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	34/28	100	2.2	3.0	Off Service			
Oct-27-2023	B	10:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	34/27	70	2.2	3.0	Off Service			
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	36/29	65	2.2	3.0	Off Service			
Oct-28-2023	B	10:30	ON	OFF	3.0	0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.1	65	60	Done	Done	100	80	3.6	34/27	60	2.2	3.0	Off Service	May-23		
	B	15:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	36/29	55	2.2	3.0	Off Service			

May-23

Gas Fume Scrubber

DATE	SHIFT	TIME	CENTRIFUGAL BLOWER Inlet Pressure High 2 inch H ₂ O / Low 3 inch H ₂ O / OP=3.3 inch H ₂ O				SCRUBBER 1						SCRUBBER 2						WATER COOLER		CAUSTIC Level	Vac. Pres. 68G101	Vac. Pres. Inlet Gas 68G101	Vac. Pres. Inlet Gas 68E101	NOTE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
			Selector Switch	Inlet Pressure		Dis. Press.	Oil Pres.	Water Cx.	Caustic Stock	Bottom	KMnO ₄	Blow	Dis. Press.	Vac. Pres.	Water Cx.	Caustic Stock	Bottom	KMnO ₄	Blow	Damper Position						Outlet P.	In/Out T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
			Fan 1 Lead/Lag	Fan 2 Lead/Lag	68K101A Inch H ₂ O	68K101B Inch H ₂ O	68G104 Kp/cm ²	68G105 Inch H ₂ O	%	%	0.5kg	20 min	68G103 Kp/cm ²	68G103 Inch H ₂ O	pH	%	%	0.5kg	20 min	68G101 TT/TT						68E101 Kp/cm ²	68E101 degree C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Gas Fume Scrubber

DATE	SHIFT	CENTRIFUGAL BLOWER Inlet Pressure H=8 Inch H2O/ Low 3 Inch H2O/P>=9 InchH2O						SCRUBBER 1										SCRUBBER 2										WATER COOLER				CAUSTIC Level	Vac. Pres.	Vac. Pres.	Vac. Pres.	NOTE
		TIME	Selector Switch		Inlet Pressure		Dis.Press	Diff.Press	Water pH	Water Cx	Caustic Store	Bottom Level	Km/Od Refill	Blow Down	Dis.Press	Vac.Press	Water Cx	pH	Caustic Store	Bottom Level	Km/Od Refill	Blow Down	Damper Position	Outlet P.	In/Oud T.											
			Fan1 Lead/Lag	Fan2 Lead/Lag	68K101A Inch H2O	68K101B Inch H2O																				68G104 Kg/cm ²	Packing Inch H2O	68S106 %	%	20 mm O.Kg	20 mm O.Kg					
Nov-02-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	33/27	95	2.4	3.0	Off Service	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)							
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	35/28	90	2.4	3.0	Off Service								
Nov-03-2023	A	10:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	34/28	85	2.4	3.0	Off Service								
	A	15:30	OFF	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	36/29	80	2.4	3.0	Off Service								
Nov-06-2023	B	10:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	33/28	65	2.4	3.0	Off Service	Shut Down Unit							
	B	15:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	37/29	60	2.4	3.0	Off Service	Shut Down Unit							
																													Shut Down Unit							
Nov-07-2023	B	10:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	33/27	55	2.4	3.0	Off Service	Shut Down Unit							
	B	15:30	OFF	ON	0	3.0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	35/29	50	2.4	3.0	Off Service	Shut Down Unit							
Nov-10-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/27	45	2.4	3.0	Off Service								
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.2	66	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	35/29	40	2.4	3.0	Off Service								
Nov-11-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	34/27	100	2.4	3.0	Off Service								
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	35/28	95	2.4	3.0	Off Service								
Nov-13-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	33/27	90	2.4	3.0	Off Service								
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	8.0	65	60	Done	Done	100	80	3.6	37/30	85	2.4	3.0	Off Service								
Nov-14-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	33/27	90	2.4	3.0	Off Service								
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	37/30	85	2.4	3.0	Off Service								
Nov-17-2023	D	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	33/27	65	2.4	3.0	Off Service								
	D	15:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.1	65	60	Done	Done	100	80	3.6	37/30	60	2.4	3.0	Off Service								
Nov-18-2023	D	10:30	OFF	ON	0	3.0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	31/25	100	2.4	3.0	Off Service								
	D	15:30	OFF	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	35/27	95	2.4	3.0	Off Service								
Nov-20-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	32/23	75	2.4	3.0	Off Service								
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	36/28	70	2.4	3.0	Off Service								
Nov-21-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	34/26	65	2.4	3.0	Off Service								
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6		60	2.4	3.0	Off Service								
Nov-22-2023	A	10:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.9	65	60	Done	Done	100	80	3.6	34/26	70	2.4	3.0	Off Service								
	A	15:30	OFF	ON	0	3.0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	35/27	65	2.4	3.0	Off Service								
Nov-23-2023	A	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/27	60	2.4	3.0	Off Service								
	A	15:30	OFF	ON	0	3.0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	36/29	55	2.4	3.0	Off Service								
Nov-24-2023	B	10:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	34/27	50	2.4	3.0	Off Service								
	B	15:30	OFF	ON	0	3.0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.7	65	60	Done	Done	100	80	3.6	37/29	45	2.4	3.0	Off Service								
Nov-25-2023	B	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	33/26	40	2.4	3.0	Off Service								
	B	15:30	OFF	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	35/28	100	2.4	3.0	Off Service								
Nov-27-2023	D	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	33/25	85	2.4	3.0	Off Service								
	D	15:30	OFF	ON	0	3.0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	36/28	80	2.4	3.0	Off Service								
Nov-28-2023	D	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	34/25	75	2.4	3.0	Off Service								
	D	15:30	OFF	ON	0	3.0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	35/27	70	2.4	3.0	Off Service								
Nov-30-2023	C	10:30	OFF	ON	0	3.0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/26	65	2.4	3.0	Off Service								
	C	15:30	OFF	ON	0	3.0	2.30	0.2		65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6			2.4	3.0	Off Service								

Gas Fume Scrubber

DATE	Shift	TIME	CENTRIFUGAL BLOWER Inlet Pressure HI=8 Inch H ₂ O/ Low 3 Inch H ₂ O/OP=5.8 InchH ₂ O						SCRUBBER 1						SCRUBBER 2						WATER COOLER				CAUSTIC Level	Vac. Pres. Inlet Gas 88D101 Tank	Vac. Pres. Inlet Gas Truck Loading	Vac. Pres. Inlet Gas 88S102 Sulfur Pit	NOTE	
			Selector Switch		Inlet Pressure		Dis.Press.	Off.Press.	Water Ct.	Caustic Stock	Bottom Level	KMH-4 Rate	Slow Down	Dis.Press.	Vac.Press.	Water Ct.	Caustic Stock	Bottom Level	KMH-4 Rate	Slow Down	Damp. Position	Outlet P.	INCH-17	88E101 degree C						%
			Feb.1 Lead/Lag	Feb.2 Lead/Lag	88K101A Inch H ₂ O	88K101B Inch H ₂ O	88D104 Kilogram	Packing Inch H ₂ O	7.5-9.0	%	20 min	%	88D105	%	20 min	%	88D106	%	20 min	%	100	100	Kilogram							
Dec-02-2023	A	10:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	34/27	75	2.4	3.0	Off Service	(Scrubber 2 required to blow down 2 times / shift & flushing water cooler)	
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.2	65	60	Done	Done	100	80	3.6	36/29	70	2.4	3.0	Off Service		
Dec-05-2023	B	10:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	34/27	100	2.4	3.0	Off Service	Shut Down Unit Shut Down Unit Shut Down Unit Shut Down Unit Shut Down Unit	
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	36/29	95	2.4	3.0	Off Service		
Dec-06-2023	D	10:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	34/27	90	2.4	3.0	Off Service		
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.5	65	60	Done	Done	100	80	3.6	36/29	85	2.4	3.0	Off Service		
Dec-07-2023	D	10:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	8.0	65	60	Done	Done	100	80	3.6	34/27	80	2.4	3.0	Off Service		
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.8	65	60	Done	Done	100	80	3.6	36/28	75	2.4	3.0	Off Service		
Dec-09-2023	C	10:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.4	65	60	Done	Done	100	80	3.6	34/28	60	2.4	3.0	Off Service		
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.6	65	60	Done	Done	100	80	3.6	36/28	57	2.4	3.0	Off Service		
Dec-11-2023	A	10:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.3	65	60	Done	Done	100	80	3.6	33/27	50	2.4	3.0	Off Service		
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.9	65	60	Done	Done	100	80	3.6	35/28	47	2.4	3.0	Off Service		
Dec-12-2023	A	10:30	ON	OFF	3.0	0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.5	65	55	Done	Done	100	80	3.6	33/27	45	2.4	3.0	Off Service		
	A	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	55	Done	Done	100	80	3.6	35/28	42	2.4	3.0	Off Service		
Dec-13-2023	B	10:30	ON	OFF	3.0	0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.1	65	55	Done	Done	100	80	3.6	34/27	40	2.4	3.0	Off Service		
	B	15:30	ON	OFF	3.0	0	2.30	0.2	7.2	65	75	Done	Done	3.4	3.0	7.6	65	55	Done	Done	100	80	3.6	36/29	38	2.4	3.0	Off Service		
Dec-15-2023	D	10:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.7	65	55	Done	Done	100	80	3.6	32/26	100	2.4	3.0	Off Service		
	D	15:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.5	65	55	Done	Done	100	80	3.6	36/29	95	2.4	3.0	Off Service		
Dec-18-2023	C	10:30	ON	OFF	3.0	0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	65	55	Done	Done	100	80	3.6	33/27	80	2.4	3.0	Off Service		
	C	15:30	ON	OFF	3.0	0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.5	65	55	Done	Done	100	80	3.6	36/29	76	2.4	3.0	Off Service		
Dec-19-2023	C	10:30	ON	OFF	3.0	0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.1	65	55	Done	Done	100	80	3.6	32/25	70	2.4	3.0	Off Service		
	C	15:30	ON	OFF	3.0	0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.4	65	55	Done	Done	100	80	3.6	36/29	67	2.4	3.0	Off Service		
Dec-20-2023	A	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	65	55	Done	Done	100	80	3.6	33/27	65	2.4	3.0	Off Service		
	A	15:30	OFF	ON	0	3.0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.5	65	55	Done	Done	100	80	3.6	36/29	65	2.4	3.0	Off Service		
Dec-21-2023	A	10:30	OFF	ON	0	3.0	2.30	0.2	7.5	65	75	Done	Done	3.4	3.0	7.2	65	55	Done	Done	100	80	3.6	33/25	63	2.4	3.0	Off Service		
	A	15:30	OFF	ON	0	3.0	2.30	0.2	8.0	65	75	Done	Done	3.4	3.0	7.5	65	55	Done	Done	100	80	3.6	36/27	60	2.4	3.0	Off Service		
Dec-22-2023	B	10:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	65	55	Done	Done	100	80	3.6	30/23	57	2.4	3.0	Off Service		
	B	15:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.6	65	55	Done	Done	100	80	3.6	33/25	55	2.4	3.0	Off Service		
Dec-23-2023	B	9:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.4	65	55	Done	Done	100	80	3.6	30/23	57	2.4	3.0	Off Service		
	B	15:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.6	65	55	Done	Done	100	80	3.6	33/25	55	2.4	3.0	Off Service		
Dec-25-2023	D	9:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.3	65	55	Done	Done	100	80	3.6	30/23	40	10.0	3.0	Off Service		
	D	15:30	OFF	ON	0	3.0	2.30	0.2	7.4	65	75	Done	Done	3.4	3.0	7.6	65	55	Done	Done	100	80	3.6		100	10.0	3.0	Off Service		
Dec-26-2023	D	9:30	OFF	ON	0	3.0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.2	65	55	Done	Done	100	80	3.6	30/23	97	10.0	3.0	Off Service		
	D	15:30	OFF	ON	0	3.0	2.30	0.2	7.7	65	75	Done	Done	3.4	3.0	7.5	65	55	Done	Done	100	80	3.6	33/24	95	10.0	3.0	Off Service		
Dec-27-2023	C	9:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.4	65	55	Done	Done	100	80	3.6	32/24	90	10.0	3.0	Off Service		
	C	15:30	OFF	ON	0	3.0	2.30	0.2	7.3	65	75	Done	Done	3.4	3.0	7.6	65	55	Done	Done	100	80	3.6	35/28	87	10.0	3.0	Off Service		
Dec-29-2023	A	9:30	OFF	ON	0	3.0	2.30	0.2	7.8	65	75	Done	Done	3.4	3.0	7.3	65	55	Done	Done	100	80	3.6	33/23	75	10.0	3.0	Off Service		
	A	15:30	OFF	ON	0	3.0	2.30	0.2	8.1	65	75	Done	Done	3.4	3.0	7.5	65	55	Done	Done	100	80	3.6	35/28	70	10.0	3.0	Off Service		
Dec-30-2023	A	9:30	OFF	ON	0	3.0	2.30	0.2	7.9	65	75	Done	Done	3.4	3.0	7.7	65	55	Done	Done	100	80	3.6	34/25	67	10.0	3.0	Off Service		
	A	15:30	OFF	ON	0	3.0	2.30	0.2	7.6	65	75	Done	Done	3.4	3.0	7.2	65	55	Done	Done	100	80	3.6	35/29	64	10.0	3.0	Off Service		

May-23

Gas Fume Scrubber

DATE	SHIFT	TIME	CENTRIFUGAL BLOWER Inlet Pressure Hi=6 Inch H2O/ Low 3 Inch H2O/OP=3.8 InchH2O				SCRUBBER 1							SCRUBBER 2							WATER COOLER		CAUSTIC Level	Vac. Pres. Inlet Gas. 68D101 Tank	Vac. Pres. Inlet Gas. Truck Loading	Vac. Pres. Inlet Gas. 88D102 Sulfur Pit	NOTE (Scrubber 2 required to blow down 2 times / shift & flushing water cooler)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
			Selector Switch		Inlet Pressure		Dis.Press.	Diff.Press.	Water Cir.	Caustic Stock	Bottom Level	KMnO4 Refill	Blow Down	Dis.Press.	Vac.Press.	Water Cir.	Caustic Stock	Bottom Level	KMnO4 Refill	Blow Down	Damper Position	Outlet P.						Inlet T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			Fan 1 Lead/Lag	Fan 2 Lead/Lag	68K101A Inlet H ₂ O	68K101B Inlet H ₂ O	Kg/cm ²	Packing Inlet H ₂ O	pH	68G105	%	%	0.5kg	Kg/cm ²	Inlet H ₂ O	pH	%	%	0.5kg	20 min	68D101 T.T.L	T.T.L						88E101 Kg/cm ²	68E101																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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PELLETIZE FOR 2023														
DATE	TIME START	Start LEVEL(%)	TIME STOP	Stop LEVEL(%)	PRODUCT Per DAY (bags)	Daily Ship Meters Sulfur (ton)	(309) Daily Pelletized sulfur (ton)	68L001 Flow rate (tons/hrs)	#NAME? Ship pellet quantity (Bags)	#NAME? (931) Ship pellet weight (ton)	% Balance stock in Yard (Bag)	Balance stock in Yard (MT)	Remark	
Remain from														
03-Jul-23	9:00	31.2	9:36	16.2	40	160.62	41.88	0.16			330	315.771		696.357
04-Jul-23	8:30	28.45	11:30	15.42	40	135.62	40.285	20.14			370	356.056		1323.696
05-Jul-23	8:45	30.7	11:30	18.5	40	121.69	43.01	24.58			410	399.066		
06-Jul-23	8:30	28.7	11:30	13.7	40	160.46	42.04	21.02			450	441.106		
10-Jul-23	8:30	38.14	11:30	21.46	41	182.45	42.73	21.37			491	483.836		
11-Jul-23	8:30	32.673	11:12	18.921	50	134.43	51.222	30.13			541	535.058		
12-Jul-23	0:00	28.89	15:00	14.69	50	134.3	57.4	0.00			591	592.458		
13-Jul-23					0	0			40	42.522	551	549.936		
14-Jul-23		29.37		18.99	49	89.98	50.15	-50.15			600	600.066		
15-Jul-23	8:30	31.18		18.75	50	115.84	51.965	-5.47			650	652.051		
17-Jul-23	9:30	41.08	11:45	25.56	30	176.37	31.15	24.92	20	21.396	660	661.905		
18-Jul-23	9:30	35.88	11:30	24.73	30	123.14	28.735	28.73	20	21.846	670	668.694		
19-Jul-23	9:30	34.84	7:12	24.99	30	109.22	23.755	0.09	20	21.646	680	670.803		
20-Jul-23	8:00	36.07	11:30	26.8	30	91.00	34.145	13.66	20	21.606	690	683.342		
21-Jul-23	13:00	38.84	15:20	29.3	30	102.22	29.57	19.93	20	21.476	700	688.436		
22-Jul-23	10:00	39.87	14:30	29.85	30	103.55	31.72	9.06	20	21.556	710	698.600		
24-Jul-23	10:00	51.97	11:30	40.72	35	117.61	34.285	68.53	20	21.426	725	711.439		
25-Jul-23	10:00	49.77	11:30	37.78	32	130.93	30.935	61.87	20	21.636	737	720.738		
26-Jul-23	8:30	43.3	10:30	29.22	35	155.68	34.4	34.40			772	755.138		
06-Nov-23					0		0	0.00	40	41.192	732	713.946		
07-Nov-23					0		0	0.00	40	39.802	692	674.144		
08-Nov-23					0		0	0.00	48	47.368	644	626.776		
09-Nov-23					0		0	0.00	48	47.158	596	579.588		
10-Nov-23					0		0	0.00	48	47.928	548	531.660		
13-Nov-23					0		0	0.00	48	47.608	800	484.052		
14-Nov-23					0		0	0.00	48	50.558	452	433.498		
15-Nov-23					0		0	0.00	48	48.878	404	384.616		
17-Nov-23					0		0	0.00	48	48.588	356	336.028		
18-Nov-23					0		0		48	51.518	308	284.510		
20-Nov-23					0		0	0.00	48	52.318	260	232.192		
01-Dec-23	8:30	26.84	12:00	14.85	50	110.47	51.395	20.56				283.587		
02-Dec-23							0	0.00						
03-Dec-23							0	0.00						
04-Dec-23	7:56	40.3	14:15	22.6	53	185.9	51.835	9.75						
05-Dec-23							0	0.00						
06-Dec-23	7:45	44.03	11:55	29.42	51	145.89	51.345	16.21						
07-Dec-23	8:30	41.07	11:30	25.57	50	158.6	50.65	25.33						
08-Dec-23	8:00	37.9	11:30	24	42	145.63	42.02	16.81						
12-Dec-23							0	0.00	48	49.218				
13-Dec-23							0	0.00	48	47.308				
14-Dec-23							0	0.00	48	47.088				
15-Dec-23							0	0.00	48	47.158				
18-Dec-23							0	0.00	48	47.348				
19-Dec-23							0	0.00	48	47.768				
20-Dec-23							0	0.00	48	47.498				
21-Dec-23							0	0.00	48	48.268				
22-Dec-23							0	0.00	48	49.908				
25-Dec-23							0	0.00	48	49.768				
26-Dec-23							0	0.00	20	20.376	107			
27-Dec-23							0	0.00						
28-Dec-23							0	0.00						
29-Dec-23							0	0.00						
30-Dec-23							0	0.00						
31-Dec-23							0	0.00						
							4,422.0055			4,189.614		232.191		

ภาคผนวก ข.17

การทำความสะอาดท่อระบายน้ำฝนปนเปื้อน (PCS Line)

PCS Box culvert underground empty&line flush record																
On Every Wenesday to use vacuum which suck at PCS Infront of battery limit																
06-Sep-23				20-Sep-23				27-Sep-23								
Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start
1 Empty by vacuum truck																
Sump in front of battery limit SRU	8:30	8:35	AptuchC	No oil	8:30	8:50	ItsaraS	No oil	8:30	8:45	SakdaR.	No oil	9:55	10:00	Thirada W.	No oil
Sump in front of battery limit RFCCU					8:55	9:10	ArnonP	No oil	8:45	8:55	Sompan	No oil				
common Sump in battery limit RFCCU and PD					9:11	9:20	ArnonP	No oil								
Sump in front of battery limit: DHTU&HVGO	8:50	9:35	NuntipatS.	Oily water total 1Q (outside sump)												
Sump in front of battery limit: Platformer &CCR	9:40	9:45	NuntipatS.	No oil												
*(NEW Sump)CCR/Platformer	9:40	9:45	NuntipatS.	No oil												
*(NEW Sump)CCR/Platformer	9:40	9:45	NuntipatS.	No oil												
Sump between CCR /Platformer (road)																
Sump in front of battery limit: CDU	9:15	9:20	Paniti S.	No oil								10:20	10:30	Nathaphong C.	No oil	
*(NEW Sump)CDU/VDU nearby Analyzer house	9:15	9:20	Paniti S.	No oil								10:20	10:30	Nathaphong C.	No oil	
*(NEW Sump)CDU/VDU nearby Analyzer house	9:15	9:20	Paniti S.	No oil								10:20	10:30	Nathaphong C.	No oil	
Sump in front of battery limit UT	9:55	10:00	AptuchC	No oil	9:30	9:50	ItsaraS	No oil	9:30	9:50	NathawatF.	No oil	10:30	10:40	Matus P.	No oil
*(New Sump)Nearby Substation#1 UT	9:55	10:00	AptuchC	No oil	9:30	9:50	ItsaraS	No oil	9:30	9:50	NathawatF.	No oil	10:30	10:40	Matus P.	No oil
*(New Sump)Nearby Substation#1 UT	9:55	10:00	AptuchC	No oil	9:30	9:50	ItsaraS	No oil	9:30	9:50	NathawatF.	No oil	10:30	10:40	Matus P.	No oil

PCS Box culvert underground empty&line flush record																
On Every Wenesday to use vacuum which suck at PCS Infront of battery limit																
04-Oct-23				11-Oct-23				18-Oct-23								
Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start
1 Empty by vacuum truck																
Sump in front of battery limit SRU	8:30	8:35	AptuchC	No oil	8:30	8:35	Niran T	No oil	8:30	8:35	Chairat P.	No oil				
Sump in front of battery limit RFCCU	9:00	9:05	Pongphon	No oil												
common Sump in battery limit RFCCU and PD	9:00	9:05	Pongphon	No oil												
Sump in front of battery limit: DHTU&HVGO					9:05	9:15	thanestarn	No oil	9:30	9:35						
Sump in front of battery limit: Platformer &CCR					9:08	9:15	thanestarn	No oil	9:30	9:35						
*(NEW Sump)CCR/Platformer					9:10	9:15	thanestarn	No oil	9:35	9:40						
*(NEW Sump)CCR/Platformer					9:10	9:15	thanestarn	No oil	9:35	9:40						
Sump between CCR /Platformer (road)					9:10	9:15	thanestarn	No oil	9:35	9:40						
Sump in front of battery limit: CDU	9:00	9:15	thanestarn	No oil	9:15	9:20	JakraphobP.	No oil								
*(NEW Sump)CDU/VDU nearby Analyzer house	9:25	9:35	Surawat	No oil	9:15	9:20	JakraphobP.	No oil	9:45	9:50	Surawat	No oil				
*(NEW Sump)CDU/VDU nearby Analyzer house	9:25	9:35	Surawat	No oil	9:15	9:20	JakraphobP.	No oil	9:50	9:55	Surawat	No oil				
Sump in front of battery limit UT	9:35	9:45	AptuchC	No oil	9:30	9:35	Niran T	No oil	10:00	10:05	Prawat N.	No oil				
*(New Sump)Nearby Substation#1 UT	9:35	9:45	AptuchC	No oil	9:30	9:35	Niran T	No oil	10:00	10:05	Prawat N.	No oil				
*(New Sump)Nearby Substation#1 UT	9:35	9:45	AptuchC	No oil	9:30	9:35	Niran T	No oil	10:00	10:05	Prawat N.	No oil				

PCS Box culvert underground empty&line flush record																
On Every Wenesday to use vacuum which suck at PCS Infront of battery limit	01-Nov-23				08-Nov-23				15-Nov-23				22-Nov-23			
	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note
1 Empty by vacuum truck																
Sump in front of battery limit SRU	9:00	9:15	AptuchC	No oil	8:45	8:55	Isara S.	No oil	8:45	8:55	Sakait T.	No Oil	13:30	13:40	Thissan	No oil.
Sump in front of battery limit RFCCU					9:00	9:20	Warawat K.	No oil	9:10	9:15	Panawat	Film Oil.				
common Sump in battery limit RFCCU and PD					9:00	9:20	Warawat K.	Oily water total 20	9:15	9:20	Panawat	Film Oil.				
Sump in front of battery limit DHTUBHVGGO	9:30	9:35	NuntipatS.	No oil					9:20	9:30	JidapaP	Oily water total 20				
Sump in front of battery limit Platformer &CCR	9:30	9:35	NuntipatS.	Oily water total 10					9:35	9:45	JidapaP	Oily water total 20				
*NEW Sump JCCR/Platformer	9:35	9:40	NuntipatS.	Oily water total 10					9:50	10:00	JidapaP	Oily water total 20				
*NEW Sump JCCR/Platformer	9:35	9:40	NuntipatS.	Oily water total 10					10:05	10:15	JidapaP	Oily water total 20				
Sump between CCR /Platformer (road)	9:35	9:40	NuntipatS.	Oily water total 10					10:20	10:30	JidapaP	Oily water total 20				
Sump in front of battery limit CDU					9:30	9:50	Nannam T.	No oil	10:35	10:40	Kittawit	No Oil	9:45	9:50	Nannam T.	No oil
*NEW SumpCDU/VDU nearby Analyzer house					9:30	9:50	Nannam T.	No oil	10:45	10:50	Kittawit	No Oil	9:45	9:50	Nannam T.	No oil
*NEW SumpCDU/VDU nearby Analyzer house					9:30	9:50	Nannam T.	No oil	10:55	11:00	Kittawit	No Oil	9:45	9:50	Nannam T.	No oil
Sump in front of battery limit UT	10:00	10:10	AptuchC	No oil	9:50	10:00	Isara S.	No oil	11:00	11:05	Natthawat F.	No oil				14:50 15:00 AptuchC No oil.
*New Sump/Nearby Substation#1 UT	10:00	10:10	AptuchC	No oil	9:50	10:00	Isara S.	No oil	11:05	11:10	Natthawat F.	No oil				14:50 14:50 AptuchC No oil.
*New Sump/Nearby Substation#1 UT	10:00	10:10	AptuchC	No oil	9:50	10:00	Isara S.	No oil	11:10	11:15	Natthawat F.	No oil				14:50 14:50 AptuchC No oil.

PCS Box culvert underground empty&line flush record																
On Every Wenesday to use vacuum which suck at PCS Infront of battery limit	05-Dec-23				13-Dec-23				20-Dec-23				27-Dec-23			
	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note	Start	Stop	Record by	Note
1 Empty by vacuum truck																
Sump in front of battery limit SRU	8:25	8:30	Isara s	No oil	7:55	8:00	Terapat	No oil	9:00	9:10	Thirada W.	No oil	8:30	8:35	AptuchC	No oil
Sump in front of battery limit RFCCU	8:40	8:45	SatanpongC	No-oil	8:10	8:25	Anawat	No oil								
common Sump in battery limit RFCCU and PD					8:25	8:40	Anawat	No oil	9:10	9:20	Aryuwat C.	No oil				
Sump in front of battery limit DHTUBHVGGO					8:45	8:55	Jidapa P.	No oil								
Sump in front of battery limit Platformer &CCR					9:00	9:05	Jidapa P.	No oil								
*NEW Sump JCCR/Platformer					9:05	9:10	Jidapa P.	No oil								
*NEW Sump JCCR/Platformer					9:10	9:15	Jidapa P.	No oil								
Sump between CCR /Platformer (road)					9:15	9:20	Jidapa P.	No oil								
Sump in front of battery limit CDU	9:10	9:15	Sakan C.	No oil	10:00	10:15	Anawin K.	No oil	9:20	9:30	Nath. C.	No oil	9:20	9:30	SaknarinN	No oil
*NEW SumpCDU/VDU nearby Analyzer house	9:10	9:15	Sakan C.	No oil	10:00	10:15	Anawin K.	No oil	9:20	9:30	Nath. C.	No oil	9:20	9:30	SaknarinN	No oil
*NEW SumpCDU/VDU nearby Analyzer house	9:10	9:15	Sakan C.	No oil	10:00	10:15	Anawin K.	No oil	9:20	9:30	Nath. C.	No oil	9:20	9:30	SaknarinN	No oil
Sump in front of battery limit UT	9:25	9:30	Isara s	No oil	10:15	10:25	Terapat	No oil	9:40	9:50	Thirada W.	No oil	9:00	9:15	AptuchC	No oil
*New Sump/Nearby Substation#1 UT	9:25	9:30	Isara s	No oil	10:25	10:35	Terapat	No oil	9:40	9:50	Thirada W.	No oil	9:00	9:15	AptuchC	No oil
*New Sump/Nearby Substation#1 UT	9:25	9:30	Isara s	No oil	10:25	10:35	Terapat	No oil	9:40	9:50	Thirada W.	No oil	9:00	9:15	AptuchC	No oil

ภาคผนวก ข.18

ปริมาณกำมะถันใน Fuel Gas

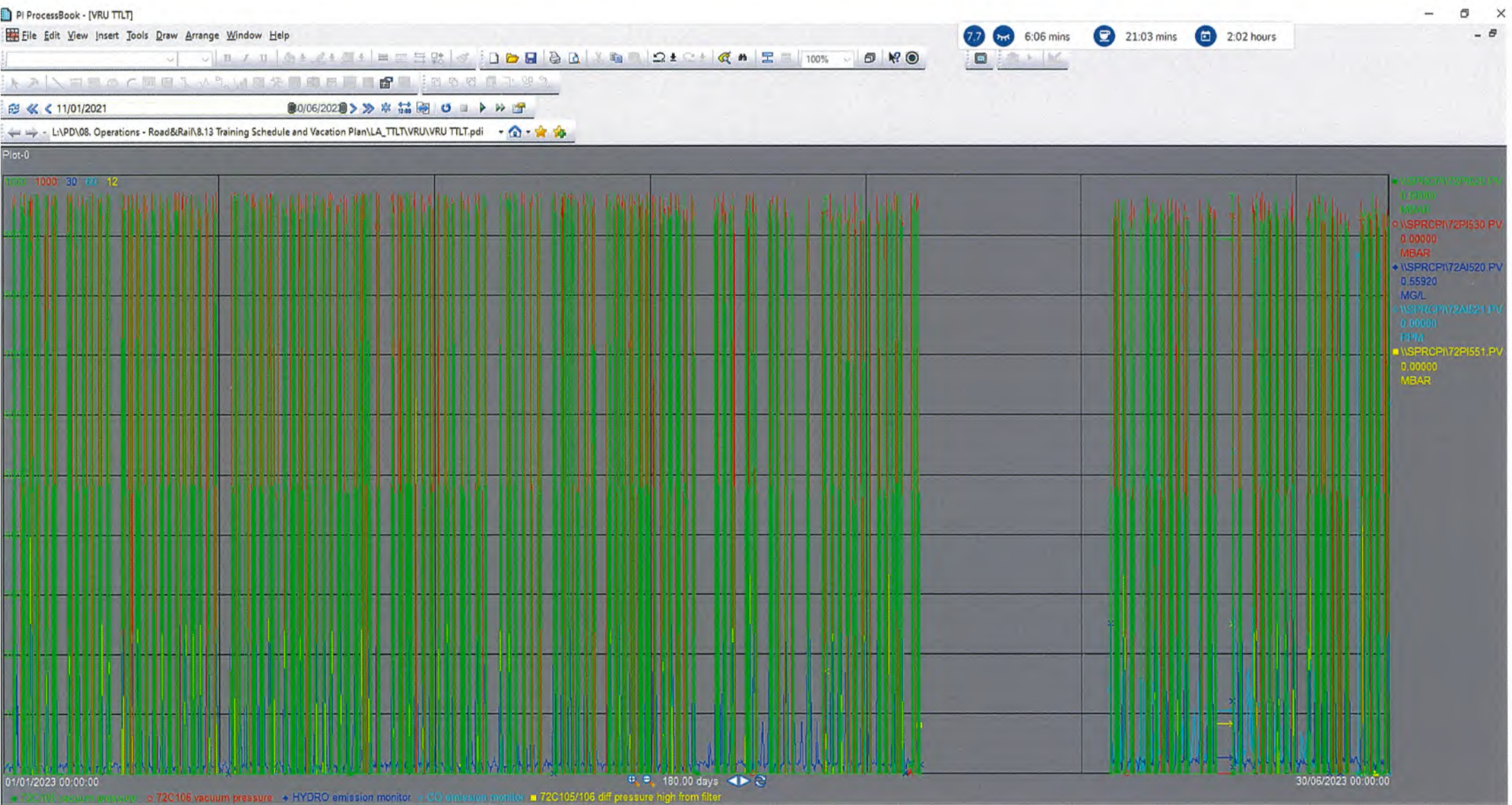
	01-07-23	
	31-12-23	
	ppm	
	54A1100	
	H2S Fuel gas to process un	Monthly Average
01-Jul-23 00:00:00	22.02	
02-Jul-23 00:00:00	20.81	
03-Jul-23 00:00:00	23.75	
04-Jul-23 00:00:00	34.07	
05-Jul-23 00:00:00	9.65	
06-Jul-23 00:00:00	25.91	
07-Jul-23 00:00:00	41.29	
08-Jul-23 00:00:00	39.51	
09-Jul-23 00:00:00	35.80	
10-Jul-23 00:00:00	34.20	
11-Jul-23 00:00:00	34.92	
12-Jul-23 00:00:00	36.13	
13-Jul-23 00:00:00	36.54	
14-Jul-23 00:00:00	37.07	
15-Jul-23 00:00:00	22.57	
16-Jul-23 00:00:00	32.84	
17-Jul-23 00:00:00	29.42	
18-Jul-23 00:00:00	34.37	
19-Jul-23 00:00:00	34.97	
20-Jul-23 00:00:00	22.54	
21-Jul-23 00:00:00	22.41	
22-Jul-23 00:00:00	28.87	
23-Jul-23 00:00:00	19.67	
24-Jul-23 00:00:00	19.63	
25-Jul-23 00:00:00	23.24	
26-Jul-23 00:00:00	26.43	
27-Jul-23 00:00:00	25.63	
28-Jul-23 00:00:00	24.99	
29-Jul-23 00:00:00	25.08	
30-Jul-23 00:00:00	17.50	
31-Jul-23 00:00:00	18.67	27.76
01-Aug-23 00:00:00	24.62	
02-Aug-23 00:00:00	28.62	
03-Aug-23 00:00:00	29.83	
04-Aug-23 00:00:00	34.82	
05-Aug-23 00:00:00	36.13	
06-Aug-23 00:00:00	17.52	
07-Aug-23 00:00:00	12.72	
08-Aug-23 00:00:00	16.50	
09-Aug-23 00:00:00	19.08	
10-Aug-23 00:00:00	18.35	
11-Aug-23 00:00:00	16.21	
12-Aug-23 00:00:00	13.77	
13-Aug-23 00:00:00	22.66	
14-Aug-23 00:00:00	35.55	
15-Aug-23 00:00:00	36.75	
16-Aug-23 00:00:00	40.71	
17-Aug-23 00:00:00	38.84	
18-Aug-23 00:00:00	39.53	
19-Aug-23 00:00:00	41.95	
20-Aug-23 00:00:00	43.34	
21-Aug-23 00:00:00	35.61	
22-Aug-23 00:00:00	33.41	
23-Aug-23 00:00:00	35.86	
24-Aug-23 00:00:00	32.25	
25-Aug-23 00:00:00	32.38	
26-Aug-23 00:00:00	37.34	
27-Aug-23 00:00:00	36.51	
28-Aug-23 00:00:00	40.26	
29-Aug-23 00:00:00	42.74	30.82
30-Aug-23 00:00:00	35.64	
31-Aug-23 00:00:00	35.28	
01-Sep-23 00:00:00	38.41	
02-Sep-23 00:00:00	40.81	
03-Sep-23 00:00:00	37.19	
04-Sep-23 00:00:00	36.57	
05-Sep-23 00:00:00	35.86	
06-Sep-23 00:00:00	29.85	
07-Sep-23 00:00:00	33.08	
08-Sep-23 00:00:00	36.57	
09-Sep-23 00:00:00	37.60	
10-Sep-23 00:00:00	37.68	

	01-07-23	
	31-12-23	
	ppm	
	54A1100	
	H2S Fuel gas to process un	Monthly Average
11-Sep-23 00:00:00	32.87	
12-Sep-23 00:00:00	25.82	
13-Sep-23 00:00:00	24.76	
14-Sep-23 00:00:00	22.73	
15-Sep-23 00:00:00	22.60	
16-Sep-23 00:00:00	16.16	
17-Sep-23 00:00:00	0.03	
18-Sep-23 00:00:00	0.03	
19-Sep-23 00:00:00	0.03	
20-Sep-23 00:00:00	0.03	
21-Sep-23 00:00:00	2.19	
22-Sep-23 00:00:00	0.03	
23-Sep-23 00:00:00	0.03	
24-Sep-23 00:00:00	7.57	
25-Sep-23 00:00:00	20.62	
26-Sep-23 00:00:00	21.63	
27-Sep-23 00:00:00	30.47	
28-Sep-23 00:00:00	28.81	
29-Sep-23 00:00:00	26.92	23.16
30-Sep-23 00:00:00	29.38	
01-Oct-23 00:00:00	30.51	
02-Oct-23 00:00:00	23.68	
03-Oct-23 00:00:00	22.36	
04-Oct-23 00:00:00	25.56	
05-Oct-23 00:00:00	16.28	
06-Oct-23 00:00:00	1.26	
07-Oct-23 00:00:00	0.03	
08-Oct-23 00:00:00	11.74	
09-Oct-23 00:00:00	19.63	
10-Oct-23 00:00:00	7.97	
11-Oct-23 00:00:00	28.29	
12-Oct-23 00:00:00	24.36	
13-Oct-23 00:00:00	16.80	
14-Oct-23 00:00:00	18.44	
15-Oct-23 00:00:00	18.40	
16-Oct-23 00:00:00	18.91	
17-Oct-23 00:00:00	17.82	
18-Oct-23 00:00:00	16.40	
19-Oct-23 00:00:00	17.79	
20-Oct-23 00:00:00	16.61	
21-Oct-23 00:00:00	16.97	
22-Oct-23 00:00:00	14.76	
23-Oct-23 00:00:00	2.86	
24-Oct-23 00:00:00	0.55	
25-Oct-23 00:00:00	3.77	
26-Oct-23 00:00:00	17.50	
27-Oct-23 00:00:00	24.69	
28-Oct-23 00:00:00	24.85	
29-Oct-23 00:00:00	20.27	16.95
30-Oct-23 00:00:00	16.22	
31-Oct-23 00:00:00	12.53	
01-Nov-23 00:00:00	14.07	
02-Nov-23 00:00:00	15.62	
03-Nov-23 00:00:00	37.39	
04-Nov-23 00:00:00	35.86	
05-Nov-23 00:00:00	33.26	
06-Nov-23 00:00:00	27.03	
07-Nov-23 00:00:00	26.66	
08-Nov-23 00:00:00	28.37	
09-Nov-23 00:00:00	29.54	
10-Nov-23 00:00:00	25.60	
11-Nov-23 00:00:00	27.15	
12-Nov-23 00:00:00	26.13	
13-Nov-23 00:00:00	26.23	
14-Nov-23 00:00:00	26.67	
15-Nov-23 00:00:00	26.22	
16-Nov-23 00:00:00	25.30	
17-Nov-23 00:00:00	30.91	
18-Nov-23 00:00:00	29.26	
19-Nov-23 00:00:00	25.72	
20-Nov-23 00:00:00	19.58	
21-Nov-23 00:00:00	24.18	

	01-07-23	
	31-12-23	
	ppm	
	54Al100	
	H2S Fuel gas to process un	Monthly Average
22-Nov-23 00:00:00	25.30	
23-Nov-23 00:00:00	27.84	
24-Nov-23 00:00:00	28.26	
25-Nov-23 00:00:00	21.60	
26-Nov-23 00:00:00	21.37	
27-Nov-23 00:00:00	26.71	
28-Nov-23 00:00:00	26.74	
29-Nov-23 00:00:00	26.74	25.61
30-Nov-23 00:00:00	26.81	
01-Dec-23 00:00:00	24.94	
02-Dec-23 00:00:00	26.07	
03-Dec-23 00:00:00	27.44	
04-Dec-23 00:00:00	28.20	
05-Dec-23 00:00:00	31.68	
06-Dec-23 00:00:00	32.25	
07-Dec-23 00:00:00	35.37	
08-Dec-23 00:00:00	38.19	
09-Dec-23 00:00:00	39.98	
10-Dec-23 00:00:00	36.54	
11-Dec-23 00:00:00	24.08	
12-Dec-23 00:00:00	16.30	
13-Dec-23 00:00:00	16.73	
14-Dec-23 00:00:00	17.07	
15-Dec-23 00:00:00	17.58	
16-Dec-23 00:00:00	16.73	
17-Dec-23 00:00:00	16.79	
18-Dec-23 00:00:00	15.94	
19-Dec-23 00:00:00	16.56	
20-Dec-23 00:00:00	17.74	
21-Dec-23 00:00:00	16.97	
22-Dec-23 00:00:00	16.61	
23-Dec-23 00:00:00	16.71	
24-Dec-23 00:00:00	15.72	
25-Dec-23 00:00:00	16.90	
26-Dec-23 00:00:00	20.50	
27-Dec-23 00:00:00	28.12	
28-Dec-23 00:00:00	30.63	
29-Dec-23 00:00:00	31.53	23.89
30-Dec-23 00:00:00	31.71	

ภาคผนวก ข.19

ตัวอย่าง THC Online Analyzer ที่ปล่องของ VRU



ภาคผนวก ข.20

การตรวจสอบการรั่วไหลบริเวณถังเก็บก๊าซเอทานอล และถังเก็บก๊าซ B100



Smell Potential Sources Check List Report

Date: 15 Aug 23		Time: 12:55
Checked: SatawatS.		Shift: B
The following items have been inspected and checked to ensure that there is no any abnormal smell detected, i.e. Leakage, spill or any smell exposed. If there is abnormal, please record the cause. Also please put your activity that related to smell potential and your action / recommendation you would do to prevent the smell go to outward		
Wind Direction: 131.7		Weather: Sunny
Area	Smell Related	Potential Sources
PD	Asphalt	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N Asphalt tank vent line pressure controller read -2 mm H2O.
	60K355	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Compressor 60K355 is running,
	H2S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Downwind, 30 meters from Asphalt tanks.
	HC Vapor	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from Decant Oil Loading skid and 60D402 tank.
	Mercaptan	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 40 meters from Mercaptan skid.

Activity: Action / Recommendation:

72D351 Tank preserved.
60D320 Preserve Water
76D109 Shut down
62D208 Shut down remove copper slag.
60D107 Shut down remove sludge in tank.
60D311 Commissioning Tank.

Note:

Area	Smell Related	Potential Sources
ETP-N	HC Vapor	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from PCS Pond.
	H ₂ S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from API recovered Tanks 76D134A/B.
	H ₂ S	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N IAF unit, the screws & nuts are locked on all Cover plates.
	H ₂ S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 40 meters on road around ETP.

Activity: Action / Recommendation: Note:

\\arcds01\Dept_Data\PD\07. Operations - Movement\7.03 Daily Report\7.3.2
North\LOG2020\04-Smell Survey



Smell Potential Sources Check List Report

Date: 12 Sep 23		Time: 02:00
Checked : SompornW		Shift: C
The following items have been inspected and checked to ensure that there is no any abnormal smell detected, i.e. Leakage, spill or any smell exposed. If there is abnormal, please record the cause. Also please put your activity that related to smell potential and your action / recommendation you would do to prevent the smell go to outward		
Wind Direction: 119.8		Weather: Normal
Area	Smell Related	Potential Sources
PD	Asphalt	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N Asphalt tank vent line pressure controller read -2 mm H2O.
	60K355	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Compressor 60K355 is running,
	H2S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Downwind, 30 meters from Asphalt tanks.
	HC Vapor	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from Decant Oil Loading skid and 60D402 tank.
	Mercaptan	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 40 meters from Mercaptan skid.

Activity: Action / Recommendation:

72D351 Tank preserved.
60D320 Preserve Water
76D109 Shut down wait fix hole top vent.
60D107 Continue repair painting on top shell around tank and Start blasting and Primer coating around pontoon rim
62D202 prepare shut down

Area	Smell Related	Potential Sources
ETP-N	HC Vapor	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from PCS Pond.
	H ₂ S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from API recovered Tanks 76D134A/B.
	H ₂ S	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N IAF unit, the screws & nuts are locked on all Cover plates.
	H ₂ S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 40 meters on road around ETP.

Activity: Action / Recommendation: Note:

\\arcds01\Dept_Data\PD\07. Operations - Movement\7.03 Daily Report\7.3.2
North\LOG2020\04-Smell Survey



Smell Potential Sources Check List Report

Date: 12 Dec 2023		Time: 01:00	
Checked: anukitp		Shift: D	
The following items have been inspected and checked to ensure that there is not any abnormal smell detected, i.e. Leakage, spill or any smell exposed. If there is abnormal, please record the cause. Also please put your activity that related to smell potential and your action / recommendation you would do to prevent the smell go to outward			
Wind Direction: 107.8		Weather: Normal	
Area	Smell Related	Potential Sources	
PD	Asphalt	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Asphalt tank vent line pressure controller read -2 mm H ₂ O.
	60K355	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Compressor 60K355 is running,
	H ₂ S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Downwind, 30 meters from Asphalt tanks.
	HC Vapor	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Down wind, 30 meters from Decant Oil Loading skid and 60D402 tank.
	Mercaptan	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Down wind, 40 meters from Mercaptan skid.

Activity: Action / Recommendation:

72D351 Tank preserved.
60D320 Shut down
76D109 Shut down wait fix hole top vent.
60D107 Shutdown
62D202 Shutdown.
60D342 Shutdown
60D402 Shutdown

Refinery

Area	Smell Related	Potential Sources
ETP-N	HC Vapor	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from PCS Pond.
	H ₂ S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 30 meters from API recovered. Tanks 76D134A/B.
	H ₂ S	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N IAF unit, the screws & nuts are locked on all. Cover plates.
	H ₂ S	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N Down wind, 40 meters on road around ETP.

Activity: Action / Recommendation: Note:

\\arcds01\Dept_Data\PD\07. Operations - Movement\7.03 Daily Report\7.3.2
North\LOG2020\04-Smell Survey

ภาคผนวก ข.21

แบบรายงานผลการตรวจวัด
การรั่วซึมของสารอินทรีย์ระเหยจากอุปกรณ์

แบบรายงานผลการตรวจวัดการรั่วซึมของสารอินทรีย์ระเหยจากอุปกรณ์
และการซ่อมแซมอุปกรณ์ในโรงงานอุตสาหกรรม

(๑ แบบรายงานต่อ ๑ โรงงาน)

ประจำปี พ.ศ. 2566..... ครั้งที่ 2.....

ประจำช่วงเดือน กรกฎาคม..... พ.ศ. 2566..... ถึง ธันวาคม..... พ.ศ. 2566.....

รายละเอียดเกี่ยวกับโรงงาน

ชื่อโรงงาน สดาร์ ปิโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน)

ทะเบียนโรงงานเลขที่

สถานที่ตั้งโรงงาน เลขที่ 1 ถนน ไอ-3บี นิคมอุตสาหกรรมมาบตาพุด ตำบลมาบตาพุด อำเภอเมือง จังหวัดระยอง

ปริมาณสารอินทรีย์ระเหยรวมที่มีหรือใช้ในกระบวนการผลิต..... 6,627,170.....ตันต่อปี

ประเภทอุปกรณ์	สถานะ สารอินทรีย์ ระเหย	จำนวนอุปกรณ์ ทั้งหมดของโรงงาน		จำนวนอุปกรณ์ ที่ต้องตรวจวัดการรั่วซึม ในรอบการรายงานครั้งนี้			ปริมาณสารอินทรีย์ ระเหยรวมในรูป มีเทนที่รั่วซึม จากอุปกรณ์ ที่ตรวจวัด การรั่วซึมทั้งหมด ในรอบการรายงาน ครั้งนี้ (กิโลกรัม)
		จำนวนอุปกรณ์ ที่ต้องตรวจวัด การรั่วซึม (จุด)	จำนวนอุปกรณ์ ที่ได้รับ การยกเว้น ไม่ต้องตรวจวัด การรั่วซึม (จุด)	จำนวนอุปกรณ์ ที่ตรวจวัด การรั่วซึม ทั้งหมด (จุด)	จำนวนอุปกรณ์ ที่มีผลการ ตรวจวัดเกิน จากเกณฑ์ การควบคุม การรั่วซึม (จุด)	จำนวนอุปกรณ์ ที่ได้รับการ ซ่อมแซมให้ อยู่ในเกณฑ์ การควบคุม การรั่วซึม (จุด)	
วาล์ว (Valves)	แก๊ส	1,893	1,494	600	0	0	20.73
	ของเหลว	6,107	4,695	2,945	0	0	103.67
ปั๊ม (Pumps)	ของเหลว	313	4	151	0	0	18.06
อุปกรณ์ลดความดัน (Pressure Relief Devices)	แก๊ส	106	37	38	0	0	0.67
	ของเหลว	104	170	37	0	0	0.65
เครื่องอัดอากาศ (Compressors)	ทั้งหมด	14	5	8	0	0	0.14
ข้อต่อหรือหน้าแปลน (Connectors or Flanges)	ทั้งหมด	20,831	10,325	8,667	0	0	13.88
ท่อส่งปลายเปิด (Open-Ended Lines)	ทั้งหมด	449	298	174	0	0	1.54
จุดเก็บตัวอย่าง สารเคมี (Sampling Connections)	ทั้งหมด	55	65	25	0	0	0.44
อุปกรณ์ที่ใช้กวน หรือผสมของเหลว (Agitators or Mixers)	ทั้งหมด	79	0	59	0	0	1.04

ผู้จัดการสิ่งแวดล้อมหรือผู้ได้รับอนุญาตประกอบกิจการโรงงาน

ภาคผนวก ข.22

ผลการตรวจวัดค่าความเข้มข้นของ HCl และ H₂S
จากปล่อง Wash Tower ที่ CCRU



บริษัท ซีคอต จำกัด

SECOT CO.,LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Star Petroleum Refining Public Co., Ltd	REF. NO.	: Refinery-223003-COA-Stk/HCl
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 07/12/2023
RECEIVED DATE	: 08/12/2023	ANALYTICAL DATE	: 11/12/2023
REPORT DATE	: 19/12/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: Wash Tower Stack at CCRU Unit	OPERATOR	: Mr. Song Hengchwankun
SOURCE DESCRIPTION	: Process	FUEL TYPE	: -

PARAMETER	UNIT	RESULTS	ASSIGNED VALUE	STANDARD	REFERENCE METHODS
Hydrogen Chloride	ppm	0.03	-	-	US. EPA Method 26

Janista Kui-on

(Miss Janista Kui-on)

Analyst

REG.NO.จ-239-จ-0023

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO.จ-239-ค-0010

Remark : 1. Reported analysis refers to submitted sample only.
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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: Star Petroleum Refining Public Co., Ltd.	REF. NO.	: Refinery-223003-COA-Stk/H2S
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING DATE	: 07/12/2023
RECEIVED DATE	: 08/12/2023	ANALYTICAL DATE	: 16/12/2023
REPORT DATE	: 30/05/2023	SAMPLE CONDITION	: Normal
STACK LOCATION	: Wash Tower Stack at CCRU Unit	OPERATOR	: Mr. Song Hengchwankun
SOURCE DESCRIPTION	: Process	FUEL TYPE	: -

PARAMETER	UNIT	RESULTS	ASSIGNED VALUE	STANDARD	REFERENCE METHODS
Hydrogen Sulfide	ppm	<0.30	-	-	US. EPA Method 16

Sudaporn S.
(Miss Sudaporn Soonthorn)
Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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ภาคผนวก ข.23

ระเบียบวิธีปฏิบัติงานการระบายน้ำออกจากถังเก็บผลิตภัณฑ์

Movement/Dispatches		
SPRC Plant 62 62D204 tank auto drain system		
Low	Medium	High

REFERENCE: HC-WI-TE-4649 Logic for water drain system on 62D204.docx
DRAWINGS: D-62-1225-102 LCN AND MCN STORAGE
STANDING INSTRUCTION:

The purpose of this Standing Instruction is to add logic water drain system on 62D204.

Refer to IIR-2017-0011 ("Mogas loss containment and external smell complaint"), tank water drain valve was left open for a long period of time during a routine drain water activity at 60D320 and caused an external smell complaint and oil loss to PCS system around 0.9 m3 (5-6 barrel). To prevent human error, Team install automatic water drain system and trial on 62D204

The step for 62D204 tank auto drain are as follow:

1. Require Informing CCB to start drain water on 62D204, then
2. Open valve No. 1(Fully open) and valve No. 3 (Turn hand wheel 2 rounds), and ensure valve No. 5 fully close, then
3. Press start button No. 6 to open solenoid valve No. 2, then
4. Logic will be started line flushing for 60 second by start count timer 60TM01, then
5. LSL204 start to detect by start count timer 60TM02 for 10 mins, if LSL204 had detected oil the solenoid valve No. 2 will close, and if LSL204 cannot detect oil within 10 mins and 60TM02 end counting the solenoid valve No. 2 will close also, incase solenoid valve No. 2 close by 60TM02 and still the remain of water, then
6. Require press Acknowledge No. 7, then
7. Resume on step 3, 4, 5 until LSL204 had detected oil and solenoid valve No. 2 had closed, then
8. Require press Acknowledge No. 7, then
9. Require to manual close valve No. 1 and No. 3, then
10. Ensure no oil passing leak to sump drain by open sump door to monitor, then
11. Require inform to CCB for complete drain water from 62D204, end task.

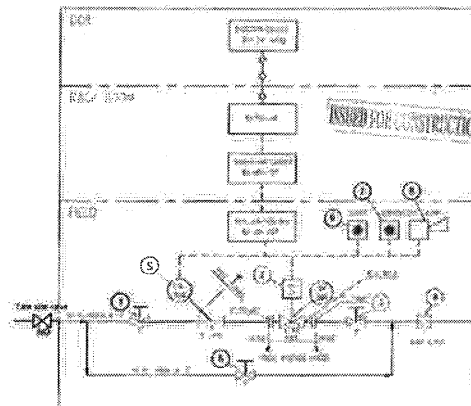
Thai version (ฉบับภาษาไทย)

ขั้นตอนการระบายน้ำออกจากถัง 62D204 โดยระบบอัตโนมัติ:

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 Date: 01 2019, Page 1 of 2
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SPRC	Plant 62 62D204 tank auto drain system	Low
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1. ทำการแจ้ง CCB ก่อนเริ่มระบายน้ำออกจากถัง 62D204, จากนั้น
2. เปิดวาล์วหมายเลข 1(เปิดสุด) และ วาล์วเลข 3(หมุนเปิดวาล์วประมาณ 2 รอบ), และตรวจสอบให้วาล์วหมายเลข 5 ถูกปิดสุดแล้ว, จากนั้น
3. กดปุ่มสตาร์ทหมายเลข 6 เพื่อสั่งเปิดโซลินอยด์วาล์ว หมายเลข 2, จากนั้น
4. ระบบจะเริ่มทำการสิ้นของเหลวที่ค้างท่อเป็นเวลา 60 วินาที โดยตัวนับเวลา 60TM01, จากนั้น
5. เซ็นเซอร์ตรวจจับสน้ำมัน(LSL204)จะเริ่มทำงานพร้อมกันตัวนับเวลา 60TM02 เป็นเวลา 10 นาที, ถ้าเซ็นเซอร์ตรวจจับสน้ำมันได้ก่อน จะสั่งให้โซลินอยด์วาล์วหมายเลข 2 ปิด, และถ้าเซ็นเซอร์ไม่พบน้ำมัน ภายใน 10 นาทีและตัวนับเวลา 60TM02 ถึงสุดการนับ ระบบจะสั่งให้โซลินอยด์วาล์วหมายเลข 2 ปิดด้วย, ในกรณีที่ โซลินอยด์วาล์วหมายเลข 2 ปิดโดยตัวนับเวลา 60TM02 แต่ยังคงมีน้ำมันอยู่, จากนั้น
6. ทำการกดปุ่ม Acknowledge หมายเลข 7, จากนั้น
7. ดำเนินการต่อตามขั้นตอน 3, 4 และ 5 จนกระทั่งเซ็นเซอร์ตรวจจับสน้ำมัน(LSL204) ตรวจพบน้ำมันและโซลินอยด์วาล์วหมายเลข 2 ถูกสั่งให้ปิด, จากนั้น
8. ทำการกดปุ่ม Acknowledge หมายเลข 7, จากนั้น
9. ทำการปิดวาล์วหมายเลข 1 และ วาล์วเลข 3, จากนั้น
10. ต้องมั่นใจว่าไม่มีน้ำมันไหลผ่านตัววาล์วไปยังถังรองรับน้ำ โดยการเปิดฝาดูตรวจสอบที่ปลายท่อระบาย, จากนั้น
11. ทำการแจ้ง CCB เมื่อเสร็จสิ้นการระบายน้ำออกจากถัง 62D204, จบงาน



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Movement/Dispatches		
SPRC Plant 60 Crude Tank Auto Water Drain		
Low	Medium	High

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Prerequisites	3
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2. Conduct tank verification before leaving tank area	8
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SPRC	Plant 60 Crude Tank Auto Water Drain	Low
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Purpose

The purpose of this procedure is to explain the actions required how to free water in crude tanks by auto drain system.

System Information

Summary

This following procedure is to detail the necessary steps to free water by tank auto water drain system.
 The tank auto water drain system is water draining by use conductivity probe to detect water and oil when conductivity probe detect oil while operator draining the water it will sent the signal to command close control valves and have horn and red light blink alarm for alert operator. The control valve type is on/off valve and have timer control to force close the valves when end of setting time.

Step of work of Conductivity Analyzer Detector Water are the following:

- Push the "Reset" button to reset the system available to start drain water.
- Push the "Start" button to start the water drain cycle.
- On/Off valves will open and Timer 1 will countdown for 1 minute.
- When end time of Timer 1 (1 minute) Conductivity Probe will analyze the conductivity result, if the result less than 1,000 uS/cm that mean Conductivity Probe detect oil so the controller will command close the On/Off valves, if the result of conductivity more than 1,000 uS/cm that mean Conductivity Probe detect water so the controller will command to continue open the On/Off valves and Timer 2 will start for 1 hour.
- During Timer 2 work, if Conductivity Probe detect the result of conductivity less than 1,000 uS/cm the controller will command close the On/Off valves and end of the cycle drain activity, if end time of the Timer 2 (1 hour) but the result of conductivity more than 1,000 uS/cm that mean the water still drained the Timer 2 will command close the On/Off valves and finish the cycle drain activity.
- If we need to restart drain water again should go to first step again.

Roles and Responsibility

Deviation from the procedure must be stopped and informed a line supervisor or line manager, concerned people for a solution prior to executing this procedure.

1. **Shift supervisor**
 - Assign responsibility to tank water drain to a operator for every tank water drain activity
2. **Operator**
 - Take responsibility to ensure tanks water drain are completed
 - Verify that all tank valves drain are tight before leaving tank area

Precautions

WARNING Operator shall never leave an open tank drain valve unattended since this will lead to a Loss of Containment.

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CAUTION

The PPE, organic respiratory protection device and the personal gas detector are always required whenever tank water drain, there is a presence of hazardous material Mercury, Benzene, Aromatic, VOC and hydrocarbon.

Prerequisites ▪ N/A

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Detailed Activities

Who	Step	Action	Check
1. Tank water drain activities			
The PPE, organic respiratory protection device and the personal gas detector are always required whenever tank water drain, there is a presence of hazardous material Mercury, Benzene, Aromatic, VOC and hydrocarbon.			
CAUTION			
CP	1.1	Notify the following person which tank water drain is to take place; • DCS • Senior operator	<input type="checkbox"/>
OP	1.2	Record tank level before start drain.	<input type="checkbox"/>
OP	1.3	Record time before start drain.	<input type="checkbox"/>
The control panel have two lighting indicator show status of product in drain line that detached by conductivity probe as following; NOTE • Green light mean detect water • Red light mean detect oil			
OP	1.4	Verify the control valves drain status are in closed position, at control panel shown red light.	<input type="checkbox"/>
OP	1.5	Verify the following valves are in closed position; • 1.5-inch valve upstream lower drain pipe control valve • 1.5-inch valve upstream upper drain pipe control valve • 1.5-inch valve bypass lower drain pipe control valve • 1.5-inch valve bypass upper drain pipe control valve • 4-inch valve bypass auto drain system • 6-inch tank side drain valve	<input type="checkbox"/>
OP	1.6	Open 6-inch tank side drain valve.	<input type="checkbox"/>
OP	1.7	Open 1.5-inch valve upstream lower drain pipe control valve.	<input type="checkbox"/>
OP	1.8	Open 1.5-inch valve bypass lower drain pipe control valve to flush remain oil in pipe line drain for 2 minute.	<input type="checkbox"/>
OP	1.9	Monitor at crude water draw box to see oil or water are drained out.	<input type="checkbox"/>

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Who	Step	When	Then	Action	Check
OP	1.10	The oil still come out from drain line after opened drain 2 minute.	Close the following valves to stop drain water; • 1.5-inch valve upstream lower drain pipe control valve • 1.5-inch valve bypass lower drain pipe control valve • 6-inch tank side drain valve		<input type="checkbox"/>
OP	1.11	The water are drained out from drain line after open drain 2 minute.	Close 1.5-inch valve bypass lower drain pipe control valve.		<input type="checkbox"/>
OP	1.12	Push the "Test" button to test all lighting are turn on.			<input type="checkbox"/>
OP	1.13	Push the "Reset" button to reset the auto drain system.			<input type="checkbox"/>
OP	1.14	Push the "Start" button to open the both control valves to start auto drain system.			<input type="checkbox"/>
OP	1.15	Open 1.5-inch valve upstream upper drain pipe control valve.			<input type="checkbox"/>
OP	1.16	Monitor at crude water draw box to see oil or water are drained out.			<input type="checkbox"/>
OP	1.17	The water are not empty but time to drain water meet timer 2 target the both control valves will auto close and alarm activated.	Push the "Reset" button at control panel to reset system and alarm. Push the "Start" button to resume the auto drain system again.		<input type="checkbox"/>

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Who	Step	When	Then	Action	Check
OP	1.18	The operator need to interrupt drain water.	Push the "Emergency" button at control panel the both control valves will auto close. Push the "Reset" button at control panel to clear system. Close the following valves to stop drain water; • 1.5-inch valve upstream lower drain pipe control valve • 1.5-inch valve upstream upper drain pipe control valve • 6-inch tank side drain valve		<input type="checkbox"/>
OP	1.19	Go to step 2. Conduct tank verification before leaving tank area.			<input type="checkbox"/>
OP	1.20	To resume drain water again,	Go to step 1.1 again.		<input type="checkbox"/>
NOTE Tank auto water drain system use conductivity probe when detect oil it will sent signal to close control valve and have horn alarm and red light blink at control panel to alert operator. After reset the alarm horn alarm will stop.					
OP	1.21	The water is empty and oil are drained out the conductivity probe detect oil will sent signal to close the both control valves and alarm activated.	Push the "Reset" button at control panel to reset horn alarm.		<input type="checkbox"/>
OP	1.22	Verify at crude water draw box to see oil are drained out.			<input type="checkbox"/>
OP	1.23	Close 1.5-inch valve upstream upper drain pipe control valve.			<input type="checkbox"/>
OP	1.24	Open 1.5-inch valve bypass lower drain pipe control valve 25% for 2 minute to see oil or water are drained out.			<input type="checkbox"/>

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SPRC Plant 60 Crude Tank Auto Water Drain Low				
Who	Step	Action		Check
		IF	THEN	
OP	1.25	Crude oil are still drained out,	Close the following valves; <ul style="list-style-type: none">1.5-inch valve bypass lower drain pipe control valve1.5-inch valve upstream lower drain pipe control valve6-inch tank side drain valve.	<input type="checkbox"/>
OP			Go to step 2. Conduct tank verification before leaving tank area.	<input type="checkbox"/>
		IF	THEN	
OP	1.26	Draining liquid become water are drained out,	Close 1.5-inch valve bypass lower drain pipe control valve.	<input type="checkbox"/>
OP	1.27	Push the "Start" button to open the control valves to start auto drain system again,		<input type="checkbox"/>
OP	1.28	Adjust water drain flow rate at 1.5-inch valve upstream lower drain pipe control valve.		<input type="checkbox"/>
		WHEN	THEN	
OP	1.29	The water is empty and oil are drained out the conductivity probe detect oil will sent signal to close the both control valves and alarm activated,	Push the "Reset" button at control panel to reset horn alarm.	<input type="checkbox"/>
OP	1.30	Close the following valves to stop drain water; <ul style="list-style-type: none">1.5-inch valve upstream lower drain pipe control valve6-inch tank side drain valve.		<input type="checkbox"/>
OP	1.31	Notify the following person which tank water drain is completed; <ul style="list-style-type: none">DCSSenior operator		<input type="checkbox"/>
OP	1.32	Record tank level after stop drain.		<input type="checkbox"/>
OP	1.33	Record time after stop drain.		<input type="checkbox"/>
END OF TASK				

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SPRC Plant 60 Crude Tank Auto Water Drain				Low
Who	Step	Action	Check	
2. Conduct tank verification before leaving tank area				
GP	2.1	Verify all drain valves are closed.	<input type="checkbox"/>	
GP	2.2	Verify no leak and seeping from tank.	<input type="checkbox"/>	
GP	2.3	Verify all local instrument operating correctly.	<input type="checkbox"/>	
GP	2.4	Notify condition to DCS tank farm.	<input type="checkbox"/>	
END OF TASK				

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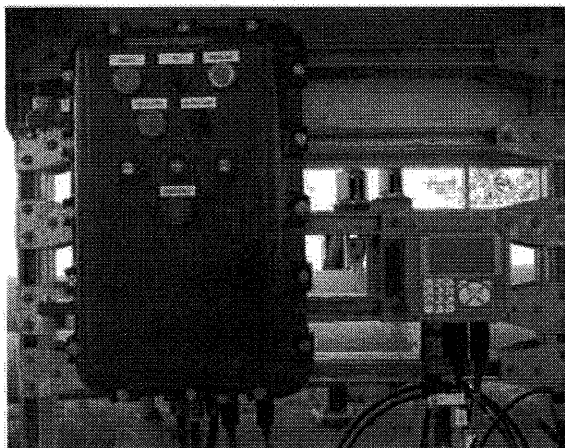
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SPRC Plant 60 Crude Tank Auto Water Drain Low

Appendix

Appendix A : Control System

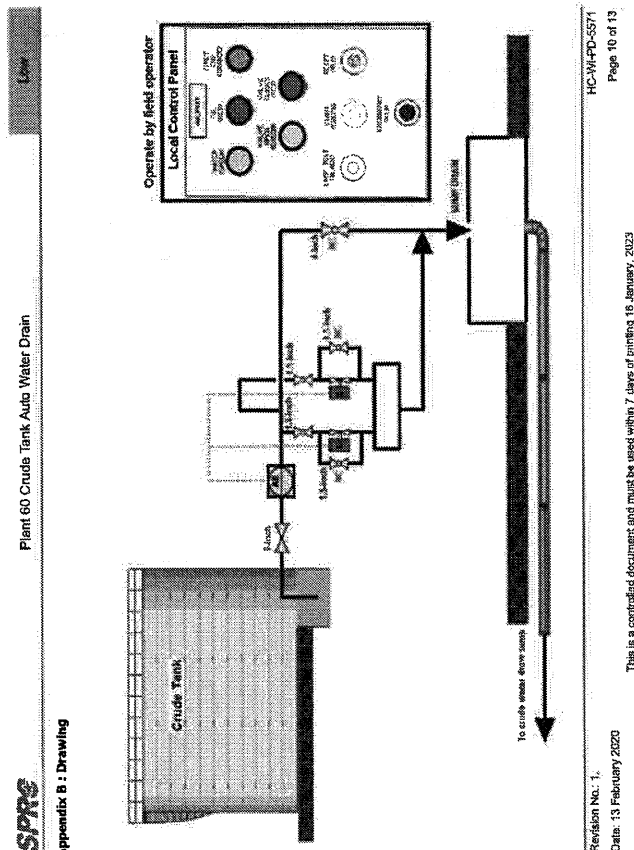
Step	Water (C)	Oil (M)	Time's and (T)	Valve open (O)	Valve closed (C)
1. Ready to start	OFF	OFF	OFF	OFF	OFF
2. Start Timer 1	OFF	OFF	OFF	OFF	OFF
3. 1.5 inch (Continuous)	OFF	OFF	OFF	OFF	OFF
3.5 inch (Continuous)	OFF	OFF	OFF	OFF	OFF
4. End Timer 1	OFF	OFF	OFF	OFF	OFF
4.1 Oil detected (End cycle)	OFF	OFF	OFF	OFF	OFF
4.2 Water detected (Continuous)	OFF	OFF	OFF	OFF	OFF
5. Timer 2 working	OFF	OFF	OFF	OFF	OFF
5.1 Oil detected (End cycle)	OFF	OFF	OFF	OFF	OFF
5.2 Water detected (Continuous)	OFF	OFF	OFF	OFF	OFF
6. End Timer 2 (Alarm Time up)	OFF	OFF	OFF	OFF	OFF



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SPRC

Appendix B : Drawing

Plant 60 Crude Tank Auto Water Drain

Low

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Definitions

- N/A

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References

The following Piping and Instrumentation Diagrams were used for this document:

- D-60-1225-101
- D-60-1225-102
- D-60-1225-103
- D-60-1225-206

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This is a controlled document and must be used within 7 days of printing 16 January, 2023

Amendment List

Below is a list of changes between the previous and the current revision of this document.

No changes specified in the current Revision of this Procedure.

Distribution List

Copy No.	Controller/Holder	Location
00	Electronic Controller	SmartProcedures

Revision No: 1.

HC-WI-PD-5571

Date: 13 February 2020

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Movement/Dispatches		
SPRe Plant 60 Intermediate and Finished Product Tanks Water Drain		
Low	Medium	High

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SPRe Plant 60 Intermediate and Finished Product Tanks Water Drain

WARNING	Operator shall never leave an open tank drain valve unattended since this will lead to a Loss of Containment.
CAUTION	The PPE, respiratory protection device and the personal gas detector are always required whenever tank dewatering, there is a presence of hazardous material H ₂ S, VOC and hydrocarbon.

Prerequisites * N/A

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SPRe Plant 60 Intermediate and Finished Product Tanks Water Drain

Purpose

The purpose of tank water drain is to minimize the water carry over from intermediate tanks to process units which can effect to process, and also affect to product quality specification to the finished product tanks.

System Information

Summary Water drain from oil tank requires to monitor all times during perform this activities. Loss of hydrocarbon directly effects to ETP system resulted to small complaint. Tanks water drain regularly perform as daily according to the tank schedule and before taking sample for certificated of quality (COQ).

Feed tanks weekly : 60D221, 60D222, 60D251, 60D252, 60D253, 60D254, 60D255, 60D256, 60D241, 60D242.

Tank 60D402 is using 60G402 to transfer water directly to reconstituted crude tank.

Blend component tanks daily : 62D201, 62D202, 62D203, 62D204, 62D205, 62D207, 62D208.

Finished product tanks before COQ (certificated of quality) after completed mixing : 60D311, 60D312, 60D320, 60D321, 60D322, 60D323, 60D324, 60D325, 60D326, 60D331, 60D332, 60D333, 60D334, 60D341, 60D342, 60D343, 60D344.

Water draining for fuel oil product tanks 60D351, 60D352, 60D353, 60D354 will be performed base on requested activities from shift supervisors or operation coordinators.

TLT day tanks daily : before sample for LTR (Lab test report) 72D321, 72D322, 72D341.

LPG/PGP spheres : 60D301, 60D302, 60D303, 60D304, 60D305, 60D306, 60D307, 62D210, 62D211.

Operator is responsible for spheres water drain. The sphere water drain activity will be performed base on requested activities from shift supervisors or operation coordinators.

Roles and Responsibility Deviation from the procedure must be stopp and informed a line Shift Supervisor, concerned people for a solution prior to executing this procedure.

- Shift supervisor**
 - Assign responsibility to tank water drain to a operator for every tank water drain activity.
- Operator**
 - Take responsibility to ensure tank water drain is completed as plan and that on completion of water drain.
 - Verify that the tank is tight before leaving tank area.

Precautions



The tank side concrete bund drain valve to PCS should normally kept open to prevent flooding and overflow of the tank bund drain concrete area and possible contamination of the bund area.

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SPRe Plant 60 Intermediate and Finished Product Tanks Water Drain

Detailed Activities

Who	Step	Action	Check
1. Preparation			
NOTE The tank side concrete bund drain valve to PCS should normally kept open to prevent flooding and overflow of the tank bund drain concrete area and possible contamination of the bund area.			
OP	1.1	Verify the tank bund drain valve to the PCS underground line is in opened position.	<input type="checkbox"/>
END OF TASK			

Who	Step	Action	Check				
2. Draining activity							
2.1 Tank water drain							
OP	2.1.1	Notify DCS tank farm which tank water drain is to take place.	<input type="checkbox"/>				
OP	2.1.2	Record tank level using the local readout on the tank gauging system.	<input type="checkbox"/>				
 CAUTION		The PPE, respiratory protection device and the personal gas detector are always required whenever tank dewatering, there is a presence of hazardous material H ₂ S, VOC and hydrocarbon.					
 WARNING		Operator shall never leave an open tank drain valve unattended since this will lead to a Loss of Containment.					
OP	2.1.3	Open the tank drain valve.	<input type="checkbox"/>				
OP	2.1.4	Verify the sight glass drain.	<input type="checkbox"/>				
OP	2.1.5	<table><thead><tr><th>WHEN</th><th>THEN</th></tr></thead><tbody><tr><td>The interface color change,</td><td>Adjust the drain valve to control the interface oil and minimize oil carry over through the PCS system.</td></tr></tbody></table>	WHEN	THEN	The interface color change,	Adjust the drain valve to control the interface oil and minimize oil carry over through the PCS system.	<input type="checkbox"/>
WHEN	THEN						
The interface color change,	Adjust the drain valve to control the interface oil and minimize oil carry over through the PCS system.						
OP	2.1.6	<table><thead><tr><th>WHEN</th><th>THEN</th></tr></thead><tbody><tr><td>The free oil is observed at the drain point,</td><td>Close the tank drain valve.</td></tr></tbody></table>	WHEN	THEN	The free oil is observed at the drain point,	Close the tank drain valve.	<input type="checkbox"/>
WHEN	THEN						
The free oil is observed at the drain point,	Close the tank drain valve.						
OP	2.1.7	Notify DCS tank farm to complete tank water drain at that tank.	<input type="checkbox"/>				

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Who	Step	Action	Check				
2.2 Tank 60D402 pump water to reconstituted crude tank							
 CAUTION The PPE, respiratory protection device and the personal gas detector are always required whenever tank dewatering, there is a presence of hazardous material H ₂ S, VOC and hydrocarbon.							
OP	2.2.1	Verify the interface level of water and oil in tank 60D402 by tank hand dip.	<input type="checkbox"/>				
OP	2.2.2	Notify DCS tank farm to set the target water level of tank 60D402.	<input type="checkbox"/>				
DCS	2.2.3	Verify operator to set the target water level of tank 60D402.	<input type="checkbox"/>				
OP	2.2.4	Close 6-inch suction manual valve to 60G402.	<input type="checkbox"/>				
OP DCS	2.2.5	Verify 61HV041 discharge to RFCCU is in closed position.	<input type="checkbox"/>				
OP	2.2.6	Open 6-inch manual valve from tank drain sump to 60G402.	<input type="checkbox"/>				
DCS	2.2.7	Open the following valves: * 60HV462 * 61HV032	<input type="checkbox"/>				
OP	2.2.8	Notify DCS tank farm to start 60G402 to transfer water to reconstituted crude tank.	<input type="checkbox"/>				
DCS	2.2.9	Place flow controller 60FC071 to "AUT" mode.	<input type="checkbox"/>				
DCS	2.2.10	Set the flow controller set point to 30 m ³ /hr.	<input type="checkbox"/>				
OP	2.2.11	<table><thead><tr><th>IF</th><th>THEN</th></tr></thead><tbody><tr><td>The level of 60D402 tank water reach to the target level,</td><td>Stop pump 60G402.</td></tr></tbody></table>	IF	THEN	The level of 60D402 tank water reach to the target level,	Stop pump 60G402.	<input type="checkbox"/>
IF	THEN						
The level of 60D402 tank water reach to the target level,	Stop pump 60G402.						
DCS	2.2.12	Close the following valves: * 60HV462 * 61HV032	<input type="checkbox"/>				
OP	2.2.13	Close 6-inch manual valve from tank drain sump to 60G402.	<input type="checkbox"/>				
OP	2.2.14	Open 6-inch suction manual valve to 60G402.	<input type="checkbox"/>				
END OF TASK							

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Appendix

- N/A

Who	Step	Action	Check
3. Conduct tank verification before leaving tank area			
OP	3.1	Verify all drain and sample valves closed.	<input type="checkbox"/>
OP	3.2	Verify no leak and seeping from tank.	<input type="checkbox"/>
OP	3.3	Verify all local instrument operating correctly.	<input type="checkbox"/>
OP	3.4	Record tank level from the local readout on the tank gauging system.	<input type="checkbox"/>
OP	3.5	Verify condition to DCS tank farm.	<input type="checkbox"/>
END OF TASK			

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Definitions

- N/A

References

- N/A

Amendment List

Below is a list of changes between the previous and the current revision of this document.

Step/Section**Reason for Change**

(Added) - Converted to Smart Procedure, changed document number from HC-WI-PD-6004 to HC-WI-PD-5337, reviewed all contents.

Distribution List

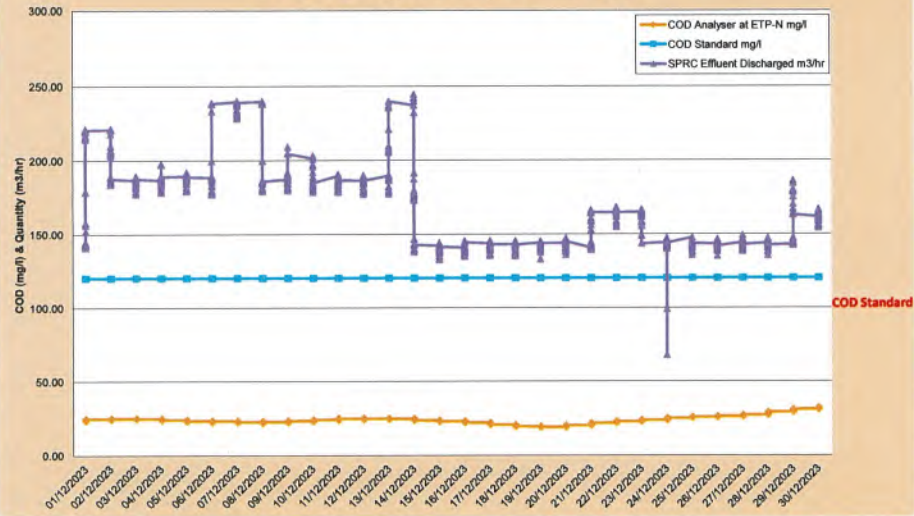
Copy No.	Controller/Holder	Location
00	Electronic Controller	SmartProcedures

ภาคผนวก ข.24

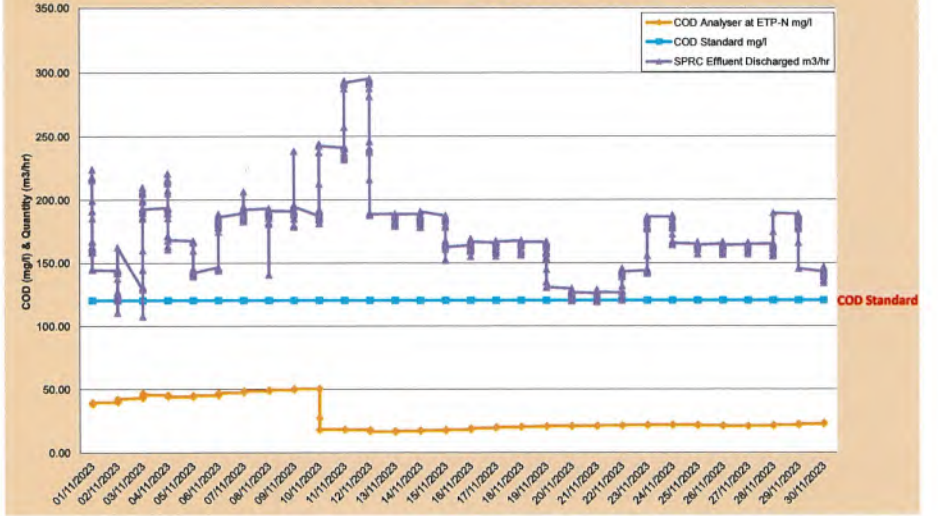
ผลการตรวจวัดคุณภาพน้ำ โดยโรงกลั่นกลั่นน้ำมัน

- ผลการตรวจวัดฟีนอล ค่าความเป็นกรด-ด่าง และปรอทที่ Polishing Pond
 - ผลการติดตามตรวจสอบคุณภาพน้ำทิ้งแบบต่อเนื่อง
- ผลการตรวจวัดค่าความเข้มข้นของปรอทในน้ำเสียจาก Desalter และน้ำจาก
ก้นถังน้ำมันดิบ (Crude Water Draw Tank) และ Stripped Sour Water
- ผลการตรวจวัดค่าความเข้มข้นของปรอท บริเวณทางออกของ IAF Unit

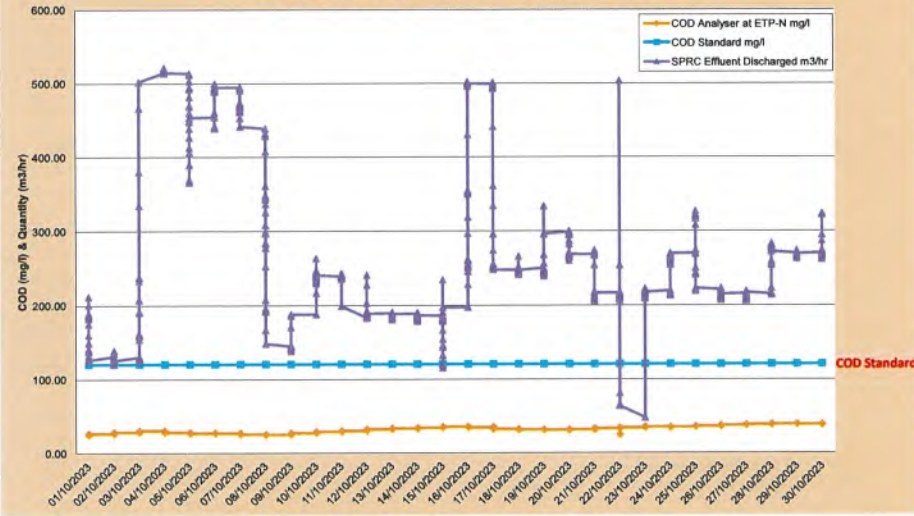
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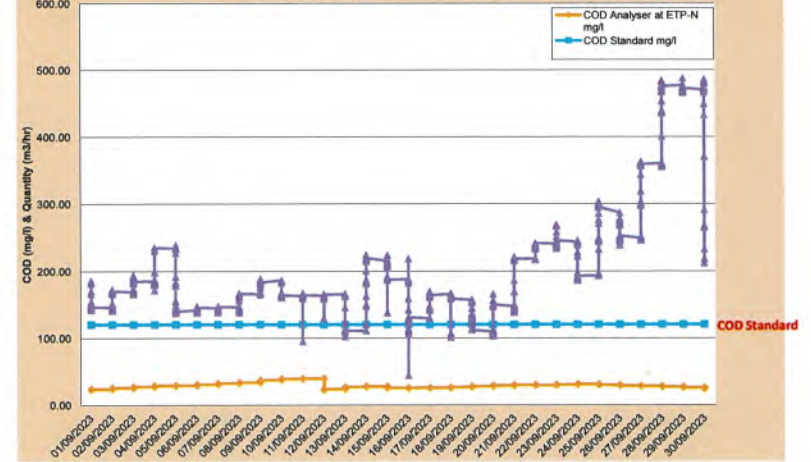
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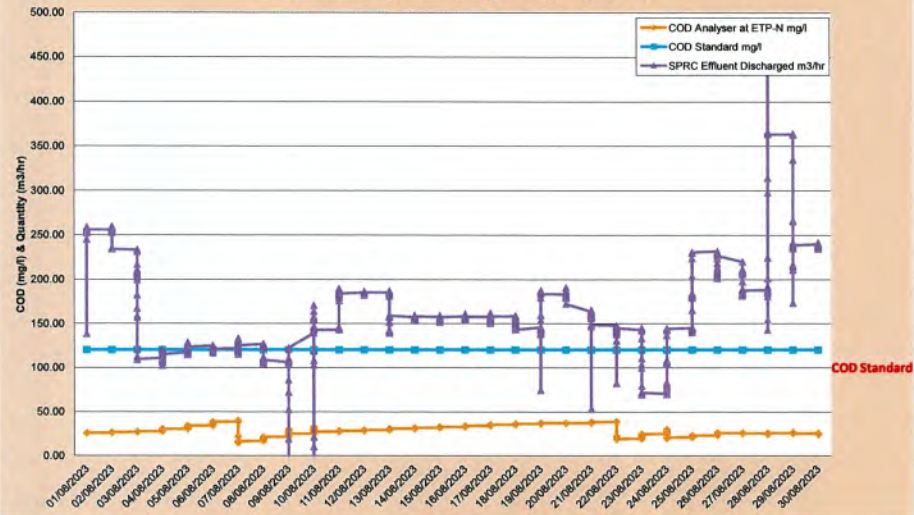
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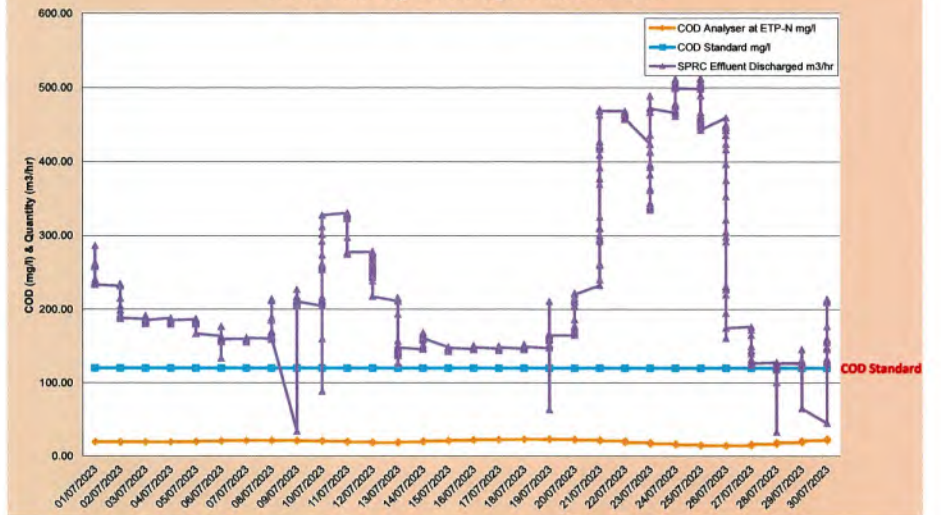
SPRC 1-hr Avg. Discharged Effluent CEM



SPRC 1-hr Avg. Discharged Effluent CEM



SPRC 1-hr Avg. Discharged Effluent CEM



Input date >>>>

Start Date	End Date
01-07-23	01-01-24

Test Schedule	Hg at desalter line	Hg at Strip Sour Water	Hg at Crude Water Draw	pH API	pH IAF A outlet	pH IAF B outlet	Hg at API outlet	Hg at IAF outlet A	Hg at IAF outlet B	pH Clarifier A	pH Clarifier B	Hg at Outlet clarify/polishing pond	Phenol at polishing pond	pH at polishing pond	Sulfide at outlet biological treatment	COD at outlet biological treatment	BOD at outlet biological treatment	Phenol at outlet biological treatment	
	\\SPRCPI\02SP0 09/Mercury Content	\\SPRCPI\76SP2 03/Mercury Content	\\SPRCPI\76SP 136/Mercury Content	LBO	76A1001	76A1002	\\SPRCPI\76SP1 21/Mercury Content	\\SPRCPI\76SP10 3A/Mercury Content	\\SPRCPI\76SP1 03B/Mercury Content	LBO	LBO	\\SPRCPI\76SP108 B/Mercury Content	\\SPRCPI\76SP1 08B/Phenol	LBO					
	Depend on crude	Quarterly	every Tue	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Every Thu	Daily					
01-Jul-23 00:00:00	73.0	1.10	1.20	7.00	6.90	7.54	3.20	0.30	0.20	7.00	7.00	0.10	0.00	7.8	06-Jul-23 00:55:00	0.10	13.00	1.00	0.00
02-Jul-23 00:00:00	9.0	1.10	1.20	7.00	6.87	7.77	2.60	0.10	0.10	7.00	7.00	0.40	0.00	7.6	13-Jul-23 08:46:00	0.20	14.00	1.00	0.00
03-Jul-23 00:00:00	9.0	1.10	1.20	7.00	6.95	7.63	12.60	0.20	0.20	7.00	7.00	0.50	0.00	7.5	20-Jul-23 00:49:00	0.10	13.00	1.00	0.01
04-Jul-23 00:00:00	9.0	1.10	1.20	7.00	6.62	7.44	9.50	0.10	0.10	7.00	7.00	0.20	0.00	7.5	27-Jul-23 00:53:00	0.10	12.00	1.10	0.00
05-Jul-23 00:00:00	9.0	1.10	9.80	7.00	6.53	7.50	10.40	0.20	0.20	7.00	7.50	0.40	0.00	7.8	03-Aug-23 00:50:00	0.20	22.00	2.00	0.00
06-Jul-23 00:00:00	14.0	1.10	9.80	7.00	6.43	7.37	10.40	0.00	0.10	7.00	7.00	0.60	0.00	7.8	10-Aug-23 00:57:00	0.10	20.00	2.00	0.00
07-Jul-23 00:00:00	9.0	1.10	9.80	7.00	6.34	7.19	9.50	0.20	0.20	7.50	7.50	0.30	0.00	8.0	17-Aug-23 00:52:00	0.10	25.00	2.00	0.00
08-Jul-23 00:00:00	9.0	1.10	9.80	7.00	6.28	7.07	3.70	0.10	0.00	7.50	7.50	0.60	0.00	8.0	24-Aug-23 00:55:00	0.10	37.00	1.00	0.00
09-Jul-23 00:00:00	9.0	1.10	9.80	7.00	6.12	7.01	1.40	0.10	0.00	7.30	7.30	0.10	0.00	7.8	31-Aug-23 00:54:00	0.20	7.00	2.00	0.00
10-Jul-23 00:00:00	29.0	1.10	9.80	7.00	5.99	6.88	12.00	0.20	0.10	7.30	7.30	0.20	0.00	7.9	07-Sep-23 00:56:00	0.10	22.00	2.00	0.00
11-Jul-23 00:00:00	29.0	1.10	9.80	7.00	6.21	6.99	10.50	0.50	0.40	7.30	7.30	0.50	0.00	7.8	14-Sep-23 00:53:00	0.10	25.00	1.00	0.00
12-Jul-23 00:00:00	60.0	1.10	3.90	7.00	6.27	7.11	7.90	0.30	0.20	7.60	7.60	1.00	0.00	8.3	21-Sep-23 00:56:00	0.10	44.00	1.00	0.00
13-Jul-23 00:00:00	60.0	1.10	3.90	7.00	5.82	7.25	7.60	0.10	0.10	7.60	7.60	0.50	0.00	8.3	28-Sep-23 00:58:00	0.20	27.00	1.00	0.08
14-Jul-23 00:00:00	60.0	1.10	3.90	7.00	5.68	7.13	4.90	0.40	0.10	7.00	7.00	0.40	0.00	8.0	05-Oct-23 00:55:00	0.30	16.00	1.00	0.00
15-Jul-23 00:00:00	52.0	1.10	3.90	7.00	5.58	7.11	9.50	0.20	0.10	7.00	7.00	0.30	0.00	7.6	12-Oct-23 00:50:00	0.20	15.00	1.00	0.00
16-Jul-23 00:00:00	52.0	1.10	3.90	7.00	5.99	7.11	6.50	0.10	0.20	7.50	7.50	0.60	0.00	8.0	19-Oct-23 00:56:00	0.20	24.00	1.00	0.00
17-Jul-23 00:00:00	52.0	1.10	3.90	7.00	6.41	7.42	5.60	0.10	0.10	7.50	7.50	0.30	0.00	7.8	26-Oct-23 00:51:00	0.40	69.00	7.00	0.06
18-Jul-23 00:00:00	97.0	1.10	3.90	7.00	6.38	7.37	1.20	0.10	0.10	7.50	7.50	0.50	0.00	8.0	02-Nov-23 00:56:00	0.20	36.00	2.00	0.00
19-Jul-23 00:00:00	97.0	1.10	3.50	7.00	6.37	6.88	2.00	0.10	0.10	7.20	7.20	0.50	0.00	8.1	09-Nov-23 00:57:00	0.20	28.00	2.00	0.00
20-Jul-23 00:00:00	97.0	1.10	3.50	7.00	6.39	6.75	5.50	0.10	0.10	7.20	7.20	0.50	0.00	8.0	16-Nov-23 00:54:00	0.30	22.00	2.00	0.00
21-Jul-23 00:00:00	97.0	1.10	3.50	7.00	6.21	6.26	1.00	0.20	0.00	7.40	7.40	0.20	0.01	8.4	23-Nov-23 00:56:00	0.20	5.00	2.00	0.02
22-Jul-23 00:00:00	97.0	1.10	3.50	7.00	5.81	6.47	2.20	0.00	0.10	7.50	7.50	0.50	0.01		30-Nov-23 00:55:00	0.20	16.00	2.00	0.05
23-Jul-23 00:00:00	97.0	1.10	3.50	7.00	5.82	6.73	1.80	0.10	0.00	7.40	7.30	0.50	0.01	7.9	07-Dec-23 00:50:00	0.10	22.00	2.00	0.01
24-Jul-23 00:00:00	22.0	1.10	3.50	7.00	5.71	6.69	1.20	0.10	0.00	7.40	7.30	0.20	0.01		14-Dec-23 00:55:00	0.10	18.00	3.00	0.00
25-Jul-23 00:00:00	22.0	1.10	3.50	7.00	5.98	7.00	1.00	0.10	0.00	7.30	7.20	0.30	0.01		21-Dec-23 00:54:00	0.40	30.00	3.00	0.00
26-Jul-23 00:00:00	22.0	1.10	3.20	8.00	6.40	7.09	3.80	0.20	0.10	7.50	7.50	0.30	0.01	8.0	28-Dec-23 00:53:00	0.30	42.00	1.00	0.01
27-Jul-23 00:00:00	10.0	1.10	3.20	8.00	6.13	7.07	3.20	0.00	0.00	7.40	7.40	0.40	0.01						
28-Jul-23 00:00:00	10.0	1.10	3.20	7.00	6.16	7.24	7.40	0.00	0.00	7.47	7.47	0.50	0.00						
29-Jul-23 00:00:00	10.0	1.10	3.20	7.00	6.02	6.99	6.50	0.50	0.30	7.48	7.48	0.40	0.00						
30-Jul-23 00:00:00	10.0	1.10	3.20	7.00	6.61	7.34	9.50	0.20	0.10	7.27	7.27	0.30	0.00						
31-Jul-23 00:00:00	10.0	1.10	3.20	7.00	6.30	7.10	6.40	0.00	0.00	7.27	7.27	0.40	0.00						
01-Aug-23 00:00:00	10.0	1.10	3.20	7.00	6.42	7.10	4.80	0.00	0.10	7.30	7.40	0.60	0.00						
02-Aug-23 00:00:00	34.0	1.10	35.20	7.00	6.50	6.97	8.70	0.20	0.20	7.60	7.24	0.40	0.00						
03-Aug-23 00:00:00	34.0	1.10	35.20	7.00	6.70	7.26	6.50	0.10	0.10	7.00	7.00	0.40	0.00	8.1					
04-Aug-23 00:00:00	9.0	1.10	35.20	7.00	6.80	7.42	4.90	0.00	0.00	7.50	7.50	0.50	0.00	7.8					
05-Aug-23 00:00:00	34.0	1.10	35.20	7.00	6.35	7.52	3.90	0.00	0.00	7.50	7.50	0.30	0.00	7.8					
06-Aug-23 00:00:00	34.0	1.10	35.20	7.00	6.39	7.64	2.70	0.00	0.00	7.40	7.50	0.10	0.00	8.1					
07-Aug-23 00:00:00	34.0	1.10	35.20	7.00	6.40	7.15	5.60	0.10	0.00	7.30	7.30	0.10	0.00	7.9					
08-Aug-23 00:00:00	34.0	1.10	35.20	7.00	6.33	6.96	3.70	0.00	0.00	7.30	7.30	0.40	0.00	8.0					
09-Aug-23 00:00:00	25.0	1.10	17.30	7.00	6.55	7.11	4.50	0.10	0.10	7.00	7.00	0.30	0.00	8.0					
10-Aug-23 00:00:00	25.0	1.10	17.30	7.00	6.60	6.61	6.00	0.10	0.10	7.00	7.00	0.80	0.00	7.0					
11-Aug-23 00:00:00	25.0	1.10	17.30	7.00	5.85	6.75	5.20	0.00	0.00	7.00	7.00	0.50	0.00	7.9					
12-Aug-23 00:00:00	25.0	1.10	17.30	7.00	3.92	6.80	5.30	0.00	0.00	7.00	7.00	0.30	0.00	7.6					
13-Aug-23 00:00:00	25.0	1.10	17.30	7.00	3.89	6.96	14.20	0.80	0.00	7.50	7.00	0.50	0.00	7.8					
14-Aug-23 00:00:00	25.0	1.10	17.30	7.00	4.54	7.26	6.00	0.00	0.00	7.00	7.00	0.70	0.00	7.8					
15-Aug-23 00:00:00	25.0	1.10	17.30	7.00	5.62	7.29	11.80	0.10	0.00	7.50	7.00	0.20	0.00	7.8					
16-Aug-23 00:00:00	25.0	1.10	21.60	7.00	6.66	7.06	18.30	0.00	0.00	7.30	7.30	0.30	0.00	8.0					
17-Aug-23 00:00:00	25.0	1.10	21.60	7.00	6.76	7.01	14.20	0.10	0.10	7.40	7.40	0.50	0.00	7.9					
18-Aug-23 00:00:00	14.0	1.10	21.60	7.00	6.73	7.03	7.60	0.10	0.10	7.60	7.60	0.80	0.00	7.9					
19-Aug-23 00:00:00	14.0	1.10	21.60	7.00	6.77	6.95	12.80	0.20	0.30	7.50	7.40	0.60	0.00	7.9					
20-Aug-23 00:00:00	5.0	1.10	21.60	7.00	6.42	6.87	10.30	0.00	0.10	7.00	7.00	0.50	0.00	7.8					
21-Aug-23 00:00:00	5.0	1.10	21.60	7.00	6.51	6.95	15.10	0.10	0.10	7.00	7.00	0.40	0.00	7.8					
22-Aug-23 00:00:00	5.0	1.10	21.60	7.00	6.27	6.64	6.30	0.00	0.00	7.00	7.00	0.30	0.00	7.8					
23-Aug-23 00:00:00	5.0	1.10	6.60	7.00	6.60	6.95	6.30	0.10	0.00	7.50	7.50	0.40	0.00	7.8					
24-Aug-23 00:00:00	5.0	1.10	6.60	7.00	6.19	6.66	9.30	0.00	0.00	7.50	7.50	0.50	0.00	7.8					
25-Aug-23 00:00:00	2.0	1.10	6.60	7.00	6.53	6.78	8.60	1.20	2.60	7.00	7.00	0.20	0.00	7.3					
26-Aug-23 00:00:00	2.0	1.10	6.60	7.00	6.27	6.24	4.50	0.10	0.00	7.00	7.00	0.40	0.00	7.2					
27-Aug-23 00:00:00	91.0	1.10	6.60	7.00	6.55	6.86	6.50	0.10	0.20	7.00	7.00	0.60	0.00	7.0					
28-Aug-23 00:00:00	91.0	1.10	6.60	7.00	6.72	7.03	7.50	0.00	0.10			0.40	0.00	7.0					
29-Aug-23 00:00:00	91.0	1.10	6.60	7.00	6.89	7.04	22.20	0.10	0.20	7.00	7.00	0.30	0.00	7.0					
30-Aug-23 00:00:00	1674.0	1.10	29.20	7.00	6.83	7.12	12.40	0.20	0.20	7.60	7.40	0.50	0.00						
31-Aug-23 00:00:00	1674.0	1.10	29.20	8.00	7.00	6.96	8.80	0.20	0.00	7.10	7.10	0.40	0.00	7.3					
01-Sep-23 00:00:00	33.0	1.10	29.20	7.00	7.22	7.32	8.80	0.20	0.10	7.									

	Hg at desalter brine	Hg at Strip Sour Water	Hg at Crude Water Draw	pH API	pH IAF A outlet	pH IAF B outlet	Hg at API outlet	Hg at IAF outlet A	Hg at IAF outlet B	pH Clarifier A	pH Clarifier B	Hg at Outlet clarify/polishing pond	Phenol at polishing pond	pH at polishing pond
	\\SPRCPI\02SP009\Mercury Content	\\SPRCPI\76SP203\Mercury Content	\\SPRCPI\76SP136\Mercury Content	LBO	76AI001	76AI002	\\SPRCPI\76SP121\Mercury Content	\\SPRCPI\76SP103A\Mercury Content	\\SPRCPI\76SP103B\Mercury Content	LBO	LBO	\\SPRCPI\76SP108B\Mercury Content	\\SPRCPI\76SP108B\Phenol	LBO
Test Schedule	Depend on crude	Quarterly	every Tue	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Every Thu	Daily
06-Sep-23 00:00:00	53.0	1.10	84.30	7.00	7.08	6.96	4.80	0.10	0.10	7.70	7.40	1.10	0.00	7.7
07-Sep-23 00:00:00	7.0	1.10	84.30	7.00	7.14	6.93	15.10	0.20	0.20	7.60	7.50	0.50	0.00	7.8
08-Sep-23 00:00:00	7.0	1.10	84.30	7.00	7.21	7.13	11.70	0.10	0.00	7.50	7.50	0.90	0.00	7.6
09-Sep-23 00:00:00	29.0	1.10	84.30	7.00	7.53	7.22	9.30	0.10	0.00	7.40	7.40	0.40	0.00	7.8
10-Sep-23 00:00:00	29.0	1.10	84.30	7.00	7.05	6.88	16.50	0.10	0.10	7.50	7.50	1.10	0.00	7.8
11-Sep-23 00:00:00	29.0	1.10	84.30	7.00	7.54	7.52	13.20	0.60	0.40	7.50	7.50	1.30	0.00	7.8
12-Sep-23 00:00:00	2.0	1.10	84.30	7.00	7.41	7.29	5.70	0.10	0.10	7.00	7.00	1.10	0.00	7.8
13-Sep-23 00:00:00	2.0	1.10	8.90	7.00	7.42	7.42	8.80	0.40	0.30	7.30	7.40	0.90	0.00	8.0
14-Sep-23 00:00:00	4.0	1.10	8.90	7.00	7.39	7.26	4.80	0.30	0.20	7.40	7.40	0.80	0.00	7.9
15-Sep-23 00:00:00	32.0	1.10	8.90	7.00	7.70	7.44	12.50	0.20	0.10	7.00	7.00	0.50	0.00	8.0
16-Sep-23 00:00:00	0.0	1.10	8.90		7.48	7.37	13.70	0.30	0.40	7.00	7.00	0.50	0.00	8.0
17-Sep-23 00:00:00	0.0	1.10	8.90	7.00	8.06	7.95	6.40	1.20	1.10	7.50	7.50	1.00	0.00	8.1
18-Sep-23 00:00:00	0.0	1.10	8.90	7.00	7.20	7.18	7.00	0.10	0.10	7.00	7.00	0.50	0.00	8.0
19-Sep-23 00:00:00	0.0	1.10	8.90	7.00	6.84	6.72	27.20	0.60	0.20	7.50	7.50	0.40	0.00	8.0
20-Sep-23 00:00:00	14.0	1.10	21.10	7.00	7.15	6.87	24.00	0.10	0.10	7.00	7.00	0.60	0.00	8.0
21-Sep-23 00:00:00	14.0	1.10	21.10	7.00	7.17	7.02	13.30	0.20	0.20	7.50	7.50	0.30	0.00	8.0
22-Sep-23 00:00:00	14.0	1.10	21.10	7.00	7.10	6.93	10.50	0.30	0.20	7.50	7.50	0.40	0.00	8.0
23-Sep-23 00:00:00	14.0	1.10	21.10	7.00	7.25	6.96	12.00	3.10	2.60	7.00	7.00	0.50	0.00	8.0
24-Sep-23 00:00:00	14.0	1.10	21.10	7.00	7.05	6.89	9.30	0.80	0.50	7.60	7.40	0.60	0.00	8.0
25-Sep-23 00:00:00	14.0	1.10	21.10	7.00	6.84	6.67	8.70	0.20	0.50	7.60	7.40	0.40	0.00	8.0
26-Sep-23 00:00:00	94.0	1.10	21.10	7.00	6.79	6.73	8.00	0.10	0.30	7.50	7.50	0.10	0.00	7.9
27-Sep-23 00:00:00	94.0	1.10	22.20	7.00	6.95	6.79	9.10	0.30	0.50	7.00	7.00	0.90	0.00	8.0
28-Sep-23 00:00:00	0.0	1.10	22.20	7.00	7.15	6.99	5.00	0.90	5.80	7.00	7.00	0.30	0.00	8.0
29-Sep-23 00:00:00	0.0	1.10	22.20	7.00	5.80	5.73	5.70	0.10	0.00	7.00	Shut down	2.10	0.08	7.9
30-Sep-23 00:00:00	22.0	1.10	22.20	7.00	6.34	6.19	6.50	0.20	0.00	7.20	Shut down	1.60	0.08	7.6
01-Oct-23 00:00:00	22.0	1.10	22.20	7.00	6.78	6.65	10.90	0.00	0.00	7.40	Shut down	0.30	0.08	7.8
02-Oct-23 00:00:00	22.0	1.10	22.20	7.00	6.82	6.71	8.70	0.10	0.10	7.40	Shut down	0.10	0.08	7.7
03-Oct-23 00:00:00	15.0	1.10	22.20	7.00	7.46	6.37	7.00	0.00	0.00	7.20	Shut down	0.90	0.08	7.7
04-Oct-23 00:00:00	15.0	1.10	71.70	7.00	7.41	6.14	11.80	0.00	0.00	7.30	Shut down	1.10	0.08	7.9
05-Oct-23 00:00:00	15.0	1.10	71.70	7.00	6.53	5.86	14.00	0.10	0.00	7.00	Shut down	1.20	0.08	7.7
06-Oct-23 00:00:00	4.0	1.10	71.70	7.00	6.40	6.05	2.30	0.10	0.00	7.50	Shut down	0.50	0.00	8.2
07-Oct-23 00:00:00	4.0	1.10	71.70	7.00	6.41	6.11	2.80	0.10	0.10	7.30	Shut down	0.70	0.00	7.8
08-Oct-23 00:00:00	4.0	1.10	71.70	7.00	7.04	6.99	14.10	0.20	0.10	7.50	Shut down	1.20	0.00	7.8
09-Oct-23 00:00:00	4.0	1.10	71.70	8.00	8.48	8.27	3.90	0.00	0.00	7.50	Shut down	0.60	0.00	7.8
10-Oct-23 00:00:00	4.0	1.10	71.70	7.00	6.78	6.80	6.40	0.00	0.10	7.50	Shut down	0.20	0.00	7.8
11-Oct-23 00:00:00	15.0	1.10	32.70	7.00	6.91	6.84	5.10	0.00	0.00	7.40	Shut down	0.40	0.00	7.9
12-Oct-23 00:00:00	19.0	1.10	32.70	7.00	6.48	6.70	3.80	0.20	0.00	7.60	Shut down	1.40	0.00	8.0
13-Oct-23 00:00:00	19.0	1.10	32.70	7.00	6.46	6.80	9.60	0.50	0.30	7.60	Shut down	0.10	0.00	8.0
14-Oct-23 00:00:00	21.0	1.10	32.70	7.00	6.52	6.50	8.80	0.00	0.00	7.50	Shut down	0.40	0.00	8.0
15-Oct-23 00:00:00	21.0	1.10	32.70	7.00	6.53	6.41	2.70	0.00	0.00	7.00	Shut down	0.40	0.00	8.0
16-Oct-23 00:00:00	21.0	1.10	32.70		6.56	6.54	9.20	0.00	0.00		Shut down	0.40	0.00	
17-Oct-23 00:00:00	134.0	1.10	32.70		6.59	6.75	1.70	0.10	0.10	7.40	Shut down	0.20	0.00	7.8
18-Oct-23 00:00:00	134.0	1.10	2.80	7.00	6.81	6.94	2.60	0.20	0.10	7.50	Shut down	0.80	0.00	7.8
19-Oct-23 00:00:00	134.0	1.10	2.80	7.00	6.84	6.70	4.10	0.10	0.00	7.50	Shut down	0.50	0.00	7.9
20-Oct-23 00:00:00	134.0	1.10	2.80	7.00	6.72	6.56	2.40	0.00	0.00	7.50	Shut down	0.20	0.00	8.0
21-Oct-23 00:00:00	134.0	1.10	2.80	7.00	7.22	6.48	10.20	0.20	0.20	7.60	Shut down	0.60	0.00	7.8
22-Oct-23 00:00:00	51.0	1.10	2.80	7.00	7.31	6.55	4.40	0.10	0.10	7.00	Shut down	1.00	0.00	7.8
23-Oct-23 00:00:00	51.0	1.10	2.80	7.00	5.44	4.90	12.30	0.10	0.10	7.00	Shut down	0.80	0.00	7.0
24-Oct-23 00:00:00	51.0	1.10	2.80	7.00	7.50	7.26	8.00	0.10	0.10	7.00	Shut down	0.80	0.00	7.0
25-Oct-23 00:00:00	51.0	1.10	113.00	7.00	6.71	6.69	54.20	0.00	0.80	7.20	Shut down	1.30	0.00	7.8
26-Oct-23 00:00:00	1027.0	1.10	113.00	7.00	6.73	6.78	3.30	0.30	0.30	7.30	Shut down	0.60	0.00	7.8
27-Oct-23 00:00:00	13.0	1.10	113.00	7.00	6.85	6.26	18.30	0.20	0.10	7.50	Shut down	0.40	0.06	7.8
28-Oct-23 00:00:00	13.0	1.10	113.00	7.00	6.52	6.38	10.60	0.00	0.00	7.50	Shut down	0.40	0.06	7.8
29-Oct-23 00:00:00	13.0	1.10	113.00	7.00	6.05	5.95	11.00	0.00	0.00	7.50	Shut down	0.10	0.06	7.8
30-Oct-23 00:00:00	74.0	1.10	113.00	7.00	5.24	5.26	4.40	0.20	0.10	7.30	Shut down	0.40	0.06	7.8
31-Oct-23 00:00:00	74.0	1.10	113.00	7.00	5.71	5.67	7.10	0.10	0.40	7.40	Shut down	0.40	0.06	7.7
01-Nov-23 00:00:00	74.0	1.10	1.30	7.00	6.99	6.94	12.90	0.00	0.10	7.10	Shut down	0.40	0.06	7.4
02-Nov-23 00:00:00	74.0	1.10	1.30	7.00	6.82	6.73	9.10	0.00	0.00	7.20	Shut down	0.20	0.06	7.5
03-Nov-23 00:00:00	74.0	1.10	1.30	7.00	6.62	6.45	5.50	0.10	0.10	7.00	Shut down	0.30	0.00	7.5
04-Nov-23 00:00:00	74.0	1.10	1.30	7.00	6.63	6.40	27.30	1.40	0.40	7.00	Shut down	0.50	0.00	7.7
05-Nov-23 00:00:00	20.0	1.10	1.30	7.00	5.72	5.87	12.80	0.20	0.00	7.50	Shut down	1.00	0.00	7.5
06-Nov-23 00:00:00	20.0	1.10	1.30	7.00	6.66	6.57	4.60	0.10	0.10	7.50	Shut down	0.80	0.00	7.8
07-Nov-23 00:00:00	20.0	1.10	1.30	7.00	7.67	7.45	3.60	0.00	0.00	7.00	Shut down	0.10	0.00	7.5
08-Nov-23 00:00:00	20.0	1.10	45.00	7.00	6.85	6.75	47.40	0.10	0.10	7.00	Shut down	0.50	0.00	7.5
09-Nov-23 00:00:00	20.0	1.10	45.00	7.00	7.17	7.13	6.60	0.00	0.10		Shut down	0.30	0.00	7.5
10-Nov-23 00:00:00	51.0	1.10	45.00	7.00	6.89	6.75	4.80	0.10	0.10	7.00	Shut down	0.60	0.00	7.9
11-Nov-23 00:00:00	51.0	1.10	45.00	7.00	6.68	6.62	4.80	0.00	0.00	7.50	Shut down	0.20	0.00	7.9
12-Nov-23 00:00:00	51.0	1.10	45.00	7.00	6.62	6.64	10.40	0.10	0.00	7.60	Shut down	0.50	0.00	7.9
13-Nov-23 00:00:00	4.0	1.10	45.00	7.00	6.65	6.71	5.50	0.10	0.20	7.60	Shut down	0.30	0.00	7.9
14-Nov-23 00:00:00	4.0	1.10	45.00	7.00	6.48	6.59	3.70	0.00	0.00	7.50	Shut down	0.60	0.00	7.9

Sulfide at outlet biological treatment	COD at outlet biological treatment	BOD at outlet biological treatment	Phenol at outlet biological treatment
\\SPRCPI\76SP108B\Sulfide	\\SPRCPI\76SP108B\COD	\\SPRCPI\76SP108B\BOD5	\\SPRCPI\76SP108B\Phenol
Every Thu	Every Thu	Every Thu	Every Thu

	Hg at desalter brine	Hg at Strip Sour Water	Hg at Crude Water Draw	pH API	pH IAF A outlet	pH IAF B outlet	Hg at API outlet	Hg at IAF outlet A	Hg at IAF outlet B	pH Clarifier A	pH Clarifier B	Hg at Outlet clarify/polishing pond	Phenol at polishing pond	pH at polishing pond
	\\SPRCPI\02SP009/Mercury Content	\\SPRCPI\76SP203/Mercury Content	\\SPRCPI\76SP136/Mercury Content	ISO	76AI001	76AI002	\\SPRCPI\76SP121/Mercury Content	\\SPRCPI\76SP103A/Mercury Content	\\SPRCPI\76SP103B/Mercury Content	ISO	ISO	\\SPRCPI\76SP108B/Mercury Content	\\SPRCPI\76SP108B/Phenol	ISO
Test Schedule	Depend on crude	Quarterly	every Tue	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Every Thu	Daily
15-Nov-23 00:00:00	2.0	1.10	0.50	7.00	6.53	6.65	5.10	0.00	0.00	7.50	Shut down	0.40	0.00	7.8
16-Nov-23 00:00:00	2.0	1.10	0.50	7.00	6.84	6.80	5.10	0.00	0.00	7.50	Shut down	0.30	0.00	7.8
17-Nov-23 00:00:00	2.0	1.10	0.50	7.00	6.98	7.11	9.30	0.10	0.00	7.00	Shut down	0.40	0.00	7.6
18-Nov-23 00:00:00	87.0	1.10	0.50	7.00	6.61	6.81	3.70	0.00	0.10	7.00	Shut down	0.30	0.00	7.5
19-Nov-23 00:00:00	8.0	1.10	0.50	7.00	6.48	6.73	2.60	0.20	0.20	7.30	Shut down	0.40	0.00	7.4
20-Nov-23 00:00:00	6.0	1.10	0.50	7.00	6.52	6.58	7.80	0.10	0.10	7.40	Shut down	0.50	0.00	7.4
21-Nov-23 00:00:00	6.0	1.10	0.50	7.00	6.72	6.66	2.50	0.10	0.10	7.40	Shut down	0.40	0.00	7.4
22-Nov-23 00:00:00	6.0	1.10	1.50	7.00	6.55	6.82	1.10	0.10	0.10	7.40	Shut down	0.20	0.00	7.7
23-Nov-23 00:00:00	6.0	1.10	1.50	7.00	6.79	6.80	10.30	0.10	0.60	7.50	Shut down	0.40	0.00	7.5
24-Nov-23 00:00:00	11.0	1.10	1.50	7.00	6.76	6.76	1.60	0.10	0.10	7.50	Shut down	0.50	0.02	7.5
25-Nov-23 00:00:00	11.0	1.10	1.50	7.00	6.60	6.78	1.70	0.10	0.60	7.50	Shut down	0.10	0.02	7.5
26-Nov-23 00:00:00	28.0	1.10	1.50	7.00	6.60	6.90	2.10	0.40	0.00	7.10	Shut down	0.60	0.02	7.6
27-Nov-23 00:00:00	28.0	1.10	1.50	7.00	6.60	6.87	14.90	0.40	0.10	7.20	Shut down	0.70	0.02	7.6
28-Nov-23 00:00:00	12.0	1.10	1.50	7.00	6.60	6.77	12.70	0.40	0.20	7.30	Shut down	1.10	0.02	7.6
29-Nov-23 00:00:00	23.0	1.10	40.30	7.00	6.62	6.85	20.40	0.40	0.10	7.00	Shut down	0.60	0.02	7.4
30-Nov-23 00:00:00	23.0	1.10	40.30	7.00	6.62	6.79	8.60	0.00	0.00	7.00	Shut down	0.40	0.02	7.0
01-Dec-23 00:00:00	23.0	1.10	40.30	7.00	6.65	6.96	11.80	0.10	0.10	7.00	Shut down	0.30	0.05	7.0
02-Dec-23 00:00:00	2.0	1.10	40.30	7.00	6.67	7.22	24.30	0.10	0.00	7.20	Shut down	0.50	0.05	7.5
03-Dec-23 00:00:00	15.0	1.10	40.30	7.00	6.68	7.04	11.20	0.10	0.60	7.50	Shut down	0.40	0.05	7.5
04-Dec-23 00:00:00	15.0	1.10	40.30	7.00	6.68	6.85	8.00	0.10	0.10	7.50	Shut down	0.60	0.05	7.5
05-Dec-23 00:00:00	15.0	1.10	40.30	7.00	6.70	6.93	7.10	0.10	0.10	7.50	Shut down	1.00	0.05	7.5
06-Dec-23 00:00:00	15.0	1.10	20.40	7.00	6.70	6.88	1.30	0.10	0.00	7.20	Shut down	0.40	0.05	7.0
07-Dec-23 00:00:00	7.0	1.10	20.40	7.00	6.71	6.74	0.40	0.10	0.00	7.00	Shut down	0.60	0.05	7.1
08-Dec-23 00:00:00	7.0	1.10	20.40	7.00	6.79	7.14	0.70	0.10	0.00	6.80	Shut down	0.20	0.01	7.1
09-Dec-23 00:00:00	8.0	1.10	20.40	7.00	6.85	6.83	4.20	0.10	0.20	7.00	Shut down	0.40	0.01	7.3
10-Dec-23 00:00:00	8.0	1.10	20.40	7.00	6.90	6.95	15.10	0.10	0.60	7.00	Shut down	0.30	0.01	7.2
11-Dec-23 00:00:00	5.0	1.10	20.40	7.00	6.92	7.21	9.50	0.10	0.20	7.00	Shut down	0.60	0.01	7.2
12-Dec-23 00:00:00	5.0	1.10	20.40	7.00	6.94	6.89	4.40	0.10	0.00	7.00	Shut down	0.30	0.01	7.2
13-Dec-23 00:00:00	47.0	1.10	26.00	7.00	6.94	7.04	5.90	0.10	0.10	7.50	Shut down	0.60	0.01	7.3
14-Dec-23 00:00:00	47.0	1.10	26.00	7.00	6.96	7.20	8.60	0.10	0.00	7.50	Shut down	0.40	0.01	7.5
15-Dec-23 00:00:00	47.0	1.10	26.00	7.00	6.96	6.82	1.20	0.10	0.10	7.50	Shut down	0.50	0.00	7.8
16-Dec-23 00:00:00	47.0	1.10	26.00	7.00	6.95	6.59	4.20	0.10	0.10	7.00	Shut down	0.50	0.00	7.6
17-Dec-23 00:00:00	47.0	1.10	26.00	7.00	6.94	6.63	2.70	0.10	0.10	7.00	Shut down	0.20	0.00	7.8
18-Dec-23 00:00:00	24.0	1.10	26.00	7.00	6.94	6.66	1.30	0.10	0.00	7.00	Shut down	0.40	0.00	7.2
19-Dec-23 00:00:00	24.0	1.10	26.00	7.00	6.93	6.72	6.20	0.10	0.10	7.00	Shut down	0.30	0.00	7.5
20-Dec-23 00:00:00	156.0	1.10	9.80	7.00	6.89	6.96	18.70	0.10	6.80	7.00	Shut down	0.60	0.00	7.4
21-Dec-23 00:00:00	156.0	1.10	9.80	7.00	6.88	6.84	15.40	0.10	0.00		Shut down	0.50	0.00	7.3
22-Dec-23 00:00:00	1200.0	1.10	9.80	7.00	6.92	6.91	17.70	0.10	3.90	7.50	Shut down	0.60	0.00	7.5
23-Dec-23 00:00:00	1200.0	1.10	9.80	7.00	6.93	6.94	17.10	0.10	0.70	7.50	Shut down	0.60	0.00	7.5
24-Dec-23 00:00:00	1200.0	1.10	9.80	7.00	6.92	7.03	13.10	0.10	0.50	7.00	Shut down	0.70	0.00	7.8
25-Dec-23 00:00:00	29.0	1.10	9.80	7.00	6.93	7.04	14.40	0.10	0.40	7.30	Shut down	0.50	0.00	7.6
26-Dec-23 00:00:00	29.0	1.10	9.80	7.00	6.95	6.94	7.90	0.10	0.40	7.20	Shut down	0.80	0.00	7.4
27-Dec-23 00:00:00	29.0	1.10	57.50	7.00	6.94	7.06	8.50	0.10	0.00	7.00	Shut down	0.50	0.00	7.0
28-Dec-23 00:00:00	29.0	1.10	57.50	7.00	6.92	6.96	6.50	0.30	0.00	7.00	Shut down	0.30	0.00	7.2
29-Dec-23 00:00:00	29.0	1.10	57.50	7.00	6.90	6.91	8.80	0.30	0.30	7.00	Shut down	0.20	0.01	7.0
30-Dec-23 00:00:00	29.0	1.10	57.50	7.00			4.10	0.30	0.10	7.00	Shut down	0.40	0.01	7.0
31-Dec-23 00:00:00	5.0	1.10	57.50	7.00			4.60	0.30	0.10	7.00	Shut down	0.20	0.01	7.2
min	0.0	1.1	0.5	7.0	3.9	4.9	0.4	0.0	0.0	6.8	7.0	0.1	0.0	7.0
max	1674.0	1.1	113.0	8.0	8.5	8.3	54.2	3.1	6.8	7.7	7.6	2.1	0.1	8.4
avarage	80.1	1.1	25.6	7.0	6.6	6.9	8.6	0.2	0.2	7.3	7.3	0.5	0.0	7.7

Sulfide at outlet biological treatment	COD at outlet biological treatment	BOD at outlet biological treatment	Phenol at outlet biological treatment
\\SPRCPI\76SP108B/Sulfide	\\SPRCPI\76SP108B/COD	\\SPRCPI\76SP108B/BOD5	\\SPRCPI\76SP108B/Phenol
Every Thu	Every Thu	Every Thu	Every Thu

ภาคผนวก ข.25

ผลการทำ Jar Test

Jar test

Veolia

Sample ID	Date of sample collected from API outlet (SPRC Jar Test)	Sample	Metal removal (Metclear 2435) ppm	Polymer (Novus CE7081) ppm	FeCl3 ppm	NaOCl ppm	Hg content ppb	Hg removal %	As content ppb	As removal %	pH before/after inject NaOH	SS (ppm)	Remark
76SP121	2-23-23 7:00 AM	Blank	-	-	-	-	11.50	-	136.04	-	7.22	72.0	From the result of the Hg content in each jar test, the Hg content in API outlet about 10 - 20 ppb can reduce to 0.08 - 0.09 ppb (%Hg removal > 99%) with the dosage of chemical METCLEAR MR2435 about 0.1 -0.2 ppm. So veolia confirm that MR2435 can remove the Hg content more than 99%. Now, the dosage of METCLEAR MR2435 that use for injection is about 1.0 - 1.5 ppm due to limitation of pump air block (run at minimum %stroke).
		Jar test 1	0.2	4.5	100	30	0.09	99.22	25.59	81.19	6.64 to 7.42	10.0	
		Jar test 2	0.5	4.5	100	30	0.08	99.30	24.20	82.21	6.66 to 7.47	8.0	
		Jar test 3	1.0	4.5	100	30	0.07	99.39	26.03	80.87	6.63 to 7.45	7.3	
		Jar test 4	1.5	4.5	100	30	0.08	99.30	23.51	82.72	6.64 to 7.50	7.4	
76SP121	2-28-23 7:00 AM	Blank	-	-	-	-	20.02	-	94.85	-	7.34	123.0	
		Jar test 1	0.2	4.5	100	30	0.08	99.30	14.11	85.12	6.88 to 7.58	12.0	
		Jar test 2	0.5	4.5	100	30	0.09	99.22	12.42	86.91	6.88 to 7.55	14.5	
		Jar test 3	1.0	4.5	100	30	0.06	99.48	15.23	83.94	6.88 to 7.57	14.3	
		Jar test 4	1.5	4.5	100	30	0.06	99.48	13.32	85.96	6.88 to 7.57	10.0	
76SP121	3-9-23 10:00 AM	Blank	-	-	-	-	6.11	-	78.40	-	7.42	85.0	Veolia confirm the chemical dosing of Metal Removal MR2435 and NOVUS CE7081 that current usage 1 - 1.5 ppm and 4.5 ppm respectively can reduce the mercury content more than 98% and arsenic content more than 80%.
		Jar test 1	0.5	4.5	100	30	0.07	98.85%	12.87	83.79%	6.94 to 7.61	13.9	
		Jar test 2	1.0	4.5	100	30	0.05	99.18%	11.80	85.14%	6.92 to 7.67	13.0	
		Jar test 3	1.5	4.5	100	30	0.05	99.18%	12.92	83.73%	6.97 to 7.70	9.0	
		Blank	-	-	-	-	10.90	-	118.70	-	7.16	64.0	
76SP121	3-23-23 10:00 AM	Jar test 1	0.5	4.5	100	30	0.09	99.17%	22.86	80.74%	6.60 to 7.53	7.5	
		Jar test 2	1.0	4.5	100	30	0.09	99.17%	18.28	84.60%	6.67 to 7.50	6.0	
		Jar test 3	1.5	4.5	100	30	0.06	99.45%	15.88	86.62%	6.61 to 7.54	6.3	
		Blank	-	-	-	-	15.07	-	155.80	-	7.70	163.5	
		Jar test 1	1.0	4.5	100	30	0.08	99.47%	25.55	83.60%	6.98 to 7.60	17.5	
76SP121	4-4-23 10:00 AM	Jar test 2	1.5	4.5	100	30	0.06	99.60%	21.93	85.92%	7.01 to 7.57	14.0	Veolia confirm the chemical dosing of Metal Removal MR2435 and NOVUS CE7081 that current usage 1 - 1.5 ppm and 4.5 ppm respectively can reduce the mercury content more than 99% and arsenic content more than 80%.
		Blank	-	-	-	-	19.21	-	188.10	-	7.89	110.0	
		Jar test 1	1.0	4.5	100	30	0.09	99.53%	32.42	82.76%	7.14 to 7.62	13.1	
		Jar test 2	1.5	4.5	100	30	0.06	99.60%	28.48	84.86%	7.20 to 7.53	7.0	
		Blank	-	-	-	-	36.48	-	201.90	-	7.68	71.8	
76SP121	5-11-23 7:00 AM	Jar test 1	1.0	4.5	100	30	0.11	99.70%	31.54	84.38%	7.03 to 7.50	7.0	Veolia confirm the chemical dosing of Metal Removal MR2435 and NOVUS CE7081 that current usage 1 - 1.5 ppm and 4.5 ppm respectively can reduce the mercury content more than 99% and arsenic content more than 80%.
		Jar test 2	1.5	4.5	100	30	0.09	99.17%	26.69	86.78%	7.06 to 7.51	5.4	
		Blank	-	-	-	-	4.95	-	149.10	-	7.51	50.5	
		Jar test 1	1.0	4.5	100	30	0.03	99.39%	22.56	84.87%	6.91 to 7.56	4.0	
		Jar test 2	1.5	4.5	100	30	0.03	99.72%	19.88	86.67%	6.93 to 7.60	4.2	
76SP121	6-7-23 7:00 AM	Blank	-	-	-	-	7.00	-	113.40	-	7.72	48.0	Veolia confirm the chemical dosing of Metal Removal MR2435 and NOVUS CE7081 that current usage 1 - 1.5 ppm and 4.5 ppm respectively can reduce the mercury content more than 99% and arsenic content more than 80%.
		Jar test 1	1.5	4.5	100	30	0.02	99.71%	21.94	80.65%	7.16 to 7.54	7.10	
		Blank	-	-	-	-	15.01	-	211.90	-	7.12	70.00	
		Jar test 1	1.5	4.5	100	30	0.06	99.60%	31.54	85.12%	6.72 to 7.60	7.10	
		Blank	-	-	-	-	6.50	-	72.00	-	7.23	57.0	
76SP121	7-17-23 8:00 AM	Jar test 1	1	4.5	100	30	0.01	99.85%	11.96	83.39%	6.10 to 7.90	1.40	Veolia confirm with the jar test result, the dosage of ferric chloride can reduce from 100 ppm to 60 ppm which all of parameter shown in control target.
		Jar test 2	1	4.5	90	30	0.03	99.54%	14.45	79.93%	6.10 to 8.00	1.52	
		Jar test 3	1	4.5	80	30	0.04	99.38%	15.30	78.75%	6.20 to 8.00	2.00	
		Jar test 4	1	4.5	70	30	0.17	97.38%	17.36	75.89%	6.40 to 8.60	5.88	
		Jar test 5	1	4.5	60	30	0.43	93.38%	20.88	71.00%	6.50 to 8.00	9.5	
76SP121	7-31-23 8:00 AM	Blank	-	-	-	-	8.50	-	55.05	-	7.08	52.0	Veolia confirm the chemical dosing of Metal Removal MR2435, NOVUS CE7081 and ferric chloride that current usage 1 - 1.5 ppm, 4.5 ppm and 60 ppm respectively can reduce the mercury content more than 98% and arsenic content more than 80%.
		Jar test 1	1	4.5	60	30	0.17	98.00%	7.14	87.91%	6.70 to 7.24	7.10	
		Blank	-	-	-	-	10.20	-	102.30	-	7.01	97.0	
		Jar test 1	1	4.5	50	30	0.26	97.45%	24.11	76.43%	6.70 to 7.28	8.1	
		Jar test 2	1	4.5	40	30	0.38	96.27%	24.92	75.64%	6.70 to 7.30	21.3	
76SP121	8-1-23 7:00 AM	Jar test 3	1	4.5	30	30	0.49	95.20%	36.69	64.13%	6.84 to 7.29	32.0	Veolia confirm with the jar test result, the dosage of ferric chloride can use at 30,40 and 50 ppm which all of parameter shown in control target. Veolia recommend to use the dosage of ferric chloride at 50 ppm due to we don't want to decrease the reliability when the IAF inlet flow swings.
		Jar test 4	1	4.5	20	30	0.81	92.06%	38.57	62.30%	6.86 to 7.20	69.2	
		Jar test 5	1	4.5	10	30	1.13	88.92%	49.00	52.10%	6.97 to 7.35	71.0	
		Blank	-	-	-	-	11.00	-	154.10	-	7.48	143.0	
		Jar test 1	1	4.5	50	30	0.17	98.45%	30.23	80.38%	7.21 to 7.67	7.9	
76SP121	9-27-23 8:00 AM	Blank	-	-	-	-	6.03	-	178.00	-	7.22	51.0	Veolia confirm the chemical dosing of Metal Removal MR2435, NOVUS CE7081 and ferric chloride that current usage 1 - 1.5 ppm, 4.5 ppm and 50 ppm respectively can reduce the mercury content more than 98% and arsenic content more than 80%.
		Jar test 1	1	4.5	30	30	0.04	99.64%	24.09	84.37%	7.01 to 7.42	7.4	
		Blank	-	-	-	-	82.00	-	92.60	-	6.86	70.0	
		Jar test 1	1	4.5	50	30	0.78	99.05%	31.54	65.94%	6.72 to 7.60	7.1	
		Blank	-	-	-	-	32.34	-	127.90	-	7.34	225.0	
76SP121	11-8-23 8:00 AM	Jar test 1	1	4.5	50	30	0.23	99.25%	15.27	89.64%	7.00 to 7.19	13.0	Veolia confirm the chemical dosing of Metal Removal MR2435, NOVUS CE7081 and ferric chloride that current usage 1 - 1.5 ppm, 4.5 ppm and 50 ppm respectively can reduce the mercury content more than 98% and arsenic content more than 80%.
		Blank	-	-	-	-	9.00	-	71.83	-	7.20	46.0	
		Jar test 1	1	4.5	50	30	0.07	99.22%	13.11	81.75%	6.89 to 7.04	3.5	
		Blank	-	-	-	-	8.50	-	73.11	-	7.23	70.0	
		Jar test 1	1	4.5	50	30	0.12	98.59%	25.15	65.60%	6.98 to 7.26	5.0	

ภาคผนวก ข.26

เอกสารขึ้นทะเบียนผู้ควบคุมระบบบำบัดมลพิษ

ที่ อก ๐๓๑๗/๑๓๒๕๕



กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ เขตราชเทวี
กรุงเทพฯ ๑๐๕๐๐

๒๕ พฤศจิกายน ๒๕๖๓

เรื่อง หนังสือรับแจ้งการมีบุคลากรด้านสิ่งแวดล้อมประจำโรงงาน

เรียน ผู้รับใบอนุญาตประกอบกิจการโรงงาน บริษัท สตาร์ ปิโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน)

อ้างถึง คำขอเลขที่ ๑๓๖๖ ลงรับวันที่ ๑๓ พฤศจิกายน ๒๕๖๓

ตามคำขอที่อ้างถึง ท่านแจ้งการเพิ่มเติมบุคลากรด้านสิ่งแวดล้อมประจำโรงงาน ของ บริษัท สตาร์ ปิโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน) ทะเบียนผู้ประกอบการอุตสาหกรรมเลขที่ น.๔๔-๑/๒๕๓๗-กฏนพ. ประกอบกิจการโรงกลั่นปิโตรเลียม และผลิตภัณฑ์ปิโตรเคมี ตั้งอยู่ ณ เลขที่ ๑ นิคมอุตสาหกรรมมาบตาพุด ถนนไอ-สามบี ตำบลมาบตาพุด อำเภอเมืองระยอง จังหวัดระยอง โทรศัพท์ ๐ ๓๘๖๔ ๙๐๐๐

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว รับแจ้งการเพิ่มเติมบุคลากรด้านสิ่งแวดล้อม ประจำโรงงาน และให้ท่านยื่นคำขอแจ้งการมีบุคลากรด้านสิ่งแวดล้อมประจำโรงงานครั้งต่อไป ภายในวันที่ ๒๘ สิงหาคม ๒๕๖๖ โดยมีบุคลากรด้านสิ่งแวดล้อมประจำโรงงาน ดังนี้

ผู้จัดการสิ่งแวดล้อม					
ลำดับ	ผู้ควบคุมระบบบำบัด	เลขทะเบียน	มลพิษน้ำ	มลพิษอากาศ	มลพิษกากอุตสาหกรรม
			✓	✓	✓
			✓	✓	✓
ลำดับ	ผู้ปฏิบัติงานประจำระบบบำบัด		มลพิษน้ำ	มลพิษอากาศ	มลพิษกากอุตสาหกรรม
๑				✓	
๒				✓	
๓			✓		
๔			✓		
๕			✓		
๖					✓
๗			✓		
๘				✓	
๙				✓	

ลำดับ ๑๐...

ลำดับ	ผู้ปฏิบัติงานประจำระบบบำบัด	มลพิษน้ำ	มลพิษอากาศ	มลพิษกากอุตสาหกรรม
๑๐			✓	
๑๑		✓		
๑๒		✓		
๑๓			✓	
๑๔			✓	
๑๕			✓	
๑๖		✓		
๑๗		✓		
๑๘		✓		

หมายเหตุ ๑. การแจ้งการมี/ยกเลิก/เพิ่มเติม/เปลี่ยนแปลง บุคลากรด้านสิ่งแวดล้อมประจำโรงงาน ต้องส่งหนังสือฉบับนี้ด้วย
๒. ยกเลิกหนังสือรับแจ้งการมีบุคลากรด้านสิ่งแวดล้อมประจำโรงงาน ที่ อก ๐๓๑๗/๑๑๑๑๓ ลงวันที่ ๒ ตุลาคม ๒๕๖๓

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ



(นายภัทรพล ลิ้มภักดี)

ผู้อำนวยการกองส่งเสริมเทคโนโลยีสิ่งแวดล้อมโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองส่งเสริมเทคโนโลยีสิ่งแวดล้อมโรงงาน
กลุ่มกำกับบุคลากรด้านสิ่งแวดล้อมประจำโรงงาน
โทร. ๐ ๒๒๐๒ ๓๔๖๑ โทรสาร ๐ ๒๒๒ ๕๑๗๐
<http://www.dvw.go.th>

ภาคผนวก ข.27

การจัดการกากของเสีย

**สรุปปริมาณกากของเสีย
ระหว่างเดือนกรกฎาคม ถึงธันวาคม พ.ศ.2566**

สรุปชนิด ปริมาณ วิธีการกำจัด และบริษัทผู้รับกำจัดกากของเสีย ช่วงกรกฎาคม - ธันวาคม ประจำปี 2023

Garbage	Jul	Aug	Sep	Oct	Nov	Dec	Total		
Truck (Round)	21	21	23	21	20	21			
Garbage (SG 0.260) (T)	43.68	43.68	47.84	43.68	41.6	43.68	264.16	MTP Municipality Sanitary landfill	MTP Municipality

สรุปชนิด ปริมาณ วิธีการกำจัด และบริษัทผู้รับกำจัดกากของเสีย ช่วงกรกฎาคม - ธันวาคม ประจำปี 2023

Waste Summary : Non-Hazardous

Type (HZ/Non-HZ)	Non-HZ
Type (Routine/Non-Routine)	(Multiple Items)

Sum of SPRC weight (tonnes)	Column Labels						Grand Total	Disposal method	Waste Processor
Row Labels	Jul	Aug	Sep	Oct	Nov	Dec			
Sulfur Waste					3.7		3.7	ฝังกลบตามหลักสุขาภิบาล เฉพาะของเสียไม่อันตรายเท่านั้น	BWG
Air Filter Form Gas Turbine					2.1	1.4	3.5	ฝังกลบตามหลักสุขาภิบาล เฉพาะของเสียไม่อันตรายเท่านั้น	BWG
Grand Total					5.8	1.4	7.2		

Waste Summary : Non-Hazardous - Scrap

Type (Routine/Non-Routine)	Scrap-Routine
Type (HZ/Non-HZ)	Non-HZ

Sum of SPRC weight (tonnes)	Column Labels						Grand Total	Disposal method	Waste Processor
Row Labels	Jul	Aug	Sep	Oct	Nov	Dec			
Metal Scrap			41.71		23.56	8.83	74.1	จำหน่ายให้กับบริษัทรีไซเคิลในเพื่อการรีไซเคิล	3K Recycle
Wooden pallet			36		3.4		39.4	จำหน่ายให้กับบริษัทรีไซเคิลในเพื่อการรีไซเคิล	3K Recycle
Plastic super bag-เศษพลาสติก			2.24		0.89	0.89	4.02	จำหน่ายให้กับบริษัทรีไซเคิลในเพื่อการรีไซเคิล	3K Recycle
Empty Drums-ถังเปล่า 200L			2.14				2.14	จำหน่ายให้กับบริษัทรีไซเคิลในเพื่อการรีไซเคิล	3K Recycle
เศษไม้เก่า					1.67		1.67	จำหน่ายให้กับบริษัทรีไซเคิลในเพื่อการรีไซเคิล	3K Recycle
Grand Total			82.09		29.52	9.72	121.33		

สรุปชนิด ปริมาณ วิธีการกำจัด และบริษัทผู้รับกำจัดกากของเสีย ช่วงกรกฎาคม - ธันวาคม ประจำปี 2023

Waste Summary : Hazardous	
Type (HZ/Non-HZ)	HZ

Sum of SPRC weight (tonnes)	Column Labels									
Row Labels	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total	Disposal method	Waste Processor	
Activated carbon			4.7		4.2		8.9	ทำเชื้อเพลิงผสม / เป็นเชื้อเพลิงทดแทน	TARF / SCCC	
Asphalt				7.0			2.9	9.9 ทำเชื้อเพลิงผสม	BWG	
Coke							125.1	125.1 เป็นเชื้อเพลิงทดแทน	SCCC	
Copper slag			104.4	40.0	77.4	7.5	121.4	350.7 เป็นวัตถุดิบทดแทนในเตาเผาปูนซีเมนต์	TARF / SCCC	
Insulation		4.7	2.7	7.4	13.6	5.5		34.0 เป็นวัตถุดิบทดแทนในเตาเผาปูนซีเมนต์	SCCC	
Oily sludge		24.1	273.2	344.0	924.9	610.6	129.8	2,306.6 เป็นเชื้อเพลิงทดแทน / ทำเชื้อเพลิงผสม	TARF / SCCC / WMS	
spent catalyst				10.0		3.8		13.8 เป็นวัตถุดิบทดแทนในเตาเผาปูนซีเมนต์	TARF / SCCC	
spent catalyst (Reclamation)			599.1	12.0	2.1			613.2 รวบรวมและส่งออกนอกประเทศ	PLUS Exploration	
Empty Contaminated Lab Bottle				2.2		1.0		3.1 ฝังกลบอย่างปลอดภัย เมื่อทำการปรับเสถียรหรือทำให้เป็นก้อนแข็งแล้ว	BWG	
Contaminated Container		5.4		7.2		4.9	2.8	20.3 นำกลับมาใช้ประโยชน์อีกด้วยวิธีอื่นๆ	WMS	
Dry Basin Sludge			37.5	29.0	27.2	27.8		121.5 เป็นวัตถุดิบทดแทนในเตาเผาปูนซีเมนต์	TARF / SCCC	
Oily sand			83.3			5.2	73.6	162.1 เป็นวัตถุดิบทดแทนในเตาเผาปูนซีเมนต์	TARF / SCCC	
Electronic waste						0.3		0.3 นำกลับมาใช้ประโยชน์อีกด้วยวิธีอื่นๆ	WMS	
Industrial Oily Debris			15.4	2.8	8.6	2.5		29.3 ทำเชื้อเพลิงผสม	TARF	
Waste oily Sludge		89.8	80.5	67.5			87.6	325.3 ทำเชื้อเพลิงผสม	BWG	
Oily Tank Cleaning		693.3	54.2					747.5 ทำเชื้อเพลิงผสม / เผาทำลายร่วมในเตาเผาปูนซีเมนต์	TARF / SCCC / SCleco	
Fluorescent Lamp						2.5		2.5 นำกลับมาใช้ประโยชน์อีกด้วยวิธีอื่นๆ	WMS	
Expired Chemicals							10.8	10.8 ทำเชื้อเพลิงผสม	BWG	
Spent RFCCU Catalyst		265.2	177.4	167.7	27.4	61.6	178.3	877.6 เป็นวัตถุดิบทดแทนในเตาเผาปูนซีเมนต์	TARF / SCCC	
Grand Total	1,082.5	1,432.2	696.7	1,085.4	733.1	732.3	5,762.3			

**หนังสือแจ้งผลการพิจารณาการขออนุญาต
ให้นำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้วออกนอกบริเวณโรงงาน**



**หนังสือแจ้งผลการพิจารณา
การขออนุญาตให้นำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วออกนอกบริเวณโรงงาน
กรมโรงงานอุตสาหกรรม**

เลขที่ อก.6501-13126
หนังสือฉบับนี้ออกให้เพื่อแจ้งผลการพิจารณาของ
บริษัท สตาร์ ปีโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน)
ทะเบียนโรงงานเลขที่ [REDACTED]
โดยมีรายละเอียดผลการพิจารณาดังนี้

ลำดับที่	รหัสวัสดุ ที่ไม่ใช่แล้ว	ชื่อวัสดุที่ไม่ใช่แล้ว	ปริมาณ (ตัน)	วิธีการ กำจัด	ทะเบียนโรงงาน ผู้รับดำเนินการ	ผลการพิจารณา	เหตุผล
1	05 01 06	oily sludge	500	041	[REDACTED]	อนุญาต	
2	05 01 06	oily sludge	500	041		อนุญาต	
			500	042		อนุญาต	
3	15 02 02	Industrial Oily Debris	100	042		อนุญาต	
4	15 02 02	Activated Carbon	100	042		อนุญาต	
5	15 02 02	Activated carbon	50	041		อนุญาต	
6	16 07 08	Oily tank cleaning	200	042		อนุญาต	
7	16 07 08	Oily Sludge	2000	042		อนุญาต	

รายการที่ได้รับอนุญาตมีผลบังคับใช้ตั้งแต่วันที่ 17 ตุลาคม 2565 ถึงวันที่ 16 ตุลาคม 2566

ออกให้ ณ วันที่ 8 กันยายน 2565

โดยกรมโรงงานอุตสาหกรรม

หนังสือแจ้งผลการพิจารณาฉบับนี้อนุญาตโดยใช้ระบบอิเล็กทรอนิกส์



**บันทึกการเปลี่ยนแปลง แก้ไข และยกเลิก รายละเอียดในหนังสือแจ้งผลการพิจารณา
การขออนุญาตให้นำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วออกนอกบริเวณโรงงาน**

เลขที่ อก.6501-13126
ของ บริษัท สตาร์ ปีโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน)
ทะเบียนโรงงานเลขที่ [REDACTED]

เลขรับที่	วัน/เดือน/ ปี	สาระสำคัญของการเปลี่ยนแปลงในหนังสือแจ้งผลการพิจารณา	ผลการ พิจารณา	เหตุผล
53807/2565	27/9/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 08 04 Spent RFCCU Catalyst(Non) โดยมีผู้รับดำเนินการคือ 3-101-2/44สน ปริมาณ 2000 ตัน วิธีการกำจัด 044	อนุญาต	
53807/2565	27/9/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 08 04 Spent RFCCU Catalyst(Non) โดยมีผู้รับดำเนินการคือ 3-106-71/53สน ปริมาณ 500 ตัน วิธีการกำจัด 044	อนุญาต	
53234/2565	29/9/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 15 02 02 oily sand โดยมีผู้รับดำเนินการคือ 3-106-71/53สน ปริมาณ 200 ตัน วิธีการกำจัด 044	ไม่อนุญาต	04
53234/2565	29/9/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 15 02 02 Oily Sand โดยมีผู้รับดำเนินการคือ 3-101-3/44สน ปริมาณ 500 ตัน วิธีการกำจัด 044	อนุญาต	
53234/2565	29/9/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 15 02 02 Oily Sand โดยมีผู้รับดำเนินการคือ 3-101-2/44สน ปริมาณ 500 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 08 07 Spent Catalyst โดยมีผู้รับดำเนินการคือ 3-106-71/53สน ปริมาณ 100 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 08 07 Spent Catalyst โดยมีผู้รับดำเนินการคือ 3-101-3/44สน ปริมาณ 300 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 12 01 16 Copper slag โดยมีผู้รับดำเนินการคือ 3-101-3/44สน ปริมาณ 800 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 12 01 16 Copper slag โดยมีผู้รับดำเนินการคือ 3-106-71/53สน ปริมาณ 500 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 07 01 10 Coke โดยมีผู้รับดำเนินการคือ 3-101-3/44สน ปริมาณ 100 ตัน วิธีการกำจัด 041	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 17 06 03 Insulation โดยมีผู้รับดำเนินการคือ 3-101-3/44สน ปริมาณ 100 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 12 01 16 Copper slag โดยมีผู้รับดำเนินการคือ 3-101-2/44สน ปริมาณ 500 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 08 07 Spent Catalyst โดยมีผู้รับดำเนินการคือ 3-101-2/44สน ปริมาณ 300 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 05 01 09 Dry Basin Sludge โดยมีผู้รับดำเนินการคือ 3-101-2/44สน ปริมาณ 500 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 05 01 09 Dry Basin Sludge โดยมีผู้รับดำเนินการคือ 3-106-71/53สน ปริมาณ 500 ตัน วิธีการกำจัด 044	อนุญาต	
54351/2565	7/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 05 01 09 Dry Basin Sludge โดยมีผู้รับดำเนินการคือ 3-101-3/44สน ปริมาณ 500 ตัน วิธีการกำจัด 076	อนุญาต	
61712/2565	21/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 17 02 03 Rubber hose โดยมีผู้รับดำเนินการคือ 3-101-2/40สน ปริมาณ 20 ตัน วิธีการกำจัด 071	อนุญาต	
61722/2565	21/10/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 05 01 06 Waste oily Sludge โดยมีผู้รับดำเนินการคือ 3-106-8/49สน ปริมาณ 500 ตัน วิธีการกำจัด 042	อนุญาต	
63134/2565	1/11/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 15 02 02 Oily Sand โดยมีผู้รับดำเนินการคือ 3-106-71/53สน ปริมาณ 200 ตัน วิธีการกำจัด 044	อนุญาต	
63084/2565	4/11/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 15 02 03 Air Filter Form Gas Turbine โดยมีผู้รับดำเนินการคือ 3-101-2/40สน ปริมาณ 30 ตัน วิธีการกำจัด 071	อนุญาต	
63090/2565	6/11/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 15 02 03 RO Membrance โดยมีผู้รับดำเนินการคือ 3-101-2/40สน ปริมาณ 30 ตัน วิธีการกำจัด 071	อนุญาต	
63090/2565	6/11/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 05 01 16 Sulfur Waste โดยมีผู้รับดำเนินการคือ 3-101-2/40สน ปริมาณ 100 ตัน วิธีการกำจัด 071	อนุญาต	
61923/2565	8/11/65	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 15 01 10 Contaminated Container โดยมีผู้รับดำเนินการคือ น.105-1/2545-ศูนย์. ปริมาณ 100 ตัน วิธีการกำจัด 049	อนุญาต	

[illegible]

วิธีการกำจัด

- 011 คัดแยกประเภทเพื่อจำหน่ายต่อ
- 021 กักเก็บในภาชนะบรรจุ
- 031 เป็นวัตถุอันตราย
- 032 ส่งกลับผู้ขายเพื่อกำจัด
- 033 ส่งกลับผู้ขายเพื่อนำกลับไปบรรจุใหม่หรือใช้ซ้ำ
- 039 นำกลับมาใช้ซ้ำด้วยวิธีอื่นๆ
- 041 เป็นเชื้อเพลิงทดแทน
- 042 ทำเชื้อเพลิงผสม
- 043 เติมน้ำมันเพื่อใช้งาน
- 044 เป็นวัตถุอันตรายในตามหาปูนซีเมนต์
- 049 นำกลับมาใช้ประโยชน์ด้วยวิธีอื่นๆ
- 051 เข้ากระบวนการนำตัวทำละลายกลับมาใหม่
- 052 เข้ากระบวนการนำโลหะกลับมาใหม่
- 053 เข้ากระบวนการคืนสภาพกรด/ด่าง
- 054 เข้ากระบวนการคืนสภาพตัวเร่งปฏิกิริยา
- 059 นำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้วอื่นๆกลับคืนมาใหม่
- 061 บำบัดด้วยวิธีชีวภาพ
- 062 บำบัดด้วยวิธีทางเคมี
- 063 บำบัดด้วยวิธีทางกายภาพ

- 064 บำบัดด้วยวิธีทางเคมีและฟิสิกส์
- 065 บำบัดน้ำเสียด้วยวิธีทางเคมีกายภาพ
- 066 เข้ระบบบำบัดน้ำเสียรวม
- 067 ปรับเสถียรด้วยวิธีทางเคมี
- 068 ปรับเสถียร/ตรึงทางเคมีโดยใช้เซเมนต์หรือวัสดุ pozzolanic
- 069 วิธีบำบัดอื่นๆ เพื่อลดค่าความเป็นอันตราย
- 071 สกัดกลับตามหลักสุขาภิบาล เฉพาะของเสียไม่อันตรายเท่านั้น
- 072 สกัดกลับอย่างปลอดภัย
- 073 สกัดกลับอย่างปลอดภัย เมื่อทำการปรับเสถียรหรือทำให้เป็นก้อนแข็งแล้ว
- 074 เติมน้ำมันตามเฉพาะทั่วไป
- 075 เติมน้ำมันตามเฉพาะสำหรับของเสียอันตราย
- 076 เติมน้ำมันร่วมในตามหาปูนซีเมนต์
- 077 อัดฉีดลงบ่อ ใต้ดิน หรือชั้นดินใต้ทะเล แบนเอกสารอนุญาตจากหน่วยงานอื่น
- 079 กำจัดด้วยวิธีอื่นๆ
- 081 รวบรวมและส่งออกนอกประเทศ
- 082 ถมทะเลหรือที่ลุ่ม เฉพาะของเสียไม่อันตรายเท่านั้น
- 083 หมักทำปุ๋ยหรือเป็นสารปรับปรุงคุณภาพดิน เฉพาะของเสียไม่อันตรายเท่านั้น
- 084 ทำอาหารสัตว์ เฉพาะของเสียไม่อันตรายเท่านั้น

เหตุผลที่ไม่อนุญาต

- 01 ผู้รับดำเนินการไม่ได้รับอนุญาตให้ บำบัด/กำจัด/นำกลับไปใช้ประโยชน์ใหม่
- 02 วิธีการบำบัด/กำจัด/นำกลับไปใช้ประโยชน์ใหม่ ไม่เหมาะสม
- 03 ผู้รับดำเนินการได้รับคำสั่งปรับปรุงตามมาตรา 37 หรือหยุดประกอบกิจการตามมาตรา 39 ตามพระราชบัญญัติโรงงาน
- 04 ผู้รับดำเนินการไม่ยินยอมรับบำบัด/กำจัด/นำกลับไปใช้ประโยชน์ใหม่
- 05 ไม่สามารถยื่นขออนุญาตฯ ผ่านสื่ออิเล็กทรอนิกส์ได้
- 06 ผู้ให้บริการยังไม่ได้แจ้งประกอบกิจการโรงงาน หรือไม่ได้แจ้งประกอบในส่วนขยาย
- 07 ไม่เข้าข่ายต้องขออนุญาตตามประกาศกระทรวงอุตสาหกรรม เรื่องการกำจัดสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว พ.ศ. 2548

เหตุผลกรณีอื่นๆ

- 99 อื่นๆ ระบุ...ต้องไม่ปะปนหรือปนเปื้อนสารไฮโดรคาร์บอน หรือสารอันตราย...

เหตุผลที่ไม่สามารถพิจารณาได้ เนื่องจากขาดเอกสาร หรือเอกสารไม่

สมบูรณ์ ดังนี้

- 11 สำเนาใบอนุญาตประกอบกิจการโรงงานของผู้รับดำเนินการ และหรือผู้ก่อกำเนิควัสดุที่ไม่ใช้แล้ว
- 12 สำเนาหนังสือรับรองจดทะเบียนนิติบุคคลของผู้รับดำเนินการ และหรือผู้ก่อกำเนิควัสดุที่ไม่ใช้แล้ว
- 13 สัญญาหรือหนังสือยินยอมการรับบริการระหว่างผู้รับดำเนินการและผู้ก่อกำเนิควัสดุที่ไม่ใช้แล้ว
- 14 หนังสือการประกันความรับผิด (Liability) ระหว่างผู้รับดำเนินการและผู้ก่อกำเนิควัสดุที่ไม่ใช้แล้ว
- 15 หนังสือมอบอำนาจให้ผู้หนึ่งผู้ใดกระทำการใดๆ แทนกรรมการผู้มีอำนาจ พร้อมติดอากรแสตมป์ของผู้รับดำเนินการ และหรือ ผู้ก่อกำเนิควัสดุที่ไม่ใช้แล้ว
- 16 ผลวิเคราะห์ค่าความเข้มข้นทั้งหมดของสิ่งเจือปน (total concentration : mg/kg)
- 17 ผลวิเคราะห์ด้วยวิธีการสกัดสาร (waste extraction test : mg/l)
- 18 รายละเอียดกระบวนการผลิตพร้อมแสดงจุดที่เกิดของเสีย
- 19 รายละเอียดกระบวนการนำของเสียมากำจัด/บำบัด/นำกลับมาใช้ประโยชน์ใหม่
- 20 สำเนาใบอนุญาตส่งออกวัตถุอันตราย (วอ.6)
- 21 หนังสือรับรองจากกรมวิชาการเกษตร ในการทำปุ๋ยหรือสารปรับปรุงคุณภาพดิน
- 22 รหัสของสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้วไม่ถูกต้อง
- 23 รหัสของวิธีการกำจัดไม่ถูกต้อง
- 24 การลงนามของกรรมการผู้มีอำนาจในคำขอ/สัญญาทอ.1 ไม่ครบถ้วนตามเงื่อนไขในหนังสือรับรองการจดทะเบียนนิติบุคคล
- 25 เอกสารข้อมูลความปลอดภัย

หมายเหตุ

- 1. กรณีไม่อนุญาต หากท่านไม่เห็นด้วย สามารถแจ้งเป็นหนังสือพร้อมเหตุผลไปยังอธิบดีกรมโรงงานอุตสาหกรรมภายใน 15 วัน นับตั้งแต่วันที่ได้รับแจ้งคำสั่งทางการปกครองนี้
- 2. หากท่านจงใจฝ่าฝืนนำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้วออกนอกบริเวณโรงงานโดยไม่ได้รับอนุญาต ถือเป็นความผิดตามมาตรา 45 แห่งพระราชบัญญัติโรงงาน พ.ศ.2535 ต้องระวางโทษปรับไม่เกิน 2 แสนบาท

การขออนุญาตให้นำสิ่งปฏิกูลที่ไม่ใช้แล้วออกนอกบริเวณโรงงาน (สก.2)
17 ตุลาคม 2566 - 16 ตุลาคม 2567



หนังสือแจ้งผลการพิจารณา
การขออนุญาตให้นำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้วออกนอกบริเวณโรงงาน
กรมโรงงานอุตสาหกรรม
เลขที่ อก.6601-12969

หนังสือฉบับนี้ออกให้เพื่อแจ้งผลการพิจารณาของ
บริษัท สตาโร ปีโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน)
ทะเบียนโรงงานเลขที่ [REDACTED]

โดยมีรายละเอียดผลการพิจารณาดังนี้

ลำดับที่	รหัสวัสดุที่ไม่ใช้แล้ว	ชื่อวัสดุที่ไม่ใช้แล้ว	ปริมาณ (ตัน)	วิธีการกำจัด	ทะเบียนโรงงานผู้รับดำเนินการ	ผลการพิจารณา	เหตุผล
1	16 07 08	Oily Sludge	2000	042	[REDACTED]	อนุญาต	
2	05 01 06	Waste oily Sludge	1000	042		อนุญาต	

รายการที่ได้รับอนุญาตมีผลบังคับใช้ตั้งแต่วันที่ 17 ตุลาคม 2566 ถึงวันที่ 16 ตุลาคม 2567

ออกให้ ณ วันที่ 21 สิงหาคม 2566

โดยกรมโรงงานอุตสาหกรรม

หนังสือแจ้งผลการพิจารณาฉบับนี้อินิจฉัยโดยใช้ระบบอิเล็กทรอนิกส์



ของ บริษัท สตาร์ ปิโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน)
ทะเบียนโรงงานเลขที่ [REDACTED]

[illegible][illegible]

65916/2566	3/11/66	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 08 07 Spent Catalyst โดยมีผู้รับดำเนินการคือ 3-101-2/44สบ ปริมาณ 300 ตัน วิธีการกำจัด 044	อนุญาต	
65916/2566	3/11/66	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 05 08 Asphalt โดยมีผู้รับดำเนินการคือ 3-106-8/49สบ ปริมาณ 50 ตัน วิธีการกำจัด 042	เอกสารไม่เพียงพอ	22,99(1)
65916/2566	3/11/66	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 11 05 Refractory Brick โดยมีผู้รับดำเนินการคือ 3-101-3/44สบ ปริมาณ 200 ตัน วิธีการกำจัด 044	อนุญาต	
65916/2566	3/11/66	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 16 11 05 Refractory Brick โดยมีผู้รับดำเนินการคือ 3-106-71/53สบ ปริมาณ 200 ตัน วิธีการกำจัด 044	อนุญาต	
65887/2566	3/11/66	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 05 01 16 Sulfur Waste โดยมีผู้รับดำเนินการคือ ๑3-101-2/40สบ ปริมาณ 200 ตัน วิธีการกำจัด 071	อนุญาต	
70486/2566	3/11/66	ขอเพิ่มรายการวัสดุที่ไม่ใช่แล้ว รหัสวัสดุที่ไม่ใช่แล้ว 07 01 10 Coke โดยมีผู้รับดำเนินการคือ 3-101-3/44สบ ปริมาณ 250 ตัน วิธีการกำจัด 041	เอกสารไม่เพียงพอ	22,99

วิธีการกำจัด

- 011 คัดแยกประเภทเพื่อจำหน่ายต่อ

021 ถักเก็บในภาชนะบรรจุ

031 เป็นวัตถุดิบทดแทน

032 ส่งกลับผู้ขายเพื่อกำจัด

033 ส่งกลับผู้ขายเพื่อนำกลับไปบรรจุใหม่หรือใช้ซ้ำ

039 นำกลับมาใช้ซ้ำด้วยวิธีอื่นๆ

041 เป็นเชื้อเพลิงทดแทน

042 ทำเชื้อเพลิงผสม

043 เอาเพื่ออาพลังงาน

044 เป็นวัตถุดิบทดแทนในเตาเผาปูนซีเมนต์

049 นำกลับมาใช้ประโยชน์อีกด้วยวิธีอื่นๆ

051 เข้ากระบวนการนำตัวทำละลายกลับมาใหม่

052 เข้ากระบวนการนำโลหะกลับมาใหม่

053 เข้ากระบวนการคืนสภาพกรด/ด่าง

054 เข้ากระบวนการคืนสภาพตัวเร่งปฏิกิริยา

059 นำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วอื่นๆกลับคืนมาใหม่

061 บำบัดด้วยวิธีชีวภาพ

062 บำบัดด้วยวิธีทางเคมี

063 บำบัดด้วยวิธีทางกายภาพ
- 064 บำบัดด้วยวิธีทางเคมีและฟิสิกส์

065 บำบัดน้ำเสียด้วยวิธีทางเคมีกายภาพ

066 เข้าระบบบำบัดน้ำเสียรวม

067 ปรับเสถียรด้วยวิธีทางเคมี

068 ปรับเสถียร/ ครี้งทางเคมี โดยใช้ซีเมนต์หรือวัสดุ pozzolanic

069 วิธีบำบัดอื่นๆ เพื่อลดค่าความเป็นอันตราย

071 สังกถนาคตามหลักสุขาภิบาล เฉพาะของเสียไม่อันตรายเท่านั้น

072 สังกถนอย่างปลอดภัย

073 สังกถนอย่างปลอดภัย เมื่อทำการปรับเสถียรหรือทำให้เป็นก้อนแข็งแล้ว

074 เอาทำลายในเตาเผาขยะทั่วไป

075 เอาทำลายในเตาเผาเฉพาะสำหรับของเสียอันตราย

076 เอาทำลายรวมในเตาเผาปูนซีเมนต์

077 อัดฉีดลงบ่อ ใต้ดิน หรือชั้นดินได้ะละ แนนวถการสารถอนุญาตจากหน่วยงานอื่น

079 กำจัดด้วยวิธีอื่นๆ

081 รวบรวมและส่งออกนอกประเทศ

082 ถมทะเลหรือที่ลุ่ม เฉพาะของเสียไม่อันตรายเท่านั้น

083 หมักทำปุ๋ยหรือเป็นสารปรับปรุงคุณภาพดิน เฉพาะของเสียไม่อันตรายเท่านั้น

084 ทำอาหารสัตว์ เฉพาะของเสียไม่อันตรายเท่านั้น

เหตุผลการไม่อนุญาต

- 01 ผู้รับดำเนินการไม่ได้รับอนุญาตให้ บำบัด/ กำจัดนำกลับไปใช้ประโยชน์ใหม่
- 02 วิธีการบำบัด/กำจัด/นำกลับไปใช้ประโยชน์ใหม่ ไม่เหมาะสม
- 03 ผู้รับดำเนินการได้รับคำสั่งปรับปรุงตามมาตรา 37 หรือหยุดประกอบกิจการตามมาตรา 39 ตามพระราชบัญญัติโรงงาน
- 04 ผู้รับดำเนินการไม่ยินยอมรับบำบัด/กำจัด/นำกลับไปใช้ประโยชน์ใหม่
- 05 ไม่สามารถยื่นขออนุญาตฯ ผ่านสื่ออิเล็กทรอนิกส์ได้
- 06 ผู้ให้บริการยังไม่ได้แจ้งประกอบกิจการ โรงงาน หรือไม่ได้แจ้งประกอบในส่วนขยาย
- 07 ไม่เข้าข่ายต้องขออนุญาตตามประกาศกระทรวงอุตสาหกรรม เรื่องการกำจัดสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้ว พ.ศ. 2548

เหตุผลกรณีอื่นๆ

- 99 อื่นๆ ระบุ ..รหัสของเสีย 0501xx..

เหตุผลที่ไม่สามารถพิจารณาได้ เนื่องจากขาดเอกสาร หรือเอกสารไม่

สมบูรณ์ ดังนี้

- 11 สำนบาใบอนุญาตประกอบกิจการโรงงานของผู้รับดำเนินการ และหรือผู้ก่อกำเนิควัสดุที่ไม่ใช่แล้ว
- 12 สำนบาหนังสือรับรองจดทะเบียนนิติบุคคลของผู้รับดำเนินการ และหรือผู้ก่อกำเนิควัสดุที่ไม่ใช่แล้ว
- 13 สัญญาหรือหนังสือยินยอมการรับบริกระระหว่างผู้รับดำเนินการและผู้ก่อกำเนิควัสดุที่ไม่ใช่แล้ว
- 14 หนังสือการประกันความรับผิดชอบ (Liability) ระหว่างผู้รับดำเนินการและผู้ก่อกำเนิควัสดุที่ไม่ใช่แล้ว
- 15 หนังสือมอบอำนาจให้ผู้หนึ่งผู้ใดกระทำการใดๆ แทนกรรมการผู้มีอำนาจ พร้อมติดอากรแสตมป์ของผู้รับดำเนินการ และหรือผู้ก่อกำเนิควัสดุที่ไม่ใช่แล้ว
- 16 ผลวิเคราะห์ค่าความเข้มข้นทั้งหมดของสิ่งเจือปน (total concentration : mg/kg)
- 17 ผลวิเคราะห์ด้วยวิธีการสกัดสาร (waste extraction test : mg/l)
- 18 รายละเอียดกระบวนการผลิตพร้อมแสดงจุดที่เกิดของเสีย
- 19 รายละเอียดกระบวนการนำของเสียมากำจัด/นำคืนนำกลับมาใช้ประโยชน์ใหม่
- 20 สำนบาใบอนุญาตส่งออกวัตถุอันตราย (วอ.๑)
- 21 หนังสือรับรองจากกรมวิชาการเกษตรในการทำปุ๋ยหรือสารปรับปรุงคุณภาพดิน
- 22 รหัสของสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วไม่ถูกต้อง
- 23 รหัสของวิธีการกำจัดไม่ถูกต้อง
- 24 การลงนามของกรรมการผู้มีอำนาจในคำขอ/สัญญา/กอ.1 ไม่ครบถ้วนตามเงื่อนไขในหนังสือรับรองการจดทะเบียนนิติบุคคล
- 25 เอกสารขั้มมูลความปลอดภัย

หมายเหตุ

1. กรณีไม่อนุญาต หากท่านไม่เห็นด้วย สามารถแจ้งเป็นหนังสือพร้อมเหตุผลไปยังอธิบดีกรมโรงงานอุตสาหกรรมภายใน 15 วัน นับตั้งแต่วันที่ได้รับแจ้งคำสั่งทางการปกครองนี้

2. หากท่านจงใจใส่ดินน้ำแข็งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วออกนอกบริเวณโรงงานโดยไม่ได้รับอนุญาต ถือเป็นความผิด
ตามมาตรา 45 แห่งพระราชบัญญัติโรงงาน พ.ศ.2535 ต้องระวางโทษปรับไม่เกิน 2 แสนบาท



การขออนุญาตให้นำสิ่งปฏิกูลที่ไม่ใช่แล้วออกนอกบริเวณโรงงาน (กบ.1)
1 มกราคม 2567 - 31 ธันวาคม 2567

หนังสือแจ้งผลการพิจารณา
การขออนุญาตให้นำสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วออกนอกบริเวณโรงงาน
กรมโรงงานอุตสาหกรรม

เลขที่ 2567-O-13055

หนังสือฉบับนี้ออกให้เพื่อแจ้งผลการพิจารณาของ
บริษัท สตาร์ ปิโตรเลียม รีไฟน์นิ่ง จำกัด (มหาชน)

ทะเบียนโรงงานเลขที่ [REDACTED]

โดยมีรายละเอียดผลการพิจารณาดังนี้

ลำดับที่	รหัสสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้ว	ชื่อสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้ว	ปริมาณ(ตัน)	รหัสการจัดการ	ผู้รับผิดชอบการ	เหตุผล
1	050106	oily sludge	416.667	[REDACTED]	[REDACTED]	[REDACTED]
2	050106	oily sludge	416.667			
3	050106	Waste oily Sludge	833.333			
4	050106	oily sludge	534.958			
5	050109	Dry Basin Sludge	416.667			
6	050109	Dry Basin Sludge	416.667			
7	050109	Dry Basin Sludge	416.667			
8	050116	Sulfur Waste	166.667			
9	120116	Copper slag	416.667			
10	120116	Copper slag	666.667			
11	120116	Copper slag	416.667			
12	150110	Empty Contaminated Lab Bottle	83.333			
13	150110	Contaminated Container	83.333			
14	150202	Oily Sand	416.667			
15	150202	Activated carbon	83.333			
16	150202	Oily Sand	416.667			
17	150202	Industrial Oily Debris / Activated Carbon	247.142			
18	150202	Oily Sand	166.667			
19	150203	Air Filter Form Gas Turbine	41.667			
20	160213	Electronic waste	83.333			
21	160215	Fluorescent Lamp	16.667			
22	160708	Oily Sludge	1,482.733			
23	160708	Oily Tank Cleaning	833.333			
24	160708	Oily Tank Cleaning	166.667			
25	160708	Oily tank cleaning	83.333			
26	160802	Spent RFCCU Catalyst	833.333			
27	160802	Spent RFCCU Catalyst	1,668.667			

28	160802	Spent RFCCU Catalyst	416.667		
29	160807	Spent Catalyst	250.000		
30	160807	Spent Catalyst	250.000		
31	160807	Spent Catalyst	83.333		
32	161105	Refractory Brick	166.667		
33	161105	Refractory Brick	166.667		
34	170203	Rubber hose	16.667		
35	170603	Insulation	80.342		
36	190999	RO Membrane	41.667		
37	140603	Expired Chemicals	60.000		
38	160305	Asphalt	60.000		
39	191212	Rubber hose	200.000		
40	050118	Coke	240.000		
41	130703	น้ำมันปนเชื้อน (Mixed Fuel waste)	1,800.000		

รายการที่ได้รับอนุญาตมีผลบังคับใช้ตั้งแต่วันที่ 1 มกราคม 2567 ถึงวันที่ 31 ธันวาคม 2567

ออกให้ ณ วันที่ 1 มกราคม 2567

โดยกรมโรงงานอุตสาหกรรม

หนังสือแจ้งผลการพิจารณาขออนุญาตโดยใช้ระบบอิเล็กทรอนิกส์



รหัสการจัดการสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้ว

- 011 คัดแยกประเภทเพื่อจำหน่ายต่อ (sorting)

021 เก็บเก็บในภาชนะบรรจุ (storage) ให้ระบุลักษณะการกักเก็บและภาชนะบรรจุ

031 นำกลับมาใช้ซ้ำ (reuse) ตามวัตถุประสงค์เดิมของวัสดุที่ไม่ใช่แล้วนั้น ๆ

032 ส่งกลับผู้ขายเพื่อกำจัด (return to original producer for disposal) ให้ระบุชื่อผู้ขายที่รับคืน

033 นำบรรจุภัณฑ์กลับไปบรรจุใหม่หรือใช้ซ้ำ (reuse container; to be refilled) ให้ระบุชื่อผู้ขายที่รับคืน

039 นำกลับมาใช้ซ้ำด้วยวิธีอื่น ๆ (other reuse methods) ตามวัตถุประสงค์เดิมของวัสดุที่ไม่ใช่แล้วนั้น ๆ ให้ระบุ

041 ใช้เป็นเชื้อเพลิงทดแทน (use as fuel substitution or burn for energy recovery) โดยตรงในเตาเผา (incinerator) หรือเตาอุตสาหกรรมซีเมนต์ (cement industrial furnace)

042 ทำเชื้อเพลิงผสม (fuel blending) เพื่อนำไปใช้เป็นเชื้อเพลิงสำหรับเตาเผา (incinerator) เตาอุตสาหกรรมซีเมนต์ (cement industrial furnace) หรือหม้อไอน้ำและเตาอุตสาหกรรม (boiler and industrial furnace) ระบุปลายทาง

043 เตาเพื่อใช้เป็นพลังงาน (burn for energy recovery) เฉพาะวัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตราย สำหรับเตาไฟ (stove) หรือหม้อไอน้ำและเตาอุตสาหกรรม (boiler and industrial furnace)

044 ใช้เป็นวัตถุดิบทดแทน (use as raw material substitution) ในเตาอุตสาหกรรมซีเมนต์ (cement industrial furnace)

045 ทำวัสดุผสม (material blending) เพื่อใช้เป็นวัตถุดิบทดแทน (use as raw material substitution) ในเตาอุตสาหกรรมซีเมนต์ (cement industrial furnace) ระบุปลายทาง

046 ทำเชื้อเพลิงทดแทนจากวัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตราย สำหรับเตาอุตสาหกรรม เพื่อใช้ผลิตกระแสไฟฟ้าโดยเฉพาะ (use as fuel blending for energy recovery) ระบุปลายทาง

047 ใช้วัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตราย เพื่อใช้เป็นเชื้อเพลิงทดแทนโดยตรงในเตาเผา (incinerator) เพื่อผลิตกระแสไฟฟ้า

048 ใช้วัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตราย เพื่อใช้เป็นเชื้อเพลิงทดแทนโดยตรง ในเตาเผา (incinerator) เพื่อผลิตกระแสไฟฟ้า

049 นำกลับมาใช้ประโยชน์อีกครั้งวิธีอื่น ๆ (other recycle methods)

051 เข้ากระบวนการนำตัวทำละลายกลับมาใช้ใหม่ (solvent reclamation/regeneration)

052 เข้ากระบวนการนำโลหะกลับมาใช้ใหม่ (reclamation/regeneration of metal and metal compounds)

053 เข้ากระบวนการคืนสภาพกรด/ด่าง (acid/alkali regeneration)

054 เข้ากระบวนการคืนสภาพตัวเร่งปฏิกิริยา (catalyst regeneration)

055 เข้ากระบวนการคืนสภาพ ถ่านกัมมันต์ใช้งานแล้ว (spent activated carbon regeneration)
- 057 เข้ากระบวนการคืนสภาพทรายหลอมแบบที่ใช้งานแล้ว (spent green sand / no bake sand regeneration)

059 นำวัสดุที่ไม่ใช่แล้วอื่น ๆ กลับคืนมาใช้ใหม่ (other recovery unlisted materials) ให้ระบุ

061 ปกติด้วยวิธีชีวภาพ (biological treatment) หรือวิธีเคมีชีวภาพ (chemical biological treatment)

062 ปกติด้วยวิธีชีวภาพ (biological treatment) เพื่อใช้ทำชีวภาพหรือก๊าซไฮโดรเจนเป็นพลังงาน

063 ปกติด้วยวิธีทางเคมี (chemical treatment) หรือนำกลับด้วยวิธีทางกายภาพ (physical treatment) หรือนำกลับด้วยวิธีทางเคมีกายภาพ (physico-chemical treatment)

065 นำกลับน้ำเสียด้วยวิธีทางเคมีกายภาพ (physico-chemical treatment of wastewater)

066 เข้าระบบบำบัดน้ำเสียรวม (discharge into central wastewater treatment plant)

067 ปรับเสถียรด้วยวิธีทางเคมี (chemical stabilization)

068 ปรับเสถียรหรือตรึงทางเคมีโดยใช้ซิเมนต์หรือวัสดุ pozzolanic (chemical fixation using cementitious and/or pozzolanic material)

069 ใช้วิธีบำบัดอื่น ๆ เพื่อทำลายความเป็นพิษ (other detoxification methods) ให้ระบุ

071 ส่งกลับตามหลักสุขาภิบาล (sanitary landfill) เฉพาะสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้ว ที่ไม่เป็นของเสียอันตรายเท่านั้น

072 ส่งกลับอย่างปลอดภัย (secure landfill)

073 ส่งกลับอย่างปลอดภัย เมื่อทำการปรับเสถียรหรือทำให้เป็นก้อนแข็งแล้ว (secure landfill of stabilized and/or solidified wastes)

074 เตาทำลาย (burn for destruction) ในเตาเผาขยะชุมชน หรือเตาเผาเฉพาะสำหรับสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตรายเท่านั้น

075 เตาทำลายในเตาเผาเฉพาะสำหรับของเสียอันตราย (burn for destruction in hazardous waste incinerator)

078 เตาทำลายร่วมในเตาอุตสาหกรรมซีเมนต์ (co-incineration in cement kiln)

077 สกัดและฝังใต้ดิน หรือฉีดใต้ดิน (deep well or underground injection; sea-bed insertion)

079 กำจัดด้วยวิธีอื่น ๆ (other disposal methods) ให้ระบุ

081 รวบรวมและส่งออกนอกประเทศ (collect and export)

082 ถมทะเลหรือฟื้นฟู (land reclamation) เฉพาะวัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตรายเท่านั้น

083 หมักทำปุ๋ยหรือสารปรับปรุงคุณภาพดิน (composting or soil conditioner) เฉพาะสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตรายเท่านั้น

084 ให้อาหารสัตว์ (animal feed) เฉพาะสิ่งปฏิกูลหรือวัสดุที่ไม่ใช่แล้วที่ไม่เป็นของเสียอันตรายเท่านั้น

เอกสารแสดงการจัดการ (Manifest Form)

เลขที่อ้างอิง 1-19-1266-019661-0-N

แบบ กอ.๒

เอกสารแสดงการจัดการ (Manifest Form)

เลขที่อ้างอิง 1-19-1266-032903-0-N

แบบ กอ.๒

เอกสารแสดงการจัดการ (Manifest Form)

เอกสารแสดงการจัดการ (Manifest Form)

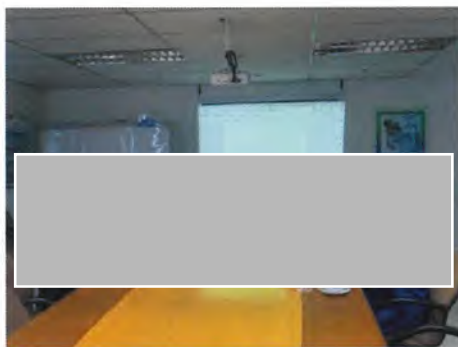
การตรวจติดตามหน่วยงานรับกำจัดกากของเสีย

ผลการตรวจวัดตามแผนการตรวจติดตามคุณภาพสิ่งแวดล้อม

การตรวจติดตาม (Audit) หน่วยงานรับกำจัดกากของเสีย ประจำปี 2566

Waste Management Siam Limited

บริษัท เวสต์ แมเนจเม้นท์ สยาม จำกัด วันที่ 14 กรกฎาคม 2566



SPRC

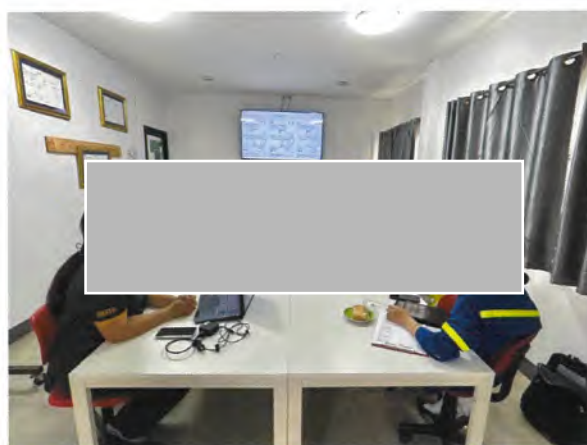
1

ผลการตรวจวัดตามแผนการตรวจติดตามคุณภาพสิ่งแวดล้อม

การตรวจติดตาม (Audit) หน่วยงานรับกำจัดกากของเสีย ประจำปี 2566

บริษัท ทีเออาร์ เอฟ จำกัด (TARF)

วันที่ 25 สิงหาคม 2566



SPRC

2

ผลการตรวจวัดตามแผนการตรวจติดตามคุณภาพสิ่งแวดล้อม

การตรวจติดตาม (Audit) หน่วยงานรับกำจัดกากของเสีย ประจำปี 2566

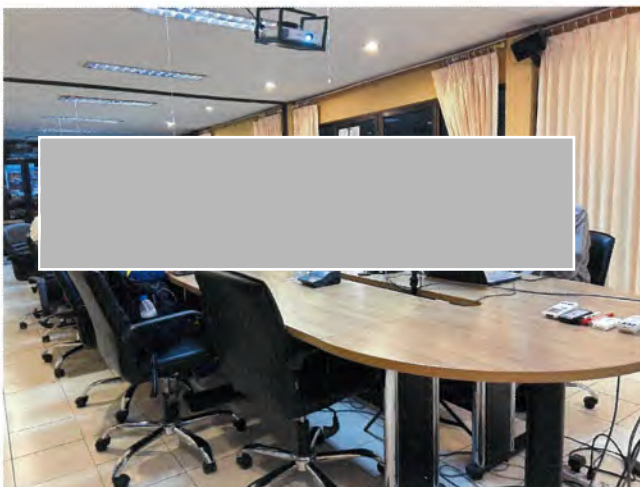
บริษัท ปูนซิเมนต์นครหลวง จำกัด (มหาชน) โรงงาน
วันที่ 25 สิงหาคม 2566



ผลการตรวจวัดตามแผนการตรวจติดตามคุณภาพสิ่งแวดล้อม

การตรวจติดตาม (Audit) หน่วยงานรับกำจัดกากของเสีย ประจำปี 2566

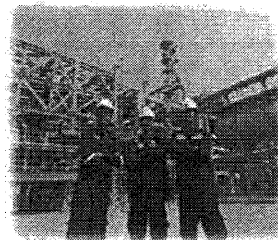
บริษัท เบตเตอร์ เวิลด์ กรีน จำกัด (มหาชน)
วันที่ 25 สิงหาคม 2566



ภาคผนวก ข.28

แผนปฏิบัติการกรณีเกิดเหตุฉุกเฉิน
และการฝึกซ้อมกรณีเกิดเหตุฉุกเฉิน

ฟื้นตอบโต้ภาวะฉุกเฉิน



SPRC

*"One family ...
fueling the
future of
Thailand"*

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1

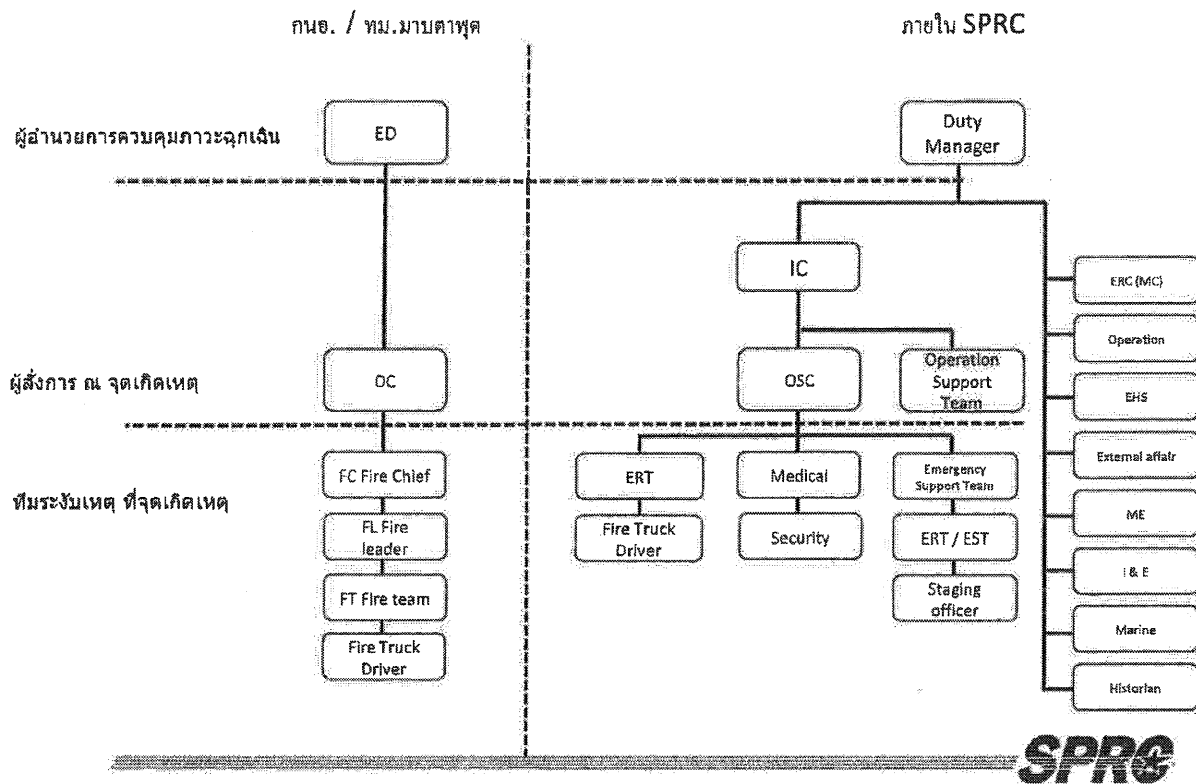
เปรียบเทียบระดับการตอบโต้ภาวะฉุกเฉิน

แผนฉุกเฉินจังหวัด ระยอง	แผนฉุกเฉินนิคม อุตสาหกรรม	แผนฉุกเฉิน SPRC	การใช้งำลังพลและทรัพยากร
เหตุฉุกเฉินระดับ 2			
เหตุฉุกเฉินระดับ 1	ภาวะฉุกเฉินระดับนิคม อุตสาหกรรม 3	ภาวะฉุกเฉินระดับ 3	- ขอสนับสนุนกำลังพลและทรัพยากร จากเทศบาลเมืองมาบตาพุด
เหตุฉุกเฉินระดับโรงงาน	ภาวะฉุกเฉินระดับนิคม อุตสาหกรรม 2	ภาวะฉุกเฉินระดับ 2	- ขอสนับสนุนกำลังพลและทรัพยากร จากกลุ่ม EMAG หรือ กนอ.
	ภาวะฉุกเฉินระดับนิคม อุตสาหกรรม 1	ภาวะฉุกเฉินระดับ 1 B	- ขอสนับสนุนทีม DUTY และพนักงาน ปฏิบัติการที่ Off Shift ของโรงงาน - ใช้ทรัพยากรของโรงงาน
		ภาวะฉุกเฉินระดับ 1 A	- พนักงานปฏิบัติการที่เข้าปฏิบัติงาน ภายในวัน-เวลาที่เกิดเหตุเท่านั้น - ใช้ทรัพยากรของโรงงาน
	เหตุผิดปกติระดับนิคม อุตสาหกรรม	เหตุผิดปกติระดับโรงงาน	

SPRC

2

โครงสร้างผังองค์กรการตอบโต้ภาวะฉุกเฉิน





Star Petroleum Refining Public Company Limited
Process Safety & QEHS Department

EHS-SP-QS-0006
Emergency Response Plan

Prepared by: _____

Reviewed and _____

Approved by: _____

Revision No.: 14 Copy No.00 Date: 7 June 2021

SPRC	Star Petroleum Refining Public Company Limited	EHS-SP-QS-0006: Emergency Response Plan
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Amendment List

Revision	Date	Page/ Section	Reason	By
0	06 Oct 08	First release	QS/1	0
1	1 Oct 09	Page Vi/ EMAG	Add IRPC in to member of Emergency Mutual Aid Group	Athit C.
		4/4.0 Emergency Response Organization Overview	Change the line of command for emergency support team to under OSC	
		6/6.0 Emergency Response Decision Procedure Appendix R	Add action of PD shift supervisor as IC on asking REB to notify PTTAR-1 FIT in case of emergency.	
		7/7.0 Actions on Emergency	Add action of REB as following: 1. Alert PTTAR-1 via hotline to alert their FIT team (Level 1) 2. Send SMS to all FIT team (level 2) to call in to support at site.	
		8/8.0 Communication Method	Add scope of communication to all SPRC personnel and contractor to cover emergency level 1 which has significant impact on operation or affect public.	
		11/9.2.1 General requirement	1. Update the name of Rayong Emergency to "Kho Kaew" 2. Add notification to the authority (IEAT Map Ta Phut and Map Ta Phut Municipality for emergency level 1 that significant affect public.	
		20/11.3	Add link of Community Evacuation Plan	
		22/11.4 Emergency Contact Points in case of neighboring company incident	Add PTTAR 1 to the company that might affect to MCB.	
		65/3.1 Bomb Threat Checklist	Add link to bomb threat checklist	
		74/9.0 Offsite Road Accidents Involving Product from SPRC	Update telephone number of SPRC TTLT Coordinator; delete PPT and Caltex Depot Manager telephone number by link to the Emergency Telephone Number instead.	
		82/ Appendix F Headcount Procedure	Add areas of building that the Office warden shall do headcount (Marine Terminal Building and Construction Building)	
		87/ Appendix I Drinking Water and Refreshment	More clarification on cash reserved for emergency situation that EA duty will be the person to coordinate with treasurer for cash.	

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SPRC	Star Petroleum Refining Public Company Limited	EHS-SP-QS-0006: Emergency Response Plan
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Distribution List

Copy No.	Controller/ Owner	Location
00	Emergency Response Coordinator (Document controller)	EDMS
01	PN EOC	Fire Station (F-115)
02	MCB EOC	MCB
03	PN CCB	CCB
04	QEHS and lab Document Control Room	R - 202
05	Emergency Response Coordinator	RE -103
06	Duty Manager	Duty Manager Brief Case
07	Operations Duty	Operations Duty Brief Case
08	External Affairs Duty	External Affairs Duty Brief Case
09	EHS Duty	EHS Duty Brief Case
10	ERC Duty	ERC Duty Brief Case
11	Marine Duty	Marine Duty Brief Case
12	Mechanical Duty	Mechanical Duty Brief Case
13	I&E Duty	I&E Duty Brief Case
14	PD Shift Supervisor	Incident Commander Brief Case
15	Tank Truck Loading Terminal	TTLT Office

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SPRC	Star Petroleum Refining Public Company Limited	EHS-SP-QS-0006: Emergency Response Plan
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Revision	Date	Page/ Section	Reason	By
		90/ Appendix N	Update Emergency Operation Center Layout	
		95	Add appendix R Mutual aid agreement between SPRC and PTTAR Refinery	
		97	Add appendix S Pier Evacuation Guideline	
		98	Add appendix T PTT group crisis and Emergency Report (form)	
2	3-May-11	10/8: Notification and Reporting	Revise the sub content of Notification and reporting by grouping the reporting to authority e.g. IEAT-MTP, MTP municipality, community (8.2) and share holder (8.3) in to one table (8.2 Notification and Reporting to Stakeholders). This change is to comply with the IEAT-MTP complex emergency response plan and Rayong Emergency Response Plan B.E.2553.	Athit C.
		11/8.2.4 Shareholder notification	Add a role of ERC duty to notify to the PTT communication center in case of emergency level 1. This updating is to comply with the PTT Group Emergency Management Plan	
		21/10.3 Neighboring Community/Company Notification	More explanation about community notification process in case of emergency can effect to the communities nearby the company by linking to Community Communication Process Guideline (EHS-WI-QS-3012).	
		31/ 5.1 Duty Manager	Re-write the specific task of Duty Manager Roles and Responsibilities by changing from Shareholders to be the Stakeholder which in line with the 8.2.4	
		36/5.3 External Affair	Define a scope of role and responsibility of External Affair Duty to cover the provision of additional resource including food and refreshment to support emergency response which can ask support and cooperate with ME/IE duty to help as well as mentioned about the list of vendor/supplier available in the contact list file	
		43/5.8 Mechanical/Instrument and Electrical Duty	More explanation of ME/I&E role and responsibility about coordinate and process request for additional resource including foods, refreshment by coordinate and process with External Affair Duty and help to mobilize the additional resources.	
3	24-Jun-12	2/Glossary	Changing the company of the following company	
		6/5.0 Emergency Response Decision	PTTAR-1 to PTTGC-6	
		22/10.4 Emergency Contact Points In case	PTTChem 1-1 to PTTGC 2;	

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Revision	Date	Page/ Section	Reason	By
		of Neighboring Company Incident	PTTChem 1-4 to PTTGC-3 PTTAR-2 to PTTGC-4	
		95-96/Appendix R Mutual Aid Agreement between SPRC and PTTAR	Changing the name of PTTAR to PTTGC6	
		12/8.2 Notification & Reporting to Stakeholder	Update the name list of Shareholder Management (PTT) Management that to be notified in case of emergency level 2,3 according PTT Organization.	
4	15-Jan-13	All 2/Glossary 9/SMS 12/8.2 Notification & Reporting to Stakeholder	Update company name from Co.,Ltd to Public Company Limited Add new EMAG member - MOC Delete SMS code N Add notification to PTT Emergency Center in case of Emergency level 1 (by ERC Duty) Add the notification and reporting form to IEAT-MTP and MTP-Port	Athit C.
		14/8.2.1	Update the notification requirement according to labor law (Update the requirement).	
		14/8.2.4	Add new notification requirement to the Office of Atomic for Peace according to the Radiation Safety law requirement	
		Appendix A/Role and Responsibilities - 35/5.2 Operation Duty	Change the location of Operation Duty from CCB to EOC	
		36/5.3 External Affair Duty	Re-write the responsibility of EA duty to be more clearly on buying additional resource include food and refreshment	
		40/5.5 EHS Duty	Add new responsibility "Call in Company Radiation Safety Officer (RSO) in case of Radiation Incident	
		43/5.8 ME&IE duty	Re-write the responsibility of ME&IE duty to be more clearly on supporting to EA Duty by mobilize the additional resource include food and refreshment Add new EMAG Member (MOC)	
		79/Appendix D Mutual Assistance 86/Appendix H Foam Supplier	Update name list of Foam Suppliers	
		97/Appendix U	Add Appendix U: Reporting form to the Labor Protection and Welfare	
		98/Appendix V	Add Appendix V: Reporting form to the IEAT-MTP (EMCC) in case of emergency	
		99/Appendix W	Add Appendix W: Reporting form the MTP-Port (in case of abnormal situation and emergency occur at Port).	
5	1-Sep-14	2/Glossary	Update the EMAG member to be in line.	Athit C.

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Revision	Date	Page/ Section	Reason	By
			with updated EMAG agreement.	
		8/ 7.0 Communication	Identify more area that need to communicate to SPRC family members via all mailboxes to cover the incident occur at adjacent companies.	
		11-12 /8.2 Notification & Reporting to stakeholder	Add the wording of periodically update required to notify to the IEAT-MTP (EMCC) according to level3 exercise recommendation. State a requirement of have to notify to the IEAT-MTP (EMCC) in case of abnormal situations resulting from emergency shutdown that required to notify to the IEAT-MTP (EMCC) within 15 minutes after aware of the Shutdown (refer to the IEAT Notification no67/B.E.2557 announce date 31 July B.E.2557)	
		17-20/10.0 Leak Response Guides Decision	Update the notification to shareholder (PTT) from the specific name list of PTT executives to the PTT Communication Center which in line with the PTT group emergency and Crisis Management Plan	
		83/Appendix D	Add new subject "Leak Response Guides Decision" to be use as the guideline of SPRC leak response according to the CVX Leak Response Protocol guide of practice	
		85/Appendix E	Update the EMAG member to be in line with updated EMAG agreement.	
		95/Appendix O	Update refinery and marine terminal assembly areas	
			Update pipe line lay out to be in line with service agreement.	
6	22-Dec-14	All pages 39-47 and 54/ Appendix A 62/Appendix B 78/Appendix C	Change SPRC logo More clearly identified the person to call in of each duty role member to support Update the alcohol level in blood to be 0mg% Update the mobile phone number of TLT coordinator	Athit C.
7	1-Sept-15	20/10.6 Leak Response Flow Chart 26/11.4 Emergency Contact Point in case of Neighboring Company Incident	Update the Leak Response Flow Chart to be reflex the current practice Change the company name from Bayer Thai to Covestro (Thailand)	Athit C.

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Revision	Date	Page/ Section	Reason	By
		44/Appendix A:5.5 EHS Duty	Add role of keep monitoring and tracking of an injured person and head count details (to update to the Duty Team members)	
		50/Appendix A7:Emergency Support Team	Add the wording of the responsibilities will be assigned by Emergency Response Coordinator	
		54/Appendix A11:Historian	Identify the roles of Historian to be the Assign Administrative Assistance or Marine Duty (If available/Not the Marine Cause) by Duty Manager	
		65/Appendix C	Update the H2S concentration at fence line from 10 ppm to 5 ppm	
		103-104/Appendix V/W	Update the IEAT and IEAT-MTP Port Abnormal and incident Notification Form to be in line with the IEAT Emergency Response Plan B.E-2557	
		106/15:Reference List	Change the revision of IEAT-IEAT-MTP port emergency response plan from B.E-2557 to B.E-2558	
8	24-Feb-16	10/8.1 Notification Flow Chart 11/8.2 Notification and reporting to Stakeholder 28/13 Post Incident Review	Take the PTT company out from the stakeholder notification list Indicate the tracking and follow up process of recommendation/feedback received from post incident review.	Athit C (QS/3)
		45/ Appendix A Role and Responsibility 5.6 Emergency Response Coordinator (Duty)	Delete the role and responsibility of ERC Duty to notify the PTT out.	
		100/Appendix U Notification to the PTT	Delete the Notification from to PTT out	Soontorn S. (TE/717)
		79, 80, 81 / Appendix C10:Failure of SPRC Trunked Radio system procedures	Update content on SPRC Trunked Radio system from old (analog) to new (digital) to reflect the fail back modes on new system implemented	
9	15-Aug-16	1/1:Purpose & Scope 19/10.5 Leak Response Protocol 20/10.6 Leak Response Flow Chart	Add table of Employee involvement Delete Leak Response Protocol out Update the workflow of Leak Response Flow Chart	Athit C (QS/3)
10	16-Dec-16	43/ Appendix A (Role and Responsibilities)	add role of EHS (5.5) duty to advise to OSC through IC about suspend the emergency operation when scene atmosphere is IDLH and/or imminent danger condition	Athit C (QS/3)

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Revision	Date	Page/ Section	Reason	By
		92/Appendix M Emergency Training and Exercise	Add link to the EHS OT-QS-3005 Emergency Response Training and Exercise Guideline	
11	28-May-18	VIII / Appendix A Page 2 4 / Glossary 21 / 10.5 24 39 / 3.0 50 / 7.0	4.0 Changed FIT to ERT 9.0 Changed EST (Back up team) to Emergency Support Team Changed FIT to ERT Changed FIT-B to ERT or EST Added CMP and CMT Deleted note and Leak check list out Changed FIT to ERT Role: ERT was reviewed Changed FIT to ERT ERT added wording (Day Staffs) Who: removed off-shift operators out Emergency level 3 → 2, 3 FIT changed to ERT FIT B revised to EST Operations and revised Responsibilities Revised Legal Adviser Responsibility: Removed out "the Treasurer's Unit related to Traders Insurance Policy and /or other" FIT changed to ERT FIT changed to ERT FIT changed to ERT Revised: Off Site Road Accidents Involving Product from SPRC Revised Emergency Training and Exercises Updated form 104 / Appendix V 105 / Appendix W Removed out: APPENDIX W Emergency Response Considerations and Hazard Assessment Checklist for Process Loss of Containment Removed out: PTT Group Emergency Plan (CP-SHE-3G-002) Revised: response to the emergency situation by create emergency level 1A / 1B Revised: Emergency level Revised: EMERGENCY RESPONSE ORGANISATION OVERVIEW Revised: EMERGENCY RESPONSE DECISION PROCEDURE Action major leak change item evacuation guideline 10.3 to 11.3 Revised emergency level in: Notification and Reporting to Stakeholder Revised stage of emergency, Map Ta Phut municipality move to Level 3 of company Add inform Certification Body in Level 3 - Changed the Department name of QS & CA	Bundit V (QS/3)
12	8-Apr-19	105 / REFERENCE LIST 2 / 1.0 purpose and scope 2 / 3.0 Emergency level 9 / 4.0 8-9 / 5.0 68 / Appendix C 15-16 / 8.2		QS/3
13	28-Oct-19	7 / 3.0 15-16 / 8.2		QS/3 QS/3
14	7 Jun 21			QS/3

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Revision	Date	Page/ Section	Reason	By
		6 / 2	- Changed the position of Emergency Response Coordinator to Lead Emergency Management and Fire system specialist to Emergency management Specialist.	
	10 / 6	15 / 8.2	- Add location of document control and updating on Smart Procedure	
	29 / 11.3		- update actions on emergency table	
			- Add Thai- MECC agency in Notification and Reporting to Stakeholder.	
			- Changed the contact person to notify PorPor from CA to Emergency Response Coordinator.	
	34 / Appendix A 2	35 / Appendix A 3	- Update responsibilities of OSC	
			- Update responsibilities of PU Shift Supervisor	
	35 / Appendix A 4		- Add position and responsibilities of Emergency Response Team-Leader	
	36 / Appendix A 5	36 / Appendix A 6	- Update responsibilities of ERT	
	38 / Appendix A 7.1		- Update responsibilities of FTD	
			- Delete specific task "Act as site spoke person"	
	47 / Appendix A 7.6		- Update responsibilities of Emergency Response Coordinator (Duty)	
	56 / Appendix A 14		- Revised communication channel form EOC to REB	
	59 / Appendix A 16	83 / Appendix D 2	- Update responsibilities of Staging Officer	
			- Revised the SPRC Assistance to Other Companies and added the flow chart.	
	92 / Appendix H		- Add National Foam Universal Gold 1/3% at Foam Suppliers	
	98 / Appendix R		- Revised number of operation supporter from 4 person to 2 persons	
	100 / Appendix S	102 / Appendix U	- Revised the assembly point.	
			- update the IEAT-MTP Emergency Reporting Form	
	103 / Appendix V		- update the MTP-Port Abnormal situation and Emergency Reporting Form	

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1. PURPOSE & SCOPE

Purpose

Star Petroleum Refining Public Company Limited (SPRC) Prepare Emergency Response Plan to provides an integrated approach to the management of all emergencies related to SPRC. This response plan details the action, coordination and resources required for the mitigation of an emergency. In the event of an emergency situation, available resources shall be used to achieve the following, in order of priority;

1. Preservation of human life, health and well-being.
2. Protection of the environment.
3. Protection of Company Assets
4. Render affected areas safe and stable.
5. Restoration of disrupted utilities.
6. Resumption of normal production.

Scope

The emergency response plan covers all SPRC operated locations. It also covers assistance to other parties as requested. Emergencies outside SPRC operated Locations (e.g. pipeline Emergencies) should be coordinated with the IEAT Emergency Response efforts.

The following events would be considered as an emergency:

1. A fire or explosion
2. Serious escape of gaseous, liquid hydrocarbons, and Hazardous Material likely to create health, safety hazards and contamination of environment
3. Oil Spill.
4. The spilling or spreading of a source of ionizing radiation, or the exposure of personnel to harmful radiation.
5. Any event requiring the evacuation of buildings and other working areas
6. A bomb threat or the discovery of suspicious objects.
7. Any event which may harm the company's reputation

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Employee Involvement

Process Activities	Employee Involvement	How	Training/Competency Assurance of the Involved Employees
Response to the emergency situation			
Emergency Response Level 1A (Emergency Activation)	1) Senior Operator of Area affect 2) Emergency Response Team 3) Incident commander 4) Security Shift Officer	1) Assess the situation that have to mobilize the ERT to response to the incident 2) Communicate via trunk radio (announcement) for the resources need	Pass the required emergency related training according to the EHS Training Requirement
Emergency Response Level 1B (Emergency Activation)	1) Senior Operator of Area affect 2) Incident commander 3) Emergency Response Team 4) Security Shift Officer 5) Duty Team members	1) Assess the situation at the scene that need more resource to handle the incident. 2) Communicate via trunk. 3) Call the Duty team by Security Shift officer (via SMS), ERT/EST by SS	Passed the required emergency related training according to the EHS Training Requirement. Trained the Emergency Response for Duty Rota team
Emergency Response Level 2	1) Senior Operator of Area affect 2) Incident commander 3) Emergency Response Team 4) Security Shift Officer 5) Duty Team members 6) Mutual Aid Team members 7)	1) Assess the situation at the scene that need more resource to handle the incident 2) Communicate via trunk 3) Call the Duty team by Security Shift officer (via SMS), ERT/EST by SS	Passed the required emergency related training according to the EHS Training Requirement. Trained the Emergency Response for Duty Rota team
Emergency Response Level 3	1) Senior Operator of Area affect 2) Incident commander 3) Emergency Response Team 4) Security Shift Officer 5) Duty Team members 6) Mutual Aid Team members	Full scale emergency, which required more resource to be made available from refinery personnel and other Mutual Aid and Activate the Rayong Province Emergency Response Plan	Same as above

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Process Activities	Employee Involvement	How	Training/Competency Assurance of the Involved Employees
Notification and Reporting to Stakeholder			
Notification and reporting to stakeholder-Abnormal situation	1) Environmental 2) CA Department 3) Security Shift officer (off-hour)	1) Telephone and IEAT Notification form (within 10 mins-via fax/Email)	Not required
Notification and reporting to stakeholder in case of emergency	1) External affair duty- Relevant authorities and communities 2) Nurse on Duty- Contract hospital 3) ERC Duty-Rayong Province 4) Duty Manager- Shareholder	1) Telephone and IEAT Notification form (within 10mins-via fax/Email) 2) Telephone 3) E-mail	Not required
Mutual Aid and Assistance to Third Party			
Assistance to SPRC	1) Mutual aid group (EMAG) 2) Shift Security officer 3) On Scene Commander	1) Contact via telephone with resource required by the Security officer 2) Coordinate with the On Scene when arrival	Mutual aid group members
SPRC Assistance to other companies- Agreement Companies	1) Shift Supervisor on duty 2) ER Coordinator or Emergency management specialist	1) Coordinate via telephone or trunk radio 2) Provide support according to the agreement or under decision of Shift Supervisor if there is any plant constraint	Not required
SPRC Assistance to other companies- Non agreement companies	1) ER Coordinator 2) Duty Manager 3) Shift supervisor on duty 4) Security Shift Officer	1) Coordinate and cooperate via telephone or trunk radio 2) Consider the plant constraint by Shift supervisor on duty 3) Get approval from Duty Manager which propose by the ER Coordinator	Not required
Process	Employee	How	Training/

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Activities	Involvement	How	Competency Assurance of the Involved Employees
Emergency Exercise			
Set up yearly ER master plan	Emergency Management Specialist and Area owner (PUs Process instructors)	Review; • Shift work schedule • Incident in the past (internal/External) • Past exercise scenario	Work position (Seniors) and exercise
Exercise master plan review and endorsement	QS/3, PUs Shift Supervisor and Area owner	E-Mail (circulation feedback)	Note required See details in the Emergency Response Exercise Guideline (EHS-OT-QS-3005)
Exercise preparation	Emergency Management Specialist	Meet with area owner for the scenario	Not required
Conduct the exercise and report the result	Emergency Management Specialist and Emergency Response Team	Table top exercise and field exercise	Not required
Post review	QS/3 Team and emergency response team	Evaluation and post exercise review meeting	Not required
Record keeping & Follow up	Emergency Management Specialist and whom may concern	Follow up meeting/Email (Exercise report form)	Not required
Fire Fighting Equipment Inspection Master Plan			
Set up yearly Fire Fighting Equipment Inspection	Emergency Management Specialist and fire service contractor	Review the past inspection record and schedule Applicable requirement (procedure/legal)	Education back ground/Experience on fire inspection/testing (Contractor)
Inspection master plan review	QS/3, Emergency Management Specialist, Supervisor and Area owner	E-Mail (circulation feedback)	Not required
Conduct the inspection and testing	Emergency Management Specialist, Area owner and fire service contractor	Field audit and inspection	Education back ground/Experience on fire inspection/testing (Contractor)
Record keeping & Follow up	Emergency Management Specialist and whom may concern	Follow up meeting/Report/E-mail	Not required

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GLOSSARY

The following terms are used throughout the Emergency Response Plan and have the meanings given below:

Alarm	There are 3 emergency alarm levels for both sites as follow; Level 1 Wail tone for 15 second follow by announcement. Level 2 Second Wail Tone for 15 second Level 3 Third Wail Tone for 15 second All clear 15 seconds of Steady Tone
CCB	Central Control Building is located at PN
EMAG	Emergency Mutual Aid Group, including 9 companies (13 Units) in IEAT-MTP area. There are SPRC, PTGC-5, PTGC-2, PTGC-3, PTGC-4, PTGC-5, ROC, TPE, VNT, <u>Covea</u> (Thailand), PTT (Gas Separation Plant), IRPC and MOC.
Emergency	A situation in which fire, explosion, Material damage, Destruction, or other circumstances threaten human life, the refinery's operation, company assets, business or environment.
EOC	Emergency Operation Centre
ERP	Emergency Response Plan
ERC	Emergency Response Coordinator
ERT	Emergency Response Team
EST	Emergency Support Team
FIT	First Intervention Team
IC	Incident Commander
IEAT	Industrial Estate Authority of Thailand
IEAT-MTP	Map Ta Phut Industrial Estate Authority of Thailand
MC	Mutual aid Coordinator
MCB	Marine Control Building
MTP Fire brigades	Map Ta Phut Fire Brigade
OSC	On Scene Commander
PN	Production Unit
PD	The areas of Tank Farm and TTLT
RSO	Radiation Safety Officer
TTLT	Tank Truck Loading Terminal
CMP	Crisis Management Plan
CMT	Crisis Management Team
THAI MECC	Thai Maritime Enforcement Command Center

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2. DOCUMENT CONTROL AND UPDATING

Controlled copies of the Emergency Response Plan are documented and maintained in the following locations:

- SMART PROCEDURE
- EDMS
- Holders at various locations (see distribution list page 1).

The Emergency Response Coordinator reviews the Emergency Response Plan when there are substantial changes in the document. The Emergency Response Coordinator controls the Emergency Response Plan by:

- Maintaining controlled copies of the Plan in EDMS
- Revising the Plan to comply with the changes in documentation
- Notifying the revision of the Plan to all duty team and distribute controlled revised copies to the holders.

3. EMERGENCY LEVEL

State of Emergency

This section defines the levels of emergency and the resources required for emergency situations of increasing severity.

The following levels of emergency have been defined;

Level 1A

An emergency, which can be handled by personnel available already on site and requires no additional resources to be called in.

Level 1B

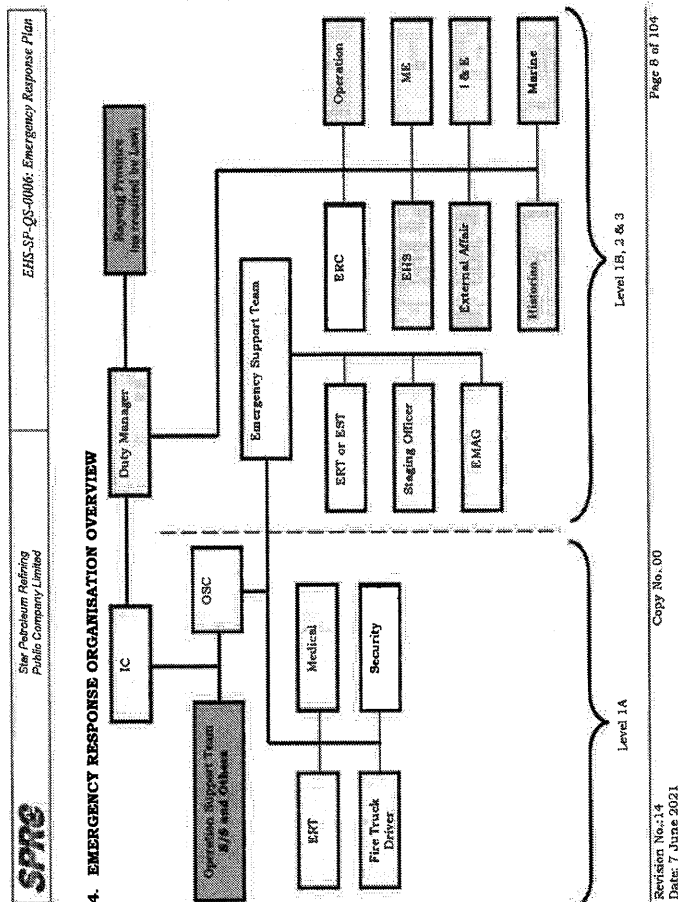
An emergency, which will require some additional resources to those currently available in the refinery. This would be the SPRC Duty Rota Team, ERT or EST Team

Level 2

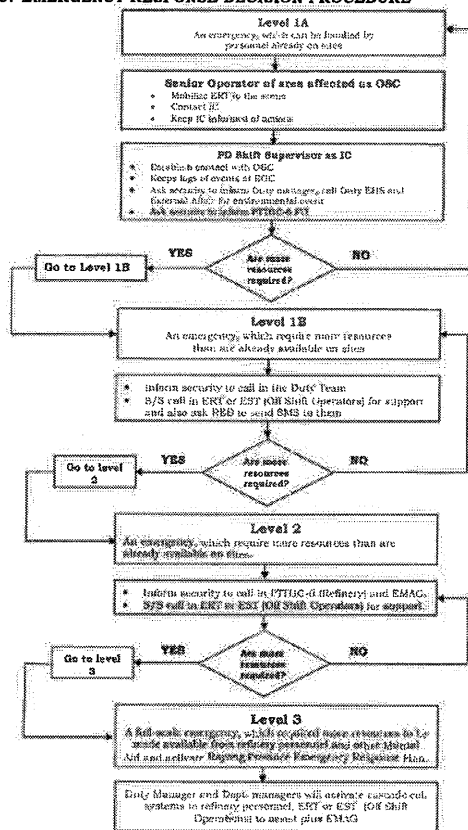
An emergency, which will require some additional resources more than SPRC team. This would be the third-party mutual aid teams (EMAG.)

Level 3

A full-scale emergency which requires further resources to be made available from company personnel, other mutual aid teams, Msp Ta Phut municipality and Rayong Province support team.



5. EMERGENCY RESPONSE DECISION PROCEDURE



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6. ACTIONS ON EMERGENCY

Actions by	Level 1A	Level 1B	Level 2	Level 3
Authority to signal	Anyone in the refinery	On Scene Commander	On Scene Commander	On Scene Commander
Observer	Radio by Push emergency button. • Telephone 7197 • Give the name and position, company. • Give location and nature of incident.			
Incident Commander (IC) (PD Shift Supervisor on shift)	• Switch radio to Emergency Channel • Go immediately to EOC and assume as IC	Plus Coordinated with Duty Team	As for Level 1B	As for Level 1B
On Scene Commander (OSC) (Senior Operator of area affected)	• Ask for ERT by radio • Go immediately to the scene of the incident and assume the role of OSC. • Set up the forward command post. • Communicate with IC on Emergency channel. • Cooperate with board man for plant condition • Supervise ERT leader to control and secure the incident.	As for Level 1A Plus Communicate with IC while in at EOC on Emergency channel	As for Level 1B Plus Coordinated with EMAG-OSC	As for Level 2 Plus Coordinated with EMAG-OSC, Government-OSC
Shift Supervisor of affected area	• Switch Radio to Area channel / Emergency Channel • Make a decision unit shutdown agreement with OSC followed Leak response protocol. • Control Emergency Shutdown procedures • Consider to inform Off shift operators to arrive.	As for Level 1A Plus Call in off shift to support ERT, shut down facility	As for Level 1B	As for Level 1B
Emergency Response Team (ERT) (Assigned operators)	• Switch radio to Emergency Channel • Go immediately to the scene of the incident as directed by OSC.	As for Level 1A Plus Coordinated with EMAG	As for Level 1B Plus Coordinated with EMAG	As for Level 2 Plus Coordinated with EMAG-Government agency

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Actions by	Level 1A	Level 1B	Level 2	Level 3
ERT-B Level One B / Two / Three Off Shift Ops.		• Get together at Fire Station and get ready to go to the scene as requested by OSC.	As for Level 1B	As for Level 2
ERT-B from EMAG			Report at Staging area	
ERT-B from Government agency				Report at Staging area
Fire Team Operator (Assigned Ops)	• Switch radio to Emergency Channel • Nominated drivers to take the fire truck to the scene of incident as requested by OSC	As for Level 1A	As for Level 1A	As for Level 1A
Security (REB)	• Activate the Emergency Alert System as requested by OSC • Call out ERT team, if required by OSC. • Advise ERT EMAG • Provide support as requested by OSC • SMS to Duty Team and all off shift operator to alert and stand by	• Call in duty teams and Mutual Aid team requested by OSC.	• Activate the Emergency Alert System • Call in refinery personnel and mutual aid team as requested by OSC	• As for Level 2 • Activate the Emergency Alert System
Panel men of affected area	• Monitor separation of units from CCB. • Initiate emergency shutdown procedure as instructed by Shift Supervisor / Operation Procedures.	As for Level 1A	As for Level 1A	As for Level 1A
Medical Team	• Provide first aid as requested by OSC. • Evacuate by ambulance as needed.	As for Level 1A	As for Level 1A	As for Level 1A
Staff and contractors not involved in emergency response and operations.	Personnel in all operational units must proceed to the nearest safe assembly point, unless directed otherwise by the emergency response team.	As for Level 1A	As for Level 1A	As for Level 1A

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7. COMMUNICATION METHODS

Communication to all SPRC personnel and contractor

Emergency situation will be communicated to all personnel by using an Emergency Alarm. There are 3 emergency alarm levels as follow:

Level 1 Wall Tone for 15 second follows by Public Announcement by REB

Level 2 Second Wall Tone for 15 second follows by Public Announcement by REB

Level 3 Third Wall Tone for 15 second follows by Public Announcement by REB

All Clear Stead Tone for 15 second follows by Public Announcement by REB

♦♦ The communication of an emergency level 1, 2 and level 3 or incident which has significant impact on operation or affect public will be emailed to all SPRC personnel by Duty Manager within 24 hours, which is a similar information reported to Shareholders.

♦♦ In the event of Emergency from Neighboring Companies, which affects SPRC such as toxic gas release, or incident that occur with the adjacent neighboring company. The communication to all SPRC personnel will be made by using Public Announcement immediately after becoming aware of the incident. After that, the Duty Manager will communicate the incident information by email to all SPRC personnel as soon as the information is available, but no later than 24 hours

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Note:

(1) Using of notification template;

1. I am required to notify you of an incident that occurred on (date) at (time) at (location).
2. One sentence description of incident
3. One sentence description of impact
4. One or two additional paragraphs should address authorities notified, other organizations involved, current status, and current actions being taken.
5. Close with the identity of the individual sending the notification, the reporting unit, and contact information for follow-up questions including cell or home phone numbers.
6. Any additional detail, if desired, can be in attachments.

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8.2.1 Labor law (Safety Occupational Health and Working Environment Act (B.E2554)

In case of Hazardous chemical release or fire or explosion, the following actions are required;

- 1) In case of the incident resulting to fatality case, shall notify to the department of Labor Protection and Welfare (Rayong) via telephone, fax or other channel immediately and formal letter within 7 days.
- 2) In case of the incident resulting to operation shutdown or cause injury from both fire or explosion, shall notify to the department of Labor Protection and Welfare (Rayong) via telephone, fax or other channel immediately and formal letter within 7 days.

The formal letter shall comply with the notification of Department of Labor Protection and Welfare (refer to Appendix T- The Reporting Form to the Labor Protection and Welfare)

8.2.2 Factory Law (B.E. 1992)

It is required that any incident which cause fatality or lost time injury or illness (> 72 working hours lost) or cause operation shutdown (> 7 days) be reported in a letter to Ministry of Industry Officers (Rayong Industrial Work Office) within 3 days

In case of Radiation incident shall immediately inform to the Ministry of Industry when become aware of an incident.

8.2.3 EIA Mitigation Measures

In any situation which could impact environment will notify to Office of Natural Resource and Environment Policy and Planning and the Office of Natural Resource and Environment Rayong.

8.2.4 Radiation Safety Law (Ministry Regulation B.E.2550, Permission of Radiation)

In case of radiation incident resulting leak of radiation source, the company Radiation Safety Officer (RSO) shall notify to the Office of Atomic For Peace immediately.

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9. CRISIS MANAGEMENT AND BUSINESS CONTINUITY PLAN

9.1 Objective

SPRC Crisis Management and Business Continuity Plan is aimed to provide a management process in order to strategically plan, direct and coordinate all actions and responses to reduce impact of crisis on people, environment and company business and reputation

The plan is developed to respond the crisis in a timely and coordinated manner to support the SPRC Emergency Response plan; and manage crisis to ensure business continuity

Note:

Crisis: Any incident that poses an actual or potential threat to SPRC's long-term ability to do business due to impact on its reputation and standing, legal and financial liabilities and ability to operate

9.2 Activation and Deactivation of SPRC-CMP

9.2.1 Activation

Duty Manager with the consultation with Chief Executive Officer, will partially or fully activate SPRC-CMP depending on the necessary management efforts required for such crisis;

9.2.2 Deactivation

Duty Manager will deactivate the SPRC-CMP when he feel that all issues are addressed to the extent that the incident is no longer a threat to health, to safety and the environment; and there is no significant on the image of SPRC and Shareholders.

9.3 SPRC Crisis Management Team (CMT)

All Leadership Team Members (LT) are the member of the team. When SPRC-CMP is activated, the team will be met at M-226 Board.

9.4 Roles & Responsibilities of SPRC Crisis Management Team

The scope and extent of crisis management tactical and strategic actions carried out by the SPRC-CMT will depend on the nature and potential or actual consequences of the incident

In general terms, the SPRC CMT is to:

- ◆ Provide technical, logistic, legal, human resources, corporate affairs and financial support and assistance to the emergency response and management efforts.

- ◆ Identify the short and long-term strategic implications of the incident for the operability, image and commercial position of SPRC business.

- ◆ Develop, resource and action appropriate strategies to limit potentially adverse consequences to the business arising from the incident.

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- ◆ Provide information and recommendations on incident related policy and strategic issues to the Shareholders.

- ◆ Develop and implement a long-term recovery plan.

Individual SPRC CMT members have specific responsibilities. Overall, the SPRC CMT is responsible for minimizing impacts and managing a rapid recovery by:

- ◆ On activation, establishing and assessing the situation caused by the incident and the initial effects on personnel and operations. Investigating all other facets of the incident: technical, financial, human resources, legal, corporate affairs, commercial and business.

- ◆ Identifying and analysing the short and long-term strategic implications of the incident for the operability, image and commercial position of the SPRC business.

- ◆ Establishing and maintaining coordinated and secure communications links with the affected entity and the Shareholders (if activated);

- ◆ Developing, resourcing and implementing appropriate tactics and strategies to limit potentially adverse consequences to the business arising from the incident, particularly those concerning in-country media, government and other public affairs matters.

- ◆ Liaising with the Emergency Response Organization; providing tactical and strategic support and monitoring that local emergency response efforts to follow the policies and strategies for managing the incident established by the SPRC CMT.

- ◆ Identifying other stakeholders and the consequences for them.

- ◆ Developing and coordinating a strategy to effectively manage internal and external communication flows; including those with stakeholders such as shareholders, customers, contractors and suppliers.

- ◆ Providing support to SPRC personnel and next of kin on all matters.

- ◆ Information management and security; and sharing within the team information accumulated during interactions with the affected entity and other stakeholders.

- ◆ Collecting, collating and securing all documentation related to the incident, which is generated by the SPRC CMT and support activities.

- ◆ Supporting in the planning and implementation of the recovery phase.

Preparation of post-incident reports assessing the effectiveness of the SPRC CMT's response and the institution of procedural (or other) Changes in the SPRC Emergency Response Plan, if necessary.

9.5 Schedule of Authority

The schedule of authority prescribes the approval limits for SPRC-CMT members who can approve cash and credit purchases during the crisis. This is in accordance with the Manual of Delegated Authorities (MODA).

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10. Leak Response Guides Decision

10.1 Objective

This Leak Response Protocol attempts to mitigate risk in responding to leaks by providing additional guidance to Operations and bringing standardization to leak response decision-making.

10.2 Scope and Definition

A "leak" is defined as an unexpected loss of primary containment which has a potential to have a negative impact on operations, the safety of employees, and/or the environment.

Incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel, are not included.

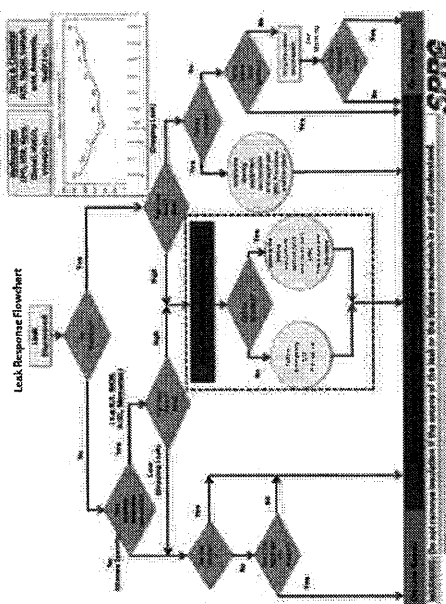
10.3 Overview

If there is any doubt about what to do, shut down the plant or move it to a safe condition.

If there is no time to review options, shut down the plant or move it to a safe condition. In some cases it may not be immediately clear what action should be taken to best protect people, the plant and the environment.

If there is time to review options, get all available parties together in a meeting so all issues and concerns can be considered. After all the inputs have been gathered, develop an action plan, make sure it is clearly communicated to everyone involved, and then move forward to implement it. Utilize the Leak Response Protocol and Leak Response Flow Chart to guide the decision-making.

10.5 Leak Response Flow Chart



More details about the Leak Response Protocol is refer to EHS-WI-QS-3013, Leak Response Protocol EHS-WI-QS-3013 Leak Response Protocol

10.4 Leak Response Timeline

Leak Discovered

15 Mins

1 Hour

Immediate Actions

1. EMR deploys for leak response or standby coverage.
2. Site cleared of non-essential employees.
3. Gather available resources (Op's, ERT, Management, Inspection, Engineering, Materials, Maintenance, Safety, etc. as needed and if available) and establish a safe location to meet.
4. Notifications of internal and external parties as appropriate.

IX Mitigation (Operations in control)

1. Single a meeting to go over checklists, develop an action plan and evaluate risks.
2. Op's to review isolation options and emergency shutdown procedures.
3. Before putting people close to the leak, consider using the Gas Filled Infrared (GFI) camera to get a visual on the size of the vapor cloud, and/or use LEL detectors when approaching the leak source.
4. Implement the primary plan, and the backup plan if needed.

11. EVACUATION PROCEDURES

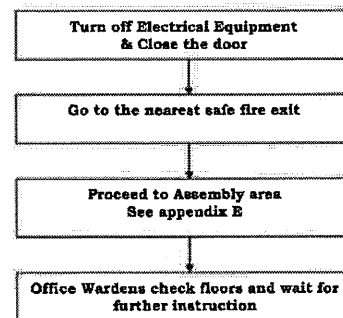
11.1 In case of Fire:

11.1.1.1 Actions for Building Evacuation in case of Fire in Building

1. Pull the fire alarm switch or break the fire break glass
2. Calling Security Office at 7191 to state your name and location of the fire
3. Extinguish the fire if you have had fire training and you think you can do
4. Switch off electrical equipment if time permit and close the door (do not lock)
5. Evacuate from the building by using the nearest fire exit
6. Proceed to assembly area, report to your Office Warden and wait for further instruction

Do not stay away or re-enter a building prior receiving the advice from Office Warden or Public Announcement made by REB

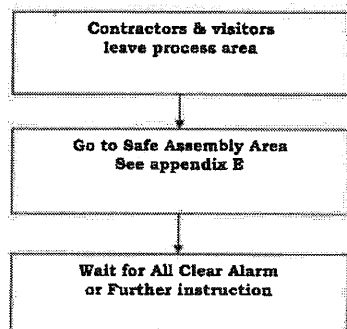
Action on Building Fire Alarm



11.1.2 Actions for Other Working Areas Evacuation in case of Fire in other working area

1. The personnel in the area of the alarm, who are not essential to emergency response or operations, must immediately stop work and go to the nearest safe emergency assembly area.
2. Evacuations must take place across wind away from fire incident.
3. It is the responsibility of the supervisors to account for their own personnel.
4. Personnel must remain at the assembly area until the "All Clear" has been sounded, or unless directed otherwise by emergency personnel.

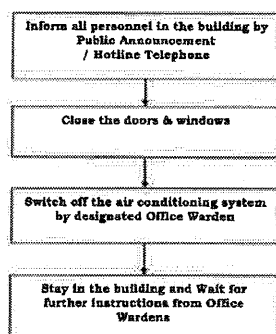
Action on Refinery Alarm



11.2 In case of Smell or Toxic Gas Leak: (from both SPRC internal incident and Neighboring Company Incident)

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Action Steps



In the event of emergency caused by the smell or toxic gas leak from both SPRC internal source and neighboring company, which affects to personnel in SPRC premises, the incident can be classified into 2 levels;

- Level 1** Only information of incident, do not need evacuation of the personnel.
- Level 2** The incident becomes more serious and the personnel on the affected area need to be either sheltered-in-place or evacuated.

11.2.1 Actions for Building Occupants

LEVEL 1

- On 1) receiving an emergency call from incident's company or IEAT-MTP or 2) notification from SPRC personnel in the field, the Security at REB will inform Shift Supervisor of affected area and Duty Manager.
- Security at REB informs personnel in the affected building by Public Announcement or Hotline Telephone to stay in the building - Do Not Panic.
- Office Warden will prepare evacuation in case of evacuation needed.
- Office Warden keeps update on situation until situation is back to normal.

LEVEL 2

- On 1) receiving an emergency call from incident's company or IEAT-MTP or 2) notification from SPRC personnel in the field, or 3) detecting the smell inside the building, the Security at REB will inform Shift Supervisor of affected building(s) and Duty Manager. Then, activate Emergency Level 2.
- Security at REB will inform personnel in the affected building by Public Announcement or Hotline Telephone.
- Shift Supervisor of affected area will assign Senior Operator to be OSC.
- OSC will cooperate with Office Warden to respond the incident either Shelter-in-Place or evacuate the personnel in the building to the safe assembly area depending on the situation.
- OSC will be informed of the current situation via Security at all time until the situation is back to normal.

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11.2.2 Actions for Personnel in Other Working Areas

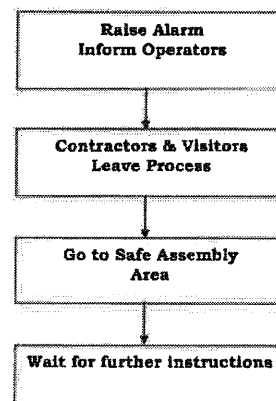
LEVEL 1

- On 1) receiving an emergency call from incident's company or IEAT-MTP or 2) notification from SPRC personnel in the field, the Security at REB will inform Shift Supervisor of affected area and Duty Manager.
- Shift Supervisor will consider the action according to the information provided.
- Shift Supervisor will prepare evacuation in case of evacuation needed.
- Shift Supervisor keeps update on situation until situation is back to normal.

LEVEL 2

- On 1) receiving an emergency call from incident's company or IEAT-MTP or 2) notification from SPRC personnel in the field, the Security at REB will inform Shift Supervisor of affected area(s) and Duty Manager. Then, activate Emergency Level 2.
- Shift Supervisor will assign Senior Operator to be OSC.
- OSC will evacuate the personnel of the affected areas to the safe assembly areas. Evacuation must take place across the wind direction.
- OSC will assign the operators with SCBA to the unsafe assembly areas in order to direct the people to the safe assembly areas.
- OSC will be informed of the current situation via Security at all time until the situation is back to normal.

Action Steps



11.3 Neighbouring Community/Company Notification

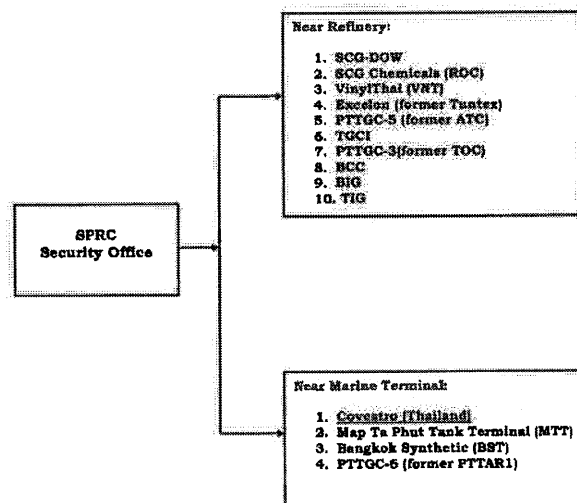
When emergency and abnormal situation which could effect to neighboring community / company, SPRC shall notify to the community leader or his deputy and company contact person refer to External Contact List (AM-OT-CA-012) for early aware refer to 8.2 Notification and Reporting to Stakeholder.

When a community evacuation is recommended, Map Ta Phut Fire Department and the Rayong Disaster Prevention and Mitigation office (PorPor) will be notified by Emergency Response Coordinator during on hours and Shift Security Officer during off hour. The Map Ta Phut Fire Department and the Rayong Disaster Prevention and Mitigation office (PorPor) will provide evacuation information. The Rayong Disaster Prevention and Mitigation office (PorPor) will then supervise the community evacuation with liaison with local police officials. **The Provincial Emergency Response Plan has to be activated.**

11.4 Emergency Contact Points In Case of Neighbouring Company Incident

(Smell or Toxic Gas Release Incident)

Below is the list of companies which have a possibility to affect SPRC once their operation upset.



12. DEACTIVATION AND RECOVERY

12.1 Deactivation

The authority for deactivating an emergency response is vested in the On-Scene Commander who will consult with the Incident Commander. Deactivation should begin when it is considered that the emergency has been contained, and satisfactorily overcome in all respects.

The activities and procedures which must be undertaken to **recover** from an emergency incident includes, but is 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 cleanup materials, replacement parts).
- ☐ The returning of equipment to outside contractors and mutual aid organizations.
- ☐ The accounting for all expenses incurred as a result of the incident.
- ☐ The filing of insurance claims
- ☐ Preparation and dispatch of final reports to relevant Shareholders, Government and local authorities.

12.2 Re-commissioning

Before re-commissioning plant or equipment which may have been involved in the emergency or affected by it, a thorough and detailed inspection must be carried out to ensure that the integrity of equipment has not been adversely affected.

12.3 Incident Investigation

It is the responsibility of the next level of management above the On-Scene Commander to designate the team responsible for performing the appropriate incident investigation. All incidents, which have resulted in the activation of an emergency response, must be investigated.

NOTE: Part of the incident investigation must be devoted to a critique of the emergency response itself. Detailed recommendations for improvements to the Emergency Response Plan and/or to Contingency Plans should be made.

13. POST INCIDENT REVIEW

The Company requires that a post-incident review be conducted to examine the Company's response to the emergency incident.

The Incident Commander or the On-Scene Commander shall convene the review within forty-eight hours of the incident conclusion. Those attending shall include the Manager Process Safety & QEHS, Emergency Response Coordinator, and all employees who participated in the incident. Minutes shall be kept. The review shall determine:

- ☐ Were employees properly informed of Company procedures?
- ☐ Did employees respond according to Company procedures?
- ☐ Were employee's responses timely?
- ☐ Are the procedures adequate?
- ☐ What problems were encountered during the response activities?
- ☐ What improvements can be made?
- ☐ How can similar events be avoided in the future?

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

All recommendation and feedback received from the post incident review shall be tracked and follow up by Emergency Response Coordinator. The status update of the action items shall kept in the share drive and communicate to all duty rota members. However, the update status of the actions shall be updated at least 2 times/year by incorporating with the exercise feedback highlight update and sharing.

14. APPENDIX

APPENDIX A ROLES AND RESPONSIBILITIES

1. Incident Commander (IC)

Who: PD Shift Supervisor on shift**Report to:** Duty manager**Location:** EOC (Fire Station)**Emergency level:** 1A, 1B, 2, 3**Role:** To control all activities during emergency**Responsibilities:** On receiving the emergency alarm:

- Switch radio to emergency channel
- Inform PU manager of affected area
- Set up contact with OSC and inform Security Shift Officer
- Ensure that the ERT on duty are the person who fit for duty
- Initiate site head count (Reference Appendix F)
- Organize and control all activities in the EOC until the Duty Manager arrives.
- Ensure a log is kept of all activities.
- Decide with OSC the level of emergency, and initiate call-in.
- Receive situation reports from the OSC and take appropriate actions.
- If needed ensure that the fire pump has started and that the fire panel is monitored.
- Liaise with outside 3rd parties until the communications team is formed.
- Contact other companies who may be affected by the incident.
- Arrange for refreshments to be delivered to the incident scene via the EOC Team.
- Provide regular situation reports to all relevant groups via telephone or messenger.
- Arrange for relief teams to be sent to the incident scene as required.
- For external requests for assistance from Mutual Aid Partners, determine if possible to assist and provide Fire Truck driver as circumstance warrant.

The PD Shift Supervisor shall notify Duty Manager, Production Unit manager of affected areas, EHS and External Affairs duty persons if the following incidents occur:

- * Injuries requiring hospitalization (transfer to a hospital).
- * Oil Pollution.
- * Air Pollution.

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3. Production Unit Shift Supervisor of affected area

Who: Shift Supervisor of affected area on shift**Report to:** Incident Commander**Location:** CCB or the scene of incident**Emergency Level:** 1A, 1B, 2, 3**Role:** To control overall plant operation.**Responsibilities:**

- Switch radio to emergency channel
- Coordinate with IC and OSC
- Make decision with OSC on plant emergency operation such as shutdown the unit, bypass equipment followed Leak response Protocol
- Back up IC or OSC
- Ensure sufficient manpower available, call extra operators if required.

4. Emergency Response Team Leader (ERT-Leader)

Who: 2 persons Assigned by OSC (1 from PN & 1 from PD)**Report to:** On Scene Commander**Location:** At the scene of the incident.**Emergency Level:** 1A, 1B, 2, 3**Roles:** Front line Responder at the scene**Responsibilities:** On receiving the emergency alarm;

- Switch radio to Emergency channel.
- Go to incident scene and report to OSC.
- Response the incident as directed by the OSC.
- Control the ERT followed OSC's mission, objectives, and strategy.
- Keep feedback communication of situation and mission to OSC
- Ensure all the ERT are safe during response.
- Ask resources support to achieve the mission, strategy,
- Assess the situation is safe for responding, if the situation is raised to high risk must command ERT to retract to a safe location.
- Required the HAZMAT Suit in case of toxic/hazardous substance spill/leakage.

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2. On Scene Commander (OSC)

Who: Senior Operator of area affected / EST (G/R)**Report to:** Incident Commander**Location:** At the scene of the incident.**Emergency Level:** 1A, 1B, 2, 3**Roles:** To control all activities at the scene of incident.**Responsibilities:** On receiving the emergency alarm;

- Go to incident scene immediately and consider activate the emergency level.
- Switch to Emergency channel.
- Set up a command point (OSC Vehicle) at a safe location, wearing the Full Fire bunker gear, OSC helmet.
- Assigned the operator drive the OSC vehicle to command post.
- Establish radio contact with the Incident Commander (IC) and supply situation reports.
- Account for all personnel at the scene of the incident.
- Scenario briefing and setup the strategy, tactics, resources to all responders prior go to the incident scene.
- Assigned the responder record the SCBA & incident log at the OSC vehicle.
- Control all rescue and first aid activities at the scene of the incident.
- Apply Leak Response Protocol for unit shutdown.
- Asked agreement from Shift Supervisor for unit shutdown.
- Cooperated with boardman for plant condition and emergency shutdown.
- Establish casualty control area when required.
- Considered raise or reduce an emergency level
- Assess the situation is safe for responding, if the situation is raised to high risk must command ERT-Leader to retract to a safe location.
- Assigned 2 ERT Leader to lead response the situation (1 person from PN and 1 person from PD)
- Liaise with mutual aid focal point person when called.
- Set up Hot Zone and assure personnel have proper PPE
- Required the HAZMAT Suit in case of toxic/hazardous substance spill/leakage.
- Request ambulance if needed and arrange for casualty treatment and evacuation.
- Deactivate the emergency when it is considered that the emergency has been contained, and satisfactorily overcome in all respects with consult IC

Remark the OSC who passed the area cross-training must have well the knowledge of Unit Isolation, Unit Shutdown, and Start-up.

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5. Emergency Response Team (ERT)

Who: Nominated on shift operators**Report to:** Emergency Response Team Leader**Location:** At the scene of the incident.**Emergency Level:** 1A, 1B, 2, 3**Roles:** Front line Responder at the scene**Responsibilities:** On receiving the emergency alarm;

- Switch radio to Emergency channel.
- Go to incident scene and report to OSC.
- Response the incident as directed by the ERT-Leader.
- Assure proper PPE must be wearied related incident Fire / Chemical Spill case
- Keep the mission complete safely.
- Reported to ERT Leader and retract to the safe location if the situation raised to high risk.
- Act to Rescuer

6. Fire Truck Drivers

Who: Nominated on shift operators (PN=1, PD=1), under the control of the OSC**Report to:** On Scene Commander**Location:** Fire Station and the scene of the incident**Emergency Level:** 1A, 1B, 2, 3**Responsibilities:**

On receiving the emergency alarm;

- Switch radio to emergency Channel.
- Requested the safe route and command post location from OSC.
- FTD 1: Go immediately to fire station and take the first fire truck to the scene of the incident when requested by OSC.
- FTD 2: Go immediately to the fire station and wait for instructions.
- Contact the OSC and report location.
- Operate the fire trucks as directed by the OSC.
- Competency to operate Fire Truck and able to discharge foam as required.
- Able to estimate time of foam consumption table when required foam top up.

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7. Duty Rota Team

Who 1) Duty Manager,
2) Operation Duty,
3) External Affairs,
4) EHS,
5) Emergency Response Coordinator,
6) Historian (Marine),
7) Mechanical, and
8) Instrument & Electrical Duty Persons

Location EOC (Fire Station).

Emergency level 1B, 2, 3

Roles To support all activities as requested by IC and contact third parties during emergency.

General Responsibilities

- First person to arrive must establish contact with Incident Commander and act as Duty Manager until the Duty Manager Arrives
- Keep a register of all personnel present.
- Keep a log of all activities.
- Ensure all personnel who are not directly involved in the emergency, including personnel at assembly areas, are kept informed.
- Ensure that a head count is done.
- Inform shareholders.
- Prepare a preliminary statement.
- Report to Authorities in accordance with statutory requirements.
- Liaise with local, national and international authorities.
- Liaise with the media.
- Liaise with local industries.
- Liaise with the local hospitals regarding any casualties.
- Answer queries from relatives of staff on site.
- Control all communications in and out of the refinery.
- Call on any other specialist organizations as required.
- Arrange for food and drink for emergency teams.
- Arrange for extra security.

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Checklist

- Ascertain what has happened
 - reason
 - scope
- Establish resources required
 - organization type
 - mobilizes
- Establish information flow
 - who is the Incident commander
 - injuries/deaths
 - frequency of update reports
 - authorities involved
 - who is spokesperson
 - Internal briefing
 - Media briefing (if necessary)
 - Management strategy
- Establish timetable for;
- Commence strategy development

Plus 1 hour

- Ascertain what has happened.
- Are resources sufficient and have been notified.
- Is there sufficient field support.
- Where is the media activity center?
- Are all sources of information being monitored.
- What are the emerging issues?
- Has a public release been made?
- Are we supporting the authorities sufficiently?

Plus 5 hours

- Review what has happened.
- Review resources (both Emergency Operation Center Team) and determine need to establish shifts.
- What is our media strategy and is the Company being proactive.
- What commitments have been made and are deadlines being met.

5 Hours and beyond

- Every three hours revisit the Plus 5 hours checklist.

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7.1 Duty Manager

Role

- To handle on-site emergency activity and ensure appropriate emergency procedures are activated. Act as site spokesperson for enquiries, including the media, if required.
- To lead the EOC organization through the emergency, and to manage the activities of the Duty Team, concentrating primarily on strategy development and monitoring management of all activities.

Responsibilities

- Set up EOC and adjust, as appropriate, as the situation develops.
- Co-ordinate the efforts of the Duty Team.
- Take only those decisions, which cannot be delegated.
- Authorize commitments, deviations from normal procedures, press releases (in conjunction with the Public Affair Manager, the Initial Response Statement is in appendix G), etc., as required.
- Appoint the Company spokesperson.
- Ensure that all personnel not directly involved in the emergency are kept informed.
- Notify IEAT and update on the status.

Specific Tasks

- Implement site Emergency Response Plan.
- Notify the CEO, DO and ensure that PN, PD are communicated.
- Notify to all related stakeholders, (Refer to Section 8.2 Notification and Reporting to Stakeholder) and also communicate to all SPRC Staff by e-mail.
- Provide a regular update on the status of the emergency to CEO, DO and Shareholders and establish the frequency for update briefings.
- Maintain a log of important events, commitments, decisions, etc., and pass hourly to CEO and Secretarial Services. Monitor external communications and ensure that these take place at an adequate level of frequency.
- Set up teams to address the short-term reinstatement or permanent restoration.

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DUTY MANAGER

- PRIORITIES:**
1. Preservation of human life, health and well being
 2. Protection of the environment
 3. Protection of Company Asset
 4. Restoration of disrupted utilities
 5. Resumption of normal production

Aide Memoir Level 1B/2/3 Emergency

1. Nominate historian
2. Consider incident:
 - What happened?
 - Victims? (Fatalities, injuries)?
 - Personnel missing? (All personnel accounted for)?
 - Medical assistance required?
 - Current process status?
 - Any toxic/radioactive releases?
 - Weather conditions? (wind direction)
 - Road barriers set up?
 - Authorities and/or other outside parties informed?
 - Time?
 - Escalation possibilities? (Safety/Health/Environmental)
3. Consider possibilities:
 - What kind of equipment do we need?
 - Enough personnel available? (ERT in attendance/additional operators for running units/ fitters/instrument technicians)? Any personnel called in?
 - What kind of extinguishing agents do we need and how much?
 - Do we need assistance (mutual aid)?
4. Be in control:
 - Think about relief and refreshments for crew.
 - Keep an eye on drainage systems.
 - Check procedures, prioritize and delegate.
5. Notifications:
 - Shareholders
 - Authorities
 - CEO, DO
 - SPRC Staff
6. After the incident:
 - Think about protection of open flammable and/or toxic products
 - Think about protection of collapsing structures.
 - Debrief / interview involved personnel
 - Maintain / secure incident site for investigation
 - Deal with emotional stress to employees / families / responders particularly if deaths or significant injuries occurred
 - Restock emergency response equipment (firefighting, first aid, HAZMAT, PPE)
 - Check equipment and clean it.
 - Reload and refuel truck.
 - Clean protective clothing

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7.2 Operation Duty**Report to:** Duty Manager**Role**

To provide support to Shift Supervisor on all operational matters during emergency when emergency level 1B, 2, 3 at EOC.

To be the Operation Support Team member when emergency level 3

Responsibilities

- Call in other staff member of Operation Duty.
- Inform PN/PD as considered appropriate.
- Be aware of operational requirements and issues during emergency.
- Provide assistance by operational experience and liaison with the operating units an appropriate plan of action in emergencies. Contact operations personnel that may provide additional information.

- Check contacts listed in Appendix P (Emergency Telephone Numbers) against the type of emergency being managed, and ensure appropriate liaison links are established and maintained, including precautionary contact.
- Consider, in conjunction with the Duty Manager, additional organizations with whom liaison should be established.
- Determine whether liaison officers should be sent to outside organizations and advise the Duty Manager, arrange accordingly.
- Report regularly to the Duty Manager.
- Keep a record of contact with authorities and pass to Secretarial Services hourly.
- Coordinate with CA AD to make the rooms available for presses and media.
- In case of any tanks fire occurred, inform to the Department of Energy Business
- To support on cash box and arrangement.

7.3 External Affair Duty - Corporate Affairs Issues**Report to:** Duty Manager**Role**

- To provide a link with the Duty Manager on corporate affairs aspects associated with the emergency and establish information flows and timings of briefings.
- To keep an open line of communication with appropriate organizations / national authorities.

Responsibilities

- To maintain a log of issues and identify key information which is likely to be required by the Emergency Operations Team.
- In conjunction with the Duty Manager to establish a pro-active media liaison and public affairs strategy.
- To brief the Duty Manager / CEO on media interest, issues developing and requests from the media for information.
- To assist in developing/delivering a response to the media as directed by the Duty Manager / CEO
- Inform appropriate organizations on aspects of the crisis that may affect them.
- Obtain from affected organizations, information that may be of assistance to the Company.
- Coordinates and processes to buy additional resources including foods, refreshment, and other facilities to support Emergency Response Team in event of Emergency. These responsibilities can ask support from Mechanical / Instrument & Electrical Duty to help by mobilizes additional resource. The list of vendor/supplier are defined in External Contact List (AM-OT-CA-012)

Specific Tasks

- Call in other staff members of CA/HR and EA Duty
- Maintain a log of media activity identifying the line of questioning being adopted by the media and community and issues developing. Pass this information to the Duty Manager /CEO on a regular pre-agreed frequency.
- Establish contact numbers where the media can call for information.
- Enact the requirements and requests of the Duty Manager.
- Prepare media, community, and staff briefing material as requested by the Duty Manager.

7.4 External Affair Duty - Human Resource Issues**Report to:** Duty Manager**Role**

- To provide advice to Duty Manager on personnel/welfare aspects associated with the emergency, and establish information flows and timings of briefings.
- To provide and maintain appropriate legal advice regarding Human Resources' aspects as required.

Responsibilities

- To brief the Duty Manager on personnel and welfare issues relating to staff.
- Maintain a list of personnel on site and the status of casualties.
- Enact Company personnel policies relating to staff welfare.
- Co-ordinate with hospitals for the treatment of injured persons provides additional support of required.
- Ensure appropriate legal advice is available for the Duty Manager when making critical decisions and press releases.

Specific Tasks

- Call in other staff members of CA/HR and EA Duty
- Establish a list of personnel on site and forward to the Duty Manager on a regular basis.
- Establish the names of casualties and forward to the EOC Team and the CEO on regular basis or when significant information becomes known.
- Identify welfare requirements and seek direction on a response strategy.
- If required make arrangements to advise or visit the next of kin of any casualties.
- Arrange for the movement of staff dependents to be with injured employees.
- Arrange for the co-ordination of grief counseling.
- Establish the relatives contact numbers at SPRC, and in Bangkok, and advise to staff and relatives so that they can receive information on assistance and status of family members.
- Monitor the quality of medical treatment being given to injured staff to ensure it is appropriate.

- Coordinate and ensure the switchboard operator is aware of the incident and fully manned.
- Make a room and telephones available for answering incoming calls.
- Ensure that all personnel not directly involved in the emergency are kept informed, including personnel at the assembly areas.

Policy for Notification of Next of Kin

Notification of Death

The responsibility for notification of next of kin lies with the company for staff and with the contractor for contract staff. Any enquiries related to the physical well being of SPRC staff, contractors, etc., will be directed to the appropriate employer.

Every endeavor should be made for a senior representative from the Company to be present when notifying the next of kin.

Notification of Injuries

The responsibility for notification of next of kin lies with the Company for staff and with the contractor for contract staff. Any enquiries related to the physical well being of SPRC staff, contractors, etc., will be directed in the first instance to SPRC Management.

**** No name of injured or death person should be given to the media until it is verified that next of kin have been informed.**

7.6 Emergency Response Coordinator (Duty)

Report to Duty Manager

Roles To provide advice to Duty Manager /OSC on all Emergency Response aspects.
To be member of Emergency Support Team when emergency level 3

Location Emergency Level 1B at the EOC.
Emergency Level 2 / 3 report to Duty Manager and Act to leader of Emergency Support Team also between EOC with Fire Station.

Responsibilities

- Call in other staff members of ERC Duty.
- Advise on using all firefighting equipment.
- Advise the OSC through IC on strategy, objective, tactics, and resources.
- Brief the situation to ERC member when they arrived.
- Record the external communication and information.
- Assign Emergency Response Coordinator member go to incident scene to assist OSC on control activities at the scene if level 2 or 3.
- Coordinate with Mutual Aid Teams.
- Assign Emergency Response Coordinator member to be the Mutual Aid Coordinator and Staging Officers when emergency level 2 or 3.
- Evaluate and calculate the needed resources to control the situation.
- Coordinate more resources from EMAG and Government.
- Assigned the QS/31 or QS/32 go to incident scene to assist OSC on level 1B (if required on a working day).

Note: When a community evacuation is recommended, Map Ta Phut Fire Department and the Rayong Disaster Prevention and Mitigation office (PorPor) will be notified by Emergency Response Coordinator during on hours.

7.5 EHS Duty

Report to Duty Manager

Role

- Provide advice on EHS related aspects to the Duty Manager, identify reporting and liaison requirements to the Public Affair focal point.

Responsibilities

- Advise on EHS requirements to assist in the containment of any physical situation.
- Identify parties (authorities, neighbors) to be contacted or advised of the situation as dictated by statutory and other requirements.
- Advise to the Duty Manager of any investigation required by authorities and any associated requirements.

Specific Tasks

- Call in other members of the EHS personnel.
- Provide technical advice on EHS equipment and other resources to be utilized to control any situation and contain its impact.
- Advise the requirements under the various EHS regulations and other statutory reporting requirements.
- Advise to the OSC through IC about suspension of emergency response operation when the scene atmosphere result in a IDLH level and/or to involve an imminent danger condition
- Advise to the OSC through IC to decrease level of respiratory protection when the air monitoring at the scene result that the situation is safe to decrease level of protection (refer to [EHS-SP-QS-0017 Respiratory Protection Program.doc](#))
- Provide technical data as is required by the emergency response organization and the Duty Team.
- Call in the company Radiation Safety Officer (RSO) in case of radiation incident (Khun Suchart B (IR/2) Tel.087-833-8957
- Keep monitoring and tracking of an injured person and head count details (to update to the Duty Team members)

7.7 Marine Duty

Report to Duty Manager

Role

To provide marine technical and marine pollution advice in general, give support to the Duty manager on all emergencies.

Responsibilities

- Call in members of Marine Duty.
- Be aware of the planned ship movements.
- Give marine technical advice to Duty manager on all marine matters, which are outside the normal operational routine.
- Advise the Trading Department of ship acceptance criteria for anticipated ship chartering requirements
- Act as the historian (in case of not related to the marine incident)

7.8 Mechanical / Instrument & Electrical Duty**Report to** Duty Manager**Role**

To coordinate and direct mechanical / I&E maintenance and Logistic Concerns (facilities, foods, etc.) to support Emergency Response Team in event of emergency.

Responsibility

- ☐ Call in other staff members of the Maintenance
- ☐ Assists Duty Manager on logistics / equipment issues.
- ☐ Provide mechanical, electrical and instrument assistance.
- ☐ Assigns work locations and preliminary work tasks to section personnel.
- ☐ Identifies services and support requirements for plan and expected operations.
- ☐ Provide support to External Affairs Duty for mobilizing additional resources including foods, refreshment, and other facilities to support Emergency Response Team in event of Emergency.
- ☐ Reviews Incident Action Plan and estimate section requirement for next operation period.
- ☐ Assist in developing a recovery plan.
- ☐ Provide specialized maintenance / construction services as required.
- ☐ Coordinate equipment inspectors as needed.
- ☐ Coordinates turnaround-planning capabilities to assist with the orderly restoration of services.
- ☐ Provide specialized services relating to engineering drawing, documentation of equipment, operational procedures relevant to the process involved.

In event of process plant end /or off sites equipment breakdown, the mechanical /I&E duty person shall do the following additional:

- ☐ Respond promptly (establish verbal response where possible) to a request for assistance from the Operations and determine, as far as possible, the scope of the work and the skill(s) required.
- ☐ Inform the relevant maintenance area supervisor(s) the next working day about detail of maintenance action taken during call out and required follow up action.
- ☐ Inform PN/PD Superintendence Mechanical of serious matters as soon as possible.

9. Emergency Support Team (Day Staffs)**Who** Maintenance group, Emergency Response Coordinator group**Location** Fire Station**Emergency Level** 2, 3**Responsibilities**

- ☐ The first person to arrive will establish contact with the IC until the Emergency Response Coordinator arrives. The following responsibilities will be assigned by the Emergency Response Coordinator.
- ☐ Keep a register of all personnel present.
- ☐ Keep a log of all activities.
- ☐ Assist OSC on control activities at the scene.
- ☐ Advise on using all firefighting equipments.
- ☐ Appoint radio operator and Historian.
- ☐ Collect and register radios as people arrive.
- ☐ Check pool vehicles for availability.
- ☐ Arrange transport for personnel and equipment to go to the incident scene.
- ☐ Provide back up for the ERT at the incident scene as required using trained personnel.
- ☐ Prepare and provide fire-fighting equipment as required from the fire station.
- ☐ Nominate Personnel to assist as Mutual Aid Coordinators.
- ☐ Provide messengers as required by Incident Commander / On scene Commander.
- ☐ Provide guides for outside agencies arriving at the refinery.
- ☐ Assist with traffic control at the main gate and approach roads, as requested by security.
- ☐ Ensure that all communications systems remain operable.
- ☐ Coordinated with REB to Open the workshop and warehouse.
- ☐ Arrange for extra personal protective equipment to be available.
- ☐ Provide transport assistance.

8. Operations Support Team**Who** Affected area Manager, off-shift Shift Supervisors, off-shift Senior Operator, Process engineers**Location** CCB**Emergency level** 3**Responsibilities**

Main priority is to support, and take over some of the responsibilities

- ☐ Keep a register of all personnel present.
- ☐ Provide technological to the operating shift.
- ☐ Provide panel assistance.
- ☐ Provide supervisory assistance as requested by the IC/ OSC or operating shift.
- ☐ Provide assistance / relief for the On Scene Commander if requested.
- ☐ Provide assistance for the Incident Commander / On Scene Commander if requested.
- ☐ Assist outside operators to bring plants to a safe condition.

- ☐ Keep all radio transmissions to a minimum.

- ☐ To be the Staging Officers

- ☐ If necessary arrange for 24 hours coverage by splitting team into 2 shifts

All members of this team must bring with them PPE and any radios or pool vehicles assigned to them.

If assigned as the Mutual Aid Coordinator, he will coordinate with Mutual Aid Teams (Refer to Appendix D Mutual AID and Assisting to third parties).

10. Emergency Support Team (EST) PU Operations team

Who On-shift EST and Off shift EST

Report to SS

Location Fire Station

Emergency level 1B, 2, 3

Responsibilities

- ☐ Switch radio to Emergency channel and report to OSC
- ☐ Contact fire station for request fire bunker gear with SCBA and dress up.
- ☐ Go to the incident scene and report to OSC
- ☐ Response to the incident as directed by the OSC.

11. Operating Shift

Who On shift operators, under control of Shift Supervisor of area where the incident occurred

Report to Shift Supervisor

Location CCB

Emergency level 1A, 1B, 2, 3

Responsibilities

- ☐ Activate Fix fire water system where available.
- ☐ Activate Emergency Isolate Valves to stop fuel source.
- ☐ Liaise with OSC
- ☐ Bring plants / systems to a safe level of operation.
- ☐ Request additional operational resources when necessary.

13. Switchboard Operator

Who Receptionist/ Security Shift Officer

Report to: HR

Location Reception table / REB

Role Operate the refinery switchboard.

Responsibilities

- ☐ Separate emergency calls from normal business calls.

Specific Tasks

- ☐ Direct emergency calls to EOC or other numbers as and when directed by the Duty Manager.
- ☐ Direct normal business calls to the requested person or department secretary where possible. If not possible take the name and contact number of the caller.
- ☐ Keep the switchboard as clear as possible for emergency calls.
- ☐ Contact security to attend to unauthorized visitors.

Do not give out any statements about the emergency.

12. Historian

Who An assigned Administrative Assistance or Marine Duty (if available) (Assigned by Duty Manager)

Report to Duty Manager

Location EOC

Role To act as official recorder for the EOC

Responsibilities

- ☐ Ensure that all events are accurately recorded in the EOC logbook as they occur.
- ☐ Liaise with the radio operator to ensure that all information is recorded.
- ☐ Keep the Duty Team informed of any significant events or changes in the status of the emergency.

Specific Tasks

- ☐ Ensure sufficient log sheets are available.
- ☐ Check the whiteboard for up to date information.
- ☐ Record all events accurately and clearly including incident type, location, date and times.
- ☐ Inform the Duty Manager of significant events or changes in the status of the emergency.
- ☐ Liaise with the radio operator so that all events are recorded.

14. Office Wardens

Who Regular building staff who have been assigned

Report to REB

Location Responsible Zone

Roles To ensure all building occupants area safely evacuate during building emergency.

Responsibilities

- ☐ Department heads or managers will nominate wardens and deputies.
- ☐ There will be a minimum of two wardens present at all times on each level of a building.
- ☐ If wardens are going to be absent from the building then they must inform their deputy
- ☐ The building will be separated into sections for checking.
- ☐ Each warden and deputy will have a floor plan showing areas to be checked.
- ☐ If it is safe to do so. On hearing the fire alarm the wardens will ; Check all the rooms in their area of responsibility, and they will make sure that the occupants have left or are leaving the building.
- ☐ When a room has been checked the warden will close the door.
- ☐ When all the rooms have been checked the wardens will go to the assembly area.
- ☐ They will confirm with each other that the building has been evacuated.
- ☐ They will check with the senior personnel from each department, using the printout from the computer access control system supplied by security, to ensure everybody is accounted for.
- ☐ The wardens will report to the REB or IC with their findings.

Where office wardens have radios, they should be taken with them to the assembly areas.

15. Security

Who All security personnel on site under the direction of the Security Shift Officer

Report to OSC

Location REB

Emergency Level 1A, 1B, 2, 3

Responsibilities

- ☐ Monitor all emergency radio communications.
- ☐ Close the road, which related to the incident and take care of traffic.
- ☐ Ensure emergency radio traffic recorded.
- ☐ Follow instructions of the OSC.
- ☐ Emergency road closing.
- ☐ Emergency gate closing.
- ☐ Site accesses control.
- ☐ Cooperate with law enforcement as required.
- ☐ Keep a log of all activities.
- ☐ Operate the refinery switchboard (out of hours).
- ☐ Call in, as requested by the IC
 - Duty Rota Team
 - Mutual aid
 - Others requested by IC/OSC
- ☐ Get confirmation from duty team members of acknowledging via phone call.
- ☐ Control all traffic into and out of the refinery.
- ☐ Liaise with the police for roadblocks outside property as required.
- ☐ Prepare lists of all personnel on site using access control.
- ☐ Restrict all entry to the Refinery to emergency vehicles and personnel.
- ☐ Keep the incident area free of all non-emergency vehicles and personnel.
- ☐ Ensure that all the master keys are available ready for use at the main gate.

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16. Staging Officer

Who Member of the Emergency Response Coordinator Group

Report to OSC

Location Staging Areas will be assigned by OSC

Emergency level 2, 3

Responsibilities

- ☐ Establish Staging Area Layout.
- ☐ Maintain radio communication with OSC and other Staging Officers.
- ☐ Request maintenance/fuel service for equipment at Staging Area as appropriated.
- ☐ Request and prepare all equipment and make available as required by the OSC and report resource status changes.
- ☐ Maintain Staging Area Resources Form.
- ☐ Maintain Unit Log
- ☐ Assembly and release of fire protection or emergency equipment and supplies to support the emergency response action.

All resources within the designated Staging Areas are under the direct control of the Staging Officer and should be available as soon as possible.

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- ☐ Have a mobile security guard ready to open emergency gates if required.
- ☐ Call in extra security guards as required
- ☐ Notify to the stakeholder refer to section 8.2 Notification and Reporting to Stakeholder

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17. Medical Team

Who Medical Clinic Nurses

Report to OSC

Location Medical Clinic and scene of the incident.

Emergency level 1A, 1B, 2, 3

Responsibilities

- On receiving the emergency alarm;
- ☐ Switch radio to Emergency Channel.
 - ☐ Provide first aid as requested by the OSC.
 - ☐ Evacuate injured personnel by ambulance.
 - ☐ Pass the information of injured or death to External Affairs Duty Person / Duty Manager.

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18. Legal Advisor

Who: Corporate Legal Counsel and Company Secretary

Location: EOC (Fire Station)

Emergency level: 2, 3

Roles: To be an advisor on legal issues

Responsibilities:

This person is responsible for the following:

- Coordinating with outside Thai legal counsel, Shareholder companies, CPC General Counsel and other Chevron in-house counsel (Singapore) on all issues relating to legal liability of SPRC and shareholders.
- Render legal advice and assistance to the Treasurer's Unit related to Traders Insurance Policy and /or other related insurance policy coverage, claims procedures and on matters related to legal interpretation of scope, degree and type of liability for which insurance will respond.
- Provide ad-hoc legal advice to Incident Commander on issues, which may have Thai, USA, Chevron or Shareholder legal implications.
- Ensure appropriate legal advice is available for the Duty Manager when making critical decisions and press release.
- Assist the Duty Manager and other Emergency Response Team members in respect of legal matters related to Emergency Response aspects
- Provide and maintain appropriate legal advice as required.

4. Communications and Transport

Staff on duty who are the first line of emergency i.e. Emergency Duty Rota, will have a duty vehicle available if required, a mobile telephone, which must be handed over in working order to the next person on duty.

5. Duty Rota Short Message Service (SMS) Test

The Duty Rota SMS test will be happened every Friday at 1930 hrs. The message will be "9999 Emergency Group Test, phone 038-699090". When this message is received the duty person must call to REB and confirm his/her SMS reception.

If by 2030 hrs the duty person has not been received SMS, he/she must call REB and inform security shift officer on non-receiving message. Security shift officer will then do an individual SMS test for that particular duty person. In case of SMS failure, SSO will immediately call to all duty rota member.

6. Personal Protective Equipment (PPE)

Staff on duty must have their SPRC standard PPE available when responding to an emergency. PPE should be kept in the duty vehicle for after hour's response.

7. Generic Duty Rota Responsibilities

- Be within a 60 minutes radius of SPRC at all times.
- Be available to go directly to the refinery at any time.
- Carry the duty mobile phone at all times.
- Be aware of specific responsibilities during an emergency.
- When receiving SMS, responding as directed by the message.
- Ensure that the duty mobile telephone is working all times.
- Immediately report any problems with duty communications equipment to Helpdesk.
- Inform AD/6 of any changes to the Duty Rota schedule.
- Must not have a blood alcohol level above 0 mg%
- Notify AD/6 of any changes in home and mobile phone numbers.
- When receiving SMS, the duty team members shall call back to REB in order to acknowledge and advise their status of availability.
- If receiving "All Clear" message during on the way to refinery in case of emergency level 1B/2/3, the duty team should continue to refinery for the summary of situation.

8. Specific Roles and Responsibilities (refer to Appendix A)

APPENDIX B DUTY ROTA GUIDELINE FOR EMERGENCIES

1. Generic Guidelines

The Duty Rota is intended to provide support to the operating shifts in resolving Emergency and non-routine matters in various disciplines, outside normal working hours.

Furthermore, all positions of the Duty Rota will be called in the event of a Level 1B or Level 2 or Level 3 emergency.

2. Emergency Duty Rota List

Common group: Duty Manager, Operations, External Affairs, EHS, Emergency Response Coordinator, Marine, Mechanical Duty and Instrument & Electrical Duty.

Note: For Maintenance and Support Groups Duty details refer to the Maintenance and Support Groups Duty Guidelines.

3. Nomination to Duty Rota

Staff are nominated to duty rota for a period 7 consecutive calendar days starting on Friday morning at 0730 hrs.

The duty rota is updated weekly by AD/6 and distributed to all duty holders and other concerned persons. Line managers are responsible for providing AD/6 with the information on forward planning of the duty rota.

Changes during a duty rota week are allowed, and are the responsibility of the person scheduled for duty and must always be communicated by the person requesting the change, to AD/6, Security Shift Officer and Duty Manager. This change must be to another qualified duty person.

Duty Team member who is a lady, there is a Labor Law Protection stated that **no work during 22:00-05:00hrs is allowed when getting pregnant**, as a result, the lady who is getting pregnant will not be on duty.

Note: QS, PU Managers or AS shall approve Qualified Duty Persons. The Duty Rota nomination form is **EHS-FO-QS-3011 Duty Rota Nomination Form.doc** available in EDMS

APPENDIX C EMERGENCY CONTINGENCY PLAN

1. Hydrogen Sulphide (H₂S) Leak

Hazards of H₂S

H₂S normally enters the body through inhalation. It is a highly toxic gas with an odor of rotten eggs at low concentrations. The toxic effects of H₂S are rapid, and death can occur very quickly. Many liquid and gaseous hydrocarbons may contain H₂S in sufficient concentrations to present a potential hazard to personnel, and the environment. A small quantity of H₂S in the atmosphere (500 ppm) is enough to render a victim unconscious, and can cause death if rescue does not take place immediately.

REMEMBER:

50% OF PEOPLE KILLED IN H₂S INCIDENTS ARE WOULD BE RESCUERS. THEREFORE ENSURE ALL PRECAUTIONS ARE TAKEN BEFORE ATTEMPTING ANY RESCUE OPERATIONS.

Types of Leak

Minor Leak

Unlikely to affect any one outside the immediate area involved, and not requiring outside assistance.

Major Leak

Likely to cause a spread of gas affecting surrounding plants and/or the public outside the refinery boundary, or requiring assistance from outside the area involved.

The Shift Supervisor of the area affected will decide on the type of leak.

Notification of leak:

- * Notify the Shift Supervisor
- * Notify Security to stand by.
- * Notify the Duty Rota Team in the event of a major leak.

Actions on Minor Leak

- The Senior Operator of affected area becomes OSC will direct the operations to repair the leak.
- Two operators working together in SCBA and personal H₂S monitors will secure the plant boundary.
- Two operators working together in SCBA and with personal H₂S monitors will search the area for casualties, notify Emergency On Scene commander if any are found and begin rescue operations.
- Consider wind direction and evacuation of affected areas including assembly areas.
- All evacuations and movements should be across wind away from the leak.
- All roads in affected area to be closed.
- Isolate and de-pressure the leaking equipment to reduce/eliminate the leak.

Action on Major Leak

- Action as for minor leak plus the alarm is to be sounded for a level 1B or level 2 or level 3 emergency.
- Notify personnel in buildings down wind of the leak.
- All personnel involved in the emergency must be wearing SCBA and carry personal H₂S monitors.

Note: If H₂S detected at the fence line at concentration of 5 ppm. or more, activate Community Evacuation Plan (see 11.3 Community Evacuation of this plan) and refer to EHS-WI-QS-2025 Hydrogen Sulfide Work Instruction.doc

2. Radiation Emergencies

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3. Bomb Threat**Introduction**

Bomb threats will usually be made directly to the refinery, but may also be made through the news media, police or other third party.

Threats may come from:

- Misguided practical jokers.
- Malcontents presently or previously employed by the Company or a Contractor deliberately causing inconvenience and disruption to production without sinister motivations for injury or damage.
- Extremist organizations operating primarily in the fields of local or national politics with malicious intent.

Threats are usually made by:

- Telephone to the refinery usually to the switchboard operator.
- Telephone to the local police or other authorities.
- Communication to the local news media.
- Anonymous Letters
Note: Letters containing information on the alleged placing of a bomb should be handed to the police for any action they think is required. The letter should be handled as little as possible and by the minimum number of people.

NO BOMB THREAT CAN BE IGNORED

The decision to evacuate some or all personnel must rest with the OSC / Incident Commander presents when the message is received. Duty manager must be informed.

Handling bomb threat calls

The most like persons to receive the call are:

During Normal Working Hours

- Switchboard Operators.
- Managers.
- Secretaries.

In the event of an emergency such as:

- Leak or contamination of radiation source.
- Observed or suspected damage to radiation equipment, a radiation source, or its container.
- Observed or suspected malfunction of radiation equipment, or shutter control mechanisms.
- Suspected or actual losses of radiation source.
- Fire explosion or other disaster.

In cases of emergency involving radiation the EHS-SP-QS-0014 Radiation Safety.doc must be followed.

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After Hours

- Security Personnel.
- Control Room Operators.

Responsibilities

The person receiving the bomb threat call shall:

- Ask questions from caller
- Immediately notify Security

Security Shift Officers:

- Notify the Shift Supervisor who will then establish an evaluation team.
- Contact the police.
- Follow Bomb Threat Instruction in Security Work Instruction.

Evaluation Team:

Evaluation Team is consisted of OSC, IC, and ERT. Duty Manager must be informed. Upon notification the evaluation team will proceed directly to the EOC. The person receiving the threat will meet with the team on its arrival.

The Evaluation Team will:

- Evaluate the threat.
- Decide on a course of action in conjunction with the advice of the police.
- Call in Duty Manager and key personnel to assist in a search if required.
- Reconvene with the police and other parties upon discovery of a suspected, or actual, device to discuss decision/action.
- Advise the Control room not to use portable radios until further notice.

Searching Procedures

- When a decision has been made to search, the OSC will designate the personnel most familiar with the target area to carry out a systematic search including with the Security Shift officer (or competence person).
- Communications will be by telephone (desk phone), radios or 'runners'.

- If a suspicious object is located then it must not be touched, its location conveyed to the Duty Manager and the area cordoned off.

Firefighting equipment should be set up in strategic positions.

Duty Manager will contact the local police or bomb disposal squads (by assistance of Security Shift Officer), if they are not already on site. Notify all staff.

Remark: The mobile is not allow to use during searching

3.1 BOMB THREAT CHECKLIST

NAME OF EMPLOYEE _____ TIME _____ DATE _____

QUESTIONS TO ASK

1. Has a bomb been placed or is the caller threatening to place one? _____
2. Was it mailed? _____
3. Where is bomb going to explode? _____
3. Where is bomb right now? _____
5. What kind of bomb is it? _____
6. What does it look like? _____
7. Why did you place the bomb? _____
8. Where are you calling from? _____

WRITE OUT THE MESSAGE IN ITS ENTIRETY USING EXACT WORDING

CALLER'S IDENTITY

Male _____ Female _____ Adult _____ Juvenile _____ Accent _____ Approximate Age _____

ORIGIN OF CALL

Local _____ Long Distance _____ Booth _____ Unknown _____ Internal _____ (From within SPRC) if internal leave line open for tracing the call.

LANGUAGE

Excellent _____ Good _____ Fair _____ Poor _____ Foul _____ Other _____

SPEECH

Fast _____ Slow _____ Lisp _____ Distinct _____ Distorted _____ Slurred _____ Stutter _____ Nasal _____ Other _____

ACCENT

Foreign _____ Race _____ Local _____ Not Local _____ Region _____

BACKGROUND NOISES

Animals _____ Airplanes _____ Bedlam _____ Factory Machines _____ Music _____ Mixed _____ Office Machines _____ Traffic _____ Trains _____ Party Noise _____ Voices _____ Quiet _____

VOICE CHARACTERISTICS

Loud _____ Soft _____ Deep _____ High Pitch _____ Raspy _____ Pleasant _____ Intoxicated _____ Other _____

MANNER

Calm _____ Angry _____ Rational _____ Laughing _____ Irrational _____ Coherent _____ Incoherent _____ Deliberate _____ Emotional _____ Righteous _____

Link to Telephone bomb threat form [EHS-FO-QS-3050 Telephone Bomb Threat Form.doc](#)Revision No.:14
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4. Marine Terminal / SPM Emergencies**4.1 Marine Terminal Emergency**

All Jetty operations must stop and product flows must be isolated

In case of fire in Marine Terminal Area, Senior Operator of Marine Terminal will be OSC and control all activities at the scene of incident and report to Incident Commander (PD Shift Supervisor) at EOC. ERT Team will be mobilized from Marine Terminal Areas. If the incident is associated with oil spill, the OSC should call Marine on Duty person to deal with oil spill.

In the case of a fire on a ship the SPRC emergency organization will assist as requested by the person in charge of the ship.

It is not necessary to wait for a formal request from the ship before action is taken.

Command

In the case fire on the jetty itself, the command will be referred to Emergency Response Plan. In the case of a fire on a ship, the command will be the ships Master and or the harbormaster. The refinery emergency organization will assist as requested.

Notification

1. In case of fire on ship, the following parties shall be notified by Ship Master

- Ship agency
- Ship Charterer
- Ship Owner

2. SP Department will notify off taker/Charterers

Additional resources

In case of additional resources such as ships should be requested via MTP Port Authority

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3.2 Mail Bomb Recognition Checklist

Mail bombs have exhibited unique characteristics, which should be helpful in identifying a suspect item. The following could be of assistance when opening mail:

Envelope

- ✦ Envelope will be lopsided or uneven in weight or packaging with possible cutting or pasting.
- ✦ Excessive use of securing materials such as sealing tape or string.
- ✦ Feelings of springiness or sponginess in the top, bottom or sides.
- ✦ Protruding wires, tinfoil or string.
- ✦ Oily stains or discoloration ("Sweating" of plastic explosive).
- ✦ Peculiar odor. Sometimes smells like almonds.
- ✦ Shushing, buzzing or ticking sounds. Inks, particularly reds and blues may bleed, staining the envelope.

Weight

- ✦ Heavier than usual for its size.
- ✦ Weight uneven or volume distribution uneven with possible bulging.
- ✦ Heavier than usual for its class of mail. (For example, an airmail envelope weighing more than 2 ounces).

Rigidity

- ✦ Greater than normal, particularly along its center length.

Thickness

- ✦ Not uniform, or with bulges.
- ✦ For medium size envelope, the thickness of a small book and fairly rigid.
- ✦ For larger envelopes, bulkiness, an inch or more in thickness.

Address

- ✦ No return address.
- ✦ Hand printed or poorly printed or typed address.
- ✦ Incomplete or erroneous destination address.
- ✦ Foreign, poor or disguised handwriting.
- ✦ Restrictive markings such as Private, Confidential, Personal, or Eyes-Only.
- ✦ Marked (written or stamped) airmail, Special Delivery, Certified or Registered.
- ✦ Mail designated Rush, Handle with Care or Fragile.
- ✦ Misspelled words, particularly those in common business usage.

IF YOU SUSPECT A MAILING AND ARE UNABLE TO VERIFY THE CONTENTS:

- ✦ **DO NOT OPEN THE ARTICLE.**
- ✦ Isolate the mailing and secure the immediate area.
- ✦ Notify Supervisor and Shift Security Officer.
- ✦ **DO NOT** put the article in water or confined space such as a desk.
- ✦ If possible, open windows and doors in the immediate area to assist in venting potential explosive gases

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4.2 SPM Emergency**4.2.1 Emergency situation "Fire on the tanker which secured at the SPM"****The following steps must be taken;**

- The tanker must raise alarm consisting of a series of long blast on the ship's whistle, each blast being not less than 10 seconds in duration.
- Mooring Master on board the tanker inform to Marine control building & towing tug to be on stand by and inform to Marine Manager.
- Marine Manager will inform to duty Manager & Oil Movement - Dispatch Manager for the situation at the SPM.
- All cargo, bunkering or ballasting operations must be stopped.
- Tanker's main engines & steering gear brought to stand by condition.
- Activated fire-fighting team on board the vessel.
- Discussion between the Master and the Mooring Master whether the tanker can move under her own power or not.
- If the tanker can move under her own power, then the towing tug can be released from the stern of the tanker to assist in Fire Fighting. SPM maintenance vessels need to have all firefighting equipment in ready to use including foam compound as well.
- If the tanker cannot move under their own power so the decision have to be made between the team whether or not require assistance from firefighting tug or assistance from Refinery ERT team.
- Mooring Master needs to have a close communication with the MCB regarding the outside assistance from the tugboat, rescue launches, medical aid and ambulance, port authority.

Emergency Removal of a Tanker from a berth.

- If a fire on a tanker which secured at the SPM cannot be controlled. It may be necessary to consider whether or not the tanker should be removed from the berth.
- Planning for such an eventuality may requires consultation between Master, Mooring Master, Marine Manager, Emergency Response Coordinator and Oil Movement & Dispatch Manager.
- The safe location for anchoring is 3 miles South of SPM.

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Rescue Launch

- The work boat on the SPM maintenance vessel will act as a rescue launch for the recovery of personnel who may be in the water or the evacuation of personnel who may be injured from the fire.

Launch detailed of these duties should have the following equipment;

- A communication link capable of being integrated into the control center communication system (Marine band or mobile phone)
- Fixed or portable search lights for operations during darkness or periods of reduced visibility.
- Self contained breathing apparatus
- Resuscitation equipment
- The crews of the rescue launch should have knowledge of first aid and know how to use artificial respiration.

Communication

- Via Marine band ch. 67, UHF trunk radio in emergency channel or by mobile phone.
- SCM tug boat on Marine band ch. 11 or by telephone (038) (684556-9)

4.2.2 Emergency situation "Fire on the SPM"**Fire on the SPM which no tanker berthing at the SPM**

- SPM maintenance vessel will be on standby, activated firefighting team on the vessel and make firefighting equipment ready to combat with the fire.
- Communicate to MCB and Marine Manager. Approaching to SPM and sprayed water to SPM as soon as possible.
- Marine Manager will inform to duty Manager & Oil Movement - Dispatch Manager for the situation at the SPM.
- Mooring Master will travel to SPM by SPRC speed boat if the weather permit.
- SPM maintenance vessel will send the photo via e mail so Marine duty team can assess the situation from time to time, and discussion have to be made between the team whether or not require assistance from firefighting tug or assistance from Refinery ERT team.
- After the fire stopped, the Marine team need to investigate for the cause of the fire and check for the condition of the SPM whether fit for purpose or not and may be need to launch the procedure contingency plan when SPM being out of order.

sounding of the tank need to check from time to time until the situation was improved.

- The ship's owner must contact to the outside tug assistance for assisting from aground position by discussing with the Mooring Master as well.
- Mooring master can feed initial information for the tide table and the current direction.
- When vessel afloat again, the diving inspection need to be done to confirm for the condition of the vessel and the class surveyor need to be approved for the fitness of the ship before the decision of berthing the tanker at the SPM had been made.

4.2.4 Emergency situation "Vessel grounding during maneuvering at the SPM Area during Piloting by SPRC Mooring Master"

The following step must be taken;

- Stopped maneuvering on the tanker and inform to MCB and Marine Manager to know the initial condition.
- Marine Manager will inform to all concerned parties and call for standby.
- Tanker must check the sounding of all cargo tank, ballast tank and fuel tank whether the quantity was still the same or not. The sounding of the tank need to check from time to time until the situation was improved.
- During the tanker check the sounding of all tank, the maintenance vessel can check around the tanker whether have an oil spill or not.
- If oil spill occurred, activated oil spill response plan as per SPRC OSRP.
- If no oil spill occurred, the Master & Mooring Master need to discussion with SPRC Marine team.
- Time of high water, the assistance of the SC tug, assistance from SPM maintenance vessel need to be considered to assist the tanker to afloat condition.
- When vessel afloat again, the diving inspection need to be done to confirm for the condition of the vessel and the class surveyor need to be approved for the fitness of the ship before the decision of berthing the tanker at the SPM had been made.

Control Center

During the emergency at the SPM, MCB conference room will act as control center and discussion have to be made between the Marine team and the emergency team from the refinery. The final decision will come from Duty Manager & Oil Movement - Dispatch Manager.

Remark: Reliable communications are essential in dealing successfully with emergency situations. Because of their importance, consideration should be given to setting up a secondary system to take over if the main system is put out of action.

Fire on the SPM which tanker still discharging at the SPM

- The tanker must raise alarm consisting of a series of long blast on the Ship's whistle, each blast being not less than 10 seconds in duration.
- Mooring Master on board the tanker inform to Marine control building & towing tug to be on stand by and inform to Marine Manager.
- Marine Manager will inform to duty Manager & Oil Movement - Dispatch Manager for the situation at the SPM
- All cargo, bunkering or ballasting operations must be stopped.
- Tanker's main engines & steering gear brought to stand by condition and Released towing tug to be stand by as firefighting tug.
- Activated fire-fighting team on board the vessel.
- The ship's fire main should be pressurized and water fog applied to the SPM and tanker's forecastle.
- Marine duty team can assess the situation from time to time. And discussion have to be made between the team whether or not require assistance from SC firefighting tug or assistance from Refinery ERT team.
- Mooring Master need to ask our rigger to stand by at the ship's manifold and ready for hose disconnection if necessary.
- Ensuring the unmooring equipment on the tanker must be brought to state of immediate readiness and ready for use.

Communication

- Via Marine band ch. 67, UHF trunk radio in emergency channel or by mobile phone.
- SCM tug boat on Marine band ch. 11 or by telephone (038) (684556-9)

4.2.3 Emergency situation "Tanker grounding during maneuvering at the SPM Area prior Mooring Master boarding"

The following step must be taken;

- Tanker need to inform to Ship's owner & agent.
- The agent will inform to MCB and Mooring Master in charge of that tanker.
- If the grounding area is not within the Map Ta Phut SPM area (3 mile south of SPM) then the Marine team need to assess the situation via the ship's agent.
- If the grounding cause the spill, Please see oil spill plan scenario "vessel grounding"
- If the grounding area is within the Map Ta Phut SPM then Mooring Master will ask the SPM maintenance vessel to search around the ship.
- Tanker must check the sounding of all cargo tank, ballast tank and fuel tank whether the quantity was still the same or not. The

6. TTLT Emergencies

In event of an emergency at the Tank Truck Loading Terminal area the response will be as for all other refinery emergencies.

7. SPRC pipelines Emergencies

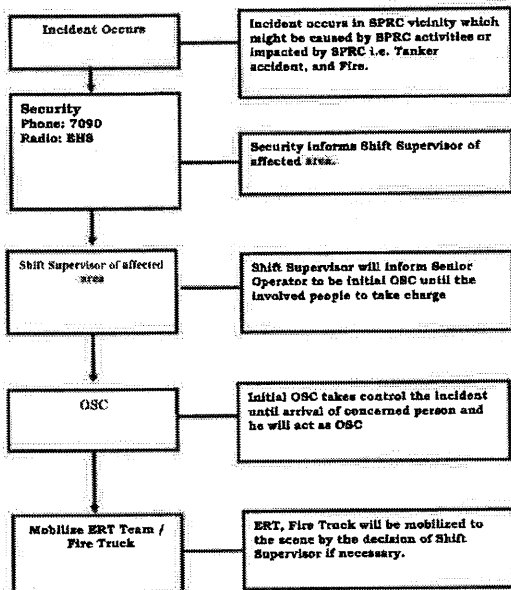
In event of an emergency at pipelines which are SPRC responsibility (see Appendix O) the response will be as for the refinery emergency as following:

- On receiving an emergency call, the PD Senior Operator (Tank Farm) will go to the scene and act as On Scene Commander.
- The ERT will be mobilized to the scene.
- The OSC will set up a command post at the scene and direct firefighting and rescue operations.
- OSC coordinated with OSC ERT (Eastern Fluid Transportation)
- The PD Shift Supervisor will act as IC sets up the EOC.
- OSC report situation to IC.

8. Off Site Facilities Incident in SPRC Vicinity

In event of an emergency off site facilities in SPRC vicinity which might be caused by either SPRC activities or not SPRC activities, but nearby SPRC perimeter (i.e. Tanker accident, Fire). The guidelines have to be carried out as follows:

- Inform Security
- Security informs Shift Supervisor of location affected.
- Senior Operator of affected area will be the initial OSC.
- ERT team will be mobilized by Shift Supervisor consideration.
- Inform involved persons who are responsible to be in charge.



Emergency Contact Numbers

TTLT Operation Coordinator:
Office: 038-699289
Mobile phone: 061- 863-8023 (TTLT Coordinator)

Security Shift Officer: 038-699090

For others referred to [EHS-OT-QS-3003 Emergency Telephone Number.doc](#)

10. Failure of SPRC Trunked Radio system procedures

10.1 Fall Back Mode

There are three fall back modes available on SPRC Trunked Radio System:

- Zone Isolated Wide Area Trunking
- Local Site Trunking
- Direct Mode Operation

For zone isolated wide area and local site trunking, the radios will switch to available site automatically, and radios will work as normal.

SPRC defines the direct mode in detail of EHS-OT-QS-3010 Trunk Radio Emergency Procedure.doc (Page 5).

10.2 Direct Mode Operation (DMO)

If all connections to the Radio Network Infrastructure are lost (CAT main site, SPRC backup sites, and SPRC site down), each SPRC radio can enter into direct mode operation (DMO). This means that the radio will use its own antenna and amplifying power to communicate with other radios that support DMO and are within range of 0.5-1 kilometer.

During DMO mode operation, radios at SPRC site will not be able to connect to those at MCB, except one fixed radio at Area 5 panel (Backup MCB machine). Similarly, MCB radios will not be able to communicate with SPRC site radios, except one fixed radio at MCB Operation Board panel (SPRC Area 5 Backup) machine.

In case of incident occur during radio total fail (Direct mode)

When all available network is lost, the radio displays channel indicates "No Service" word

Incident commander informs REB for announcement

REB announce by radio each direct mode channel to switches the radio to "DMO" and selects emergency channel for direct mode in case of trunk radio is totally failed.

During trunk fail period, minimize the usage of radio communication is required. The command to response action is mainly conduct from on scene commander on site, incident commander or duty manager to first intervention team and support team.

9. Off Site Road Accidents Involving Product from SPRC

The tanker drivers must be aware of the actions to be taken in an emergency. It is the responsibility of the Road Tanker-Depot Manager of each company (PTT, Caltex, and Shell) to ensure that the drivers are aware of their instructions in the actions to be taken in an emergency.

In the event of SPRC being contacted about an incident concerning a Road Tanker, which was loaded at SPRC terminal, the following procedure should be followed:

In case of incident occurs in IEAT-MTP Area:

Truck Accident:

- The person who is aware of the incident should inform the SPRC TTLT Operation Coordinator and Security Shift Officer at Refinery Entrance Building (REB). Then REB inform to Emergency Response Coordinator
- The TTLT Operation Coordinator will then inform the Depot Managers of Off takers and Security Shift Officer
- SPRC will assist when receiving a request from an Authority or Customer
- The TTLT Operation Coordinator considers assisting by consulting with PD Manager in Day working hour and keep inform Duty Manager.
- The TTLT Operation Coordinator considers assisting by consulting with Duty Manager in Off hour and keep inform PD Manager.
- The TTLT Operation Coordinator will coordinate with SPRC concern party to assist the Truck accident and keep inform to PD Manager or Duty Manager

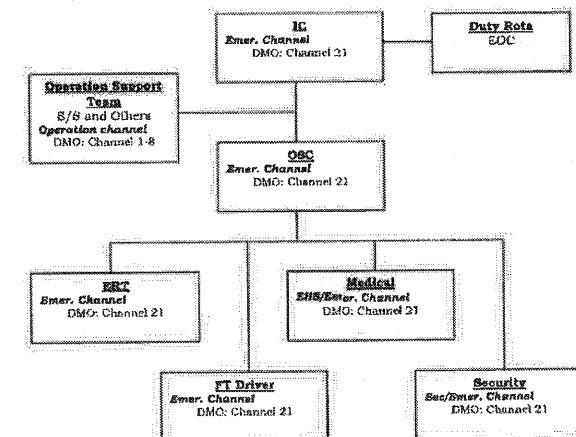
Truck Fire:

- The person who is aware of the incident should inform the SPRC TTLT Operation Coordinator and Security Shift Officer at Refinery Entrance Building (REB). Then REB inform to Emergency Response Coordinator
- The TTLT Operation Coordinator will then inform the Depot Managers of Off takers and Security Shift Officer
- SPRC will provide a Fire Truck to assist when receiving a request from an Authority
- The TTLT Operation Coordinator request support from Emergency Response Coordinator
- Emergency Response Coordinator considers assisting by consulting with Duty Manager for get approve to send SPRC Fire truck to support and keep inform to Duty Manager.
- The decision to supply this equipment will be with Duty manager.

In case of incident occurs out of IEAT-MTP Area:

- SPRC will provide a Fire Truck to assist when receiving a request from an Authority
- Emergency Response Coordinator considers assisting by consulting with Duty Manager.
- The decision to supply this equipment will be with Duty manager.

10.3 Workflow of communications to related trunk radio partial or total failure (Direct Mode) during incident or emergency cases will be by following methods;



Note:

1. IC will get the process information by contacting with Area Shift Supervisor via internal telephone (extension number).
2. The followings are the recommendation emergency exercise programs

Exercise:

- Level 1A/1B Operation on shift Weekly
- Level 2 Emergency Response Teams /EMAG 2 times/year
- Level 3 Emergency Response Teams /EMAG/Rayong Province 1 time/year

Evacuation

Building Occupants 1 time/year/Building zone

It shall be set up the mandatory emergency exercise at least once a year with practice the trunk radio failure for ensuring all back up mode of radio system (Wide area backup-Local site and DMO mode) has good reliability of communication.

3. The link is the trunk radio emergency procedure, which is provided the operation guideline to shift staff on the principle of trunk radio system including emergency

response action during trunk radio failed EHS-OT-QS-3010 Trunk Radio Emergency Procedure.doc

10.4 SPRC Portable Radio Channel Configuration

Trunk Radio "Normal"	Use Wide Area of Local Site Trunking	Area/Location
	<ul style="list-style-type: none"> Talk groups run on radio frequency channel. North site has 16 talk groups opposite. Controller monitors anyone making a call. Intrinsically safe (use color stickers). 2 batteries provided per radio. Battery conditioning required every 3 months. North site: REB, CCB, W/S, TTLT Helpdesk handles all repairs, returns, transfers etc 	A1 A2 A3 A4 A5 Marine TTLT PNM PDM RELIB CTM CTM Project Tank/OSI/NM Paint/Civil Scaff/Insula Rigging 1 Rigging 2 Taxi 1&2 EHS/SEC/MED Security EMER
"Direct Mode"	## Failure of all radio networks: Use DMO mode	North Site
	<ul style="list-style-type: none"> Manually switch to DMO Point to point conversation only. Limited distance e.g. 500 - 1 km Sensitive to obstructions e.g. walls etc. Only use when "controller & base" have failed On screen radio will show "DMO" On Screen radio will show symbol "I->I" Standby at appropriate channel. Monitor channel before calling. 	DMO-A1 DMO-A2 DMO-A3 DMO-A4 DMO-A5 DMO-Marine DMO-TTLT DMO-PNM DMO-PDM DMO-RELIB DMO-CTM DMO-CTM Project DMO-Tank/OSI/NM DMO-Paint/Civil DMO-Scaff/Insula DMO-Rigging 1 DMO-Rigging 2 DMO-Taxi 1&2 DMO-EHS/SEC/MED DMO-Security DMO-EMER

APPENDIX D MUTUAL AID and ASSISTING TO THIRD PARTIES

The following mutual aid has been agreed, to provide assistance in case of an emergency at installations in the industrial estate.

1. Assistance to SPRC

In the case of SPRC requiring assistance from outside sources the following is a list of resources in the order to be called in:

The Emergency Mutual Aid Group (EMAG) is consisted of SPRC, ROC, PITOC2 (PIT-Chem III), PITOC3 (former PITChem-14), PITOC4 (former PITARO-1), PITOC5 (former PITAR2-HIL) and PITOC6 (refinery), PTT (gas Separation Plant), VNT, Covestro (Thailand), IRPC, TFE and MOC

On arrival at the refinery mutual aid teams will stand by at REB for PN until they are required by the OSC or IC. The Mutual Aid coordinator will take them to the incident scene and liaise with the OSC.

2. SPRC Assistance to Other Companies

2.1 Agreement Companies

In the case of a request to SPRC for mutual aid from one of the EMAG members, SPRC has to immediately provide for the equipment. The mutual aid company will call assistance via the REB and/or SPRC EMAG representative (Lead Emergency Management and Emergency Management Specialist).

The equipment will be supplied and the decision to supply this equipment will rest with the Shift Supervisor at the time.

For Fire Truck driver and an assistant or other personnel if needed will be arranged by Shift Supervisor. More consult or advice will be supported by Emergency Management Specialist if required.

2.2 Non Agreement Companies

In case of the other companies which not in agreement need assistance from SPRC, SPRC will provide a Fire truck and necessary equipment. Fire Truck driver and an assistant or other personnel if needed will be arranged by Lead Emergency Management (should not be Operators)

The decision to supply this equipment will be with Duty manager.

SPRC will provide a Fire Truck, driver and Fire Truck operator plus other equipment and personnel as necessary to either Agreement Companies or Non Agreement Companies.

11. Product Contamination Procedure

In event of SPRC products which become off specification either at the refinery or at discharging port of customers. The response will be referred to Non Conforming Products Procedure.

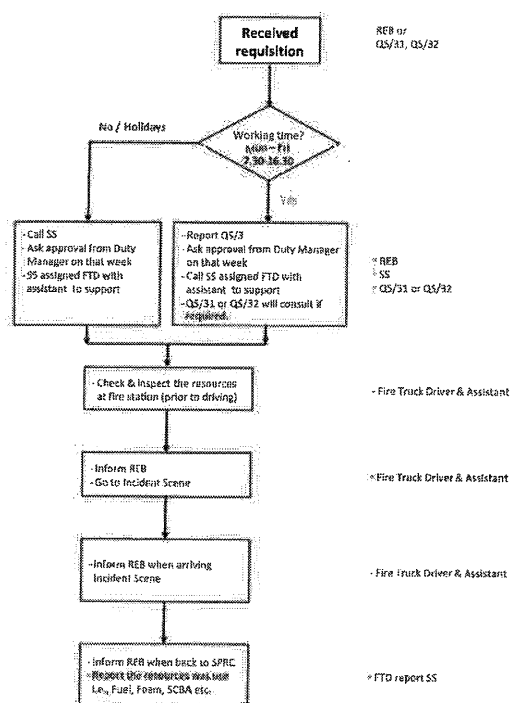
12. Oil /Chemical Spill/Release and Leak on land

The response of Oil / Chemical Spill/ Release on Land will be referred to EHS-WI-QS-3003 Hazardous Material Release, Spill and Leak.doc

13. Marine Oil Spill

The response of Marine Oil Spill Plan will be referred to EHS-WI-QS-3001 Oil Spill Response contingency Plan.doc

Flowchart of SPRC Assistance to Other Companies



Noted

- Record Information & resources was to requested.
- Use Fire Truck check list for resources clarification with EMAG or other company requester
- In case of the other companies which not in agreement need assistance from SPRC will be arranged by Lead Emergency Management (should not be Operators)

3. Mutual Aid Coordinators

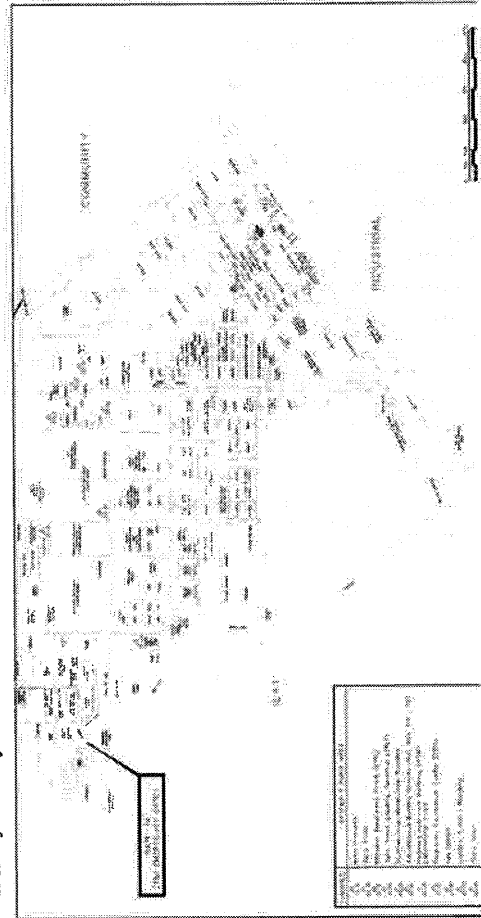
ERC members or persons nominated from the Emergency Support Team will be assigned and wear a **reflective vest marked "MC"**

Mutual aid fire trucks should be parked in the vicinity of REB for PN in a safe location. If mutual aid fire trucks are required on site they must be accompanied at all times by SPRC personnel.

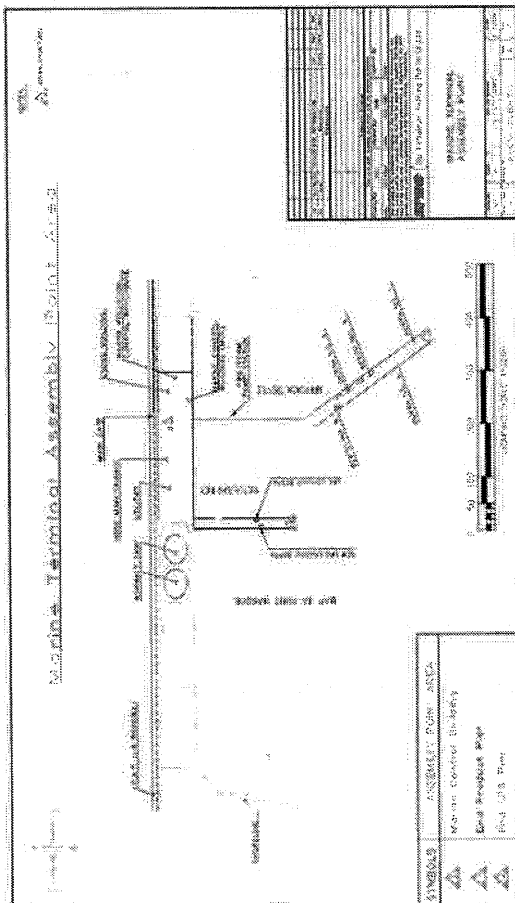
Mutual Aid Coordinator should log in equipment, personnel, and quantity of foam of Mutual Aid Team. Brief of emergency situation should be made to Mutual Aid Teams.

Note: At the first stage of emergency if needs assistance from Mutual Teams, the security personnel will be the Mutual Aid Coordinators until ERC members arrive.

APPENDIX E EMERGENCY ASSEMBLY AREAS Refinery Assembly Areas



Marine Terminal Assembly Areas



APPENDIX F HEAD COUNT PROCEDURES

1. HEAD COUNT PROCEDURES

All personnel not involved in the emergency must go to an assembly area. Contractors are responsible for their own personnel. SPRC personnel are responsible for their visitors.

- It is responsibility of the Incident Commander or the Duty Manager to assign the person to do a head count.
- It is the responsibility of the On Scene Commander to account for all personnel in the incident area.
- Security will take the names of any person leaving the refinery during an emergency.

The person assigned to do the head count will follow the following procedure:

Process Area (See Appendix E Emergency Assembly Areas)

- Check the number of jobs in the work permit from the permit rooms (COS shelters).
- Check with supervisor of each job about the number of persons at the assembly area No. 1 in front of the CCR/Platformer.
- Check with supervisor of each job about the number of persons at the assembly area No. 2 at the west of Oil Movement Building (OMB).
- Check with supervisor of each job about the number of persons at the assembly area No. 3 at the ETP.

Admin. Building Complex / Employee Recreation Center/ Marine Building/ Construction Building/Warehouse and TTLT (See Appendix E Emergency Assembly Areas)

Check with the office wardens for personnel at the assembly areas.

When moving around between assembly areas always take into account the type of incident and the wind direction.

Inform the Incident Commander / Duty Manager of the results of the head count and action taken.

APPENDIX G PRESS RELEASES GUIDELINES**1 PRESS RELEASES GUIDELINES**

Communicating in an emergency/a crisis Public attention in the event of an emergency or a crisis, particularly media attention, can be overwhelming so bear these points in mind:

- **Concern:** show that the company cares for those affected
- **Clarity:** adopt a clear media response statement
- **Co-ordination:** ensure that it is widely understood who is the spokesperson
- **Co-operation:** maintain a good working relationship with the media and other agencies
- **Consistency:** ensure that you come across clearly and without contradiction and that your facts are verified at source
- **Consultation:** if a joint-venture partner or contractor is involved, consult them before any statement are made
- **Control:** centralize and control the flow of information by
 - Response statement cleared by Duty Manager
 - Prepared answers to expected media questions
 - Regular news briefing if appropriate
 - Factual information to offset rumor using every means of communication
 - No unauthorized interviews or statements
 - Only ONE spokesperson at any one time to avoid confusion

CAUTION – don't

- * Admit legal liability unless specifically empowered to do so
- * Lie or try to hide behind "NO COMMENT"
- * Blame anyone or anything
- * Release details of cost estimate of damage or loss

3. MEDIA AND OFFICIALS OFFICES

PA department designates the offices for the media and officials for working during an emergency when they needed as following:

Officials: Room Number R-106

Media: Room Number R 106

External Affairs to request IT duty person to set appropriate equipment, but cover the following as minimum:

- * Facsimile Machine
- * Telephones
- * Computer
- * Copy machine

APPENDIX H FOAM SUPPLIERS**2. INITIAL RESPONSE STATEMENT**

(To be completed by Duty Manager then pass on to External Affairs Duty)

When: Date _____ Time _____

What happened: _____

Where exactly: _____

Any fatality/injured: _____

How many people are on site: _____

What actions being taken: _____

What effects will the incident have on operation/production: _____

SPRC is still investigating the cause of this incident and at this point in time is not able to provide any details until the investigation is complete.

Completed by: _____ [Duty Manager]

2.1 Red Alert Service (National Foam Inc.- Kidde Fire Fighting)

Tel: +610-943-1400

2.2 Ansul

Tel: Local distributor TTK: (+66 or 0) 2704 6430

2.3 Chemguard

Tel: +1-817-473-9964

2.4 National Foam Universal Gold 1/3%

Tel: +668-9079-9448 or 02-026-0470-92 # 506

APPENDIX I DRINKING WATER AND REFRESHMENTS

The drinking water for emergency support is kept in the Fire Station storeroom both sites call security for the keys.

In case of long period of incident, which need cash for arranging refreshments and/or meal, External Affairs duty will be the person to support.

APPENDIX J TRANSPORTATION

In case of emergency the duty vehicles and TAXI will be parked at the car park nearby the fire stations and leave the key in the ignition sockets

There is a driver available (stand by Lab) during off-hours at the shelter and vans are parked in the car parking shelter with the key are left in the ignition socket. Phone Number 7089

During off hours and holiday Taxi (pick up truck) will be parked beside the REB and key will be kept at REB.

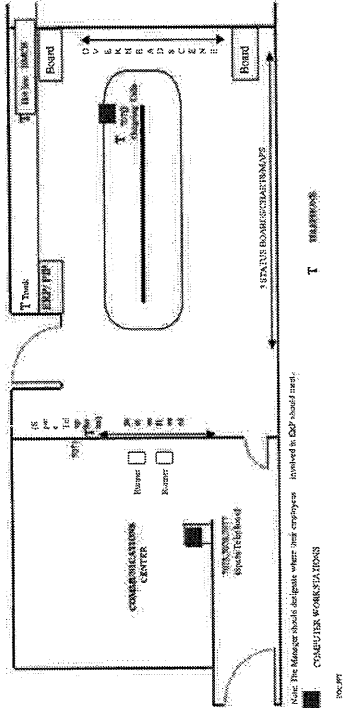
APPENDIX K EMERGENCY ALARM TEST

The emergency alarms will be tested each Wednesday at 1330 hrs. Follow by the All clear.

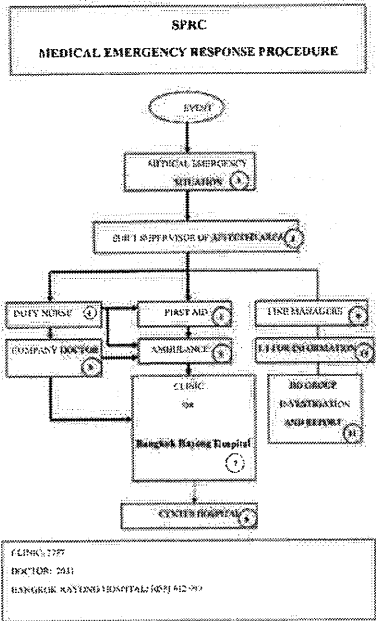
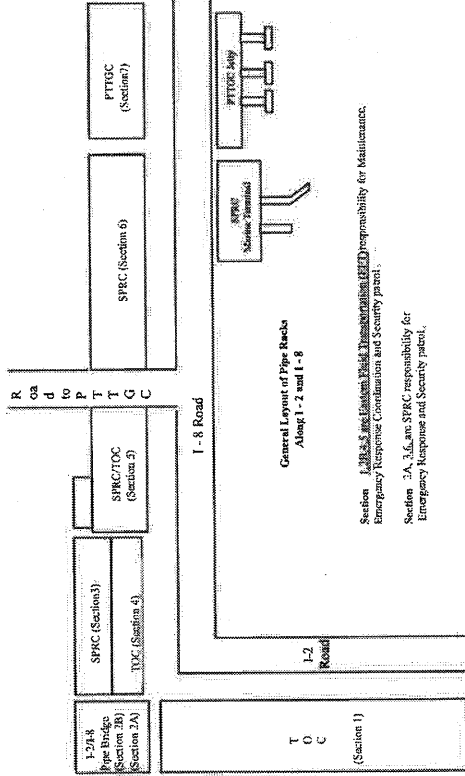
The Emergency telephone 7191 will be tested after the emergency alarm test, Security room, Medical Clinic and also the Fire station when manned.

APPENDIX N EMERGENCY OPERATION CENTER LAYOUT

EMERGENCY OPERATIONS CENTER (EOC) LAYOUT PLAN
PIPE STATION TRAINING ROOM: F/411



APPENDIX O PIPE LINE LAY OUT



APPENDIX L MEDICAL ERP PROCEDURE

In cases of emergency involving medical needed the [EHS-WI-QS-2005 Medical Emergency Response Plan.doc](#) must be follow

APPENDIX M EMERGENCY TRAINING AND EXERCISES

All personnel working in the refinery must be trained in emergency response. The type of training will depend on the individuals work location and job. The followings are the recommendation training and exercise programs.

Training Course as list:

- Basic Fire Fighting
- Basic Office Fire Fighting
- Advanced Fire Fighting
- Fire Command (For OSC and IC)
- Breathing Apparatus
- Hazmat
- Rescue
- Fire Truck Driver

Refer to EHS-OT-QS-001 EHS Standard Training Program

Exercises	Operation on shift	Weekly
• Level 1A or 1B	Emergency Response Teams /EMAG	2 times /year
• Level 2	Emergency Response Teams	1 time/year
• Level 3	Emergency Response Teams /EMAG /Rayong Province	1 time/year
Evacuation	Building Occupants	1 time/year/Building zone

Note: For Oil Spill response training refer to EHS-OT-QS-0001 EHS Standard Training Program

APPENDIX P EMERGENCY TELEPHONE NUMBERS

The Corporate Affairs and Emergency Response Coordinator are responsible for obtaining and updating a list of applicable local and national government contacts, with support and supervision by QEHSS. This list is updated six monthly or when changed as detailed at EHS-OT-QS-3003 Emergency Telephone Number.doc

APPENDIX Q SPRC FLU PANDEMIC BUSINESS CONTINUITY PLAN

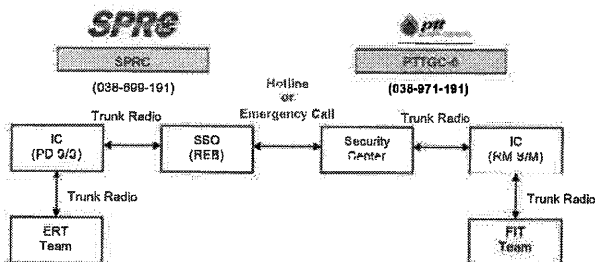
The Flu Pandemic Business Continuity Plan is the plan to control the possible impact of Flu Pandemic and monitor the phase of Pandemic plan, which is recommended by WHO or Shareholder.

Influenza pandemics result in serious health effects to large proportions of the population with significant disruption to the community, economy and businesses. See more details in EHS-OT-QS-3017 SPRC Flu Pandemic Business Continuity Plan.

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Date: 7 June 2021

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Revision No.:14
Date: 7 June 2021

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APPENDIX R MUTUAL AID AGREEMENT BETWEEN SPRC & PTTC-6

In order to support each other in case of emergency, the followings have been discussed and agreed to be a guideline for both SPRC and PTTC-6.

1. Emergency Support Team;

- Both companies will support 2 operation staff (ERT team members) to be the ERT back up team for each other in case of calling and can support. All members will equip with full bunker gears or other personal protective equipment that suit for the emergency case.
- All ERT team members support will be under supervision of on scene commander of the incident happening company.

2. Communication channel:

- In case of need support ERT back up from the other site shall PD shift supervisor (SPRC) or RM shift supervisor (PTTC-6) as Incident commander (IC) notify to Shift Security Officer on shift (SPRC REB) or Security Leader (PTTC-6 Security Center) to call to the other Site (REB or Security Center) for requesting help via Hot Line.
- Incident Commander (IC) shall specify other equipment need beyond full bunker gears that need support such as Fire truck, Ambulance, Foam Truck, Oil spill equipment or others to the Shift Security Officer (SSO) or Security Leader during calling too.

Exercise:

To ensure reliability of guideline implementation, we agreed;

- Do testing the communication channel and ERT team according agreed by emergency exercise together (schedule will be combined in to existing master exercise schedule in each site).
- Do the communication testing to ensure that the channel set is work: Every Friday (19.30 hrs) each site by SSO will ring the hotline provide to do the test to ensure it work and record status of testing under SMS call back from emergency duty Rota team.

Remark:

- It is the right of the company to deny on supporting of ERT team when request in case that there is an emergency case happen at site or other site which have agreed to provide support.

Revision No.:14
Date: 7 June 2021

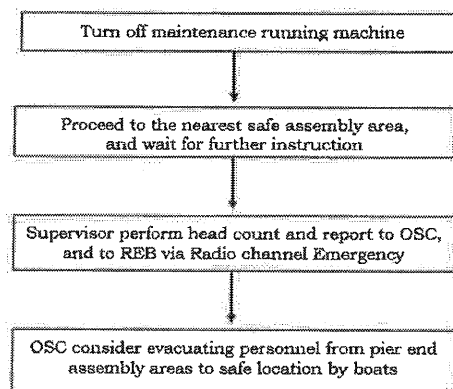
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APPENDIX S PIER EVACUATION GUIDELINE

Personnel evacuating from product pier and LPG pier can go to either:

- assembly point 12 (near MCB main gate), or
- pier end assembly areas, if it is not safe to go to assembly point 12 (e.g. fire on pier or on ship alongside)



Remark 1) Under circumstances, OSC may consider evacuate all personnel at the marine terminal to pier end assembly areas, e.g. the shore assembly point 11 is unsafe for such.

2) Boat crew will provide life vests or other kinds of flotation devices to personnel embarking.

Revision No.:14
Date: 7 June 2021

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APPENDIX T The Reporting form to the Labour Protection Welfare

[illegible]

APPENDIX U IEAT-MTP Emergency Reporting Form

[illegible]

APPENDIX V MTP- Port Abnormal Situation and Emergency Reporting Form

[illegible]

15. REFERENCE LIST

The following references were used for this document:

*Chevron: Global Manufacturing Loss/Near Loss Classification and Reporting Metrics
Rayong Province Emergency Response Plan
IEAT-IEAT-MTP Port Emergency Response Plan B.E.2558
Chevron Leak Response Protocol June 2015*

การฝึกซ้อมแผนร่วมกับ IESG



1

การประชุม EMAG



2

Emergency Exercise 2023

Level 1A Monday Night Exercise



3

Emergency Exercise 2023

Level 1B Friday Table-Top Exercise

INFORMATION

Type of incident	<input type="checkbox"/> Tank <input checked="" type="checkbox"/> Process <input type="checkbox"/> Loading terminal <input type="checkbox"/> Building <input type="checkbox"/> Others (specify e.g. HAZMAT, Rescue etc.)		
	Applicable data		
Tank Number / Location	02F101	Name of Unit	Crude Unit
Roof Type	-	Unit/Plant Number	02
Diameter	-	Product	Crude Oil
Height	0.5 m above ground level	Physical Property	Liquid/Vapor
Volume	4,608 kg (in 8 min.)	Working pressure	12 kg/cm ²
Fire detection	-	Working Temperature	285 °C
Fire protection	Fixed monitors	Flow	120 m ³ /hr
Pump out rate	-	Vapor Density	-
Type of vent	-	Boiling Point	-
Design Temperature	-	Flash point	-
Hazard Identification	Flammable, Toxic	Fire Point	-
Special hazard	H2S release	LEL/UEL	1% - 10 % (typical crude)
Other information	Possible cloud area = 60m x 30m, Negative pressure furnace		



4

Emergency Exercise Level 3 at WCN May 2023



5

Emergency Exercise Level 3 at WCN May 2023



6

Building Evacuation Exercise in 2023



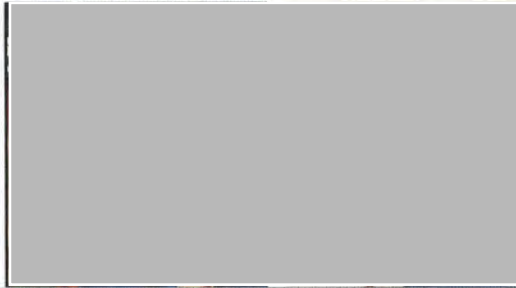
7

Emergency Mutual Aid Agency

- PTT Global Chemical branch-6
- Emergency Mutual Aid Group (EMAG)
- Shareholder (Chevron)
- Oil Industry Environmental Safety Group Association (IESG)



Project : SPRC
MONTHLY REPORT
Monthly Inspection
of
Fire Fighting Equipment
DECEMBER 2023



**MARINE TERMINAL - OIL SPILL RESPONSE DRILL****Schedule to practice drill for each shift A, B, C, and D**

Equipment	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oil Spill Boom	A	B	C	D	A	B	C	D	A	B	C	D
Weir Skimmer - MiniMax	A	B	C	D	A	B	C	D	A	B	C	D
Boat Dispersant Refill/Spray	A	B	C	D	A	B	C	D	A	B	C	D

Notes: Events can be simulated as if the boom had been launched and deployed at spill location. Skimmer can be launched with means of ropes at boom ramp or at berth as appropriate. Boat can help transport or slowly tow the skimmer to desired location. Be advised to prime Spate Pump with water for quicker suction. Boat dispersant refill is to be simulated with fresh water. *** Clean/rinse and dry off equipment before storing ***

Date/Time	14 July 23 / 09:30-10:30	WF Shift	
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SCENARIO

Spill Location	Tug berth		
Product/Quantity/Area Size	Black oil / 1 M3 / Area 15 m ²		
Wind Direction/Speed	130 deg / 8 knot	Tide	1.7 meter still
OSR Equipment	Boom 50 x 2 meter		
General Scenario	Heavy raining makes black oil from oily water tug berth overflow because pump failure		

EVENTS

Time	Description
11:30	Ship Officer calling to MCB for emergency stop loading fuel oil at berth no.3 due to overflow from ship's mast riser.
11:31	MCB Panel man stop loading and all valves closed.
11:36	Berth operator go to tug berth and found black oil overflow to bund and overflow to sea around 20 m ² at port side of ship.
11:37	Senior operator informed to Shift Supervisor, Marine duty, Port control and inform to SP team. Senior operator acting to OSC then informed to IC and REB for announce Oil spill response Tier 1A.
11:55	IC & OSC and ERT setting team for prepare Oil spill equipments
12:10	OSC request SC and ERT team commence deployed boom by tug RS-26 & SC-23
12:20	Boom 50 x 2 m. was deployed to spill area for contain and protect sensitive area.
12:50	Recover the oil by using skimmer and apply dispersant after got approve from PCD
13:10	Assign RS-14,RS-27 to spray dispersant.
13:20	Berth operators do survey around all berth and LPG pier for find out another oil slick.
13:30	- Exercised over.
Comments/Rem	

**Comments/Remarks:**

MARINE TERMINAL - OIL SPILL RESPONSE DRILL

Schedule to practice drill for each shift A, B, C, and D

Equipment	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oil Spill Boom	A	B	C	D	A	B	C	D	A	B	C	D
Weir Skimmer - MiniMax	A	B	C	D	A	B	C	D	A	B	C	D
Boat Dispersant Refill/Spray	A	B	C	D	A	B	C	D	A	B	C	D

Notes: Events can be simulated as if the boom had been launched and deployed at spill location. Skimmer can be launched with means of ropes at boom ramp or at berth as appropriate. Boat can help transport or slowly tow the skimmer to desired location. Be advised to prime Spate Pump with water for quicker suction. Boat dispersant refill is to be simulated with fresh water. *** Clean/rinse and dry off equipment before storing ***

Date/Time 7 Aug 23 / 10:00-10:30 WF Shift D

SCENARIO

Spill Location	Berth 1		
Product/Quantity/Area Size	Black Oil (FO-5) / 0.5 M3 / Area 10 m ²		
Wind Direction/Speed	115 deg / 10 knot	Tide	1.0 meter still
OSR Equipment	Boom 50 x 2 meter		
General Scenario	Fuel oil spilled by over flow from ship's mast riser while loading at berth 1.		

EVENTS

Time	Description
10:00	Ship Officer Phoenix-99 calling to MCB for emergency stop loading fuel oil at berth no.1 due to overflow from ship's mast riser.
10:01	MCB Panel man stop loading and all valves closed.
10:05	Berth operators go to berth 1 and found Fuel oil overflow to bund and overflow to sea around 10 m ² at port side of ship.
10:07	Senior operator informed to Shift Supervisor, Marine duty, Port control and inform to SP team. Senior operator acting to OSC then informed to IC and REB for announce Oil spill response Tier 1A.
10:15	IC & OSC and ERT setting team for prepare Oil spill equipments
10:17	OSC request SC and ERT team commence deployed boom by tug RS-18 & SC-23
10:22	Boom 50 x 2 m. was deployed to spill area for contain and protect sensitive area.
10:25	Let oil film disperse and apply dispersant after got approve from PCD
10:28	Assign RS-27 to spray dispersant.
10:30	Berth operators do survey around all berth and LPG pier for find out another oil slick.
10:30	Exercised over.
Comments/Rem	

Comments/Remarks:



MARINE TERMINAL - OIL SPILL RESPONSE DRILL

Schedule to practice drill for each shift A, B, C, and D

Equipment	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oil Spill Boom	A	B	C	D	A	B	C	D	A	B	C	D
Weir Skimmer - MiniMax	A	B	C	D	A	B	C	D	A	B	C	D
Boat Dispersant Refill/Spray	A	B	C	D	A	B	C	D	A	B	C	D

Notes: Events can be simulated as if the boom had been launched and deployed at spill location. Skimmer can be launched with means of ropes at boom ramp or at berth as appropriate. Boat can help transport or slowly tow the skimmer to desired location. Be advised to prime Spate Pump with water for quicker suction. Boat dispersant refill is to be simulated with fresh water. *** Clean/rinse and dry off equipment before storing ***

Date/Time 09 Sep 23 / 10:30-11:30 WF Shift A

SCENARIO

Spill Location	Berth 2		
Product/Quantity/Area Size	Black oil (FO-5) / 1 M3 / Area 20 m ²		
Wind Direction/Speed	155 deg / 6 knot	Tide	1.7 meter still
OSR Equipment	Boom 50 x 2 meter		
General Scenario	Fuel oil spilled by overflow from ship's mast riser while loading at berth no. 2		

EVENTS

Time	Description
10:30	Ship Officer calling to MCB for emergency stop loading fuel oil at berth no.2 due to overflow from ship's mast riser.
10:31	MCB Panel man stop loading and all valves closed.
10:35	Berth operator go to berth no.2 and found black oil spill to ship deck and overflow to sea around 20 m ² at port side of ship.
10:35	Senior operator informed to Shift Supervisor, Marine duty, Port control and inform to SP team. Senior operator acting to OSC then informed to IC and REB for announce Oil spill response Tier 1A.
10:15	IC & OSC and ERT setting team for prepare Oil spill equipments
10:50	OSC request SC and ERT team commence deployed boom by tug RS-18 & SC-22
11:00	Boom 50 x 2 m. was deployed to spill area for contain and protect sensitive area.
11:10	Recover the oil by using skimmer and apply dispersant after got approve from PCD
11:10	Assign RS-14,RS-27 to spray dispersant.
11:20	Berth operators do survey around all berth and LPG pier for find out another oil slick.
11:30	- Exercised over.
Comments/Rem	

Comments/Remarks:



MARINE TERMINAL - OIL SPILL RESPONSE DRILL

Schedule to practice drill for each shift A, B, C, and D

Equipment	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oil Spill Boom	A	B	C	D	A	B	C	D	A	B	C	D
Weir Skimmer - MiniMax	A	B	C	D	A	B	C	D	A	B	C	D
Boat Dispersant Refill/Spray	A	B	C	D	A	B	C	D	A	B	C	D

Notes: Events can be simulated as if the boom had been launched and deployed at spill location. Skimmer can be launched with means of ropes at boom ramp or at berth as appropriate. Boat can help transport or slowly tow the skimmer to desired location. Be advised to prime Spate Pump with water for quicker suction. Boat dispersant refill is to be simulated with fresh water. *** Clean/rinse and dry off equipment before storing ***

Date/Time	10 Oct 23 / 10:00-11:30	WF Shift	B
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SCENARIO

Spill Location	Berth 3		
Product/Quantity/Area Size	Black oil (FO-5) / 1 M3 / Area 20 m ²		
Wind Direction/Speed	126 deg / 5.6 knot	Tide	1.2 meter still
OSR Equipment	Boom 50 x 2 meter		
General Scenario	Fuel oil spilled by overflow from ship's mast riser while loading at berth no. 3		

EVENTS

Time	Description
10:00	Ship Officer calling to MCB for emergency stop loading fuel oil at berth no.3 due to overflow from ship's mast riser.
10:01	MCB Panel man stop loading and all valves closed.
10:03	Berth operator go to berth no.3 and found black oil spill to ship deck and overflow to sea around 30 m ² at port side of ship.
10:10	Senior operator informed to Shift Supervisor, Marine duty, Port control and inform to SP team. Senior operator acting to OSC then informed to IC and REB for announce Oil spill response Tier 1A.
10:15	IC & OSC and ERT setting team for prepare Oil spill equipments
10:50	OSC request SC and ERT team commence deployed boom by tug RS-18 & SC-22
11:00	Boom 50 x 2 m. was deployed to spill area for contain and protect sensitive area.
11:10	Recover the oil by using skimmer and apply dispersant after got approve from PCD
11:10	Assign RS-14,RS-27 to spray dispersant.
11:20	Berth operators do survey around all berth and LPG pier for find out another oil slick.
11:30	- Exercised over.
Comments/Rem	

Comments/Remarks:



MARINE TERMINAL - OIL SPILL RESPONSE DRILL

Schedule to practice drill for each shift A, B, C, and D

Equipment	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oil Spill Boom	A	B	C	D	A	B	C	D	A	B	C	D
Weir Skimmer - MiniMax	A	B	C	D	A	B	C	D	A	B	C	D
Boat Dispersant Refill/Spray	A	B	C	D	A	B	C	D	A	B	C	D

Notes: Events can be simulated as if the boom had been launched and deployed at spill location. Skimmer can be launched with means of ropes at boom ramp or at berth as appropriate. Boat can help transport or slowly tow the skimmer to desired location. Be advised to prime Spate Pump with water for quicker suction. Boat dispersant refill is to be simulated with fresh water. *** Clean/rinse and dry off equipment before storing ***

Date/Time 29 Nov 23 / 10:00-11:30 WF Shift C

SCENARIO

Spill Location	Berth 3		
Product/Quantity/Area Size	Crude oil / 1 M3 / Area 20 m ²		
Wind Direction/Speed	126 deg / 5.6 knot	Tide	1.2 meter still
OSR Equipment	Boom 50 x 2 meter		
General Scenario	Crude oil spilled by overflow from ship's mast riser while unloading at berth no. 3		

EVENTS

Time	Description
10:00	Ship Officer calling to MCB for emergency stop unloading crude oil at berth no.3 due to overflow from ship's mast riser.
10:01	MCB Panel man inform ship to stop unloading and all valves closed.
10:03	Berth operator go to berth no.3 and found black oil spill to ship deck and overflow to sea around 30 m ² at port side of ship.
10:10	Senior operator informed to Shift Supervisor, Marine duty, Port control and inform to SP team. Senior operator acting to OSC then informed to IC and REB for announce Oil spill response Tier 1A.
10:15	IC & OSC and ERT setting team for prepare Oil spill equipments
10:50	OSC request SC and ERT team commence deployed boom by tug RS-18 & SC-22
11:00	Boom 50 x 2 m. was deployed to spill area for contain and protect sensitive area.
11:10	Recover the oil by using skimmer and apply dispersant after got approve from PCD
11:10	Assign RS-14,RS-27 to spray dispersant.
11:20	Berth operators do survey around all berth and LPG pier for find out another oil slick.
11:30	- Exercised over.
Comments/Rem	

Comments/Remarks:



MARINE TERMINAL - OIL SPILL RESPONSE DRILL

Schedule to practice drill for each shift A, B, C, and D

Equipment	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oil Spill Boom	A	B	C	D	A	B	C	D	A	B	C	D
Weir Skimmer - MiniMax	A	B	C	D	A	B	C	D	A	B	C	D
Boat Dispersant Refill/Spray	A	B	C	D	A	B	C	D	A	B	C	D

Notes: Events can be simulated as if the boom had been launched and deployed at spill location. Skimmer can be launched with means of ropes at boom ramp or at berth as appropriate. Boat can help transport or slowly tow the skimmer to desired location. Be advised to prime Spate Pump with water for quicker suction. Boat dispersant refill is to be simulated with fresh water. *** Clean/rinse and dry off equipment before storing ***

Date/Time	06 Dec 2023 / 09:00-11:30 hr.	WF Shift	D
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SCENARIO

Spill Location	Berth 5		
Product/Quantity/Area Size	DSL B 10 m ²		
Wind Direction/Speed	360 deg / 12 knot	Tide	2.0 meter still
OSR Equipment	Boom 25 x 3 meter		
General Scenario	DSL B spill overflow from ship's mask riser while loading at Berth No. 5 And Berth No.2		

EVENTS

Time	Description
09:00	Ship "Big sea-106" calling to MCB for emergency stop loading DSL B at Berth 5 due to overflow from ship's mast riser.
09:02	MCB panel man stop loading and all valve closed.
09:05	Berth operator go to berth no.5 and found DSL spill at ship's deck and overflow to the sea around 15 m ² at port side.
09:10	Senior operator informed Shift Supervisor, Marine duty, Port control and SP team. And On-scene commander announce Oil Spill response tier 1.
09:15	On-scene commander setting team for prepare Oil spill equipment and request MCB panel man to cease all ship loading operation at Product pier.
09:20	On-scene commander request SC foreman commenced deploy boom by tugboat RS-14 & SC-23
09:50	Boom 25 x3 m. was deploying to spilled area at berth#5 and contain oil spill in J-shape boom.
10:20	Loading Master calling with chief officer use diaphragm pump for minimize contain oil spill on ship deck and LEL checking all time.
11:00	Loading Master contract with SC foreman calling tugboat RS 24 swaying around film oil of DSL
11:15	Berth operator do survey around all berth and LPG pier for find out another oil slick.
11:30	Exercised over and clean Boom with fresh water.



Report to: PD S/S, PD/1B, PD/75, PD/72

Rev.0.1 22/12/2010

Comments/Remarks:

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