

ภาคผนวก ก

เอกสารประกอบการปฏิบัติตาม
มาตรการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม

ภาคผนวก ค.1

ผลการตรวจสอบความถูกต้องของระบบตรวจวัดคุณภาพอากาศ
จากปล่องระบายอากาศแบบต่อเนื่อง (Auditing-RATA)

Table 10-4 Relative Accuracy Determination for CEMS STAR PETROLEUM REFINING PUBLIC CO.,LTD. : RFCCU

DATE May 8,2024

Run No.	Time		O ₂			NO _x			SO ₂			CO			Fuel Gas (kg/h)
	Start	End	%			ppm@7% O ₂			ppm@7% O ₂			ppm@7% O ₂			
			RM	CEMS	Diff(d _i)	RM	CEMS	Diff(d _i)	RM	CEMS	Diff(d _i)	RM	CEMS	Diff(d _i)	
1	11:00 AM	11:20 AM	3.02	2.94	0.08	137.72	135.85	1.87	556.70	568.55	-11.85	261.76	281.66	-19.90	687.63
2	11:21 AM	11:41 AM	3.29	3.34	-0.05	143.14	138.03	5.12	612.28	614.47	-2.19	243.57	259.90	-16.33	749.60
3	11:42 AM	12:02 PM	2.90	2.97	-0.07	143.34	138.29	5.05	584.89	602.84	-17.95	245.44	260.80	-15.36	766.24
4	12:03 PM	12:23 PM	3.23	3.25	-0.02	146.65	141.05	5.60	615.75	610.79	4.96	239.71	256.26	-16.55	838.22
5	12:50 PM	1:10 PM	2.86	2.88	-0.02	146.65	141.35	5.30	562.85	561.21	1.64	248.44	264.47	-16.03	879.63
6	1:11 PM	1:31 PM	2.92	2.96	-0.04	148.14	142.71	5.43	572.54	575.22	-2.68	245.79	260.81	-15.02	887.09
7	1:32 PM	1:52 PM	2.71	2.81	-0.10	144.33	139.88	4.45	562.30	571.40	-9.09	244.02	264.80	-20.78	868.72
8	1:53 PM	2:13 PM	2.46	2.54	-0.08	139.09	134.21	4.88	550.03	556.36	-6.33	268.00	286.12	-18.11	827.62
9	2:40 PM	3:00 PM	3.22	3.22	0.00	147.03	138.52	8.51	627.80	627.40	0.40	244.80	263.54	-18.74	872.25
10	3:01 PM	3:21 PM	3.02	3.02	0.00	145.75	136.33	9.41	593.00	604.07	-11.07	238.33	252.45	-14.13	869.93
11	3:22 PM	3:42 PM	2.57	2.62	-0.05	140.68	131.95	8.73	541.25	554.79	-13.54	251.84	266.88	-15.04	823.26
12	3:43 PM	4:03 PM	2.87	2.89	-0.02	144.77	135.60	9.16	553.26	555.20	-1.93	248.35	265.74	-17.39	841.31
Average			2.92	2.95	-0.03	143.94	137.81	6.13	577.72	583.52	-5.80	248.34	265.28	-16.95	825.96
Confidence Coefficient			-			1.4668			4.4124			1.3190			
Relative Accuracy			0.03			5.27			1.77			3.30			
Performance Specification : RA			1%			20% **			20% **			5% ***			

* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

** 20 % of RM value for NOx and SO2

*** 5% of Emission Standard value (554 ppmvd@7%O2 for CO)

Table 10-6 Relative Accuracy Determination for CEMS STAR PETROLEUM REFINING PUBLIC CO.,LTD. : Boiler 1

DATE May 8,2024

Run No.	Time		O ₂			NO _x			FUEL GAS
	Start	End	%			ppm@7% O ₂			
			Instrumental RM	CEMS	Diff(d _i)	Instrumental RM	CEMS	Diff(d _i)	
1	10:40 AM	11:00 AM	4.60	5.14	-0.54	75.24	76.36	-1.12	3913.76
2	11:01 AM	11:21 AM	4.60	5.02	-0.42	73.54	71.96	1.58	4056.92
3	11:22 AM	11:42 AM	4.56	5.09	-0.53	72.60	71.39	1.21	4084.58
4	11:43 AM	12:03 PM	4.60	5.07	-0.47	73.26	72.49	0.77	4127.50
5	12:30 PM	12:50 PM	4.58	5.05	-0.47	71.42	66.33	5.08	4130.77
6	12:51 PM	1:11 PM	4.62	5.04	-0.42	71.22	65.65	5.56	4096.03
7	1:12 PM	1:32 PM	4.59	5.04	-0.45	70.35	65.71	4.65	4059.51
8	1:33 PM	1:53 PM	4.61	5.14	-0.53	68.97	65.91	3.06	4065.90
9	2:15 PM	2:35 PM	4.65	5.18	-0.53	67.12	65.52	1.60	4098.86
10	2:36 PM	2:56 PM	4.70	5.09	-0.39	66.21	64.71	1.50	4018.88
11	2:57 PM	3:17 PM	4.71	5.14	-0.43	66.50	65.27	1.23	4090.34
12	3:18 PM	3:38 PM	4.73	5.12	-0.39	66.58	65.36	1.22	4085.39
Average			4.63	5.09	-0.46	70.25	68.06	2.19	4,069.04
Confidence Coefficient			-			1.2644			
Relative Accuracy			0.46			4.92			
Performance Specification : RA			1%			20%**			

* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

** 20 % of RM value for Nox

Table 10-3 Relative Accuracy Determination for CEMS STAR PETROLEUM REFINING PUBLIC CO.,LTD. : CDU

DATE May 10,2024

Run No.	Time		O ₂			NOx			Fuel Gas
	Start	End	%			ppm@7% O ₂			
			Instrumental RM	CEMS	Diff(d _i)	Instrumental RM	CEMS	Diff(d _i)	
1	11:00 AM	11:20 AM	4.72	4.51	0.21	13.51	13.43	0.09	9408.52
2	11:21 AM	11:41 AM	4.69	4.55	0.14	13.83	14.10	-0.26	9495.87
3	11:42 AM	12:02 PM	4.68	4.61	0.07	14.01	13.99	0.03	9521.62
4	12:03 PM	12:23 PM	4.64	4.58	0.06	14.05	14.24	-0.19	9533.86
5	12:40 PM	1:00 PM	4.68	4.58	0.10	14.35	13.11	1.24	9611.68
6	1:01 PM	1:21 PM	4.63	4.65	-0.02	14.20	12.98	1.21	9618.10
7	1:22 PM	1:42 PM	4.70	4.57	0.13	14.18	13.93	0.25	9694.22
8	1:43 PM	2:03 PM	4.75	4.71	0.04	14.21	12.69	1.52	9737.33
9	2:50 PM	3:10 PM	4.93	4.85	0.08	14.86	12.94	1.92	9791.60
10	3:11 PM	3:31 PM	5.00	4.93	0.07	14.54	13.47	1.06	9761.10
11	3:32 PM	3:52 PM	4.91	4.83	0.08	14.08	12.82	1.26	9808.34
12	3:53 PM	4:13 PM	4.80	4.71	0.09	14.37	12.83	1.55	9875.31
Average			4.76	4.67	0.09	14.18	13.38	0.81	9,654.80
Confidence Coefficient			-			0.4882			
Relative Accuracy			0.09			9.13			
Performance Specification : RA			1%			20%**			

* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

** 20 % of RM value for Nox

Table 10-2 Relative Accuracy Determination for CEMS STAR PETROLEUM REFINING PUBLIC CO.,LTD. : HRSG 1

DATE May 9,2024

Run No.	Time		O ₂			NO _x			Fuel Gas
	Start	End	%			ppm@7% O ₂			
			Instrumental RM	CEMS	Diff(d _i)	Instrumental RM	CEMS	Diff(d _i)	
1	11:20 AM	11:40 AM	14.01	14.11	-0.10	100.49	95.48	5.01	2994.04
2	11:41 AM	12:01 PM	13.99	14.09	-0.10	90.36	86.42	3.94	3048.98
3	12:02 PM	12:22 PM	13.98	14.10	-0.12	88.10	84.85	3.25	3070.16
4	12:23 PM	12:43 PM	13.98	14.09	-0.11	89.39	87.07	2.31	3029.95
5	1:00 PM	1:20 PM	13.98	14.08	-0.10	89.81	87.95	1.86	3013.87
6	1:21 PM	1:41 PM	13.98	14.09	-0.11	91.72	90.24	1.48	3015.43
7	1:42 PM	2:02 PM	14.01	14.09	-0.08	92.72	91.58	1.14	3011.93
8	2:03 PM	2:23 PM	14.09	14.08	0.01	91.10	87.54	3.56	3025.92
9	2:40 PM	3:00 PM	14.05	14.03	0.02	81.65	78.58	3.07	3132.79
10	3:01 PM	3:21 PM	14.06	14.05	0.01	80.31	77.05	3.26	3159.19
11	3:22 PM	3:42 PM	14.02	14.04	-0.02	79.14	76.21	2.93	3159.58
12	3:43 PM	4:03 PM	14.01	14.07	-0.06	79.99	77.78	2.21	3151.18
Average			14.01	14.08	-0.06	87.90	85.06	2.83	3,067.75
Confidence Coefficient			-			0.6968			
Relative Accuracy			0.06			4.02			
Performance Specification : RA			1%			20%**			

* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

**20% of RM Value

Table 10-5 Relative Accuracy Determination for CEMS STAR PETROLEUM REFINING PUBLIC CO.,LTD. : SRU

DATE May 9,2024

Run No.	Time		O ₂			SO ₂			Natural Gas (Nm3/h)
	Start	End	%			ppm@7% O ₂			
			Instrumental RM	CEMS	Diff(d _i)	Instrumental RM	CEMS	Diff(d _i)	
1	10:30 AM	10:50 AM	5.40	4.81	0.59	305.40	245.38	60.02	542.28
2	10:51 AM	11:11 AM	5.16	4.82	0.34	299.26	246.27	52.99	546.75
3	11:12 AM	11:32 AM	5.04	4.72	0.32	298.29	245.79	52.50	549.99
4	11:33 AM	11:53 AM	4.97	4.74	0.23	296.16	248.26	47.89	546.76
5	12:20 PM	12:40 PM	5.00	5.10	-0.10	295.71	241.83	53.88	553.89
6	12:41 PM	1:01 PM	4.95	5.10	-0.15	294.26	241.26	53.00	555.94
7	1:02 PM	1:22 PM	5.01	4.99	0.02	295.17	244.70	50.47	552.28
8	1:23 PM	1:43 PM	5.04	4.91	0.13	296.83	248.37	48.46	549.53
9	2:05 PM	2:25 PM	4.94	4.80	0.14	290.92	253.45	37.47	555.85
10	2:26 PM	2:46 PM	5.01	4.77	0.24	287.73	255.03	32.69	553.66
11	2:47 PM	3:07 PM	5.07	4.90	0.17	265.94	259.28	6.66	561.10
12	3:08 PM	3:28 PM	4.80	4.85	-0.05	265.40	252.73	12.67	564.70
Average			5.03	4.88	0.16	290.92	248.53	42.39	552.73
Confidence Coefficient			-			10.8034			
Relative Accuracy			0.16			18.28			
Performance Specification : RA			1%*			20%**			

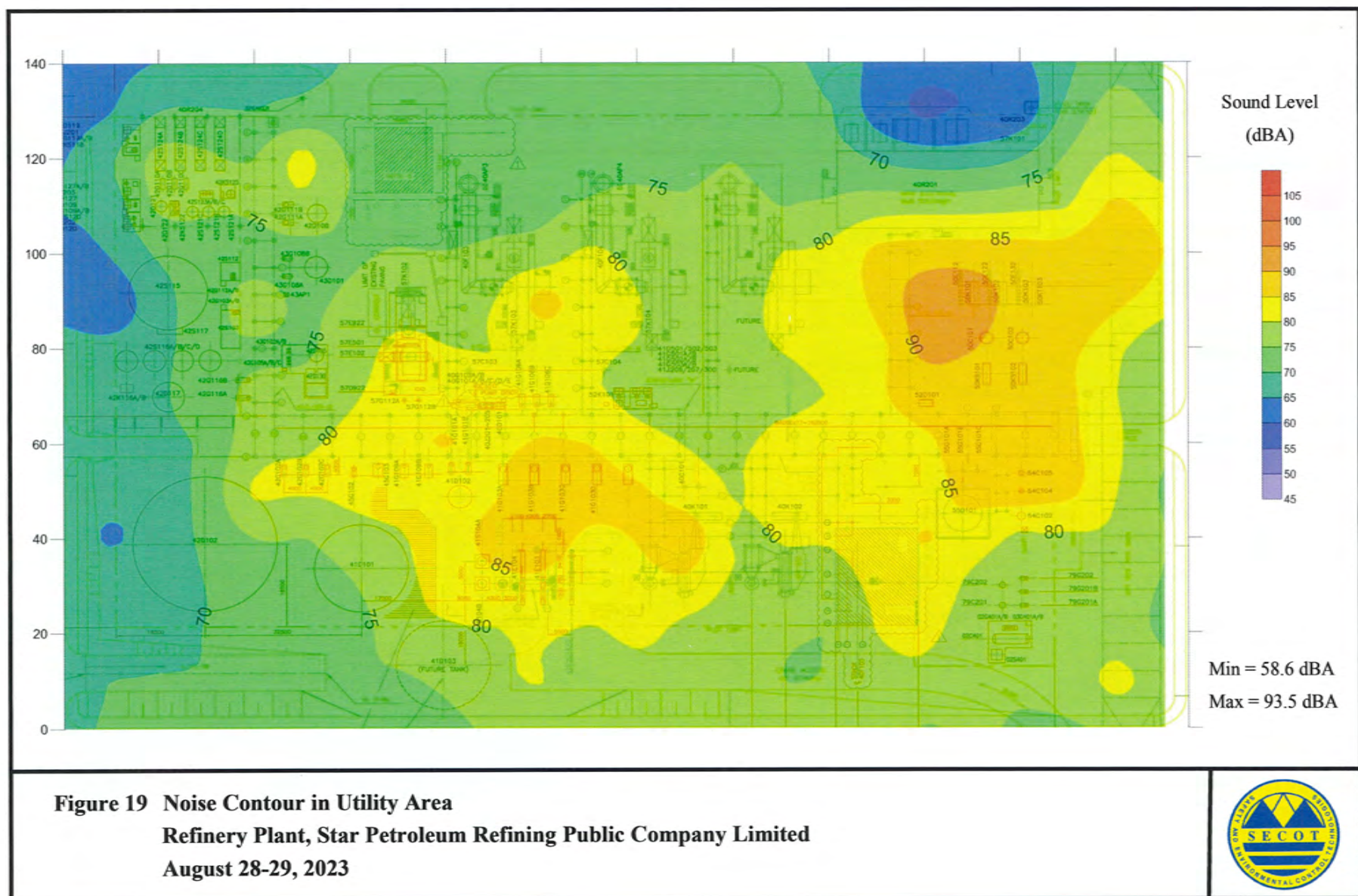
* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

** 20% of RM Value

ภาคผนวก ก.2

การจัดทำแผนผังแสดงเส้นเสียง (Noise Contour Map)

ประจำปี พ.ศ.2566



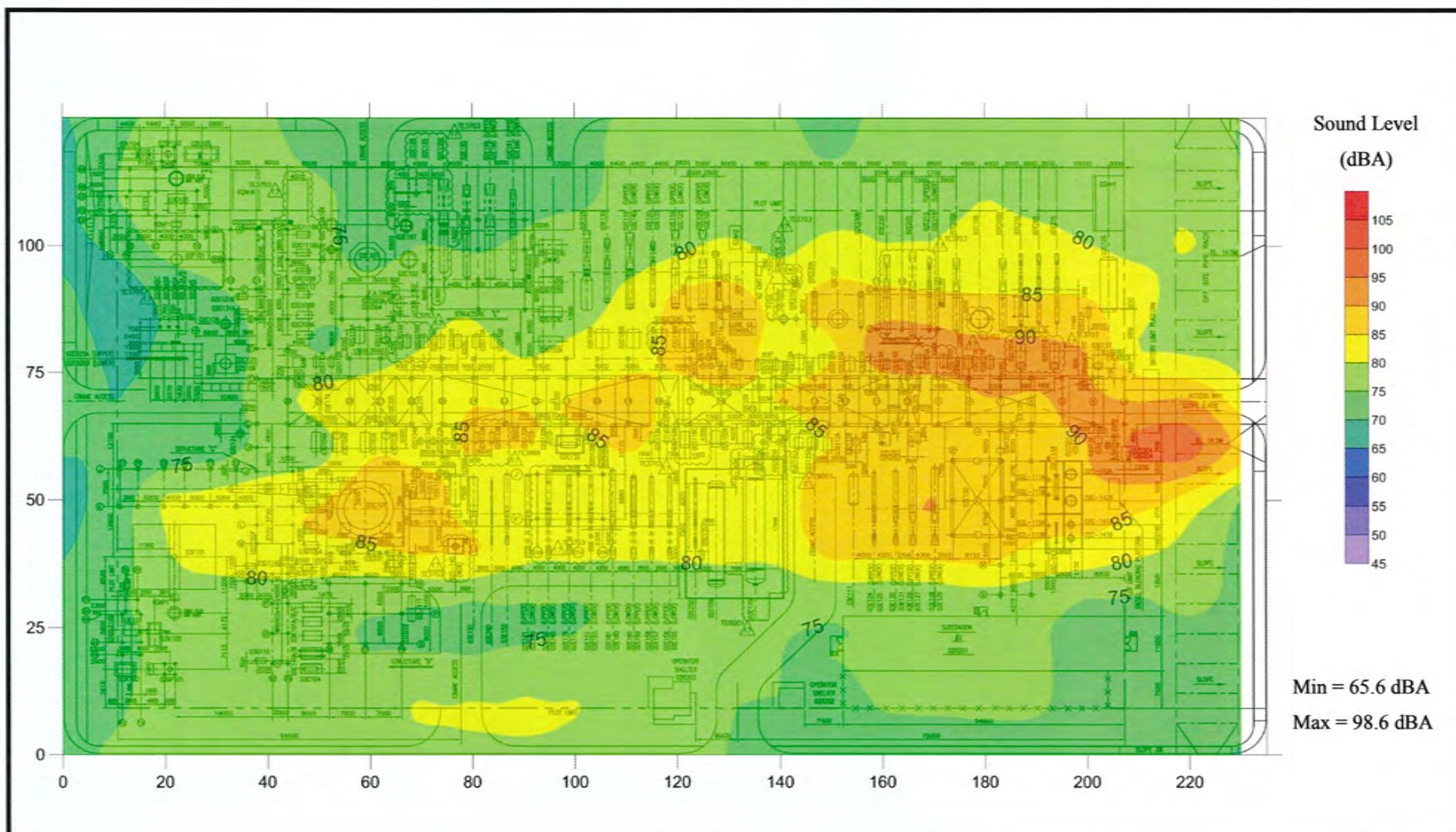


Figure 20 Noise Contour in Crude and Vacuum Distillation Unit (Plant 02, 03)
Refinery Plant, Star Petroleum Refining Public Company Limited
August 28, 2023



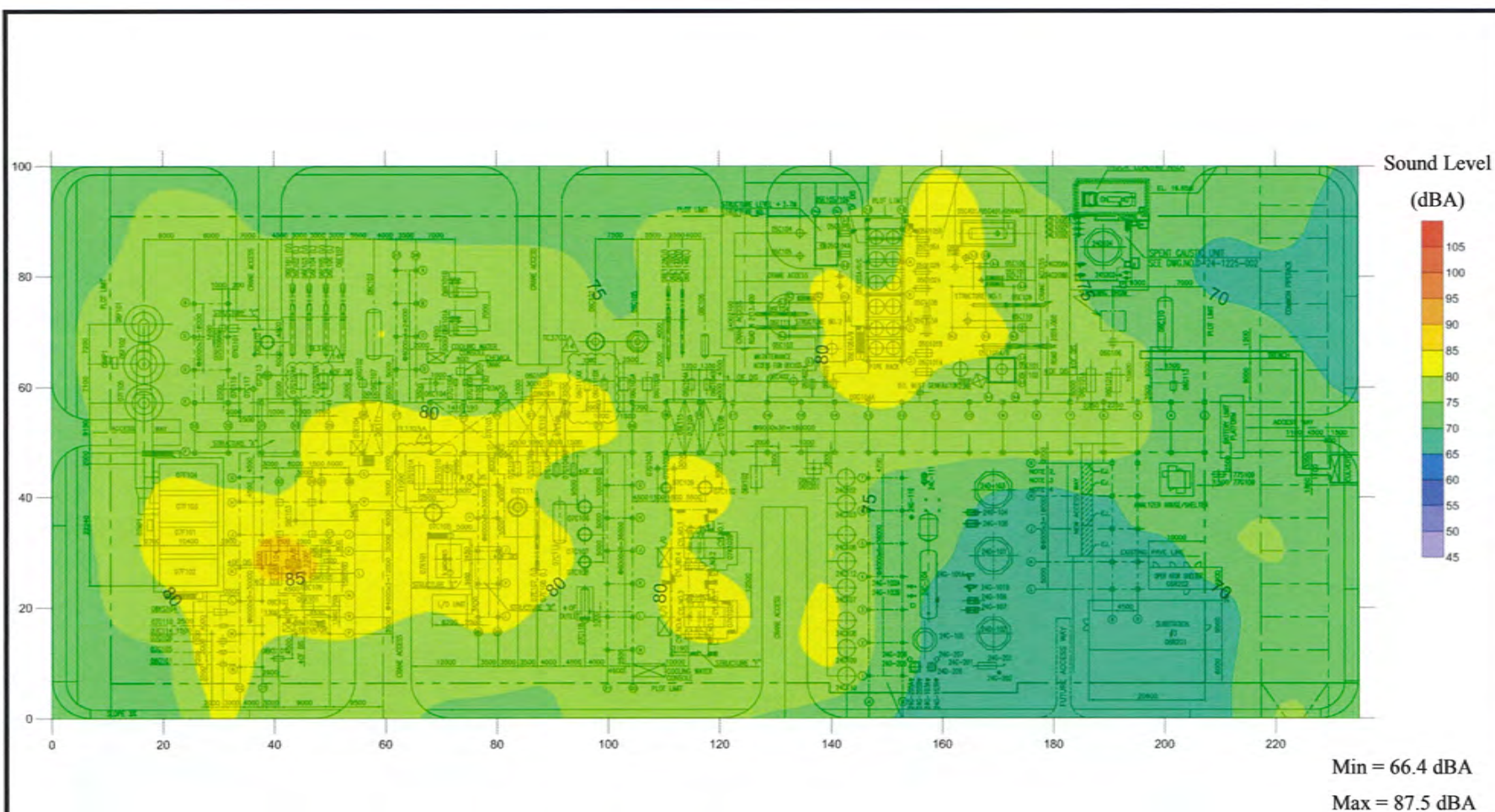


Figure 21 Noise Contour in Benzene Saturation Unit, Naphtha Hydrotreat Unit, Platformer Unit and Catregeneration (Plant 05, 06, 07, 08)
Refinery Plant, Star Petroleum Refining Public Company Limited, August 28, 2023



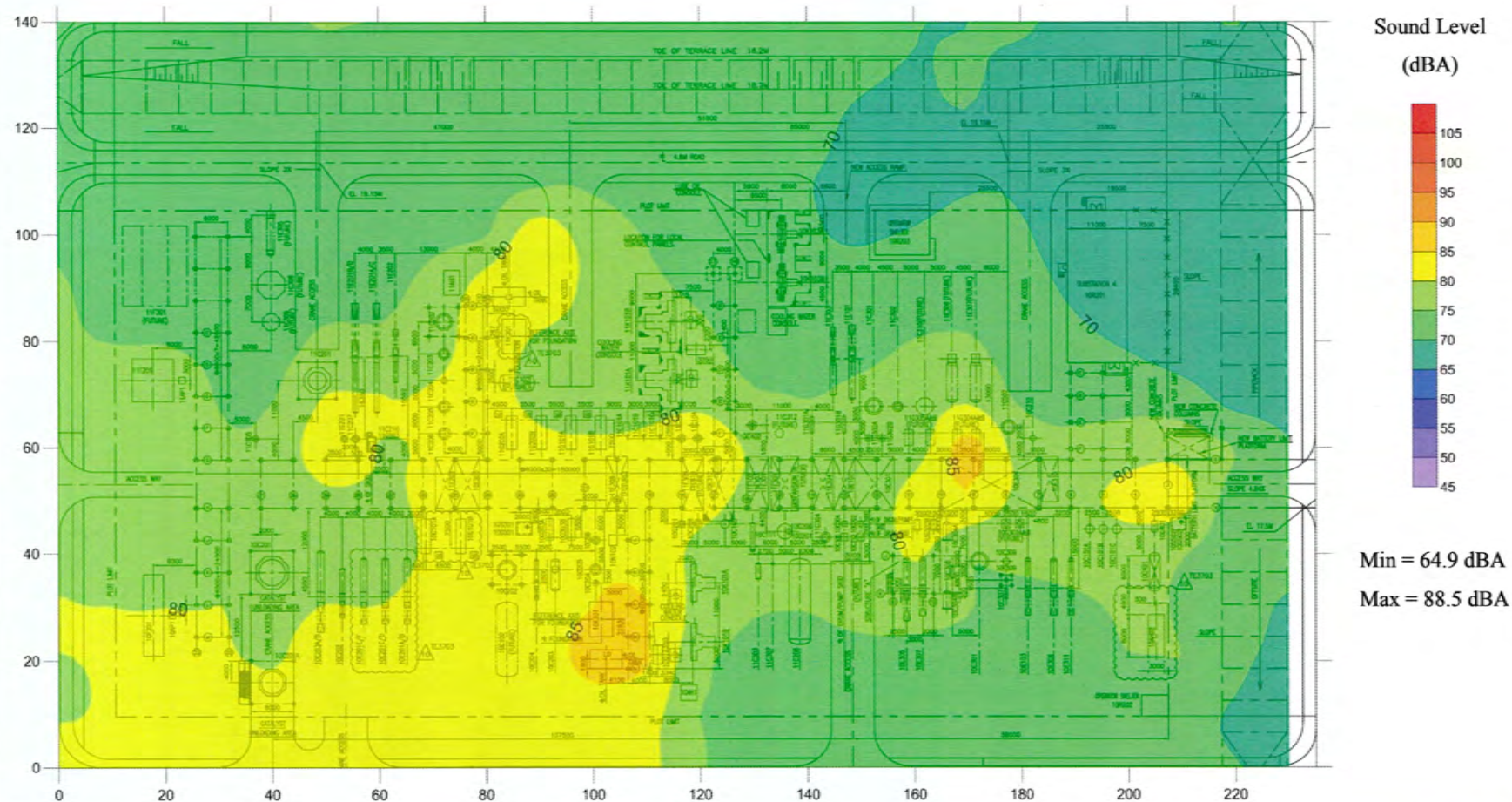


Figure 22 Noise Contour in Diesel Hydrotreating Unit and Heavy Vacuum Gas Oil Hydrotreating Unit (Plant 10, 11)
Refinery Plant, Star Petroleum Refining Public Company Limited
August 29-30, 2023



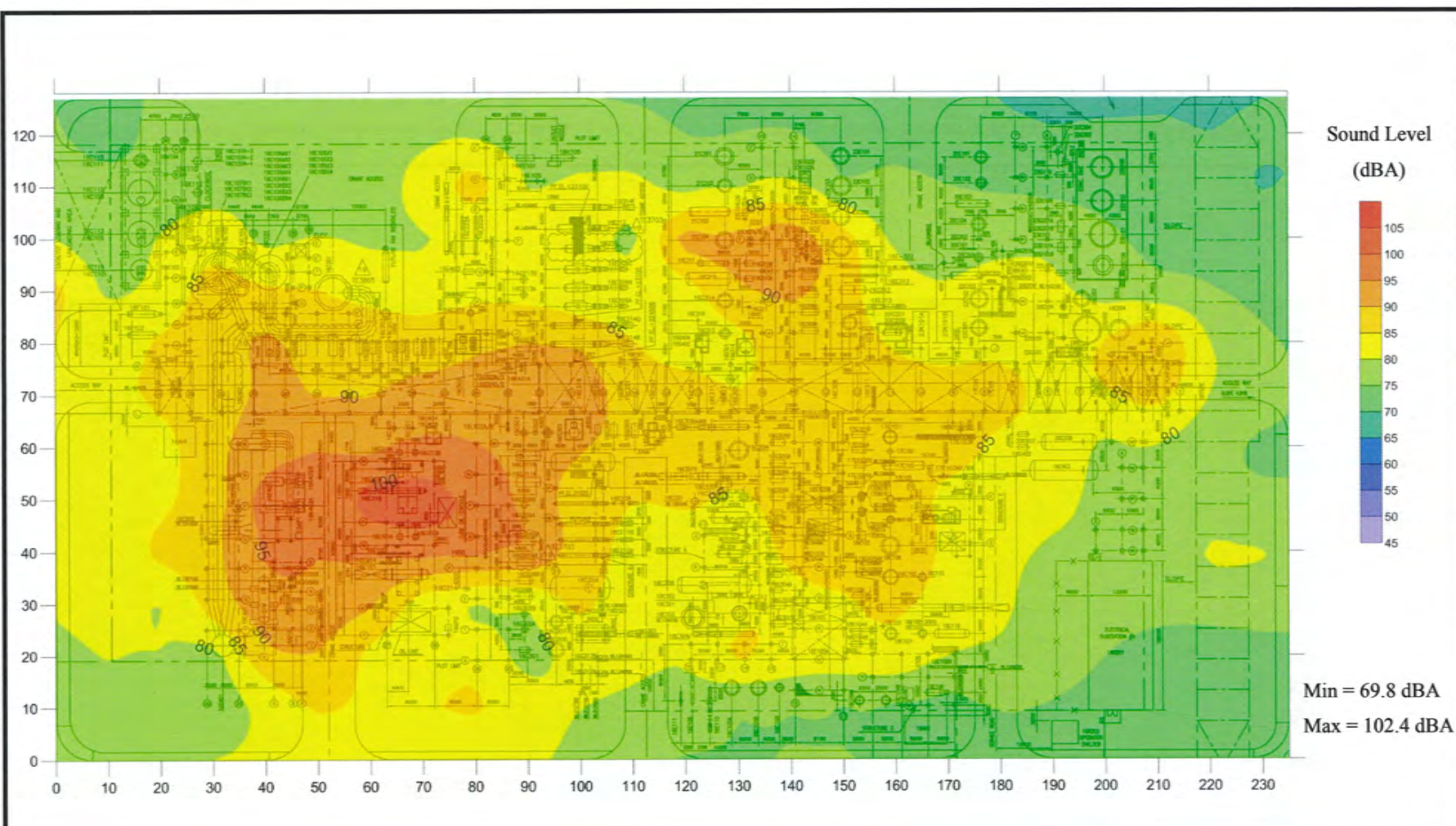


Figure 23 Noise Contour in Residuum Fluid Catalytic Cracking Unit, Merox/Sweetening Units (Plant 16, 18, 20, 23)
Refinery Plant, Star Petroleum Refining Public Company Limited
August 30, 2023



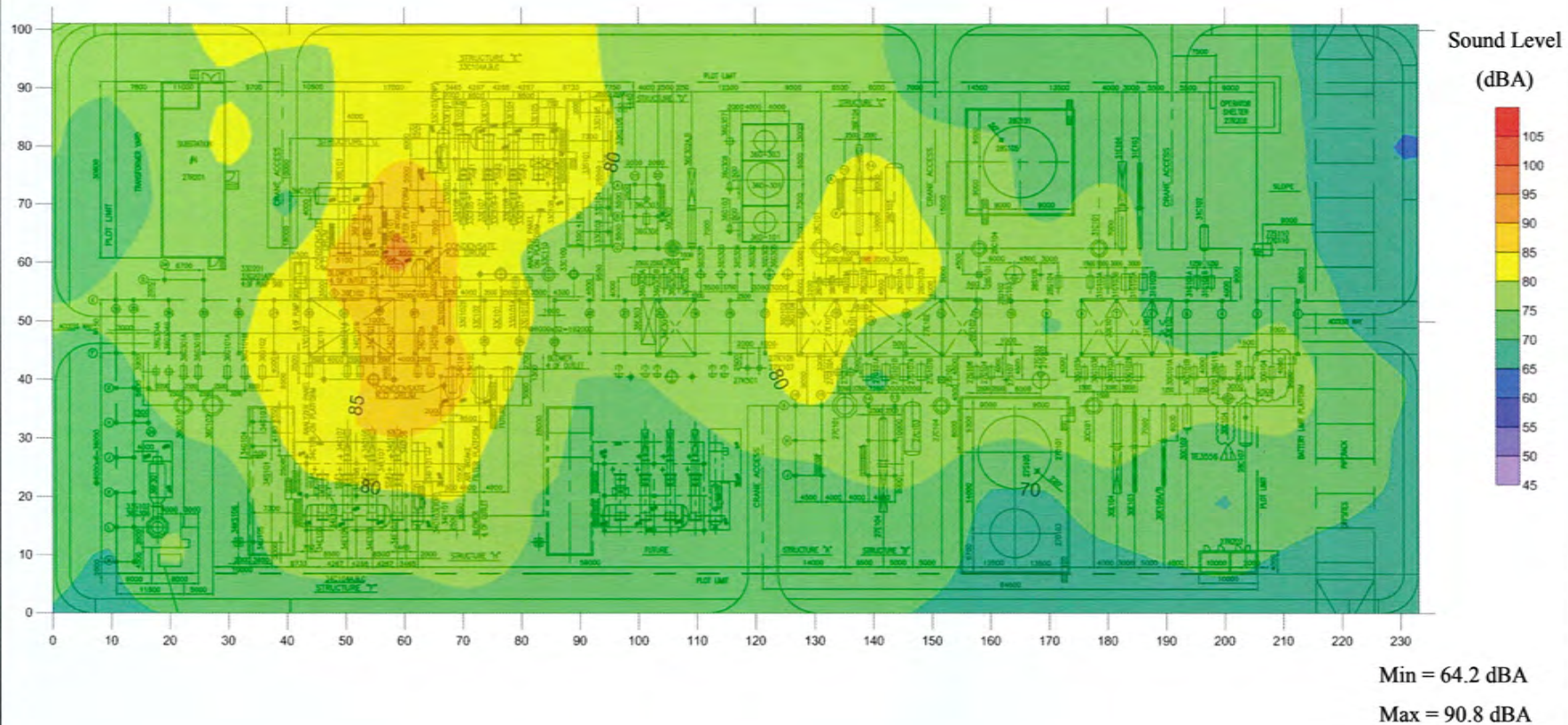


Figure 24 Noise Contour in Amine Regeneration, Sour Water Stripping, Sulfur Recovery, Tail Gas Treating Unit (Plant 27, 28, 30, 31, 33, 34, 36), Refinery Plant, Star Petroleum Refining Public Company Limited
August 29, 2023



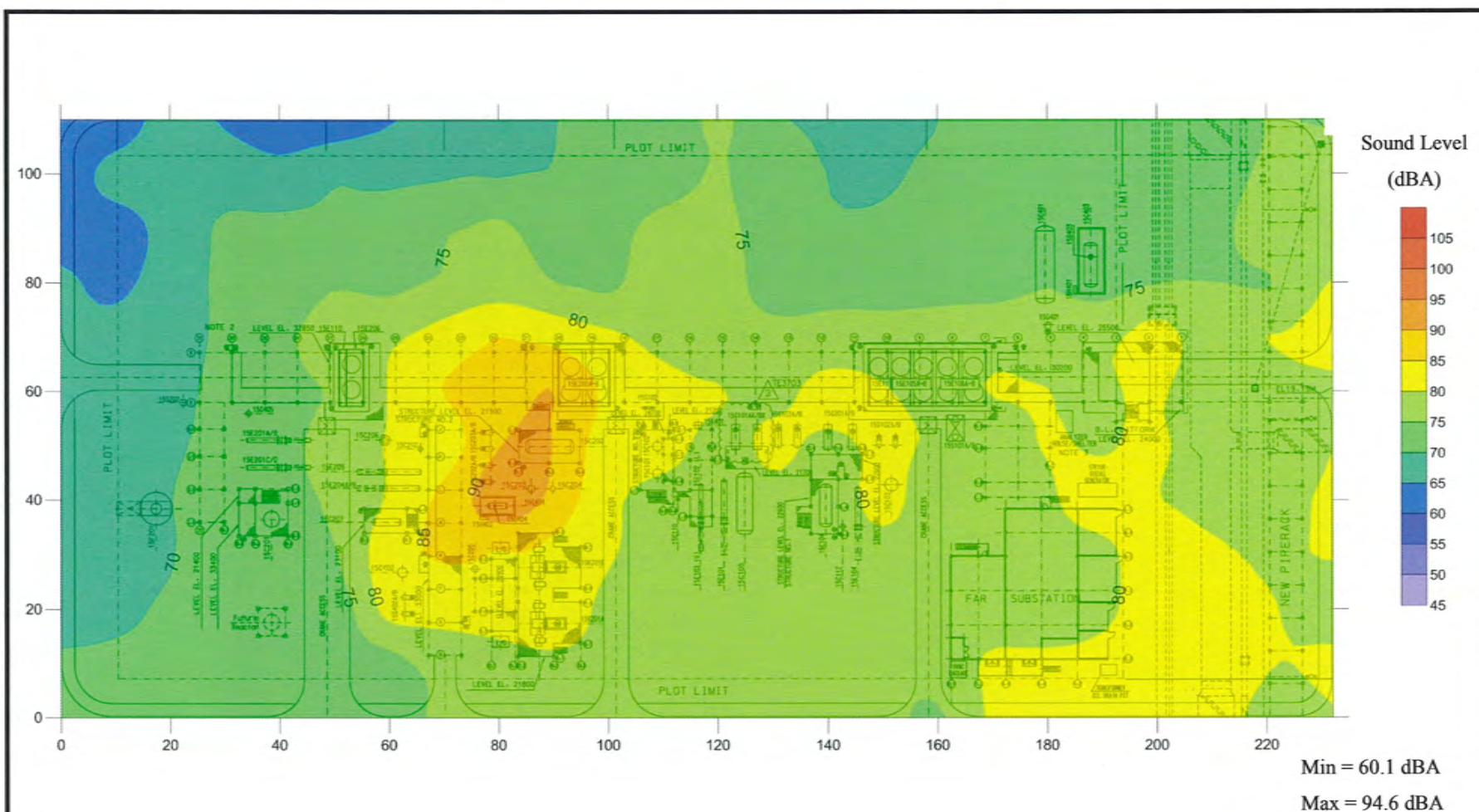


Figure 25 Noise Contour in Whole Cracked Naphtha Hydrotreating Unit (Plant 15)
Refinery Plant, Star Petroleum Refining Public Company Limited
August 29, 2023



