ภาคผนวก ค

เอกสารประกอบการปฏิบัติตาม
มาตรการติดตามตรวจสอบคุณภาพสิ่งแวดล้อม

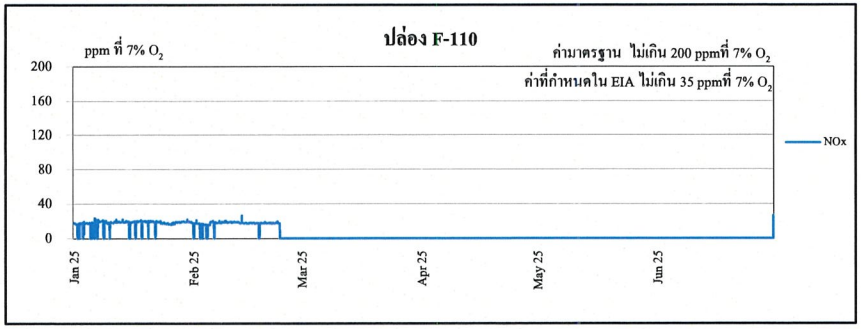
ภาคผนวก ค.1

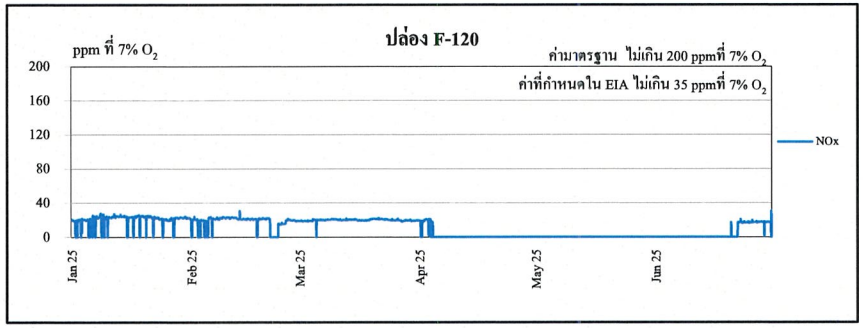
ผลการตรวจวัด NO_x และ SO_2 ด้วย CEMs Online
ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2568

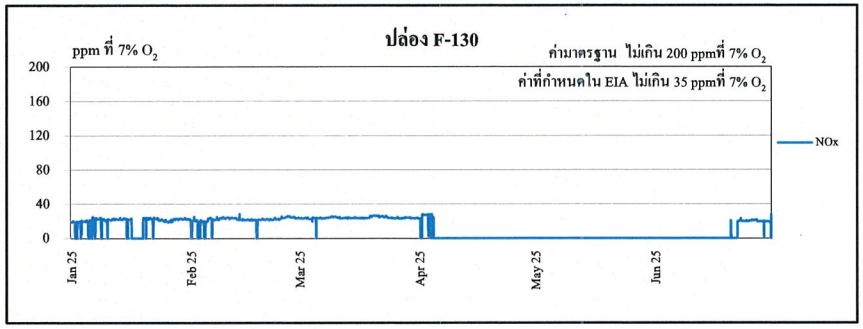
ผลการตรวจวัดค่าความเข้มข้นของก๊าซออกไซด์ของไนโตรเจน (NO_x)

โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2568







ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

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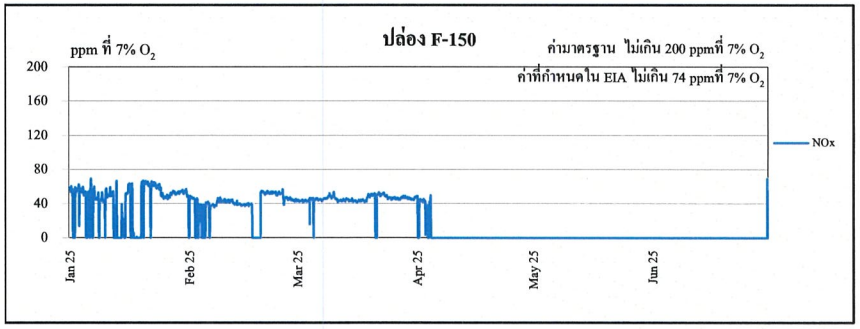

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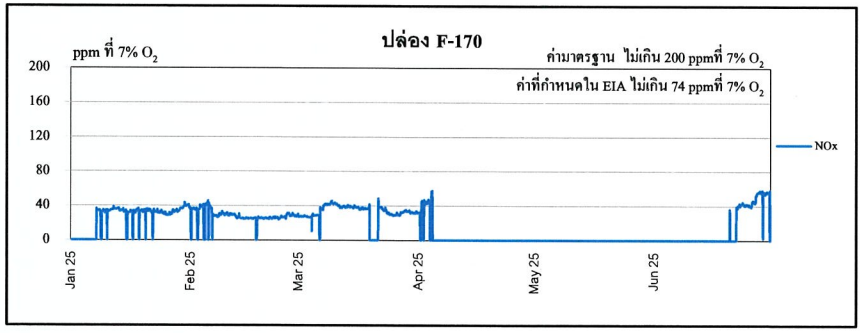

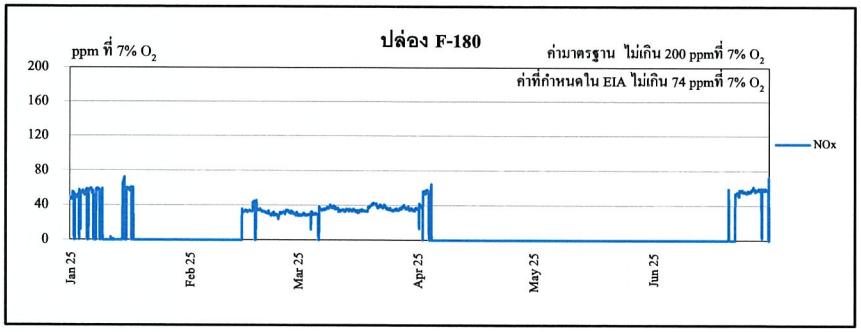

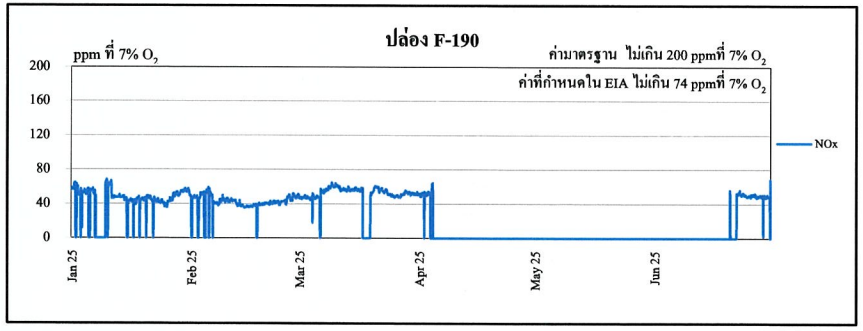

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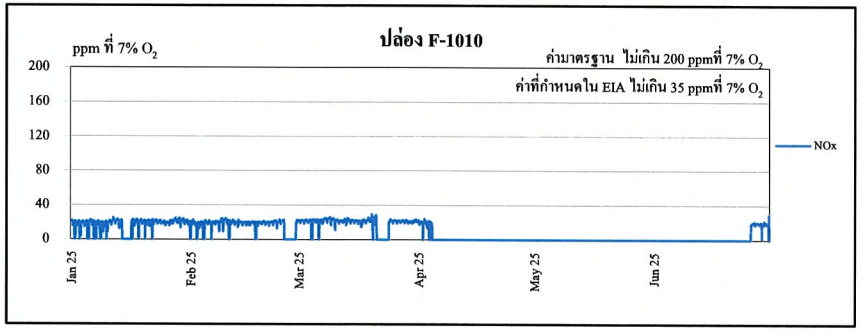

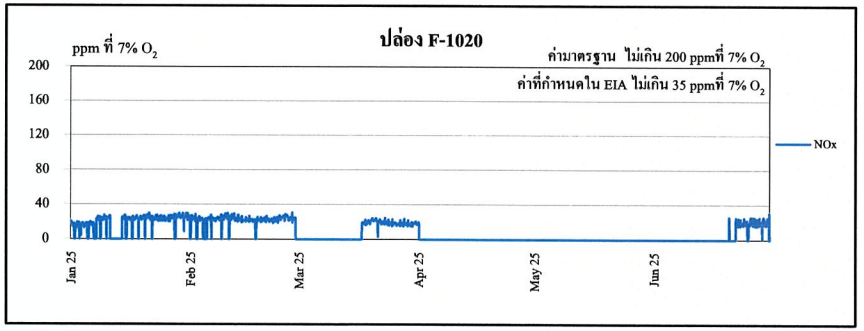

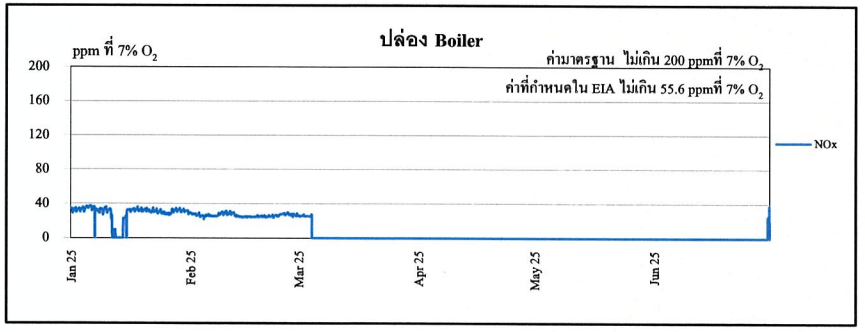

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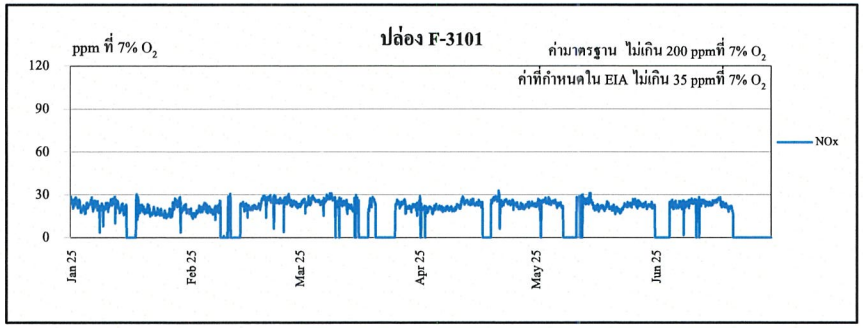
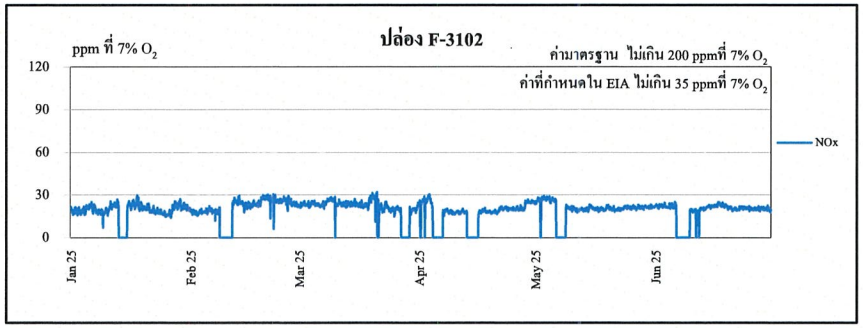
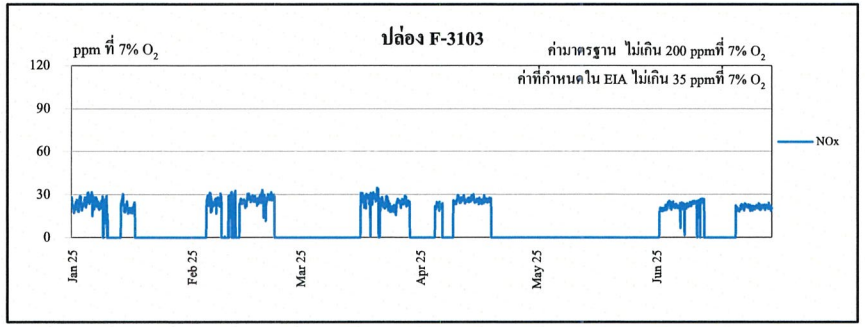
ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2568







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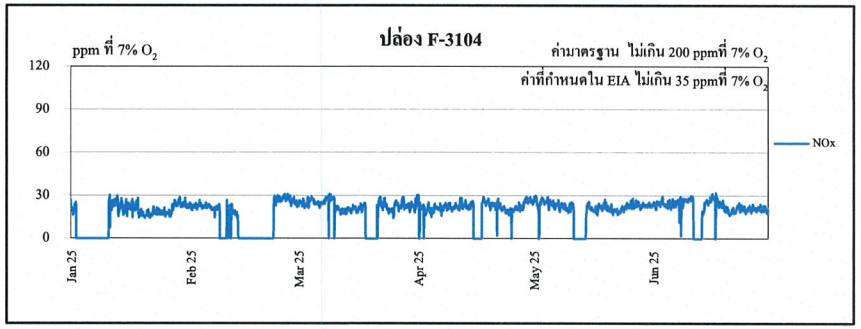
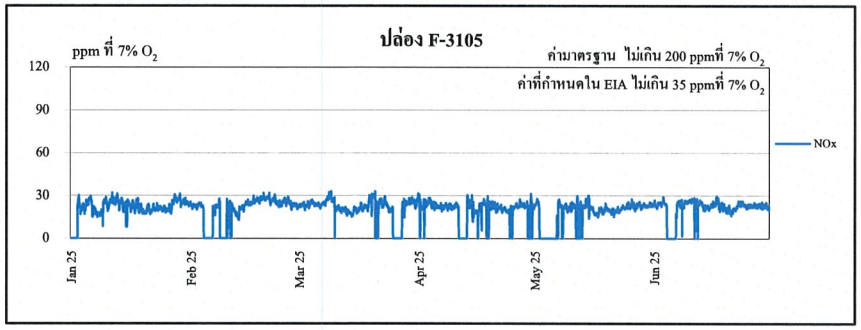
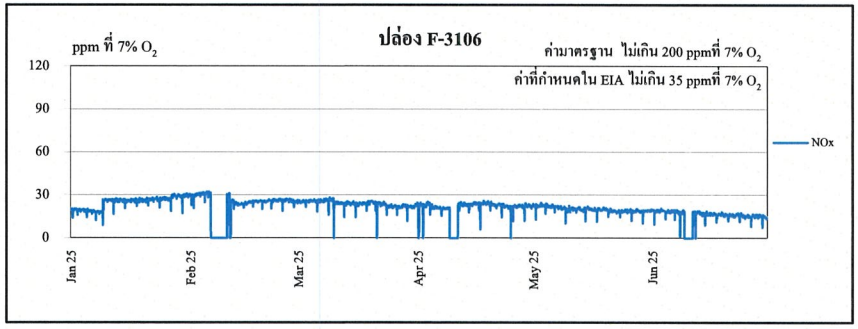
ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2568







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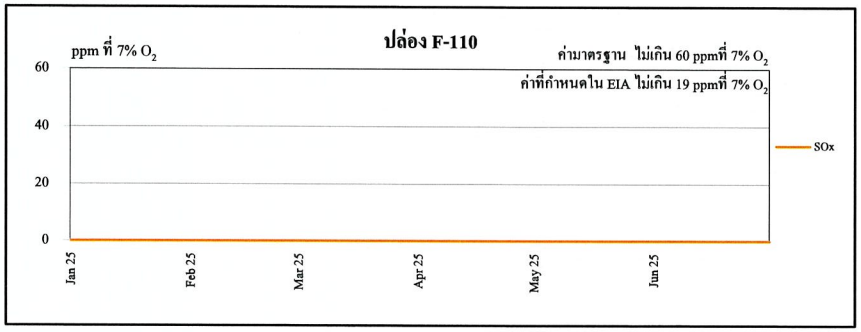

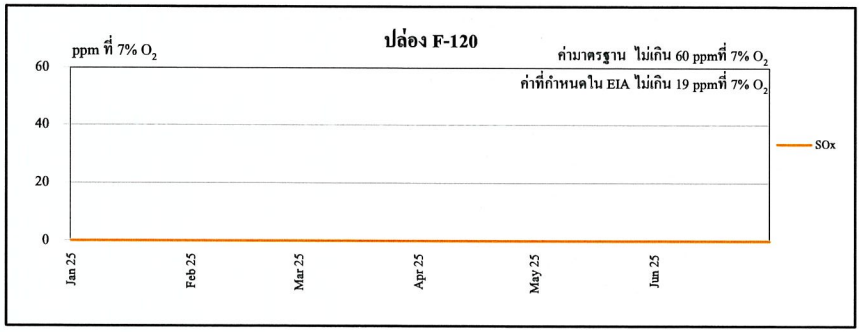

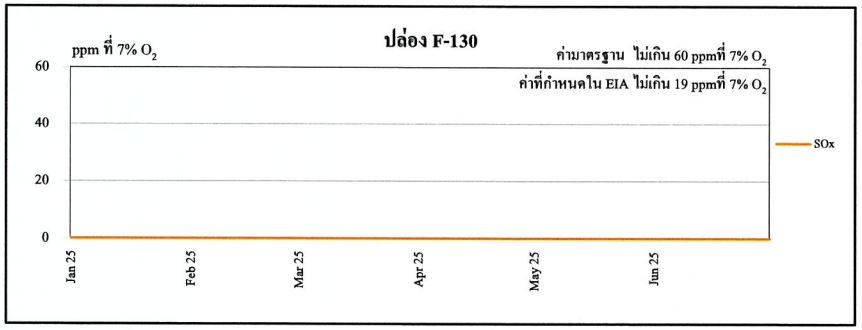

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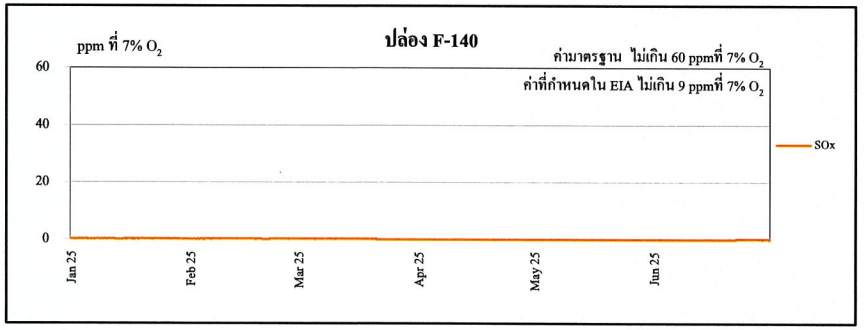

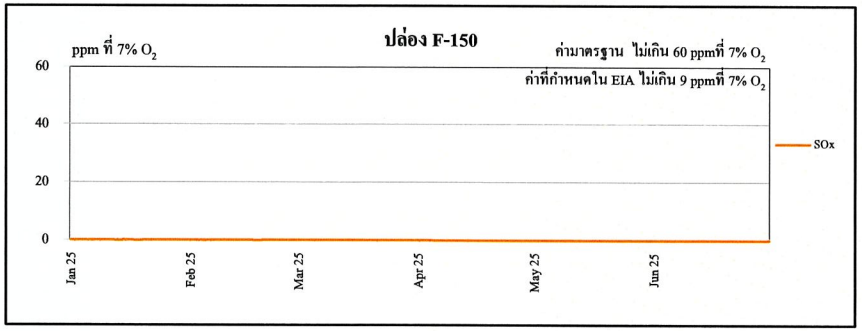

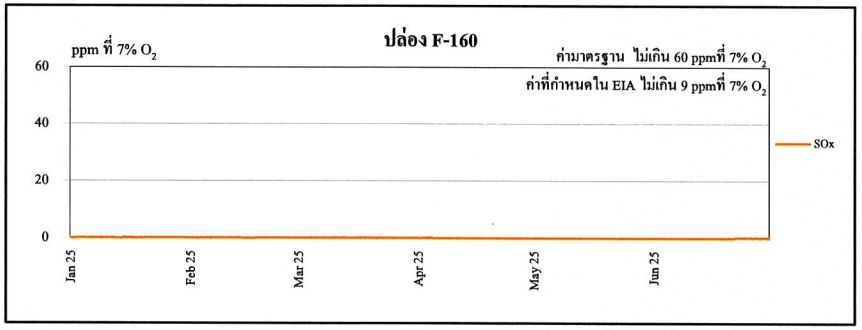

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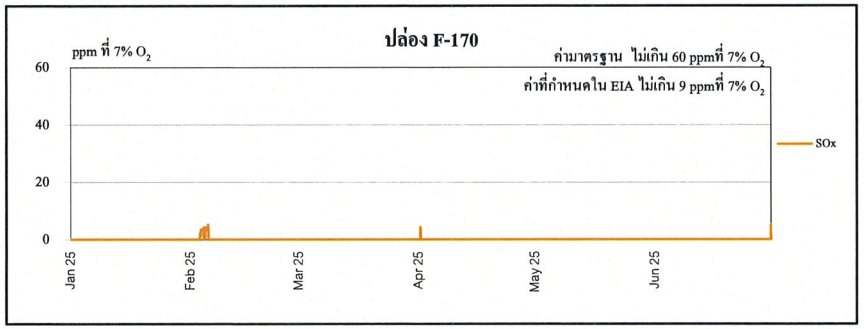

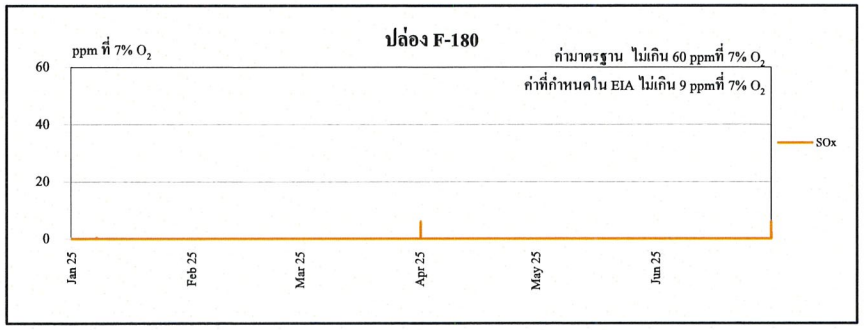

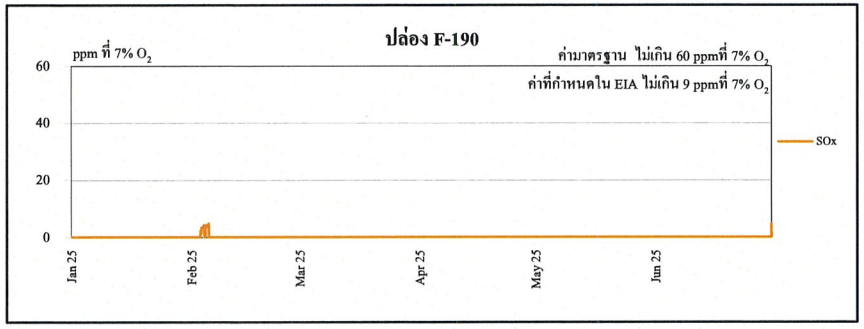

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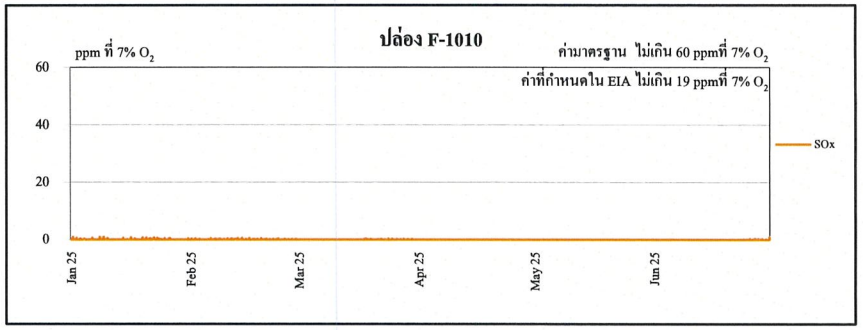

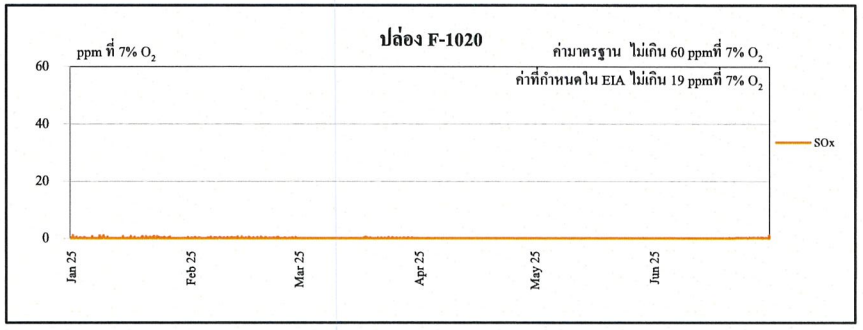

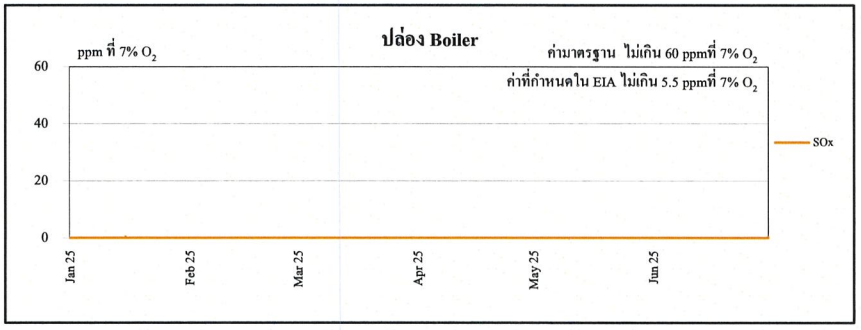

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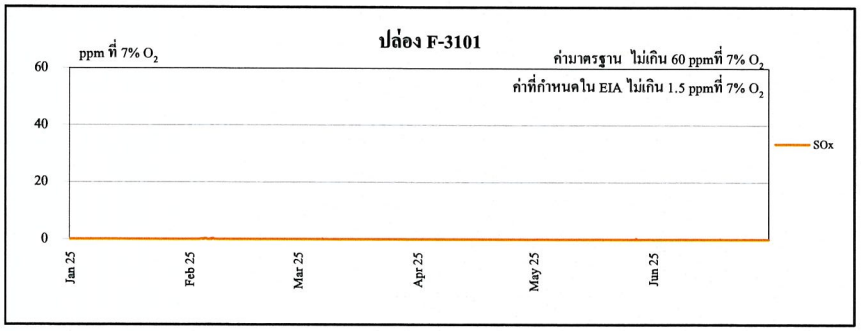

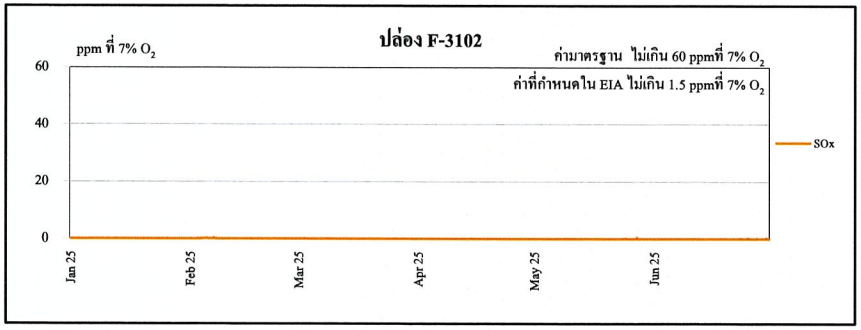

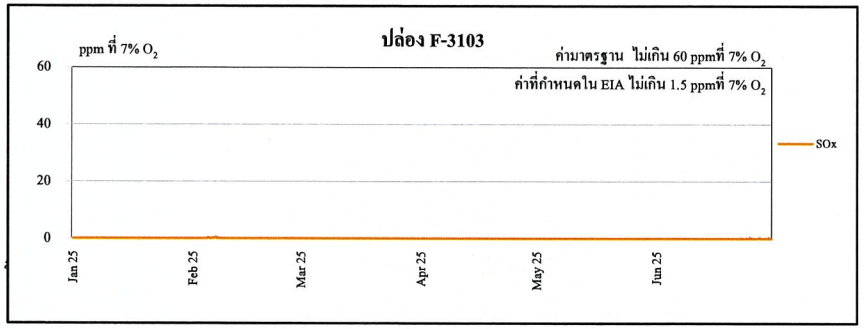

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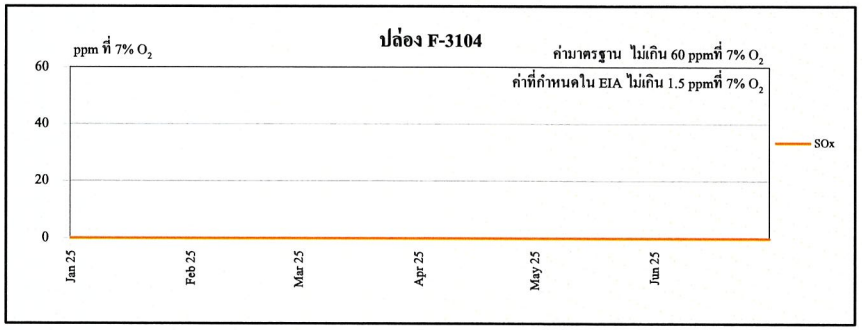
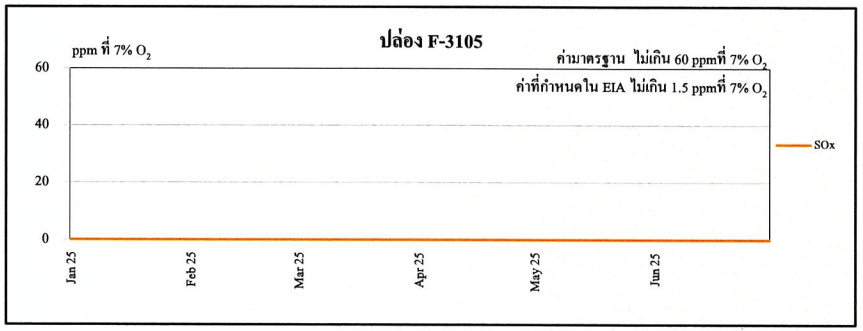
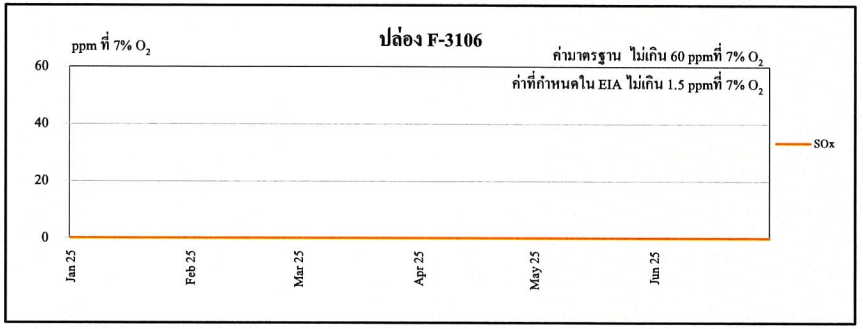
โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ระหว่างเดือนมกราคม ถึงมิถุนายน พ.ศ.2568







ที่มา : โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) โรงโอเลฟินส์ 2

ภาคผนวก ค.2

การตรวจสอบความถูกต้องของ CEMs ประจำปี พ.ศ.2567

รายงานผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง
(Relative Accuracy Test Audit Report)

บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน)
สาขา 3 โรงโอเลฟินส์ 2
ประจำปี พ.ศ. 2567

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หนังสือรับรองการจัดทำรายงาน

วันที่ 3 มกราคม พ.ศ. 2568

หนังสือรับรองฉบับนี้ ขอรับรองว่า บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เป็นผู้จัดทำรายงานผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMs) บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโอเลฟินส์ 2 ตั้งอยู่ในนิคมอุตสาหกรรมมาบตาพุด อำเภอเมืองระยอง จังหวัดระยอง ประจำปี พ.ศ. 2567 โดยมีเจ้าหน้าที่ผู้ร่วมตรวจวัด และจัดทำรายงาน ดังนี้

ผู้จัดทำรายงาน		ลายมือชื่อ	ตำแหน่ง
นายศรายุทธ	จิตรานนท์		ผู้ควบคุมห้องปฏิบัติการวิเคราะห์
นายอัสรี	นามบุรี		เจ้าหน้าที่เก็บตัวอย่าง
นายวรวิช	ทองพุ่ม		เจ้าหน้าที่เก็บตัวอย่าง
นางสาววรณิชชา	ชาติวันชัย		นักวิชาการสิ่งแวดล้อม

ขอแสดงความนับถือ

(นางสาวยุพาพร จันทร์เปล่ง)
ผู้ช่วยผู้จัดการทั่วไปสายธุรกิจตรวจติดตามคุณภาพสิ่งแวดล้อม
บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

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บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโอเลฟินส์ 2 ได้มอบหมายให้ บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ดำเนินการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศ (Relative Accuracy Test Audit) จากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMs) จำนวน 3 พื้นที่ รวม 20 ปล่อง ได้แก่ บริเวณ Plant I-4/1 Furnace จำนวน 11 ปล่อง, บริเวณ Plant I-4/2 Furnace จำนวน 6 ปล่อง, Boiler จำนวน 1 ปล่อง และ บริเวณ BV Plant Furnace จำนวน 2 ปล่อง ประจำปี พ.ศ. 2567 โดยมีรายละเอียดดังต่อไปนี้

1. วัตถุประสงค์ (Purpose)

เพื่อตรวจสอบการทำงานของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMs) ว่ายังเป็นไปตามข้อกำหนดลักษณะเฉพาะของการทำงาน (Performance Specification 2, 3 และ 4) โดยการทดสอบ Relative Accuracy ตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix B

2. ขอบเขตการดำเนินงาน (Scope)

การดำเนินงานตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMs) บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโอเลฟินส์ 2 ประจำปี พ.ศ. 2567 สามารถสรุปรายละเอียดการดำเนินงานได้ ดังตารางที่ 1

ตารางที่ 1 รายละเอียดการดำเนินงานตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

ปล่อง	เลขที่ตัวอย่าง	พารามิเตอร์	วันที่ตรวจวัด
ปล่อง F-110	2447712-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	13 ส.ค. 67
ปล่อง F-120	2447713-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	14 ส.ค. 67
ปล่อง F-130	2447714-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	15 ส.ค. 67
ปล่อง F-140	2447715-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	14 ส.ค. 67
ปล่อง F-150	2447716-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	15 ส.ค. 67
ปล่อง F-160	2447717-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	16 ส.ค. 67
ปล่อง F-170	2447718-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	16 ส.ค. 67
ปล่อง F-180	2447719-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	12 ก.ย. 67
ปล่อง F-190	2447720-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	3 ก.ย. 67
ปล่อง F-1010	2447721-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	5 ก.ย. 67
ปล่อง F-1020	2447722-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	5 ก.ย. 67
ปล่อง F-3101	2447723-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	4 ก.ย. 67
ปล่อง F-3102	2447724-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	6 ก.ย. 67
ปล่อง F-3103	2447725-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	20 ก.ย. 67
ปล่อง F-3104	2447726-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	6 ก.ย. 67
ปล่อง F-3105	2447727-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	13 ก.ย. 67
ปล่อง F-3106	2447728-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide	18 ก.ย. 67
ปล่อง F-4301	2447729-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	19 ก.ย. 67
ปล่อง F-4302	2447731-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	24 ก.ย. 67
Boiler	2447732-1	Oxide of Nitrogen, Sulfur Dioxide, Carbon Monoxide, Oxygen	17 ธ.ค. 67

3. มาตรฐานอ้างอิง (Reference Work Procedure)

การทดสอบ Relative Accuracy ตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix B ดังนี้

-PS-2: Specification and Test procedure for SO_2 and NO_2 Continuous Emission Monitoring System in Stationary Sources

-PS-3: Specification and Test procedure for O_2 Continuous Emission Monitoring System in Stationary Sources

-PS-4: Specification and Test procedure for CO Continuous Emission Monitoring System in Stationary Sources

4. คำจำกัดความของการทดสอบ

- **Continuous Emission Monitoring System (CEMs)** หมายถึง ระบบการติดตามผลการตรวจวัดมลพิษทางอากาศจากอุตสาหกรรมอย่างต่อเนื่อง

- **Reference Method (RM)** หมายถึง วิธีการตรวจวัดคุณภาพอากาศจากปล่องระบายที่เป็นไปตามวิธีการอ้างอิงหรือได้รับการยอมรับ โดยในที่นี้เป็นไปตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix A –Test Method ของ US.EPA

- **Relative Accuracy (RA)** หมายถึง ค่าสัมบูรณ์ของความแตกต่างระหว่างค่าเฉลี่ยความเข้มข้นของก๊าซที่อ่านได้จากระบบตรวจวัดอัตโนมัติ (CEMs) กับค่าที่คำนวณได้จากวิธีอ้างอิง (Reference Method: RM) บวกด้วยร้อยละ 2.5 ของค่าสัมประสิทธิ์ความเชื่อมั่นในการทดสอบ (Confidence Coefficient: CC) ที่หารด้วยค่าเฉลี่ยของวิธีอ้างอิง (RM) หรือมาตรฐานการระบายก๊าซนั้นๆ

- **Confidence Coefficient (CC)** หมายถึง ค่าสัมประสิทธิ์ความเชื่อมั่น โดยในการคำนวณค่า RA จะใช้ค่าสัมประสิทธิ์ความเชื่อมั่น ที่มีความผิดพลาดร้อยละ 2.5 แบบทางเดียว (One-Tailed)

5. วิธีการตรวจสอบความถูกต้อง (Procedure of Test)

วิธีการตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่องอ้างอิงตาม Code of Federal Regulations 40 Part 60 Appendix B กำหนดไว้มีดังนี้

5.1 Relative Accuracy Test (RA)

5.1.1 RA Test Condition: ต้องทำการทดสอบในขณะที่โรงงานเดินระบบมากกว่าร้อยละ 50 ของการทำงานปกติ และต้องรักษากำลังการผลิตให้คงที่

5.1.2 Sampling Condition: โดยทำการเก็บตัวอย่างชุดละอย่างน้อย 21 นาทีของแต่ละชุดของการเก็บ

5.1.3 Number of RM Test: จำนวนของการทดสอบ RM ทำการทดสอบ SO_2, NO_2, CO, และ O_2 อย่างน้อย 12 ชุดการทดสอบของ CEM แต่ละ unit

5.1.4 RM Test: วิธีการทดสอบอ้างอิง (RM) ในการทดสอบ SO_2, NO_2, CO, และ O_2 ให้ใช้วิธีการตรวจวัดอ้างอิงตามข้อกำหนดในเอกสาร Code of Federal Regulations 40 Part 60 Appendix A ดังตารางที่ 2

ตารางที่ 2 รายละเอียดวิธีการทดสอบอ้างอิง (RM)

พารามิเตอร์	วิธีการทดสอบอ้างอิง (RM)	เกณฑ์ในการยอมรับ
Oxide of Nitrogen	US.EPA Method 7E / 40 CFR Part 60 Appendix B Performance Specification Test 2 / 40 CFR Part 60 Appendix B	≤ 20 % Reference Method */ ≤ 10 % Standard**
Sulfur Dioxide	US.EPA Method 6C / 40 CFR Part 60 Appendix B Performance Specification Test 2 / 40 CFR Part 60 Appendix B	≤ 20 % Reference Method */ ≤ 10 % Standard**
Carbon Monoxide	US.EPA Method 10 / 40 CFR Part 60 Appendix B Performance Specification Test 4 / 40 CFR Part 60 Appendix B	≤ 10 % Reference Method */ ≤ 5 % Standard**
Oxygen	US.EPA Method 3A / 40 CFR Part 60 Appendix B Performance Specification Test 3 / 40 CFR Part 60 Appendix B	≤ 1 % Reference Method */

5.1.5 Correlation of RM and CEM Data: เลือกข้อมูลที่ดีที่สุด 9 ชุด หรือมากกว่ามาใช้ในการแปรผล โดยตัดค่าผลการทดสอบที่มีค่าสูง 3 อันดับแรกออก แต่ในรายงานจะต้องรายงานข้อมูลทั้งหมด รวมทั้งข้อมูลที่ตัดออกข้อมูลจากระบบ CEMs และจากวิธีการอ้างอิง (RM) จะต้องเป็นข้อมูลในเวลาเดียวกัน

5.1.6 Calculation: คำนวณค่า mean difference ระหว่างค่าที่ทดสอบได้จาก RM กับ CEM จากนั้นคำนวณค่า Standard deviation, ค่า Confidence coefficient และค่า Relative Accuracy ตามที่กำหนดดังนี้

- ผลการทดสอบทุกข้อมูลของ RM และ CEM จะต้องปรับไปที่สภาวะเดียวกัน เช่น เปอร์เซ็นต์ออกซิเจน สภาวะแห้ง/เปียก (Dry / Wet Basis) ตามกำหนดของค่ามาตรฐานปล่องระบาย
- Arithmetic Mean ($\bar{d}$): คำนวณค่าเฉลี่ยของความแตกต่างดังสมการ (1)

$$\bar{d} = \frac{1}{n}\sum_{i=1}^{n} d_i \qquad \text{สมการ (1)}$$

เมื่อ n = จำนวนข้อมูลของแต่ละจุด

- Standard Deviation (Sd) คำนวณส่วนเบี่ยงเบนมาตรฐานจากสมการ (2)

$$S_d = \sqrt{\frac{\sum_{i=1}^{n} d_i^2 - \frac{\left[\sum_{i=1}^{n} d_i\right]^2}{n}}{n-1}} \qquad \text{สมการ (2)}$$

- Confidence Coefficient (cc) คำนวณสัมประสิทธิ์ความเชื่อมั่นที่มีความผิดพลาดร้อยละ2.5 แบบทางเดียว (One-Tailed) ดังสมการ (3)

$$CC = t_{0.975}\frac{Sd}{\sqrt{n}} \qquad \text{สมการ (3)}$$

ค่า $t_{0.975}$ ดูจากตารางที่ 3 The t-value

ตารางที่ 3 The t-value

n^a	$t_{0.975}$	n^a	$t_{0.975}$	n^a	$t_{0.975}$
2	12.706	7	2.447	12	2.201
3	4.303	8	2.365	13	2.179
4	3.182	9	2.306	14	2.160
5	2.776	10	2.262	15	2.145
6	2.571	11	2.228	16	2.131

- Relative Accuracy (RA) คำนวณ ได้จากสมการ (4)

การทดสอบ Relative Accuracy เป็นการหาความสัมพันธ์ระหว่างผลการตรวจวัดด้วยวิธีอ้างอิง (Reference Method: RM) กับผลการตรวจวัดด้วยระบบ CEMs โดยใช้ข้อมูลอย่างน้อย 9 ชุดจากข้อมูลทั้งหมด 12 ชุด ดังสมการ

$$RA = \frac{|\bar{d}| + |CC|}{\overline{RM}} \times 100 \qquad \text{สมการ (4)}$$

เมื่อ RA คือRelative Accuracy

$|\bar{d}|$ คือ Absolute value of the mean differences

$|CC|$ คือ Absolute value of the mean confidence coefficient

RM คือ Average RM value

5.1.7 เกณฑ์การยอมรับการตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (CEMs) แสดงดังตารางที่ 4

ตารางที่ 4 เกณฑ์ในการตรวจสอบความถูกต้องของระบบ CEMs (Acceptance Criteria)

พารามิเตอร์	เกณฑ์ในการยอมรับ	
	เมื่อเทียบกับ Reference Method	เมื่อเทียบกับค่ามาตรฐาน
Oxide of Nitrogen (PS-2)	≤ 20 % Reference Method*	≤10% Standard**
Sulfur Dioxide (PS-2)	≤ 20 % Reference Method *	≤ 10% Standard**
Carbon Monoxide (PS-4)	≤ 10 % Reference Method *	≤ 5% Standard**
Oxygen (PS-3)	≤ 1 % Reference Method *	-

หมายเหตุ : * สำหรับกรณีที่ค่าเฉลี่ยการระบายมลพิษขณะทำการทดสอบ มีค่ามากกว่า 50% ของค่ามาตรฐานการระบายมลพิษ

** สำหรับกรณีที่ค่าเฉลี่ยการระบายมลพิษขณะทำการทดสอบ มีค่าน้อยกว่า 50% ของค่ามาตรฐานการระบายมลพิษ

6. อุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ

การทดสอบอ้างอิง (RM) บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ใช้เครื่องมือและอุปกรณ์ต่างๆ รายละเอียดดังตารางที่ 5

ตารางที่ 5 รายละเอียดอุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ

เครื่องมือ	ยี่ห้อ	รุ่น
Gas Conditioning	M&C	PSS-5
SO_2 Analyzer	Teledyne API	100EH
NO_2 + O_2 Analyzer	Teledyne API	200EH
Sampling Probe	M&C	PSP4000-H
CO Analyzer	Teledyne API	300EM

อุปกรณ์สำหรับการสอบเทียบ (Calibration Gas) ประกอบด้วย

-Zero Air จะใช้ Nitrogen 99.999%

-Span Gas จะใช้ก๊าซมาตรฐาน EPA Protocol Standard Gasที่ระดับความเข้มข้นต่างๆ ดังนี้

-Mid-Range Gas (Conc. 40 - 60% of the span)

-High-Range Gas (Conc. 80 - 100% of the span)

รายละเอียดใบ Certificate Standard Gas แสดงดังภาคผนวก ค

7. การสอบเทียบอุปกรณ์เครื่องมือที่ใช้ในการตรวจสอบ (Equipment Performance Check)

ขั้นตอนในการสอบเทียบก่อนและหลังตรวจวัดจะประกอบด้วย

7.1 การเตรียมการก่อนทำการตรวจวัด (Pretest Preparation) จะทำการติดตั้งอุปกรณ์ตรวจวัดและ Warm Up อย่างน้อย 3 ชั่วโมง

7.2 การสอบเทียบอุปกรณ์วิเคราะห์ (Analyzer Calibration) จะทำการสอบเทียบอุปกรณ์วิเคราะห์ 3 ระดับความเข้มข้น ได้แก่ Zero, Mid-Range, High-Range และทำการตรวจสอบความคลาดเคลื่อนของการสอบเทียบอุปกรณ์วิเคราะห์ โดยทำ Zero, Span ทุกระดับความเข้มข้นโดย Analyzer Calibration Error (Difference) จะต้องไม่เกิน ± 2 % Calibration gases span

7.3 การตรวจสอบความคลาดเคลื่อนของระบบตรวจวัด (Sampling System Bias Check) จะทำการตรวจสอบความคลาดเคลื่อนของระบบตรวจวัดที่ Zero และ Mid-Range โดย Sampling System Bias Error ไม่เกิน ±5% Calibration gases span

7.4 การตรวจสอบความคลาดเคลื่อนของระบบตรวจวัดก่อน-หลังการตรวจวิเคราะห์ (Sampling System Drift Check) หลังจากเสร็จสิ้นการตรวจวิเคราะห์ จะทำการตรวจสอบความคลาดเคลื่อนของระบบตรวจวัดโดย Sampling System Drift ก่อนและหลังการตรวจวิเคราะห์ ไม่เกิน ± 3 % Calibration gases span

8. ผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

จากการตรวจสอบการทำงานของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMs) บริเวณปล่องระบาย บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโอเลฟินส์ 2 ประจำปี พ.ศ. 2567 แสดงดังตารางที่ 6

ตารางที่ 6 (ต่อ) Summary of RA Test Results for CEMs

ปล่อง	Brand	Model	Range SO_X (ppm)	Range NO_X (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
I-4/1(Furnace)																
B-AT-1703 (F-170)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	16 ส.ค. 67	NOx	ppm	50.42	50.35	-0.07	0.16	0.47	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.10	0.10	0.03	1.38	≤ 10 2/	Pass
								CO	ppm	0.09	0.77	0.68	0.02	0.10	≤ 5 2/	Pass
								O_2	%	3.16	3.48	0.32	-	0.32	≤ 1	Pass
B-AT-1803 (F-180)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	12 ก.ย. 67	NOx	ppm	61.50	58.45	-3.05	0.14	5.46	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.07	0.07	0.02	1.04	≤ 10 2/	Pass
								CO	ppm	0.29	0.38	0.09	0.20	0.04	≤ 5 2/	Pass
								O_2	%	2.95	3.54	0.59	-	0.59	≤ 1	Pass
B-AT-1903 (F-190)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	3 ก.ย. 67	NOx	ppm	39.71	40.96	1.25	0.31	3.79	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.10	0.10	0.01	1.24	≤ 10 2/	Pass
								CO	ppm	0.09	0.30	0.21	0.04	0.04	≤ 5 2/	Pass
								O_2	%	2.67	2.81	0.14	-	0.14	≤ 1	Pass

หมายเหตุ: 1/ Compared with RM
2/ Compared with Emission Standard

ตารางที่ 6 Summary of RA Test Results for CEMs

ปล่อง	Brand	Model	Range SO_X (ppm)	Range NO_X (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
I-4/1(Furnace)																
B-AT-1103 (F-110)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	13 ส.ค. 67	NOx	ppm	20.33	19.25	-1.08	0.03	5.78	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.16	0.16	0.01	0.94	≤ 10 2/	Pass
								CO	ppm	2.15	3.06	0.91	0.04	0.14	≤ 5 2/	Pass
								O_2	%	5.38	5.49	0.11	-	0.11	≤ 1	Pass
B-AT-1203 (F-120)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	14 ส.ค. 67	NOx	ppm	24.81	23.57	-1.24	0.10	5.68	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.09	0.09	0.01	0.55	≤ 10 2/	Pass
								CO	ppm	1.90	2.62	0.72	0.04	0.11	≤ 5 2/	Pass
								O_2	%	4.23	4.34	0.12	-	0.12	≤ 1	Pass
B-AT-1303 (F-130)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	15 ส.ค. 67	NOx	ppm	29.86	29.55	-0.31	0.16	1.60	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.10	0.10	0.00	0.55	≤ 10 2/	Pass
								CO	ppm	1.81	2.95	1.14	0.05	0.17	≤ 5 2/	Pass
								O_2	%	4.56	4.53	-0.03	-	0.03	≤ 1	Pass

หมายเหตุ: 1/ Compared with RM
2/ Compared with Emission Standard

ตารางที่ 6 (ต่อ) Summary of RA Test Results for CEMs

ปล่อง	Brand	Model	Range SO_X (ppm)	Range NO_X (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
I-4/1(Furnace)																
B-AT-10102/10103 (F-1010)	ABB	URAS 14	0-200	0-200	0-200	-	5 ก.ย. 67	NOx	ppm	20.47	21.70	1.23	0.66	8.72	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.09	0.09	0.01	0.49	≤ 10 2/	Pass
								CO	ppm	3.86	1.14	-2.73	0.09	0.41	≤ 5 2/	Pass
B-AT-10202/10203 (F-1020)	ABB	URAS 14	0-200	0-200	0-200	-	5 ก.ย. 67	NOx	ppm	25.23	24.81	-0.42	0.14	2.26	≤ 20 1/	Pass
								SO_2	ppm	0.00	0.13	0.13	0.01	0.73	≤ 10 2/	Pass
								CO	ppm	0.42	0.20	-0.22	0.04	0.04	≤ 5 2/	Pass

หมายเหตุ: 1/ Compared with RM
2/ Compared with Emission Standard

ตารางที่ 6 (ต่อ) Summary of RA Test Results for CEMs

ปล่อง	Brand	Model	Range SO_X (ppm)	Range NO_X (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
I-4/1(Furnace)																
B-AT-1403 (F-140)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	14 ส.ค. 67	NOx	ppm	52.05	50.67	-1.38	0.27	3.26	≤ 20 1/	Pass
								SO_2	ppm	0.13	0.12	-0.02	0.02	0.44	≤ 10 2/	Pass
								CO	ppm	0.04	0.76	0.72	0.01	0.11	≤ 5 2/	Pass
								O_2	%	4.52	4.76	0.23	-	0.23	≤ 1	Pass
B-AT-1503 (F-150)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	15 ส.ค. 67	NOx	ppm	46.77	47.58	0.81	0.18	2.09	≤ 20 1/	Pass
								SO_2	ppm	0.11	0.18	0.07	0.00	1.36	≤ 10 2/	Pass
								CO	ppm	0.01	5.13	5.12	0.09	0.75	≤ 5 2/	Pass
								O_2	%	4.05	4.15	0.11	-	0.11	≤ 1	Pass
B-AT-1603 (F-160)	Yokokawa	IR400	0-100	0-200	0-200	0-21 (Paramagnetic)	16 ส.ค. 67	NOx	ppm	54.97	55.49	0.52	0.19	1.28	≤ 20 1/	Pass
								SO_2	ppm	0.11	0.12	0.01	0.01	0.28	≤ 10 2/	Pass
								CO	ppm	0.01	3.05	3.04	0.02	0.44	≤ 5 2/	Pass
								O_2	%	3.46	3.79	0.33	-	0.33	≤ 1	Pass

หมายเหตุ: 1/ Compared with RM
2/ Compared with Emission Standard

ตารางที่ 6 (ต่อ) Summary of RA Test Results for CEMs

ปล่อง	Brand	Model	Range SO_x (ppm)	Range NO_x (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
BV Plant (I-4)																
B-AT-4301-05A (F-4301)	ABB	URAS 14	0-25	0-100	0-2000	0-25	19 ก.ย. 67	NO_x	ppm	8.51	9.30	0.78	0.19	10.42	≤ 10[2/]	Pass
								SO_2	ppm	0.00	0.10	0.10	0.02	0.65	≤ 10[2/]	Pass
								CO	ppm	0.13	0.17	0.04	0.08	0.02	≤ 5[2/]	Pass
								O_2	%	4.64	4.26	-0.38	-	0.38	≤ 1	Pass
B-AT-4301-05A (F-4302)	ABB	URAS 14	0-25	0-100	0-2000	0-25	24 ก.ย. 67	NO_x	ppm	7.57	8.27	0.70	0.49	14.43	≤ 10[2/]	Pass
								SO_2	ppm	0.00	0.19	0.19	0.03	1.16	≤ 10[2/]	Pass
								CO	ppm	0.00	0.07	0.07	0.01	0.01	≤ 5[2/]	Pass
								O_2	%	6.39	6.06	-0.33	-	0.33	≤ 1	Pass

หมายเหตุ: [1/] Compared with RM
[2/] Compared with Emission Standard

ตารางที่ 6 (ต่อ) Summary of RA Test Results for CEMs

ปล่อง	Brand	Model	Range SO_x (ppm)	Range NO_x (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
I-4/2(Furnace)																
B-AT-310101A (F-3101)	ABB	URAS 14	0-50	0-150	0-100	-	4 ก.ย. 67	NOx	ppm	25.94	28.39	2.45	0.13	9.11	≤ 20[1/]	Pass
								SO_2	ppm	0.00	0.08	0.08	0.03	6.88	≤ 10[2/]	Pass
								CO	ppm	0.92	1.60	0.68	0.03	0.10	≤ 5[2/]	Pass
B-AT-310101A (F-3102)	ABB	URAS 14	0-50	0-150	0-100	-	6 ก.ย. 67	NOx	ppm	33.15	33.24	0.09	0.30	1.18	≤ 20[1/]	Pass
								SO_2	ppm	0.00	0.13	0.13	0.02	9.90	≤ 10[2/]	Pass
								CO	ppm	1.24	0.87	-0.37	0.15	0.07	≤ 5[2/]	Pass
B-AT-310101A (F-3103)	ABB	URAS 14	0-50	0-150	0-100	-	20 ก.ย. 67	NOx	ppm	27.76	27.29	-0.47	0.16	2.30	≤ 20[1/]	Pass
								SO_2	ppm	0.01	0.12	0.12	0.01	8.54	≤ 10[2/]	Pass
								CO	ppm	0.07	0.58	0.51	0.05	0.08	≤ 5[2/]	Pass

หมายเหตุ: [1/] Compared with RM
[2/] Compared with Emission Standard

ตารางที่ 6 (ต่อ) Summary of RA Test Results for CEMs

ปล่อง	Brand	Model	Range SO_x (ppm)	Range NO_x (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
Boiler (I-4)																
B-AT-2411 to 2414 (Boiler)	ABB	URAS 14	0-1500	0-400	0-1000	0-21 (Electrochemical)	17 ธ.ค. 67	NO_x	ppm	34.92	36.15	1.23	0.92	5.96	≤ 20[1/]	Pass
								SO_2	ppm	0.02	0.26	0.24	0.02	4.76	≤ 10[2/]	Pass
								CO	ppm	17.94	12.83	-5.11	1.04	0.89	≤ 5[2/]	Pass
								O_2	%	8.08	7.67	-0.42	-	0.42	≤ 1	Pass

หมายเหตุ: [1/] Compared with RM
[2/] Compared with Emission Standard

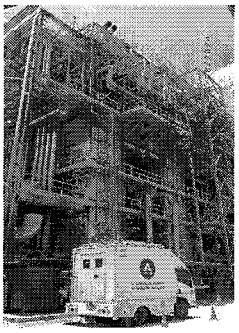
ตารางที่ 6 (ต่อ) Summary of RA Test Results for CEMs

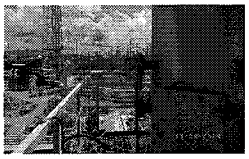
ปล่อง	Brand	Model	Range SO_x (ppm)	Range NO_x (ppm)	Range CO (ppm)	Range O_2 (%mol)	วันที่ตรวจสอบ	พารามิเตอร์	หน่วย	CEMs	RM By ALS	Difference	CC	RA (%)	Criteria (%)	Pass/ Fail
I-4/2(Furnace)																
B-AT-310401B (F-3104)	ABB	URAS 14	0-50	0-150	0-100	-	6 ก.ย. 67	NOx	ppm	24.78	27.92	3.14	0.33	12.42	≤ 20[1/]	Pass
								SO_2	ppm	0.00	0.09	0.10	0.01	7.33	≤ 10[2/]	Pass
								CO	ppm	0.00	0.25	0.25	0.07	0.05	≤ 5[2/]	Pass
B-AT-310101A (F-3105)	ABB	URAS 14	0-50	0-150	0-100	-	13 ก.ย. 67	NOx	ppm	28.68	27.15	-1.53	0.14	6.15	≤ 20[1/]	Pass
								SO_2	ppm	0.00	0.12	0.12	0.00	8.25	≤ 10[2/]	Pass
								CO	ppm	0.00	1.58	1.58	0.04	0.23	≤ 5[2/]	Pass
B-AT-310101A (F-3106)	ABB	URAS 14	0-50	0-150	0-100	-	18 ก.ย. 67	NOx	ppm	27.12	26.29	-0.83	0.35	4.50	≤ 20[1/]	Pass
								SO_2	ppm	0.00	0.12	0.12	0.03	1.69	≤ 10[2/]	Pass
								CO	ppm	0.00	0.35	0.35	0.05	0.06	≤ 5[2/]	Pass

หมายเหตุ: [1/] Compared with RM
[2/] Compared with Emission Standard

9. สรุปผลการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

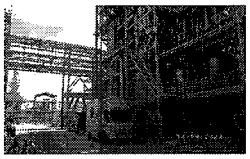
จากการตรวจสอบความถูกต้องของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (Continuous Emission Monitoring System: CEMs) บริเวณปล่องระบาย บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3 โรงโอเลฟินส์ 2 ประจำปี พ.ศ. 2567 พบว่า ค่า Relative Accuracy ของระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง (CEMs) มีค่าอยู่ในเกณฑ์ที่กำหนดตามเอกสาร Code of Federal Regulations 40 Part 60 Appendix B

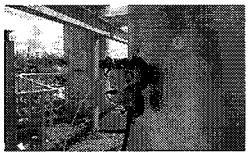




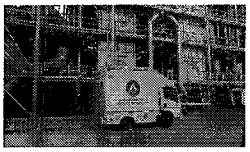
F-110

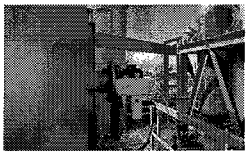
ภาพที่ 1 แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง



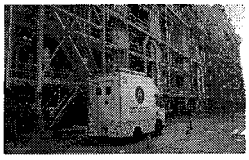


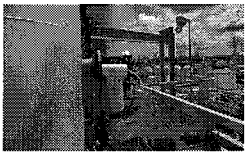
F-120





F-130





F-140

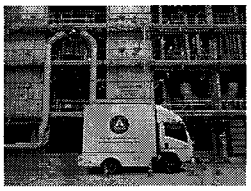
ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

F-150

F-160

F-170

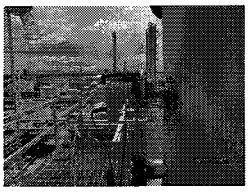
ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง



F-180

F-190

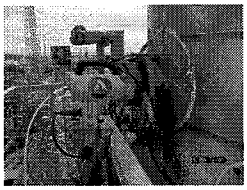
ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง



F-1010

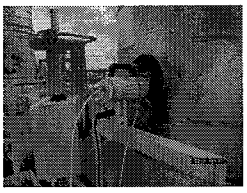
F-1020

ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง



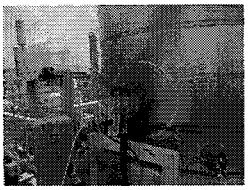
F-3101

F-3102



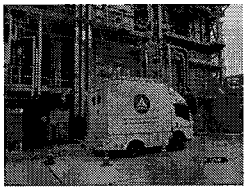
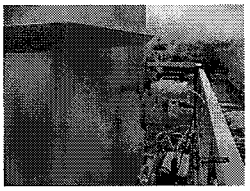
F-3103

ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง



F-3104

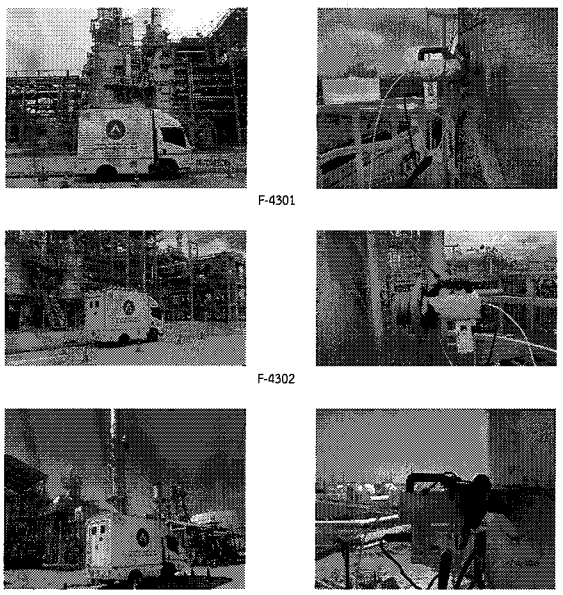
F-3105

F-3106

ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

right solutions.
right partner.



ภาพที่ 1 (ต่อ) แสดงการตรวจสอบความถูกต้องระบบตรวจสอบคุณภาพอากาศจากปล่องแบบต่อเนื่อง

ภาคผนวก

ภาคผนวก ก ใบรับรองผลการวิเคราะห์

ภาคผนวก ข Raw Data

ภาคผนวก ค Certificate Calibration Standard Gas

ภาคผนวก ง Certificate Calibration Equipment

ภาคผนวก จ เอกสารขึ้นทะเบียน
ห้องปฏิบัติการวิเคราะห์เอกชน

ภาคผนวก ก

ใบรับรองผลการวิเคราะห์

ALS

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447712
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977094-1

Sample Number	2447712-1
Sampled Date	Aug 13, 2024
Sample Description	Emission from Stationary Source
Location	F-110
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	13 Aug 24	12:05	12:25	22.81	20.88	20.50	18.93	-1.57
2	13 Aug 24	12:26	12:46	22.85	21.41	20.52	19.39	-1.13
3*	13 Aug 24	12:47	13:07	24.14	22.62	21.68	20.48	-1.20
4	13 Aug 24	13:08	13:28	23.22	21.93	20.81	19.81	-1.00
5	13 Aug 24	13:29	13:49	22.87	21.54	20.51	19.44	-1.07
6	13 Aug 24	13:50	14:10	22.54	21.19	20.21	19.14	-1.07
7	13 Aug 24	14:11	14:31	22.46	21.10	20.14	19.05	-1.09
8	13 Aug 24	14:32	14:52	22.43	21.06	20.08	18.99	-1.08
9	13 Aug 24	14:53	15:13	22.42	21.08	20.06	19.01	-1.05
10*	13 Aug 24	15:14	15:34	22.58	21.12	20.23	19.04	-1.19
11	13 Aug 24	15:35	15:55	22.73	21.31	20.35	19.20	-1.15
12	13 Aug 24	15:56	16:16	22.68	21.31	20.29	19.21	-1.08
	Average					20.33	19.25	-1.08
	Confidence Coefficient (CC)							0.03
	Relative Accuracy (Compared with RM) (%)							5.78
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management
Wichan Choonharat
Manager
ทะเบียนเลขที่ 1-204-ค-0006

Approved by
Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ 1-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447712
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977094-1

Sample Number	2447712-1
Sampled Date	Aug 13, 2024
Sample Description	Emission from Stationary Source
Location	F-110
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Aug 24	12:05	12:25	0.00	0.18	0.00	0.16	0.16
2	13 Aug 24	12:26	12:46	0.00	0.19	0.00	0.17	0.17
3	13 Aug 24	12:47	13:07	0.00	0.19	0.00	0.17	0.17
4*	13 Aug 24	13:08	13:28	0.00	0.22	0.00	0.20	0.20
5	13 Aug 24	13:29	13:49	0.00	0.19	0.00	0.17	0.17
6	13 Aug 24	13:50	14:10	0.00	0.20	0.00	0.18	0.18
7	13 Aug 24	14:11	14:31	0.00	0.19	0.00	0.17	0.17
8*	13 Aug 24	14:32	14:52	0.00	0.22	0.00	0.20	0.20
9*	13 Aug 24	14:53	15:13	0.00	0.21	0.00	0.19	0.19
10	13 Aug 24	15:14	15:34	0.00	0.17	0.00	0.15	0.15
11	13 Aug 24	15:35	15:55	0.00	0.13	0.00	0.12	0.12
12	13 Aug 24	15:56	16:16	0.00	0.19	0.00	0.17	0.17
	Average					0.00	0.16	0.16
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							0.94
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447712
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977094-1

Sample Number	2447712-1
Sampled Date	Aug 13, 2024
Sample Description	Emission from Stationary Source
Location	F-110
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	13 Aug 24	12:05	12:25	2.33	3.82	2.09	3.47	1.37
2*	13 Aug 24	12:26	12:46	2.30	3.69	2.07	3.34	1.27
3*	13 Aug 24	12:47	13:07	2.38	3.54	2.13	3.20	1.07
4	13 Aug 24	13:08	13:28	2.35	3.45	2.11	3.12	1.01
5	13 Aug 24	13:29	13:49	2.42	3.43	2.17	3.09	0.92
6	13 Aug 24	13:50	14:10	2.46	3.40	2.20	3.07	0.87
7	13 Aug 24	14:11	14:31	2.46	3.40	2.21	3.06	0.86
8	13 Aug 24	14:32	14:52	2.42	3.35	2.16	3.02	0.86
9	13 Aug 24	14:53	15:13	2.40	3.34	2.15	3.01	0.86
10	13 Aug 24	15:14	15:34	2.39	3.36	2.14	3.03	0.89
11	13 Aug 24	15:35	15:55	2.38	3.39	2.13	3.05	0.92
12	13 Aug 24	15:56	16:16	2.36	3.40	2.11	3.07	0.95
	Average					2.15	3.06	0.91
	Confidence Coefficient (CC)							0.04
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.14
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447712
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977094-1

Sample Number	2447712-1
Sampled Date	Aug 13, 2024
Sample Description	Emission from Stationary Source
Location	F-110
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1*	13 Aug 24	12:05	12:25	5.44	5.57	0.13
2*	13 Aug 24	12:26	12:46	5.42	5.55	0.13
3*	13 Aug 24	12:47	13:07	5.42	5.54	0.12
4	13 Aug 24	13:08	13:28	5.40	5.52	0.12
5	13 Aug 24	13:29	13:49	5.40	5.50	0.10
6	13 Aug 24	13:50	14:10	5.40	5.51	0.11
7	13 Aug 24	14:11	14:31	5.39	5.50	0.11
8	13 Aug 24	14:32	14:52	5.37	5.49	0.12
9	13 Aug 24	14:53	15:13	5.37	5.48	0.12
10	13 Aug 24	15:14	15:34	5.39	5.48	0.10
11	13 Aug 24	15:35	15:55	5.37	5.48	0.10
12	13 Aug 24	15:56	16:16	5.36	5.48	0.12
	Average			5.38	5.49	0.11
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.11
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447713
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977096-1

Sample Number	2447713-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-120
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	14 Aug 24	10:30	10:50	29.99	27.79	25.01	23.35	-1.66
2*	14 Aug 24	10:51	11:11	29.84	27.82	24.88	23.36	-1.52
3*	14 Aug 24	11:12	11:32	29.79	27.73	24.85	23.30	-1.55
4	14 Aug 24	11:33	11:53	29.67	27.80	24.72	23.33	-1.39
5	14 Aug 24	11:54	12:14	29.69	27.84	24.77	23.38	-1.39
6	14 Aug 24	12:15	12:35	29.78	27.95	24.85	23.47	-1.37
7	14 Aug 24	12:36	12:56	29.95	28.25	24.96	23.72	-1.24
8	14 Aug 24	12:57	13:17	29.73	28.07	24.78	23.58	-1.21
9	14 Aug 24	13:18	13:38	29.87	28.11	24.89	23.60	-1.30
10	14 Aug 24	13:39	13:59	29.86	28.32	24.84	23.74	-1.10
11	14 Aug 24	14:00	14:20	29.75	28.19	24.72	23.61	-1.11
12	14 Aug 24	14:21	14:41	29.75	28.22	24.76	23.68	-1.08
	Average					24.81	23.57	-1.24
	Confidence Coefficient (CC)							0.10
	Relative Accuracy (Compared with RM) (%)							5.68
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447713
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977096-1

Sample Number	2447713-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-120
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	14 Aug 24	10:30	10:50	0.00	0.05	0.00	0.05	0.05
2	14 Aug 24	10:51	11:11	0.00	0.10	0.00	0.09	0.09
3	14 Aug 24	11:12	11:32	0.00	0.12	0.00	0.10	0.10
4	14 Aug 24	11:33	11:53	0.00	0.11	0.00	0.09	0.09
5	14 Aug 24	11:54	12:14	0.00	0.10	0.00	0.09	0.09
6	14 Aug 24	12:15	12:35	0.00	0.12	0.00	0.10	0.10
7*	14 Aug 24	12:36	12:56	0.00	0.13	0.00	0.11	0.11
8	14 Aug 24	12:57	13:17	0.00	0.11	0.00	0.09	0.09
9*	14 Aug 24	13:18	13:38	0.00	0.14	0.00	0.12	0.12
10*	14 Aug 24	13:39	13:59	0.00	0.13	0.00	0.11	0.11
11	14 Aug 24	14:00	14:20	0.00	0.13	0.00	0.11	0.11
12	14 Aug 24	14:21	14:41	0.00	0.13	0.00	0.11	0.11
	Average					0.00	0.09	0.09
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							0.55
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447713
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977096-1

Sample Number	2447713-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-120
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	14 Aug 24	10:30	10:50	2.19	3.26	1.83	2.74	0.91
2*	14 Aug 24	10:51	11:11	2.20	3.18	1.84	2.67	0.83
3*	14 Aug 24	11:12	11:32	2.20	3.19	1.83	2.68	0.85
4	14 Aug 24	11:33	11:53	2.21	3.16	1.84	2.66	0.81
5	14 Aug 24	11:54	12:14	2.25	3.17	1.88	2.66	0.78
6	14 Aug 24	12:15	12:35	2.31	3.11	1.93	2.62	0.69
7	14 Aug 24	12:36	12:56	2.32	3.12	1.94	2.62	0.69
8	14 Aug 24	12:57	13:17	2.30	3.08	1.92	2.58	0.67
9	14 Aug 24	13:18	13:38	2.30	3.10	1.91	2.60	0.69
10	14 Aug 24	13:39	13:59	2.26	3.11	1.88	2.61	0.73
11	14 Aug 24	14:00	14:20	2.28	3.13	1.90	2.62	0.72
12	14 Aug 24	14:21	14:41	2.34	3.14	1.95	2.63	0.69
	Average					1.90	2.62	0.72
	Confidence Coefficient (CC)							0.04
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.11
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447713
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977096-1

Sample Number	2447713-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-120
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	14 Aug 24	10:30	10:50	4.24	4.36	0.12
2	14 Aug 24	10:51	11:11	4.23	4.34	0.12
3	14 Aug 24	11:12	11:32	4.24	4.36	0.12
4	14 Aug 24	11:33	11:53	4.22	4.34	0.12
5	14 Aug 24	11:54	12:14	4.24	4.35	0.11
6	14 Aug 24	12:15	12:35	4.24	4.35	0.11
7	14 Aug 24	12:36	12:56	4.22	4.34	0.12
8*	14 Aug 24	12:57	13:17	4.22	4.35	0.13
9	14 Aug 24	13:18	13:38	4.22	4.34	0.12
10	14 Aug 24	13:39	13:59	4.19	4.32	0.12
11*	14 Aug 24	14:00	14:20	4.17	4.30	0.14
12*	14 Aug 24	14:21	14:41	4.20	4.34	0.14
	Average			4.23	4.34	0.12
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.12
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447714
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977098-1

Sample Number	2447714-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-130
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	15 Aug 24	9:30	9:50	35.80	34.53	30.47	29.30	-1.17
2*	15 Aug 24	9:51	10:11	35.55	34.70	30.31	29.49	-0.82
3*	15 Aug 24	10:12	10:32	35.79	34.99	30.53	29.67	-0.85
4	15 Aug 24	10:33	10:53	35.47	34.90	30.26	29.64	-0.63
5	15 Aug 24	10:54	11:14	35.57	35.06	30.19	29.71	-0.48
6	15 Aug 24	11:15	11:35	35.50	35.18	30.17	29.84	-0.32
7	15 Aug 24	11:36	11:56	35.13	34.90	29.80	29.62	-0.18
8	15 Aug 24	11:57	12:17	35.20	34.86	29.91	29.57	-0.34
9	15 Aug 24	12:18	12:38	35.46	34.91	30.09	29.58	-0.51
10	15 Aug 24	12:39	12:59	34.57	34.52	29.56	29.42	-0.14
11	15 Aug 24	13:00	13:20	34.48	34.43	29.57	29.32	-0.25
12	15 Aug 24	13:21	13:41	34.29	34.31	29.19	29.25	0.06
	Average					29.86	29.55	-0.31
	Confidence Coefficient (CC)							0.16
	Relative Accuracy (Compared with RM) (%)							1.60
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447714
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977098-1

Sample Number	2447714-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-130
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	15 Aug 24	9:30	9:50	0.00	0.13	0.00	0.11	0.11
2	15 Aug 24	9:51	10:11	0.00	0.11	0.00	0.09	0.09
3*	15 Aug 24	10:12	10:32	0.00	0.13	0.00	0.11	0.11
4	15 Aug 24	10:33	10:53	0.00	0.11	0.00	0.09	0.09
5	15 Aug 24	10:54	11:14	0.00	0.12	0.00	0.10	0.10
6	15 Aug 24	11:15	11:35	0.00	0.12	0.00	0.10	0.10
7	15 Aug 24	11:36	11:56	0.00	0.11	0.00	0.10	0.10
8	15 Aug 24	11:57	12:17	0.00	0.13	0.00	0.11	0.11
9	15 Aug 24	12:18	12:38	0.00	0.12	0.00	0.10	0.10
10*	15 Aug 24	12:39	12:59	0.00	0.14	0.00	0.12	0.12
11	15 Aug 24	13:00	13:20	0.00	0.13	0.00	0.11	0.11
12	15 Aug 24	13:21	13:41	0.00	0.12	0.00	0.10	0.10
	Average					0.00	0.10	0.10
	Confidence Coefficient (CC)							0.00
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							0.55
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447714
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977098-1

Sample Number	2447714-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-130
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	15 Aug 24	9:30	9:50	1.99	3.59	1.69	3.05	1.35
2*	15 Aug 24	9:51	10:11	2.00	3.56	1.71	3.03	1.32
3*	15 Aug 24	10:12	10:32	2.06	3.54	1.76	3.00	1.24
4	15 Aug 24	10:33	10:53	2.06	3.49	1.76	2.96	1.21
5	15 Aug 24	10:54	11:14	2.02	3.48	1.72	2.95	1.23
6	15 Aug 24	11:15	11:35	2.05	3.46	1.74	2.93	1.19
7	15 Aug 24	11:36	11:56	2.06	3.45	1.75	2.92	1.18
8	15 Aug 24	11:57	12:17	2.14	3.47	1.82	2.94	1.12
9	15 Aug 24	12:18	12:38	2.21	3.48	1.87	2.95	1.08
10	15 Aug 24	12:39	12:59	2.21	3.49	1.89	2.97	1.08
11	15 Aug 24	13:00	13:20	2.19	3.49	1.88	2.97	1.10
12	15 Aug 24	13:21	13:41	2.24	3.51	1.91	2.99	1.09
	Average					1.81	2.95	1.14
	Confidence Coefficient (CC)							0.05
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.17
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447714
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977098-1

Sample Number	2447714-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-130
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	15 Aug 24	9:30	9:50	4.57	4.52	-0.05
2	15 Aug 24	9:51	10:11	4.60	4.55	-0.05
3*	15 Aug 24	10:12	10:32	4.60	4.51	-0.10
4*	15 Aug 24	10:33	10:53	4.61	4.53	-0.08
5	15 Aug 24	10:54	11:14	4.52	4.50	-0.03
6	15 Aug 24	11:15	11:35	4.55	4.51	-0.03
7	15 Aug 24	11:36	11:56	4.52	4.52	0.00
8	15 Aug 24	11:57	12:17	4.54	4.51	-0.03
9	15 Aug 24	12:18	12:38	4.52	4.50	-0.02
10	15 Aug 24	12:39	12:59	4.65	4.59	-0.06
11*	15 Aug 24	13:00	13:20	4.69	4.57	-0.12
12	15 Aug 24	13:21	13:41	4.57	4.59	0.02
	Average			4.56	4.53	-0.03
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.03
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447715
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977101-1

Sample Number	2447715-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-140
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	14 Aug 24	10:50	11:10	59.91	58.28	50.99	50.21	-0.78
2*	14 Aug 24	11:11	11:31	61.66	58.61	52.39	50.51	-1.89
3*	14 Aug 24	11:32	11:52	61.88	58.66	52.59	50.55	-2.04
4	14 Aug 24	11:53	12:13	61.60	58.68	52.36	50.55	-1.81
5	14 Aug 24	12:14	12:34	61.29	58.62	51.97	50.43	-1.54
6	14 Aug 24	12:35	12:55	61.51	59.18	52.16	50.97	-1.19
7	14 Aug 24	12:56	13:16	61.12	58.85	51.89	50.72	-1.17
8	14 Aug 24	13:17	13:37	61.11	58.90	51.77	50.68	-1.08
9	14 Aug 24	13:38	13:58	61.84	59.12	52.41	50.91	-1.50
10	14 Aug 24	13:59	14:19	61.70	58.96	52.11	50.58	-1.53
11	14 Aug 24	14:20	14:40	62.31	59.30	52.77	50.94	-1.83
12*	14 Aug 24	14:41	15:01	62.21	58.96	52.58	50.73	-1.86
	Average					52.05	50.67	-1.38
	Confidence Coefficient (CC)							0.27
	Relative Accuracy (Compared with RM) (%)							3.26
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447715
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977101-1

Sample Number	2447715-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-140
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	14 Aug 24	10:50	11:10	0.14	0.16	0.12	0.14	0.02
2	14 Aug 24	11:11	11:31	0.15	0.19	0.13	0.16	0.03
3	14 Aug 24	11:32	11:52	0.16	0.13	0.13	0.11	-0.02
4	14 Aug 24	11:53	12:13	0.16	0.15	0.14	0.13	0.00
5	14 Aug 24	12:14	12:34	0.17	0.16	0.14	0.13	-0.01
6	14 Aug 24	12:35	12:55	0.16	0.13	0.14	0.11	-0.03
7	14 Aug 24	12:56	13:16	0.16	0.11	0.14	0.10	-0.04
8	14 Aug 24	13:17	13:37	0.16	0.10	0.14	0.08	-0.05
9*	14 Aug 24	13:38	13:58	0.16	0.07	0.13	0.06	-0.07
10*	14 Aug 24	13:59	14:19	0.15	0.04	0.13	0.04	-0.09
11	14 Aug 24	14:20	14:40	0.15	0.08	0.13	0.07	-0.05
12*	14 Aug 24	14:41	15:01	0.15	0.05	0.13	0.05	-0.08
	Average					0.13	0.12	-0.02
	Confidence Coefficient (CC)							0.02
	Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)							0.44
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447715
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977101-1

Sample Number	2447715-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-140
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	14 Aug 24	10:50	11:10	0.03	1.02	0.02	0.88	0.85
2*	14 Aug 24	11:11	11:31	0.04	1.03	0.03	0.89	0.86
3*	14 Aug 24	11:32	11:52	0.05	0.95	0.04	0.82	0.77
4	14 Aug 24	11:53	12:13	0.06	0.89	0.05	0.76	0.71
5	14 Aug 24	12:14	12:34	0.07	0.89	0.06	0.76	0.70
6	14 Aug 24	12:35	12:55	0.06	0.89	0.05	0.77	0.72
7	14 Aug 24	12:56	13:16	0.06	0.89	0.05	0.76	0.71
8	14 Aug 24	13:17	13:37	0.05	0.88	0.05	0.76	0.71
9	14 Aug 24	13:38	13:58	0.03	0.86	0.03	0.74	0.71
10	14 Aug 24	13:59	14:19	0.02	0.86	0.02	0.74	0.72
11	14 Aug 24	14:20	14:40	0.02	0.91	0.02	0.78	0.76
12	14 Aug 24	14:41	15:01	0.02	0.88	0.02	0.76	0.74
	Average					0.04	0.76	0.72
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.11
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447715
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977101-1

Sample Number	2447715-1
Sampled Date	Aug 14, 2024
Sample Description	Emission from Stationary Source
Location	F-140
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	14 Aug 24	10:50	11:10	4.57	4.77	0.20
2	14 Aug 24	11:11	11:31	4.54	4.77	0.23
3	14 Aug 24	11:32	11:52	4.54	4.77	0.23
4	14 Aug 24	11:53	12:13	4.55	4.76	0.22
5	14 Aug 24	12:14	12:34	4.51	4.74	0.24
6	14 Aug 24	12:35	12:55	4.51	4.76	0.25
7	14 Aug 24	12:56	13:16	4.53	4.77	0.24
8	14 Aug 24	13:17	13:37	4.49	4.75	0.26
9*	14 Aug 24	13:38	13:58	4.50	4.76	0.26
10*	14 Aug 24	13:59	14:19	4.44	4.70	0.26
11	14 Aug 24	14:20	14:40	4.49	4.72	0.23
12*	14 Aug 24	14:41	15:01	4.46	4.74	0.29
	Average			4.52	4.76	0.23
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.23
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447716
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977103-1

Sample Number	2447716-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-150
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	15 Aug 24	9:30	9:50	58.14	59.12	45.95	46.87	0.92
2	15 Aug 24	9:51	10:11	58.71	59.54	46.48	47.40	0.91
3	15 Aug 24	10:12	10:32	58.88	59.81	46.39	47.41	1.03
4	15 Aug 24	10:33	10:53	59.64	60.02	47.10	47.65	0.55
5	15 Aug 24	10:54	11:14	59.87	60.04	47.27	47.61	0.34
6	15 Aug 24	11:15	11:35	60.32	60.93	47.63	48.37	0.74
7	15 Aug 24	11:36	11:56	59.39	59.94	46.82	47.56	0.74
8	15 Aug 24	11:57	12:17	59.54	60.48	46.89	47.92	1.03
9	15 Aug 24	12:18	12:38	59.08	59.95	46.40	47.43	1.03
10*	15 Aug 24	12:39	12:59	57.27	58.67	44.39	45.95	1.56
11*	15 Aug 24	13:00	13:20	56.82	58.13	44.07	45.27	1.20
12*	15 Aug 24	13:21	13:41	57.57	58.87	44.94	46.09	1.15
	Average					46.77	47.58	0.81
	Confidence Coefficient (CC)							0.18
	Relative Accuracy (Compared with RM) (%)							2.09
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447716
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977103-1

Sample Number	2447716-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-150
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	15 Aug 24	9:30	9:50	0.13	0.25	0.11	0.20	0.09
2	15 Aug 24	9:51	10:11	0.14	0.22	0.11	0.18	0.07
3*	15 Aug 24	10:12	10:32	0.14	0.25	0.11	0.20	0.09
4	15 Aug 24	10:33	10:53	0.14	0.22	0.11	0.18	0.07
5	15 Aug 24	10:54	11:14	0.14	0.24	0.11	0.19	0.08
6	15 Aug 24	11:15	11:35	0.14	0.23	0.11	0.18	0.07
7	15 Aug 24	11:36	11:56	0.15	0.23	0.12	0.18	0.07
8	15 Aug 24	11:57	12:17	0.14	0.24	0.11	0.19	0.08
9	15 Aug 24	12:18	12:38	0.14	0.23	0.11	0.19	0.07
10*	15 Aug 24	12:39	12:59	0.15	0.26	0.12	0.20	0.09
11	15 Aug 24	13:00	13:20	0.15	0.24	0.12	0.19	0.07
12	15 Aug 24	13:21	13:41	0.15	0.24	0.12	0.18	0.07
	Average					0.11	0.18	0.07
	Confidence Coefficient (CC)							0.00
	Relative Accuracy (Compared with Emission Standard : 5.5 ppm) (%)							1.36
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447716
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977103-1

Sample Number	2447716-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-150
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	15 Aug 24	9:30	9:50	0.02	6.54	0.01	5.19	5.17
2	15 Aug 24	9:51	10:11	0.02	6.32	0.02	5.03	5.01
3	15 Aug 24	10:12	10:32	0.02	6.29	0.01	4.99	4.98
4	15 Aug 24	10:33	10:53	0.02	6.29	0.01	5.00	4.98
5	15 Aug 24	10:54	11:14	0.02	6.35	0.01	5.03	5.02
6	15 Aug 24	11:15	11:35	0.02	6.55	0.01	5.20	5.18
7	15 Aug 24	11:36	11:56	0.02	6.54	0.01	5.19	5.17
8	15 Aug 24	11:57	12:17	0.02	6.61	0.01	5.24	5.23
9	15 Aug 24	12:18	12:38	0.02	6.70	0.01	5.30	5.29
10*	15 Aug 24	12:39	12:59	0.02	6.95	0.02	5.45	5.43
11*	15 Aug 24	13:00	13:20	0.10	6.93	0.08	5.39	5.32
12*	15 Aug 24	13:21	13:41	0.02	6.81	0.02	5.33	5.32
	Average					0.01	5.13	5.12
	Confidence Coefficient (CC)							0.09
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.75
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447716
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977103-1

Sample Number	2447716-1
Sampled Date	Aug 15, 2024
Sample Description	Emission from Stationary Source
Location	F-150
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	15 Aug 24	9:30	9:50	3.31	3.37	0.05
2	15 Aug 24	9:51	10:11	3.34	3.44	0.09
3	15 Aug 24	10:12	10:32	3.25	3.37	0.11
4	15 Aug 24	10:33	10:53	3.30	3.39	0.09
5	15 Aug 24	10:54	11:14	3.30	3.37	0.08
6	15 Aug 24	11:15	11:35	3.29	3.39	0.09
7*	15 Aug 24	11:36	11:56	3.27	3.38	0.11
8	15 Aug 24	11:57	12:17	3.25	3.36	0.11
9*	15 Aug 24	12:18	12:38	3.20	3.33	0.13
10*	15 Aug 24	12:39	12:59	2.97	3.15	0.19
11	15 Aug 24	13:00	13:20	2.98	3.05	0.08
12	15 Aug 24	13:21	13:41	3.09	3.14	0.05
	Average			4.05	4.15	0.11
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.11
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447717
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977107-1

Sample Number	2447717-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-160
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	16 Aug 24	9:30	9:50	68.83	67.61	54.51	54.54	0.04
2	16 Aug 24	9:51	10:11	68.61	67.94	54.76	55.20	0.44
3*	16 Aug 24	10:12	10:32	67.83	67.98	54.22	55.38	1.16
4*	16 Aug 24	10:33	10:53	67.38	67.57	53.84	54.98	1.14
5*	16 Aug 24	10:54	11:14	68.20	67.92	54.55	55.36	0.81
6	16 Aug 24	11:15	11:35	68.43	67.64	54.67	55.09	0.42
7	16 Aug 24	11:36	11:56	68.76	67.78	54.79	55.04	0.26
8	16 Aug 24	11:57	12:17	68.04	67.59	54.10	54.82	0.72
9	16 Aug 24	12:18	12:38	68.26	67.83	54.25	55.00	0.74
10	16 Aug 24	12:39	12:59	69.74	69.13	55.46	56.06	0.60
11	16 Aug 24	13:00	13:20	70.97	70.37	56.45	57.17	0.72
12	16 Aug 24	13:21	13:41	70.11	69.54	55.74	56.47	0.73
	Average					54.97	55.49	0.52
	Confidence Coefficient (CC)							0.19
	Relative Accuracy (Compared with RM) (%)							1.28
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447717
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977107-1

Sample Number	2447717-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-160
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	16 Aug 24	9:30	9:50	0.13	0.19	0.11	0.15	0.05
2	16 Aug 24	9:51	10:11	0.13	0.14	0.11	0.11	0.01
3	16 Aug 24	10:12	10:32	0.13	0.14	0.11	0.12	0.01
4	16 Aug 24	10:33	10:53	0.14	0.14	0.11	0.11	0.00
5	16 Aug 24	10:54	11:14	0.14	0.12	0.11	0.10	-0.01
6	16 Aug 24	11:15	11:35	0.14	0.13	0.11	0.11	0.00
7	16 Aug 24	11:36	11:56	0.14	0.16	0.11	0.13	0.02
8*	16 Aug 24	11:57	12:17	0.14	0.18	0.11	0.15	0.04
9	16 Aug 24	12:18	12:38	0.14	0.18	0.11	0.14	0.03
10	16 Aug 24	12:39	12:59	0.14	0.18	0.11	0.14	0.04
11	16 Aug 24	13:00	13:20	0.13	0.16	0.11	0.13	0.02
12*	16 Aug 24	13:21	13:41	0.13	0.17	0.10	0.14	0.04
	Average					0.11	0.12	0.01
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)							0.28
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat
Manager
ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447717
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977107-1

Sample Number	2447717-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-160
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	16 Aug 24	9:30	9:50	0.01	3.88	0.01	3.13	3.12
2	16 Aug 24	9:51	10:11	0.02	3.79	0.02	3.08	3.06
3	16 Aug 24	10:12	10:32	0.02	3.77	0.01	3.07	3.06
4	16 Aug 24	10:33	10:53	0.02	3.73	0.02	3.04	3.02
5	16 Aug 24	10:54	11:14	0.02	3.71	0.01	3.02	3.01
6	16 Aug 24	11:15	11:35	0.02	3.71	0.01	3.02	3.01
7	16 Aug 24	11:36	11:56	0.02	3.73	0.02	3.03	3.02
8	16 Aug 24	11:57	12:17	0.02	3.76	0.02	3.05	3.04
9	16 Aug 24	12:18	12:38	0.02	3.78	0.02	3.06	3.05
10	16 Aug 24	12:39	12:59	0.02	3.80	0.01	3.08	3.07
11*	16 Aug 24	13:00	13:20	0.01	3.82	0.01	3.11	3.10
12*	16 Aug 24	13:21	13:41	0.01	3.90	0.01	3.17	3.16
	Average					0.01	3.05	3.04
	Confidence Coefficient (CC)							0.02
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.44
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat
Manager
ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447717
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977107-1

Sample Number	2447717-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-160
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	16 Aug 24	9:30	9:50	3.35	3.67	0.32
2	16 Aug 24	9:51	10:11	3.48	3.79	0.31
3	16 Aug 24	10:12	10:32	3.51	3.84	0.33
4	16 Aug 24	10:33	10:53	3.50	3.82	0.31
5	16 Aug 24	10:54	11:14	3.52	3.84	0.32
6	16 Aug 24	11:15	11:35	3.50	3.83	0.33
7	16 Aug 24	11:36	11:56	3.45	3.78	0.33
8	16 Aug 24	11:57	12:17	3.42	3.76	0.34
9*	16 Aug 24	12:18	12:38	3.41	3.76	0.35
10	16 Aug 24	12:39	12:59	3.42	3.76	0.34
11*	16 Aug 24	13:00	13:20	3.42	3.79	0.36
12*	16 Aug 24	13:21	13:41	3.42	3.78	0.37
	Average			3.46	3.79	0.33
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.33
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat
Manager
ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447718
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977109-1

Sample Number	2447718-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-170
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	16 Aug 24	9:30	9:50	63.98	62.46	49.41	49.08	-0.33
2*	16 Aug 24	9:51	10:11	65.01	62.77	50.81	49.99	-0.82
3*	16 Aug 24	10:12	10:32	64.41	62.55	50.52	50.03	-0.50
4*	16 Aug 24	10:33	10:53	64.40	62.70	50.50	50.12	-0.38
5	16 Aug 24	10:54	11:14	64.42	63.10	50.60	50.52	-0.08
6	16 Aug 24	11:15	11:35	63.90	62.79	50.17	50.27	0.11
7	16 Aug 24	11:36	11:56	63.97	62.90	50.13	50.22	0.09
8	16 Aug 24	11:57	12:17	63.55	62.60	49.75	49.91	0.16
9	16 Aug 24	12:18	12:38	63.67	62.71	49.97	50.13	0.17
10	16 Aug 24	12:39	12:59	64.86	63.32	50.99	50.65	-0.34
11	16 Aug 24	13:00	13:20	65.18	63.73	51.31	51.02	-0.29
12	16 Aug 24	13:21	13:41	65.38	64.10	51.50	51.37	-0.13
	Average					50.42	50.35	-0.07
	Confidence Coefficient (CC)							0.16
	Relative Accuracy (Compared with RM) (%)							0.47
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat
Manager
ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447718
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977109-1

Sample Number	2447718-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-170
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	16 Aug 24	9:30	9:50	0.00	0.18	0.00	0.14	0.14
2	16 Aug 24	9:51	10:11	0.00	0.07	0.00	0.06	0.06
3	16 Aug 24	10:12	10:32	0.00	0.06	0.00	0.04	0.04
4	16 Aug 24	10:33	10:53	0.00	0.06	0.00	0.05	0.05
5	16 Aug 24	10:54	11:14	0.00	0.11	0.00	0.09	0.09
6	16 Aug 24	11:15	11:35	0.00	0.15	0.00	0.12	0.12
7*	16 Aug 24	11:36	11:56	0.00	0.18	0.00	0.14	0.14
8*	16 Aug 24	11:57	12:17	0.00	0.20	0.00	0.16	0.16
9	16 Aug 24	12:18	12:38	0.00	0.16	0.00	0.13	0.13
10	16 Aug 24	12:39	12:59	0.00	0.16	0.00	0.13	0.13
11	16 Aug 24	13:00	13:20	0.00	0.16	0.00	0.13	0.13
12	16 Aug 24	13:21	13:41	0.00	0.16	0.00	0.13	0.13
	Average					0.00	0.10	0.10
	Confidence Coefficient (CC)							0.03
	Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)							1.38
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447718
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977109-1

Sample Number	2447718-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-170
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	16 Aug 24	9:30	9:50	0.09	1.68	0.07	1.32	1.26
2*	16 Aug 24	9:51	10:11	0.08	1.19	0.06	0.95	0.89
3*	16 Aug 24	10:12	10:32	0.10	1.07	0.08	0.86	0.78
4	16 Aug 24	10:33	10:53	0.11	1.02	0.08	0.81	0.73
5	16 Aug 24	10:54	11:14	0.11	0.95	0.09	0.76	0.67
6	16 Aug 24	11:15	11:35	0.11	0.97	0.09	0.78	0.69
7	16 Aug 24	11:36	11:56	0.11	0.91	0.09	0.73	0.64
8	16 Aug 24	11:57	12:17	0.12	0.95	0.09	0.76	0.66
9	16 Aug 24	12:18	12:38	0.12	0.97	0.09	0.78	0.68
10	16 Aug 24	12:39	12:59	0.11	1.01	0.09	0.81	0.72
11	16 Aug 24	13:00	13:20	0.11	0.96	0.08	0.77	0.68
12	16 Aug 24	13:21	13:41	0.11	0.93	0.09	0.75	0.66
	Average					0.09	0.77	0.68
	Confidence Coefficient (CC)							0.02
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.10
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447718
Date Received : Aug 16, 2024
Date Reported : Oct 12, 2024
Report Number : 2977109-1

Sample Number	2447718-1
Sampled Date	Aug 16, 2024
Sample Description	Emission from Stationary Source
Location	F-170
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	16 Aug 24	9:30	9:50	2.90	3.21	0.31
2	16 Aug 24	9:51	10:11	3.11	3.45	0.33
3*	16 Aug 24	10:12	10:32	3.18	3.52	0.34
4*	16 Aug 24	10:33	10:53	3.17	3.51	0.34
5	16 Aug 24	10:54	11:14	3.21	3.54	0.33
6*	16 Aug 24	11:15	11:35	3.19	3.54	0.35
7	16 Aug 24	11:36	11:56	3.16	3.49	0.33
8	16 Aug 24	11:57	12:17	3.15	3.47	0.32
9	16 Aug 24	12:18	12:38	3.19	3.51	0.32
10	16 Aug 24	12:39	12:59	3.22	3.52	0.31
11	16 Aug 24	13:00	13:20	3.24	3.54	0.29
12	16 Aug 24	13:21	13:41	3.25	3.55	0.30
	Average			3.16	3.48	0.32
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.32
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447719
Date Received : Sep 13, 2024
Date Reported : Oct 12, 2024
Report Number : 2977110-1

Sample Number	2447719-1
Sampled Date	Sep 12, 2024
Sample Description	Emission from Stationary Source
Location	S-AT-1803
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	12 Sep 24	10:25	10:45	79.36	73.92	61.40	58.61	-2.79
2	12 Sep 24	10:46	11:06	79.14	73.05	61.26	58.27	-2.99
3	12 Sep 24	11:07	11:27	78.60	72.36	60.97	57.86	-3.12
4	12 Sep 24	11:28	11:48	78.90	72.49	61.21	58.12	-3.09
5	12 Sep 24	11:49	12:09	79.34	73.29	61.49	58.73	-2.76
6	12 Sep 24	12:10	12:30	79.03	72.46	61.18	58.11	-3.08
7	12 Sep 24	12:31	12:51	79.91	73.19	61.85	58.64	-3.21
8	12 Sep 24	12:52	13:12	80.30	73.40	62.23	59.11	-3.11
9	12 Sep 24	13:13	13:33	79.99	72.76	61.91	58.60	-3.31
10*	12 Sep 24	13:34	13:54	80.26	72.85	62.18	58.79	-3.39
11*	12 Sep 24	13:55	14:15	79.50	71.90	61.46	58.13	-3.32
12*	12 Sep 24	14:16	14:36	79.15	71.39	61.16	57.58	-3.58
	Average					61.50	58.45	-3.05
	Confidence Coefficient (CC)							0.14
	Relative Accuracy (Compared with RM) (%)							5.46
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447719
Date Received : Sep 13, 2024
Date Reported : Oct 12, 2024
Report Number : 2977110-1

Sample Number	2447719-1
Sampled Date	Sep 12, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-1803
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	12 Sep 24	10:25	10:45	0.00	0.18	0.00	0.14	0.14
2	12 Sep 24	10:46	11:06	0.00	0.11	0.00	0.08	0.08
3	12 Sep 24	11:07	11:27	0.00	0.07	0.00	0.06	0.06
4	12 Sep 24	11:28	11:48	0.00	0.10	0.00	0.08	0.08
5*	12 Sep 24	11:49	12:09	0.00	0.15	0.00	0.12	0.12
6	12 Sep 24	12:10	12:30	0.00	0.13	0.00	0.11	0.11
7*	12 Sep 24	12:31	12:51	0.00	0.16	0.00	0.13	0.13
8	12 Sep 24	12:52	13:12	0.00	0.10	0.00	0.08	0.08
9	12 Sep 24	13:13	13:33	0.00	0.09	0.00	0.07	0.07
10	12 Sep 24	13:34	13:54	0.00	0.06	0.00	0.05	0.05
11	12 Sep 24	13:55	14:15	0.00	0.06	0.00	0.05	0.05
12	12 Sep 24	14:16	14:36	0.00	0.07	0.00	0.06	0.06
	Average					0.00	0.07	0.07
	Confidence Coefficient (CC)							0.02
	Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)							1.04
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447719
Date Received : Sep 13, 2024
Date Reported : Oct 12, 2024
Report Number : 2977110-1

Sample Number	2447719-1
Sampled Date	Sep 12, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-1803
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	12 Sep 24	10:25	10:45	0.07	0.33	0.06	0.26	0.21
2	12 Sep 24	10:46	11:06	0.07	0.42	0.05	0.34	0.28
3	12 Sep 24	11:07	11:27	0.09	0.46	0.07	0.36	0.30
4	12 Sep 24	11:28	11:48	0.08	0.52	0.06	0.42	0.35
5	12 Sep 24	11:49	12:09	0.18	0.52	0.14	0.42	0.28
6	12 Sep 24	12:10	12:30	0.43	0.50	0.33	0.40	0.07
7	12 Sep 24	12:31	12:51	0.72	0.48	0.56	0.39	-0.17
8*	12 Sep 24	12:52	13:12	0.93	0.45	0.72	0.36	-0.36
9*	12 Sep 24	13:13	13:33	1.05	0.39	0.81	0.32	-0.50
10*	12 Sep 24	13:34	13:54	1.09	0.46	0.85	0.37	-0.48
11	12 Sep 24	13:55	14:15	0.96	0.50	0.74	0.40	-0.34
12	12 Sep 24	14:16	14:36	0.78	0.52	0.60	0.42	-0.18
	Average					0.29	0.38	0.09
	Confidence Coefficient (CC)							0.20
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.04
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447719
Date Received : Sep 13, 2024
Date Reported : Oct 12, 2024
Report Number : 2977110-1

Sample Number	2447719-1
Sampled Date	Sep 12, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-1803
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	12 Sep 24	10:25	10:45	2.93	3.37	0.44
2	12 Sep 24	10:46	11:06	2.94	3.47	0.53
3	12 Sep 24	11:07	11:27	2.98	3.52	0.54
4	12 Sep 24	11:28	11:48	2.98	3.56	0.58
5	12 Sep 24	11:49	12:09	2.96	3.55	0.59
6	12 Sep 24	12:10	12:30	2.95	3.57	0.62
7	12 Sep 24	12:31	12:51	2.94	3.55	0.61
8	12 Sep 24	12:52	13:12	2.96	3.64	0.68
9	12 Sep 24	13:13	13:33	2.94	3.64	0.70
10*	12 Sep 24	13:34	13:54	2.96	3.67	0.72
11*	12 Sep 24	13:55	14:15	2.92	3.71	0.79
12*	12 Sep 24	14:16	14:36	2.91	3.67	0.75
	Average			2.95	3.54	0.59
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.59
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447720
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977111-1

Sample Number	2447720-1
Sampled Date	Sep 03, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-1903 (F-190)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	03 Sep 24	11:20	11:40	51.71	53.04	39.40	40.78	1.38
2	03 Sep 24	11:41	12:01	52.99	53.42	40.50	41.10	0.60
3	03 Sep 24	12:02	12:22	53.30	53.82	40.75	41.50	0.74
4	03 Sep 24	12:23	12:43	52.60	53.57	40.19	41.22	1.03
5	03 Sep 24	12:44	13:04	51.86	53.06	39.58	40.71	1.13
6	03 Sep 24	13:05	13:25	51.55	53.14	39.24	40.83	1.59
7	03 Sep 24	13:26	13:46	51.62	53.06	39.31	40.73	1.42
8*	03 Sep 24	13:47	14:07	51.28	53.13	38.99	40.79	1.80
9	03 Sep 24	14:08	14:28	51.52	53.28	39.16	40.90	1.74
10	03 Sep 24	14:29	14:49	51.54	53.26	39.26	40.85	1.59
11*	03 Sep 24	14:50	15:10	51.28	53.28	38.97	40.84	1.87
12*	03 Sep 24	15:11	15:31	50.48	52.73	38.41	40.41	1.99
	Average					39.71	40.96	1.25
	Confidence Coefficient (CC)							0.31
	Relative Accuracy (Compared with RM) (%)							3.79
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447720
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977111-1

Sample Number	2447720-1
Sampled Date	Sep 03, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-1903 (F-190)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	03 Sep 24	11:20	11:40	0.00	0.13	0.00	0.10	0.10
2	03 Sep 24	11:41	12:01	0.00	0.11	0.00	0.08	0.08
3	03 Sep 24	12:02	12:22	0.00	0.09	0.00	0.07	0.07
4	03 Sep 24	12:23	12:43	0.00	0.11	0.00	0.09	0.09
5	03 Sep 24	12:44	13:04	0.00	0.14	0.00	0.11	0.11
6	03 Sep 24	13:05	13:25	0.00	0.13	0.00	0.10	0.10
7	03 Sep 24	13:26	13:46	0.00	0.15	0.00	0.11	0.11
8	03 Sep 24	13:47	14:07	0.00	0.15	0.00	0.12	0.12
9*	03 Sep 24	14:08	14:28	0.00	0.15	0.00	0.12	0.12
10	03 Sep 24	14:29	14:49	0.00	0.15	0.00	0.11	0.11
11*	03 Sep 24	14:50	15:10	0.00	0.16	0.00	0.12	0.12
12*	03 Sep 24	15:11	15:31	0.00	0.17	0.00	0.13	0.13
	Average					0.00	0.10	0.10
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 9 ppm) (%)							1.24
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447720
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977111-1

Sample Number	2447720-1
Sampled Date	Sep 03, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-1903 (F-190)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	03 Sep 24	11:20	11:40	0.08	0.43	0.06	0.33	0.27
2	03 Sep 24	11:41	12:01	0.08	0.37	0.06	0.28	0.22
3*	03 Sep 24	12:02	12:22	0.08	0.60	0.06	0.46	0.40
4*	03 Sep 24	12:23	12:43	0.09	0.55	0.07	0.42	0.35
5	03 Sep 24	12:44	13:04	0.13	0.43	0.10	0.33	0.23
6	03 Sep 24	13:05	13:25	0.09	0.33	0.07	0.26	0.19
7	03 Sep 24	13:26	13:46	0.09	0.27	0.07	0.21	0.13
8	03 Sep 24	13:47	14:07	0.09	0.36	0.07	0.27	0.20
9*	03 Sep 24	14:08	14:28	0.09	0.50	0.07	0.38	0.31
10	03 Sep 24	14:29	14:49	0.09	0.41	0.07	0.31	0.24
11	03 Sep 24	14:50	15:10	0.09	0.46	0.07	0.35	0.28
12	03 Sep 24	15:11	15:31	0.30	0.50	0.22	0.38	0.16
	Average					0.09	0.30	0.21
	Confidence Coefficient (CC)							0.04
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.04
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447720
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977111-1

Sample Number	2447720-1
Sampled Date	Sep 03, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-1903 (F-190)
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	03 Sep 24	11:20	11:40	2.66	2.82	0.16
2	03 Sep 24	11:41	12:01	2.72	2.83	0.12
3	03 Sep 24	12:02	12:22	2.72	2.87	0.15
4	03 Sep 24	12:23	12:43	2.71	2.84	0.13
5	03 Sep 24	12:44	13:04	2.69	2.79	0.10
6*	03 Sep 24	13:05	13:25	2.64	2.81	0.17
7	03 Sep 24	13:26	13:46	2.65	2.79	0.15
8*	03 Sep 24	13:47	14:07	2.62	2.79	0.17
9*	03 Sep 24	14:08	14:28	2.61	2.79	0.18
10	03 Sep 24	14:29	14:49	2.65	2.78	0.12
11	03 Sep 24	14:50	15:10	2.61	2.77	0.16
12	03 Sep 24	15:11	15:31	2.63	2.76	0.13
	Average			2.67	2.81	0.14
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.14
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447721
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977113-1

Sample Number	2447721-1
Sampled Date	Sep 05, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-10102/10103 (F-1010)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	05 Sep 24	10:30	10:50	21.92	21.59	21.21	20.89	-0.31
2	05 Sep 24	10:51	11:11	21.92	22.30	21.23	21.60	0.36
3	05 Sep 24	11:12	11:32	21.70	22.24	21.08	21.60	0.52
4	05 Sep 24	11:33	11:53	21.09	22.43	20.51	21.81	1.30
5	05 Sep 24	11:54	12:14	21.01	22.45	20.40	21.79	1.39
6	05 Sep 24	12:15	12:35	20.70	22.42	20.07	21.73	1.67
7	05 Sep 24	12:36	12:56	20.60	22.59	19.96	21.89	1.93
8	05 Sep 24	12:57	13:17	20.54	22.74	19.93	22.07	2.14
9	05 Sep 24	13:18	13:38	20.45	22.60	19.83	21.92	2.09
10*	05 Sep 24	13:39	13:59	20.59	22.91	20.01	22.26	2.25
11*	05 Sep 24	14:00	14:20	20.54	22.85	19.97	22.21	2.24
12*	05 Sep 24	14:21	14:41	20.19	22.45	19.61	21.80	2.20
	Average					20.47	21.70	1.23
	Confidence Coefficient (CC)							0.66
	Relative Accuracy (Compared with RM) (%)							8.72
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447721
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977113-1

Sample Number	2447721-1
Sampled Date	Sep 05, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-10102/10103 (F-1010)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	05 Sep 24	10:30	10:50	0.00	0.13	0.00	0.13	0.13
2*	05 Sep 24	10:51	11:11	0.00	0.11	0.00	0.10	0.10
3	05 Sep 24	11:12	11:32	0.00	0.10	0.00	0.09	0.09
4	05 Sep 24	11:33	11:53	0.00	0.08	0.00	0.08	0.08
5	05 Sep 24	11:54	12:14	0.00	0.08	0.00	0.08	0.08
6	05 Sep 24	12:15	12:35	0.00	0.10	0.00	0.10	0.10
7*	05 Sep 24	12:36	12:56	0.00	0.11	0.00	0.11	0.11
8	05 Sep 24	12:57	13:17	0.00	0.09	0.00	0.09	0.09
9	05 Sep 24	13:18	13:38	0.00	0.09	0.00	0.09	0.09
10	05 Sep 24	13:39	13:59	0.00	0.07	0.00	0.07	0.07
11	05 Sep 24	14:00	14:20	0.00	0.08	0.00	0.08	0.08
12	05 Sep 24	14:21	14:41	0.00	0.10	0.00	0.09	0.09
	Average					0.00	0.09	0.09
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							0.49
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447721
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977113-1

Sample Number	2447721-1
Sampled Date	Sep 05, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-10102/10103 (F-1010)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	05 Sep 24	10:30	10:50	4.07	1.15	3.94	1.11	-2.83
2	05 Sep 24	10:51	11:11	3.88	1.24	3.75	1.20	-2.55
3	05 Sep 24	11:12	11:32	4.01	1.25	3.90	1.21	-2.68
4	05 Sep 24	11:33	11:53	3.91	1.20	3.81	1.16	-2.64
5	05 Sep 24	11:54	12:14	3.86	1.17	3.75	1.14	-2.61
6	05 Sep 24	12:15	12:35	4.03	1.17	3.91	1.13	-2.78
7	05 Sep 24	12:36	12:56	3.99	1.15	3.87	1.11	-2.75
8	05 Sep 24	12:57	13:17	4.00	1.11	3.88	1.08	-2.80
9	05 Sep 24	13:18	13:38	4.09	1.10	3.96	1.07	-2.89
10*	05 Sep 24	13:39	13:59	4.20	1.09	4.08	1.06	-3.02
11*	05 Sep 24	14:00	14:20	4.05	1.05	3.94	1.02	-2.91
12*	05 Sep 24	14:21	14:41	4.08	1.04	3.96	1.01	-2.96
	Average					3.86	1.14	-2.73
	Confidence Coefficient (CC)							0.09
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.41
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447722
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977115-1

Sample Number	2447722-1
Sampled Date	Sep 05, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-10202/10203 (F-1020)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	05 Sep 24	10:25	10:45	24.69	23.61	24.59	23.51	-1.08
2*	05 Sep 24	10:46	11:06	25.17	24.39	25.11	24.32	-0.78
3*	05 Sep 24	11:07	11:27	25.22	24.35	25.19	24.32	-0.87
4	05 Sep 24	11:28	11:48	24.95	24.55	24.97	24.57	-0.40
5	05 Sep 24	11:49	12:09	25.35	24.64	25.36	24.64	-0.71
6	05 Sep 24	12:10	12:30	25.35	24.69	25.33	24.68	-0.65
7	05 Sep 24	12:31	12:51	25.16	24.80	25.11	24.75	-0.36
8	05 Sep 24	12:52	13:12	25.40	24.93	25.39	24.93	-0.47
9	05 Sep 24	13:13	13:33	25.11	24.88	25.08	24.86	-0.23
10	05 Sep 24	13:34	13:54	25.12	24.98	25.12	24.97	-0.14
11	05 Sep 24	13:55	14:15	25.48	25.06	25.47	25.05	-0.42
12	05 Sep 24	14:16	14:36	25.29	24.88	25.25	24.84	-0.41
	Average					25.23	24.81	-0.42
	Confidence Coefficient (CC)							0.14
	Relative Accuracy (Compared with RM) (%)							2.26
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447722
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977115-1

Sample Number	2447722-1
Sampled Date	Sep 05, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-10202/10203 (F-1020)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	05 Sep 24	10:25	10:45	0.00	0.16	0.00	0.16	0.16
2*	05 Sep 24	10:46	11:06	0.00	0.15	0.00	0.15	0.15
3	05 Sep 24	11:07	11:27	0.00	0.13	0.00	0.13	0.13
4	05 Sep 24	11:28	11:48	0.00	0.12	0.00	0.12	0.12
5	05 Sep 24	11:49	12:09	0.00	0.13	0.00	0.13	0.13
6	05 Sep 24	12:10	12:30	0.00	0.14	0.00	0.14	0.14
7	05 Sep 24	12:31	12:51	0.00	0.14	0.00	0.14	0.14
8	05 Sep 24	12:52	13:12	0.00	0.13	0.00	0.13	0.13
9	05 Sep 24	13:13	13:33	0.00	0.14	0.00	0.14	0.14
10	05 Sep 24	13:34	13:54	0.00	0.13	0.00	0.13	0.13
11	05 Sep 24	13:55	14:15	0.00	0.14	0.00	0.14	0.14
12*	05 Sep 24	14:16	14:36	0.00	0.15	0.00	0.15	0.15
	Average					0.00	0.13	0.13
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							0.73
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/1 (Furnace)

Lot ID: 2447722
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977115-1

Sample Number	2447722-1
Sampled Date	Sep 05, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-10202/10203 (F-1020)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	05 Sep 24	10:25	10:45	0.50	0.19	0.50	0.19	-0.31
2	05 Sep 24	10:46	11:06	0.47	0.22	0.47	0.22	-0.25
3	05 Sep 24	11:07	11:27	0.46	0.26	0.46	0.26	-0.20
4	05 Sep 24	11:28	11:48	0.44	0.24	0.44	0.25	-0.19
5	05 Sep 24	11:49	12:09	0.47	0.19	0.47	0.19	-0.27
6	05 Sep 24	12:10	12:30	0.44	0.14	0.44	0.14	-0.30
7*	05 Sep 24	12:31	12:51	0.48	0.13	0.48	0.13	-0.35
8*	05 Sep 24	12:52	13:12	0.48	0.13	0.48	0.13	-0.35
9	05 Sep 24	13:13	13:33	0.40	0.18	0.40	0.18	-0.22
10	05 Sep 24	13:34	13:54	0.39	0.21	0.39	0.21	-0.18
11	05 Sep 24	13:55	14:15	0.36	0.19	0.36	0.19	-0.16
12	05 Sep 24	14:16	14:36	0.36	0.18	0.36	0.18	-0.18
	Average					0.42	0.20	-0.22
	Confidence Coefficient (CC)							0.04
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.04
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447723
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977119-1

Sample Number	2447723-1
Sampled Date	Sep 04, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310101A (Model : URAS 14) (F-3101)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	04 Sep 24	9:50	10:10	27.95	30.34	26.53	28.80	2.26
2	04 Sep 24	10:11	10:31	27.92	30.31	26.38	28.64	2.25
3	04 Sep 24	10:32	10:52	27.11	29.96	25.60	28.29	2.69
4	04 Sep 24	10:53	11:13	26.42	28.84	24.90	27.18	2.29
5	04 Sep 24	11:14	11:34	27.01	29.69	25.58	28.12	2.54
6	04 Sep 24	11:35	11:55	27.76	30.43	26.35	28.88	2.53
7	04 Sep 24	11:56	12:16	27.94	30.49	26.50	28.92	2.42
8*	04 Sep 24	12:17	12:37	26.68	29.77	25.29	28.22	2.93
9	04 Sep 24	12:38	12:58	27.13	30.00	25.67	28.38	2.71
10*	04 Sep 24	12:59	13:19	27.21	30.37	25.80	28.79	2.99
11	04 Sep 24	13:20	13:40	27.31	29.81	25.91	28.29	2.38
12*	04 Sep 24	13:41	14:01	26.62	30.08	25.21	28.47	3.27
	Average					25.94	28.39	2.45
	Confidence Coefficient (CC)							0.13
	Relative Accuracy (Compared with RM) (%)							9.11
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447723
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977119-1

Sample Number	2447723-1
Sampled Date	Sep 04, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310101A (Model : URAS 14) (F-3101)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	04 Sep 24	9:50	10:10	0.00	0.04	0.00	0.04	0.03
2	04 Sep 24	10:11	10:31	0.00	0.05	0.00	0.05	0.05
3	04 Sep 24	10:32	10:52	0.00	0.05	0.00	0.04	0.04
4	04 Sep 24	10:53	11:13	0.00	0.07	0.00	0.07	0.06
5	04 Sep 24	11:14	11:34	0.00	0.08	0.00	0.08	0.08
6*	04 Sep 24	11:35	11:55	0.00	0.13	0.00	0.12	0.12
7	04 Sep 24	11:56	12:16	0.00	0.11	0.00	0.11	0.11
8	04 Sep 24	12:17	12:37	0.00	0.12	0.00	0.11	0.11
9	04 Sep 24	12:38	12:58	0.00	0.12	0.00	0.11	0.11
10	04 Sep 24	12:59	13:19	0.00	0.12	0.00	0.12	0.12
11*	04 Sep 24	13:20	13:40	0.00	0.14	0.00	0.13	0.13
12*	04 Sep 24	13:41	14:01	0.00	0.14	0.00	0.13	0.13
	Average					0.00	0.08	0.08
	Confidence Coefficient (CC)							0.03
	Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)							6.88
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447723
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977119-1

Sample Number	2447723-1
Sampled Date	Sep 04, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310101A (Model : URAS 14) (F-3101)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	04 Sep 24	9:50	10:10	0.99	1.61	0.94	1.53	0.59
2	04 Sep 24	10:11	10:31	0.95	1.65	0.89	1.56	0.66
3	04 Sep 24	10:32	10:52	0.98	1.66	0.92	1.57	0.65
4	04 Sep 24	10:53	11:13	0.97	1.70	0.91	1.60	0.69
5	04 Sep 24	11:14	11:34	0.97	1.72	0.92	1.63	0.71
6*	04 Sep 24	11:35	11:55	0.96	1.78	0.92	1.69	0.77
7	04 Sep 24	11:56	12:16	1.00	1.73	0.95	1.64	0.70
8	04 Sep 24	12:17	12:37	0.94	1.72	0.90	1.63	0.73
9	04 Sep 24	12:38	12:58	0.99	1.70	0.94	1.60	0.67
10	04 Sep 24	12:59	13:19	0.97	1.71	0.92	1.62	0.70
11*	04 Sep 24	13:20	13:40	0.98	1.76	0.93	1.67	0.74
12*	04 Sep 24	13:41	14:01	0.94	1.80	0.89	1.71	0.82
	Average					0.92	1.60	0.68
	Confidence Coefficient (CC)							0.03
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.10
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447724
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977132-1

Sample Number	2447724-1
Sampled Date	Sep 06, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310101A (Model : URAS 14) (F-3102)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	06 Sep 24	10:10	10:30	31.72	30.91	33.52	32.67	-0.85
2	06 Sep 24	10:31	10:51	31.12	30.72	32.82	32.40	-0.42
3*	06 Sep 24	10:52	11:12	30.14	30.89	31.79	32.57	0.78
4	06 Sep 24	11:13	11:33	30.66	30.89	32.46	32.70	0.24
5	06 Sep 24	11:34	11:54	30.47	30.98	32.26	32.79	0.53
6	06 Sep 24	11:55	12:15	30.95	31.06	32.74	32.85	0.12
7*	06 Sep 24	12:16	12:36	30.28	30.96	32.18	32.90	0.72
8	06 Sep 24	12:37	12:57	30.77	30.96	32.73	32.93	0.20
9	06 Sep 24	12:58	13:18	30.20	30.54	32.18	32.54	0.36
10	06 Sep 24	13:19	13:39	31.09	31.59	33.36	33.89	0.54
11	06 Sep 24	13:40	14:00	32.32	32.08	34.71	34.44	-0.26
12	06 Sep 24	14:01	14:21	32.66	32.19	35.08	34.58	-0.50
	Average					33.15	33.24	0.09
	Confidence Coefficient (CC)							0.30
	Relative Accuracy (Compared with RM) (%)							1.18
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447724
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977132-1

Sample Number	2447724-1
Sampled Date	Sep 06, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310101A (Model : URAS 14) (F-3102)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	06 Sep 24	10:10	10:30	0.00	0.14	0.00	0.15	0.15
2	06 Sep 24	10:31	10:51	0.00	0.16	0.00	0.16	0.16
3*	06 Sep 24	10:52	11:12	0.00	0.16	0.00	0.17	0.16
4	06 Sep 24	11:13	11:33	0.00	0.13	0.00	0.14	0.13
5	06 Sep 24	11:34	11:54	0.00	0.15	0.00	0.15	0.15
6*	06 Sep 24	11:55	12:15	0.00	0.17	0.00	0.18	0.17
7	06 Sep 24	12:16	12:36	0.00	0.11	0.00	0.12	0.12
8	06 Sep 24	12:37	12:57	0.00	0.12	0.00	0.13	0.13
9*	06 Sep 24	12:58	13:18	0.00	0.16	0.00	0.17	0.17
10	06 Sep 24	13:19	13:39	0.00	0.11	0.00	0.12	0.12
11	06 Sep 24	13:40	14:00	0.00	0.12	0.00	0.13	0.13
12	06 Sep 24	14:01	14:21	0.00	0.08	0.00	0.08	0.08
	Average					0.00	0.13	0.13
	Confidence Coefficient (CC)							0.02
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							9.90
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447724
Date Received : Sep 06, 2024
Date Reported : Oct 12, 2024
Report Number : 2977132-1

Sample Number	2447724-1
Sampled Date	Sep 06, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310101A (Model : URAS 14) (F-3102)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	06 Sep 24	10:10	10:30	1.21	0.16	1.28	0.17	-1.11
2*	06 Sep 24	10:31	10:51	1.11	0.30	1.17	0.32	-0.85
3	06 Sep 24	10:52	11:12	1.15	0.35	1.21	0.36	-0.85
4*	06 Sep 24	11:13	11:33	1.16	0.31	1.23	0.33	-0.90
5	06 Sep 24	11:34	11:54	1.18	0.76	1.25	0.81	-0.44
6	06 Sep 24	11:55	12:15	1.16	0.84	1.23	0.89	-0.34
7	06 Sep 24	12:16	12:36	1.18	0.89	1.26	0.95	-0.31
8	06 Sep 24	12:37	12:57	1.20	0.88	1.28	0.93	-0.34
9	06 Sep 24	12:58	13:18	1.17	0.92	1.24	0.98	-0.26
10	06 Sep 24	13:19	13:39	1.11	0.90	1.19	0.97	-0.22
11	06 Sep 24	13:40	14:00	1.17	0.91	1.25	0.98	-0.27
12	06 Sep 24	14:01	14:21	1.17	0.92	1.26	0.99	-0.27
	Average					1.24	0.87	-0.37
	Confidence Coefficient (CC)							0.15
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.07
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447725
Date Received : Sep 20, 2024
Date Reported : Oct 12, 2024
Report Number : 2977133-1

Sample Number	2447725-1
Sampled Date	Sep 20, 2024
Sample Description	Emission from Stationary Source
Location	F-3103
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	20 Sep 24	9:30	9:50	32.87	32.29	27.56	27.08	-0.48
2*	20 Sep 24	9:51	10:11	33.97	32.31	28.57	27.18	-1.40
3	20 Sep 24	10:12	10:32	33.14	32.81	27.84	27.56	-0.28
4	20 Sep 24	10:33	10:53	33.21	32.77	27.86	27.49	-0.37
5*	20 Sep 24	10:54	11:14	33.64	32.63	28.22	27.37	-0.85
6	20 Sep 24	11:15	11:35	33.17	32.78	27.83	27.51	-0.33
7	20 Sep 24	11:36	11:56	32.89	32.07	27.53	26.84	-0.69
8*	20 Sep 24	11:57	12:17	33.58	32.20	28.12	26.97	-1.15
9	20 Sep 24	12:18	12:38	33.29	32.63	27.95	27.40	-0.55
10	20 Sep 24	12:39	12:59	33.14	32.44	27.77	27.19	-0.58
11	20 Sep 24	13:00	13:20	32.65	32.37	27.37	27.13	-0.23
12	20 Sep 24	13:21	13:41	33.49	32.64	28.12	27.40	-0.72
	Average					27.76	27.29	-0.47
	Confidence Coefficient (CC)							0.16
	Relative Accuracy (Compared with RM) (%)							2.30
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447725
Date Received : Sep 20, 2024
Date Reported : Oct 12, 2024
Report Number : 2977133-1

Sample Number	2447725-1
Sampled Date	Sep 20, 2024
Sample Description	Emission from Stationary Source
Location	F-3103
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	20 Sep 24	9:30	9:50	0.01	0.18	0.01	0.15	0.15
2	20 Sep 24	9:51	10:11	0.00	0.14	0.00	0.11	0.11
3	20 Sep 24	10:12	10:32	0.00	0.14	0.00	0.12	0.12
4	20 Sep 24	10:33	10:53	0.00	0.16	0.00	0.13	0.13
5*	20 Sep 24	10:54	11:14	0.00	0.18	0.00	0.15	0.15
6	20 Sep 24	11:15	11:35	0.01	0.15	0.01	0.12	0.12
7	20 Sep 24	11:36	11:56	0.01	0.17	0.00	0.14	0.14
8	20 Sep 24	11:57	12:17	0.00	0.15	0.00	0.13	0.13
9	20 Sep 24	12:18	12:38	0.00	0.14	0.00	0.12	0.12
10	20 Sep 24	12:39	12:59	0.03	0.15	0.03	0.12	0.10
11*	20 Sep 24	13:00	13:20	0.00	0.18	0.00	0.15	0.15
12	20 Sep 24	13:21	13:41	0.00	0.14	0.00	0.12	0.11
	Average					0.01	0.12	0.12
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)							8.54
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447725
Date Received : Sep 20, 2024
Date Reported : Oct 12, 2024
Report Number : 2977133-1

Sample Number	2447725-1
Sampled Date	Sep 20, 2024
Sample Description	Emission from Stationary Source
Location	F-3103
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	20 Sep 24	9:30	9:50	0.09	0.50	0.07	0.42	0.34
2	20 Sep 24	9:51	10:11	0.08	0.63	0.07	0.53	0.46
3	20 Sep 24	10:12	10:32	0.06	0.71	0.05	0.60	0.55
4	20 Sep 24	10:33	10:53	0.05	0.70	0.04	0.59	0.54
5*	20 Sep 24	10:54	11:14	0.04	0.72	0.04	0.61	0.57
6	20 Sep 24	11:15	11:35	0.06	0.73	0.05	0.61	0.56
7	20 Sep 24	11:36	11:56	0.08	0.73	0.07	0.61	0.55
8	20 Sep 24	11:57	12:17	0.09	0.73	0.07	0.61	0.54
9*	20 Sep 24	12:18	12:38	0.07	0.75	0.06	0.63	0.57
10	20 Sep 24	12:39	12:59	0.12	0.76	0.10	0.64	0.54
11	20 Sep 24	13:00	13:20	0.08	0.73	0.07	0.61	0.54
12*	20 Sep 24	13:21	13:41	0.10	0.78	0.08	0.66	0.58
	Average					0.07	0.58	0.51
	Confidence Coefficient (CC)							0.05
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.08
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447726
Date Received : Sep 06, 2024
Date Reported : Nov 13, 2024
Report Number : 2977134-1

Sample Number	2447726-1
Sampled Date	Sep 06, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310401B (F-3104)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	06 Sep 24	10:10	10:30	25.58	28.03	25.45	27.89	2.44
2	06 Sep 24	10:31	10:51	24.62	27.41	24.51	27.29	2.78
3	06 Sep 24	10:52	11:12	24.25	27.62	24.10	27.45	3.35
4*	06 Sep 24	11:13	11:33	24.37	27.80	24.32	27.75	3.43
5	06 Sep 24	11:34	11:54	24.93	27.77	24.83	27.65	2.82
6	06 Sep 24	11:55	12:15	24.74	27.64	24.64	27.53	2.89
7*	06 Sep 24	12:16	12:36	24.12	27.89	24.09	27.86	3.77
8	06 Sep 24	12:37	12:57	24.38	27.78	24.39	27.79	3.41
9	06 Sep 24	12:58	13:18	24.24	27.10	24.20	27.04	2.85
10*	06 Sep 24	13:19	13:39	24.95	28.72	24.97	28.74	3.77
11	06 Sep 24	13:40	14:00	26.23	29.63	26.27	29.68	3.41
12	06 Sep 24	14:01	14:21	26.57	29.54	26.62	29.61	2.98
	Average					24.78	27.92	3.14
	Confidence Coefficient (CC)							0.33
	Relative Accuracy (Compared with RM) (%)							12.42
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447726
Date Received : Sep 06, 2024
Date Reported : Nov 13, 2024
Report Number : 2977134-1

Sample Number	2447726-1
Sampled Date	Sep 06, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310401B (F-3104)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	06 Sep 24	10:10	10:30	0.00	0.12	0.00	0.12	0.12
2	06 Sep 24	10:31	10:51	0.00	0.11	0.00	0.11	0.12
3*	06 Sep 24	10:52	11:12	0.00	0.13	0.00	0.13	0.13
4	06 Sep 24	11:13	11:33	0.00	0.09	0.00	0.09	0.09
5	06 Sep 24	11:34	11:54	0.00	0.11	0.00	0.11	0.11
6	06 Sep 24	11:55	12:15	0.00	0.11	0.00	0.11	0.12
7	06 Sep 24	12:16	12:36	0.00	0.08	0.00	0.08	0.08
8	06 Sep 24	12:37	12:57	0.00	0.07	0.00	0.07	0.08
9*	06 Sep 24	12:58	13:18	0.00	0.13	0.00	0.13	0.14
10	06 Sep 24	13:19	13:39	0.00	0.11	0.00	0.11	0.11
11	06 Sep 24	13:40	14:00	0.00	0.09	0.00	0.09	0.09
12	06 Sep 24	14:01	14:21	0.00	0.07	0.00	0.07	0.07
	Average					0.00	0.09	0.10
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)							7.33
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447726
Date Received : Sep 05, 2024
Date Reported : Nov 13, 2024
Report Number : 2977134-1

Sample Number	2447726-1
Sampled Date	Sep 06, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310401B (F-3104)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	06 Sep 24	10:10	10:30	0.00	0.07	0.00	0.07	0.08
2	06 Sep 24	10:31	10:51	0.00	0.17	0.00	0.17	0.17
3	06 Sep 24	10:52	11:12	0.00	0.26	0.00	0.26	0.26
4	06 Sep 24	11:13	11:33	0.00	0.24	0.00	0.23	0.24
5	06 Sep 24	11:34	11:54	0.00	0.23	0.00	0.23	0.23
6	06 Sep 24	11:55	12:15	0.00	0.27	0.00	0.26	0.27
7	06 Sep 24	12:16	12:36	0.00	0.28	0.00	0.28	0.28
8	06 Sep 24	12:37	12:57	0.00	0.35	0.00	0.35	0.35
9	06 Sep 24	12:58	13:18	0.00	0.38	0.00	0.38	0.38
10*	06 Sep 24	13:19	13:39	0.00	0.41	0.00	0.41	0.41
11*	06 Sep 24	13:40	14:00	0.00	0.46	0.00	0.46	0.47
12*	06 Sep 24	14:01	14:21	0.00	0.43	0.00	0.43	0.43
	Average					0.00	0.25	0.25
	Confidence Coefficient (CC)							0.07
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.05
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447727
Date Received : Sep 13, 2024
Date Reported : Nov 13, 2024
Report Number : 2977135-1

Sample Number	2447727-1
Sampled Date	Sep 13, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310401B (F-3105)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Sep 24	9:45	10:05	29.73	28.46	28.19	26.98	-1.20
2	13 Sep 24	10:06	10:26	29.75	27.99	28.36	26.68	-1.67
3	13 Sep 24	10:27	10:47	29.80	27.96	28.38	26.63	-1.75
4	13 Sep 24	10:48	11:08	29.68	28.05	28.28	26.72	-1.56
5	13 Sep 24	11:09	11:29	30.08	28.46	28.91	27.35	-1.55
6	13 Sep 24	11:30	11:50	29.92	28.48	28.58	27.21	-1.37
7	13 Sep 24	11:51	12:11	29.93	28.46	28.60	27.19	-1.41
8	13 Sep 24	12:12	12:32	30.17	28.56	28.86	27.32	-1.54
9*	13 Sep 24	12:33	12:53	30.46	28.54	29.08	27.24	-1.84
10*	13 Sep 24	12:54	13:14	30.30	28.36	29.01	27.16	-1.85
11*	13 Sep 24	13:15	13:35	30.39	28.50	29.09	27.28	-1.81
12	13 Sep 24	13:36	13:56	31.52	29.71	30.00	28.27	-1.73
	Average					28.68	27.15	-1.53
	Confidence Coefficient (CC)							0.14
	Relative Accuracy (Compared with RM) (%)							6.15
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447727
Date Received : Sep 13, 2024
Date Reported : Nov 13, 2024
Report Number : 2977135-1

Sample Number	2447727-1
Sampled Date	Sep 13, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310401B (F-3105)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	13 Sep 24	9:45	10:05	0.00	0.13	0.00	0.12	0.12
2	13 Sep 24	10:06	10:26	0.00	0.13	0.00	0.12	0.12
3	13 Sep 24	10:27	10:47	0.00	0.13	0.00	0.12	0.12
4	13 Sep 24	10:48	11:08	0.00	0.13	0.00	0.12	0.12
5*	13 Sep 24	11:09	11:29	0.00	0.13	0.00	0.12	0.12
6	13 Sep 24	11:30	11:50	0.00	0.13	0.00	0.12	0.12
7	13 Sep 24	11:51	12:11	0.00	0.13	0.00	0.12	0.12
8	13 Sep 24	12:12	12:32	0.00	0.13	0.00	0.12	0.12
9	13 Sep 24	12:33	12:53	0.00	0.13	0.00	0.12	0.12
10	13 Sep 24	12:54	13:14	0.00	0.13	0.00	0.12	0.12
11*	13 Sep 24	13:15	13:35	0.00	0.13	0.00	0.12	0.12
12*	13 Sep 24	13:36	13:56	0.00	0.13	0.00	0.12	0.12
	Average					0.00	0.12	0.12
	Confidence Coefficient (CC)							0.00
	Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)							8.25
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447727
Date Received : Sep 13, 2024
Date Reported : Nov 13, 2024
Report Number : 2977135-1

Sample Number	2447727-1
Sampled Date	Sep 13, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-310401B (F-3105)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	13 Sep 24	9:45	10:05	0.00	1.88	0.00	1.78	1.78
2	13 Sep 24	10:06	10:26	0.00	1.72	0.00	1.64	1.64
3	13 Sep 24	10:27	10:47	0.00	1.72	0.00	1.64	1.64
4*	13 Sep 24	10:48	11:08	0.00	1.73	0.00	1.65	1.65
5	13 Sep 24	11:09	11:29	0.00	1.71	0.00	1.64	1.64
6*	13 Sep 24	11:30	11:50	0.00	1.76	0.00	1.68	1.68
7	13 Sep 24	11:51	12:11	0.00	1.59	0.00	1.52	1.52
8	13 Sep 24	12:12	12:32	0.00	1.62	0.00	1.55	1.55
9	13 Sep 24	12:33	12:53	0.00	1.65	0.00	1.58	1.58
10	13 Sep 24	12:54	13:14	0.00	1.65	0.00	1.58	1.58
11	13 Sep 24	13:15	13:35	0.00	1.65	0.00	1.58	1.58
12	13 Sep 24	13:36	13:56	0.00	1.61	0.00	1.54	1.54
	Average					0.00	1.58	1.58
	Confidence Coefficient (CC)							0.04
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.23
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447728
Date Received : Sep 20, 2024
Date Reported : Oct 12, 2024
Report Number : 2977136-1

Sample Number	2447728-1
Sampled Date	Sep 18, 2024
Sample Description	Emission from Stationary Source
Location	F-3106
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	18 Sep 24	10:00	10:20	29.84	27.76	27.30	25.39	-1.91
2*	18 Sep 24	10:21	10:41	29.53	27.38	27.35	25.35	-2.00
3*	18 Sep 24	10:42	11:02	29.73	28.21	27.63	26.22	-1.41
4	18 Sep 24	11:03	11:23	29.39	28.17	27.33	26.19	-1.14
5	18 Sep 24	11:24	11:44	28.98	28.37	26.92	26.36	-0.57
6	18 Sep 24	11:45	12:05	29.85	28.39	27.75	26.39	-1.36
7	18 Sep 24	12:06	12:26	29.43	28.39	27.36	26.40	-0.96
8	18 Sep 24	12:27	12:47	28.64	28.34	26.64	26.36	-0.28
9	18 Sep 24	12:48	13:08	29.31	28.04	27.48	26.28	-1.20
10	18 Sep 24	13:09	13:29	29.07	27.89	27.39	26.28	-1.11
11	18 Sep 24	13:30	13:50	27.59	27.60	26.13	26.14	0.01
12	18 Sep 24	13:51	14:11	28.54	27.62	27.09	26.22	-0.87
	Average					27.12	26.29	-0.83
	Confidence Coefficient (CC)							0.35
	Relative Accuracy (Compared with RM) (%)							4.50
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447728
Date Received : Sep 20, 2024
Date Reported : Oct 12, 2024
Report Number : 2977136-1

Sample Number	2447728-1
Sampled Date	Sep 18, 2024
Sample Description	Emission from Stationary Source
Location	F-3106
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	18 Sep 24	10:00	10:20	0.00	0.17	0.00	0.15	0.15
2	18 Sep 24	10:21	10:41	0.00	0.12	0.00	0.11	0.11
3	18 Sep 24	10:42	11:02	0.00	0.17	0.00	0.16	0.16
4	18 Sep 24	11:03	11:23	0.00	0.16	0.00	0.15	0.15
5	18 Sep 24	11:24	11:44	0.00	0.17	0.00	0.16	0.16
6*	18 Sep 24	11:45	12:05	0.00	0.19	0.00	0.18	0.18
7*	18 Sep 24	12:06	12:26	0.00	0.18	0.00	0.17	0.17
8*	18 Sep 24	12:27	12:47	0.00	0.19	0.00	0.18	0.18
9	18 Sep 24	12:48	13:08	0.00	0.14	0.00	0.13	0.13
10	18 Sep 24	13:09	13:29	0.00	0.10	0.00	0.09	0.09
11	18 Sep 24	13:30	13:50	0.00	0.07	0.00	0.07	0.07
12	18 Sep 24	13:51	14:11	0.00	0.06	0.00	0.06	0.06
	Average					0.00	0.12	0.12
	Confidence Coefficient (CC)							0.03
	Relative Accuracy (Compared with Emission Standard : 1.5 ppm) (%)							1.69
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : Plant I-4/2 (Furnace)

Lot ID: 2447728
Date Received : Sep 20, 2024
Date Reported : Oct 12, 2024
Report Number : 2977136-1

Sample Number	2447728-1
Sampled Date	Sep 18, 2024
Sample Description	Emission from Stationary Source
Location	F-3106
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	18 Sep 24	10:00	10:20	0.00	0.27	0.00	0.25	0.25
2	18 Sep 24	10:21	10:41	0.00	0.38	0.00	0.35	0.35
3	18 Sep 24	10:42	11:02	0.00	0.44	0.00	0.40	0.40
4	18 Sep 24	11:03	11:23	0.00	0.47	0.00	0.43	0.43
5*	18 Sep 24	11:24	11:44	0.00	0.51	0.00	0.47	0.47
6*	18 Sep 24	11:45	12:05	0.00	0.49	0.00	0.46	0.46
7*	18 Sep 24	12:06	12:26	0.00	0.47	0.00	0.44	0.44
8	18 Sep 24	12:27	12:47	0.00	0.41	0.00	0.38	0.38
9	18 Sep 24	12:48	13:08	0.00	0.33	0.00	0.31	0.31
10	18 Sep 24	13:09	13:29	0.00	0.32	0.00	0.30	0.30
11	18 Sep 24	13:30	13:50	0.00	0.36	0.00	0.34	0.34
12	18 Sep 24	13:51	14:11	0.00	0.43	0.00	0.41	0.41
	Average					0.00	0.35	0.35
	Confidence Coefficient (CC)							0.05
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.06
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447729
Date Received : Sep 20, 2024
Date Reported : Oct 12, 2024
Report Number : 2977138-1

Sample Number	2447729-1
Sampled Date	Sep 19, 2024
Sample Description	Emission from Stationary Source
Location	F-4301
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	19 Sep 24	9:45	10:05	10.01	11.82	8.99	10.33	1.34
2*	19 Sep 24	10:06	10:26	10.09	11.95	9.08	10.45	1.37
3*	19 Sep 24	10:27	10:47	10.03	11.69	8.94	10.16	1.22
4	19 Sep 24	10:48	11:08	10.03	11.54	8.81	9.89	1.08
5	19 Sep 24	11:09	11:29	9.88	11.45	8.64	9.76	1.12
6	19 Sep 24	11:30	11:50	9.91	11.38	8.60	9.63	1.03
7	19 Sep 24	11:51	12:11	10.04	11.15	8.47	9.20	0.74
8	19 Sep 24	12:12	12:32	10.08	10.98	8.42	9.00	0.58
9	19 Sep 24	12:33	12:53	9.88	10.95	8.26	8.98	0.71
10	19 Sep 24	12:54	13:14	10.17	10.90	8.50	8.92	0.42
11	19 Sep 24	13:15	13:35	9.83	10.93	8.30	9.03	0.73
12	19 Sep 24	13:36	13:56	10.00	11.00	8.63	9.25	0.62
	Average					8.51	9.30	0.78
	Confidence Coefficient (CC)							0.19
	Relative Accuracy (Compared with RM) (%)							10.42
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447729
Date Received :Sep 20, 2024
Date Reported :Oct 12, 2024
Report Number :2977138-1

Sample Number	2447729-1
Sampled Date	Sep 19, 2024
Sample Description	Emission from Stationary Source
Location	F-4301
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	19 Sep 24	9:45	10:05	0.00	0.17	0.00	0.15	0.15
2*	19 Sep 24	10:06	10:26	0.00	0.21	0.00	0.19	0.19
3	19 Sep 24	10:27	10:47	0.00	0.12	0.00	0.11	0.11
4	19 Sep 24	10:48	11:08	0.00	0.08	0.00	0.07	0.07
5	19 Sep 24	11:09	11:29	0.00	0.15	0.00	0.12	0.12
6	19 Sep 24	11:30	11:50	0.00	0.08	0.00	0.07	0.07
7	19 Sep 24	11:51	12:11	0.00	0.07	0.00	0.06	0.06
8	19 Sep 24	12:12	12:32	0.00	0.14	0.00	0.12	0.12
9*	19 Sep 24	12:33	12:53	0.00	0.17	0.00	0.14	0.14
10	19 Sep 24	12:54	13:14	0.00	0.16	0.00	0.13	0.13
11	19 Sep 24	13:15	13:35	0.00	0.13	0.00	0.11	0.11
12	19 Sep 24	13:36	13:56	0.00	0.15	0.00	0.13	0.13
	Average					0.00	0.10	0.10
	Confidence Coefficient (CC)							0.02
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							0.65
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447729
Date Received :Sep 20, 2024
Date Reported :Oct 12, 2024
Report Number :2977138-1

Sample Number	2447729-1
Sampled Date	Sep 19, 2024
Sample Description	Emission from Stationary Source
Location	F-4301
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	19 Sep 24	9:45	10:05	0.23	0.17	0.21	0.15	-0.05
2	19 Sep 24	10:06	10:26	0.14	0.14	0.13	0.13	0.00
3	19 Sep 24	10:27	10:47	0.05	0.10	0.04	0.09	0.04
4	19 Sep 24	10:48	11:08	0.01	0.12	0.01	0.10	0.10
5	19 Sep 24	11:09	11:29	0.00	0.14	0.00	0.12	0.12
6	19 Sep 24	11:30	11:50	0.00	0.09	0.00	0.08	0.08
7	19 Sep 24	11:51	12:11	0.07	0.30	0.06	0.25	0.19
8*	19 Sep 24	12:12	12:32	0.29	0.53	0.24	0.43	0.19
9	19 Sep 24	12:33	12:53	0.37	0.45	0.31	0.37	0.06
10*	19 Sep 24	12:54	13:14	0.73	0.48	0.61	0.39	-0.22
11	19 Sep 24	13:15	13:35	0.54	0.33	0.45	0.28	-0.18
12*	19 Sep 24	13:36	13:56	0.82	0.14	0.71	0.11	-0.60
	Average					0.13	0.17	0.04
	Confidence Coefficient (CC)							0.08
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.02
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447729
Date Received :Sep 20, 2024
Date Reported :Oct 12, 2024
Report Number :2977138-1

Sample Number	2447729-1
Sampled Date	Sep 19, 2024
Sample Description	Emission from Stationary Source
Location	F-4301
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1*	19 Sep 24	9:45	10:05	5.41	5.00	-0.41
2*	19 Sep 24	10:06	10:26	5.45	5.01	-0.44
3	19 Sep 24	10:27	10:47	5.30	4.90	-0.41
4	19 Sep 24	10:48	11:08	5.07	4.68	-0.39
5*	19 Sep 24	11:09	11:29	5.00	4.58	-0.42
6	19 Sep 24	11:30	11:50	4.88	4.48	-0.40
7	19 Sep 24	11:51	12:11	4.42	4.05	-0.36
8	19 Sep 24	12:12	12:32	4.28	3.95	-0.33
9	19 Sep 24	12:33	12:53	4.29	3.94	-0.35
10	19 Sep 24	12:54	13:14	4.28	3.92	-0.36
11	19 Sep 24	13:15	13:35	4.44	4.08	-0.37
12	19 Sep 24	13:36	13:56	4.79	4.37	-0.41
	Average			4.64	4.26	-0.38
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.38
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Ussaree Namburee

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447731
Date Received :Sep 24, 2024
Date Reported :Oct 12, 2024
Report Number :2977139-1

Sample Number	2447731-1
Sampled Date	Sep 24, 2024
Sample Description	Emission from Stationary Source
Location	F-4302
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	24 Sep 24	10:00	10:20	8.66	8.06	8.33	7.57	-0.76
2	24 Sep 24	10:21	10:41	8.04	8.39	7.73	7.90	0.17
3*	24 Sep 24	10:42	11:02	9.89	12.50	9.52	11.73	2.21
4*	24 Sep 24	11:03	11:23	8.83	11.25	8.49	10.56	2.07
5*	24 Sep 24	11:24	11:44	8.23	10.14	8.04	9.66	1.62
6	24 Sep 24	11:45	12:05	7.97	9.60	7.62	8.98	1.36
7	24 Sep 24	12:06	12:26	7.75	9.19	7.45	8.61	1.16
8	24 Sep 24	12:27	12:47	7.82	8.93	7.49	8.35	0.86
9	24 Sep 24	12:48	13:08	7.84	8.91	7.48	8.32	0.83
10	24 Sep 24	13:09	13:29	7.82	8.91	7.45	8.31	0.86
11	24 Sep 24	13:30	13:50	7.66	8.80	7.34	8.23	0.89
12	24 Sep 24	13:51	14:11	7.53	8.73	7.21	8.17	0.96
	Average					7.57	8.27	0.70
	Confidence Coefficient (CC)							0.49
	Relative Accuracy (Compared with RM) (%)							14.43
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-a-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-a-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447731
Date Received :Sep 24, 2024
Date Reported :Oct 12, 2024
Report Number :2977139-1

Sample Number	2447731-1
Sampled Date	Sep 24, 2024
Sample Description	Emission from Stationary Source
Location	F-4302
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	24 Sep 24	10:00	10:20	0.00	0.17	0.00	0.16	0.16
2*	24 Sep 24	10:21	10:41	0.00	0.26	0.00	0.24	0.24
3	24 Sep 24	10:42	11:02	0.00	0.19	0.00	0.18	0.18
4*	24 Sep 24	11:03	11:23	0.00	0.26	0.00	0.25	0.25
5	24 Sep 24	11:24	11:44	0.00	0.23	0.00	0.21	0.21
6	24 Sep 24	11:45	12:05	0.00	0.19	0.00	0.18	0.18
7*	24 Sep 24	12:06	12:26	0.00	0.27	0.00	0.25	0.25
8	24 Sep 24	12:27	12:47	0.00	0.23	0.00	0.21	0.21
9	24 Sep 24	12:48	13:08	0.00	0.14	0.00	0.13	0.13
10	24 Sep 24	13:09	13:29	0.00	0.23	0.00	0.22	0.22
11	24 Sep 24	13:30	13:50	0.00	0.25	0.00	0.23	0.23
12	24 Sep 24	13:51	14:11	0.00	0.24	0.00	0.23	0.23
	Average					0.00	0.19	0.19
	Confidence Coefficient (CC)							0.03
	Relative Accuracy (Compared with Emission Standard : 19 ppm) (%)							1.16
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447731
Date Received :Sep 24, 2024
Date Reported :Oct 12, 2024
Report Number :2977139-1

Sample Number	2447731-1
Sampled Date	Sep 24, 2024
Sample Description	Emission from Stationary Source
Location	F-4302
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	24 Sep 24	10:00	10:20	0.00	0.10	0.00	0.09	0.09
2	24 Sep 24	10:21	10:41	0.00	0.08	0.00	0.08	0.08
3	24 Sep 24	10:42	11:02	0.00	0.07	0.00	0.06	0.06
4	24 Sep 24	11:03	11:23	0.00	0.09	0.00	0.08	0.08
5	24 Sep 24	11:24	11:44	0.00	0.06	0.00	0.05	0.05
6*	24 Sep 24	11:45	12:05	0.00	0.13	0.00	0.12	0.12
7*	24 Sep 24	12:06	12:26	0.00	0.12	0.00	0.12	0.12
8*	24 Sep 24	12:27	12:47	0.00	0.17	0.00	0.16	0.16
9	24 Sep 24	12:48	13:08	0.00	0.10	0.00	0.10	0.10
10	24 Sep 24	13:09	13:29	0.00	0.08	0.00	0.08	0.08
11	24 Sep 24	13:30	13:50	0.00	0.06	0.00	0.06	0.06
12	24 Sep 24	13:51	14:11	0.00	0.08	0.00	0.08	0.08
	Average					0.00	0.07	0.07
	Confidence Coefficient (CC)							0.01
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.01
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O :
Project Name :
Project Location : BV Plant (I-4)

Lot ID: 2447731
Date Received :Sep 24, 2024
Date Reported :Oct 12, 2024
Report Number :2977139-1

Sample Number	2447731-1
Sampled Date	Sep 24, 2024
Sample Description	Emission from Stationary Source
Location	F-4302
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	24 Sep 24	10:00	10:20	6.45	6.11	-0.34
2	24 Sep 24	10:21	10:41	6.45	6.13	-0.32
3*	24 Sep 24	10:42	11:02	6.46	6.09	-0.37
4	24 Sep 24	11:03	11:23	6.44	6.09	-0.35
5*	24 Sep 24	11:24	11:44	6.67	6.30	-0.38
6	24 Sep 24	11:45	12:05	6.35	6.04	-0.31
7	24 Sep 24	12:06	12:26	6.43	6.07	-0.37
8	24 Sep 24	12:27	12:47	6.39	6.04	-0.35
9	24 Sep 24	12:48	13:08	6.34	6.01	-0.33
10	24 Sep 24	13:09	13:29	6.32	6.00	-0.31
11*	24 Sep 24	13:30	13:50	6.40	6.03	-0.37
12	24 Sep 24	13:51	14:11	6.38	6.05	-0.33
	Average			6.39	6.06	-0.33
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.33
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Worawich Tongpoom

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 1040588044
Project Name :
Project Location : Boiler (I-4)

Lot ID: 2447732
Date Received :Dec 18, 2024
Date Reported :Jan 03, 2025
Report Number :2977141-1

Sample Number	2447732-1
Sampled Date	Dec 17, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-2411 to 2414 (Model : URAS 14)
Parameter	NOx

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1*	17 Dec 24	10:20	10:40	36.64	34.84	39.91	36.81	-3.10
2*	17 Dec 24	10:41	11:01	36.03	34.90	39.44	37.04	-2.40
3	17 Dec 24	11:02	11:22	34.95	34.72	37.95	36.65	-1.29
4	17 Dec 24	11:23	11:43	33.60	34.73	36.54	36.61	0.07
5	17 Dec 24	11:44	12:04	32.63	34.62	35.48	36.47	1.00
6	17 Dec 24	12:05	12:25	31.25	34.57	33.87	36.24	2.37
7	17 Dec 24	12:26	12:46	31.53	34.61	34.18	36.24	2.06
8*	17 Dec 24	12:47	13:07	30.95	34.54	33.45	35.96	2.52
9	17 Dec 24	13:08	13:28	31.27	34.61	33.63	35.98	2.36
10	17 Dec 24	13:29	13:49	31.64	34.48	34.03	35.79	1.76
11	17 Dec 24	13:50	14:10	31.83	34.52	34.18	35.80	1.62
12	17 Dec 24	14:11	14:31	32.01	34.40	34.43	35.59	1.16
	Average					34.92	36.15	1.23
	Confidence Coefficient (CC)							0.92
	Relative Accuracy (Compared with RM) (%)							5.96
	Relative Accuracy Criteria 1/ (Compared with RM)							≤ 20%

Reference Method : US EPA Method 7E

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of NOx is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2)

RA Result is within Criteria

Technical Management Wichan Choonharat, Manager, ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont, Assistant General Manager, ทะเบียนเลขที่ ว-204-ค-0003

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ALS LABORATORY GROUP (THAILAND) CO., LTD. Part of the ALS Group

Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 1040588044
Project Name :
Project Location : Boiler (I-4)

Lot ID: 2447732
Date Received : Dec 18, 2024
Date Reported : Jan 03, 2025
Report Number : 2977141-1

Sample Number	2447732-1
Sampled Date	Dec 17, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-2411 to 2414 (Model : URAS 14)
Parameter	SO2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	17 Dec 24	10:20	10:40	0.01	0.25	0.01	0.26	0.25
2	17 Dec 24	10:41	11:01	0.01	0.27	0.02	0.29	0.27
3	17 Dec 24	11:02	11:22	0.02	0.25	0.02	0.27	0.25
4	17 Dec 24	11:23	11:43	0.02	0.20	0.02	0.21	0.19
5	17 Dec 24	11:44	12:04	0.02	0.27	0.02	0.28	0.26
6	17 Dec 24	12:05	12:25	0.02	0.20	0.02	0.21	0.19
7	17 Dec 24	12:26	12:46	0.02	0.26	0.02	0.28	0.25
8	17 Dec 24	12:47	13:07	0.02	0.24	0.02	0.25	0.22
9	17 Dec 24	13:08	13:28	0.02	0.28	0.02	0.29	0.26
10*	17 Dec 24	13:29	13:49	0.02	0.29	0.02	0.30	0.28
11*	17 Dec 24	13:50	14:10	0.02	0.29	0.02	0.30	0.28
12*	17 Dec 24	14:11	14:31	0.02	0.33	0.02	0.34	0.32
	Average					0.02	0.26	0.24
	Confidence Coefficient (CC)							0.02
	Relative Accuracy (Compared with Emission Standard : 5.5 ppm) (%)							4.76
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 10%

Reference Method : US EPA Method 6C

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of SO2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 2 (PS-2) compared with Emission Standard from Environmental Impact Assessment Report of PTT Global Chemical Public Company Limited (Olefin I-4)

RA Result is within Criteria

Technical Management Wichan Choonharat
Manager
ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 1040588044
Project Name :
Project Location : Boiler (I-4)

Lot ID: 2447732
Date Received : Dec 18, 2024
Date Reported : Jan 03, 2025
Report Number : 2977141-1

Sample Number	2447732-1
Sampled Date	Dec 17, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-2411 to 2414 (Model : URAS 14)
Parameter	CO

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual O2		Corrected Value at 7% O2		Difference
		Start	Stop	CEMs (ppm)	RM (ppm)	CEMs (ppm)	RM (ppm)	
1	17 Dec 24	10:20	10:40	15.02	12.41	16.37	13.11	-3.26
2	17 Dec 24	10:41	11:01	14.42	11.50	15.78	12.21	-3.57
3	17 Dec 24	11:02	11:22	15.21	11.94	16.52	12.60	-3.92
4	17 Dec 24	11:23	11:43	15.45	11.73	16.80	12.37	-4.44
5	17 Dec 24	11:44	12:04	16.21	11.77	17.63	12.41	-5.22
6	17 Dec 24	12:05	12:25	17.64	12.31	19.12	12.90	-6.22
7	17 Dec 24	12:26	12:46	17.94	12.43	19.45	13.01	-6.44
8*	17 Dec 24	12:47	13:07	18.63	12.66	20.13	13.18	-6.95
9*	17 Dec 24	13:08	13:28	18.75	12.79	20.17	13.30	-6.87
10*	17 Dec 24	13:29	13:49	19.29	13.15	20.74	13.65	-7.09
11	17 Dec 24	13:50	14:10	18.71	12.79	20.10	13.26	-6.84
12	17 Dec 24	14:11	14:31	18.27	13.15	19.65	13.61	-6.05
	Average					17.94	12.83	-5.11
	Confidence Coefficient (CC)							1.04
	Relative Accuracy (Compared with Emission Standard : 690 ppm) (%)							0.89
	Relative Accuracy Criteria 1/ (Compared with Emission Standard)							≤ 5%

Reference Method : US EPA Method 10

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of CO is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 4 (PS-4) compared with Emission Standard from Notification of the Ministry of Industry 2006 (B.E. 2549)

RA Result is within Criteria

Technical Management Wichan Choonharat
Manager
ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ ว-204-ค-0003

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Analysis / Test Report

Client : PTT Global Chemical Public Company Limited
9, Map Ta Phut Industrial Estate I-4 Road, Tambol Map Ta Phut, Amphoe Mueang, Rayong Thailand 21150
P/O : 1040588044
Project Name :
Project Location : Boiler (I-4)

Lot ID: 2447732
Date Received : Dec 18, 2024
Date Reported : Jan 03, 2025
Report Number : 2977141-1

Sample Number	2447732-1
Sampled Date	Dec 17, 2024
Sample Description	Emission from Stationary Source
Location	B-AT-2411 to 2414 (Model : URAS 14)
Parameter	O2

Relative Accuracy Test Audit Report

Run No.	Date	Time		Raw Data at Actual		Difference
		Start	Stop	CEMs (%)	RM (%)	
1	17 Dec 24	10:20	10:40	8.14	7.74	-0.40
2	17 Dec 24	10:41	11:01	8.20	7.80	-0.40
3	17 Dec 24	11:02	11:22	8.10	7.73	-0.36
4	17 Dec 24	11:23	11:43	8.12	7.71	-0.41
5	17 Dec 24	11:44	12:04	8.11	7.71	-0.41
6	17 Dec 24	12:05	12:25	8.08	7.64	-0.43
7	17 Dec 24	12:26	12:46	8.08	7.62	-0.46
8*	17 Dec 24	12:47	13:07	8.04	7.55	-0.49
9	17 Dec 24	13:08	13:28	7.97	7.53	-0.45
10*	17 Dec 24	13:29	13:49	7.98	7.51	-0.47
11	17 Dec 24	13:50	14:10	7.96	7.50	-0.46
12*	17 Dec 24	14:11	14:31	7.98	7.47	-0.51
	Average			8.08	7.67	-0.42
	Confidence Coefficient (CC)					-
	Relative Accuracy (Compared in Actual) (%)					0.42
	Relative Accuracy Criteria 1/ (%)					≤ 1%

Reference Method : US EPA Method 3A

Remark: * Sample with * is a rejected data

1/ Relative Accuracy Criteria of O2 is refer to 40 CFR Part 60 Appendix B : Performance Specification Test 3 (PS-3)

RA Result is within Criteria

Sampled By : Anuvat Moungpair

Technical Management Wichan Choonharat
Manager
ทะเบียนเลขที่ ว-204-ค-0006

Approved by Sarayuth Jittranont
Assistant General Manager
ทะเบียนเลขที่ ว-204-ค-0003

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ภาคผนวก ข

Raw Data

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 13 Aug 24
Location: F-110

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	12:05	0.00	23.29	2.40	5.28	-
13 Aug 24	12:06	0.00	22.93	2.40	5.34	-
13 Aug 24	12:07	0.00	23.07	2.33	5.44	-
13 Aug 24	12:08	0.00	22.60	2.26	5.51	-
13 Aug 24	12:09	0.00	22.39	2.18	5.69	-
13 Aug 24	12:10	0.00	22.70	2.27	5.46	-
13 Aug 24	12:11	0.00	22.74	2.24	5.35	-
13 Aug 24	12:12	0.00	23.07	2.28	5.41	-
13 Aug 24	12:13	0.00	22.91	2.32	5.31	-
13 Aug 24	12:14	0.00	22.52	2.27	5.59	-
13 Aug 24	12:15	0.00	23.07	2.46	5.33	-
13 Aug 24	12:16	0.00	22.89	2.34	5.28	-
13 Aug 24	12:17	0.00	23.27	2.34	5.39	-
13 Aug 24	12:18	0.00	22.85	2.34	5.52	-
13 Aug 24	12:19	0.00	22.28	2.19	5.69	-
13 Aug 24	12:20	0.00	22.59	2.37	5.52	-
13 Aug 24	12:21	0.00	22.65	2.41	5.37	-
13 Aug 24	12:22	0.00	22.82	2.36	5.39	-
13 Aug 24	12:23	0.00	22.90	2.38	5.38	-
13 Aug 24	12:24	0.00	22.38	2.34	5.55	-
13 Aug 24	12:25	0.00	23.22	2.42	5.35	-
Max		0.00	23.29	2.46	5.69	-
Avg		0.00	22.81	2.33	5.44	-

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	12:26	0.00	22.75	2.38	5.34	-
13 Aug 24	12:27	0.00	22.90	2.36	5.40	-
13 Aug 24	12:28	0.00	22.76	2.29	5.52	-
13 Aug 24	12:29	0.00	21.97	2.16	5.70	-
13 Aug 24	12:30	0.00	22.60	2.26	5.53	-
13 Aug 24	12:31	0.00	22.62	2.27	5.33	-
13 Aug 24	12:32	0.00	22.84	2.35	5.35	-
13 Aug 24	12:33	0.00	22.90	2.28	5.31	-
13 Aug 24	12:34	0.00	22.42	2.22	5.48	-
13 Aug 24	12:35	0.00	23.24	2.38	5.31	-
13 Aug 24	12:36	0.00	22.77	2.33	5.29	-
13 Aug 24	12:37	0.00	22.97	2.44	5.39	-
13 Aug 24	12:38	0.00	22.77	2.33	5.45	-
13 Aug 24	12:39	0.00	22.01	2.19	5.69	-
13 Aug 24	12:40	0.00	22.74	2.27	5.44	-
13 Aug 24	12:41	0.00	22.98	2.30	5.31	-
13 Aug 24	12:42	0.00	23.49	2.50	5.32	-
13 Aug 24	12:43	0.00	23.26	2.34	5.35	-
13 Aug 24	12:44	0.00	22.84	2.18	5.56	-
13 Aug 24	12:45	0.00	23.74	2.40	5.35	-
13 Aug 24	12:46	0.00	23.37	2.37	5.37	-
Max		0.00	23.74	2.44	5.70	-
Avg		0.00	22.65	2.30	5.42	-

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	12:47	0.00	23.94	2.39	5.37	-
13 Aug 24	12:48	0.00	23.68	2.40	5.40	-
13 Aug 24	12:49	0.00	23.48	2.15	5.73	-
13 Aug 24	12:50	0.00	23.98	2.30	5.43	-
13 Aug 24	12:51	0.00	23.85	2.37	5.29	-
13 Aug 24	12:52	0.00	24.79	2.43	5.26	-
13 Aug 24	12:53	0.00	24.78	2.45	5.28	-
13 Aug 24	12:54	0.00	24.75	2.25	5.60	-
13 Aug 24	12:55	0.00	25.36	2.41	5.34	-
13 Aug 24	12:56	0.00	24.76	2.42	5.32	-
13 Aug 24	12:57	0.00	24.56	2.50	5.37	-
13 Aug 24	12:58	0.00	24.45	2.37	5.47	-
13 Aug 24	12:59	0.00	23.27	2.27	5.78	-
13 Aug 24	13:00	0.00	23.95	2.30	5.49	-
13 Aug 24	13:01	0.00	23.98	2.35	5.42	-
13 Aug 24	13:02	0.00	24.13	2.47	5.35	-
13 Aug 24	13:03	0.00	24.01	2.41	5.32	-
13 Aug 24	13:04	0.00	23.50	2.30	5.67	-
13 Aug 24	13:05	0.00	24.29	2.47	5.29	-
13 Aug 24	13:06	0.00	23.82	2.47	5.35	-
13 Aug 24	13:07	0.00	23.69	2.44	5.29	-
Max		0.00	25.36	2.50	5.78	-
Avg		0.00	24.14	2.38	5.42	-

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	13:08	0.00	23.30	2.30	5.42	-
13 Aug 24	13:09	0.00	23.11	2.19	5.76	-
13 Aug 24	13:10	0.00	23.27	2.37	5.48	-
13 Aug 24	13:11	0.00	23.28	2.35	5.32	-
13 Aug 24	13:12	0.00	23.44	2.36	5.31	-
13 Aug 24	13:13	0.00	23.41	2.29	5.35	-
13 Aug 24	13:14	0.00	23.17	2.27	5.64	-
13 Aug 24	13:15	0.00	23.69	2.42	5.24	-
13 Aug 24	13:16	0.00	23.16	2.30	5.32	-
13 Aug 24	13:17	0.00	23.36	2.45	5.29	-
13 Aug 24	13:18	0.00	22.99	2.39	5.40	-
13 Aug 24	13:19	0.00	22.86	2.21	5.74	-
13 Aug 24	13:20	0.00	22.98	2.36	5.36	-
13 Aug 24	13:21	0.00	23.16	2.27	5.35	-
13 Aug 24	13:22	0.00	23.26	2.40	5.24	-
13 Aug 24	13:23	0.00	23.19	2.45	5.22	-
13 Aug 24	13:24	0.00	23.23	2.34	5.58	-
13 Aug 24	13:25	0.00	23.39	2.45	5.19	-
13 Aug 24	13:26	0.00	23.08	2.42	5.35	-
13 Aug 24	13:27	0.00	23.38	2.45	5.27	-
13 Aug 24	13:28	0.00	22.88	2.35	5.46	-
Max		0.00	23.69	2.45	5.76	-
Avg		0.00	23.22	2.35	5.40	-

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	13:29	0.00	22.59	2.29	5.78	-
13 Aug 24	13:30	0.00	22.67	2.37	5.38	-
13 Aug 24	13:31	0.00	22.79	2.38	5.34	-
13 Aug 24	13:32	0.00	23.01	2.39	5.17	-
13 Aug 24	13:33	0.00	23.05	2.33	5.25	-
13 Aug 24	13:34	0.00	22.61	2.34	5.62	-
13 Aug 24	13:35	0.00	23.30	2.52	5.21	-
13 Aug 24	13:36	0.00	23.40	2.43	5.40	-
13 Aug 24	13:37	0.00	22.96	2.41	5.25	-
13 Aug 24	13:38	0.00	22.50	2.40	5.39	-
13 Aug 24	13:39	0.00	22.56	2.36	5.79	-
13 Aug 24	13:40	0.00	22.75	2.43	5.38	-
13 Aug 24	13:41	0.00	22.94	2.45	5.33	-
13 Aug 24	13:42	0.00	22.89	2.48	5.20	-
13 Aug 24	13:43	0.00	22.90	2.49	5.33	-
13 Aug 24	13:44	0.00	22.92	2.41	5.66	-
13 Aug 24	13:45	0.00	23.31	2.61	5.16	-
13 Aug 24	13:46	0.00	23.17	2.52	5.33	-
13 Aug 24	13:47	0.00	22.76	2.46	5.23	-
13 Aug 24	13:48	0.00	22.51	2.40	5.37	-
13 Aug 24	13:49	0.00	22.68	2.35	5.79	-
Max		0.00	23.40	2.61	5.79	-
Avg		0.00	22.87	2.42	5.40	-

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	13:50	0.00	22.41	2.52	5.40	-
13 Aug 24	13:51	0.00	22.60	2.44	5.39	-
13 Aug 24	13:52	0.00	22.57	2.45	5.27	-
13 Aug 24	13:53	0.00	22.64	2.45	5.29	-
13 Aug 24	13:54	0.00	22.65	2.43	5.58	-
13 Aug 24	13:55	0.00	23.03	2.51	5.19	-
13 Aug 24	13:56	0.00	22.81	2.43	5.38	-
13 Aug 24	13:57	0.00	22.52	2.50	5.27	-
13 Aug 24	13:58	0.00	22.30	2.49	5.46	-
13 Aug 24	13:59	0.00	22.54	2.29	5.83	-
13 Aug 24	14:00	0.00	22.23	2.43	5.47	-
13 Aug 24	14:01	0.00	22.28	2.43	5.43	-
13 Aug 24	14:02	0.00	22.44	2.48	5.13	-
13 Aug 24	14:03	0.00	22.48	2.49	5.26	-
13 Aug 24	14:04	0.00	22.67	2.41	5.58	-
13 Aug 24	14:05	0.00	22.92	2.53	5.24	-
13 Aug 24	14:06	0.00	22.83	2.56	5.35	-
13 Aug 24	14:07	0.00	22.36	2.48	5.19	-
13 Aug 24	14:08	0.00	22.47	2.40	5.48	-
13 Aug 24	14:09	0.00	22.28	2.38	5.77	-
13 Aug 24	14:10	0.00	22.36	2.48	5.38	-
Max		0.00	23.03	2.56	5.83	-
Avg		0.00	22.54	2.46	5.40	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 13 Aug 24
Location: F-110

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	14:11	0.00	22.46	2.47	5.43	-
13 Aug 24	14:12	0.00	22.33	2.49	5.20	-
13 Aug 24	14:13	0.00	22.63	2.45	5.35	-
13 Aug 24	14:14	0.00	22.62	2.50	5.63	-
13 Aug 24	14:15	0.00	22.87	2.66	5.21	-
13 Aug 24	14:16	0.00	22.65	2.55	5.37	-
13 Aug 24	14:17	0.00	22.20	2.54	5.23	-
13 Aug 24	14:18	0.00	22.22	2.42	5.45	-
13 Aug 24	14:19	0.00	22.34	2.41	5.72	-
13 Aug 24	14:20	0.00	22.39	2.40	5.40	-
13 Aug 24	14:21	0.00	22.46	2.53	5.36	-
13 Aug 24	14:22	0.00	22.24	2.48	5.19	-
13 Aug 24	14:23	0.00	22.47	2.40	5.33	-
13 Aug 24	14:24	0.00	22.58	2.41	5.61	-
13 Aug 24	14:25	0.00	22.92	2.51	5.23	-
13 Aug 24	14:26	0.00	22.60	2.36	5.39	-
13 Aug 24	14:27	0.00	22.35	2.48	5.23	-
13 Aug 24	14:28	0.00	22.57	2.45	5.47	-
13 Aug 24	14:29	0.00	22.27	2.34	5.62	-
13 Aug 24	14:30	0.00	22.18	2.47	5.42	-
13 Aug 24	14:31	0.00	22.40	2.46	5.42	-
Max		0.00	22.92	2.66	5.72	-
Avg		0.00	22.46	2.46	5.39	-

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	14:32	0.00	22.28	2.45	5.21	-
13 Aug 24	14:33	0.00	22.58	2.43	5.33	-
13 Aug 24	14:34	0.00	22.70	2.43	5.54	-
13 Aug 24	14:35	0.00	22.97	2.58	5.23	-
13 Aug 24	14:36	0.00	22.36	2.48	5.39	-
13 Aug 24	14:37	0.00	22.15	2.41	5.22	-
13 Aug 24	14:38	0.00	22.35	2.33	5.47	-
13 Aug 24	14:39	0.00	22.39	2.34	5.70	-
13 Aug 24	14:40	0.00	22.36	2.37	5.42	-
13 Aug 24	14:41	0.00	22.65	2.36	5.38	-
13 Aug 24	14:42	0.00	22.23	2.39	5.15	-
13 Aug 24	14:43	0.00	22.43	2.48	5.35	-
13 Aug 24	14:44	0.00	22.66	2.32	5.56	-
13 Aug 24	14:45	0.00	23.02	2.49	5.20	-
13 Aug 24	14:46	0.00	22.48	2.49	5.33	-
13 Aug 24	14:47	0.00	21.94	2.41	5.24	-
13 Aug 24	14:48	0.00	22.25	2.33	5.53	-
13 Aug 24	14:49	0.00	22.30	2.32	5.66	-
13 Aug 24	14:50	0.00	22.38	2.39	5.37	-
13 Aug 24	14:51	0.00	22.31	2.48	5.38	-
13 Aug 24	14:52	0.00	22.28	2.44	5.15	-
Max		0.00	23.02	2.58	5.70	-
Avg		0.00	22.43	2.42	5.37	-

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	14:53	0.00	22.64	2.47	5.25	-
13 Aug 24	14:54	0.00	22.79	2.37	5.52	-
13 Aug 24	14:55	0.00	22.88	2.56	5.23	-
13 Aug 24	14:56	0.00	22.50	2.38	5.37	-
13 Aug 24	14:57	0.00	21.99	2.34	5.19	-
13 Aug 24	14:58	0.00	22.42	2.36	5.43	-
13 Aug 24	14:59	0.00	22.13	2.33	5.70	-
13 Aug 24	15:00	0.00	22.09	2.37	5.41	-
13 Aug 24	15:01	0.00	22.34	2.44	5.39	-
13 Aug 24	15:02	0.00	22.02	2.47	5.16	-
13 Aug 24	15:03	0.00	22.42	2.42	5.30	-
13 Aug 24	15:04	0.00	22.63	2.38	5.54	-
13 Aug 24	15:05	0.00	23.02	2.53	5.19	-
13 Aug 24	15:06	0.00	22.51	2.43	5.39	-
13 Aug 24	15:07	0.00	22.21	2.41	5.22	-
13 Aug 24	15:08	0.00	22.30	2.32	5.51	-
13 Aug 24	15:09	0.00	22.16	2.32	5.64	-
13 Aug 24	15:10	0.00	22.35	2.34	5.42	-
13 Aug 24	15:11	0.00	22.47	2.41	5.38	-
13 Aug 24	15:12	0.00	22.32	2.43	5.18	-
13 Aug 24	15:13	0.00	22.58	2.42	5.33	-
Max		0.00	23.02	2.56	5.70	-
Avg		0.00	22.42	2.40	5.37	-

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	15:14	0.00	22.48	2.38	5.48	-
13 Aug 24	15:15	0.00	22.84	2.48	5.22	-
13 Aug 24	15:16	0.00	22.91	2.29	5.41	-
13 Aug 24	15:17	0.00	22.11	2.38	5.25	-
13 Aug 24	15:18	0.00	22.54	2.38	5.45	-
13 Aug 24	15:19	0.00	22.40	2.39	5.60	-
13 Aug 24	15:20	0.00	22.34	2.40	5.40	-
13 Aug 24	15:21	0.00	22.50	2.48	5.41	-
13 Aug 24	15:22	0.00	22.09	2.41	5.21	-
13 Aug 24	15:23	0.00	22.62	2.33	5.38	-
13 Aug 24	15:24	0.00	22.70	2.37	5.47	-
13 Aug 24	15:25	0.00	23.21	2.43	5.24	-
13 Aug 24	15:26	0.00	22.80	2.37	5.34	-
13 Aug 24	15:27	0.00	22.19	2.44	5.28	-
13 Aug 24	15:28	0.00	22.74	2.39	5.50	-
13 Aug 24	15:29	0.00	22.47	2.31	5.62	-
13 Aug 24	15:30	0.00	22.49	2.38	5.48	-
13 Aug 24	15:31	0.00	22.67	2.35	5.47	-
13 Aug 24	15:32	0.00	22.15	2.36	5.20	-
13 Aug 24	15:33	0.00	22.91	2.39	5.33	-
13 Aug 24	15:34	0.00	23.05	2.41	5.38	-
Max		0.00	23.21	2.48	5.62	-
Avg		0.00	22.58	2.39	5.39	-

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	15:35	0.00	23.32	2.46	5.27	-
13 Aug 24	15:36	0.00	23.17	2.42	5.37	-
13 Aug 24	15:37	0.00	22.12	2.30	5.32	-
13 Aug 24	15:38	0.00	22.46	2.37	5.48	-
13 Aug 24	15:39	0.00	22.51	2.35	5.60	-
13 Aug 24	15:40	0.00	22.62	2.37	5.44	-
13 Aug 24	15:41	0.00	22.56	2.27	5.40	-
13 Aug 24	15:42	0.00	22.30	2.35	5.24	-
13 Aug 24	15:43	0.00	22.74	2.46	5.39	-
13 Aug 24	15:44	0.00	22.98	2.42	5.37	-
13 Aug 24	15:45	0.00	23.44	2.46	5.23	-
13 Aug 24	15:46	0.00	22.75	2.50	5.31	-
13 Aug 24	15:47	0.00	22.34	2.39	5.35	-
13 Aug 24	15:48	0.00	22.92	2.34	5.46	-
13 Aug 24	15:49	0.00	22.50	2.31	5.50	-
13 Aug 24	15:50	0.00	22.77	2.42	5.48	-
13 Aug 24	15:51	0.00	22.63	2.40	5.40	-
13 Aug 24	15:52	0.00	22.35	2.31	5.22	-
13 Aug 24	15:53	0.00	22.97	2.30	5.36	-
13 Aug 24	15:54	0.00	22.83	2.38	5.39	-
13 Aug 24	15:55	0.00	23.27	2.44	5.26	-
Max		0.00	23.44	2.50	5.60	-
Avg		0.00	22.73	2.38	5.37	-

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	15:56	0.00	23.22	2.32	5.38	-
13 Aug 24	15:57	0.00	22.22	2.29	5.29	-
13 Aug 24	15:58	0.00	22.71	2.33	5.47	-
13 Aug 24	15:59	0.00	22.43	2.42	5.53	-
13 Aug 24	16:00	0.00	22.65	2.35	5.45	-
13 Aug 24	16:01	0.00	22.56	2.31	5.39	-
13 Aug 24	16:02	0.00	22.46	2.24	5.30	-
13 Aug 24	16:03	0.00	22.62	2.45	5.36	-
13 Aug 24	16:04	0.00	22.88	2.38	5.34	-
13 Aug 24	16:05	0.00	23.53	2.44	5.23	-
13 Aug 24	16:06	0.00	23.17	2.43	5.27	-
13 Aug 24	16:07	0.00	22.17	2.21	5.34	-
13 Aug 24	16:08	0.00	22.60	2.41	5.50	-
13 Aug 24	16:09	0.00	22.52	2.29	5.48	-
13 Aug 24	16:10	0.00	22.80	2.33	5.44	-
13 Aug 24	16:11	0.00	22.72	2.39	5.34	-
13 Aug 24	16:12	0.00	21.95	2.31	5.33	-
13 Aug 24	16:13	0.00	22.78	2.38	5.32	-
13 Aug 24	16:14	0.00	22.57	2.43	5.33	-
13 Aug 24	16:15	0.00	23.17	2.53	5.21	-
13 Aug 24	16:16	0.00	22.63	2.37	5.29	-
Max		0.00	23.53	2.53	5.53	-
Avg		0.00	22.66	2.36	5.36	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 13 Aug 24
Location: F-110

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	12:05	0.24	20.79	3.91	5.65	7.74
13 Aug 24	12:06	0.24	20.85	3.95	5.40	7.78
13 Aug 24	12:07	0.20	20.98	3.90	5.49	7.85
13 Aug 24	12:08	0.23	20.97	3.85	5.59	7.85
13 Aug 24	12:09	0.21	20.85	3.90	5.63	7.67
13 Aug 24	12:10	0.18	20.74	3.81	5.75	7.64
13 Aug 24	12:11	0.22	20.64	3.83	5.56	7.60
13 Aug 24	12:12	0.21	20.66	3.80	5.58	7.67
13 Aug 24	12:13	0.19	20.70	3.79	5.58	7.63
13 Aug 24	12:14	0.18	20.78	3.79	5.49	7.70
13 Aug 24	12:15	0.19	20.84	3.78	5.57	7.74
13 Aug 24	12:16	0.17	20.94	3.80	5.36	7.78
13 Aug 24	12:17	0.18	21.08	3.79	5.47	7.86
13 Aug 24	12:18	0.15	21.09	3.80	5.53	7.64
13 Aug 24	12:19	0.17	21.00	3.85	5.61	7.73
13 Aug 24	12:20	0.16	20.91	3.80	5.76	7.65
13 Aug 24	12:21	0.14	20.83	3.81	5.61	7.64
13 Aug 24	12:22	0.15	20.86	3.77	5.55	7.70
13 Aug 24	12:23	0.13	20.95	3.81	5.54	7.63
13 Aug 24	12:24	0.13	20.97	3.79	5.55	7.71
13 Aug 24	12:25	0.14	21.06	3.77	5.66	7.72
Max		0.24	21.09	3.95	5.76	7.86
Avg		0.18	20.88	3.82	5.57	7.70

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	12:26	0.13	21.20	3.75	5.37	7.78
13 Aug 24	12:27	0.10	21.35	3.72	5.51	7.85
13 Aug 24	12:28	0.13	21.34	3.73	5.60	7.64
13 Aug 24	12:29	0.22	21.21	3.77	5.62	7.68
13 Aug 24	12:30	0.24	21.17	3.73	5.78	7.65
13 Aug 24	12:31	0.25	21.16	3.69	5.62	7.58
13 Aug 24	12:32	0.26	21.17	3.69	5.59	7.66
13 Aug 24	12:33	0.25	21.20	3.75	5.59	7.62
13 Aug 24	12:34	0.25	21.28	3.70	5.47	7.72
13 Aug 24	12:35	0.21	21.41	3.66	5.54	7.77
13 Aug 24	12:36	0.18	21.52	3.69	5.32	7.78
13 Aug 24	12:37	0.19	21.66	3.70	5.47	7.84
13 Aug 24	12:38	0.17	21.61	3.66	5.59	7.68
13 Aug 24	12:39	0.21	21.44	3.70	5.57	7.69
13 Aug 24	12:40	0.17	21.35	3.67	5.73	7.67
13 Aug 24	12:41	0.16	21.28	3.68	5.58	7.58
13 Aug 24	12:42	0.19	21.34	3.68	5.56	7.67
13 Aug 24	12:43	0.17	21.48	3.62	5.55	7.65
13 Aug 24	12:44	0.18	21.66	3.62	5.49	7.75
13 Aug 24	12:45	0.17	21.87	3.65	5.61	7.74
13 Aug 24	12:46	0.18	21.99	3.60	5.41	7.76
Max		0.26	21.99	3.77	5.78	7.85
Avg		0.19	21.41	3.69	5.55	7.70

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	12:47	0.14	22.11	3.61	5.54	7.81
13 Aug 24	12:48	0.13	22.13	3.61	5.61	7.64
13 Aug 24	12:49	0.14	22.11	3.62	5.57	7.71
13 Aug 24	12:50	0.12	22.19	3.54	5.71	7.71
13 Aug 24	12:51	0.12	22.18	3.55	5.56	7.60
13 Aug 24	12:52	0.08	22.30	3.55	5.53	7.71
13 Aug 24	12:53	0.14	22.55	3.56	5.47	7.67
13 Aug 24	12:54	0.11	22.84	3.55	5.44	7.82
13 Aug 24	12:55	0.13	23.17	3.53	5.57	7.79
13 Aug 24	12:56	0.10	23.50	3.56	5.39	7.80
13 Aug 24	12:57	0.07	23.58	3.52	5.50	7.84
13 Aug 24	12:58	0.14	23.39	3.53	5.59	7.65
13 Aug 24	12:59	0.23	22.95	3.54	5.55	7.72
13 Aug 24	13:00	0.31	22.70	3.53	5.73	7.73
13 Aug 24	13:01	0.27	22.46	3.54	5.59	7.65
13 Aug 24	13:02	0.30	22.43	3.49	5.58	7.69
13 Aug 24	13:03	0.28	22.50	3.54	5.55	7.59
13 Aug 24	13:04	0.30	22.49	3.47	5.49	7.71
13 Aug 24	13:05	0.29	22.50	3.50	5.59	7.74
13 Aug 24	13:06	0.29	22.51	3.48	5.39	7.75
13 Aug 24	13:07	0.25	22.53	3.46	5.49	7.84
Max		0.31	23.58	3.62	5.73	7.84
Avg		0.19	22.82	3.54	5.54	7.72

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	13:08	0.26	22.37	3.47	5.56	7.64
13 Aug 24	13:09	0.26	22.13	3.47	5.53	7.71
13 Aug 24	13:10	0.25	21.98	3.49	5.68	7.68
13 Aug 24	13:11	0.23	21.88	3.45	5.55	7.59
13 Aug 24	13:12	0.25	21.81	3.48	5.59	7.67
13 Aug 24	13:13	0.23	21.86	3.45	5.58	7.65
13 Aug 24	13:14	0.24	21.91	3.47	5.50	7.71
13 Aug 24	13:15	0.21	21.91	3.48	5.56	7.72
13 Aug 24	13:16	0.25	21.84	3.41	5.34	7.74
13 Aug 24	13:17	0.22	22.04	3.44	5.48	7.83
13 Aug 24	13:18	0.19	22.02	3.46	5.56	7.66
13 Aug 24	13:19	0.18	21.86	3.44	5.54	7.71
13 Aug 24	13:20	0.19	21.80	3.50	5.61	7.68
13 Aug 24	13:21	0.19	21.75	3.45	5.52	7.60
13 Aug 24	13:22	0.16	21.76	3.39	5.53	7.71
13 Aug 24	13:23	0.21	21.78	3.46	5.55	7.68
13 Aug 24	13:24	0.23	21.81	3.47	5.42	7.75
13 Aug 24	13:25	0.22	21.82	3.43	5.47	7.78
13 Aug 24	13:26	0.21	21.95	3.43	5.31	7.79
13 Aug 24	13:27	0.22	22.07	3.43	5.43	7.87
13 Aug 24	13:28	0.21	21.99	3.44	5.58	7.71
Max		0.26	22.37	3.50	5.68	7.87
Avg		0.22	21.93	3.45	5.52	7.71

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	13:29	0.17	21.83	3.42	5.58	7.74
13 Aug 24	13:30	0.16	21.69	3.45	5.65	7.65
13 Aug 24	13:31	0.17	21.48	3.50	5.58	7.60
13 Aug 24	13:32	0.15	21.41	3.45	5.49	7.69
13 Aug 24	13:33	0.15	21.41	3.46	5.51	7.67
13 Aug 24	13:34	0.11	21.52	3.45	5.43	7.75
13 Aug 24	13:35	0.17	21.62	3.43	5.48	7.80
13 Aug 24	13:36	0.14	21.66	3.43	5.33	7.78
13 Aug 24	13:37	0.16	21.79	3.46	5.45	7.87
13 Aug 24	13:38	0.13	21.77	3.44	5.60	7.68
13 Aug 24	13:39	0.10	21.55	3.38	5.53	7.70
13 Aug 24	13:40	0.12	21.37	3.42	5.60	7.70
13 Aug 24	13:41	0.21	21.28	3.43	5.55	7.61
13 Aug 24	13:42	0.29	21.25	3.37	5.50	7.70
13 Aug 24	13:43	0.25	21.33	3.38	5.52	7.66
13 Aug 24	13:44	0.28	21.43	3.40	5.45	7.75
13 Aug 24	13:45	0.26	21.53	3.38	5.53	7.75
13 Aug 24	13:46	0.28	21.58	3.41	5.32	7.73
13 Aug 24	13:47	0.27	21.68	3.46	5.37	7.89
13 Aug 24	13:48	0.27	21.67	3.37	5.53	7.72
13 Aug 24	13:49	0.23	21.45	3.44	5.54	7.73
Max		0.29	21.83	3.50	5.65	7.89
Avg		0.19	21.54	3.43	5.50	7.72

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	13:50	0.24	21.30	3.40	5.59	7.72
13 Aug 24	13:51	0.24	21.16	3.41	5.56	7.61
13 Aug 24	13:52	0.23	21.17	3.38	5.55	7.71
13 Aug 24	13:53	0.21	21.18	3.37	5.56	7.65
13 Aug 24	13:54	0.23	21.21	3.41	5.45	7.75
13 Aug 24	13:55	0.21	21.21	3.38	5.47	7.77
13 Aug 24	13:56	0.22	21.31	3.33	5.32	7.78
13 Aug 24	13:57	0.19	21.42	3.41	5.44	7.80
13 Aug 24	13:58	0.23	21.40	3.41	5.62	7.67
13 Aug 24	13:59	0.20	21.26	3.41	5.59	7.68
13 Aug 24	14:00	0.17	21.07	3.44	5.65	7.65
13 Aug 24	14:01	0.16	20.93	3.44	5.58	7.57
13 Aug 24	14:02	0.17	20.89	3.40	5.54	7.66
13 Aug 24	14:03	0.17	20.91	3.36	5.52	7.68
13 Aug 24	14:04	0.14	21.05	3.47	5.39	7.76
13 Aug 24	14:05	0.19	21.09	3.38	5.42	7.80
13 Aug 24	14:06	0.21	21.26	3.39	5.34	7.77
13 Aug 24	14:07	0.20	21.44	3.44	5.40	7.90
13 Aug 24	14:08	0.19	21.42	3.39	5.57	7.73
13 Aug 24	14:09	0.20	21.18	3.42	5.55	7.72
13 Aug 24	14:10	0.19	21.05	3.43	5.60	7.71
Max		0.24	21.44	3.47	5.65	7.90
Avg		0.20	21.19	3.40	5.51	7.72

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 13 Aug 24
Location: F-110

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	14:11	0.17	20.99	3.37	5.52	7.61
13 Aug 24	14:12	0.16	21.01	3.36	5.51	7.73
13 Aug 24	14:13	0.17	21.05	3.42	5.57	7.68
13 Aug 24	14:14	0.15	21.08	3.42	5.47	7.76
13 Aug 24	14:15	0.15	21.15	3.40	5.46	7.77
13 Aug 24	14:16	0.11	21.25	3.41	5.36	7.73
13 Aug 24	14:17	0.17	21.30	3.43	5.39	7.89
13 Aug 24	14:18	0.14	21.33	3.46	5.63	7.72
13 Aug 24	14:19	0.16	21.18	3.39	5.52	7.74
13 Aug 24	14:20	0.13	21.03	3.38	5.55	7.72
13 Aug 24	14:21	0.10	20.97	3.39	5.55	7.60
13 Aug 24	14:22	0.12	20.97	3.37	5.51	7.69
13 Aug 24	14:23	0.21	21.02	3.38	5.55	7.69
13 Aug 24	14:24	0.29	21.07	3.42	5.45	7.75
13 Aug 24	14:25	0.25	21.09	3.40	5.47	7.77
13 Aug 24	14:26	0.28	21.13	3.33	5.37	7.74
13 Aug 24	14:27	0.26	21.24	3.34	5.41	7.85
13 Aug 24	14:28	0.28	21.26	3.42	5.61	7.77
13 Aug 24	14:29	0.27	21.15	3.40	5.52	7.71
13 Aug 24	14:30	0.27	20.97	3.38	5.57	7.69
13 Aug 24	14:31	0.23	20.87	3.42	5.53	7.60
Max		0.29	21.33	3.46	5.63	7.88
Avg		0.19	21.10	3.40	5.50	7.72

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	14:32	0.24	20.80	3.39	5.51	7.70
13 Aug 24	14:33	0.24	20.87	3.35	5.56	7.69
13 Aug 24	14:34	0.23	20.93	3.41	5.45	7.73
13 Aug 24	14:35	0.21	21.02	3.34	5.44	7.80
13 Aug 24	14:36	0.23	21.14	3.37	5.34	7.76
13 Aug 24	14:37	0.21	21.27	3.34	5.40	7.89
13 Aug 24	14:38	0.22	21.23	3.33	5.63	7.72
13 Aug 24	14:39	0.19	21.07	3.31	5.54	7.68
13 Aug 24	14:40	0.23	20.97	3.40	5.56	7.68
13 Aug 24	14:41	0.20	20.92	3.33	5.50	7.64
13 Aug 24	14:42	0.17	20.94	3.32	5.50	7.73
13 Aug 24	14:43	0.16	21.03	3.36	5.55	7.70
13 Aug 24	14:44	0.17	21.10	3.38	5.42	7.73
13 Aug 24	14:45	0.17	21.15	3.29	5.44	7.79
13 Aug 24	14:46	0.14	21.22	3.35	5.35	7.73
13 Aug 24	14:47	0.26	21.32	3.30	5.36	7.90
13 Aug 24	14:48	0.26	21.28	3.33	5.59	7.73
13 Aug 24	14:49	0.23	21.05	3.30	5.57	7.73
13 Aug 24	14:50	0.28	20.95	3.34	5.58	7.66
13 Aug 24	14:51	0.25	20.94	3.41	5.53	7.63
13 Aug 24	14:52	0.27	20.97	3.35	5.48	7.69
Max		0.28	21.32	3.41	5.63	7.90
Avg		0.22	21.08	3.35	5.49	7.73

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	14:53	0.23	21.05	3.33	5.55	7.71
13 Aug 24	14:54	0.22	21.11	3.37	5.38	7.72
13 Aug 24	14:55	0.23	21.20	3.32	5.39	7.81
13 Aug 24	14:56	0.19	21.31	3.32	5.31	7.74
13 Aug 24	14:57	0.22	21.39	3.34	5.40	7.88
13 Aug 24	14:58	0.23	21.29	3.36	5.61	7.76
13 Aug 24	14:59	0.25	21.10	3.38	5.49	7.74
13 Aug 24	15:00	0.24	20.98	3.32	5.54	7.69
13 Aug 24	15:01	0.25	20.88	3.39	5.55	7.82
13 Aug 24	15:02	0.25	20.85	3.35	5.48	7.89
13 Aug 24	15:03	0.23	20.91	3.34	5.58	7.72
13 Aug 24	15:04	0.23	20.99	3.33	5.42	7.75
13 Aug 24	15:05	0.19	21.10	3.31	5.44	7.80
13 Aug 24	15:06	0.22	21.17	3.32	5.29	7.72
13 Aug 24	15:07	0.20	21.29	3.32	5.39	7.89
13 Aug 24	15:08	0.15	21.26	3.37	5.64	7.74
13 Aug 24	15:09	0.21	21.05	3.35	5.54	7.70
13 Aug 24	15:10	0.20	20.92	3.32	5.56	7.70
13 Aug 24	15:11	0.18	20.89	3.38	5.52	7.62
13 Aug 24	15:12	0.17	20.96	3.36	5.50	7.67
13 Aug 24	15:13	0.18	21.05	3.33	5.59	7.68
Max		0.25	21.39	3.38	5.64	7.89
Avg		0.21	21.08	3.34	5.48	7.73

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	15:14	0.16	21.09	3.38	5.38	7.79
13 Aug 24	15:15	0.15	21.15	3.37	5.42	7.79
13 Aug 24	15:16	0.14	21.20	3.37	5.32	7.76
13 Aug 24	15:17	0.16	21.27	3.36	5.41	7.88
13 Aug 24	15:18	0.15	21.25	3.37	5.62	7.78
13 Aug 24	15:19	0.13	21.08	3.38	5.49	7.74
13 Aug 24	15:20	0.14	20.98	3.37	5.53	7.73
13 Aug 24	15:21	0.12	21.01	3.34	5.51	7.63
13 Aug 24	15:22	0.12	21.07	3.34	5.47	7.72
13 Aug 24	15:23	0.13	21.10	3.31	5.59	7.70
13 Aug 24	15:24	0.12	21.09	3.35	5.46	7.69
13 Aug 24	15:25	0.09	21.09	3.37	5.47	7.73
13 Aug 24	15:26	0.12	21.13	3.35	5.31	7.73
13 Aug 24	15:27	0.21	21.27	3.38	5.38	7.92
13 Aug 24	15:28	0.23	21.30	3.38	5.58	7.78
13 Aug 24	15:29	0.24	21.14	3.38	5.52	7.70
13 Aug 24	15:30	0.25	21.06	3.35	5.61	7.68
13 Aug 24	15:31	0.24	21.02	3.35	5.57	7.56
13 Aug 24	15:32	0.24	21.00	3.37	5.49	7.68
13 Aug 24	15:33	0.20	21.07	3.34	5.60	7.68
13 Aug 24	15:34	0.17	21.16	3.42	5.39	7.73
Max		0.25	21.30	3.42	5.62	7.92
Avg		0.17	21.12	3.36	5.48	7.73

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	15:35	0.18	21.31	3.32	5.37	7.80
13 Aug 24	15:36	0.18	21.40	3.33	5.31	7.74
13 Aug 24	15:37	0.20	21.54	3.36	5.39	7.88
13 Aug 24	15:38	0.16	21.49	3.39	5.65	7.76
13 Aug 24	15:39	0.15	21.32	3.42	5.52	7.72
13 Aug 24	15:40	0.17	21.10	3.39	5.56	7.70
13 Aug 24	15:41	0.18	21.06	3.39	5.53	7.57
13 Aug 24	15:42	0.15	21.08	3.40	5.54	7.71
13 Aug 24	15:43	0.16	21.19	3.40	5.59	7.70
13 Aug 24	15:44	0.15	21.29	3.41	5.39	7.75
13 Aug 24	15:45	0.13	21.36	3.38	5.30	7.78
13 Aug 24	15:46	0.12	21.42	3.36	5.33	7.75
13 Aug 24	15:47	0.13	21.49	3.41	5.35	7.88
13 Aug 24	15:48	0.11	21.50	3.45	5.64	7.81
13 Aug 24	15:49	0.11	21.38	3.44	5.48	7.73
13 Aug 24	15:50	0.07	21.31	3.42	5.55	7.72
13 Aug 24	15:51	0.13	21.24	3.38	5.53	7.58
13 Aug 24	15:52	0.10	21.19	3.38	5.48	7.69
13 Aug 24	15:53	0.12	21.19	3.40	5.60	7.70
13 Aug 24	15:54	0.09	21.24	3.40	5.40	7.76
13 Aug 24	15:55	0.08	21.31	3.36	5.45	7.78
Max		0.20	21.54	3.45	5.65	7.88
Avg		0.13	21.31	3.39	5.48	7.74

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Aug 24	15:56	0.08	21.41	3.38	5.37	7.71
13 Aug 24	15:57	0.17	21.46	3.38	5.35	7.89
13 Aug 24	15:58	0.25	21.41	3.36	5.62	7.76
13 Aug 24	15:59	0.21	21.30	3.33	5.48	7.73
13 Aug 24	16:00	0.24	21.16	3.41	5.57	7.69
13 Aug 24	16:01	0.22	21.11	3.36	5.55	7.55
13 Aug 24	16:02	0.24	21.10	3.39	5.53	7.67
13 Aug 24	16:03	0.23	21.22	3.42	5.61	7.68
13 Aug 24	16:04	0.23	21.37	3.42	5.43	7.71
13 Aug 24	16:05	0.19	21.43	3.39	5.45	7.76
13 Aug 24	16:06	0.20	21.51	3.40	5.34	7.73
13 Aug 24	16:07	0.20	21.59	3.46	5.34	7.91
13 Aug 24	16:08	0.19	21.56	3.43	5.63	7.77
13 Aug 24	16:09	0.17	21.34	3.37	5.49	7.69
13 Aug 24	16:10	0.19	21.23	3.39	5.58	7.69
13 Aug 24	16:11	0.17	21.17	3.43	5.56	7.57
13 Aug 24	16:12	0.18	21.18	3.46	5.51	7.69
13 Aug 24	16:13	0.15	21.29	3.44	5.56	7.73
13 Aug 24	16:14	0.19	21.21	3.41	5.38	7.72
13 Aug 24	16:15	0.16	21.18	3.40	5.42	7.77
13 Aug 24	16:16	0.13	21.22	3.37	5.33	7.70
Max		0.25	21.59	3.46	5.63	7.91
Avg		0.19	21.31	3.40	5.48	7.72

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 14 Aug 24
Plant Name: I-4 /1 Location: F-120

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	10:30	0.00	29.77	2.15	4.22	-
14 Aug 24	10:31	0.00	29.71	2.19	4.27	-
14 Aug 24	10:32	0.00	29.76	2.19	4.23	-
14 Aug 24	10:33	0.00	29.82	2.25	4.21	-
14 Aug 24	10:34	0.00	29.59	2.11	4.44	-
14 Aug 24	10:35	0.00	30.23	2.22	4.13	-
14 Aug 24	10:36	0.00	30.00	2.28	4.07	-
14 Aug 24	10:37	0.00	30.12	2.30	4.01	-
14 Aug 24	10:38	0.00	30.05	2.27	4.15	-
14 Aug 24	10:39	0.00	29.73	2.01	4.62	-
14 Aug 24	10:40	0.00	30.44	2.16	4.25	-
14 Aug 24	10:41	0.00	29.92	2.14	4.23	-
14 Aug 24	10:42	0.00	29.81	2.19	4.15	-
14 Aug 24	10:43	0.00	30.18	2.18	4.23	-
14 Aug 24	10:44	0.00	29.98	2.09	4.48	-
14 Aug 24	10:45	0.00	30.07	2.20	4.14	-
14 Aug 24	10:46	0.00	30.44	2.23	4.15	-
14 Aug 24	10:47	0.00	30.29	2.33	4.01	-
14 Aug 24	10:48	0.00	30.45	2.32	4.13	-
14 Aug 24	10:49	0.00	29.41	2.08	4.54	-
14 Aug 24	10:50	0.00	29.88	2.18	4.28	-
Max		0.00	30.45	2.33	4.62	-
Avg		0.00	29.99	2.19	4.24	-

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	10:51	0.00	30.06	2.18	4.32	-
14 Aug 24	10:52	0.00	30.09	2.21	4.21	-
14 Aug 24	10:53	0.00	29.78	2.19	4.19	-
14 Aug 24	10:54	0.00	29.57	2.11	4.50	-
14 Aug 24	10:55	0.00	29.91	2.21	4.11	-
14 Aug 24	10:56	0.00	29.64	2.21	4.10	-
14 Aug 24	10:57	0.00	29.48	2.37	3.91	-
14 Aug 24	10:58	0.00	29.94	2.29	4.17	-
14 Aug 24	10:59	0.00	29.65	2.09	4.50	-
14 Aug 24	11:00	0.00	30.12	2.13	4.35	-
14 Aug 24	11:01	0.00	29.73	2.29	4.16	-
14 Aug 24	11:02	0.00	29.99	2.20	4.21	-
14 Aug 24	11:03	0.00	30.14	2.19	4.20	-
14 Aug 24	11:04	0.00	29.73	2.14	4.45	-
14 Aug 24	11:05	0.00	29.91	2.31	4.10	-
14 Aug 24	11:06	0.00	30.03	2.22	4.14	-
14 Aug 24	11:07	0.00	29.64	2.30	3.91	-
14 Aug 24	11:08	0.00	30.21	2.23	4.19	-
14 Aug 24	11:09	0.00	29.27	2.09	4.52	-
14 Aug 24	11:10	0.00	29.91	2.17	4.27	-
14 Aug 24	11:11	0.00	29.81	2.12	4.31	-
Max		0.00	30.21	2.37	4.52	-
Avg		0.00	29.84	2.20	4.23	-

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	11:12	0.00	29.68	2.21	4.32	-
14 Aug 24	11:13	0.00	30.03	2.11	4.23	-
14 Aug 24	11:14	0.00	29.74	2.10	4.48	-
14 Aug 24	11:15	0.00	29.76	2.27	4.19	-
14 Aug 24	11:16	0.00	30.29	2.25	4.17	-
14 Aug 24	11:17	0.00	30.16	2.40	3.89	-
14 Aug 24	11:18	0.00	30.47	2.31	4.11	-
14 Aug 24	11:19	0.00	29.46	2.09	4.50	-
14 Aug 24	11:20	0.00	29.60	2.18	4.31	-
14 Aug 24	11:21	0.00	29.58	2.12	4.24	-
14 Aug 24	11:22	0.00	29.54	2.22	4.21	-
14 Aug 24	11:23	0.00	29.68	2.18	4.29	-
14 Aug 24	11:24	0.00	29.95	2.11	4.46	-
14 Aug 24	11:25	0.00	29.43	2.24	4.14	-
14 Aug 24	11:26	0.00	29.83	2.25	4.06	-
14 Aug 24	11:27	0.00	29.89	2.30	3.93	-
14 Aug 24	11:28	0.00	29.81	2.25	4.11	-
14 Aug 24	11:29	0.00	29.47	2.09	4.52	-
14 Aug 24	11:30	0.00	29.66	2.22	4.28	-
14 Aug 24	11:31	0.00	29.76	2.04	4.34	-
14 Aug 24	11:32	0.00	29.92	2.25	4.16	-
Max		0.00	30.47	2.40	4.52	-
Avg		0.00	29.79	2.20	4.24	-

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	11:33	0.00	29.83	2.21	4.25	-
14 Aug 24	11:34	0.00	29.63	2.19	4.49	-
14 Aug 24	11:35	0.00	30.07	2.21	4.17	-
14 Aug 24	11:36	0.00	30.56	2.28	4.00	-
14 Aug 24	11:37	0.00	29.95	2.27	3.92	-
14 Aug 24	11:38	0.00	30.15	2.39	4.03	-
14 Aug 24	11:39	0.00	29.41	2.09	4.51	-
14 Aug 24	11:40	0.00	29.74	2.19	4.19	-
14 Aug 24	11:41	0.00	29.23	2.12	4.24	-
14 Aug 24	11:42	0.00	29.09	2.22	4.15	-
14 Aug 24	11:43	0.00	29.55	2.13	4.29	-
14 Aug 24	11:44	0.00	29.30	2.10	4.38	-
14 Aug 24	11:45	0.00	30.06	2.26	4.15	-
14 Aug 24	11:46	0.00	29.96	2.18	4.22	-
14 Aug 24	11:47	0.00	29.84	2.31	4.03	-
14 Aug 24	11:48	0.00	29.98	2.36	4.10	-
14 Aug 24	11:49	0.00	29.26	2.14	4.53	-
14 Aug 24	11:50	0.00	29.47	2.26	4.22	-
14 Aug 24	11:51	0.00	29.88	2.20	4.25	-
14 Aug 24	11:52	0.00	29.48	2.16	4.24	-
14 Aug 24	11:53	0.00	29.61	2.19	4.20	-
Max		0.00	30.56	2.39	4.53	-
Avg		0.00	29.67	2.21	4.22	-

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	11:54	0.00	29.31	2.23	4.48	-
14 Aug 24	11:55	0.00	29.84	2.35	4.17	-
14 Aug 24	11:56	0.00	29.67	2.27	4.16	-
14 Aug 24	11:57	0.00	29.92	2.37	3.99	-
14 Aug 24	11:58	0.00	29.86	2.34	4.12	-
14 Aug 24	11:59	0.00	29.46	2.17	4.53	-
14 Aug 24	12:00	0.00	29.47	2.23	4.22	-
14 Aug 24	12:01	0.00	29.50	2.23	4.19	-
14 Aug 24	12:02	0.00	29.34	2.21	4.12	-
14 Aug 24	12:03	0.00	29.76	2.25	4.39	-
14 Aug 24	12:04	0.00	29.52	2.11	4.48	-
14 Aug 24	12:05	0.00	29.89	2.22	4.16	-
14 Aug 24	12:06	0.00	29.60	2.30	4.10	-
14 Aug 24	12:07	0.00	29.46	2.32	3.97	-
14 Aug 24	12:08	0.00	30.04	2.34	4.16	-
14 Aug 24	12:09	0.00	29.94	2.20	4.47	-
14 Aug 24	12:10	0.00	29.87	2.23	4.27	-
14 Aug 24	12:11	0.00	29.89	2.26	4.21	-
14 Aug 24	12:12	0.00	29.76	2.22	4.20	-
14 Aug 24	12:13	0.00	29.68	2.25	4.24	-
14 Aug 24	12:14	0.00	29.81	2.18	4.44	-
Max		0.00	30.04	2.37	4.53	-
Avg		0.00	29.69	2.25	4.24	-

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	12:15	0.00	29.77	2.30	4.25	-
14 Aug 24	12:16	0.00	30.20	2.22	4.23	-
14 Aug 24	12:17	0.00	29.69	2.38	3.98	-
14 Aug 24	12:18	0.00	30.22	2.31	4.17	-
14 Aug 24	12:19	0.00	29.97	2.22	4.47	-
14 Aug 24	12:20	0.00	29.48	2.35	4.29	-
14 Aug 24	12:21	0.00	29.85	2.26	4.29	-
14 Aug 24	12:22	0.00	29.60	2.30	4.23	-
14 Aug 24	12:23	0.00	30.10	2.36	4.16	-
14 Aug 24	12:24	0.00	29.81	2.27	4.44	-
14 Aug 24	12:25	0.00	29.92	2.44	4.13	-
14 Aug 24	12:26	0.00	29.28	2.31	4.06	-
14 Aug 24	12:27	0.00	28.83	2.37	3.98	-
14 Aug 24	12:28	0.00	29.73	2.31	4.10	-
14 Aug 24	12:29	0.00	29.63	2.29	4.49	-
14 Aug 24	12:30	0.00	30.10	2.41	4.35	-
14 Aug 24	12:31	0.00	29.80	2.33	4.22	-
14 Aug 24	12:32	0.00	29.77	2.22	4.27	-
14 Aug 24	12:33	0.00	29.78	2.28	4.35	-
14 Aug 24	12:34	0.00	29.83	2.29	4.47	-
14 Aug 24	12:35	0.00	29.94	2.29	4.15	-
Max		0.00	30.22	2.44	4.49	-
Avg		0.00	29.78	2.31	4.24	-

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 14 Aug 24
Plant Name: I-4 /1 Location: F-120

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	12:36	0.00	30.29	2.30	4.21	-
14 Aug 24	12:37	0.00	29.82	2.32	4.01	-
14 Aug 24	12:38	0.00	30.37	2.44	4.02	-
14 Aug 24	12:39	0.00	30.03	2.24	4.55	-
14 Aug 24	12:40	0.00	29.95	2.30	4.27	-
14 Aug 24	12:41	0.00	29.48	2.25	4.34	-
14 Aug 24	12:42	0.00	29.31	2.33	4.21	-
14 Aug 24	12:43	0.00	29.93	2.38	4.21	-
14 Aug 24	12:44	0.00	30.38	2.29	4.42	-
14 Aug 24	12:45	0.00	30.34	2.39	4.23	-
14 Aug 24	12:46	0.00	30.32	2.34	4.17	-
14 Aug 24	12:47	0.00	29.85	2.32	4.04	-
14 Aug 24	12:48	0.00	30.06	2.46	4.09	-
14 Aug 24	12:49	0.00	29.62	2.30	4.50	-
14 Aug 24	12:50	0.00	30.13	2.37	4.26	-
14 Aug 24	12:51	0.00	29.34	2.43	4.27	-
14 Aug 24	12:52	0.00	29.63	2.19	4.31	-
14 Aug 24	12:53	0.00	29.98	2.23	4.18	-
14 Aug 24	12:54	0.00	30.23	2.25	4.29	-
14 Aug 24	12:55	0.00	29.78	2.33	4.00	-
14 Aug 24	12:56	0.00	30.09	2.32	4.18	-
Max		0.00	30.37	2.46	4.55	-
Avg		0.00	29.95	2.32	4.22	-

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	12:57	0.00	29.48	2.39	4.09	-
14 Aug 24	12:58	0.00	29.90	2.46	4.04	-
14 Aug 24	12:59	0.00	29.98	2.28	4.52	-
14 Aug 24	13:00	0.00	29.81	2.32	4.18	-
14 Aug 24	13:01	0.00	29.49	2.25	4.32	-
14 Aug 24	13:02	0.00	29.42	2.25	4.21	-
14 Aug 24	13:03	0.00	29.83	2.32	4.23	-
14 Aug 24	13:04	0.00	29.44	2.22	4.47	-
14 Aug 24	13:05	0.00	29.80	2.25	4.30	-
14 Aug 24	13:06	0.00	29.86	2.27	4.15	-
14 Aug 24	13:07	0.00	29.50	2.32	4.02	-
14 Aug 24	13:08	0.00	30.14	2.51	3.95	-
14 Aug 24	13:09	0.00	29.77	2.30	4.40	-
14 Aug 24	13:10	0.00	29.69	2.41	4.19	-
14 Aug 24	13:11	0.00	29.59	2.26	4.28	-
14 Aug 24	13:12	0.00	29.36	2.20	4.31	-
14 Aug 24	13:13	0.00	30.12	2.23	4.32	-
14 Aug 24	13:14	0.00	30.29	2.21	4.38	-
14 Aug 24	13:15	0.00	29.84	2.40	4.14	-
14 Aug 24	13:16	0.00	29.78	2.24	4.15	-
14 Aug 24	13:17	0.00	29.29	2.25	4.11	-
Max		0.00	30.29	2.51	4.52	-
Avg		0.00	29.73	2.30	4.22	-

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	13:18	0.00	29.85	2.30	4.15	-
14 Aug 24	13:19	0.00	29.86	2.18	4.48	-
14 Aug 24	13:20	0.00	29.77	2.28	4.19	-
14 Aug 24	13:21	0.00	29.35	2.30	4.23	-
14 Aug 24	13:22	0.00	29.34	2.29	4.35	-
14 Aug 24	13:23	0.00	29.64	2.29	4.21	-
14 Aug 24	13:24	0.00	30.12	2.30	4.25	-
14 Aug 24	13:25	0.00	30.18	2.42	4.15	-
14 Aug 24	13:26	0.00	30.03	2.38	4.11	-
14 Aug 24	13:27	0.00	29.56	2.38	4.09	-
14 Aug 24	13:28	0.00	30.35	2.39	4.09	-
14 Aug 24	13:29	0.00	29.86	2.21	4.51	-
14 Aug 24	13:30	0.00	30.15	2.30	4.22	-
14 Aug 24	13:31	0.00	29.82	2.13	4.40	-
14 Aug 24	13:32	0.00	29.39	2.22	4.28	-
14 Aug 24	13:33	0.00	29.95	2.28	4.10	-
14 Aug 24	13:34	0.00	30.04	2.13	4.37	-
14 Aug 24	13:35	0.00	29.85	2.32	4.18	-
14 Aug 24	13:36	0.00	29.76	2.39	4.09	-
14 Aug 24	13:37	0.00	29.76	2.29	4.11	-
14 Aug 24	13:38	0.00	30.33	2.40	4.10	-
Max		0.00	30.35	2.42	4.51	-
Avg		0.00	29.87	2.30	4.22	-

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	13:39	0.00	29.91	2.23	4.34	-
14 Aug 24	13:40	0.00	29.82	2.25	4.28	-
14 Aug 24	13:41	0.00	29.61	2.23	4.24	-
14 Aug 24	13:42	0.00	29.48	2.16	4.26	-
14 Aug 24	13:43	0.00	29.99	2.21	4.27	-
14 Aug 24	13:44	0.00	29.99	2.18	4.29	-
14 Aug 24	13:45	0.00	30.14	2.28	4.09	-
14 Aug 24	13:46	0.00	29.72	2.29	4.10	-
14 Aug 24	13:47	0.00	29.67	2.27	4.06	-
14 Aug 24	13:48	0.00	30.03	2.39	4.02	-
14 Aug 24	13:49	0.00	29.87	2.26	4.20	-
14 Aug 24	13:50	0.00	30.10	2.33	4.15	-
14 Aug 24	13:51	0.00	29.84	2.32	4.26	-
14 Aug 24	13:52	0.00	29.49	2.17	4.38	-
14 Aug 24	13:53	0.00	29.69	2.27	4.17	-
14 Aug 24	13:54	0.00	29.59	2.30	4.21	-
14 Aug 24	13:55	0.00	30.04	2.32	4.04	-
14 Aug 24	13:56	0.00	30.27	2.27	4.14	-
14 Aug 24	13:57	0.00	29.65	2.27	4.07	-
14 Aug 24	13:58	0.00	30.57	2.25	4.09	-
14 Aug 24	13:59	0.00	29.50	2.23	4.32	-
Max		0.00	30.57	2.39	4.38	-
Avg		0.00	29.86	2.26	4.19	-

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	14:00	0.00	29.64	2.26	4.14	-
14 Aug 24	14:01	0.00	29.70	2.22	4.16	-
14 Aug 24	14:02	0.00	28.83	2.13	4.30	-
14 Aug 24	14:03	0.00	29.97	2.29	4.18	-
14 Aug 24	14:04	0.00	30.11	2.36	4.25	-
14 Aug 24	14:05	0.00	29.79	2.38	4.04	-
14 Aug 24	14:06	0.00	29.59	2.33	4.14	-
14 Aug 24	14:07	0.00	29.48	2.27	4.04	-
14 Aug 24	14:08	0.00	30.12	2.27	4.03	-
14 Aug 24	14:09	0.00	29.79	2.27	4.33	-
14 Aug 24	14:10	0.00	29.76	2.27	4.18	-
14 Aug 24	14:11	0.00	29.78	2.23	4.25	-
14 Aug 24	14:12	0.00	29.17	2.25	4.37	-
14 Aug 24	14:13	0.00	30.09	2.25	4.23	-
14 Aug 24	14:14	0.00	30.22	2.25	4.31	-
14 Aug 24	14:15	0.00	30.00	2.30	4.02	-
14 Aug 24	14:16	0.00	29.87	2.27	4.13	-
14 Aug 24	14:17	0.00	29.43	2.23	4.17	-
14 Aug 24	14:18	0.00	30.29	2.40	3.95	-
14 Aug 24	14:19	0.00	29.61	2.35	4.18	-
14 Aug 24	14:20	0.00	29.54	2.38	4.14	-
Max		0.00	30.29	2.40	4.37	-
Avg		0.00	29.75	2.28	4.17	-

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	14:21	0.00	29.80	2.26	4.25	-
14 Aug 24	14:22	0.00	29.24	2.11	4.40	-
14 Aug 24	14:23	0.00	30.25	2.39	4.25	-
14 Aug 24	14:24	0.00	29.74	2.29	4.16	-
14 Aug 24	14:25	0.00	29.88	2.35	4.15	-
14 Aug 24	14:26	0.00	29.70	2.34	4.13	-
14 Aug 24	14:27	0.00	29.32	2.31	4.18	-
14 Aug 24	14:28	0.00	29.69	2.47	4.01	-
14 Aug 24	14:29	0.00	29.80	2.40	4.32	-
14 Aug 24	14:30	0.00	29.75	2.28	4.24	-
14 Aug 24	14:31	0.00	29.56	2.25	4.32	-
14 Aug 24	14:32	0.00	29.29	2.25	4.28	-
14 Aug 24	14:33	0.00	29.93	2.28	4.21	-
14 Aug 24	14:34	0.00	29.76	2.25	4.21	-
14 Aug 24	14:35	0.00	30.05	2.39	4.08	-
14 Aug 24	14:36	0.00	29.87	2.52	4.00	-
14 Aug 24	14:37	0.00	29.36	2.34	4.15	-
14 Aug 24	14:38	0.00	29.73	2.53	4.10	-
14 Aug 24	14:39	0.00	30.07	2.42	4.24	-
14 Aug 24	14:40	0.00	30.13	2.33	4.18	-
14 Aug 24	14:41	0.00	29.83	2.34	4.24	-
Max		0.00	30.25	2.53	4.40	-
Avg		0.00	29.75	2.34	4.20	-

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 14 Aug 24
Plant Name: I-4 /1 Location: F-120

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	10:30	0.00	27.81	3.26	4.53	8.30
14 Aug 24	10:31	0.00	27.66	3.28	4.36	8.23
14 Aug 24	10:32	0.03	27.51	3.25	4.44	8.24
14 Aug 24	10:33	0.03	27.39	3.22	4.46	8.09
14 Aug 24	10:34	0.03	27.44	3.27	4.34	8.20
14 Aug 24	10:35	0.02	27.60	3.27	4.42	8.25
14 Aug 24	10:36	0.01	27.68	3.31	4.26	8.28
14 Aug 24	10:37	0.01	27.69	3.32	4.23	8.32
14 Aug 24	10:38	0.04	27.75	3.25	4.25	8.24
14 Aug 24	10:39	0.10	27.83	3.30	4.21	8.40
14 Aug 24	10:40	0.13	27.81	3.32	4.55	8.30
14 Aug 24	10:41	0.04	27.88	3.29	4.36	8.21
14 Aug 24	10:42	0.04	27.83	3.23	4.42	8.20
14 Aug 24	10:43	0.08	27.82	3.21	4.38	8.10
14 Aug 24	10:44	0.08	27.85	3.23	4.36	8.20
14 Aug 24	10:45	0.09	27.93	3.26	4.46	8.23
14 Aug 24	10:46	0.10	27.92	3.24	4.28	8.22
14 Aug 24	10:47	0.06	27.97	3.23	4.27	8.29
14 Aug 24	10:48	0.07	28.01	3.23	4.22	8.26
14 Aug 24	10:49	0.09	28.05	3.26	4.17	8.43
14 Aug 24	10:50	0.11	28.02	3.21	4.52	8.24
Max		0.13	28.05	3.32	4.55	8.43
Avg		0.05	27.79	3.26	4.38	8.25

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	10:51	0.12	27.87	3.23	4.39	8.22
14 Aug 24	10:52	0.07	27.79	3.18	4.46	8.21
14 Aug 24	10:53	0.06	27.89	3.18	4.40	8.09
14 Aug 24	10:54	0.10	27.84	3.14	4.32	8.17
14 Aug 24	10:55	0.10	27.81	3.17	4.48	8.23
14 Aug 24	10:56	0.08	27.75	3.19	4.27	8.24
14 Aug 24	10:57	0.12	27.79	3.13	4.24	8.30
14 Aug 24	10:58	0.13	27.74	3.15	4.20	8.21
14 Aug 24	10:59	0.14	27.80	3.20	4.21	8.43
14 Aug 24	11:00	0.14	27.92	3.14	4.48	8.24
14 Aug 24	11:01	0.15	27.87	3.16	4.40	8.19
14 Aug 24	11:02	0.10	27.70	3.18	4.34	8.20
14 Aug 24	11:03	0.04	27.68	3.13	4.42	8.13
14 Aug 24	11:04	0.05	27.83	3.16	4.33	8.21
14 Aug 24	11:05	0.11	27.99	3.17	4.43	8.23
14 Aug 24	11:06	0.13	27.91	3.16	4.25	8.20
14 Aug 24	11:07	0.10	27.84	3.20	4.27	8.27
14 Aug 24	11:08	0.11	27.77	3.19	4.19	8.22
14 Aug 24	11:09	0.09	27.87	3.23	4.25	8.41
14 Aug 24	11:10	0.08	27.86	3.23	4.50	8.30
14 Aug 24	11:11	0.12	27.69	3.18	4.40	8.18
Max		0.15	27.99	3.23	4.50	8.43
Avg		0.10	27.82	3.18	4.34	8.23

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	11:12	0.13	27.61	3.18	4.44	8.18
14 Aug 24	11:13	0.10	27.61	3.15	4.48	8.08
14 Aug 24	11:14	0.07	27.53	3.21	4.33	8.22
14 Aug 24	11:15	0.11	27.64	3.21	4.45	8.26
14 Aug 24	11:16	0.14	27.72	3.20	4.27	8.23
14 Aug 24	11:17	0.12	27.73	3.22	4.31	8.29
14 Aug 24	11:18	0.11	27.87	3.20	4.16	8.25
14 Aug 24	11:19	0.15	28.05	3.17	4.21	8.42
14 Aug 24	11:20	0.18	28.06	3.23	4.47	8.30
14 Aug 24	11:21	0.19	27.82	3.23	4.40	8.20
14 Aug 24	11:22	0.12	27.60	3.17	4.42	8.20
14 Aug 24	11:23	0.13	27.55	3.20	4.46	8.06
14 Aug 24	11:24	0.12	27.54	3.21	4.41	8.19
14 Aug 24	11:25	0.10	27.66	3.21	4.44	8.22
14 Aug 24	11:26	0.10	27.78	3.19	4.30	8.23
14 Aug 24	11:27	0.13	27.79	3.18	4.23	8.28
14 Aug 24	11:28	0.06	27.72	3.19	4.23	8.26
14 Aug 24	11:29	0.04	27.84	3.19	4.22	8.37
14 Aug 24	11:30	0.10	27.86	3.13	4.45	8.31
14 Aug 24	11:31	0.11	27.69	3.16	4.39	8.19
14 Aug 24	11:32	0.11	27.62	3.18	4.47	8.19
Max		0.19	28.06	3.23	4.48	8.42
Avg		0.12	27.73	3.19	4.38	8.24

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	11:33	0.08	27.59	3.13	4.42	8.07
14 Aug 24	11:34	0.12	27.72	3.17	4.38	8.18
14 Aug 24	11:35	0.14	27.86	3.15	4.45	8.19
14 Aug 24	11:36	0.10	27.83	3.19	4.25	8.25
14 Aug 24	11:37	0.04	28.00	3.14	4.17	8.33
14 Aug 24	11:38	0.06	28.20	3.17	4.22	8.24
14 Aug 24	11:39	0.12	28.26	3.20	4.12	8.40
14 Aug 24	11:40	0.17	28.07	3.18	4.42	8.34
14 Aug 24	11:41	0.13	27.84	3.16	4.33	8.19
14 Aug 24	11:42	0.12	27.64	3.18	4.39	8.22
14 Aug 24	11:43	0.11	27.46	3.10	4.41	8.08
14 Aug 24	11:44	0.08	27.36	3.14	4.38	8.19
14 Aug 24	11:45	0.11	27.51	3.11	4.43	8.22
14 Aug 24	11:46	0.12	27.66	3.14	4.23	8.18
14 Aug 24	11:47	0.10	27.88	3.20	4.32	8.28
14 Aug 24	11:48	0.08	28.06	3.15	4.28	8.18
14 Aug 24	11:49	0.15	28.08	3.20	4.19	8.37
14 Aug 24	11:50	0.14	27.96	3.21	4.52	8.31
14 Aug 24	11:51	0.12	27.74	3.16	4.36	8.18
14 Aug 24	11:52	0.14	27.55	3.18	4.43	8.22
14 Aug 24	11:53	0.09	27.46	3.17	4.47	8.10
Max		0.17	28.26	3.21	4.52	8.40
Avg		0.11	27.80	3.16	4.34	8.22

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	11:54	0.11	27.52	3.18	4.36	8.18
14 Aug 24	11:55	0.14	27.68	3.15	4.46	8.25
14 Aug 24	11:56	0.09	27.66	3.15	4.29	8.20
14 Aug 24	11:57	0.10	27.71	3.15	4.27	8.29
14 Aug 24	11:58	0.10	27.83	3.17	4.24	8.24
14 Aug 24	11:59	0.11	27.93	3.19	4.22	8.42
14 Aug 24	12:00	0.13	28.03	3.20	4.50	8.32
14 Aug 24	12:01	0.13	27.83	3.20	4.36	8.19
14 Aug 24	12:02	0.04	27.64	3.16	4.36	8.20
14 Aug 24	12:03	0.03	27.57	3.17	4.41	8.08
14 Aug 24	12:04	0.08	27.80	3.14	4.39	8.21
14 Aug 24	12:05	0.10	27.85	3.20	4.50	8.24
14 Aug 24	12:06	0.11	27.76	3.16	4.28	8.20
14 Aug 24	12:07	0.06	27.92	3.17	4.24	8.30
14 Aug 24	12:08	0.06	27.97	3.19	4.25	8.25
14 Aug 24	12:09	0.07	28.08	3.19	4.18	8.44
14 Aug 24	12:10	0.12	28.17	3.17	4.42	8.36
14 Aug 24	12:11	0.17	28.14	3.14	4.38	8.21
14 Aug 24	12:12	0.16	28.00	3.21	4.38	8.22
14 Aug 24	12:13	0.15	27.94	3.12	4.41	8.14
14 Aug 24	12:14	0.13	27.96	3.14	4.39	8.17
Max		0.17	28.17	3.21	4.50	8.44
Avg		0.10	27.84	3.17	4.35	8.24

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	12:15	0.17	27.94	3.12	4.42	8.23
14 Aug 24	12:16	0.17	27.92	3.12	4.33	8.22
14 Aug 24	12:17	0.14	27.95	3.14	4.31	8.29
14 Aug 24	12:18	0.07	27.98	3.07	4.25	8.23
14 Aug 24	12:19	0.09	28.18	3.20	4.20	8.43
14 Aug 24	12:20	0.11	28.24	3.13	4.48	8.30
14 Aug 24	12:21	0.13	28.05	3.15	4.41	8.19
14 Aug 24	12:22	0.11	27.77	3.12	4.43	8.21
14 Aug 24	12:23	0.07	27.83	3.09	4.46	8.11
14 Aug 24	12:24	0.07	27.99	3.14	4.31	8.20
14 Aug 24	12:25	0.15	28.03	3.10	4.39	8.26
14 Aug 24	12:26	0.15	27.96	3.07	4.19	8.26
14 Aug 24	12:27	0.19	27.96	3.09	4.20	8.32
14 Aug 24	12:28	0.15	27.76	3.07	4.23	8.28
14 Aug 24	12:29	0.16	27.66	3.09	4.19	8.43
14 Aug 24	12:30	0.15	27.76	3.09	4.46	8.36
14 Aug 24	12:31	0.09	27.88	3.11	4.40	8.19
14 Aug 24	12:32	0.08	27.93	3.15	4.37	8.19
14 Aug 24	12:33	0.08	27.99	3.09	4.48	8.13
14 Aug 24	12:34	0.12	28.05	3.14	4.41	8.20
14 Aug 24	12:35	0.12	28.02	3.12	4.49	8.21
Max		0.19	28.24	3.20	4.49	8.43
Avg		0.12	27.95	3.11	4.35	8.25

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 14 Aug 24
Plant Name: I-4 /1 Location: F-120

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	12:36	0.14	27.96	3.15	4.28	8.21
14 Aug 24	12:37	0.13	28.13	3.16	4.31	8.28
14 Aug 24	12:38	0.12	28.32	3.14	4.31	8.24
14 Aug 24	12:39	0.16	28.40	3.13	4.13	8.42
14 Aug 24	12:40	0.19	28.48	3.15	4.51	8.38
14 Aug 24	12:41	0.15	28.35	3.12	4.38	8.15
14 Aug 24	12:42	0.13	28.04	3.13	4.48	8.19
14 Aug 24	12:43	0.12	27.94	3.11	4.48	8.02
14 Aug 24	12:44	0.11	28.00	3.15	4.33	8.23
14 Aug 24	12:45	0.12	28.28	3.12	4.41	8.25
14 Aug 24	12:46	0.15	28.35	3.06	4.36	8.20
14 Aug 24	12:47	0.09	28.42	3.14	4.27	8.26
14 Aug 24	12:48	0.08	28.44	3.10	4.26	8.24
14 Aug 24	12:49	0.10	28.47	3.11	4.19	8.45
14 Aug 24	12:50	0.17	28.33	3.11	4.48	8.36
14 Aug 24	12:51	0.16	28.21	3.12	4.37	8.19
14 Aug 24	12:52	0.12	28.13	3.09	4.39	8.23
14 Aug 24	12:53	0.13	28.16	3.14	4.49	8.10
14 Aug 24	12:54	0.14	28.22	3.09	4.38	8.20
14 Aug 24	12:55	0.14	28.34	3.14	4.30	8.27
14 Aug 24	12:56	0.11	28.28	3.12	4.15	8.30
Max		0.19	28.48	3.16	4.51	8.45
Avg		0.13	28.25	3.12	4.34	8.25

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	12:57	0.14	28.38	3.13	4.28	8.35
14 Aug 24	12:58	0.10	28.33	3.10	4.50	8.23
14 Aug 24	12:59	0.07	28.25	3.10	4.17	8.36
14 Aug 24	13:00	0.10	28.31	3.14	4.53	8.33
14 Aug 24	13:01	0.13	28.15	3.10	4.32	8.19
14 Aug 24	13:02	0.16	27.98	3.12	4.44	8.23
14 Aug 24	13:03	0.14	27.91	3.10	4.43	8.12
14 Aug 24	13:04	0.11	27.90	3.09	4.31	8.24
14 Aug 24	13:05	0.12	27.94	3.10	4.52	8.25
14 Aug 24	13:06	0.10	27.85	3.07	4.43	8.14
14 Aug 24	13:07	0.10	27.86	3.03	4.31	8.21
14 Aug 24	13:08	0.12	28.03	3.03	4.29	8.20
14 Aug 24	13:09	0.07	28.17	3.08	4.09	8.43
14 Aug 24	13:10	0.12	28.33	3.05	4.39	8.42
14 Aug 24	13:11	0.13	28.18	3.06	4.29	8.22
14 Aug 24	13:12	0.15	27.97	3.08	4.37	8.26
14 Aug 24	13:13	0.12	27.85	3.06	4.53	8.10
14 Aug 24	13:14	0.08	27.88	3.04	4.40	8.18
14 Aug 24	13:15	0.05	28.02	3.05	4.43	8.21
14 Aug 24	13:16	0.10	28.16	3.02	4.28	8.21
14 Aug 24	13:17	0.13	28.05	3.08	4.28	8.31
Max		0.16	28.36	3.14	4.53	8.43
Avg		0.11	28.07	3.08	4.35	8.25

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	13:18	0.13	27.91	3.05	4.36	8.18
14 Aug 24	13:19	0.09	27.92	3.06	4.22	8.39
14 Aug 24	13:20	0.12	28.03	3.07	4.49	8.31
14 Aug 24	13:21	0.11	27.98	3.07	4.31	8.19
14 Aug 24	13:22	0.14	27.87	3.10	4.35	8.24
14 Aug 24	13:23	0.12	27.83	3.10	4.50	8.14
14 Aug 24	13:24	0.12	27.87	3.08	4.36	8.19
14 Aug 24	13:25	0.07	28.02	3.09	4.33	8.25
14 Aug 24	13:26	0.13	28.19	3.09	4.24	8.27
14 Aug 24	13:27	0.16	28.32	3.14	4.21	8.34
14 Aug 24	13:28	0.14	28.28	3.09	4.27	8.28
14 Aug 24	13:29	0.18	28.27	3.09	4.17	8.43
14 Aug 24	13:30	0.16	28.38	3.14	4.53	8.31
14 Aug 24	13:31	0.16	28.30	3.10	4.33	8.18
14 Aug 24	13:32	0.15	28.14	3.08	4.47	8.24
14 Aug 24	13:33	0.14	28.05	3.09	4.47	8.12
14 Aug 24	13:34	0.15	28.10	3.08	4.27	8.28
14 Aug 24	13:35	0.16	28.18	3.08	4.45	8.29
14 Aug 24	13:36	0.20	28.24	3.12	4.30	8.21
14 Aug 24	13:37	0.14	28.20	3.15	4.22	8.30
14 Aug 24	13:38	0.17	28.30	3.14	4.33	8.25
Max		0.20	28.38	3.15	4.53	8.43
Avg		0.14	28.11	3.10	4.34	8.26

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	13:39	0.13	28.54	3.16	4.17	8.44
14 Aug 24	13:40	0.17	28.53	3.10	4.40	8.39
14 Aug 24	13:41	0.22	28.29	3.10	4.37	8.21
14 Aug 24	13:42	0.22	28.05	3.08	4.44	8.20
14 Aug 24	13:43	0.17	28.06	3.10	4.51	8.11
14 Aug 24	13:44	0.11	28.16	3.15	4.40	8.17
14 Aug 24	13:45	0.08	28.21	3.11	4.40	8.23
14 Aug 24	13:46	0.10	28.28	3.13	4.23	8.22
14 Aug 24	13:47	0.09	28.33	3.16	4.25	8.31
14 Aug 24	13:48	0.06	28.27	3.11	4.27	8.25
14 Aug 24	13:49	0.10	28.35	3.12	4.09	8.41
14 Aug 24	13:50	0.14	28.49	3.08	4.27	8.41
14 Aug 24	13:51	0.19	28.39	3.09	4.31	8.24
14 Aug 24	13:52	0.15	28.25	3.10	4.39	8.26
14 Aug 24	13:53	0.14	28.23	3.08	4.52	8.13
14 Aug 24	13:54	0.13	28.16	3.06	4.31	8.21
14 Aug 24	13:55	0.15	28.10	3.12	4.30	8.28
14 Aug 24	13:56	0.11	28.17	3.09	4.23	8.22
14 Aug 24	13:57	0.09	28.42	3.13	4.24	8.35
14 Aug 24	13:58	0.10	28.64	3.10	4.31	8.27
14 Aug 24	13:59	0.13	28.89	3.16	4.22	8.40
Max		0.22	28.89	3.16	4.52	8.44
Avg		0.13	28.32	3.11	4.32	8.27

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	14:00	0.18	28.59	3.13	4.44	8.26
14 Aug 24	14:01	0.18	28.27	3.10	4.34	8.16
14 Aug 24	14:02	0.11	27.99	3.14	4.31	8.24
14 Aug 24	14:03	0.13	28.05	3.12	4.46	8.21
14 Aug 24	14:04	0.12	27.98	3.09	4.27	8.27
14 Aug 24	14:05	0.13	28.08	3.16	4.34	8.27
14 Aug 24	14:06	0.15	28.17	3.13	4.17	8.23
14 Aug 24	14:07	0.13	28.12	3.14	4.23	8.33
14 Aug 24	14:08	0.08	28.13	3.11	4.26	8.29
14 Aug 24	14:09	0.14	28.32	3.12	4.14	8.39
14 Aug 24	14:10	0.18	28.40	3.11	4.38	8.38
14 Aug 24	14:11	0.15	28.16	3.08	4.31	8.19
14 Aug 24	14:12	0.14	28.03	3.12	4.36	8.25
14 Aug 24	14:13	0.12	28.07	3.09	4.52	8.11
14 Aug 24	14:14	0.11	28.12	3.11	4.34	8.24
14 Aug 24	14:15	0.12	28.20	3.06	4.36	8.28
14 Aug 24	14:16	0.08	28.18	3.14	4.20	8.21
14 Aug 24	14:17	0.10	28.25	3.16	4.24	8.38
14 Aug 24	14:18	0.11	28.25	3.16	4.34	8.26
14 Aug 24	14:19	0.11	28.31	3.20	4.07	8.43
14 Aug 24	14:20	0.13	28.35	3.17	4.32	8.40
Max		0.18	28.59	3.20	4.52	8.43
Avg		0.13	28.19	3.13	4.30	8.27

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
14 Aug 24	14:21	0.16	28.20	3.14	4.32	8.21
14 Aug 24	14:22	0.11	28.14	3.15	4.38	8.26
14 Aug 24	14:23	0.10	28.14	3.10	4.55	8.14
14 Aug 24	14:24	0.10	28.17	3.10	4.35	8.25
14 Aug 24	14:25	0.07	28.21	3.08	4.30	8.26
14 Aug 24	14:26	0.14	28.30	3.12	4.26	8.29
14 Aug 24	14:27	0.19	28.20	3.14	4.26	8.34
14 Aug 24	14:28	0.21	28.18	3.15	4.34	8.27
14 Aug 24	14:29	0.16	28.25	3.19	4.13	8.41
14 Aug 24	14:30	0.15	28.33	3.19	4.42	8.40
14 Aug 24	14:31	0.18	28.22	3.14	4.41	8.18
14 Aug 24	14:32	0.18	28.15	3.15	4.49	8.22
14 Aug 24	14:33	0.12	28.11	3.11	4.51	8.11
14 Aug 24	14:34	0.09	28.12	3.13	4.31	8.24
14 Aug 24	14:35	0.09	28.19	3.15	4.34	8.27
14 Aug 24	14:36	0.11	28.25	3.10	4.29	8.20
14 Aug 24	14:37	0.12	28.27	3.17	4.19	8.32
14 Aug 24	14:38	0.11	28.28	3.10	4.31	8.31
14 Aug 24	14:39	0.07	28.28	3.17	4.19	8.43
14 Aug 24	14:40	0.10	28.32	3.13	4.35	8.36
14 Aug 24	14:41	0.11	28.30	3.18	4.37	8.17
Max		0.21	28.33	3.19	4.55	8.43
Avg		0.13	28.22	3.14	4.34	8.27

CEMs Data

Client Name: PTT Global Chemical PCL.　　Date: 15 Aug 24
Plant Name: I-4/1　　Location: F-130

Run No: 1　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	9:30	0.00	36.62	2.11	4.41	-
15 Aug 24	9:31	0.00	36.16	1.98	4.62	-
15 Aug 24	9:32	0.00	34.74	1.82	4.82	-
15 Aug 24	9:33	0.00	35.63	2.00	4.66	-
15 Aug 24	9:34	0.00	36.84	2.24	4.62	-
15 Aug 24	9:35	0.00	35.90	2.04	4.58	-
15 Aug 24	9:36	0.00	35.53	1.98	4.62	-
15 Aug 24	9:37	0.00	35.60	1.88	4.75	-
15 Aug 24	9:38	0.00	35.66	1.97	4.63	-
15 Aug 24	9:39	0.00	36.03	1.95	4.45	-
15 Aug 24	9:40	0.00	36.54	2.04	4.27	-
15 Aug 24	9:41	0.00	35.90	1.85	4.48	-
15 Aug 24	9:42	0.00	34.88	1.75	4.81	-
15 Aug 24	9:43	0.00	35.53	1.80	4.66	-
15 Aug 24	9:44	0.00	35.22	1.91	4.52	-
15 Aug 24	9:45	0.00	35.46	2.00	4.71	-
15 Aug 24	9:46	0.00	36.53	2.27	4.33	-
15 Aug 24	9:47	0.00	36.17	2.10	4.47	-
15 Aug 24	9:48	0.00	36.30	2.12	4.45	-
15 Aug 24	9:49	0.00	35.62	2.12	4.40	-
15 Aug 24	9:50	0.00	34.49	1.89	4.67	-
Max		0.00	36.84	2.27	4.82	-
Avg		0.00	35.80	1.99	4.57	-

Run No: 2　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	9:51	0.00	35.84	1.97	4.78	-
15 Aug 24	9:52	0.00	36.09	2.02	4.68	-
15 Aug 24	9:53	0.00	35.46	1.97	4.73	-
15 Aug 24	9:54	0.00	35.86	1.99	4.57	-
15 Aug 24	9:55	0.00	35.53	1.96	4.40	-
15 Aug 24	9:56	0.00	34.90	1.95	4.59	-
15 Aug 24	9:57	0.00	36.70	2.06	4.62	-
15 Aug 24	9:58	0.00	35.71	1.91	4.71	-
15 Aug 24	9:59	0.00	35.00	1.83	4.83	-
15 Aug 24	10:00	0.00	35.90	2.02	4.62	-
15 Aug 24	10:01	0.00	34.83	2.06	4.29	-
15 Aug 24	10:02	0.00	34.79	2.12	4.34	-
15 Aug 24	10:03	0.00	35.83	2.05	4.65	-
15 Aug 24	10:04	0.00	35.21	2.08	4.38	-
15 Aug 24	10:05	0.00	35.80	2.00	4.53	-
15 Aug 24	10:06	0.00	35.54	2.02	4.68	-
15 Aug 24	10:07	0.00	36.04	2.11	4.61	-
15 Aug 24	10:08	0.00	35.03	2.03	4.65	-
15 Aug 24	10:09	0.00	35.15	2.04	4.56	-
15 Aug 24	10:10	0.00	35.46	1.87	4.60	-
15 Aug 24	10:11	0.00	35.77	1.98	4.64	-
Max		0.00	36.70	2.12	4.83	-
Avg		0.00	35.55	2.00	4.60	-

Run No: 3　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	10:12	0.00	35.72	2.08	4.57	-
15 Aug 24	10:13	0.00	36.45	2.20	4.47	-
15 Aug 24	10:14	0.00	35.76	2.23	4.35	-
15 Aug 24	10:15	0.00	35.85	2.18	4.42	-
15 Aug 24	10:16	0.00	35.11	1.95	4.80	-
15 Aug 24	10:17	0.00	35.38	1.98	4.71	-
15 Aug 24	10:18	0.00	35.12	2.01	4.70	-
15 Aug 24	10:19	0.00	36.55	1.97	5.01	-
15 Aug 24	10:20	0.00	36.50	2.22	4.31	-
15 Aug 24	10:21	0.00	36.05	2.06	4.57	-
15 Aug 24	10:22	0.00	36.08	2.13	4.42	-
15 Aug 24	10:23	0.00	36.03	2.16	4.42	-
15 Aug 24	10:24	0.00	35.89	2.05	4.67	-
15 Aug 24	10:25	0.00	35.22	1.73	4.97	-
15 Aug 24	10:26	0.00	35.94	1.95	4.62	-
15 Aug 24	10:27	0.00	35.57	2.06	4.61	-
15 Aug 24	10:28	0.00	35.50	2.03	4.61	-
15 Aug 24	10:29	0.00	36.08	2.06	4.56	-
15 Aug 24	10:30	0.00	35.47	2.01	4.55	-
15 Aug 24	10:31	0.00	34.67	1.97	4.62	-
15 Aug 24	10:32	0.00	36.53	2.20	4.75	-
Max		0.00	36.55	2.23	5.01	-
Avg		0.00	35.79	2.06	4.60	-

Run No: 4　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	10:33	0.00	35.89	2.06	4.66	-
15 Aug 24	10:34	0.00	35.38	2.17	4.65	-
15 Aug 24	10:35	0.00	35.35	2.12	4.57	-
15 Aug 24	10:36	0.00	36.06	2.10	4.68	-
15 Aug 24	10:37	0.00	35.21	2.08	4.30	-
15 Aug 24	10:38	0.00	35.34	2.13	4.52	-
15 Aug 24	10:39	0.00	35.92	2.17	4.56	-
15 Aug 24	10:40	0.00	35.85	2.10	4.58	-
15 Aug 24	10:41	0.00	36.00	2.03	4.27	-
15 Aug 24	10:42	0.00	34.37	1.96	4.68	-
15 Aug 24	10:43	0.00	35.24	1.99	4.65	-
15 Aug 24	10:44	0.00	35.70	2.10	4.66	-
15 Aug 24	10:45	0.00	35.58	2.00	4.58	-
15 Aug 24	10:46	0.00	35.47	2.08	4.53	-
15 Aug 24	10:47	0.00	34.87	1.96	4.76	-
15 Aug 24	10:48	0.00	35.73	2.06	4.85	-
15 Aug 24	10:49	0.00	35.60	2.03	4.74	-
15 Aug 24	10:50	0.00	35.68	2.06	4.57	-
15 Aug 24	10:51	0.00	35.47	2.13	4.49	-
15 Aug 24	10:52	0.00	34.17	1.85	4.83	-
15 Aug 24	10:53	0.00	36.06	2.09	4.68	-
Max		0.00	36.06	2.17	4.85	-
Avg		0.00	35.47	2.06	4.61	-

Run No: 5　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	10:54	0.00	36.20	2.08	4.49	-
15 Aug 24	10:55	0.00	35.84	2.12	4.45	-
15 Aug 24	10:56	0.00	35.69	2.00	4.38	-
15 Aug 24	10:57	0.00	34.46	1.85	4.70	-
15 Aug 24	10:58	0.00	35.02	1.83	4.63	-
15 Aug 24	10:59	0.00	35.86	2.02	4.61	-
15 Aug 24	11:00	0.00	35.71	1.92	4.58	-
15 Aug 24	11:01	0.00	35.91	2.11	4.22	-
15 Aug 24	11:02	0.00	35.23	2.15	4.09	-
15 Aug 24	11:03	0.00	35.08	2.09	4.54	-
15 Aug 24	11:04	0.00	35.92	1.96	4.72	-
15 Aug 24	11:05	0.00	35.27	2.06	4.63	-
15 Aug 24	11:06	0.00	34.80	1.84	4.89	-
15 Aug 24	11:07	0.00	36.63	2.02	4.65	-
15 Aug 24	11:08	0.00	35.72	2.17	4.50	-
15 Aug 24	11:09	0.00	35.85	2.19	4.56	-
15 Aug 24	11:10	0.00	36.09	2.05	4.40	-
15 Aug 24	11:11	0.00	35.05	2.05	4.41	-
15 Aug 24	11:12	0.00	35.45	1.91	4.51	-
15 Aug 24	11:13	0.00	35.76	2.04	4.52	-
15 Aug 24	11:14	0.00	35.41	2.01	4.52	-
Max		0.00	36.63	2.19	4.89	-
Avg		0.00	35.57	2.02	4.52	-

Run No: 6　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	11:15	0.00	34.90	1.96	4.56	-
15 Aug 24	11:16	0.00	36.00	2.01	4.51	-
15 Aug 24	11:17	0.00	35.79	1.97	4.53	-
15 Aug 24	11:18	0.00	35.91	2.09	4.46	-
15 Aug 24	11:19	0.00	36.48	1.91	4.99	-
15 Aug 24	11:20	0.00	35.85	2.04	4.72	-
15 Aug 24	11:21	0.00	35.74	2.19	4.36	-
15 Aug 24	11:22	0.00	35.34	2.19	4.60	-
15 Aug 24	11:23	0.00	36.53	1.97	4.87	-
15 Aug 24	11:24	0.00	35.95	1.97	4.76	-
15 Aug 24	11:25	0.00	34.72	1.85	4.77	-
15 Aug 24	11:26	0.00	35.47	2.02	4.48	-
15 Aug 24	11:27	0.00	35.43	2.13	4.18	-
15 Aug 24	11:28	0.00	34.82	2.17	4.30	-
15 Aug 24	11:29	0.00	35.32	2.05	4.83	-
15 Aug 24	11:30	0.00	35.57	1.98	4.59	-
15 Aug 24	11:31	0.00	35.37	2.13	4.33	-
15 Aug 24	11:32	0.00	34.12	2.02	4.41	-
15 Aug 24	11:33	0.00	35.08	2.10	4.61	-
15 Aug 24	11:34	0.00	35.37	2.26	4.45	-
15 Aug 24	11:35	0.00	35.66	2.06	4.36	-
Max		0.00	36.53	2.26	4.99	-
Avg		0.00	35.50	2.05	4.55	-

CEMs Data

Client Name: PTT Global Chemical PCL.　　Date: 15 Aug 24
Plant Name: I-4/1　　Location: F-130

Run No: 7　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	11:36	0.00	33.98	1.84	4.80	-
15 Aug 24	11:37	0.00	34.78	1.95	4.63	-
15 Aug 24	11:38	0.00	34.69	2.04	4.47	-
15 Aug 24	11:39	0.00	35.43	2.13	4.49	-
15 Aug 24	11:40	0.00	36.01	1.83	4.94	-
15 Aug 24	11:41	0.00	36.16	2.04	4.60	-
15 Aug 24	11:42	0.00	35.07	2.00	4.59	-
15 Aug 24	11:43	0.00	35.14	1.97	4.61	-
15 Aug 24	11:44	0.00	36.29	1.97	4.70	-
15 Aug 24	11:45	0.00	35.53	2.21	4.52	-
15 Aug 24	11:46	0.00	35.17	2.23	4.32	-
15 Aug 24	11:47	0.00	35.06	2.14	4.43	-
15 Aug 24	11:48	0.00	35.60	2.21	4.38	-
15 Aug 24	11:49	0.00	34.43	2.13	4.38	-
15 Aug 24	11:50	0.00	34.92	2.07	4.69	-
15 Aug 24	11:51	0.00	35.15	2.08	4.53	-
15 Aug 24	11:52	0.00	34.96	2.15	4.13	-
15 Aug 24	11:53	0.00	34.13	2.12	4.24	-
15 Aug 24	11:54	0.00	35.34	2.07	4.52	-
15 Aug 24	11:55	0.00	35.04	2.05	4.46	-
15 Aug 24	11:56	0.00	34.83	2.01	4.40	-
Max		0.00	36.29	2.23	4.94	-
Avg		0.00	35.13	2.06	4.52	-

Run No: 8　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	11:57	0.00	33.98	1.97	4.55	-
15 Aug 24	11:58	0.00	34.69	2.16	4.63	-
15 Aug 24	11:59	0.00	35.47	2.24	4.44	-
15 Aug 24	12:00	0.00	35.39	2.20	4.45	-
15 Aug 24	12:01	0.00	34.83	1.83	5.03	-
15 Aug 24	12:02	0.00	35.46	1.98	4.70	-
15 Aug 24	12:03	0.00	35.24	2.09	4.59	-
15 Aug 24	12:04	0.00	35.29	2.17	4.51	-
15 Aug 24	12:05	0.00	36.23	2.12	4.86	-
15 Aug 24	12:06	0.00	36.24	2.29	4.50	-
15 Aug 24	12:07	0.00	35.85	2.18	4.45	-
15 Aug 24	12:08	0.00	35.83	2.17	4.45	-
15 Aug 24	12:09	0.00	35.83	2.17	4.45	-
15 Aug 24	12:10	0.00	35.83	2.17	4.45	-
15 Aug 24	12:11	0.00	34.83	2.30	4.42	-
15 Aug 24	12:12	0.00	35.30	2.15	4.50	-
15 Aug 24	12:13	0.00	35.12	2.24	4.27	-
15 Aug 24	12:14	0.00	33.97	2.23	4.33	-
15 Aug 24	12:15	0.00	34.32	2.06	4.72	-
15 Aug 24	12:16	0.00	34.94	2.13	4.60	-
15 Aug 24	12:17	0.00	34.88	2.14	4.39	-
Max		0.00	36.24	2.30	5.03	-
Avg		0.00	35.20	2.14	4.54	-

Run No: 9　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	12:18	0.00	34.42	2.09	4.54	-
15 Aug 24	12:19	0.00	35.27	2.13	4.46	-
15 Aug 24	12:20	0.00	35.33	2.14	4.46	-
15 Aug 24	12:21	0.00	35.33	2.14	4.46	-
15 Aug 24	12:22	0.00	35.33	2.14	4.46	-
15 Aug 24	12:23	0.00	35.33	2.14	4.46	-
15 Aug 24	12:24	0.00	35.24	2.33	4.45	-
15 Aug 24	12:25	0.00	34.91	2.29	4.37	-
15 Aug 24	12:26	0.00	34.80	1.94	5.05	-
15 Aug 24	12:27	0.00	34.93	2.11	4.70	-
15 Aug 24	12:28	0.00	34.37	2.10	4.56	-
15 Aug 24	12:29	0.00	35.07	2.17	4.54	-
15 Aug 24	12:30	0.00	36.67	2.23	4.65	-
15 Aug 24	12:31	0.00	36.77	2.23	4.65	-
15 Aug 24	12:32	0.00	36.77	2.23	4.65	-
15 Aug 24	12:33	0.00	36.77	2.23	4.65	-
15 Aug 24	12:34	0.00	36.77	2.23	4.65	-
15 Aug 24	12:35	0.00	35.56	2.42	4.08	-
15 Aug 24	12:36	0.00	34.65	2.40	4.26	-
15 Aug 24	12:37	0.00	35.66	2.38	4.39	-
15 Aug 24	12:38	0.00	34.71	2.26	4.38	-
Max		0.00	36.77	2.42	5.05	-
Avg		0.00	35.46	2.21	4.52	-

Run No: 10　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	12:39	0.00	33.20	1.97	4.58	-
15 Aug 24	12:40	0.00	33.36	1.94	4.87	-
15 Aug 24	12:41	0.00	34.39	2.24	4.67	-
15 Aug 24	12:42	0.00	34.26	2.27	4.61	-
15 Aug 24	12:43	0.00	34.24	2.27	4.61	-
15 Aug 24	12:44	0.00	34.24	2.27	4.61	-
15 Aug 24	12:45	0.00	34.24	2.27	4.61	-
15 Aug 24	12:46	0.00	34.11	2.20	4.77	-
15 Aug 24	12:47	0.00	33.54	2.09	4.78	-
15 Aug 24	12:48	0.00	34.59	2.13	4.75	-
15 Aug 24	12:49	0.00	34.86	2.33	4.26	-
15 Aug 24	12:50	0.00	34.88	2.27	4.47	-
15 Aug 24	12:51	0.00	34.76	1.99	5.12	-
15 Aug 24	12:52	0.00	35.33	2.07	4.84	-
15 Aug 24	12:53	0.00	34.51	2.34	4.65	-
15 Aug 24	12:54	0.00	34.60	2.22	4.49	-
15 Aug 24	12:55	0.00	36.12	2.19	4.90	-
15 Aug 24	12:56	0.00	36.25	2.38	4.47	-
15 Aug 24	12:57	0.00	34.87	2.27	4.52	-
15 Aug 24	12:58	0.00	34.31	2.25	4.55	-
15 Aug 24	12:59	0.00	35.14	2.45	4.42	-
Max		0.00	36.25	2.45	5.12	-
Avg		0.00	34.57	2.21	4.65	-

Run No: 11　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	13:00	0.00	35.05	2.50	4.40	-
15 Aug 24	13:01	0.00	34.26	2.45	4.28	-
15 Aug 24	13:02	0.00	34.46	2.42	4.50	-
15 Aug 24	13:03	0.00	35.09	2.47	4.07	-
15 Aug 24	13:04	0.00	34.56	1.95	5.09	-
15 Aug 24	13:05	0.00	34.52	1.92	5.16	-
15 Aug 24	13:06	0.00	34.52	1.92	5.16	-
15 Aug 24	13:07	0.00	34.52	1.92	5.16	-
15 Aug 24	13:08	0.00	33.28	2.17	4.31	-
15 Aug 24	13:09	0.00	34.75	2.21	4.61	-
15 Aug 24	13:10	0.00	34.72	2.28	4.52	-
15 Aug 24	13:11	0.00	34.74	2.30	4.58	-
15 Aug 24	13:12	0.00	33.01	2.10	4.69	-
15 Aug 24	13:13	0.00	34.17	2.12	4.77	-
15 Aug 24	13:14	0.00	34.64	2.29	4.39	-
15 Aug 24	13:15	0.00	35.10	2.41	4.63	-
15 Aug 24	13:16	0.00	34.11	2.04	5.08	-
15 Aug 24	13:17	0.00	34.68	2.18	4.77	-
15 Aug 24	13:18	0.00	34.21	2.07	4.66	-
15 Aug 24	13:19	0.00	34.51	2.23	4.67	-
15 Aug 24	13:20	0.00	35.29	2.01	4.99	-
Max		0.00	35.29	2.50	5.16	-
Avg		0.00	34.48	2.19	4.69	-

Run No: 12　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	13:21	0.00	35.50	2.30	4.71	-
15 Aug 24	13:22	0.00	34.41	2.24	4.63	-
15 Aug 24	13:23	0.00	34.26	2.18	4.80	-
15 Aug 24	13:24	0.00	35.20	2.35	4.91	-
15 Aug 24	13:25	0.00	35.10	2.32	4.62	-
15 Aug 24	13:26	0.00	33.75	2.34	4.42	-
15 Aug 24	13:27	0.00	34.75	2.36	4.54	-
15 Aug 24	13:28	0.00	34.87	2.20	4.43	-
15 Aug 24	13:29	0.00	33.53	2.26	4.36	-
15 Aug 24	13:30	0.00	33.78	2.16	4.69	-
15 Aug 24	13:31	0.00	34.35	2.10	4.71	-
15 Aug 24	13:32	0.00	34.48	2.20	4.30	-
15 Aug 24	13:33	0.00	33.74	2.25	4.34	-
15 Aug 24	13:34	0.00	34.55	2.25	4.54	-
15 Aug 24	13:35	0.00	34.85	2.25	4.61	-
15 Aug 24	13:36	0.00	33.95	2.27	4.46	-
15 Aug 24	13:37	0.00	32.61	2.20	4.54	-
15 Aug 24	13:38	0.00	33.69	2.21	4.63	-
15 Aug 24	13:39	0.00	34.93	2.31	4.43	-
15 Aug 24	13:40	0.00	34.48	2.36	4.38	-
15 Aug 24	13:41	0.00	33.22	1.91	4.92	-
Max		0.00	35.50	2.36	4.92	-
Avg		0.00	34.29	2.24	4.57	-

Reference Method Data

Client Name: PTT Global Chemical PCL.　　Date: 15 Aug 24
Plant Name: I-4/1　　Location: F-130

Run No: 1　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	9:30	0.09	34.49	3.66	4.39	8.14
15 Aug 24	9:31	0.23	34.66	3.64	4.45	8.28
15 Aug 24	9:32	0.07	34.68	3.58	4.68	8.11
15 Aug 24	9:33	0.09	34.50	3.59	4.56	8.13
15 Aug 24	9:34	0.09	34.42	3.60	4.58	8.13
15 Aug 24	9:35	0.08	34.43	3.58	4.57	8.03
15 Aug 24	9:36	0.04	34.26	3.56	4.55	8.09
15 Aug 24	9:37	0.04	34.26	3.58	4.62	8.07
15 Aug 24	9:38	0.11	34.34	3.63	4.50	8.16
15 Aug 24	9:39	0.10	34.43	3.59	4.51	8.14
15 Aug 24	9:40	0.09	34.48	3.59	4.36	8.13
15 Aug 24	9:41	0.23	34.68	3.60	4.44	8.28
15 Aug 24	9:42	0.07	34.73	3.59	4.66	8.12
15 Aug 24	9:43	0.05	34.51	3.55	4.58	8.09
15 Aug 24	9:44	0.06	34.29	3.58	4.58	8.06
15 Aug 24	9:45	0.13	34.17	3.54	4.64	7.98
15 Aug 24	9:46	0.18	34.32	3.60	4.33	8.22
15 Aug 24	9:47	0.35	34.74	3.63	4.34	8.40
15 Aug 24	9:48	0.31	35.13	3.59	4.36	8.35
15 Aug 24	9:49	0.19	35.00	3.57	4.44	8.24
15 Aug 24	9:50	0.18	34.70	3.54	4.74	7.93
Max		0.35	35.13	3.66	4.74	8.40
Avg		0.13	34.53	3.59	4.52	8.15

Run No: 2　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	9:51	0.04	34.50	3.57	4.55	8.08
15 Aug 24	9:52	0.05	34.51	3.62	4.56	8.10
15 Aug 24	9:53	0.06	34.70	3.56	4.64	8.06
15 Aug 24	9:54	0.09	34.72	3.58	4.56	8.03
15 Aug 24	9:55	0.06	34.69	3.58	4.48	8.11
15 Aug 24	9:56	0.06	34.77	3.62	4.59	8.10
15 Aug 24	9:57	0.23	34.99	3.61	4.41	8.28
15 Aug 24	9:58	0.16	34.92	3.58	4.59	8.21
15 Aug 24	9:59	0.05	34.77	3.58	4.70	8.06
15 Aug 24	10:00	0.08	34.45	3.55	4.58	8.04
15 Aug 24	10:01	0.06	34.40	3.57	4.50	8.08
15 Aug 24	10:02	0.07	34.44	3.52	4.52	8.05
15 Aug 24	10:03	0.16	34.80	3.55	4.52	8.21
15 Aug 24	10:04	0.13	34.81	3.53	4.44	8.18
15 Aug 24	10:05	0.18	34.77	3.53	4.47	8.22
15 Aug 24	10:06	0.11	34.73	3.53	4.56	8.16
15 Aug 24	10:07	0.11	34.80	3.57	4.52	8.16
15 Aug 24	10:08	0.26	34.63	3.46	4.67	7.85
15 Aug 24	10:09	0.13	34.65	3.55	4.54	7.98
15 Aug 24	10:10	0.07	34.76	3.55	4.55	8.04
15 Aug 24	10:11	0.07	34.84	3.57	4.54	8.04
Max		0.26	34.99	3.62	4.70	8.28
Avg		0.11	34.70	3.56	4.55	8.10

Run No: 3　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	10:12	0.07	34.97	3.51	4.46	8.12
15 Aug 24	10:13	0.15	35.14	3.51	4.45	8.19
15 Aug 24	10:14	0.09	35.15	3.56	4.40	8.14
15 Aug 24	10:15	0.28	35.29	3.54	4.36	8.33
15 Aug 24	10:16	0.10	35.19	3.55	4.67	8.15
15 Aug 24	10:17	0.10	34.81	3.52	4.61	8.02
15 Aug 24	10:18	0.07	34.50	3.54	4.61	8.05
15 Aug 24	10:19	0.11	34.69	3.55	4.60	8.15
15 Aug 24	10:20	0.10	34.87	3.54	4.34	8.14
15 Aug 24	10:21	0.21	35.11	3.56	4.46	8.26
15 Aug 24	10:22	0.16	35.18	3.52	4.42	8.21
15 Aug 24	10:23	0.19	35.17	3.51	4.41	8.24
15 Aug 24	10:24	0.14	35.27	3.54	4.50	8.19
15 Aug 24	10:25	0.08	35.19	3.51	4.73	8.03
15 Aug 24	10:26	0.16	34.81	3.52	4.55	7.93
15 Aug 24	10:27	0.07	34.76	3.54	4.54	8.05
15 Aug 24	10:28	0.12	34.87	3.55	4.59	7.99
15 Aug 24	10:29	0.08	34.88	3.53	4.50	8.03
15 Aug 24	10:30	0.04	34.94	3.53	4.49	8.09
15 Aug 24	10:31	0.14	35.00	3.54	4.53	8.18
15 Aug 24	10:32	0.24	35.04	3.56	4.43	8.29
Max		0.28	35.29	3.56	4.73	8.33
Avg		0.13	34.99	3.54	4.51	8.13

Run No: 4　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	10:33	0.17	35.06	3.54	4.53	8.21
15 Aug 24	10:34	0.07	35.07	3.54	4.55	8.11
15 Aug 24	10:35	0.04	34.72	3.45	4.54	8.08
15 Aug 24	10:36	0.07	34.71	3.54	4.58	8.12
15 Aug 24	10:37	0.15	34.83	3.48	4.49	7.97
15 Aug 24	10:38	0.07	34.69	3.51	4.49	8.12
15 Aug 24	10:39	0.16	34.98	3.53	4.45	8.21
15 Aug 24	10:40	0.16	35.16	3.53	4.49	8.20
15 Aug 24	10:41	0.12	35.16	3.51	4.36	8.16
15 Aug 24	10:42	0.23	34.86	3.47	4.71	7.89
15 Aug 24	10:43	0.17	34.63	3.48	4.61	7.94
15 Aug 24	10:44	0.14	34.52	3.49	4.57	7.98
15 Aug 24	10:45	0.10	34.83	3.46	4.52	8.02
15 Aug 24	10:46	0.05	34.95	3.47	4.43	8.10
15 Aug 24	10:47	0.07	35.03	3.50	4.62	8.11
15 Aug 24	10:48	0.14	35.01	3.48	4.52	8.18
15 Aug 24	10:49	0.09	34.88	3.48	4.55	8.14
15 Aug 24	10:50	0.04	34.93	3.45	4.51	8.07
15 Aug 24	10:51	0.11	35.04	3.45	4.39	8.16
15 Aug 24	10:52	0.05	35.08	3.46	4.71	8.07
15 Aug 24	10:53	0.07	35.05	3.46	4.51	8.12
Max		0.23	35.16	3.54	4.71	8.21
Avg		0.11	34.90	3.49	4.53	8.09

Run No: 5　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	10:54	0.09	34.97	3.49	4.45	8.13
15 Aug 24	10:55	0.17	35.21	3.51	4.43	8.22
15 Aug 24	10:56	0.12	35.22	3.50	4.42	8.17
15 Aug 24	10:57	0.18	35.06	3.46	4.68	7.83
15 Aug 24	10:58	0.18	34.86	3.45	4.63	7.83
15 Aug 24	10:59	0.13	34.80	3.52	4.54	7.98
15 Aug 24	11:00	0.11	34.94	3.50	4.53	8.01
15 Aug 24	11:01	0.07	35.08	3.48	4.34	8.12
15 Aug 24	11:02	0.06	35.05	3.43	4.34	8.05
15 Aug 24	11:03	0.14	35.05	3.39	4.52	8.18
15 Aug 24	11:04	0.04	35.05	3.49	4.60	8.08
15 Aug 24	11:05	0.04	34.95	3.48	4.54	8.08
15 Aug 24	11:06	0.10	35.02	3.47	4.64	8.15
15 Aug 24	11:07	0.11	34.98	3.44	4.45	8.15
15 Aug 24	11:08	0.14	35.14	3.45	4.45	8.19
15 Aug 24	11:09	0.25	35.47	3.52	4.43	8.30
15 Aug 24	11:10	0.17	35.41	3.49	4.44	8.22
15 Aug 24	11:11	0.22	34.97	3.53	4.58	7.90
15 Aug 24	11:12	0.14	34.89	3.46	4.50	7.98
15 Aug 24	11:13	0.04	35.02	3.47	4.48	8.07
15 Aug 24	11:14	0.06	35.20	3.48	4.46	8.10
Max		0.25	35.47	3.53	4.68	8.30
Avg		0.12	35.06	3.48	4.50	8.09

Run No: 6　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	11:15	0.06	35.36	3.43	4.53	8.11
15 Aug 24	11:16	0.08	35.44	3.44	4.48	8.13
15 Aug 24	11:17	0.06	35.49	3.43	4.53	8.11
15 Aug 24	11:18	0.08	35.48	3.48	4.48	8.12
15 Aug 24	11:19	0.19	35.53	3.45	4.62	8.24
15 Aug 24	11:20	0.07	35.42	3.49	4.57	8.11
15 Aug 24	11:21	0.10	35.24	3.44	4.39	8.14
15 Aug 24	11:22	0.22	35.32	3.47	4.46	8.27
15 Aug 24	11:23	0.19	35.37	3.49	4.57	8.24
15 Aug 24	11:24	0.23	35.05	3.49	4.67	7.89
15 Aug 24	11:25	0.19	34.77	3.45	4.72	7.92
15 Aug 24	11:26	0.11	34.84	3.48	4.48	8.01
15 Aug 24	11:27	0.05	34.97	3.44	4.38	8.09
15 Aug 24	11:28	0.14	35.03	3.45	4.51	7.97
15 Aug 24	11:29	0.06	35.02	3.47	4.55	8.10
15 Aug 24	11:30	0.04	35.04	3.47	4.54	8.08
15 Aug 24	11:31	0.06	35.16	3.45	4.39	8.10
15 Aug 24	11:32	0.08	35.13	3.45	4.52	8.13
15 Aug 24	11:33	0.08	35.12	3.44	4.58	8.13
15 Aug 24	11:34	0.15	34.99	3.44	4.43	8.20
15 Aug 24	11:35	0.20	35.09	3.45	4.35	8.25
Max		0.23	35.53	3.49	4.72	8.27
Avg		0.12	35.18	3.46	4.51	8.11

Reference Method Data

Client Name: PTT Global Chemical PCL.　　Date: 15 Aug 24
Plant Name: I-4/1　　Location: F-130

Run No: 7　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	11:36	0.05	35.14	3.44	4.75	8.07
15 Aug 24	11:37	0.17	34.99	3.48	4.62	7.94
15 Aug 24	11:38	0.17	34.65	3.49	4.56	7.94
15 Aug 24	11:39	0.07	34.79	3.39	4.50	8.05
15 Aug 24	11:40	0.14	35.07	3.47	4.62	8.18
15 Aug 24	11:41	0.07	35.35	3.38	4.43	8.12
15 Aug 24	11:42	0.08	35.30	3.46	4.58	8.12
15 Aug 24	11:43	0.05	35.11	3.46	4.53	8.10
15 Aug 24	11:44	0.12	34.96	3.43	4.51	8.17
15 Aug 24	11:45	0.06	34.80	3.45	4.48	8.06
15 Aug 24	11:46	0.07	34.72	3.42	4.43	8.11
15 Aug 24	11:47	0.25	34.83	3.47	4.43	8.30
15 Aug 24	11:48	0.19	34.94	3.43	4.45	8.24
15 Aug 24	11:49	0.24	34.79	3.44	4.60	7.87
15 Aug 24	11:50	0.19	34.62	3.42	4.62	7.93
15 Aug 24	11:51	0.13	34.60	3.44	4.55	7.98
15 Aug 24	11:52	0.07	34.72	3.45	4.34	8.05
15 Aug 24	11:53	0.06	34.95	3.44	4.46	8.05
15 Aug 24	11:54	0.06	34.99	3.47	4.50	8.10
15 Aug 24	11:55	0.10	34.81	3.48	4.54	8.02
15 Aug 24	11:56	0.06	34.82	3.44	4.41	8.06
Max		0.25	35.35	3.49	4.75	8.30
Avg		0.11	34.90	3.45	4.52	8.07

Run No: 8　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	11:57	0.06	34.85	3.42	4.59	8.10
15 Aug 24	11:58	0.09	34.87	3.46	4.59	8.14
15 Aug 24	11:59	0.16	34.79	3.50	4.41	8.20
15 Aug 24	12:00	0.20	34.98	3.48	4.38	8.25
15 Aug 24	12:01	0.15	35.03	3.48	4.72	8.20
15 Aug 24	12:02	0.20	34.85	3.47	4.59	7.91
15 Aug 24	12:03	0.18	34.80	3.45	4.60	7.93
15 Aug 24	12:04	0.06	34.79	3.46	4.50	8.06
15 Aug 24	12:05	0.12	35.09	3.48	4.57	8.17
15 Aug 24	12:06	0.04	35.15	3.49	4.41	8.07
15 Aug 24	12:07	0.06	35.13	3.51	4.52	8.11
15 Aug 24	12:08	0.05	35.05	3.47	4.49	8.06
15 Aug 24	12:09	0.07	34.89	3.45	4.44	8.12
15 Aug 24	12:10	0.04	34.84	3.47	4.44	8.08
15 Aug 24	12:11	0.08	34.82	3.46	4.47	8.13
15 Aug 24	12:12	0.21	34.90	3.51	4.42	8.26
15 Aug 24	12:13	0.20	34.96	3.45	4.38	8.25
15 Aug 24	12:14	0.22	34.71	3.43	4.61	7.90
15 Aug 24	12:15	0.15	34.56	3.48	4.67	7.96
15 Aug 24	12:16	0.17	34.50	3.46	4.55	7.94
15 Aug 24	12:17	0.10	34.66	3.45	4.41	8.02
Max		0.22	35.15	3.51	4.72	8.26
Avg		0.13	34.86	3.47	4.51	8.09

Run No: 9　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	12:18	0.07	34.94	3.46	4.54	8.12
15 Aug 24	12:19	0.07	35.21	3.45	4.47	8.11
15 Aug 24	12:20	0.05	35.05	3.49	4.51	8.09
15 Aug 24	12:21	0.05	34.94	3.46	4.52	8.09
15 Aug 24	12:22	0.10	34.85	3.47	4.62	8.15
15 Aug 24	12:23	0.08	34.79	3.46	4.54	8.13
15 Aug 24	12:24	0.15	34.77	3.50	4.43	8.19
15 Aug 24	12:25	0.26	34.90	3.48	4.35	8.31
15 Aug 24	12:26	0.17	35.02	3.48	4.72	8.22
15 Aug 24	12:27	0.18	34.80	3.46	4.60	7.93
15 Aug 24	12:28	0.18	34.40	3.48	4.63	7.93
15 Aug 24	12:29	0.11	34.41	3.43	4.52	8.00
15 Aug 24	12:30	0.14	34.74	3.49	4.46	8.19
15 Aug 24	12:31	0.09	34.97	3.50	4.44	8.03
15 Aug 24	12:32	0.06	35.08	3.52	4.54	8.11
15 Aug 24	12:33	0.04	35.06	3.51	4.52	8.07
15 Aug 24	12:34	0.07	34.98	3.50	4.39	8.11
15 Aug 24	12:35	0.06	34.92	3.48	4.33	8.11
15 Aug 24	12:36	0.13	34.89	3.50	4.41	8.18
15 Aug 24	12:37	0.24	35.13	3.50	4.41	8.28
15 Aug 24	12:38	0.17	35.11	3.46	4.50	8.22
Max		0.26	35.21	3.52	4.72	8.31
Avg		0.12	34.91	3.48	4.50	8.12

Run No: 10　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	12:39	0.31	34.63	3.50	4.79	7.80
15 Aug 24	12:40	0.29	34.13	3.47	4.89	7.82
15 Aug 24	12:41	0.23	33.91	3.50	4.66	7.89
15 Aug 24	12:42	0.10	34.10	3.49	4.59	8.01
15 Aug 24	12:43	0.13	34.28	3.46	4.68	7.99
15 Aug 24	12:44	0.05	34.35	3.49	4.62	8.10
15 Aug 24	12:45	0.05	34.34	3.53	4.54	8.07
15 Aug 24	12:46	0.08	34.47	3.50	4.69	8.06
15 Aug 24	12:47	0.04	34.48	3.50	4.68	8.09
15 Aug 24	12:48	0.15	34.43	3.51	4.56	8.20
15 Aug 24	12:49	0.19	34.54	3.46	4.35	8.24
15 Aug 24	12:50	0.30	34.77	3.50	4.41	8.35
15 Aug 24	12:51	0.15	35.00	3.46	4.74	8.20
15 Aug 24	12:52	0.16	34.71	3.50	4.63	7.95
15 Aug 24	12:53	0.18	34.41	3.47	4.66	7.93
15 Aug 24	12:54	0.04	34.51	3.51	4.47	8.09
15 Aug 24	12:55	0.16	34.67	3.50	4.57	8.20
15 Aug 24	12:56	0.09	34.82	3.49	4.37	8.14
15 Aug 24	12:57	0.06	34.84	3.47	4.51	8.11
15 Aug 24	12:58	0.07	34.83	3.47	4.48	8.11
15 Aug 24	12:59	0.15	34.72	3.44	4.47	8.19
Max		0.31	35.00	3.53	4.89	8.35
Avg		0.14	34.52	3.49	4.59	8.07

Run No: 11　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	13:00	0.05	34.55	3.47	4.47	8.09
15 Aug 24	13:01	0.13	34.51	3.49	4.42	8.17
15 Aug 24	13:02	0.28	34.57	3.47	4.41	8.33
15 Aug 24	13:03	0.25	34.67	3.50	4.29	8.30
15 Aug 24	13:04	0.18	34.60	3.44	4.63	7.93
15 Aug 24	13:05	0.16	34.36	3.50	4.65	7.96
15 Aug 24	13:06	0.14	34.19	3.47	4.60	7.98
15 Aug 24	13:07	0.10	34.26	3.50	4.42	8.01
15 Aug 24	13:08	0.15	34.35	3.53	4.55	7.96
15 Aug 24	13:09	0.05	34.44	3.51	4.55	8.09
15 Aug 24	13:10	0.04	34.50	3.48	4.54	8.07
15 Aug 24	13:11	0.04	34.53	3.52	4.54	8.09
15 Aug 24	13:12	0.04	34.37	3.51	4.72	8.08
15 Aug 24	13:13	0.10	34.43	3.50	4.65	8.14
15 Aug 24	13:14	0.12	34.41	3.54	4.45	8.16
15 Aug 24	13:15	0.20	34.71	3.49	4.58	8.24
15 Aug 24	13:16	0.06	34.72	3.49	4.83	8.11
15 Aug 24	13:17	0.19	34.23	3.50	4.75	7.93
15 Aug 24	13:18	0.19	33.92	3.46	4.68	7.92
15 Aug 24	13:19	0.11	34.20	3.51	4.65	8.00
15 Aug 24	13:20	0.09	34.53	3.48	4.69	8.13
Max		0.28	34.72	3.54	4.83	8.33
Avg		0.13	34.43	3.49	4.57	8.08

Run No: 12　　Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
15 Aug 24	13:21	0.05	34.57	3.48	4.58	8.07
15 Aug 24	13:22	0.09	34.48	3.50	4.66	8.02
15 Aug 24	13:23	0.09	34.28	3.46	4.73	8.02
15 Aug 24	13:24	0.04	34.15	3.50	4.68	8.08
15 Aug 24	13:25	0.07	34.14	3.42	4.55	8.12
15 Aug 24	13:26	0.04	34.08	3.56	4.56	8.08
15 Aug 24	13:27	0.26	34.22	3.53	4.50	8.31
15 Aug 24	13:28	0.22	34.33	3.51	4.55	8.26
15 Aug 24	13:29	0.25	34.15	3.52	4.67	7.86
15 Aug 24	13:30	0.18	33.92	3.52	4.68	7.94
15 Aug 24	13:31	0.13	33.82	3.46	4.62	7.98
15 Aug 24	13:32	0.07	34.13	3.52	4.47	8.05
15 Aug 24	13:33	0.15	34.33	3.52	4.60	7.96
15 Aug 24	13:34	0.08	34.44	3.51	4.58	8.13
15 Aug 24	13:35	0.04	34.46	3.53	4.59	8.07
15 Aug 24	13:36	0.05	34.50	3.56	4.54	8.06
15 Aug 24	13:37	0.08	34.39	3.57	4.66	8.03
15 Aug 24	13:38	0.07	34.32	3.50	4.62	8.12
15 Aug 24	13:39	0.21	34.34	3.53	4.45	8.26
15 Aug 24	13:40	0.27	34.64	3.52	4.39	8.32
15 Aug 24	13:41	0.08	34.72	3.49	4.83	8.03
Max		0.27	34.72	3.57	4.83	8.32
Avg		0.12	34.31	3.51	4.59	8.08

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 14 Aug 24
Location: F-140

Run No: 1 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	10:50	0.13	60.07	0.02	4.77	-
14 Aug 24	10:51	0.13	60.14	0.02	4.63	-
14 Aug 24	10:52	0.13	59.22	0.02	4.58	-
14 Aug 24	10:53	0.13	58.76	0.02	4.67	-
14 Aug 24	10:54	0.13	58.19	0.02	4.47	-
14 Aug 24	10:55	0.13	59.98	0.02	4.45	-
14 Aug 24	10:56	0.13	59.60	0.04	4.31	-
14 Aug 24	10:57	0.13	59.78	0.02	4.49	-
14 Aug 24	10:58	0.14	59.30	0.02	4.81	-
14 Aug 24	10:59	0.13	60.18	0.02	4.69	-
14 Aug 24	11:00	0.14	59.89	0.04	4.64	-
14 Aug 24	11:01	0.14	59.79	0.04	4.49	-
14 Aug 24	11:02	0.14	60.10	0.04	4.45	-
14 Aug 24	11:03	0.14	59.55	0.04	4.57	-
14 Aug 24	11:04	0.14	59.82	0.04	4.35	-
14 Aug 24	11:05	0.14	59.76	0.04	4.42	-
14 Aug 24	11:06	0.14	60.54	0.04	4.35	-
14 Aug 24	11:07	0.14	61.06	0.04	4.54	-
14 Aug 24	11:08	0.15	60.86	0.04	4.81	-
14 Aug 24	11:09	0.14	60.35	0.04	4.70	-
14 Aug 24	11:10	0.15	61.39	0.04	4.74	-
Max		0.15	61.39	0.04	4.81	-
Avg		0.14	59.91	0.03	4.57	-

Run No: 2 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	11:11	0.15	61.23	0.04	4.61	-
14 Aug 24	11:12	0.15	60.73	0.04	4.53	-
14 Aug 24	11:13	0.15	59.48	0.02	4.61	-
14 Aug 24	11:14	0.15	60.23	0.04	4.42	-
14 Aug 24	11:15	0.15	61.00	0.04	4.44	-
14 Aug 24	11:16	0.16	61.21	0.04	4.24	-
14 Aug 24	11:17	0.15	61.90	0.04	4.36	-
14 Aug 24	11:18	0.15	62.06	0.04	4.69	-
14 Aug 24	11:19	0.15	61.93	0.04	4.68	-
14 Aug 24	11:20	0.15	62.76	0.04	4.76	-
14 Aug 24	11:21	0.15	62.18	0.04	4.63	-
14 Aug 24	11:22	0.16	61.52	0.04	4.59	-
14 Aug 24	11:23	0.15	61.46	0.04	4.59	-
14 Aug 24	11:24	0.15	61.11	0.04	4.37	-
14 Aug 24	11:25	0.15	60.60	0.04	4.35	-
14 Aug 24	11:26	0.16	61.81	0.04	4.22	-
14 Aug 24	11:27	0.15	61.24	0.04	4.36	-
14 Aug 24	11:28	0.16	61.92	0.05	4.70	-
14 Aug 24	11:29	0.16	63.34	0.04	4.73	-
14 Aug 24	11:30	0.16	62.93	0.04	4.80	-
14 Aug 24	11:31	0.16	64.33	0.04	4.68	-
Max		0.16	64.33	0.05	4.80	-
Avg		0.15	61.66	0.04	4.54	-

Run No: 3 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	11:32	0.16	62.02	0.05	4.61	-
14 Aug 24	11:33	0.16	62.25	0.06	4.62	-
14 Aug 24	11:34	0.16	60.96	0.04	4.39	-
14 Aug 24	11:35	0.16	62.71	0.04	4.33	-
14 Aug 24	11:36	0.16	62.01	0.05	4.24	-
14 Aug 24	11:37	0.16	61.59	0.06	4.32	-
14 Aug 24	11:38	0.16	61.79	0.06	4.65	-
14 Aug 24	11:39	0.16	61.91	0.04	4.56	-
14 Aug 24	11:40	0.16	61.89	0.05	4.68	-
14 Aug 24	11:41	0.16	61.81	0.06	4.61	-
14 Aug 24	11:42	0.16	61.69	0.06	4.62	-
14 Aug 24	11:43	0.16	61.23	0.06	4.61	-
14 Aug 24	11:44	0.16	61.03	0.06	4.42	-
14 Aug 24	11:45	0.16	61.14	0.06	4.43	-
14 Aug 24	11:46	0.16	62.05	0.06	4.35	-
14 Aug 24	11:47	0.16	62.28	0.06	4.48	-
14 Aug 24	11:48	0.16	62.43	0.06	4.80	-
14 Aug 24	11:49	0.16	61.56	0.06	4.71	-
14 Aug 24	11:50	0.16	62.51	0.06	4.75	-
14 Aug 24	11:51	0.17	62.60	0.04	4.65	-
14 Aug 24	11:52	0.16	62.10	0.05	4.58	-
Max		0.17	62.71	0.06	4.80	-
Avg		0.16	61.88	0.05	4.54	-

Run No: 4 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	11:53	0.16	61.26	0.06	4.59	-
14 Aug 24	11:54	0.16	60.44	0.06	4.44	-
14 Aug 24	11:55	0.17	60.91	0.06	4.41	-
14 Aug 24	11:56	0.17	62.01	0.06	4.33	-
14 Aug 24	11:57	0.17	62.15	0.06	4.44	-
14 Aug 24	11:58	0.17	62.42	0.06	4.73	-
14 Aug 24	11:59	0.17	62.08	0.06	4.64	-
14 Aug 24	12:00	0.16	62.14	0.06	4.68	-
14 Aug 24	12:01	0.16	61.64	0.06	4.59	-
14 Aug 24	12:02	0.16	61.60	0.06	4.56	-
14 Aug 24	12:03	0.16	61.76	0.06	4.66	-
14 Aug 24	12:04	0.15	61.69	0.06	4.49	-
14 Aug 24	12:05	0.16	60.57	0.06	4.42	-
14 Aug 24	12:06	0.16	61.34	0.07	4.27	-
14 Aug 24	12:07	0.16	61.61	0.06	4.39	-
14 Aug 24	12:08	0.17	61.64	0.07	4.66	-
14 Aug 24	12:09	0.17	61.40	0.07	4.64	-
14 Aug 24	12:10	0.16	61.38	0.07	4.69	-
14 Aug 24	12:11	0.17	62.73	0.06	4.66	-
14 Aug 24	12:12	0.17	61.86	0.06	4.59	-
14 Aug 24	12:13	0.16	60.94	0.06	4.61	-
Max		0.17	62.73	0.07	4.73	-
Avg		0.16	61.60	0.06	4.55	-

Run No: 5 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	12:14	0.17	60.95	0.07	4.42	-
14 Aug 24	12:15	0.17	60.96	0.07	4.46	-
14 Aug 24	12:16	0.17	62.11	0.06	4.34	-
14 Aug 24	12:17	0.17	60.84	0.07	4.40	-
14 Aug 24	12:18	0.17	60.50	0.07	4.64	-
14 Aug 24	12:19	0.17	61.95	0.07	4.59	-
14 Aug 24	12:20	0.17	62.17	0.06	4.69	-
14 Aug 24	12:21	0.17	61.76	0.07	4.61	-
14 Aug 24	12:22	0.17	61.94	0.07	4.49	-
14 Aug 24	12:23	0.17	60.78	0.07	4.54	-
14 Aug 24	12:24	0.17	61.13	0.07	4.37	-
14 Aug 24	12:25	0.17	59.71	0.07	4.41	-
14 Aug 24	12:26	0.17	59.48	0.07	4.30	-
14 Aug 24	12:27	0.17	60.52	0.07	4.37	-
14 Aug 24	12:28	0.17	61.53	0.07	4.66	-
14 Aug 24	12:29	0.17	61.68	0.07	4.62	-
14 Aug 24	12:30	0.17	61.82	0.07	4.65	-
14 Aug 24	12:31	0.17	62.99	0.07	4.59	-
14 Aug 24	12:32	0.17	61.77	0.06	4.51	-
14 Aug 24	12:33	0.17	61.56	0.07	4.55	-
14 Aug 24	12:34	0.17	61.03	0.07	4.40	-
Max		0.17	62.99	0.07	4.69	-
Avg		0.17	61.29	0.07	4.51	-

Run No: 6 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	12:35	0.17	61.75	0.06	4.45	-
14 Aug 24	12:36	0.17	62.21	0.07	4.37	-
14 Aug 24	12:37	0.17	62.15	0.06	4.36	-
14 Aug 24	12:38	0.16	61.59	0.07	4.60	-
14 Aug 24	12:39	0.17	61.79	0.07	4.59	-
14 Aug 24	12:40	0.17	61.69	0.06	4.72	-
14 Aug 24	12:41	0.16	62.22	0.06	4.74	-
14 Aug 24	12:42	0.17	61.44	0.06	4.63	-
14 Aug 24	12:43	0.16	60.77	0.07	4.59	-
14 Aug 24	12:44	0.16	61.46	0.06	4.43	-
14 Aug 24	12:45	0.16	61.65	0.06	4.41	-
14 Aug 24	12:46	0.16	61.49	0.07	4.33	-
14 Aug 24	12:47	0.17	60.98	0.06	4.31	-
14 Aug 24	12:48	0.16	61.06	0.06	4.57	-
14 Aug 24	12:49	0.16	61.72	0.06	4.53	-
14 Aug 24	12:50	0.16	61.39	0.06	4.66	-
14 Aug 24	12:51	0.16	62.82	0.06	4.72	-
14 Aug 24	12:52	0.17	62.33	0.06	4.58	-
14 Aug 24	12:53	0.17	60.53	0.07	4.47	-
14 Aug 24	12:54	0.17	59.32	0.06	4.29	-
14 Aug 24	12:55	0.17	61.25	0.07	4.36	-
Max		0.17	62.82	0.07	4.74	-
Avg		0.16	61.51	0.06	4.51	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 14 Aug 24
Location: F-140

Run No: 7 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	12:56	0.17	61.70	0.06	4.43	-
14 Aug 24	12:57	0.16	62.05	0.07	4.46	-
14 Aug 24	12:58	0.17	61.86	0.06	4.70	-
14 Aug 24	12:59	0.16	61.28	0.07	4.63	-
14 Aug 24	13:00	0.16	60.73	0.07	4.71	-
14 Aug 24	13:01	0.16	61.65	0.06	4.59	-
14 Aug 24	13:02	0.16	60.38	0.07	4.49	-
14 Aug 24	13:03	0.17	60.97	0.06	4.58	-
14 Aug 24	13:04	0.16	60.48	0.06	4.52	-
14 Aug 24	13:05	0.16	61.19	0.06	4.54	-
14 Aug 24	13:06	0.16	60.82	0.06	4.48	-
14 Aug 24	13:07	0.16	59.98	0.06	4.34	-
14 Aug 24	13:08	0.16	59.96	0.06	4.50	-
14 Aug 24	13:09	0.17	60.34	0.06	4.44	-
14 Aug 24	13:10	0.17	61.78	0.06	4.61	-
14 Aug 24	13:11	0.17	62.83	0.06	4.67	-
14 Aug 24	13:12	0.17	62.07	0.06	4.57	-
14 Aug 24	13:13	0.17	60.62	0.06	4.54	-
14 Aug 24	13:14	0.17	60.63	0.06	4.39	-
14 Aug 24	13:15	0.16	60.61	0.06	4.40	-
14 Aug 24	13:16	0.17	61.56	0.06	4.49	-
Max		0.17	62.83	0.07	4.71	-
Avg		0.16	61.12	0.06	4.53	-

Run No: 8 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	13:17	0.17	61.17	0.06	4.46	-
14 Aug 24	13:18	0.16	60.26	0.06	4.64	-
14 Aug 24	13:19	0.17	61.08	0.06	4.53	-
14 Aug 24	13:20	0.17	60.35	0.06	4.61	-
14 Aug 24	13:21	0.17	60.95	0.06	4.66	-
14 Aug 24	13:22	0.16	61.11	0.06	4.54	-
14 Aug 24	13:23	0.17	60.87	0.06	4.48	-
14 Aug 24	13:24	0.17	60.59	0.06	4.37	-
14 Aug 24	13:25	0.16	60.86	0.06	4.39	-
14 Aug 24	13:26	0.16	61.79	0.06	4.42	-
14 Aug 24	13:27	0.17	61.63	0.06	4.41	-
14 Aug 24	13:28	0.16	61.38	0.06	4.64	-
14 Aug 24	13:29	0.16	61.81	0.06	4.58	-
14 Aug 24	13:30	0.16	60.98	0.06	4.64	-
14 Aug 24	13:31	0.16	61.95	0.06	4.56	-
14 Aug 24	13:32	0.16	60.98	0.06	4.38	-
14 Aug 24	13:33	0.16	60.39	0.06	4.40	-
14 Aug 24	13:34	0.16	60.35	0.04	4.33	-
14 Aug 24	13:35	0.16	60.79	0.04	4.39	-
14 Aug 24	13:36	0.16	62.58	0.05	4.43	-
14 Aug 24	13:37	0.16	61.53	0.06	4.37	-
Max		0.17	62.58	0.06	4.66	-
Avg		0.16	61.11	0.05	4.49	-

Run No: 9 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	13:38	0.16	61.78	0.06	4.55	-
14 Aug 24	13:39	0.16	62.51	0.04	4.57	-
14 Aug 24	13:40	0.16	61.92	0.04	4.68	-
14 Aug 24	13:41	0.16	62.91	0.04	4.78	-
14 Aug 24	13:42	0.16	62.80	0.04	4.81	-
14 Aug 24	13:43	0.16	60.31	0.04	4.49	-
14 Aug 24	13:44	0.16	61.73	0.04	4.32	-
14 Aug 24	13:45	0.16	61.37	0.04	4.41	-
14 Aug 24	13:46	0.16	62.16	0.04	4.42	-
14 Aug 24	13:47	0.16	60.98	0.04	4.26	-
14 Aug 24	13:48	0.16	61.43	0.04	4.42	-
14 Aug 24	13:49	0.16	61.79	0.04	4.47	-
14 Aug 24	13:50	0.15	62.62	0.04	4.67	-
14 Aug 24	13:51	0.16	63.21	0.02	4.80	-
14 Aug 24	13:52	0.15	62.26	0.04	4.56	-
14 Aug 24	13:53	0.16	61.30	0.02	4.46	-
14 Aug 24	13:54	0.16	60.59	0.04	4.29	-
14 Aug 24	13:55	0.15	60.70	0.02	4.32	-
14 Aug 24	13:56	0.16	62.23	0.02	4.40	-
14 Aug 24	13:57	0.15	62.26	0.02	4.42	-
14 Aug 24	13:58	0.15	61.69	0.02	4.61	-
Max		0.16	63.21	0.06	4.80	-
Avg		0.16	61.84	0.03	4.50	-

Run No: 10 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	13:59	0.15	62.54	0.04	4.59	-
14 Aug 24	14:00	0.15	60.85	0.02	4.60	-
14 Aug 24	14:01	0.15	62.52	0.04	4.70	-
14 Aug 24	14:02	0.15	62.28	0.02	4.48	-
14 Aug 24	14:03	0.15	61.62	0.02	4.37	-
14 Aug 24	14:04	0.15	61.41	0.02	4.23	-
14 Aug 24	14:05	0.15	60.75	0.02	4.26	-
14 Aug 24	14:06	0.15	62.27	0.02	4.36	-
14 Aug 24	14:07	0.15	61.30	0.02	4.29	-
14 Aug 24	14:08	0.15	61.11	0.02	4.49	-
14 Aug 24	14:09	0.15	61.77	0.02	4.46	-
14 Aug 24	14:10	0.15	62.74	0.02	4.60	-
14 Aug 24	14:11	0.15	62.98	0.02	4.71	-
14 Aug 24	14:12	0.15	61.83	0.02	4.57	-
14 Aug 24	14:13	0.15	60.07	0.02	4.41	-
14 Aug 24	14:14	0.15	60.56	0.02	4.27	-
14 Aug 24	14:15	0.15	61.55	0.00	4.32	-
14 Aug 24	14:16	0.15	61.62	0.02	4.41	-
14 Aug 24	14:17	0.15	61.83	0.02	4.31	-
14 Aug 24	14:18	0.15	61.40	0.02	4.44	-
14 Aug 24	14:19	0.15	62.66	0.02	4.43	-
Max		0.15	62.98	0.04	4.71	-
Avg		0.15	61.70	0.02	4.44	-

Run No: 11 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	14:20	0.15	62.83	0.02	4.59	-
14 Aug 24	14:21	0.15	63.24	0.02	4.74	-
14 Aug 24	14:22	0.15	61.88	0.02	4.53	-
14 Aug 24	14:23	0.15	62.00	0.02	4.42	-
14 Aug 24	14:24	0.15	61.77	0.02	4.29	-
14 Aug 24	14:25	0.15	61.87	0.02	4.36	-
14 Aug 24	14:26	0.15	62.35	0.02	4.46	-
14 Aug 24	14:27	0.15	62.21	0.02	4.32	-
14 Aug 24	14:28	0.15	62.49	0.02	4.54	-
14 Aug 24	14:29	0.15	63.10	0.02	4.53	-
14 Aug 24	14:30	0.15	62.58	0.02	4.71	-
14 Aug 24	14:31	0.15	63.05	0.02	4.77	-
14 Aug 24	14:32	0.15	62.30	0.02	4.56	-
14 Aug 24	14:33	0.15	62.39	0.02	4.49	-
14 Aug 24	14:34	0.15	62.20	0.02	4.30	-
14 Aug 24	14:35	0.15	60.67	0.02	4.27	-
14 Aug 24	14:36	0.15	62.49	0.02	4.39	-
14 Aug 24	14:37	0.15	61.78	0.02	4.28	-
14 Aug 24	14:38	0.15	62.45	0.02	4.50	-
14 Aug 24	14:39	0.15	62.26	0.02	4.48	-
14 Aug 24	14:40	0.15	62.78	0.02	4.66	-
Max		0.15	63.24	0.02	4.77	-
Avg		0.15	62.31	0.02	4.49	-

Run No: 12 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	14:41	0.15	62.30	0.02	4.78	-
14 Aug 24	14:42	0.15	61.81	0.02	4.57	-
14 Aug 24	14:43	0.15	60.52	0.02	4.44	-
14 Aug 24	14:44	0.15	60.81	0.02	4.25	-
14 Aug 24	14:45	0.15	60.65	0.02	4.31	-
14 Aug 24	14:46	0.16	62.63	0.02	4.45	-
14 Aug 24	14:47	0.15	61.45	0.02	4.24	-
14 Aug 24	14:48	0.15	61.38	0.02	4.44	-
14 Aug 24	14:49	0.15	62.79	0.02	4.45	-
14 Aug 24	14:50	0.15	63.14	0.02	4.59	-
14 Aug 24	14:51	0.15	63.88	0.02	4.69	-
14 Aug 24	14:52	0.15	61.70	0.04	4.45	-
14 Aug 24	14:53	0.15	61.75	0.02	4.40	-
14 Aug 24	14:54	0.15	61.77	0.02	4.31	-
14 Aug 24	14:55	0.15	62.56	0.02	4.35	-
14 Aug 24	14:56	0.15	62.74	0.04	4.48	-
14 Aug 24	14:57	0.15	62.89	0.04	4.32	-
14 Aug 24	14:58	0.15	61.52	0.02	4.46	-
14 Aug 24	14:59	0.15	62.98	0.02	4.41	-
14 Aug 24	15:00	0.15	62.88	0.02	4.54	-
14 Aug 24	15:01	0.16	64.04	0.02	4.65	-
Max		0.16	64.04	0.04	4.78	-
Avg		0.15	62.21	0.02	4.46	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 14 Aug 24
Location: F-140

Run No: 1 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	10:50	0.13	58.33	1.05	4.67	8.27
14 Aug 24	10:51	0.09	58.19	1.08	4.82	8.20
14 Aug 24	10:52	0.14	58.32	1.07	4.92	8.16
14 Aug 24	10:53	0.18	58.70	1.00	5.02	8.09
14 Aug 24	10:54	0.16	58.86	1.00	4.88	8.17
14 Aug 24	10:55	0.19	58.59	1.04	4.76	8.22
14 Aug 24	10:56	0.17	58.02	0.89	4.72	8.27
14 Aug 24	10:57	0.11	57.71	1.04	4.65	8.33
14 Aug 24	10:58	0.14	57.84	1.02	4.74	8.28
14 Aug 24	10:59	0.16	57.87	1.03	4.61	8.42
14 Aug 24	11:00	0.18	58.29	0.97	4.77	8.24
14 Aug 24	11:01	0.17	58.32	0.98	4.89	8.18
14 Aug 24	11:02	0.16	58.34	0.98	4.91	8.19
14 Aug 24	11:03	0.17	58.49	0.98	4.92	8.13
14 Aug 24	11:04	0.14	58.56	1.04	4.71	8.27
14 Aug 24	11:05	0.16	58.57	1.03	4.64	8.29
14 Aug 24	11:06	0.16	58.34	1.01	4.64	8.30
14 Aug 24	11:07	0.16	58.12	1.01	4.61	8.36
14 Aug 24	11:08	0.17	57.98	1.01	4.76	8.25
14 Aug 24	11:09	0.20	58.08	1.04	4.63	8.35
14 Aug 24	11:10	0.21	58.37	1.05	4.81	8.25
Max		0.21	58.86	1.08	5.02	8.42
Avg		0.16	58.28	1.02	4.77	8.25

Run No: 2 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	11:11	0.19	58.73	1.03	4.91	8.17
14 Aug 24	11:12	0.23	58.80	1.02	4.93	8.15
14 Aug 24	11:13	0.18	58.72	1.02	4.98	8.07
14 Aug 24	11:14	0.17	58.78	1.00	4.85	8.21
14 Aug 24	11:15	0.15	58.72	1.00	4.77	8.25
14 Aug 24	11:16	0.14	58.31	1.03	4.73	8.27
14 Aug 24	11:17	0.21	57.87	1.03	4.64	8.33
14 Aug 24	11:18	0.16	57.95	1.02	4.72	8.27
14 Aug 24	11:19	0.24	58.22	1.03	4.52	8.44
14 Aug 24	11:20	0.22	58.49	1.09	4.65	8.35
14 Aug 24	11:21	0.17	58.82	1.08	4.84	8.23
14 Aug 24	11:22	0.23	59.13	1.06	4.91	8.17
14 Aug 24	11:23	0.23	59.39	1.01	5.02	8.05
14 Aug 24	11:24	0.20	59.38	1.03	4.89	8.16
14 Aug 24	11:25	0.23	59.14	1.05	4.81	8.18
14 Aug 24	11:26	0.22	58.82	1.05	4.69	8.30
14 Aug 24	11:27	0.21	58.33	0.98	4.60	8.33
14 Aug 24	11:28	0.19	58.04	1.04	4.65	8.28
14 Aug 24	11:29	0.16	58.22	1.03	4.49	8.44
14 Aug 24	11:30	0.12	58.44	1.07	4.66	8.29
14 Aug 24	11:31	0.09	58.61	0.99	4.88	8.19
Max		0.24	59.39	1.09	5.02	8.44
Avg		0.19	58.61	1.03	4.77	8.24

Run No: 3 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	11:32	0.13	58.86	1.00	4.95	8.16
14 Aug 24	11:33	0.08	59.43	1.00	5.05	8.01
14 Aug 24	11:34	0.13	59.81	0.97	4.90	8.18
14 Aug 24	11:35	0.12	59.46	0.96	4.82	8.21
14 Aug 24	11:36	0.12	58.95	0.97	4.75	8.25
14 Aug 24	11:37	0.20	58.46	0.98	4.60	8.34
14 Aug 24	11:38	0.16	58.56	0.99	4.59	8.36
14 Aug 24	11:39	0.06	58.65	0.93	4.49	8.43
14 Aug 24	11:40	0.15	58.63	0.93	4.60	8.37
14 Aug 24	11:41	0.16	58.34	0.93	4.81	8.25
14 Aug 24	11:42	0.14	58.48	0.90	4.83	8.23
14 Aug 24	11:43	0.17	58.63	0.96	4.93	8.10
14 Aug 24	11:44	0.11	58.49	0.94	4.83	8.21
14 Aug 24	11:45	0.14	58.44	0.94	4.80	8.20
14 Aug 24	11:46	0.13	58.38	0.95	4.74	8.24
14 Aug 24	11:47	0.10	58.13	0.94	4.64	8.32
14 Aug 24	11:48	0.13	57.97	0.92	4.66	8.27
14 Aug 24	11:49	0.12	58.15	0.90	4.55	8.45
14 Aug 24	11:50	0.11	58.46	0.91	4.74	8.31
14 Aug 24	11:51	0.14	58.69	0.91	4.96	8.16
14 Aug 24	11:52	0.16	58.83	0.95	4.93	8.15
Max		0.20	59.81	1.00	5.05	8.45
Avg		0.13	58.66	0.95	4.77	8.25

Run No: 4 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	11:53	0.16	59.80	0.85	4.97	8.09
14 Aug 24	11:54	0.13	58.97	0.90	4.84	8.19
14 Aug 24	11:55	0.16	58.90	0.90	4.78	8.24
14 Aug 24	11:56	0.15	58.62	0.94	4.76	8.25
14 Aug 24	11:57	0.10	58.19	0.93	4.64	8.32
14 Aug 24	11:58	0.16	57.84	0.81	4.67	8.28
14 Aug 24	11:59	0.11	58.10	0.83	4.57	8.40
14 Aug 24	12:00	0.13	58.45	0.87	4.73	8.32
14 Aug 24	12:01	0.15	58.75	0.87	4.89	8.20
14 Aug 24	12:02	0.11	59.19	0.89	4.87	8.19
14 Aug 24	12:03	0.08	59.24	0.88	4.91	8.12
14 Aug 24	12:04	0.11	59.03	0.84	4.78	8.21
14 Aug 24	12:05	0.17	58.88	0.84	4.75	8.25
14 Aug 24	12:06	0.15	58.77	0.88	4.80	8.24
14 Aug 24	12:07	0.14	58.87	0.89	4.69	8.29
14 Aug 24	12:08	0.21	58.76	0.91	4.64	8.30
14 Aug 24	12:09	0.16	58.31	0.92	4.47	8.47
14 Aug 24	12:10	0.24	58.33	0.90	4.65	8.36
14 Aug 24	12:11	0.22	58.62	0.90	4.81	8.23
14 Aug 24	12:12	0.17	58.89	0.87	4.87	8.19
14 Aug 24	12:13	0.23	58.84	0.91	4.94	8.09
Max		0.24	59.24	0.94	4.97	8.47
Avg		0.15	58.68	0.89	4.76	8.25

Run No: 5 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	12:14	0.23	58.94	0.92	4.83	8.18
14 Aug 24	12:15	0.20	59.10	0.90	4.80	8.21
14 Aug 24	12:16	0.23	59.06	0.87	4.74	8.24
14 Aug 24	12:17	0.22	58.80	0.89	4.65	8.32
14 Aug 24	12:18	0.21	58.73	0.88	4.67	8.27
14 Aug 24	12:19	0.19	58.58	0.88	4.58	8.38
14 Aug 24	12:20	0.16	58.32	0.88	4.67	8.33
14 Aug 24	12:21	0.12	58.22	0.88	4.66	8.19
14 Aug 24	12:22	0.09	58.42	0.90	4.85	8.19
14 Aug 24	12:23	0.13	58.83	0.85	4.88	8.12
14 Aug 24	12:24	0.08	58.99	0.83	4.80	8.21
14 Aug 24	12:25	0.13	58.91	0.88	4.71	8.26
14 Aug 24	12:26	0.12	58.78	0.89	4.72	8.26
14 Aug 24	12:27	0.12	58.69	0.90	4.61	8.33
14 Aug 24	12:28	0.20	58.28	0.89	4.64	8.31
14 Aug 24	12:29	0.16	57.67	0.92	4.52	8.44
14 Aug 24	12:30	0.06	57.33	0.95	4.68	8.32
14 Aug 24	12:31	0.15	57.89	0.90	4.91	8.19
14 Aug 24	12:32	0.16	58.96	0.85	4.85	8.22
14 Aug 24	12:33	0.14	59.12	0.89	4.86	8.15
14 Aug 24	12:34	0.17	59.35	0.89	4.78	8.22
Max		0.23	59.35	0.95	4.91	8.44
Avg		0.16	58.62	0.89	4.74	8.26

Run No: 6 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	12:35	0.11	59.47	0.86	4.73	8.24
14 Aug 24	12:36	0.14	59.17	0.85	4.76	8.25
14 Aug 24	12:37	0.13	58.95	0.85	4.66	8.32
14 Aug 24	12:38	0.10	59.00	0.87	4.67	8.28
14 Aug 24	12:39	0.13	58.97	0.85	4.59	8.40
14 Aug 24	12:40	0.12	59.03	0.85	4.65	8.35
14 Aug 24	12:41	0.11	59.11	0.84	4.87	8.19
14 Aug 24	12:42	0.14	59.33	0.82	4.88	8.17
14 Aug 24	12:43	0.16	59.37	0.81	4.96	8.04
14 Aug 24	12:44	0.16	59.41	0.81	4.89	8.16
14 Aug 24	12:45	0.13	59.35	0.89	4.85	8.22
14 Aug 24	12:46	0.16	59.18	0.81	4.85	8.23
14 Aug 24	12:47	0.15	59.15	0.92	4.69	8.30
14 Aug 24	12:48	0.10	59.22	0.91	4.61	8.30
14 Aug 24	12:49	0.16	59.00	1.00	4.49	8.43
14 Aug 24	12:50	0.11	59.70	0.97	4.61	8.39
14 Aug 24	12:51	0.13	58.67	0.93	4.92	8.22
14 Aug 24	12:52	0.15	58.93	0.89	4.81	8.21
14 Aug 24	12:53	0.11	59.39	0.89	4.89	8.10
14 Aug 24	12:54	0.08	59.61	0.91	4.85	8.16
14 Aug 24	12:55	0.11	59.68	0.91	4.78	8.24
Max		0.16	59.68	1.00	4.96	8.43
Avg		0.13	59.18	0.89	4.76	8.25

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 14 Aug 24
Location: F-140

Run No: 7 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	12:56	0.11	59.46	0.85	4.72	8.30
14 Aug 24	12:57	0.15	58.90	0.89	4.56	8.38
14 Aug 24	12:58	0.13	58.53	0.92	4.60	8.32
14 Aug 24	12:59	0.10	58.53	0.90	4.60	8.42
14 Aug 24	13:00	0.14	58.83	0.86	4.76	8.30
14 Aug 24	13:01	0.15	59.19	0.97	5.01	8.15
14 Aug 24	13:02	0.11	59.57	0.89	4.91	8.18
14 Aug 24	13:03	0.12	59.22	0.93	4.92	8.12
14 Aug 24	13:04	0.15	58.85	0.84	4.77	8.22
14 Aug 24	13:05	0.10	58.72	0.90	4.76	8.25
14 Aug 24	13:06	0.12	58.69	0.86	4.91	8.19
14 Aug 24	13:07	0.07	58.60	0.87	4.81	8.24
14 Aug 24	13:08	0.11	58.60	0.87	4.80	8.21
14 Aug 24	13:09	0.11	58.67	0.86	4.61	8.42
14 Aug 24	13:10	0.10	58.31	0.90	4.60	8.37
14 Aug 24	13:11	0.11	58.01	0.85	4.85	8.26
14 Aug 24	13:12	0.10	58.32	0.87	4.74	8.28
14 Aug 24	13:13	0.10	58.80	0.92	4.67	8.12
14 Aug 24	13:14	0.05	59.23	0.87	4.83	8.16
14 Aug 24	13:15	0.11	59.43	0.83	4.79	8.25
14 Aug 24	13:16	0.14	59.30	0.86	4.83	8.25
Max		0.15	59.57	0.97	5.01	8.42
Avg		0.11	58.85	0.89	4.77	8.26

Run No: 8 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	13:17	0.07	59.03	0.88	4.66	8.31
14 Aug 24	13:18	0.09	58.88	0.83	4.65	8.24
14 Aug 24	13:19	0.07	58.82	0.87	4.63	8.39
14 Aug 24	13:20	0.11	58.93	0.82	4.77	8.28
14 Aug 24	13:21	0.17	58.96	0.86	4.93	8.19
14 Aug 24	13:22	0.19	59.13	0.87	4.93	8.20
14 Aug 24	13:23	0.20	59.16	0.90	4.92	8.13
14 Aug 24	13:24	0.08	58.63	0.86	4.93	8.19
14 Aug 24	13:25	0.10	58.43	0.81	4.79	8.25
14 Aug 24	13:26	0.11	58.60	0.89	4.79	8.23
14 Aug 24	13:27	0.04	58.65	0.85	4.64	8.34
14 Aug 24	13:28	0.11	58.77	0.89	4.64	8.29
14 Aug 24	13:29	0.03	59.02	0.93	4.57	8.38
14 Aug 24	13:30	0.13	59.13	0.90	4.74	8.28
14 Aug 24	13:31	0.11	59.12	0.87	4.96	8.18
14 Aug 24	13:32	0.09	59.44	0.87	4.84	8.16
14 Aug 24	13:33	0.03	59.49	0.87	4.84	8.15
14 Aug 24	13:34	0.12	59.28	0.84	4.69	8.26
14 Aug 24	13:35	0.07	58.81	0.87	4.63	8.35
14 Aug 24	13:36	0.07	58.39	0.91	4.75	8.27
14 Aug 24	13:37	0.04	58.28	0.84	4.63	8.30
Max		0.20	59.49	0.94	4.96	8.38
Avg		0.10	58.90	0.88	4.75	8.26

Run No: 9 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	13:38	0.04	58.31	0.89	4.68	8.25
14 Aug 24	13:39	0.05	58.81	0.89	4.54	8.42
14 Aug 24	13:40	0.02	58.90	0.89	4.67	8.35
14 Aug 24	13:41	0.06	59.17	0.88	4.94	8.20
14 Aug 24	13:42	0.10	59.55	0.81	4.91	8.16
14 Aug 24	13:43	0.02	59.82	0.86	4.95	8.02
14 Aug 24	13:44	0.01	59.68	0.89	4.91	8.10
14 Aug 24	13:45	0.05	59.58	0.89	4.84	8.20
14 Aug 24	13:46	0.02	59.33	0.86	4.82	8.25
14 Aug 24	13:47	0.01	58.93	0.90	4.64	8.35
14 Aug 24	13:48	0.06	58.79	0.89	4.63	8.33
14 Aug 24	13:49	0.03	58.99	0.81	4.49	8.42
14 Aug 24	13:50	0.05	58.84	0.84	4.57	8.41
14 Aug 24	13:51	0.13	58.82	0.85	4.86	8.23
14 Aug 24	13:52	0.11	58.85	0.88	4.82	8.23
14 Aug 24	13:53	0.11	59.38	0.85	4.93	8.07
14 Aug 24	13:54	0.16	59.62	0.75	4.89	8.22
14 Aug 24	13:55	0.17	58.64	0.79	4.81	8.22
14 Aug 24	13:56	0.11	59.36	0.80	4.84	8.23
14 Aug 24	13:57	0.10	58.87	0.85	4.60	8.36
14 Aug 24	13:58	0.06	58.41	0.79	4.57	8.37
Max		0.17	59.82	0.91	4.95	8.42
Avg		0.07	59.12	0.86	4.76	8.26

Run No: 10 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	13:59	0.10	58.50	0.79	4.54	8.40
14 Aug 24	14:00	0.04	59.01	0.81	4.73	8.29
14 Aug 24	14:01	0.09	59.26	0.83	5.02	8.10
14 Aug 24	14:02	0.04	59.38	0.85	4.90	8.19
14 Aug 24	14:03	0.08	59.21	0.80	4.83	8.13
14 Aug 24	14:04	0.06	59.05	0.84	4.81	8.21
14 Aug 24	14:05	0.08	59.19	0.83	4.71	8.28
14 Aug 24	14:06	0.09	59.26	0.84	4.72	8.31
14 Aug 24	14:07	0.03	59.02	0.88	4.57	8.39
14 Aug 24	14:08	0.06	58.50	0.85	4.55	8.35
14 Aug 24	14:09	0.03	58.54	0.87	4.48	8.46
14 Aug 24	14:10	0.00	58.44	0.86	4.60	8.37
14 Aug 24	14:11	0.03	58.55	0.83	4.88	8.21
14 Aug 24	14:12	0.03	58.85	0.86	4.80	8.22
14 Aug 24	14:13	0.03	59.12	0.82	4.89	8.14
14 Aug 24	14:14	0.01	59.16	0.86	4.72	8.24
14 Aug 24	14:15	0.05	59.30	0.89	4.71	8.28
14 Aug 24	14:16	0.03	59.25	0.92	4.71	8.30
14 Aug 24	14:17	0.01	58.92	0.91	4.52	8.38
14 Aug 24	14:18	0.01	58.78	0.93	4.53	8.35
14 Aug 24	14:19	0.02	58.84	0.93	4.45	8.50
Max		0.10	59.38	0.93	5.02	8.50
Avg		0.04	58.96	0.86	4.70	8.29

Run No: 11 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	14:20	0.01	58.93	0.95	4.58	8.44
14 Aug 24	14:21	0.14	59.01	0.99	4.84	8.24
14 Aug 24	14:22	0.13	59.49	0.98	4.73	8.28
14 Aug 24	14:23	0.18	59.74	0.87	4.85	8.12
14 Aug 24	14:24	0.14	59.89	0.92	4.83	8.22
14 Aug 24	14:25	0.09	59.61	0.95	4.73	8.27
14 Aug 24	14:26	0.10	59.44	0.93	4.75	8.29
14 Aug 24	14:27	0.13	59.20	0.83	4.59	8.37
14 Aug 24	14:28	0.06	59.08	0.88	4.62	8.31
14 Aug 24	14:29	0.11	59.01	0.95	4.55	8.42
14 Aug 24	14:30	0.09	58.78	0.89	4.64	8.38
14 Aug 24	14:31	0.07	59.05	0.89	4.95	8.20
14 Aug 24	14:32	0.07	58.60	0.86	4.88	8.21
14 Aug 24	14:33	0.08	58.84	0.86	4.94	8.12
14 Aug 24	14:34	0.06	58.88	0.88	4.84	8.17
14 Aug 24	14:35	0.07	59.59	0.91	4.80	8.23
14 Aug 24	14:36	0.06	59.42	0.88	4.84	8.25
14 Aug 24	14:37	0.08	59.45	0.91	4.58	8.35
14 Aug 24	14:38	0.04	59.02	0.90	4.54	8.35
14 Aug 24	14:39	0.05	58.64	0.86	4.46	8.47
14 Aug 24	14:40	0.01	58.56	0.89	4.57	8.36
Max		0.18	59.89	0.99	4.85	8.47
Avg		0.08	59.30	0.91	4.72	8.28

Run No: 12 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
14 Aug 24	14:41	0.04	58.66	0.87	4.91	8.19
14 Aug 24	14:42	0.02	59.24	0.87	4.84	8.20
14 Aug 24	14:43	0.04	59.57	0.94	4.92	8.13
14 Aug 24	14:44	0.03	59.36	0.84	4.86	8.17
14 Aug 24	14:45	0.03	59.28	0.87	4.80	8.24
14 Aug 24	14:46	0.01	58.71	0.92	4.82	8.25
14 Aug 24	14:47	0.01	58.43	0.89	4.59	8.34
14 Aug 24	14:48	0.01	58.25	0.87	4.58	8.32
14 Aug 24	14:49	0.03	58.23	0.87	4.49	8.46
14 Aug 24	14:50	0.06	58.26	0.92	4.61	8.41
14 Aug 24	14:51	0.10	58.45	0.85	4.90	8.19
14 Aug 24	14:52	0.12	59.00	0.85	4.81	8.22
14 Aug 24	14:53	0.13	59.53	0.80	4.85	8.17
14 Aug 24	14:54	0.12	59.71	0.92	4.80	8.23
14 Aug 24	14:55	0.10	59.34	0.95	4.70	8.28
14 Aug 24	14:56	0.05	59.01	0.91	4.80	8.25
14 Aug 24	14:57	0.05	58.80	0.87	4.62	8.35
14 Aug 24	14:58	0.04	58.87	0.88	4.65	8.34
14 Aug 24	14:59	0.03	58.98	0.85	4.54	8.43
14 Aug 24	15:00	0.05	59.22	0.85	4.62	8.38
14 Aug 24	15:01	0.03	59.14	0.88	4.89	8.22
Max		0.13	59.71	0.95	4.92	8.46
Avg		0.05	58.96	0.88	4.74	8.27

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 15 Aug 24
Location: F-150

Run No: 1 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	9:30	0.13	57.81	0.02	3.19	-
15 Aug 24	9:31	0.13	57.68	0.02	3.51	-
15 Aug 24	9:32	0.13	57.02	0.00	3.31	-
15 Aug 24	9:33	0.13	58.15	0.02	3.39	-
15 Aug 24	9:34	0.13	57.48	0.02	3.32	-
15 Aug 24	9:35	0.13	58.48	0.00	3.36	-
15 Aug 24	9:36	0.13	58.74	0.02	3.46	-
15 Aug 24	9:37	0.13	57.50	0.02	3.25	-
15 Aug 24	9:38	0.13	57.83	0.02	3.28	-
15 Aug 24	9:39	0.14	56.55	0.02	3.08	-
15 Aug 24	9:40	0.14	56.80	0.02	3.13	-
15 Aug 24	9:41	0.14	57.70	0.02	3.48	-
15 Aug 24	9:42	0.14	58.59	0.02	3.27	-
15 Aug 24	9:43	0.14	60.09	0.02	3.44	-
15 Aug 24	9:44	0.14	58.52	0.02	3.40	-
15 Aug 24	9:45	0.14	57.65	0.02	3.07	-
15 Aug 24	9:46	0.14	56.13	0.02	3.04	-
15 Aug 24	9:47	0.14	59.24	0.02	3.10	-
15 Aug 24	9:48	0.14	58.43	0.02	3.30	-
15 Aug 24	9:49	0.14	62.49	0.02	3.81	-
15 Aug 24	9:50	0.13	57.99	0.02	3.38	-
Max		0.14	62.49	0.02	3.81	-
Avg		0.13	58.14	0.02	3.31	-

Run No: 2 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	9:51	0.14	57.98	0.02	3.34	-
15 Aug 24	9:52	0.13	58.33	0.02	3.42	-
15 Aug 24	9:53	0.13	57.77	0.02	3.38	-
15 Aug 24	9:54	0.14	57.37	0.02	3.34	-
15 Aug 24	9:55	0.13	62.08	0.02	3.56	-
15 Aug 24	9:56	0.13	57.20	0.02	3.04	-
15 Aug 24	9:57	0.14	58.48	0.02	3.30	-
15 Aug 24	9:58	0.14	59.13	0.04	3.43	-
15 Aug 24	9:59	0.14	59.02	0.04	3.37	-
15 Aug 24	10:00	0.14	58.19	0.02	3.46	-
15 Aug 24	10:01	0.14	59.01	0.02	3.54	-
15 Aug 24	10:02	0.14	57.89	0.02	3.17	-
15 Aug 24	10:03	0.14	59.88	0.04	3.29	-
15 Aug 24	10:04	0.13	58.52	0.02	3.22	-
15 Aug 24	10:05	0.14	58.11	0.02	3.29	-
15 Aug 24	10:06	0.14	58.57	0.00	3.23	-
15 Aug 24	10:07	0.14	58.73	0.02	3.50	-
15 Aug 24	10:08	0.13	60.06	0.02	3.43	-
15 Aug 24	10:09	0.14	59.83	0.02	3.41	-
15 Aug 24	10:10	0.13	58.42	0.02	3.27	-
15 Aug 24	10:11	0.13	58.57	0.02	3.25	-
Max		0.14	62.08	0.04	3.56	-
Avg		0.14	58.71	0.02	3.34	-

Run No: 3 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	10:12	0.14	57.37	0.02	3.08	-
15 Aug 24	10:13	0.14	57.92	0.02	3.15	-
15 Aug 24	10:14	0.14	58.43	0.02	3.28	-
15 Aug 24	10:15	0.14	59.50	0.02	3.44	-
15 Aug 24	10:16	0.14	58.90	0.02	3.38	-
15 Aug 24	10:17	0.14	58.67	0.02	3.37	-
15 Aug 24	10:18	0.14	59.75	0.02	3.10	-
15 Aug 24	10:19	0.14	59.80	0.02	3.08	-
15 Aug 24	10:20	0.14	58.29	0.02	3.19	-
15 Aug 24	10:21	0.14	57.52	0.02	3.14	-
15 Aug 24	10:22	0.13	58.46	0.02	3.17	-
15 Aug 24	10:23	0.13	59.02	0.02	3.31	-
15 Aug 24	10:24	0.13	59.07	0.02	3.45	-
15 Aug 24	10:25	0.14	59.73	0.02	3.29	-
15 Aug 24	10:26	0.13	59.72	0.02	3.31	-
15 Aug 24	10:27	0.13	59.96	0.00	3.40	-
15 Aug 24	10:28	0.14	59.79	0.02	3.24	-
15 Aug 24	10:29	0.13	58.51	0.02	3.28	-
15 Aug 24	10:30	0.13	60.52	0.02	3.45	-
15 Aug 24	10:31	0.14	56.75	0.02	2.97	-
15 Aug 24	10:32	0.14	59.10	0.02	3.27	-
Max		0.14	60.52	0.02	3.45	-
Avg		0.14	58.88	0.02	3.25	-

Run No: 4 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	10:33	0.14	59.17	0.02	3.30	-
15 Aug 24	10:34	0.14	59.46	0.02	3.34	-
15 Aug 24	10:35	0.14	58.29	0.02	3.19	-
15 Aug 24	10:36	0.14	59.77	0.02	3.34	-
15 Aug 24	10:37	0.14	59.50	0.04	3.32	-
15 Aug 24	10:38	0.14	57.78	0.02	3.16	-
15 Aug 24	10:39	0.14	58.98	0.02	3.16	-
15 Aug 24	10:40	0.14	58.47	0.02	3.22	-
15 Aug 24	10:41	0.14	62.25	0.02	3.66	-
15 Aug 24	10:42	0.14	60.02	0.02	3.44	-
15 Aug 24	10:43	0.14	61.74	0.02	3.43	-
15 Aug 24	10:44	0.13	60.44	0.00	3.31	-
15 Aug 24	10:45	0.14	59.18	0.02	3.28	-
15 Aug 24	10:46	0.14	60.19	0.02	3.45	-
15 Aug 24	10:47	0.14	58.03	0.02	3.04	-
15 Aug 24	10:48	0.14	59.01	0.02	3.23	-
15 Aug 24	10:49	0.14	61.37	0.02	3.25	-
15 Aug 24	10:50	0.14	60.27	0.00	3.29	-
15 Aug 24	10:51	0.14	60.95	0.02	3.57	-
15 Aug 24	10:52	0.14	58.77	0.02	3.17	-
15 Aug 24	10:53	0.14	58.75	0.02	3.18	-
Max		0.14	62.25	0.04	3.66	-
Avg		0.14	59.84	0.02	3.30	-

Run No: 5 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	10:54	0.14	59.47	0.02	3.19	-
15 Aug 24	10:55	0.14	61.24	0.02	3.32	-
15 Aug 24	10:56	0.14	61.33	0.02	3.80	-
15 Aug 24	10:57	0.14	60.21	0.02	3.48	-
15 Aug 24	10:58	0.14	58.78	0.02	3.37	-
15 Aug 24	10:59	0.14	58.78	0.02	3.23	-
15 Aug 24	11:00	0.14	58.14	0.02	3.12	-
15 Aug 24	11:01	0.14	58.62	0.02	3.22	-
15 Aug 24	11:02	0.14	58.89	0.02	3.28	-
15 Aug 24	11:03	0.14	60.78	0.02	3.30	-
15 Aug 24	11:04	0.14	59.42	0.02	3.26	-
15 Aug 24	11:05	0.14	59.57	0.02	3.28	-
15 Aug 24	11:06	0.14	57.59	0.02	3.09	-
15 Aug 24	11:07	0.14	59.02	0.02	3.10	-
15 Aug 24	11:08	0.14	58.10	0.02	3.12	-
15 Aug 24	11:09	0.14	59.45	0.02	3.18	-
15 Aug 24	11:10	0.14	61.48	0.02	3.44	-
15 Aug 24	11:11	0.14	62.34	0.02	3.37	-
15 Aug 24	11:12	0.14	60.85	0.02	3.26	-
15 Aug 24	11:13	0.14	59.92	0.02	3.21	-
15 Aug 24	11:14	0.14	62.22	0.02	3.58	-
Max		0.14	62.34	0.02	3.80	-
Avg		0.14	59.87	0.02	3.30	-

Run No: 6 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	11:15	0.14	60.25	0.02	3.24	-
15 Aug 24	11:16	0.14	59.69	0.02	3.31	-
15 Aug 24	11:17	0.14	61.25	0.00	3.19	-
15 Aug 24	11:18	0.15	63.35	0.02	3.17	-
15 Aug 24	11:19	0.15	60.37	0.02	3.10	-
15 Aug 24	11:20	0.15	60.32	0.02	3.15	-
15 Aug 24	11:21	0.14	58.98	0.02	3.19	-
15 Aug 24	11:22	0.15	59.53	0.02	3.16	-
15 Aug 24	11:23	0.15	60.57	0.02	3.34	-
15 Aug 24	11:24	0.14	61.21	0.02	3.48	-
15 Aug 24	11:25	0.14	59.49	0.02	3.35	-
15 Aug 24	11:26	0.14	59.45	0.02	3.35	-
15 Aug 24	11:27	0.15	61.01	0.02	3.38	-
15 Aug 24	11:28	0.14	63.00	0.02	3.32	-
15 Aug 24	11:29	0.15	60.16	0.02	3.30	-
15 Aug 24	11:30	0.15	59.84	0.02	3.25	-
15 Aug 24	11:31	0.15	60.65	0.02	3.58	-
15 Aug 24	11:32	0.15	59.12	0.00	3.37	-
15 Aug 24	11:33	0.15	57.76	0.02	3.16	-
15 Aug 24	11:34	0.15	60.39	0.02	3.18	-
15 Aug 24	11:35	0.15	60.38	0.02	3.64	-
Max		0.15	63.35	0.02	3.64	-
Avg		0.14	60.32	0.02	3.29	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 15 Aug 24
Location: F-150

Run No: 7 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	11:36	0.15	62.10	0.02	3.48	-
15 Aug 24	11:37	0.15	60.21	0.02	3.39	-
15 Aug 24	11:38	0.15	58.87	0.02	3.27	-
15 Aug 24	11:39	0.15	58.44	0.02	3.06	-
15 Aug 24	11:40	0.15	58.84	0.02	2.95	-
15 Aug 24	11:41	0.15	60.08	0.00	3.27	-
15 Aug 24	11:42	0.15	58.82	0.00	3.25	-
15 Aug 24	11:43	0.15	56.99	0.02	3.01	-
15 Aug 24	11:44	0.15	56.78	0.02	3.05	-
15 Aug 24	11:45	0.15	59.62	0.02	3.20	-
15 Aug 24	11:46	0.15	58.51	0.02	3.13	-
15 Aug 24	11:47	0.15	58.54	0.02	3.20	-
15 Aug 24	11:48	0.15	62.50	0.02	3.47	-
15 Aug 24	11:49	0.15	60.09	0.00	3.47	-
15 Aug 24	11:50	0.15	59.51	0.02	3.33	-
15 Aug 24	11:51	0.16	58.37	0.02	3.29	-
15 Aug 24	11:52	0.15	59.60	0.02	3.50	-
15 Aug 24	11:53	0.15	59.72	0.02	3.33	-
15 Aug 24	11:54	0.15	60.19	0.02	3.30	-
15 Aug 24	11:55	0.15	57.79	0.02	3.20	-
15 Aug 24	11:56	0.15	61.67	0.02	3.49	-
Max		0.16	62.50	0.02	3.50	-
Avg		0.15	59.39	0.02	3.27	-

Run No: 8 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	11:57	0.14	60.18	0.02	3.25	-
15 Aug 24	11:58	0.15	59.45	0.02	3.06	-
15 Aug 24	11:59	0.14	58.52	0.00	3.14	-
15 Aug 24	12:00	0.14	59.31	0.00	3.40	-
15 Aug 24	12:01	0.14	60.32	0.02	3.27	-
15 Aug 24	12:02	0.14	61.19	0.02	3.35	-
15 Aug 24	12:03	0.15	61.93	0.02	3.26	-
15 Aug 24	12:04	0.14	59.80	0.02	2.95	-
15 Aug 24	12:05	0.14	59.46	0.02	2.95	-
15 Aug 24	12:06	0.15	59.08	0.02	3.28	-
15 Aug 24	12:07	0.15	59.75	0.02	3.28	-
15 Aug 24	12:08	0.14	58.01	0.02	3.11	-
15 Aug 24	12:09	0.15	58.86	0.02	3.20	-
15 Aug 24	12:10	0.14	59.34	0.02	3.27	-
15 Aug 24	12:11	0.15	58.67	0.02	3.07	-
15 Aug 24	12:12	0.14	58.56	0.02	3.20	-
15 Aug 24	12:13	0.15	61.79	0.02	3.65	-
15 Aug 24	12:14	0.15	59.93	0.02	3.48	-
15 Aug 24	12:15	0.15	59.96	0.02	3.37	-
15 Aug 24	12:16	0.15	59.45	0.02	3.27	-
15 Aug 24	12:17	0.14	58.78	0.00	3.48	-
Max		0.15	61.93	0.02	3.65	-
Avg		0.14	59.54	0.02	3.25	-

Run No: 9 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	12:18	0.15	60.59	0.00	3.21	-
15 Aug 24	12:19	0.15	58.50	0.02	3.22	-
15 Aug 24	12:20	0.14	58.83	0.02	3.23	-
15 Aug 24	12:21	0.14	58.28	0.02	3.30	-
15 Aug 24	12:22	0.14	58.74	0.02	3.09	-
15 Aug 24	12:23	0.14	56.98	0.02	3.02	-
15 Aug 24	12:24	0.15	58.03	0.02	3.12	-
15 Aug 24	12:25	0.15	59.55	0.02	3.23	-
15 Aug 24	12:26	0.15	58.98	0.02	3.29	-
15 Aug 24	12:27	0.14	61.82	0.02	3.39	-
15 Aug 24	12:28	0.15	59.84	0.02	3.31	-
15 Aug 24	12:29	0.15	60.33	0.02	3.00	-
15 Aug 24	12:30	0.15	58.23	0.02	3.05	-
15 Aug 24	12:31	0.14	59.39	0.02	3.28	-
15 Aug 24	12:32	0.14	58.12	0.02	3.27	-
15 Aug 24	12:33	0.15	59.25	0.02	3.16	-
15 Aug 24	12:34	0.15	58.03	0.02	3.17	-
15 Aug 24	12:35	0.15	59.93	0.02	3.23	-
15 Aug 24	12:36	0.15	58.77	0.02	3.02	-
15 Aug 24	12:37	0.15	58.56	0.02	3.10	-
15 Aug 24	12:38	0.15	59.87	0.04	3.55	-
Max		0.15	61.82	0.04	3.55	-
Avg		0.14	59.08	0.02	3.20	-

Run No: 10 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	12:39	0.15	60.70	0.02	3.37	-
15 Aug 24	12:40	0.15	57.88	0.02	3.14	-
15 Aug 24	12:41	0.15	58.20	0.02	3.08	-
15 Aug 24	12:42	0.15	58.34	0.02	3.45	-
15 Aug 24	12:43	0.15	58.70	0.02	3.05	-
15 Aug 24	12:44	0.15	56.12	0.02	3.10	-
15 Aug 24	12:45	0.15	58.59	0.02	3.07	-
15 Aug 24	12:46	0.15	57.72	0.04	3.16	-
15 Aug 24	12:47	0.15	57.16	0.02	3.04	-
15 Aug 24	12:48	0.15	56.99	0.02	2.83	-
15 Aug 24	12:49	0.15	57.20	0.04	2.85	-
15 Aug 24	12:50	0.15	57.50	0.04	2.96	-
15 Aug 24	12:51	0.15	56.50	0.04	2.99	-
15 Aug 24	12:52	0.15	59.18	0.04	3.01	-
15 Aug 24	12:53	0.15	56.82	0.02	2.90	-
15 Aug 24	12:54	0.16	56.00	0.02	2.53	-
15 Aug 24	12:55	0.15	55.33	0.02	2.53	-
15 Aug 24	12:56	0.15	56.40	0.04	2.92	-
15 Aug 24	12:57	0.15	56.10	0.02	2.84	-
15 Aug 24	12:58	0.15	57.02	0.04	2.72	-
15 Aug 24	12:59	0.16	56.16	0.02	2.75	-
Max		0.16	60.70	0.04	3.45	-
Avg		0.15	57.27	0.02	2.97	-

Run No: 11 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	13:00	0.15	55.12	0.02	2.85	-
15 Aug 24	13:01	0.15	55.05	0.02	2.63	-
15 Aug 24	13:02	0.15	53.98	0.02	2.68	-
15 Aug 24	13:03	0.15	57.11	0.02	3.12	-
15 Aug 24	13:04	0.15	57.90	0.02	3.12	-
15 Aug 24	13:05	0.16	56.48	0.02	2.88	-
15 Aug 24	13:06	0.15	56.44	0.02	2.97	-
15 Aug 24	13:07	0.15	58.92	0.02	3.30	-
15 Aug 24	13:08	0.15	56.31	0.02	2.95	-
15 Aug 24	13:09	0.15	56.79	0.02	2.93	-
15 Aug 24	13:10	0.15	56.87	0.04	2.98	-
15 Aug 24	13:11	0.15	57.62	0.02	3.20	-
15 Aug 24	13:12	0.15	56.05	0.02	2.98	-
15 Aug 24	13:13	0.15	56.17	0.02	2.79	-
15 Aug 24	13:14	0.15	57.61	0.02	2.85	-
15 Aug 24	13:15	0.15	58.32	0.02	3.21	-
15 Aug 24	13:16	0.15	57.41	0.02	3.14	-
15 Aug 24	13:17	0.15	57.78	0.02	3.20	-
15 Aug 24	13:18	0.15	57.64	0.02	3.08	-
15 Aug 24	13:19	0.15	57.17	1.54	2.85	-
15 Aug 24	13:20	0.15	56.49	0.16	2.70	-
Max		0.16	58.92	1.54	3.30	-
Avg		0.15	56.82	0.10	2.98	-

Run No: 12 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	13:21	0.15	59.07	0.02	3.11	-
15 Aug 24	13:22	0.15	57.76	0.04	3.10	-
15 Aug 24	13:23	0.15	57.21	0.02	2.85	-
15 Aug 24	13:24	0.15	57.10	0.02	2.79	-
15 Aug 24	13:25	0.15	55.56	0.02	2.98	-
15 Aug 24	13:26	0.15	56.51	0.02	2.88	-
15 Aug 24	13:27	0.15	56.69	0.02	2.91	-
15 Aug 24	13:28	0.15	57.69	0.04	3.25	-
15 Aug 24	13:29	0.15	57.06	0.02	3.28	-
15 Aug 24	13:30	0.15	57.24	0.02	3.11	-
15 Aug 24	13:31	0.15	57.12	0.02	3.11	-
15 Aug 24	13:32	0.15	58.80	0.02	3.26	-
15 Aug 24	13:33	0.15	58.54	0.02	3.16	-
15 Aug 24	13:34	0.15	58.02	0.04	3.09	-
15 Aug 24	13:35	0.15	58.52	0.02	3.08	-
15 Aug 24	13:36	0.15	58.04	0.02	3.40	-
15 Aug 24	13:37	0.15	58.74	0.02	3.13	-
15 Aug 24	13:38	0.15	58.33	0.02	2.86	-
15 Aug 24	13:39	0.15	57.14	0.02	3.04	-
15 Aug 24	13:40	0.15	58.07	0.04	3.34	-
15 Aug 24	13:41	0.15	57.82	0.04	3.21	-
Max		0.15	59.07	0.04	3.40	-
Avg		0.15	57.57	0.02	3.09	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 15 Aug 24
Location: F-150

Run No: 1 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	9:30	0.21	59.94	6.67	3.35	8.79
15 Aug 24	9:31	0.35	59.57	6.53	3.18	8.94
15 Aug 24	9:32	0.18	58.95	6.49	3.32	8.90
15 Aug 24	9:33	0.20	58.49	6.54	3.58	8.76
15 Aug 24	9:34	0.20	58.95	6.56	3.42	8.80
15 Aug 24	9:35	0.20	59.07	6.67	3.48	8.65
15 Aug 24	9:36	0.16	59.27	6.61	3.42	8.80
15 Aug 24	9:37	0.16	59.70	6.70	3.41	8.83
15 Aug 24	9:38	0.23	59.90	6.72	3.55	8.78
15 Aug 24	9:39	0.21	59.74	6.63	3.34	8.88
15 Aug 24	9:40	0.20	58.90	6.51	3.35	8.76
15 Aug 24	9:41	0.35	58.86	6.62	3.17	8.98
15 Aug 24	9:42	0.19	58.57	6.66	3.28	8.96
15 Aug 24	9:43	0.16	58.37	6.54	3.57	8.78
15 Aug 24	9:44	0.17	58.60	6.43	3.39	8.79
15 Aug 24	9:45	0.25	59.27	6.54	3.51	8.63
15 Aug 24	9:46	0.29	59.86	6.48	3.51	8.78
15 Aug 24	9:47	0.47	59.77	6.42	3.16	9.08
15 Aug 24	9:48	0.42	58.63	6.28	3.15	9.12
15 Aug 24	9:49	0.31	58.11	6.38	3.22	9.01
15 Aug 24	9:50	0.30	59.08	6.46	3.34	8.80
Max		0.47	59.94	6.72	3.58	9.12
Avg		0.25	59.12	6.54	3.37	8.85

Run No: 2 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	9:51	0.16	60.32	6.41	3.72	8.60
15 Aug 24	9:52	0.17	60.12	6.37	3.48	8.79
15 Aug 24	9:53	0.17	59.80	6.38	3.45	8.74
15 Aug 24	9:54	0.20	59.18	6.35	3.48	8.70
15 Aug 24	9:55	0.18	59.61	6.35	3.43	8.78
15 Aug 24	9:56	0.17	59.64	6.32	3.42	8.89
15 Aug 24	9:57	0.35	59.59	6.37	3.47	8.89
15 Aug 24	9:58	0.27	59.40	6.38	3.22	8.99
15 Aug 24	9:59	0.17	59.43	6.36	3.46	8.78
15 Aug 24	10:00	0.19	59.02	6.31	3.53	8.72
15 Aug 24	10:01	0.17	59.49	6.32	3.49	8.74
15 Aug 24	10:02	0.18	59.83	6.25	3.44	8.78
15 Aug 24	10:03	0.28	59.35	6.27	3.48	8.78
15 Aug 24	10:04	0.24	58.82	6.34	3.32	8.95
15 Aug 24	10:05	0.29	59.22	6.36	3.35	8.92
15 Aug 24	10:06	0.23	59.11	6.25	3.30	8.93
15 Aug 24	10:07	0.23	58.90	6.20	3.40	8.83
15 Aug 24	10:08	0.38	58.98	6.25	3.32	8.54
15 Aug 24	10:09	0.25	59.72	6.22	3.53	8.65
15 Aug 24	10:10	0.19	60.38	6.31	3.45	8.75
15 Aug 24	10:11	0.19	60.44	6.33	3.48	8.74
Max		0.38	60.44	6.41	3.72	8.99
Avg		0.22	59.54	6.32	3.44	8.78

Run No: 3 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	10:12	0.19	60.21	6.29	3.35	8.81
15 Aug 24	10:13	0.26	60.01	6.34	3.36	8.81
15 Aug 24	10:14	0.21	59.62	6.39	3.14	8.89
15 Aug 24	10:15	0.40	59.48	6.33	3.23	8.99
15 Aug 24	10:16	0.22	58.99	6.22	3.31	8.95
15 Aug 24	10:17	0.22	58.85	6.35	3.48	8.74
15 Aug 24	10:18	0.18	59.60	6.33	3.46	8.72
15 Aug 24	10:19	0.22	60.04	6.27	3.42	8.77
15 Aug 24	10:20	0.21	59.97	6.34	3.37	8.75
15 Aug 24	10:21	0.33	60.50	6.31	3.16	8.98
15 Aug 24	10:22	0.28	60.15	6.21	3.31	8.94
15 Aug 24	10:23	0.31	59.07	6.26	3.24	8.98
15 Aug 24	10:24	0.26	58.91	6.35	3.30	8.90
15 Aug 24	10:25	0.20	59.43	6.27	3.40	8.83
15 Aug 24	10:26	0.30	59.69	6.30	3.69	8.45
15 Aug 24	10:27	0.18	60.51	6.32	3.38	8.72
15 Aug 24	10:28	0.24	60.48	6.31	3.43	8.72
15 Aug 24	10:29	0.20	60.43	6.32	3.48	8.69
15 Aug 24	10:30	0.16	60.49	6.22	3.35	8.78
15 Aug 24	10:31	0.25	59.84	6.18	3.35	8.89
15 Aug 24	10:32	0.36	59.61	6.28	3.48	8.87
Max		0.40	60.51	6.39	3.69	8.99
Avg		0.25	59.81	6.29	3.37	8.82

Run No: 4 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	10:33	0.28	59.08	6.20	3.19	8.97
15 Aug 24	10:34	0.18	59.14	6.26	3.42	8.85
15 Aug 24	10:35	0.15	59.24	6.31	3.41	8.78
15 Aug 24	10:36	0.19	59.88	6.36	3.41	8.81
15 Aug 24	10:37	0.26	59.41	6.23	3.29	8.68
15 Aug 24	10:38	0.19	59.89	6.36	3.40	8.86
15 Aug 24	10:39	0.27	60.06	6.28	3.39	8.86
15 Aug 24	10:40	0.27	58.64	6.26	3.24	8.97
15 Aug 24	10:41	0.23	58.21	6.37	3.27	8.93
15 Aug 24	10:42	0.34	59.22	6.34	3.32	8.70
15 Aug 24	10:43	0.29	60.24	6.36	3.64	8.65
15 Aug 24	10:44	0.25	60.74	6.28	3.50	8.71
15 Aug 24	10:45	0.22	60.94	6.25	3.52	8.68
15 Aug 24	10:46	0.17	61.11	6.25	3.42	8.78
15 Aug 24	10:47	0.18	61.09	6.20	3.35	8.88
15 Aug 24	10:48	0.25	60.03	6.17	3.54	8.79
15 Aug 24	10:49	0.21	59.67	6.39	3.26	8.93
15 Aug 24	10:50	0.16	59.69	6.27	3.36	8.89
15 Aug 24	10:51	0.23	60.15	6.30	3.34	8.86
15 Aug 24	10:52	0.16	60.92	6.28	3.36	8.89
15 Aug 24	10:53	0.19	61.09	6.40	3.62	8.73
Max		0.34	61.11	6.40	3.64	8.97
Avg		0.22	60.02	6.29	3.39	8.82

Run No: 5 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	10:54	0.20	60.38	6.31	3.38	8.85
15 Aug 24	10:55	0.29	59.71	6.33	3.24	8.96
15 Aug 24	10:56	0.24	59.47	6.31	3.30	8.95
15 Aug 24	10:57	0.30	60.47	6.27	3.40	8.80
15 Aug 24	10:58	0.30	61.05	6.17	3.71	8.58
15 Aug 24	10:59	0.25	61.20	6.30	3.53	8.84
15 Aug 24	11:00	0.22	60.36	6.24	3.44	8.71
15 Aug 24	11:01	0.19	59.84	6.27	3.31	8.84
15 Aug 24	11:02	0.18	59.61	6.32	3.13	8.86
15 Aug 24	11:03	0.25	59.14	6.38	3.24	8.90
15 Aug 24	11:04	0.16	59.04	6.35	3.38	8.81
15 Aug 24	11:05	0.15	59.48	6.31	3.40	8.81
15 Aug 24	11:06	0.22	60.14	6.49	3.34	8.92
15 Aug 24	11:07	0.22	60.30	6.45	3.51	8.77
15 Aug 24	11:08	0.26	60.05	6.40	3.34	8.88
15 Aug 24	11:09	0.37	59.73	6.35	3.23	8.98
15 Aug 24	11:10	0.29	59.15	6.39	3.27	8.94
15 Aug 24	11:11	0.33	59.04	6.34	3.30	8.85
15 Aug 24	11:12	0.25	59.96	6.34	3.45	8.87
15 Aug 24	11:13	0.16	61.21	6.46	3.49	8.69
15 Aug 24	11:14	0.17	61.51	6.52	3.38	8.82
Max		0.37	61.51	6.52	3.71	8.98
Avg		0.24	60.04	6.35	3.37	8.81

Run No: 6 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	11:15	0.18	60.98	6.34	3.34	8.91
15 Aug 24	11:16	0.20	60.55	6.35	3.61	8.77
15 Aug 24	11:17	0.18	60.72	6.61	3.38	8.81
15 Aug 24	11:18	0.19	61.88	6.68	3.39	8.81
15 Aug 24	11:19	0.31	61.55	6.47	3.32	8.90
15 Aug 24	11:20	0.18	61.70	6.54	3.54	8.69
15 Aug 24	11:21	0.21	62.32	6.52	3.36	8.85
15 Aug 24	11:22	0.34	61.81	6.64	3.28	8.96
15 Aug 24	11:23	0.30	60.17	6.49	3.29	8.99
15 Aug 24	11:24	0.34	59.75	6.60	3.40	8.58
15 Aug 24	11:25	0.31	60.35	6.52	3.48	8.64
15 Aug 24	11:26	0.22	61.48	6.66	3.58	8.65
15 Aug 24	11:27	0.16	61.53	6.63	3.42	8.76
15 Aug 24	11:28	0.26	60.93	6.56	3.29	8.77
15 Aug 24	11:29	0.17	60.11	6.59	3.33	8.86
15 Aug 24	11:30	0.15	60.50	6.58	3.43	8.80
15 Aug 24	11:31	0.17	61.34	6.59	3.34	8.86
15 Aug 24	11:32	0.20	61.31	6.62	3.30	8.94
15 Aug 24	11:33	0.20	60.36	6.65	3.47	8.83
15 Aug 24	11:34	0.27	60.17	6.47	3.43	8.91
15 Aug 24	11:35	0.32	60.07	6.40	3.21	9.04
Max		0.34	62.32	6.68	3.61	9.04
Avg		0.23	60.93	6.55	3.39	8.82

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 15 Aug 24
Location: F-150

Run No: 7 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	11:36	0.16	59.42	6.50	3.30	8.98
15 Aug 24	11:37	0.29	59.23	6.47	3.77	8.63
15 Aug 24	11:38	0.29	60.90	6.54	3.60	8.60
15 Aug 24	11:39	0.19	61.66	6.59	3.44	8.69
15 Aug 24	11:40	0.25	61.29	6.53	3.35	8.83
15 Aug 24	11:41	0.19	60.05	6.58	3.42	8.74
15 Aug 24	11:42	0.19	59.89	6.61	3.24	8.87
15 Aug 24	11:43	0.17	60.21	6.60	3.39	8.80
15 Aug 24	11:44	0.24	59.92	6.35	3.38	8.82
15 Aug 24	11:45	0.17	59.28	6.42	3.22	8.73
15 Aug 24	11:46	0.18	59.00	6.39	3.19	8.90
15 Aug 24	11:47	0.37	59.11	6.43	3.27	8.98
15 Aug 24	11:48	0.31	58.93	6.54	3.25	9.02
15 Aug 24	11:49	0.36	59.13	6.66	3.27	8.59
15 Aug 24	11:50	0.30	59.65	6.64	3.47	8.62
15 Aug 24	11:51	0.25	60.90	6.69	3.54	8.63
15 Aug 24	11:52	0.18	60.96	6.59	3.40	8.75
15 Aug 24	11:53	0.18	60.15	6.62	3.33	8.88
15 Aug 24	11:54	0.17	59.46	6.41	3.40	8.81
15 Aug 24	11:55	0.22	59.27	6.59	3.37	8.79
15 Aug 24	11:56	0.17	60.25	6.51	3.41	8.77
Max		0.37	61.66	6.69	3.77	9.02
Avg		0.23	59.94	6.54	3.38	8.78

Run No: 8 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	11:57	0.17	60.16	6.53	3.31	8.93
15 Aug 24	11:58	0.21	59.98	6.62	3.55	8.84
15 Aug 24	11:59	0.27	60.65	6.45	3.39	8.92
15 Aug 24	12:00	0.32	60.66	6.55	3.16	9.05
15 Aug 24	12:01	0.27	59.81	6.69	3.26	8.93
15 Aug 24	12:02	0.32	60.37	6.62	3.66	8.55
15 Aug 24	12:03	0.30	61.47	6.72	3.49	8.66
15 Aug 24	12:04	0.17	61.76	6.71	3.46	8.74
15 Aug 24	12:05	0.24	61.47	6.63	3.38	8.80
15 Aug 24	12:06	0.18	61.28	6.63	3.25	8.72
15 Aug 24	12:07	0.18	61.51	6.67	3.17	8.87
15 Aug 24	12:08	0.17	60.88	6.65	3.40	8.75
15 Aug 24	12:09	0.19	60.35	6.68	3.39	8.78
15 Aug 24	12:10	0.15	60.05	6.60	3.15	8.77
15 Aug 24	12:11	0.20	59.63	6.58	3.21	8.92
15 Aug 24	12:12	0.33	59.44	6.48	3.33	8.96
15 Aug 24	12:13	0.32	59.25	6.44	3.19	9.03
15 Aug 24	12:14	0.33	59.32	6.59	3.23	8.69
15 Aug 24	12:15	0.27	60.44	6.65	3.57	8.66
15 Aug 24	12:16	0.29	60.70	6.68	3.55	8.62
15 Aug 24	12:17	0.21	60.84	6.70	3.44	8.65
Max		0.33	61.76	6.72	3.66	9.05
Avg		0.24	60.48	6.61	3.36	8.80

Run No: 9 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	12:18	0.19	60.57	6.69	3.39	8.87
15 Aug 24	12:19	0.18	60.03	6.55	3.48	8.82
15 Aug 24	12:20	0.16	59.64	6.63	3.31	8.87
15 Aug 24	12:21	0.16	60.04	6.58	3.32	8.84
15 Aug 24	12:22	0.22	60.04	6.55	3.36	8.86
15 Aug 24	12:23	0.20	59.28	6.63	3.57	8.81
15 Aug 24	12:24	0.26	59.60	6.66	3.35	8.92
15 Aug 24	12:25	0.38	59.58	6.62	3.14	9.06
15 Aug 24	12:26	0.29	59.03	6.63	3.26	9.05
15 Aug 24	12:27	0.30	58.89	6.64	3.57	8.55
15 Aug 24	12:28	0.30	59.96	6.75	3.52	8.65
15 Aug 24	12:29	0.23	60.88	6.75	3.53	8.68
15 Aug 24	12:30	0.26	60.97	6.81	3.41	8.76
15 Aug 24	12:31	0.20	60.88	6.80	3.20	8.71
15 Aug 24	12:32	0.18	60.81	6.85	3.18	8.87
15 Aug 24	12:33	0.16	60.70	6.88	3.38	8.62
15 Aug 24	12:34	0.18	59.83	6.72	3.35	8.84
15 Aug 24	12:35	0.18	59.92	6.82	3.11	8.79
15 Aug 24	12:36	0.25	59.59	6.79	3.12	8.97
15 Aug 24	12:37	0.35	59.58	6.69	3.27	9.05
15 Aug 24	12:38	0.29	59.10	6.77	3.13	9.10
Max		0.38	60.97	6.88	3.57	9.10
Avg		0.23	59.95	6.70	3.33	8.85

Run No: 10 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	12:39	0.43	59.46	6.85	3.18	8.77
15 Aug 24	12:40	0.41	60.01	6.84	3.45	8.79
15 Aug 24	12:41	0.34	60.08	6.97	3.43	8.71
15 Aug 24	12:42	0.22	60.24	6.90	3.25	8.85
15 Aug 24	12:43	0.24	59.57	6.76	3.21	8.95
15 Aug 24	12:44	0.17	58.59	6.78	3.39	8.93
15 Aug 24	12:45	0.16	57.63	6.72	3.16	8.93
15 Aug 24	12:46	0.18	57.64	6.75	3.18	8.95
15 Aug 24	12:47	0.16	58.66	6.93	3.19	9.00
15 Aug 24	12:48	0.26	58.60	7.01	3.38	9.06
15 Aug 24	12:49	0.31	58.73	6.97	3.22	9.04
15 Aug 24	12:50	0.41	58.48	6.95	2.92	9.20
15 Aug 24	12:51	0.27	57.76	6.87	3.01	9.17
15 Aug 24	12:52	0.28	57.57	6.95	3.35	8.71
15 Aug 24	12:53	0.30	58.61	7.03	3.26	8.86
15 Aug 24	12:54	0.16	59.37	7.05	3.10	8.93
15 Aug 24	12:55	0.27	58.72	6.95	2.99	9.05
15 Aug 24	12:56	0.21	59.23	7.19	2.81	8.90
15 Aug 24	12:57	0.18	57.96	7.23	2.72	9.09
15 Aug 24	12:58	0.18	58.35	7.17	3.01	9.02
15 Aug 24	12:59	0.26	57.60	7.06	2.96	9.07
Max		0.43	60.24	7.23	3.45	9.20
Avg		0.26	58.67	6.95	3.15	8.95

Run No: 11 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	13:00	0.16	57.47	7.19	2.73	8.98
15 Aug 24	13:01	0.24	58.03	7.06	2.79	9.13
15 Aug 24	13:02	0.40	57.84	7.00	2.84	9.25
15 Aug 24	13:03	0.37	58.74	7.01	2.75	9.32
15 Aug 24	13:04	0.30	58.13	7.34	2.68	8.98
15 Aug 24	13:05	0.27	58.78	7.01	3.05	8.95
15 Aug 24	13:06	0.25	58.19	6.87	3.15	8.88
15 Aug 24	13:07	0.22	58.69	6.86	3.09	8.92
15 Aug 24	13:08	0.27	58.70	7.19	3.02	9.04
15 Aug 24	13:09	0.16	58.27	7.00	3.18	9.07
15 Aug 24	13:10	0.16	57.77	6.81	3.02	9.02
15 Aug 24	13:11	0.16	58.09	6.75	3.04	9.04
15 Aug 24	13:12	0.15	58.12	6.84	3.08	9.08
15 Aug 24	13:13	0.21	58.32	6.84	3.26	9.04
15 Aug 24	13:14	0.23	57.98	6.78	3.11	9.04
15 Aug 24	13:15	0.31	58.01	6.74	2.94	9.19
15 Aug 24	13:16	0.18	57.73	6.76	3.00	9.14
15 Aug 24	13:17	0.30	58.48	6.97	3.58	8.71
15 Aug 24	13:18	0.31	59.77	6.85	3.33	8.77
15 Aug 24	13:19	0.23	59.94	6.87	3.31	8.77
15 Aug 24	13:20	0.20	59.39	6.83	3.20	8.89
Max		0.40	59.94	7.34	3.58	9.32
Avg		0.24	58.13	6.93	3.05	9.01

Run No: 12 — Time Base : 21 min

Date	Time	SO_2 ppm	NO_x ppm	CO ppm	O_2 Vol%	CO_2 Vol%
15 Aug 24	13:21	0.17	59.10	7.43	3.25	8.80
15 Aug 24	13:22	0.21	59.10	6.90	3.01	9.00
15 Aug 24	13:23	0.21	59.42	6.81	3.22	8.82
15 Aug 24	13:24	0.15	59.01	6.69	3.22	8.82
15 Aug 24	13:25	0.19	58.96	6.81	3.05	8.82
15 Aug 24	13:26	0.15	59.60	6.81	2.97	8.97
15 Aug 24	13:27	0.37	59.35	6.71	3.00	9.16
15 Aug 24	13:28	0.33	57.84	6.70	2.99	9.16
15 Aug 24	13:29	0.37	57.42	6.78	3.00	8.72
15 Aug 24	13:30	0.29	59.04	6.78	3.23	8.74
15 Aug 24	13:31	0.25	58.57	6.77	3.34	8.79
15 Aug 24	13:32	0.18	59.00	6.77	3.23	8.88
15 Aug 24	13:33	0.27	58.79	6.78	3.11	8.95
15 Aug 24	13:34	0.20	58.68	6.84	3.17	8.99
15 Aug 24	13:35	0.16	58.57	6.81	3.25	8.92
15 Aug 24	13:36	0.17	58.88	6.80	3.20	8.93
15 Aug 24	13:37	0.20	59.37	6.91	3.19	9.04
15 Aug 24	13:38	0.19	59.20	6.79	3.32	9.03
15 Aug 24	13:39	0.33	58.85	6.69	3.19	9.07
15 Aug 24	13:40	0.38	59.11	6.77	2.95	9.21
15 Aug 24	13:41	0.20	59.49	6.75	3.10	9.13
Max		0.38	59.60	7.43	3.34	9.21
Avg		0.24	58.87	6.81	3.14	8.96

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 16 Aug 24
Location: F-160

Run No: 1 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:30	0.13	70.65	0.02	3.36	-
16 Aug 24	9:31	0.13	70.58	0.02	3.49	-
16 Aug 24	9:32	0.13	68.70	0.02	3.23	-
16 Aug 24	9:33	0.14	69.51	0.00	3.36	-
16 Aug 24	9:34	0.13	69.90	0.02	3.33	-
16 Aug 24	9:35	0.14	68.25	0.02	3.33	-
16 Aug 24	9:36	0.14	68.49	0.02	3.43	-
16 Aug 24	9:37	0.13	69.00	0.02	3.35	-
16 Aug 24	9:38	0.14	69.58	0.02	3.37	-
16 Aug 24	9:39	0.13	68.71	0.02	3.29	-
16 Aug 24	9:40	0.13	68.13	0.02	3.27	-
16 Aug 24	9:41	0.13	68.33	0.00	3.42	-
16 Aug 24	9:42	0.14	67.62	0.02	3.30	-
16 Aug 24	9:43	0.13	69.81	0.02	3.33	-
16 Aug 24	9:44	0.13	69.69	0.02	3.27	-
16 Aug 24	9:45	0.14	68.44	0.02	3.33	-
16 Aug 24	9:46	0.13	68.00	0.00	3.44	-
16 Aug 24	9:47	0.14	68.17	0.02	3.38	-
16 Aug 24	9:48	0.14	68.98	0.00	3.37	-
16 Aug 24	9:49	0.14	68.19	0.02	3.32	-
16 Aug 24	9:50	0.14	67.81	0.02	3.32	-
Max		0.14	70.65	0.02	3.49	-
Avg		0.13	68.83	0.01	3.35	-

Run No: 2 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:51	0.13	69.03	0.02	3.48	-
16 Aug 24	9:52	0.14	69.38	0.02	3.32	-
16 Aug 24	9:53	0.14	68.68	0.02	3.37	-
16 Aug 24	9:54	0.13	69.37	0.02	3.40	-
16 Aug 24	9:55	0.14	68.77	0.02	3.40	-
16 Aug 24	9:56	0.15	67.90	0.02	3.49	-
16 Aug 24	9:57	0.14	67.48	0.02	3.45	-
16 Aug 24	9:58	0.14	69.18	0.02	3.50	-
16 Aug 24	9:59	0.14	70.35	0.02	3.48	-
16 Aug 24	10:00	0.13	69.17	0.02	3.43	-
16 Aug 24	10:01	0.14	67.81	0.04	3.57	-
16 Aug 24	10:02	0.13	68.55	0.02	3.55	-
16 Aug 24	10:03	0.13	68.27	0.02	3.59	-
16 Aug 24	10:04	0.13	68.64	0.02	3.51	-
16 Aug 24	10:05	0.13	67.16	0.02	3.51	-
16 Aug 24	10:06	0.13	67.49	0.02	3.57	-
16 Aug 24	10:07	0.13	67.67	0.02	3.47	-
16 Aug 24	10:08	0.13	70.12	0.02	3.43	-
16 Aug 24	10:09	0.13	67.71	0.02	3.50	-
16 Aug 24	10:10	0.14	67.81	0.02	3.51	-
16 Aug 24	10:11	0.14	70.21	0.02	3.61	-
Max		0.15	70.35	0.04	3.61	-
Avg		0.13	68.61	0.02	3.48	-

Run No: 3 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:12	0.14	68.60	0.02	3.45	-
16 Aug 24	10:13	0.14	69.97	0.02	3.58	-
16 Aug 24	10:14	0.13	69.34	0.02	3.56	-
16 Aug 24	10:15	0.14	67.70	0.02	3.51	-
16 Aug 24	10:16	0.14	66.99	0.02	3.54	-
16 Aug 24	10:17	0.14	67.92	0.02	3.50	-
16 Aug 24	10:18	0.14	68.52	0.02	3.58	-
16 Aug 24	10:19	0.14	68.80	0.02	3.53	-
16 Aug 24	10:20	0.14	68.73	0.02	3.44	-
16 Aug 24	10:21	0.14	67.53	0.02	3.53	-
16 Aug 24	10:22	0.14	68.37	0.02	3.43	-
16 Aug 24	10:23	0.13	67.48	0.02	3.44	-
16 Aug 24	10:24	0.13	69.27	0.02	3.48	-
16 Aug 24	10:25	0.13	67.15	0.02	3.46	-
16 Aug 24	10:26	0.13	66.85	0.02	3.57	-
16 Aug 24	10:27	0.13	67.30	0.02	3.54	-
16 Aug 24	10:28	0.13	68.80	0.02	3.54	-
16 Aug 24	10:29	0.13	68.12	0.02	3.64	-
16 Aug 24	10:30	0.13	66.03	0.02	3.51	-
16 Aug 24	10:31	0.13	67.40	0.02	3.57	-
16 Aug 24	10:32	0.13	65.49	0.02	3.34	-
Max		0.14	69.97	0.02	3.64	-
Avg		0.13	67.83	0.02	3.51	-

Run No: 4 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:33	0.13	67.23	0.04	3.48	-
16 Aug 24	10:34	0.14	68.08	0.02	3.52	-
16 Aug 24	10:35	0.13	67.76	0.02	3.42	-
16 Aug 24	10:36	0.13	67.15	0.02	3.46	-
16 Aug 24	10:37	0.14	67.35	0.02	3.44	-
16 Aug 24	10:38	0.14	68.82	0.02	3.54	-
16 Aug 24	10:39	0.13	67.10	0.02	3.59	-
16 Aug 24	10:40	0.13	66.22	0.02	3.46	-
16 Aug 24	10:41	0.14	66.49	0.02	3.52	-
16 Aug 24	10:42	0.14	66.42	0.02	3.46	-
16 Aug 24	10:43	0.14	68.06	0.02	3.51	-
16 Aug 24	10:44	0.14	68.51	0.02	3.55	-
16 Aug 24	10:45	0.14	67.41	0.02	3.48	-
16 Aug 24	10:46	0.14	67.60	0.02	3.56	-
16 Aug 24	10:47	0.14	66.67	0.02	3.50	-
16 Aug 24	10:48	0.14	66.92	0.02	3.50	-
16 Aug 24	10:49	0.14	68.42	0.02	3.64	-
16 Aug 24	10:50	0.14	66.82	0.02	3.53	-
16 Aug 24	10:51	0.14	67.07	0.02	3.53	-
16 Aug 24	10:52	0.14	67.07	0.02	3.38	-
16 Aug 24	10:53	0.14	67.82	0.02	3.53	-
Max		0.14	68.82	0.04	3.64	-
Avg		0.14	67.38	0.02	3.50	-

Run No: 5 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:54	0.14	69.28	0.02	3.62	-
16 Aug 24	10:55	0.14	68.73	0.00	3.49	-
16 Aug 24	10:56	0.14	68.20	0.02	3.49	-
16 Aug 24	10:57	0.13	67.75	0.02	3.48	-
16 Aug 24	10:58	0.14	68.78	0.02	3.56	-
16 Aug 24	10:59	0.14	69.78	0.02	3.71	-
16 Aug 24	11:00	0.14	68.69	0.02	3.47	-
16 Aug 24	11:01	0.14	67.45	0.02	3.54	-
16 Aug 24	11:02	0.14	67.98	0.00	3.43	-
16 Aug 24	11:03	0.14	68.05	0.02	3.51	-
16 Aug 24	11:04	0.14	69.25	0.02	3.61	-
16 Aug 24	11:05	0.13	67.93	0.02	3.48	-
16 Aug 24	11:06	0.14	67.27	0.02	3.46	-
16 Aug 24	11:07	0.14	67.53	0.02	3.48	-
16 Aug 24	11:08	0.14	67.60	0.02	3.50	-
16 Aug 24	11:09	0.14	69.81	0.00	3.71	-
16 Aug 24	11:10	0.14	68.08	0.02	3.50	-
16 Aug 24	11:11	0.14	66.59	0.02	3.47	-
16 Aug 24	11:12	0.14	67.44	0.02	3.36	-
16 Aug 24	11:13	0.14	68.08	0.02	3.51	-
16 Aug 24	11:14	0.14	67.95	0.00	3.60	-
Max		0.14	69.91	0.02	3.71	-
Avg		0.14	68.20	0.02	3.52	-

Run No: 6 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:15	0.14	67.78	0.02	3.46	-
16 Aug 24	11:16	0.14	66.94	0.02	3.49	-
16 Aug 24	11:17	0.14	68.08	0.02	3.47	-
16 Aug 24	11:18	0.14	68.19	0.00	3.60	-
16 Aug 24	11:19	0.14	69.62	0.02	3.68	-
16 Aug 24	11:20	0.14	67.71	0.02	3.45	-
16 Aug 24	11:21	0.14	67.32	0.02	3.50	-
16 Aug 24	11:22	0.14	67.45	0.00	3.40	-
16 Aug 24	11:23	0.14	68.43	0.00	3.52	-
16 Aug 24	11:24	0.14	70.14	0.02	3.63	-
16 Aug 24	11:25	0.14	69.67	0.02	3.51	-
16 Aug 24	11:26	0.14	68.00	0.02	3.49	-
16 Aug 24	11:27	0.14	67.43	0.02	3.43	-
16 Aug 24	11:28	0.14	68.65	0.02	3.52	-
16 Aug 24	11:29	0.14	70.06	0.02	3.59	-
16 Aug 24	11:30	0.14	68.35	0.02	3.49	-
16 Aug 24	11:31	0.14	68.20	0.02	3.48	-
16 Aug 24	11:32	0.14	67.49	0.02	3.35	-
16 Aug 24	11:33	0.14	68.65	0.02	3.44	-
16 Aug 24	11:34	0.14	69.87	0.02	3.58	-
16 Aug 24	11:35	0.14	68.82	0.02	3.43	-
Max		0.14	70.14	0.02	3.69	-
Avg		0.14	68.43	0.02	3.50	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 16 Aug 24
Location: F-160

Run No: 7 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:36	0.14	67.69	0.02	3.37	-
16 Aug 24	11:37	0.15	68.12	0.02	3.40	-
16 Aug 24	11:38	0.15	68.73	0.02	3.51	-
16 Aug 24	11:39	0.14	69.35	0.02	3.67	-
16 Aug 24	11:40	0.14	68.93	0.02	3.42	-
16 Aug 24	11:41	0.15	68.51	0.02	3.48	-
16 Aug 24	11:42	0.14	68.64	0.02	3.38	-
16 Aug 24	11:43	0.14	69.13	0.02	3.48	-
16 Aug 24	11:44	0.14	71.64	0.02	3.56	-
16 Aug 24	11:45	0.14	69.21	0.02	3.44	-
16 Aug 24	11:46	0.15	69.19	0.02	3.37	-
16 Aug 24	11:47	0.15	68.49	0.02	3.38	-
16 Aug 24	11:48	0.14	69.42	0.02	3.47	-
16 Aug 24	11:49	0.14	69.77	0.02	3.66	-
16 Aug 24	11:50	0.14	68.62	0.02	3.43	-
16 Aug 24	11:51	0.14	67.58	0.02	3.43	-
16 Aug 24	11:52	0.14	66.89	0.04	3.28	-
16 Aug 24	11:53	0.14	68.73	0.02	3.40	-
16 Aug 24	11:54	0.14	68.76	0.04	3.63	-
16 Aug 24	11:55	0.14	71.26	0.02	3.43	-
16 Aug 24	11:56	0.14	69.30	0.02	3.39	-
Max		0.15	71.64	0.04	3.67	-
Avg		0.14	68.76	0.02	3.45	-

Run No: 8 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:57	0.14	68.65	0.02	3.40	-
16 Aug 24	11:58	0.14	68.98	0.02	3.44	-
16 Aug 24	11:59	0.14	69.14	0.02	3.72	-
16 Aug 24	12:00	0.14	66.91	0.02	3.38	-
16 Aug 24	12:01	0.14	67.12	0.02	3.39	-
16 Aug 24	12:02	0.14	68.67	0.04	3.37	-
16 Aug 24	12:03	0.14	68.20	0.02	3.47	-
16 Aug 24	12:04	0.14	68.14	0.04	3.49	-
16 Aug 24	12:05	0.14	68.79	0.02	3.33	-
16 Aug 24	12:06	0.14	67.51	0.02	3.29	-
16 Aug 24	12:07	0.14	67.60	0.02	3.28	-
16 Aug 24	12:08	0.14	68.59	0.02	3.36	-
16 Aug 24	12:09	0.14	69.60	0.02	3.67	-
16 Aug 24	12:10	0.15	67.43	0.04	3.43	-
16 Aug 24	12:11	0.15	67.67	0.02	3.38	-
16 Aug 24	12:12	0.15	68.37	0.04	3.31	-
16 Aug 24	12:13	0.14	67.67	0.02	3.41	-
16 Aug 24	12:14	0.14	70.05	0.02	3.58	-
16 Aug 24	12:15	0.14	68.65	0.02	3.37	-
16 Aug 24	12:16	0.14	67.23	0.02	3.35	-
16 Aug 24	12:17	0.15	67.70	0.04	3.35	-
Max		0.15	70.05	0.04	3.72	-
Avg		0.14	68.04	0.02	3.42	-

Run No: 9 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:18	0.14	67.65	0.02	3.46	-
16 Aug 24	12:19	0.14	68.96	0.02	3.63	-
16 Aug 24	12:20	0.14	67.00	0.02	3.36	-
16 Aug 24	12:21	0.14	67.42	0.02	3.41	-
16 Aug 24	12:22	0.14	67.64	0.02	3.30	-
16 Aug 24	12:23	0.14	68.60	0.02	3.43	-
16 Aug 24	12:24	0.14	69.07	0.02	3.65	-
16 Aug 24	12:25	0.14	68.32	0.02	3.40	-
16 Aug 24	12:26	0.14	66.80	0.02	3.39	-
16 Aug 24	12:27	0.14	67.86	0.04	3.40	-
16 Aug 24	12:28	0.14	67.38	0.02	3.39	-
16 Aug 24	12:29	0.14	69.70	0.02	3.64	-
16 Aug 24	12:30	0.14	67.99	0.02	3.40	-
16 Aug 24	12:31	0.14	68.04	0.02	3.35	-
16 Aug 24	12:32	0.14	68.03	0.02	3.18	-
16 Aug 24	12:33	0.14	68.57	0.02	3.37	-
16 Aug 24	12:34	0.14	69.41	0.02	3.61	-
16 Aug 24	12:35	0.14	69.01	0.02	3.35	-
16 Aug 24	12:36	0.14	66.89	0.02	3.23	-
16 Aug 24	12:37	0.14	67.84	0.02	3.28	-
16 Aug 24	12:38	0.14	69.10	0.02	3.37	-
Max		0.14	69.70	0.04	3.65	-
Avg		0.14	68.28	0.02	3.41	-

Run No: 10 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:39	0.14	72.32	0.02	3.68	-
16 Aug 24	12:40	0.14	67.94	0.02	3.32	-
16 Aug 24	12:41	0.14	67.81	0.02	3.31	-
16 Aug 24	12:42	0.14	69.80	0.02	3.25	-
16 Aug 24	12:43	0.14	71.04	0.02	3.46	-
16 Aug 24	12:44	0.14	70.50	0.02	3.62	-
16 Aug 24	12:45	0.14	69.01	0.02	3.42	-
16 Aug 24	12:46	0.14	68.25	0.02	3.34	-
16 Aug 24	12:47	0.14	68.58	0.02	3.32	-
16 Aug 24	12:48	0.14	69.19	0.02	3.39	-
16 Aug 24	12:49	0.14	71.07	0.02	3.67	-
16 Aug 24	12:50	0.14	69.92	0.02	3.37	-
16 Aug 24	12:51	0.14	69.72	0.02	3.33	-
16 Aug 24	12:52	0.14	69.75	0.02	3.26	-
16 Aug 24	12:53	0.14	68.84	0.02	3.45	-
16 Aug 24	12:54	0.14	70.18	0.02	3.73	-
16 Aug 24	12:55	0.14	69.20	0.02	3.49	-
16 Aug 24	12:56	0.13	69.38	0.02	3.24	-
16 Aug 24	12:57	0.14	71.00	0.02	3.21	-
16 Aug 24	12:58	0.14	70.60	0.02	3.35	-
16 Aug 24	12:59	0.13	70.39	0.02	3.67	-
Max		0.14	72.32	0.02	3.73	-
Avg		0.14	69.74	0.02	3.42	-

Run No: 11 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:00	0.14	69.62	0.02	3.32	-
16 Aug 24	13:01	0.14	69.43	0.02	3.32	-
16 Aug 24	13:02	0.13	72.03	0.02	3.25	-
16 Aug 24	13:03	0.13	71.40	0.02	3.42	-
16 Aug 24	13:04	0.13	70.76	0.02	3.65	-
16 Aug 24	13:05	0.13	70.19	0.02	3.38	-
16 Aug 24	13:06	0.13	71.93	0.02	3.36	-
16 Aug 24	13:07	0.14	71.95	0.02	3.35	-
16 Aug 24	13:08	0.13	72.66	0.00	3.41	-
16 Aug 24	13:09	0.13	71.55	0.00	3.66	-
16 Aug 24	13:10	0.13	70.34	0.02	3.37	-
16 Aug 24	13:11	0.14	69.53	0.02	3.41	-
16 Aug 24	13:12	0.13	69.87	0.02	3.22	-
16 Aug 24	13:13	0.13	71.22	0.02	3.42	-
16 Aug 24	13:14	0.14	71.84	0.00	3.74	-
16 Aug 24	13:15	0.13	70.50	0.02	3.44	-
16 Aug 24	13:16	0.13	71.82	0.00	3.32	-
16 Aug 24	13:17	0.13	70.32	0.02	3.29	-
16 Aug 24	13:18	0.13	71.13	0.00	3.47	-
16 Aug 24	13:19	0.14	72.90	0.00	3.73	-
16 Aug 24	13:20	0.13	69.43	0.02	3.39	-
Max		0.14	72.90	0.02	3.74	-
Avg		0.13	70.97	0.01	3.42	-

Run No: 12 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:21	0.13	69.42	0.02	3.35	-
16 Aug 24	13:22	0.13	70.53	0.02	3.24	-
16 Aug 24	13:23	0.13	72.12	0.00	3.42	-
16 Aug 24	13:24	0.13	71.87	0.00	3.73	-
16 Aug 24	13:25	0.13	71.64	0.00	3.53	-
16 Aug 24	13:26	0.13	71.14	0.00	3.43	-
16 Aug 24	13:27	0.13	70.98	0.00	3.36	-
16 Aug 24	13:28	0.14	71.65	0.02	3.40	-
16 Aug 24	13:29	0.13	69.63	0.02	3.63	-
16 Aug 24	13:30	0.14	69.06	0.02	3.35	-
16 Aug 24	13:31	0.13	70.01	0.02	3.31	-
16 Aug 24	13:32	0.13	68.03	0.02	3.14	-
16 Aug 24	13:33	0.13	69.89	0.00	3.41	-
16 Aug 24	13:34	0.13	70.67	0.02	3.71	-
16 Aug 24	13:35	0.13	68.93	0.00	3.44	-
16 Aug 24	13:36	0.13	69.95	0.00	3.30	-
16 Aug 24	13:37	0.13	69.10	0.00	3.31	-
16 Aug 24	13:38	0.13	68.51	0.00	3.43	-
16 Aug 24	13:39	0.13	70.34	0.00	3.64	-
16 Aug 24	13:40	0.13	69.35	0.00	3.31	-
16 Aug 24	13:41	0.13	69.48	0.00	3.31	-
Max		0.14	72.12	0.02	3.73	-
Avg		0.13	70.11	0.01	3.42	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 16 Aug 24
Location: F-160

Run No: 1 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:30	0.16	67.83	4.02	3.66	8.74
16 Aug 24	9:31	0.18	68.10	3.99	3.68	8.76
16 Aug 24	9:32	0.16	68.29	3.97	3.77	8.74
16 Aug 24	9:33	0.26	68.09	3.97	3.57	8.83
16 Aug 24	9:34	0.23	67.88	3.92	3.67	8.80
16 Aug 24	9:35	0.12	67.77	3.91	3.67	8.70
16 Aug 24	9:36	0.23	67.35	3.88	3.69	8.81
16 Aug 24	9:37	0.20	66.90	3.86	3.78	8.77
16 Aug 24	9:38	0.17	67.02	3.88	3.67	8.74
16 Aug 24	9:39	0.18	67.27	3.88	3.65	8.76
16 Aug 24	9:40	0.14	67.23	3.86	3.62	8.71
16 Aug 24	9:41	0.25	67.36	3.91	3.62	8.82
16 Aug 24	9:42	0.18	67.48	3.88	3.71	8.78
16 Aug 24	9:43	0.19	67.33	3.84	3.60	8.77
16 Aug 24	9:44	0.25	67.36	3.81	3.63	8.83
16 Aug 24	9:45	0.18	67.60	3.84	3.66	8.76
16 Aug 24	9:46	0.21	67.69	3.83	3.66	8.79
16 Aug 24	9:47	0.19	67.73	3.80	3.77	8.77
16 Aug 24	9:48	0.18	67.79	3.82	3.67	8.76
16 Aug 24	9:49	0.21	67.79	3.78	3.70	8.78
16 Aug 24	9:50	0.15	67.76	3.78	3.64	8.72
Max		0.26	69.29	4.02	3.78	8.83
Avg		0.19	67.61	3.88	3.67	8.77

Run No: 2 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:51	0.23	67.62	3.79	3.66	8.81
16 Aug 24	9:52	0.19	67.48	3.79	3.78	8.77
16 Aug 24	9:53	0.21	68.34	3.83	3.67	8.79
16 Aug 24	9:54	0.23	68.83	3.80	3.71	8.81
16 Aug 24	9:55	0.13	68.50	3.76	3.71	8.70
16 Aug 24	9:56	0.18	67.90	3.79	3.72	8.76
16 Aug 24	9:57	0.18	67.77	3.80	3.88	8.76
16 Aug 24	9:58	0.12	67.75	3.78	3.76	8.70
16 Aug 24	9:59	0.14	67.86	3.78	3.77	8.71
16 Aug 24	10:00	0.06	68.08	3.77	3.78	8.64
16 Aug 24	10:01	0.18	68.56	3.78	3.79	8.75
16 Aug 24	10:02	0.14	68.56	3.79	3.91	8.71
16 Aug 24	10:03	0.11	68.26	3.80	3.84	8.69
16 Aug 24	10:04	0.10	68.22	3.79	3.85	8.68
16 Aug 24	10:05	0.04	67.90	3.78	3.84	8.62
16 Aug 24	10:06	0.13	67.48	3.76	3.82	8.71
16 Aug 24	10:07	0.12	67.43	3.80	3.93	8.69
16 Aug 24	10:08	0.13	67.44	3.78	3.75	8.71
16 Aug 24	10:09	0.16	67.56	3.82	3.79	8.74
16 Aug 24	10:10	0.06	67.62	3.78	3.80	8.64
16 Aug 24	10:11	0.14	67.59	3.78	3.83	8.72
Max		0.23	68.83	3.83	3.93	8.81
Avg		0.14	67.94	3.79	3.79	8.72

Run No: 3 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:12	0.09	67.86	3.76	3.98	8.67
16 Aug 24	10:13	0.16	68.82	3.80	3.82	8.74
16 Aug 24	10:14	0.17	69.31	3.78	3.86	8.74
16 Aug 24	10:15	0.07	69.01	3.75	3.81	8.64
16 Aug 24	10:16	0.18	68.43	3.83	3.81	8.75
16 Aug 24	10:17	0.16	67.52	3.84	3.98	8.74
16 Aug 24	10:18	0.14	67.24	3.82	3.79	8.72
16 Aug 24	10:19	0.15	67.63	3.78	3.80	8.72
16 Aug 24	10:20	0.11	67.93	3.81	3.76	8.69
16 Aug 24	10:21	0.19	67.85	3.79	3.79	8.77
16 Aug 24	10:22	0.13	67.49	3.76	3.94	8.71
16 Aug 24	10:23	0.16	67.79	3.80	3.75	8.74
16 Aug 24	10:24	0.22	68.01	3.77	3.72	8.80
16 Aug 24	10:25	0.15	68.12	3.76	3.76	8.73
16 Aug 24	10:26	0.22	68.22	3.74	3.80	8.79
16 Aug 24	10:27	0.13	69.10	3.69	3.98	8.71
16 Aug 24	10:28	0.09	67.70	3.77	3.82	8.67
16 Aug 24	10:29	0.14	67.89	3.74	3.88	8.72
16 Aug 24	10:30	0.04	67.61	3.73	3.85	8.61
16 Aug 24	10:31	0.15	67.45	3.77	3.80	8.72
16 Aug 24	10:32	0.12	67.31	3.74	3.97	8.70
Max		0.22	69.31	3.84	3.98	8.80
Avg		0.14	67.98	3.77	3.84	8.72

Run No: 4 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:33	0.17	67.37	3.76	3.73	8.74
16 Aug 24	10:34	0.19	67.29	3.75	3.75	8.77
16 Aug 24	10:35	0.13	67.34	3.73	3.75	8.70
16 Aug 24	10:36	0.22	67.58	3.75	3.75	8.79
16 Aug 24	10:37	0.19	67.83	3.75	3.92	8.76
16 Aug 24	10:38	0.11	68.16	3.79	3.78	8.69
16 Aug 24	10:39	0.14	68.20	3.73	3.78	8.72
16 Aug 24	10:40	0.06	67.89	3.74	3.78	8.63
16 Aug 24	10:41	0.17	67.37	3.75	3.80	8.75
16 Aug 24	10:42	0.14	67.11	3.73	3.95	8.72
16 Aug 24	10:43	0.12	67.40	3.76	3.78	8.70
16 Aug 24	10:44	0.16	67.41	3.76	3.79	8.73
16 Aug 24	10:45	0.11	67.46	3.75	3.79	8.68
16 Aug 24	10:46	0.16	67.69	3.73	3.82	8.74
16 Aug 24	10:47	0.15	68.02	3.67	3.99	8.72
16 Aug 24	10:48	0.05	68.06	3.68	3.83	8.63
16 Aug 24	10:49	0.14	67.57	3.69	3.81	8.72
16 Aug 24	10:50	0.02	67.37	3.71	3.85	8.59
16 Aug 24	10:51	0.13	67.39	3.76	3.82	8.71
16 Aug 24	10:52	0.12	67.26	3.70	3.93	8.70
16 Aug 24	10:53	0.17	67.26	3.74	3.77	8.75
Max		0.22	68.20	3.79	3.99	8.79
Avg		0.14	67.57	3.73	3.82	8.71

Run No: 5 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:54	0.13	67.49	3.72	3.81	8.71
16 Aug 24	10:55	0.04	67.82	3.72	3.77	8.62
16 Aug 24	10:56	0.16	68.20	3.70	3.81	8.73
16 Aug 24	10:57	0.17	68.36	3.77	4.01	8.75
16 Aug 24	10:58	0.10	68.32	3.70	3.86	8.67
16 Aug 24	10:59	0.09	68.22	3.71	3.83	8.67
16 Aug 24	11:00	0.01	68.25	3.71	3.84	8.59
16 Aug 24	11:01	0.14	68.60	3.74	3.81	8.72
16 Aug 24	11:02	0.11	68.60	3.68	4.00	8.69
16 Aug 24	11:03	0.12	68.27	3.70	3.81	8.70
16 Aug 24	11:04	0.17	67.84	3.72	3.80	8.75
16 Aug 24	11:05	0.06	67.85	3.72	3.79	8.63
16 Aug 24	11:06	0.14	67.58	3.69	3.81	8.71
16 Aug 24	11:07	0.12	67.31	3.68	3.95	8.70
16 Aug 24	11:08	0.12	67.25	3.71	3.83	8.69
16 Aug 24	11:09	0.15	67.43	3.68	3.76	8.73
16 Aug 24	11:10	0.04	68.17	3.74	3.86	8.61
16 Aug 24	11:11	0.14	68.32	3.72	3.84	8.72
16 Aug 24	11:12	0.13	67.65	3.68	3.94	8.71
16 Aug 24	11:13	0.17	67.28	3.74	3.78	8.75
16 Aug 24	11:14	0.18	67.55	3.69	3.80	8.76
Max		0.18	68.60	3.77	4.01	8.76
Avg		0.12	67.92	3.71	3.84	8.69

Run No: 6 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:15	0.08	67.39	3.69	3.74	8.65
16 Aug 24	11:16	0.18	67.37	3.73	3.79	8.75
16 Aug 24	11:17	0.15	67.35	3.69	4.00	8.73
16 Aug 24	11:18	0.10	67.53	3.71	3.83	8.68
16 Aug 24	11:19	0.12	67.74	3.73	3.86	8.69
16 Aug 24	11:20	0.02	68.01	3.71	3.84	8.60
16 Aug 24	11:21	0.15	67.72	3.67	3.82	8.73
16 Aug 24	11:22	0.14	67.41	3.73	3.97	8.72
16 Aug 24	11:23	0.15	67.30	3.72	3.77	8.72
16 Aug 24	11:24	0.17	67.23	3.73	3.80	8.75
16 Aug 24	11:25	0.11	67.58	3.69	3.82	8.68
16 Aug 24	11:26	0.16	68.26	3.71	3.85	8.74
16 Aug 24	11:27	0.15	68.40	3.68	3.98	8.73
16 Aug 24	11:28	0.09	68.01	3.70	3.82	8.67
16 Aug 24	11:29	0.13	67.55	3.71	3.83	8.71
16 Aug 24	11:30	0.07	67.47	3.73	3.83	8.64
16 Aug 24	11:31	0.15	67.61	3.67	3.80	8.73
16 Aug 24	11:32	0.15	67.50	3.69	3.95	8.73
16 Aug 24	11:33	0.16	67.62	3.71	3.77	8.74
16 Aug 24	11:34	0.19	67.77	3.72	3.73	8.76
16 Aug 24	11:35	0.14	67.60	3.73	3.71	8.72
Max		0.19	68.40	3.73	4.00	8.76
Avg		0.13	67.64	3.71	3.83	8.71

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 16 Aug 24
Location: F-160

Run No: 7 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:36	0.22	68.06	3.66	3.76	8.80
16 Aug 24	11:37	0.21	67.95	3.72	3.91	8.78
16 Aug 24	11:38	0.17	67.77	3.72	3.74	8.74
16 Aug 24	11:39	0.17	67.59	3.73	3.79	8.75
16 Aug 24	11:40	0.07	67.55	3.70	3.79	8.65
16 Aug 24	11:41	0.19	67.39	3.67	3.79	8.77
16 Aug 24	11:42	0.15	67.40	3.76	3.98	8.73
16 Aug 24	11:43	0.13	67.63	3.73	3.77	8.71
16 Aug 24	11:44	0.19	67.99	3.72	3.75	8.76
16 Aug 24	11:45	0.12	68.16	3.77	3.72	8.70
16 Aug 24	11:46	0.23	68.41	3.79	3.80	8.81
16 Aug 24	11:47	0.17	68.44	3.71	3.82	8.75
16 Aug 24	11:48	0.13	68.00	3.75	3.77	8.70
16 Aug 24	11:49	0.18	67.76	3.76	3.74	8.75
16 Aug 24	11:50	0.08	67.61	3.78	3.79	8.66
16 Aug 24	11:51	0.15	67.59	3.70	3.73	8.73
16 Aug 24	11:52	0.16	67.70	3.72	3.81	8.74
16 Aug 24	11:53	0.18	67.58	3.74	3.68	8.76
16 Aug 24	11:54	0.22	67.38	3.76	3.68	8.80
16 Aug 24	11:55	0.13	67.42	3.75	3.70	8.71
16 Aug 24	11:56	0.20	67.97	3.78	3.76	8.78
Max		0.23	68.44	3.79	3.98	8.81
Avg		0.18	67.78	3.73	3.78	8.74

Run No: 8 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:57	0.18	68.96	3.76	3.93	8.76
16 Aug 24	11:58	0.13	68.92	3.78	3.74	8.70
16 Aug 24	11:59	0.19	67.80	3.77	3.73	8.76
16 Aug 24	12:00	0.12	67.34	3.75	3.79	8.69
16 Aug 24	12:01	0.21	67.35	3.79	3.77	8.79
16 Aug 24	12:02	0.17	67.10	3.74	3.89	8.75
16 Aug 24	12:03	0.13	67.29	3.71	3.73	8.71
16 Aug 24	12:04	0.20	67.60	3.72	3.72	8.77
16 Aug 24	12:05	0.17	67.31	3.73	3.63	8.75
16 Aug 24	12:06	0.27	66.71	3.77	3.68	8.84
16 Aug 24	12:07	0.25	66.66	3.74	3.80	8.82
16 Aug 24	12:08	0.18	66.98	3.77	3.67	8.76
16 Aug 24	12:09	0.24	67.54	3.76	3.69	8.82
16 Aug 24	12:10	0.13	67.66	3.75	3.79	8.70
16 Aug 24	12:11	0.18	67.57	3.75	3.77	8.76
16 Aug 24	12:12	0.16	67.20	3.75	3.89	8.74
16 Aug 24	12:13	0.21	67.55	3.78	3.72	8.78
16 Aug 24	12:14	0.21	67.86	3.79	3.72	8.78
16 Aug 24	12:15	0.11	67.89	3.82	3.70	8.69
16 Aug 24	12:16	0.21	68.00	3.81	3.74	8.79
16 Aug 24	12:17	0.24	68.09	3.81	3.92	8.81
Max		0.27	68.96	3.82	3.93	8.84
Avg		0.18	67.59	3.76	3.76	8.76

Run No: 9 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:18	0.15	67.79	3.77	3.72	8.73
16 Aug 24	12:19	0.16	67.48	3.78	3.72	8.74
16 Aug 24	12:20	0.08	67.43	3.80	3.71	8.65
16 Aug 24	12:21	0.23	67.43	3.81	3.73	8.81
16 Aug 24	12:22	0.17	67.43	3.80	3.94	8.75
16 Aug 24	12:23	0.16	67.60	3.78	3.71	8.74
16 Aug 24	12:24	0.19	67.67	3.77	3.74	8.77
16 Aug 24	12:25	0.11	67.69	3.77	3.78	8.68
16 Aug 24	12:26	0.17	67.87	3.73	3.76	8.75
16 Aug 24	12:27	0.19	67.86	3.77	3.93	8.76
16 Aug 24	12:28	0.16	67.77	3.78	3.77	8.73
16 Aug 24	12:29	0.20	67.61	3.80	3.71	8.77
16 Aug 24	12:30	0.13	67.74	3.75	3.73	8.71
16 Aug 24	12:31	0.20	67.80	3.73	3.73	8.78
16 Aug 24	12:32	0.20	68.02	3.77	3.87	8.78
16 Aug 24	12:33	0.20	68.13	3.78	3.65	8.78
16 Aug 24	12:34	0.26	68.27	3.77	3.72	8.83
16 Aug 24	12:35	0.12	68.14	3.79	3.72	8.70
16 Aug 24	12:36	0.23	68.00	3.81	3.73	8.80
16 Aug 24	12:37	0.23	68.22	3.76	3.82	8.80
16 Aug 24	12:38	0.17	68.41	3.77	3.71	8.75
Max		0.26	68.41	3.81	3.94	8.83
Avg		0.18	67.83	3.78	3.76	8.75

Run No: 10 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:39	0.22	68.22	3.74	3.68	8.80
16 Aug 24	12:40	0.14	68.90	3.75	3.72	8.72
16 Aug 24	12:41	0.25	69.35	3.80	3.69	8.83
16 Aug 24	12:42	0.18	68.59	3.80	3.85	8.75
16 Aug 24	12:43	0.16	68.36	3.75	3.71	8.74
16 Aug 24	12:44	0.20	69.25	3.79	3.73	8.78
16 Aug 24	12:45	0.13	69.57	3.81	3.73	8.71
16 Aug 24	12:46	0.17	69.53	3.76	3.79	8.75
16 Aug 24	12:47	0.17	69.17	3.80	3.87	8.75
16 Aug 24	12:48	0.13	69.50	3.79	3.76	8.71
16 Aug 24	12:49	0.19	68.62	3.81	3.75	8.77
16 Aug 24	12:50	0.10	68.94	3.82	3.76	8.68
16 Aug 24	12:51	0.22	69.28	3.79	3.72	8.79
16 Aug 24	12:52	0.20	69.55	3.82	3.89	8.78
16 Aug 24	12:53	0.16	69.89	3.85	3.75	8.74
16 Aug 24	12:54	0.19	69.54	3.84	3.76	8.77
16 Aug 24	12:55	0.08	69.15	3.77	3.79	8.66
16 Aug 24	12:56	0.20	69.02	3.83	3.77	8.78
16 Aug 24	12:57	0.22	69.89	3.85	3.83	8.80
16 Aug 24	12:58	0.21	69.29	3.81	3.68	8.79
16 Aug 24	12:59	0.22	70.08	3.81	3.70	8.80
Max		0.25	70.08	3.85	3.89	8.83
Avg		0.18	69.13	3.80	3.76	8.76

Run No: 11 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:00	0.09	69.99	3.81	3.75	8.67
16 Aug 24	13:01	0.24	69.33	3.83	3.69	8.82
16 Aug 24	13:02	0.22	69.33	3.77	3.91	8.80
16 Aug 24	13:03	0.19	69.93	3.81	3.72	8.77
16 Aug 24	13:04	0.20	70.61	3.80	3.73	8.78
16 Aug 24	13:05	0.10	70.89	3.85	3.77	8.68
16 Aug 24	13:06	0.20	69.99	3.88	3.73	8.78
16 Aug 24	13:07	0.18	70.03	3.82	3.91	8.75
16 Aug 24	13:08	0.13	71.14	3.76	3.79	8.71
16 Aug 24	13:09	0.15	71.68	3.80	3.78	8.72
16 Aug 24	13:10	0.08	70.85	3.83	3.75	8.66
16 Aug 24	13:11	0.20	70.35	3.82	3.73	8.77
16 Aug 24	13:12	0.18	70.06	3.84	3.95	8.75
16 Aug 24	13:13	0.18	69.73	3.81	3.73	8.76
16 Aug 24	13:14	0.20	69.83	3.80	3.75	8.78
16 Aug 24	13:15	0.08	70.42	3.83	3.80	8.65
16 Aug 24	13:16	0.15	70.74	3.84	3.77	8.73
16 Aug 24	13:17	0.20	70.86	3.87	3.95	8.77
16 Aug 24	13:18	0.14	70.78	3.84	3.75	8.72
16 Aug 24	13:19	0.18	70.49	3.83	3.79	8.75
16 Aug 24	13:20	0.05	70.71	3.82	3.82	8.62
Max		0.24	71.68	3.88	3.95	8.82
Avg		0.16	70.37	3.82	3.79	8.74

Run No: 12 Time Base : 21 min

Date	Time	SO_2	NOx	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:21	0.22	70.41	3.93	3.78	8.80
16 Aug 24	13:22	0.21	69.71	3.88	3.87	8.79
16 Aug 24	13:23	0.22	69.33	3.92	3.68	8.80
16 Aug 24	13:24	0.24	70.22	3.86	3.77	8.81
16 Aug 24	13:25	0.10	70.81	3.87	3.96	8.67
16 Aug 24	13:26	0.13	70.82	3.91	3.86	8.70
16 Aug 24	13:27	0.14	70.37	3.86	3.96	8.71
16 Aug 24	13:28	0.11	70.54	3.86	3.81	8.68
16 Aug 24	13:29	0.18	70.60	3.87	3.79	8.76
16 Aug 24	13:30	0.12	70.06	3.86	3.74	8.70
16 Aug 24	13:31	0.24	69.30	3.89	3.67	8.82
16 Aug 24	13:32	0.24	68.91	3.92	3.84	8.82
16 Aug 24	13:33	0.21	68.77	3.90	3.65	8.78
16 Aug 24	13:34	0.23	68.53	3.96	3.76	8.81
16 Aug 24	13:35	0.09	68.66	3.88	3.79	8.66
16 Aug 24	13:36	0.20	69.10	3.92	3.79	8.77
16 Aug 24	13:37	0.17	69.05	3.96	3.82	8.75
16 Aug 24	13:38	0.13	69.11	3.91	3.77	8.70
16 Aug 24	13:39	0.16	69.00	3.94	3.75	8.73
16 Aug 24	13:40	0.10	68.72	3.93	3.75	8.68
16 Aug 24	13:41	0.22	68.40	3.97	3.73	8.80
Max		0.24	70.82	3.97	3.96	8.82
Avg		0.17	69.54	3.90	3.78	8.75

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 16 Aug 24
Plant Name: I-4/1 Location: F-170

Run No: 1 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:30	0.00	64.44	0.07	2.89	-
16 Aug 24	9:31	0.00	64.59	0.06	3.14	-
16 Aug 24	9:32	0.00	63.87	0.07	2.87	-
16 Aug 24	9:33	0.00	64.83	0.07	2.92	-
16 Aug 24	9:34	0.00	64.96	0.07	2.84	-
16 Aug 24	9:35	0.00	63.85	0.07	2.91	-
16 Aug 24	9:36	0.00	63.33	0.07	3.07	-
16 Aug 24	9:37	0.00	63.86	0.07	2.92	-
16 Aug 24	9:38	0.00	64.80	0.09	2.94	-
16 Aug 24	9:39	0.00	63.71	0.09	2.73	-
16 Aug 24	9:40	0.00	62.75	0.09	2.78	-
16 Aug 24	9:41	0.00	62.94	0.09	2.87	-
16 Aug 24	9:42	0.00	62.77	0.11	2.81	-
16 Aug 24	9:43	0.00	64.00	0.09	2.84	-
16 Aug 24	9:44	0.00	63.40	0.09	2.70	-
16 Aug 24	9:45	0.00	64.13	0.09	2.87	-
16 Aug 24	9:46	0.00	63.94	0.09	3.02	-
16 Aug 24	9:47	0.00	63.05	0.09	2.94	-
16 Aug 24	9:48	0.00	64.60	0.09	2.96	-
16 Aug 24	9:49	0.00	65.72	0.09	2.82	-
16 Aug 24	9:50	0.00	64.04	0.09	2.96	-
Max		0.00	65.72	0.11	3.14	-
Avg		0.00	63.98	0.09	2.90	-

Run No: 2 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:51	0.00	64.90	0.09	3.10	-
16 Aug 24	9:52	0.00	63.84	0.09	2.92	-
16 Aug 24	9:53	0.00	64.71	0.07	2.99	-
16 Aug 24	9:54	0.00	65.57	0.09	2.88	-
16 Aug 24	9:55	0.00	65.14	0.07	3.03	-
16 Aug 24	9:56	0.00	65.64	0.07	3.13	-
16 Aug 24	9:57	0.00	65.19	0.07	3.07	-
16 Aug 24	9:58	0.00	66.22	0.07	3.10	-
16 Aug 24	9:59	0.00	64.79	0.07	3.06	-
16 Aug 24	10:00	0.00	64.21	0.07	3.17	-
16 Aug 24	10:01	0.00	65.28	0.07	3.28	-
16 Aug 24	10:02	0.00	65.42	0.07	3.21	-
16 Aug 24	10:03	0.00	65.48	0.07	3.24	-
16 Aug 24	10:04	0.00	65.67	0.09	3.11	-
16 Aug 24	10:05	0.00	66.05	0.07	3.21	-
16 Aug 24	10:06	0.00	65.44	0.07	3.21	-
16 Aug 24	10:07	0.00	64.35	0.09	3.11	-
16 Aug 24	10:08	0.00	63.74	0.09	3.11	-
16 Aug 24	10:09	0.00	64.56	0.06	3.02	-
16 Aug 24	10:10	0.00	64.37	0.07	3.17	-
16 Aug 24	10:11	0.00	64.65	0.06	3.30	-
Max		0.00	66.22	0.09	3.30	-
Avg		0.00	65.01	0.08	3.11	-

Run No: 3 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:12	0.00	66.06	0.07	3.16	-
16 Aug 24	10:13	0.00	66.41	0.09	3.22	-
16 Aug 24	10:14	0.00	66.09	0.09	3.15	-
16 Aug 24	10:15	0.00	64.08	0.11	3.19	-
16 Aug 24	10:16	0.00	64.02	0.11	3.20	-
16 Aug 24	10:17	0.00	64.30	0.11	3.20	-
16 Aug 24	10:18	0.00	66.25	0.09	3.25	-
16 Aug 24	10:19	0.00	64.69	0.09	3.14	-
16 Aug 24	10:20	0.00	63.84	0.11	3.13	-
16 Aug 24	10:21	0.00	64.13	0.09	3.22	-
16 Aug 24	10:22	0.00	64.59	0.09	3.15	-
16 Aug 24	10:23	0.00	63.56	0.09	3.14	-
16 Aug 24	10:24	0.00	63.42	0.09	3.02	-
16 Aug 24	10:25	0.00	62.96	0.11	3.13	-
16 Aug 24	10:26	0.00	64.22	0.11	3.16	-
16 Aug 24	10:27	0.00	64.30	0.09	3.22	-
16 Aug 24	10:28	0.00	63.33	0.11	3.26	-
16 Aug 24	10:29	0.00	66.01	0.09	3.23	-
16 Aug 24	10:30	0.00	64.43	0.09	3.28	-
16 Aug 24	10:31	0.00	62.63	0.11	3.22	-
16 Aug 24	10:32	0.00	63.23	0.11	3.09	-
Max		0.00	66.41	0.11	3.28	-
Avg		0.00	64.41	0.10	3.19	-

Run No: 4 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:33	0.00	64.52	0.09	3.11	-
16 Aug 24	10:34	0.00	65.28	0.09	3.08	-
16 Aug 24	10:35	0.00	63.33	0.11	3.07	-
16 Aug 24	10:36	0.00	64.12	0.09	3.11	-
16 Aug 24	10:37	0.00	64.52	0.11	3.16	-
16 Aug 24	10:38	0.00	65.03	0.09	3.22	-
16 Aug 24	10:39	0.00	64.81	0.09	3.17	-
16 Aug 24	10:40	0.00	64.13	0.11	3.18	-
16 Aug 24	10:41	0.00	63.83	0.11	3.21	-
16 Aug 24	10:42	0.00	63.40	0.11	3.21	-
16 Aug 24	10:43	0.00	64.92	0.11	3.18	-
16 Aug 24	10:44	-0.00	64.48	0.09	3.11	-
16 Aug 24	10:45	0.00	64.50	0.11	3.21	-
16 Aug 24	10:46	0.00	64.59	0.11	3.18	-
16 Aug 24	10:47	0.00	64.40	0.11	3.23	-
16 Aug 24	10:48	0.00	65.02	0.11	3.19	-
16 Aug 24	10:49	0.00	65.56	0.11	3.23	-
16 Aug 24	10:50	0.00	63.89	0.11	3.26	-
16 Aug 24	10:51	0.00	63.17	0.11	3.19	-
16 Aug 24	10:52	0.00	64.56	0.11	3.13	-
16 Aug 24	10:53	0.00	64.42	0.11	3.20	-
Max		0.00	65.56	0.11	3.26	-
Avg		0.00	64.40	0.11	3.17	-

Run No: 5 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:54	0.00	65.49	0.11	3.21	-
16 Aug 24	10:55	0.00	65.47	0.11	3.20	-
16 Aug 24	10:56	0.00	64.31	0.13	3.15	-
16 Aug 24	10:57	0.00	65.13	0.11	3.25	-
16 Aug 24	10:58	0.00	64.68	0.11	3.31	-
16 Aug 24	10:59	0.00	66.27	0.11	3.30	-
16 Aug 24	11:00	0.00	64.88	0.11	3.19	-
16 Aug 24	11:01	0.00	64.35	0.11	3.14	-
16 Aug 24	11:02	0.00	64.32	0.11	3.17	-
16 Aug 24	11:03	0.00	63.81	0.13	3.17	-
16 Aug 24	11:04	0.00	65.28	0.11	3.17	-
16 Aug 24	11:05	0.00	62.31	0.11	3.18	-
16 Aug 24	11:06	0.00	62.68	0.13	3.14	-
16 Aug 24	11:07	0.00	64.94	0.11	3.23	-
16 Aug 24	11:08	0.00	65.13	0.11	3.20	-
16 Aug 24	11:09	0.00	65.58	0.11	3.27	-
16 Aug 24	11:10	0.00	63.81	0.11	3.28	-
16 Aug 24	11:11	0.00	62.74	0.11	3.15	-
16 Aug 24	11:12	0.00	63.74	0.11	3.16	-
16 Aug 24	11:13	0.00	63.82	0.11	3.22	-
16 Aug 24	11:14	0.00	64.27	0.13	3.20	-
Max		0.00	66.27	0.13	3.31	-
Avg		0.00	64.42	0.11	3.21	-

Run No: 6 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:15	0.00	63.89	0.11	3.19	-
16 Aug 24	11:16	0.00	63.53	0.11	3.16	-
16 Aug 24	11:17	0.00	64.19	0.11	3.21	-
16 Aug 24	11:18	0.00	64.21	0.11	3.32	-
16 Aug 24	11:19	0.00	64.71	0.11	3.29	-
16 Aug 24	11:20	0.00	63.20	0.11	3.22	-
16 Aug 24	11:21	0.00	62.54	0.11	3.17	-
16 Aug 24	11:22	0.00	63.40	0.11	3.16	-
16 Aug 24	11:23	0.00	65.19	0.11	3.18	-
16 Aug 24	11:24	0.00	65.47	0.13	3.22	-
16 Aug 24	11:25	0.00	65.24	0.11	3.20	-
16 Aug 24	11:26	0.00	63.78	0.11	3.18	-
16 Aug 24	11:27	0.00	62.62	0.11	3.26	-
16 Aug 24	11:28	0.00	65.58	0.11	3.23	-
16 Aug 24	11:29	0.00	63.67	0.11	3.34	-
16 Aug 24	11:30	0.00	63.63	0.11	3.21	-
16 Aug 24	11:31	0.00	61.52	0.11	3.12	-
16 Aug 24	11:32	0.00	62.96	0.11	3.10	-
16 Aug 24	11:33	0.00	64.27	0.11	3.10	-
16 Aug 24	11:34	0.00	64.65	0.11	3.12	-
16 Aug 24	11:35	0.00	63.71	0.11	3.10	-
Max		0.00	65.58	0.13	3.34	-
Avg		0.00	63.90	0.11	3.19	-

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 16 Aug 24
Plant Name: I-4/1 Location: F-170

Run No: 7 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:36	0.00	62.97	0.11	2.99	-
16 Aug 24	11:37	0.00	64.06	0.11	3.10	-
16 Aug 24	11:38	0.00	64.98	0.11	3.22	-
16 Aug 24	11:39	0.00	65.44	0.11	3.30	-
16 Aug 24	11:40	0.00	64.23	0.11	3.16	-
16 Aug 24	11:41	0.00	63.72	0.11	3.19	-
16 Aug 24	11:42	0.00	64.60	0.11	3.21	-
16 Aug 24	11:43	0.00	63.78	0.11	3.15	-
16 Aug 24	11:44	0.00	64.94	0.11	3.21	-
16 Aug 24	11:45	0.00	64.03	0.11	3.15	-
16 Aug 24	11:46	0.00	64.36	0.11	3.07	-
16 Aug 24	11:47	0.00	63.45	0.11	3.19	-
16 Aug 24	11:48	0.00	63.65	0.11	3.20	-
16 Aug 24	11:49	0.00	64.07	0.11	3.30	-
16 Aug 24	11:50	0.00	64.25	0.11	3.21	-
16 Aug 24	11:51	0.00	62.77	0.11	3.14	-
16 Aug 24	11:52	0.00	63.28	0.13	3.09	-
16 Aug 24	11:53	0.00	63.30	0.13	3.10	-
16 Aug 24	11:54	0.00	64.03	0.13	3.24	-
16 Aug 24	11:55	0.00	64.42	0.13	3.15	-
16 Aug 24	11:56	0.00	63.11	0.11	3.03	-
Max		0.00	65.44	0.13	3.30	-
Avg		0.00	63.97	0.11	3.16	-

Run No: 8 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:57	0.00	64.07	0.13	3.16	-
16 Aug 24	11:58	0.00	64.13	0.13	3.24	-
16 Aug 24	11:59	0.00	64.76	0.13	3.37	-
16 Aug 24	12:00	0.00	64.74	0.11	3.15	-
16 Aug 24	12:01	0.00	63.16	0.13	3.01	-
16 Aug 24	12:02	0.00	63.84	0.11	3.13	-
16 Aug 24	12:03	0.00	62.52	0.11	3.09	-
16 Aug 24	12:04	0.00	63.06	0.11	3.05	-
16 Aug 24	12:05	0.00	61.34	0.11	3.04	-
16 Aug 24	12:06	0.00	63.53	0.11	2.95	-
16 Aug 24	12:07	0.00	63.05	0.11	3.04	-
16 Aug 24	12:08	0.00	62.99	0.11	3.11	-
16 Aug 24	12:09	0.00	64.23	0.11	3.31	-
16 Aug 24	12:10	0.00	63.00	0.13	3.19	-
16 Aug 24	12:11	0.00	63.02	0.11	3.16	-
16 Aug 24	12:12	0.00	64.51	0.13	3.15	-
16 Aug 24	12:13	0.00	64.77	0.13	3.23	-
16 Aug 24	12:14	0.00	63.91	0.13	3.32	-
16 Aug 24	12:15	0.00	63.56	0.11	3.19	-
16 Aug 24	12:16	0.00	63.71	0.11	3.05	-
16 Aug 24	12:17	0.00	62.56	0.13	3.14	-
Max		0.00	64.77	0.13	3.37	-
Avg		0.00	63.55	0.12	3.15	-

Run No: 9 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:18	0.00	63.49	0.13	3.22	-
16 Aug 24	12:19	0.00	63.61	0.11	3.29	-
16 Aug 24	12:20	0.00	63.48	0.11	3.14	-
16 Aug 24	12:21	0.00	62.53	0.13	3.13	-
16 Aug 24	12:22	0.00	63.59	0.11	3.16	-
16 Aug 24	12:23	0.00	64.33	0.13	3.22	-
16 Aug 24	12:24	0.00	64.98	0.13	3.32	-
16 Aug 24	12:25	0.00	63.53	0.11	3.20	-
16 Aug 24	12:26	0.00	63.29	0.11	3.16	-
16 Aug 24	12:27	0.00	64.06	0.11	3.25	-
16 Aug 24	12:28	0.00	63.77	0.11	3.20	-
16 Aug 24	12:29	0.00	64.42	0.11	3.37	-
16 Aug 24	12:30	0.00	63.94	0.11	3.18	-
16 Aug 24	12:31	0.00	63.22	0.13	3.09	-
16 Aug 24	12:32	0.00	61.80	0.11	3.03	-
16 Aug 24	12:33	0.00	63.78	0.11	3.15	-
16 Aug 24	12:34	0.00	64.35	0.13	3.32	-
16 Aug 24	12:35	0.00	65.01	0.11	3.18	-
16 Aug 24	12:36	0.00	63.50	0.13	3.06	-
16 Aug 24	12:37	0.00	63.43	0.11	3.11	-
16 Aug 24	12:38	0.00	62.95	0.13	3.21	-
Max		0.00	65.01	0.13	3.37	-
Avg		0.00	63.67	0.12	3.19	-

Run No: 10 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:39	0.00	66.43	0.11	3.45	-
16 Aug 24	12:40	0.00	64.59	0.11	3.17	-
16 Aug 24	12:41	0.00	63.53	0.11	3.09	-
16 Aug 24	12:42	0.00	63.92	0.11	3.18	-
16 Aug 24	12:43	0.00	64.31	0.11	3.26	-
16 Aug 24	12:44	0.00	65.42	0.11	3.36	-
16 Aug 24	12:45	0.00	65.20	0.11	3.18	-
16 Aug 24	12:46	0.00	64.35	0.11	3.09	-
16 Aug 24	12:47	0.00	63.80	0.11	3.14	-
16 Aug 24	12:48	0.00	65.19	0.11	3.15	-
16 Aug 24	12:49	0.00	66.33	0.11	3.39	-
16 Aug 24	12:50	0.00	65.92	0.11	3.19	-
16 Aug 24	12:51	0.00	64.76	0.11	3.12	-
16 Aug 24	12:52	0.00	64.91	0.11	3.17	-
16 Aug 24	12:53	0.00	65.65	0.11	3.27	-
16 Aug 24	12:54	0.00	66.17	0.11	3.55	-
16 Aug 24	12:55	0.00	64.48	0.11	3.23	-
16 Aug 24	12:56	0.00	64.29	0.11	3.02	-
16 Aug 24	12:57	0.00	63.78	0.11	3.10	-
16 Aug 24	12:58	0.00	63.19	0.11	3.13	-
16 Aug 24	12:59	0.00	65.88	0.09	3.35	-
Max		0.00	66.43	0.11	3.55	-
Avg		0.00	64.86	0.11	3.22	-

Run No: 11 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:00	0.00	64.00	0.11	3.13	-
16 Aug 24	13:01	0.00	64.44	0.09	3.07	-
16 Aug 24	13:02	0.00	65.00	0.11	3.13	-
16 Aug 24	13:03	0.00	64.41	0.09	3.18	-
16 Aug 24	13:04	0.00	65.92	0.09	3.37	-
16 Aug 24	13:05	0.00	64.58	0.11	3.19	-
16 Aug 24	13:06	0.00	65.81	0.11	3.17	-
16 Aug 24	13:07	0.00	65.92	0.11	3.27	-
16 Aug 24	13:08	0.00	65.08	0.11	3.26	-
16 Aug 24	13:09	0.00	66.40	0.11	3.45	-
16 Aug 24	13:10	0.00	64.89	0.11	3.25	-
16 Aug 24	13:11	0.00	65.57	0.11	3.13	-
16 Aug 24	13:12	0.00	63.33	0.11	3.11	-
16 Aug 24	13:13	0.00	64.80	0.11	3.29	-
16 Aug 24	13:14	0.00	66.17	0.11	3.50	-
16 Aug 24	13:15	0.00	66.00	0.09	3.29	-
16 Aug 24	13:16	0.00	64.33	0.11	3.13	-
16 Aug 24	13:17	0.00	65.78	0.11	3.18	-
16 Aug 24	13:18	0.00	65.75	0.11	3.31	-
16 Aug 24	13:19	0.00	66.01	0.11	3.49	-
16 Aug 24	13:20	0.00	64.67	0.09	3.20	-
Max		0.00	66.40	0.11	3.50	-
Avg		0.00	65.18	0.11	3.24	-

Run No: 12 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:21	0.00	65.60	0.11	3.12	-
16 Aug 24	13:22	0.00	66.27	0.11	3.11	-
16 Aug 24	13:23	0.00	66.36	0.11	3.25	-
16 Aug 24	13:24	0.00	65.83	0.11	3.50	-
16 Aug 24	13:25	0.00	67.01	0.11	3.35	-
16 Aug 24	13:26	0.00	66.57	0.11	3.30	-
16 Aug 24	13:27	0.00	66.26	0.09	3.33	-
16 Aug 24	13:28	0.00	64.65	0.11	3.24	-
16 Aug 24	13:29	0.00	65.53	0.11	3.42	-
16 Aug 24	13:30	0.00	64.25	0.11	3.15	-
16 Aug 24	13:31	0.00	64.48	0.09	3.03	-
16 Aug 24	13:32	0.00	63.12	0.11	2.97	-
16 Aug 24	13:33	0.00	65.96	0.11	3.21	-
16 Aug 24	13:34	0.00	67.59	0.11	3.56	-
16 Aug 24	13:35	0.00	65.57	0.11	3.31	-
16 Aug 24	13:36	0.00	64.22	0.11	3.12	-
16 Aug 24	13:37	0.00	65.38	0.11	3.18	-
16 Aug 24	13:38	0.00	63.77	0.11	3.23	-
16 Aug 24	13:39	0.00	65.04	0.11	3.51	-
16 Aug 24	13:40	0.00	65.37	0.11	3.23	-
16 Aug 24	13:41	0.00	64.11	0.13	3.17	-
Max		0.00	67.59	0.13	3.56	-
Avg		0.00	65.38	0.11	3.25	-

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 16 Aug 24
Plant Name: I-4/1 Location: F-170

Run No: 1 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:30	0.14	62.06	2.10	3.18	8.98
16 Aug 24	9:31	0.23	63.02	1.73	3.12	9.07
16 Aug 24	9:32	0.18	63.41	1.57	3.16	9.02
16 Aug 24	9:33	0.19	63.57	1.61	3.25	9.03
16 Aug 24	9:34	0.22	63.65	1.52	3.16	9.05
16 Aug 24	9:35	0.19	63.30	2.63	3.21	9.02
16 Aug 24	9:36	0.19	62.93	1.78	3.21	9.02
16 Aug 24	9:37	0.18	62.68	1.59	3.24	9.01
16 Aug 24	9:38	0.11	62.69	1.43	3.30	8.94
16 Aug 24	9:39	0.16	62.66	1.43	3.23	9.00
16 Aug 24	9:40	0.12	62.69	1.57	3.20	8.98
16 Aug 24	9:41	0.19	62.60	1.62	3.14	9.03
16 Aug 24	9:42	0.21	62.05	1.80	3.19	9.04
16 Aug 24	9:43	0.22	61.57	1.81	3.20	9.05
16 Aug 24	9:44	0.20	61.51	2.16	3.15	9.04
16 Aug 24	9:45	0.19	61.71	1.52	3.20	9.03
16 Aug 24	9:46	0.19	61.69	1.35	3.21	9.03
16 Aug 24	9:47	0.19	61.97	1.29	3.23	9.03
16 Aug 24	9:48	0.16	61.84	1.57	3.30	9.00
16 Aug 24	9:49	0.16	61.82	1.54	3.24	8.99
16 Aug 24	9:50	0.10	62.03	1.73	3.28	8.94
Max		0.23	63.65	2.63	3.30	9.07
Avg		0.18	62.46	1.68	3.21	9.01

Run No: 2 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	9:51	0.16	62.61	1.36	3.28	9.00
16 Aug 24	9:52	0.17	62.73	1.27	3.27	9.01
16 Aug 24	9:53	0.11	62.76	1.28	3.38	8.95
16 Aug 24	9:54	0.16	62.88	1.31	3.30	9.00
16 Aug 24	9:55	0.12	62.67	1.36	3.34	8.96
16 Aug 24	9:56	0.12	62.44	1.18	3.33	8.95
16 Aug 24	9:57	0.14	62.51	1.14	3.39	8.96
16 Aug 24	9:58	0.06	62.83	1.14	3.48	8.90
16 Aug 24	9:59	0.07	63.32	1.21	3.44	8.91
16 Aug 24	10:00	-0.01	63.44	1.23	3.43	8.83
16 Aug 24	10:01	0.06	63.16	1.14	3.50	8.90
16 Aug 24	10:02	0.07	62.86	1.14	3.52	8.91
16 Aug 24	10:03	0.00	62.69	1.15	3.60	8.82
16 Aug 24	10:04	0.06	62.89	1.12	3.55	8.90
16 Aug 24	10:05	0.04	63.01	1.13	3.59	8.77
16 Aug 24	10:06	0.03	62.86	1.13	3.55	8.86
16 Aug 24	10:07	0.05	63.01	1.13	3.55	8.88
16 Aug 24	10:08	0.03	62.96	1.24	3.58	8.86
16 Aug 24	10:09	0.05	62.72	1.15	3.46	8.89
16 Aug 24	10:10	0.02	62.29	1.07	3.45	8.95
16 Aug 24	10:11	0.02	61.68	1.16	3.42	8.86
Max		0.17	63.44	1.36	3.60	9.01
Avg		0.07	62.77	1.19	3.45	8.90

Run No: 3 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:12	0.03	61.98	1.13	3.52	8.87
16 Aug 24	10:13	0.03	62.52	1.10	3.63	8.87
16 Aug 24	10:14	0.08	62.96	1.10	3.53	8.92
16 Aug 24	10:15	-0.01	63.40	1.13	3.54	8.83
16 Aug 24	10:16	0.02	63.76	1.07	3.52	8.86
16 Aug 24	10:17	0.07	63.37	1.08	3.54	8.90
16 Aug 24	10:18	0.04	62.78	1.04	3.61	8.88
16 Aug 24	10:19	0.08	62.60	1.04	3.53	8.91
16 Aug 24	10:20	0.02	62.96	1.05	3.51	8.86
16 Aug 24	10:21	0.06	62.66	1.05	3.48	8.90
16 Aug 24	10:22	0.08	62.33	1.07	3.50	8.93
16 Aug 24	10:23	0.07	62.17	1.04	3.56	8.90
16 Aug 24	10:24	0.15	62.41	1.16	3.41	8.99
16 Aug 24	10:25	0.09	62.37	1.08	3.39	8.92
16 Aug 24	10:26	0.10	61.94	1.02	3.42	8.94
16 Aug 24	10:27	0.10	61.61	1.10	3.46	8.93
16 Aug 24	10:28	0.01	61.58	1.06	3.60	8.85
16 Aug 24	10:29	0.10	62.20	1.08	3.55	8.94
16 Aug 24	10:30	0.00	62.49	1.09	3.55	8.84
16 Aug 24	10:31	0.02	62.61	1.00	3.58	8.86
16 Aug 24	10:32	0.03	62.75	1.00	3.53	8.86
Max		0.15	63.76	1.16	3.63	8.99
Avg		0.06	62.55	1.07	3.52	8.89

Run No: 4 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:33	0.04	62.60	1.04	3.64	8.88
16 Aug 24	10:34	0.11	62.20	1.02	3.42	8.95
16 Aug 24	10:35	0.07	62.33	1.02	3.40	8.90
16 Aug 24	10:36	0.15	62.53	1.02	3.39	8.99
16 Aug 24	10:37	0.15	62.53	1.00	3.40	8.99
16 Aug 24	10:38	0.05	62.37	1.03	3.55	8.89
16 Aug 24	10:39	0.06	62.50	1.01	3.51	8.90
16 Aug 24	10:40	0.01	62.83	1.05	3.47	8.84
16 Aug 24	10:41	0.10	62.88	1.02	3.48	8.94
16 Aug 24	10:42	0.04	62.75	1.08	3.52	8.88
16 Aug 24	10:43	0.01	62.75	1.01	3.63	8.84
16 Aug 24	10:44	0.04	62.68	1.05	3.50	8.88
16 Aug 24	10:45	0.01	62.50	1.02	3.50	8.85
16 Aug 24	10:46	0.09	62.51	1.00	3.50	8.92
16 Aug 24	10:47	0.09	62.73	1.00	3.52	8.93
16 Aug 24	10:48	0.02	62.62	1.01	3.65	8.86
16 Aug 24	10:49	0.06	62.84	0.98	3.53	8.89
16 Aug 24	10:50	0.00	63.31	1.04	3.49	8.82
16 Aug 24	10:51	0.04	63.37	1.01	3.53	8.87
16 Aug 24	10:52	0.05	63.14	0.98	3.51	8.88
16 Aug 24	10:53	0.04	62.66	0.94	3.60	8.88
Max		0.15	63.37	1.08	3.65	8.99
Avg		0.06	62.70	1.02	3.51	8.89

Run No: 5 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	10:54	0.09	62.82	0.95	3.48	8.93
16 Aug 24	10:55	0.06	62.98	1.02	3.44	8.90
16 Aug 24	10:56	0.07	63.02	1.04	3.49	8.91
16 Aug 24	10:57	0.10	63.19	0.96	3.50	8.93
16 Aug 24	10:58	0.03	63.36	1.02	3.70	8.87
16 Aug 24	10:59	0.01	63.59	1.01	3.60	8.84
16 Aug 24	11:00	-0.01	63.78	1.02	3.56	8.82
16 Aug 24	11:01	0.06	63.93	0.97	3.53	8.89
16 Aug 24	11:02	0.16	63.82	0.94	3.55	8.90
16 Aug 24	11:03	0.11	63.55	0.98	3.65	8.84
16 Aug 24	11:04	0.20	63.35	0.96	3.48	8.93
16 Aug 24	11:05	0.12	63.11	0.93	3.49	8.86
16 Aug 24	11:06	0.15	62.97	0.89	3.48	8.89
16 Aug 24	11:07	0.16	62.66	0.90	3.51	8.90
16 Aug 24	11:08	0.16	62.60	0.94	3.61	8.89
16 Aug 24	11:09	0.17	62.68	0.92	3.54	8.91
16 Aug 24	11:10	0.12	63.02	0.92	3.53	8.80
16 Aug 24	11:11	0.15	63.29	0.88	3.55	8.89
16 Aug 24	11:12	0.16	62.88	0.91	3.51	8.90
16 Aug 24	11:13	0.09	62.41	0.92	3.64	8.83
16 Aug 24	11:14	0.19	62.01	0.95	3.49	8.93
Max		0.20	63.93	1.04	3.70	8.93
Avg		0.11	63.10	0.95	3.54	8.88

Run No: 6 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:15	0.14	62.15	0.94	3.48	8.87
16 Aug 24	11:16	0.17	62.19	1.15	3.45	8.91
16 Aug 24	11:17	0.17	62.19	0.98	3.51	8.91
16 Aug 24	11:18	0.11	62.55	0.93	3.69	8.81
16 Aug 24	11:19	0.14	63.04	0.91	3.59	8.88
16 Aug 24	11:20	0.12	62.95	0.92	3.57	8.80
16 Aug 24	11:21	0.14	62.77	1.17	3.58	8.88
16 Aug 24	11:22	0.11	62.50	0.96	3.57	8.84
16 Aug 24	11:23	0.11	62.41	0.99	3.63	8.85
16 Aug 24	11:24	0.18	62.56	0.95	3.48	8.92
16 Aug 24	11:25	0.13	62.95	0.96	3.49	8.87
16 Aug 24	11:26	0.20	63.33	0.91	3.51	8.93
16 Aug 24	11:27	0.17	63.56	0.97	3.54	8.91
16 Aug 24	11:28	0.09	63.45	0.88	3.66	8.82
16 Aug 24	11:29	0.13	63.19	0.87	3.56	8.86
16 Aug 24	11:30	0.10	62.96	0.94	3.53	8.82
16 Aug 24	11:31	0.16	63.13	0.96	3.52	8.90
16 Aug 24	11:32	0.17	63.05	1.01	3.52	8.91
16 Aug 24	11:33	0.13	62.45	1.09	3.62	8.87
16 Aug 24	11:34	0.20	62.52	0.96	3.45	8.93
16 Aug 24	11:35	0.19	62.71	0.95	3.40	8.93
Max		0.20	63.56	1.17	3.68	8.93
Avg		0.15	62.79	0.97	3.54	8.88

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 16 Aug 24
Plant Name: I-4/1 Location: F-170

Run No: 7 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:36	0.21	62.76	0.87	3.39	8.94
16 Aug 24	11:37	0.24	62.82	0.87	3.41	8.98
16 Aug 24	11:38	0.17	62.51	0.84	3.56	8.90
16 Aug 24	11:39	0.16	62.63	0.87	3.46	8.90
16 Aug 24	11:40	0.12	63.17	0.92	3.48	8.86
16 Aug 24	11:41	0.20	63.37	0.89	3.50	8.94
16 Aug 24	11:42	0.19	63.21	0.89	3.54	8.93
16 Aug 24	11:43	0.16	63.17	0.90	3.66	8.90
16 Aug 24	11:44	0.21	63.28	0.91	3.49	8.94
16 Aug 24	11:45	0.18	63.07	0.90	3.43	8.92
16 Aug 24	11:46	0.19	62.93	0.93	3.42	8.93
16 Aug 24	11:47	0.22	63.17	0.96	3.47	8.95
16 Aug 24	11:48	0.15	63.38	1.00	3.62	8.89
16 Aug 24	11:49	0.19	63.27	0.92	3.49	8.93
16 Aug 24	11:50	0.16	63.07	0.94	3.50	8.89
16 Aug 24	11:51	0.16	62.58	0.92	3.52	8.90
16 Aug 24	11:52	0.17	62.49	0.93	3.51	8.91
16 Aug 24	11:53	0.15	62.47	0.90	3.61	8.89
16 Aug 24	11:54	0.21	62.67	0.93	3.44	8.94
16 Aug 24	11:55	0.15	62.41	0.96	3.39	8.89
16 Aug 24	11:56	0.22	62.38	0.97	3.42	8.95
Max		0.24	63.38	1.00	3.66	8.98
Avg		0.18	62.90	0.91	3.49	8.92

Run No: 8 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	11:57	0.22	62.60	0.89	3.47	8.96
16 Aug 24	11:58	0.15	62.61	0.93	3.61	8.89
16 Aug 24	11:59	0.15	62.98	0.92	3.50	8.89
16 Aug 24	12:00	0.10	63.19	0.92	3.49	8.84
16 Aug 24	12:01	0.18	63.00	0.97	3.49	8.91
16 Aug 24	12:02	0.17	62.91	0.93	3.52	8.91
16 Aug 24	12:03	0.16	62.90	0.97	3.55	8.90
16 Aug 24	12:04	0.29	63.15	0.97	3.43	9.02
16 Aug 24	12:05	0.23	62.49	1.02	3.34	8.97
16 Aug 24	12:06	0.28	61.53	1.04	3.28	9.02
16 Aug 24	12:07	0.27	61.37	0.97	3.35	9.01
16 Aug 24	12:08	0.21	61.83	0.97	3.49	8.94
16 Aug 24	12:09	0.26	62.01	0.94	3.36	9.00
16 Aug 24	12:10	0.16	62.41	0.92	3.41	8.90
16 Aug 24	12:11	0.23	62.59	0.93	3.48	8.97
16 Aug 24	12:12	0.17	62.55	0.97	3.51	8.91
16 Aug 24	12:13	0.12	62.46	0.89	3.64	8.85
16 Aug 24	12:14	0.21	62.80	0.87	3.48	8.94
16 Aug 24	12:15	0.12	63.16	0.92	3.47	8.85
16 Aug 24	12:16	0.20	63.15	0.92	3.46	8.93
16 Aug 24	12:17	0.21	62.84	0.95	3.49	8.94
Max		0.29	63.19	1.04	3.64	9.02
Avg		0.20	62.60	0.95	3.47	8.93

Run No: 9 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:18	0.09	62.78	0.85	3.64	8.82
16 Aug 24	12:19	0.20	62.76	0.90	3.44	8.93
16 Aug 24	12:20	0.14	62.60	0.93	3.45	8.87
16 Aug 24	12:21	0.23	62.61	0.93	3.44	8.96
16 Aug 24	12:22	0.19	62.74	0.98	3.50	8.92
16 Aug 24	12:23	0.12	62.87	0.94	3.66	8.85
16 Aug 24	12:24	0.18	62.70	0.96	3.49	8.91
16 Aug 24	12:25	0.10	62.70	0.98	3.47	8.83
16 Aug 24	12:26	0.13	62.90	0.97	3.50	8.87
16 Aug 24	12:27	0.13	62.88	0.98	3.55	8.87
16 Aug 24	12:28	0.10	62.87	0.95	3.69	8.83
16 Aug 24	12:29	0.15	62.96	0.96	3.54	8.89
16 Aug 24	12:30	0.16	62.85	1.12	3.49	8.90
16 Aug 24	12:31	0.19	62.73	1.05	3.46	8.93
16 Aug 24	12:32	0.21	62.63	0.98	3.47	8.95
16 Aug 24	12:33	0.19	62.63	0.93	3.58	8.92
16 Aug 24	12:34	0.21	62.46	0.94	3.42	8.95
16 Aug 24	12:35	0.14	62.43	0.97	3.41	8.88
16 Aug 24	12:36	0.18	62.49	1.00	3.44	8.92
16 Aug 24	12:37	0.19	62.60	0.94	3.51	8.93
16 Aug 24	12:38	0.14	62.74	1.01	3.63	8.87
Max		0.23	62.96	1.12	3.69	8.96
Avg		0.16	62.71	0.97	3.51	8.90

Run No: 10 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	12:39	0.17	62.52	0.99	3.49	8.91
16 Aug 24	12:40	0.15	62.33	1.00	3.48	8.88
16 Aug 24	12:41	0.14	62.97	1.03	3.52	8.88
16 Aug 24	12:42	0.16	63.31	1.01	3.51	8.89
16 Aug 24	12:43	0.12	62.90	1.01	3.64	8.85
16 Aug 24	12:44	0.18	62.85	1.01	3.53	8.92
16 Aug 24	12:45	0.14	63.11	1.03	3.50	8.87
16 Aug 24	12:46	0.16	63.43	1.00	3.50	8.89
16 Aug 24	12:47	0.17	63.54	1.04	3.49	8.91
16 Aug 24	12:48	0.14	63.69	1.01	3.62	8.87
16 Aug 24	12:49	0.20	63.36	0.95	3.44	8.94
16 Aug 24	12:50	0.16	63.29	0.97	3.44	8.90
16 Aug 24	12:51	0.20	63.39	1.01	3.48	8.93
16 Aug 24	12:52	0.16	63.86	1.04	3.50	8.90
16 Aug 24	12:53	0.09	63.90	1.05	3.67	8.83
16 Aug 24	12:54	0.20	63.97	1.01	3.52	8.93
16 Aug 24	12:55	0.11	63.95	1.10	3.52	8.84
16 Aug 24	12:56	0.18	63.75	1.01	3.53	8.91
16 Aug 24	12:57	0.20	63.38	1.00	3.51	8.94
16 Aug 24	12:58	0.15	63.09	0.99	3.62	8.89
16 Aug 24	12:59	0.18	63.13	1.06	3.47	8.91
Max		0.20	63.97	1.10	3.67	8.94
Avg		0.16	63.32	1.01	3.52	8.90

Run No: 11 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:00	0.18	62.93	0.99	3.36	8.93
16 Aug 24	13:01	0.24	62.94	1.06	3.41	8.98
16 Aug 24	13:02	0.25	62.91	0.98	3.45	8.98
16 Aug 24	13:03	0.13	63.08	0.96	3.58	8.87
16 Aug 24	13:04	0.20	63.51	0.98	3.46	8.94
16 Aug 24	13:05	0.14	63.53	1.06	3.49	8.88
16 Aug 24	13:06	0.18	63.54	1.00	3.49	8.92
16 Aug 24	13:07	0.19	63.33	0.96	3.52	8.93
16 Aug 24	13:08	0.12	63.57	0.95	3.69	8.79
16 Aug 24	13:09	0.11	64.69	0.90	3.58	8.85
16 Aug 24	13:10	0.10	64.62	0.98	3.49	8.81
16 Aug 24	13:11	0.20	64.35	0.93	3.51	8.94
16 Aug 24	13:12	0.21	64.08	0.93	3.53	8.95
16 Aug 24	13:13	0.13	64.15	0.95	3.67	8.87
16 Aug 24	13:14	0.12	63.86	0.94	3.53	8.86
16 Aug 24	13:15	0.12	63.53	0.96	3.54	8.80
16 Aug 24	13:16	0.11	63.43	0.89	3.56	8.85
16 Aug 24	13:17	0.17	64.01	0.86	3.58	8.91
16 Aug 24	13:18	0.10	63.94	0.96	3.70	8.84
16 Aug 24	13:19	0.16	63.99	0.88	3.54	8.90
16 Aug 24	13:20	0.12	64.20	0.95	3.51	8.85
Max		0.25	64.82	1.06	3.70	8.98
Avg		0.16	63.73	0.95	3.54	8.89

Run No: 12 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
16 Aug 24	13:21	0.19	64.21	0.94	3.53	8.93
16 Aug 24	13:22	0.20	63.98	0.92	3.53	8.93
16 Aug 24	13:23	0.15	63.99	0.85	3.63	8.89
16 Aug 24	13:24	0.20	64.07	0.86	3.48	8.93
16 Aug 24	13:25	0.11	64.54	0.88	3.52	8.85
16 Aug 24	13:26	0.11	64.85	0.82	3.63	8.85
16 Aug 24	13:27	0.10	64.88	0.90	3.69	8.81
16 Aug 24	13:28	0.17	65.03	0.93	3.81	8.75
16 Aug 24	13:29	0.11	65.20	0.94	3.64	8.85
16 Aug 24	13:30	0.12	64.75	0.95	3.54	8.85
16 Aug 24	13:31	0.21	64.23	0.94	3.47	8.95
16 Aug 24	13:32	0.26	63.58	0.93	3.39	9.00
16 Aug 24	13:33	0.20	63.42	0.92	3.48	8.93
16 Aug 24	13:34	0.25	63.24	0.92	3.40	8.99
16 Aug 24	13:35	0.13	63.32	0.95	3.52	8.86
16 Aug 24	13:36	0.10	64.10	0.93	3.58	8.84
16 Aug 24	13:37	0.11	64.84	0.88	3.62	8.85
16 Aug 24	13:38	0.11	64.14	0.94	3.63	8.81
16 Aug 24	13:39	0.13	63.75	0.93	3.53	8.85
16 Aug 24	13:40	0.13	63.21	0.93	3.49	8.87
16 Aug 24	13:41	0.21	63.02	0.93	3.52	8.94
Max		0.26	65.20	0.96	3.81	9.00
Avg		0.16	64.10	0.93	3.55	8.88

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 12 Sep 24
Plant Name: I-4/1 Location: B-AT-1803

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	10:25	0.00	78.93	0.07	2.79	-
12 Sep 24	10:26	0.00	78.68	0.07	2.98	-
12 Sep 24	10:27	0.00	78.98	0.09	3.12	-
12 Sep 24	10:28	0.00	79.12	0.07	2.91	-
12 Sep 24	10:29	0.00	82.99	0.07	2.91	-
12 Sep 24	10:30	0.00	79.86	0.07	2.80	-
12 Sep 24	10:31	0.00	80.03	0.07	2.98	-
12 Sep 24	10:32	0.00	79.74	0.07	3.18	-
12 Sep 24	10:33	0.00	79.29	0.07	2.80	-
12 Sep 24	10:34	0.00	78.28	0.06	2.91	-
12 Sep 24	10:35	0.00	79.00	0.07	2.76	-
12 Sep 24	10:36	0.00	78.73	0.07	2.87	-
12 Sep 24	10:37	0.00	79.30	0.07	3.05	-
12 Sep 24	10:38	0.00	79.26	0.07	2.86	-
12 Sep 24	10:39	0.00	79.19	0.07	2.89	-
12 Sep 24	10:40	0.00	79.13	0.07	2.77	-
12 Sep 24	10:41	0.00	78.76	0.07	2.96	-
12 Sep 24	10:42	0.00	79.04	0.07	3.06	-
12 Sep 24	10:43	0.00	77.87	0.07	3.00	-
12 Sep 24	10:44	0.00	80.03	0.07	2.97	-
12 Sep 24	10:45	0.00	80.48	0.07	2.92	-
Max		0.00	82.99	0.09	3.18	-
Avg		0.00	79.38	0.07	2.93	-

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	10:46	0.00	79.52	0.07	2.97	-
12 Sep 24	10:47	0.00	78.42	0.07	2.94	-
12 Sep 24	10:48	0.00	78.41	0.07	2.92	-
12 Sep 24	10:49	0.00	79.84	0.07	2.93	-
12 Sep 24	10:50	0.00	80.21	0.07	2.86	-
12 Sep 24	10:51	0.00	79.38	0.07	2.91	-
12 Sep 24	10:52	0.00	77.85	0.07	2.87	-
12 Sep 24	10:53	0.00	79.52	0.07	2.97	-
12 Sep 24	10:54	0.00	79.35	0.07	2.99	-
12 Sep 24	10:55	0.00	79.42	0.07	3.03	-
12 Sep 24	10:56	0.00	78.64	0.07	2.94	-
12 Sep 24	10:57	0.00	77.21	0.07	2.98	-
12 Sep 24	10:58	0.00	79.47	0.07	2.82	-
12 Sep 24	10:59	0.00	79.05	0.06	2.98	-
12 Sep 24	11:00	0.00	78.64	0.07	2.97	-
12 Sep 24	11:01	0.00	80.56	0.06	3.04	-
12 Sep 24	11:02	0.00	78.85	0.07	2.79	-
12 Sep 24	11:03	0.00	79.82	0.06	2.83	-
12 Sep 24	11:04	0.00	79.22	0.06	2.92	-
12 Sep 24	11:05	0.00	79.36	0.06	3.12	-
12 Sep 24	11:06	0.00	79.18	0.07	2.91	-
Max		0.00	80.56	0.07	3.12	-
Avg		0.00	79.14	0.07	2.94	-

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	11:07	0.00	78.37	0.07	2.92	-
12 Sep 24	11:08	0.00	78.56	0.07	2.86	-
12 Sep 24	11:09	0.00	78.63	0.07	2.98	-
12 Sep 24	11:10	0.00	80.35	0.09	3.15	-
12 Sep 24	11:11	0.00	78.10	0.09	2.99	-
12 Sep 24	11:12	0.00	77.24	0.08	2.87	-
12 Sep 24	11:13	0.00	78.41	0.09	2.94	-
12 Sep 24	11:14	0.00	79.42	0.09	2.96	-
12 Sep 24	11:15	0.00	79.55	0.09	3.19	-
12 Sep 24	11:16	0.00	77.94	0.09	2.97	-
12 Sep 24	11:17	0.00	77.77	0.09	2.89	-
12 Sep 24	11:18	0.00	78.20	0.09	2.91	-
12 Sep 24	11:19	0.00	80.02	0.09	3.01	-
12 Sep 24	11:20	0.00	79.29	0.09	3.19	-
12 Sep 24	11:21	0.00	78.51	0.09	2.98	-
12 Sep 24	11:22	0.00	77.70	0.09	2.86	-
12 Sep 24	11:23	0.00	78.82	0.09	2.88	-
12 Sep 24	11:24	0.00	78.33	0.08	3.02	-
12 Sep 24	11:25	0.00	79.17	0.09	3.21	-
12 Sep 24	11:26	0.00	78.72	0.09	2.95	-
12 Sep 24	11:27	0.00	77.59	0.09	2.87	-
Max		0.00	80.35	0.09	3.21	-
Avg		0.00	78.60	0.09	2.98	-

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	11:28	0.00	77.80	0.09	2.86	-
12 Sep 24	11:29	0.00	77.63	0.08	2.92	-
12 Sep 24	11:30	0.00	78.43	0.07	3.23	-
12 Sep 24	11:31	0.00	76.73	0.09	2.91	-
12 Sep 24	11:32	0.00	77.95	0.08	2.94	-
12 Sep 24	11:33	0.00	76.60	0.09	2.84	-
12 Sep 24	11:34	0.00	78.50	0.09	2.98	-
12 Sep 24	11:35	0.00	80.32	0.09	3.31	-
12 Sep 24	11:36	0.00	77.86	0.09	2.93	-
12 Sep 24	11:37	0.00	79.03	0.09	2.97	-
12 Sep 24	11:38	0.00	79.44	0.09	2.92	-
12 Sep 24	11:39	0.00	79.34	0.09	2.84	-
12 Sep 24	11:40	0.00	79.14	0.09	3.21	-
12 Sep 24	11:41	0.00	78.89	0.08	2.84	-
12 Sep 24	11:42	0.00	78.96	0.07	2.96	-
12 Sep 24	11:43	0.00	79.88	0.07	2.82	-
12 Sep 24	11:44	0.00	80.41	0.06	3.03	-
12 Sep 24	11:45	0.00	79.21	0.07	3.21	-
12 Sep 24	11:46	0.00	81.31	0.07	3.04	-
12 Sep 24	11:47	0.00	78.86	0.07	2.99	-
12 Sep 24	11:48	0.00	80.61	0.09	2.90	-
Max		0.00	81.31	0.09	3.31	-
Avg		0.00	78.80	0.08	2.98	-

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	11:49	0.00	79.07	0.09	2.96	-
12 Sep 24	11:50	0.00	79.57	0.09	3.14	-
12 Sep 24	11:51	0.00	80.25	0.09	2.90	-
12 Sep 24	11:52	0.00	78.81	0.11	2.99	-
12 Sep 24	11:53	0.00	79.94	0.15	2.87	-
12 Sep 24	11:54	0.00	80.31	0.11	3.02	-
12 Sep 24	11:55	0.00	79.24	0.18	3.04	-
12 Sep 24	11:56	0.00	79.81	0.15	2.87	-
12 Sep 24	11:57	0.00	78.18	0.10	2.92	-
12 Sep 24	11:58	0.00	80.08	0.11	2.88	-
12 Sep 24	11:59	0.00	79.41	0.15	2.89	-
12 Sep 24	12:00	0.00	78.99	0.13	2.96	-
12 Sep 24	12:01	0.00	78.31	0.09	2.88	-
12 Sep 24	12:02	0.00	78.73	0.18	2.93	-
12 Sep 24	12:03	0.00	79.54	0.10	2.93	-
12 Sep 24	12:04	0.00	80.96	0.28	3.08	-
12 Sep 24	12:05	0.00	79.29	0.28	3.03	-
12 Sep 24	12:06	0.00	78.82	0.17	2.99	-
12 Sep 24	12:07	0.00	78.76	0.30	3.00	-
12 Sep 24	12:08	0.00	80.07	0.42	3.05	-
12 Sep 24	12:09	0.00	78.09	0.46	2.91	-
Max		0.00	80.96	0.46	3.14	-
Avg		0.00	79.34	0.18	2.96	-

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	12:10	0.00	78.47	0.39	2.85	-
12 Sep 24	12:11	0.00	78.68	0.42	2.87	-
12 Sep 24	12:12	0.00	79.33	0.41	2.89	-
12 Sep 24	12:13	0.00	81.75	0.35	3.06	-
12 Sep 24	12:14	0.00	80.11	0.42	2.95	-
12 Sep 24	12:15	0.00	78.75	0.48	2.92	-
12 Sep 24	12:16	0.00	79.36	0.38	2.95	-
12 Sep 24	12:17	0.00	78.37	0.37	3.01	-
12 Sep 24	12:18	0.00	78.95	0.48	3.10	-
12 Sep 24	12:19	0.00	79.09	0.50	3.01	-
12 Sep 24	12:20	0.00	79.61	0.38	2.88	-
12 Sep 24	12:21	0.00	79.11	0.48	2.89	-
12 Sep 24	12:22	0.00	79.96	0.39	2.96	-
12 Sep 24	12:23	0.00	79.84	0.35	3.14	-
12 Sep 24	12:24	0.00	79.03	0.30	2.88	-
12 Sep 24	12:25	0.00	77.64	0.40	2.82	-
12 Sep 24	12:26	0.00	76.97	0.56	2.74	-
12 Sep 24	12:27	0.00	78.17	0.43	3.00	-
12 Sep 24	12:28	0.00	79.35	0.46	3.15	-
12 Sep 24	12:29	0.00	78.65	0.51	2.95	-
12 Sep 24	12:30	0.00	78.40	0.64	2.87	-
Max		0.00	81.75	0.64	3.15	-
Avg		0.00	79.03	0.43	2.95	-

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 12 Sep 24
Plant Name: I-4/1 Location: B-AT-1803

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	12:31	0.00	78.55	0.72	2.75	-
12 Sep 24	12:32	0.00	77.70	0.67	2.86	-
12 Sep 24	12:33	0.00	79.63	0.56	3.23	-
12 Sep 24	12:34	0.00	78.90	0.76	2.89	-
12 Sep 24	12:35	0.00	80.35	0.59	2.96	-
12 Sep 24	12:36	0.00	78.81	0.81	2.80	-
12 Sep 24	12:37	0.00	78.74	0.71	2.95	-
12 Sep 24	12:38	0.00	80.34	0.67	3.30	-
12 Sep 24	12:39	0.00	79.38	0.78	2.91	-
12 Sep 24	12:40	0.00	79.23	0.71	2.87	-
12 Sep 24	12:41	0.00	79.72	0.84	2.77	-
12 Sep 24	12:42	0.00	80.37	0.73	2.90	-
12 Sep 24	12:43	0.00	79.02	0.51	3.18	-
12 Sep 24	12:44	0.00	79.73	0.62	2.90	-
12 Sep 24	12:45	0.00	81.04	0.75	2.90	-
12 Sep 24	12:46	0.00	79.19	0.76	2.77	-
12 Sep 24	12:47	0.00	80.73	0.76	2.89	-
12 Sep 24	12:48	0.00	82.90	0.65	3.22	-
12 Sep 24	12:49	0.00	80.64	0.75	2.96	-
12 Sep 24	12:50	0.00	81.11	0.88	2.82	-
12 Sep 24	12:51	0.00	82.07	0.90	2.83	-
Max		0.00	82.90	0.90	3.30	-
Avg		0.00	79.91	0.72	2.94	-

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	12:52	0.00	80.84	0.87	2.95	-
12 Sep 24	12:53	0.00	79.93	0.90	3.11	-
12 Sep 24	12:54	0.00	80.40	1.01	2.95	-
12 Sep 24	12:55	0.00	80.89	0.98	2.95	-
12 Sep 24	12:56	0.00	81.22	0.93	2.86	-
12 Sep 24	12:57	0.00	81.32	0.99	2.98	-
12 Sep 24	12:58	0.00	80.73	1.12	3.01	-
12 Sep 24	12:59	0.00	79.69	0.90	2.94	-
12 Sep 24	13:00	0.00	80.60	0.90	3.04	-
12 Sep 24	13:01	0.00	81.39	0.91	2.95	-
12 Sep 24	13:02	0.00	81.32	0.82	3.04	-
12 Sep 24	13:03	0.00	79.62	0.90	2.93	-
12 Sep 24	13:04	0.00	79.53	0.97	2.92	-
12 Sep 24	13:05	0.00	79.76	0.88	2.92	-
12 Sep 24	13:06	0.00	80.07	0.82	2.91	-
12 Sep 24	13:07	0.00	79.50	0.86	2.92	-
12 Sep 24	13:08	0.00	79.32	0.85	2.93	-
12 Sep 24	13:09	0.00	79.76	0.94	2.87	-
12 Sep 24	13:10	0.00	80.02	0.96	3.03	-
12 Sep 24	13:11	0.00	80.15	0.98	3.03	-
12 Sep 24	13:12	0.00	80.23	1.03	2.89	-
Max		0.00	81.39	1.12	3.11	-
Avg		0.00	80.30	0.93	2.96	-

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	13:13	0.00	80.39	1.02	2.83	-
12 Sep 24	13:14	0.00	80.88	1.03	2.85	-
12 Sep 24	13:15	0.00	80.29	1.10	2.91	-
12 Sep 24	13:16	0.00	82.52	1.02	3.12	-
12 Sep 24	13:17	0.00	79.57	1.15	2.86	-
12 Sep 24	13:18	0.00	80.14	1.08	2.80	-
12 Sep 24	13:19	0.00	78.35	1.07	2.81	-
12 Sep 24	13:20	0.00	79.82	1.00	2.83	-
12 Sep 24	13:21	0.00	82.46	0.91	3.15	-
12 Sep 24	13:22	0.00	80.24	1.08	2.97	-
12 Sep 24	13:23	0.00	80.99	1.14	2.90	-
12 Sep 24	13:24	0.00	78.19	1.08	2.84	-
12 Sep 24	13:25	0.00	79.45	1.00	2.81	-
12 Sep 24	13:26	0.00	79.54	0.95	3.16	-
12 Sep 24	13:27	0.00	79.26	0.99	2.94	-
12 Sep 24	13:28	0.00	80.89	1.07	2.90	-
12 Sep 24	13:29	0.00	78.84	1.11	2.81	-
12 Sep 24	13:30	0.00	79.56	1.11	2.90	-
12 Sep 24	13:31	0.00	80.83	0.99	3.18	-
12 Sep 24	13:32	0.00	78.83	1.01	2.94	-
12 Sep 24	13:33	0.00	78.86	1.12	2.93	-
Max		0.00	82.52	1.15	3.18	-
Avg		0.00	79.99	1.05	2.94	-

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	13:34	0.00	78.27	1.21	2.79	-
12 Sep 24	13:35	0.00	80.42	1.29	3.03	-
12 Sep 24	13:36	0.00	81.84	1.12	3.26	-
12 Sep 24	13:37	0.00	79.52	1.02	2.90	-
12 Sep 24	13:38	0.00	80.00	1.14	2.94	-
12 Sep 24	13:39	0.00	79.95	1.16	2.75	-
12 Sep 24	13:40	0.00	81.64	0.98	2.95	-
12 Sep 24	13:41	0.00	81.53	1.06	3.33	-
12 Sep 24	13:42	0.00	80.02	1.00	2.93	-
12 Sep 24	13:43	0.00	80.87	0.89	3.00	-
12 Sep 24	13:44	0.00	80.31	1.01	2.81	-
12 Sep 24	13:45	0.00	80.34	1.02	2.94	-
12 Sep 24	13:46	0.00	79.54	1.10	3.17	-
12 Sep 24	13:47	0.00	80.82	1.11	2.82	-
12 Sep 24	13:48	0.00	80.07	1.16	2.87	-
12 Sep 24	13:49	0.00	78.99	1.23	2.76	-
12 Sep 24	13:50	0.00	80.84	1.12	2.95	-
12 Sep 24	13:51	0.00	81.82	1.13	3.26	-
12 Sep 24	13:52	0.00	79.97	1.04	2.87	-
12 Sep 24	13:53	0.00	80.21	1.03	2.82	-
12 Sep 24	13:54	0.00	78.44	1.10	2.81	-
Max		0.00	81.84	1.29	3.33	-
Avg		0.00	80.26	1.09	2.96	-

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	13:55	0.00	80.66	1.01	2.91	-
12 Sep 24	13:56	0.00	79.89	1.00	3.05	-
12 Sep 24	13:57	0.00	80.00	0.95	2.92	-
12 Sep 24	13:58	0.00	81.21	0.94	2.86	-
12 Sep 24	13:59	0.00	80.45	0.93	2.82	-
12 Sep 24	14:00	0.00	79.45	0.88	2.91	-
12 Sep 24	14:01	0.00	79.10	0.90	2.88	-
12 Sep 24	14:02	0.00	78.52	0.94	2.92	-
12 Sep 24	14:03	0.00	79.13	1.03	2.93	-
12 Sep 24	14:04	0.00	79.41	1.03	3.00	-
12 Sep 24	14:05	0.00	79.94	1.02	3.00	-
12 Sep 24	14:06	0.00	77.87	0.98	2.89	-
12 Sep 24	14:07	0.00	79.34	1.03	2.84	-
12 Sep 24	14:08	0.00	78.58	0.93	2.92	-
12 Sep 24	14:09	0.00	80.15	0.98	2.93	-
12 Sep 24	14:10	0.00	80.86	1.00	2.98	-
12 Sep 24	14:11	0.00	77.76	0.91	2.74	-
12 Sep 24	14:12	0.00	78.85	1.03	2.83	-
12 Sep 24	14:13	0.00	79.29	0.97	2.96	-
12 Sep 24	14:14	0.00	80.03	0.78	3.07	-
12 Sep 24	14:15	0.00	78.90	0.84	2.93	-
Max		0.00	81.21	1.03	3.07	-
Avg		0.00	79.50	0.95	2.92	-

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	14:16	0.00	78.15	0.88	2.88	-
12 Sep 24	14:17	0.00	77.57	0.89	2.81	-
12 Sep 24	14:18	0.00	79.26	0.79	2.89	-
12 Sep 24	14:19	0.00	80.29	0.71	3.11	-
12 Sep 24	14:20	0.00	78.78	0.86	2.90	-
12 Sep 24	14:21	0.00	79.61	0.82	2.79	-
12 Sep 24	14:22	0.00	77.94	0.80	2.68	-
12 Sep 24	14:23	0.00	79.07	0.79	2.82	-
12 Sep 24	14:24	0.00	80.84	0.82	3.21	-
12 Sep 24	14:25	0.00	78.50	0.80	2.78	-
12 Sep 24	14:26	0.00	79.40	0.82	2.88	-
12 Sep 24	14:27	0.00	78.75	0.73	2.82	-
12 Sep 24	14:28	0.00	79.69	0.81	2.98	-
12 Sep 24	14:29	0.00	79.50	0.84	3.25	-
12 Sep 24	14:30	0.00	80.46	0.80	2.94	-
12 Sep 24	14:31	0.00	78.25	0.86	2.85	-
12 Sep 24	14:32	0.00	78.37	0.78	2.74	-
12 Sep 24	14:33	0.00	79.12	0.78	2.81	-
12 Sep 24	14:34	0.00	80.68	0.67	3.21	-
12 Sep 24	14:35	0.00	79.04	0.73	2.83	-
12 Sep 24	14:36	0.00	78.79	0.76	2.87	-
Max		0.00	80.84	0.90	3.25	-
Avg		0.00	79.15	0.78	2.91	-

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 12 Sep 24
Plant Name: I-4/1 Location: B-AT-1803

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	10:25	0.25	74.62	0.23	3.35	8.66
12 Sep 24	10:26	0.15	74.62	0.27	3.38	8.56
12 Sep 24	10:27	0.21	74.37	0.29	3.37	8.62
12 Sep 24	10:28	0.21	74.08	0.27	3.36	8.62
12 Sep 24	10:29	0.16	73.70	0.28	3.35	8.57
12 Sep 24	10:30	0.19	73.85	0.30	3.37	8.60
12 Sep 24	10:31	0.15	74.51	0.27	3.39	8.56
12 Sep 24	10:32	0.22	75.03	0.32	3.33	8.63
12 Sep 24	10:33	0.22	74.74	0.31	3.31	8.63
12 Sep 24	10:34	0.21	74.43	0.33	3.30	8.62
12 Sep 24	10:35	0.26	74.14	0.32	3.28	8.67
12 Sep 24	10:36	0.18	73.80	0.38	3.37	8.59
12 Sep 24	10:37	0.24	73.52	0.36	3.33	8.65
12 Sep 24	10:38	0.19	73.36	0.30	3.36	8.60
12 Sep 24	10:39	0.16	73.38	0.37	3.33	8.57
12 Sep 24	10:40	0.21	73.47	0.37	3.38	8.62
12 Sep 24	10:41	0.17	73.48	0.35	3.42	8.58
12 Sep 24	10:42	0.16	73.31	0.42	3.44	8.57
12 Sep 24	10:43	0.12	73.21	0.43	3.45	8.53
12 Sep 24	10:44	0.04	73.38	0.45	3.46	8.45
12 Sep 24	10:45	0.10	73.23	0.42	3.45	8.51
Max		0.26	75.03	0.45	3.46	8.67
Avg		0.18	73.92	0.33	3.37	8.59

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	10:46	0.10	73.38	0.42	3.55	8.51
12 Sep 24	10:47	0.10	73.61	0.40	3.41	8.51
12 Sep 24	10:48	0.16	73.47	0.43	3.41	8.57
12 Sep 24	10:49	0.11	73.15	0.42	3.43	8.52
12 Sep 24	10:50	0.14	73.14	0.40	3.42	8.55
12 Sep 24	10:51	0.14	73.31	0.38	3.44	8.55
12 Sep 24	10:52	0.17	73.43	0.39	3.41	8.58
12 Sep 24	10:53	0.14	73.39	0.37	3.41	8.55
12 Sep 24	10:54	0.08	73.20	0.41	3.45	8.49
12 Sep 24	10:55	0.11	73.03	0.46	3.46	8.52
12 Sep 24	10:56	0.07	72.90	0.41	3.57	8.48
12 Sep 24	10:57	0.06	72.70	0.47	3.51	8.47
12 Sep 24	10:58	0.09	72.78	0.47	3.48	8.50
12 Sep 24	10:59	0.07	72.81	0.40	3.47	8.48
12 Sep 24	11:00	0.10	73.01	0.42	3.46	8.51
12 Sep 24	11:01	0.09	72.74	0.42	3.58	8.50
12 Sep 24	11:02	0.13	72.34	0.42	3.51	8.54
12 Sep 24	11:03	0.09	72.62	0.40	3.46	8.50
12 Sep 24	11:04	0.08	73.09	0.48	3.48	8.49
12 Sep 24	11:05	0.10	73.03	0.45	3.48	8.51
12 Sep 24	11:06	0.09	72.91	0.44	3.58	8.50
Max		0.17	73.61	0.48	3.58	8.58
Avg		0.11	73.05	0.42	3.47	8.52

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	11:07	0.02	72.75	0.42	3.46	8.43
12 Sep 24	11:08	0.12	72.67	0.46	3.52	8.53
12 Sep 24	11:09	0.04	72.74	0.44	3.48	8.45
12 Sep 24	11:10	0.09	72.36	0.47	3.49	8.50
12 Sep 24	11:11	0.09	72.32	0.47	3.55	8.50
12 Sep 24	11:12	0.08	72.52	0.40	3.46	8.49
12 Sep 24	11:13	0.10	72.62	0.41	3.55	8.51
12 Sep 24	11:14	0.06	72.27	0.41	3.48	8.47
12 Sep 24	11:15	0.13	72.37	0.48	3.52	8.54
12 Sep 24	11:16	0.08	72.82	0.41	3.57	8.49
12 Sep 24	11:17	0.07	72.45	0.42	3.49	8.48
12 Sep 24	11:18	0.09	72.17	0.48	3.52	8.50
12 Sep 24	11:19	0.04	71.93	0.53	3.55	8.45
12 Sep 24	11:20	0.07	72.15	0.47	3.53	8.48
12 Sep 24	11:21	0.08	72.49	0.48	3.60	8.49
12 Sep 24	11:22	0.05	72.75	0.49	3.44	8.46
12 Sep 24	11:23	0.12	72.48	0.48	3.47	8.53
12 Sep 24	11:24	0.08	72.12	0.37	3.53	8.49
12 Sep 24	11:25	0.09	71.89	0.50	3.54	8.50
12 Sep 24	11:26	0.04	71.98	0.51	3.56	8.45
12 Sep 24	11:27	0.02	71.87	0.48	3.54	8.43
Max		0.13	72.75	0.53	3.60	8.54
Avg		0.07	72.36	0.46	3.52	8.48

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	11:28	0.06	71.78	0.51	3.48	8.47
12 Sep 24	11:29	0.05	71.56	0.43	3.56	8.46
12 Sep 24	11:30	0.07	71.65	0.51	3.55	8.48
12 Sep 24	11:31	0.02	71.75	0.54	3.59	8.43
12 Sep 24	11:32	0.04	71.41	0.47	3.51	8.45
12 Sep 24	11:33	0.07	71.93	0.51	3.57	8.48
12 Sep 24	11:34	0.04	72.15	0.50	3.56	8.45
12 Sep 24	11:35	0.09	72.13	0.50	3.58	8.50
12 Sep 24	11:36	0.13	72.18	0.50	3.65	8.44
12 Sep 24	11:37	0.11	72.42	0.54	3.52	8.42
12 Sep 24	11:38	0.16	72.56	0.53	3.58	8.47
12 Sep 24	11:39	0.05	72.51	0.57	3.68	8.36
12 Sep 24	11:40	0.11	72.85	0.52	3.49	8.42
12 Sep 24	11:41	0.20	72.95	0.54	3.52	8.51
12 Sep 24	11:42	0.14	72.81	0.56	3.50	8.45
12 Sep 24	11:43	0.17	72.60	0.55	3.57	8.48
12 Sep 24	11:44	0.07	72.75	0.61	3.64	8.38
12 Sep 24	11:45	0.11	73.08	0.50	3.57	8.42
12 Sep 24	11:46	0.11	73.60	0.53	3.57	8.41
12 Sep 24	11:47	0.11	73.69	0.51	3.56	8.42
12 Sep 24	11:48	0.17	73.99	0.51	3.59	8.48
Max		0.20	73.99	0.61	3.68	8.51
Avg		0.10	72.49	0.52	3.56	8.45

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	11:49	0.13	73.81	0.47	3.66	8.44
12 Sep 24	11:50	0.18	73.44	0.60	3.52	8.49
12 Sep 24	11:51	0.18	73.55	0.50	3.51	8.49
12 Sep 24	11:52	0.10	73.67	0.47	3.52	8.41
12 Sep 24	11:53	0.22	73.73	0.51	3.49	8.53
12 Sep 24	11:54	0.19	73.66	0.58	3.62	8.50
12 Sep 24	11:55	0.16	73.41	0.48	3.54	8.47
12 Sep 24	11:56	0.13	73.51	0.52	3.52	8.44
12 Sep 24	11:57	0.11	73.57	0.57	3.49	8.42
12 Sep 24	11:58	0.20	73.40	0.45	3.52	8.51
12 Sep 24	11:59	0.15	73.13	0.46	3.58	8.46
12 Sep 24	12:00	0.20	72.98	0.49	3.46	8.51
12 Sep 24	12:01	0.19	73.10	0.57	3.52	8.50
12 Sep 24	12:02	0.10	72.90	0.49	3.53	8.41
12 Sep 24	12:03	0.13	72.84	0.48	3.58	8.44
12 Sep 24	12:04	0.13	72.74	0.53	3.65	8.44
12 Sep 24	12:05	0.15	73.13	0.63	3.53	8.46
12 Sep 24	12:06	0.15	73.46	0.57	3.53	8.46
12 Sep 24	12:07	0.07	73.69	0.52	3.55	8.38
12 Sep 24	12:08	0.12	73.07	0.52	3.57	8.43
12 Sep 24	:09	0.11	72.62	0.48	3.68	8.42
Max		0.22	73.73	0.63	3.68	8.53
Avg		0.15	73.29	0.52	3.55	8.46

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	12:10	0.14	72.59	0.51	3.49	8.45
12 Sep 24	12:11	0.21	72.26	0.44	3.53	8.52
12 Sep 24	12:12	0.09	72.19	0.48	3.56	8.40
12 Sep 24	12:13	0.16	72.25	0.50	3.54	8.47
12 Sep 24	12:14	0.14	72.42	0.58	3.66	8.45
12 Sep 24	12:15	0.12	73.04	0.46	3.53	8.43
12 Sep 24	12:16	0.15	73.29	0.53	3.59	8.46
12 Sep 24	12:17	0.06	73.01	0.60	3.58	8.37
12 Sep 24	12:18	0.11	72.78	0.62	3.59	8.42
12 Sep 24	12:19	0.08	72.48	0.58	3.67	8.39
12 Sep 24	12:20	0.07	72.16	0.53	3.61	8.38
12 Sep 24	12:21	0.11	72.27	0.53	3.56	8.42
12 Sep 24	12:22	0.07	72.69	0.47	3.58	8.38
12 Sep 24	12:23	0.17	72.90	0.44	3.56	8.48
12 Sep 24	12:24	0.17	72.99	0.39	3.59	8.47
12 Sep 24	12:25	0.15	72.65	0.39	3.50	8.46
12 Sep 24	12:26	0.19	72.38	0.48	3.51	8.50
12 Sep 24	12:27	0.12	71.99	0.54	3.55	8.43
12 Sep 24	12:28	0.17	71.79	0.46	3.56	8.48
12 Sep 24	12:29	0.13	71.73	0.43	3.60	8.44
12 Sep 24	12:30	0.16	71.70	0.50	3.55	8.47
Max		0.21	73.29	0.62	3.67	8.52
Avg		0.13	72.48	0.50	3.57	8.44

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 12 Sep 24
Plant Name: I-4/1 Location: B-AT-1803

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	12:31	0.15	71.57	0.50	3.54	8.46
12 Sep 24	12:32	0.09	71.73	0.50	3.57	8.40
12 Sep 24	12:33	0.18	71.47	0.58	3.51	8.49
12 Sep 24	12:34	0.19	71.54	0.60	3.56	8.50
12 Sep 24	12:35	0.15	71.86	0.43	3.54	8.46
12 Sep 24	12:36	0.16	72.34	0.54	3.54	8.47
12 Sep 24	12:37	0.12	72.95	0.53	3.60	8.43
12 Sep 24	12:38	0.15	73.46	0.52	3.49	8.46
12 Sep 24	12:39	0.18	73.47	0.52	3.52	8.49
12 Sep 24	12:40	0.18	73.54	0.50	3.44	8.49
12 Sep 24	12:41	0.22	73.96	0.54	3.51	8.53
12 Sep 24	12:42	0.19	74.06	0.47	3.53	8.49
12 Sep 24	12:43	0.19	74.11	0.52	3.53	8.50
12 Sep 24	12:44	0.20	74.00	0.45	3.54	8.51
12 Sep 24	12:45	0.16	73.56	0.45	3.55	8.47
12 Sep 24	12:46	0.16	73.40	0.48	3.57	8.47
12 Sep 24	12:47	0.07	73.92	0.47	3.67	8.38
12 Sep 24	12:48	0.18	73.71	0.38	3.55	8.49
12 Sep 24	12:49	0.15	73.57	0.39	3.63	8.46
12 Sep 24	12:50	0.13	74.18	0.47	3.55	8.44
12 Sep 24	12:51	0.14	74.62	0.41	3.62	8.45
Max		0.22	74.62	0.58	3.67	8.53
Avg		0.16	73.19	0.48	3.55	8.47

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	12:52	0.07	74.42	0.47	3.69	8.38
12 Sep 24	12:53	0.14	74.38	0.35	3.58	8.45
12 Sep 24	12:54	0.12	73.95	0.49	3.60	8.43
12 Sep 24	12:55	0.10	73.38	0.48	3.61	8.41
12 Sep 24	12:56	0.15	73.08	0.40	3.60	8.46
12 Sep 24	12:57	0.04	73.07	0.44	3.76	8.35
12 Sep 24	12:58	0.08	73.39	0.41	3.61	8.39
12 Sep 24	12:59	0.10	73.65	0.45	3.61	8.41
12 Sep 24	13:00	0.06	73.61	0.46	3.63	8.37
12 Sep 24	13:01	0.11	73.24	0.52	3.70	8.42
12 Sep 24	13:02	0.04	73.10	0.46	3.77	8.35
12 Sep 24	13:03	0.06	73.32	0.45	3.67	8.37
12 Sep 24	13:04	0.09	73.53	0.46	3.58	8.40
12 Sep 24	13:05	0.11	73.74	0.48	3.59	8.42
12 Sep 24	13:06	0.14	73.53	0.43	3.58	8.45
12 Sep 24	13:07	0.10	73.36	0.46	3.68	8.41
12 Sep 24	13:08	0.10	73.19	0.47	3.56	8.41
12 Sep 24	13:09	0.14	73.03	0.38	3.62	8.45
12 Sep 24	13:10	0.03	72.81	0.44	3.62	8.34
12 Sep 24	13:11	0.11	72.97	0.43	3.66	8.42
12 Sep 24	13:12	0.12	72.77	0.46	3.72	8.43
Max		0.15	74.42	0.52	3.77	8.46
Avg		0.10	73.40	0.45	3.64	8.41

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	13:13	0.10	72.75	0.44	3.62	8.41
12 Sep 24	13:14	0.10	72.69	0.43	3.65	8.41
12 Sep 24	13:15	0.03	73.10	0.49	3.62	8.34
12 Sep 24	13:16	0.10	73.10	0.44	3.63	8.41
12 Sep 24	13:17	0.12	72.99	0.44	3.72	8.43
12 Sep 24	13:18	0.08	72.96	0.42	3.58	8.39
12 Sep 24	13:19	0.15	72.94	0.48	3.61	8.46
12 Sep 24	13:20	0.05	72.91	0.48	3.63	8.36
12 Sep 24	13:21	0.09	72.74	0.44	3.60	8.40
12 Sep 24	13:22	0.09	72.88	0.43	3.68	8.40
12 Sep 24	13:23	0.13	73.16	0.41	3.58	8.44
12 Sep 24	13:24	0.12	73.14	0.43	3.64	8.43
12 Sep 24	13:25	0.04	72.63	0.36	3.64	8.35
12 Sep 24	13:26	0.09	72.39	0.30	3.63	8.40
12 Sep 24	13:27	0.08	72.09	0.35	3.68	8.39
12 Sep 24	13:28	0.12	72.19	0.28	3.62	8.43
12 Sep 24	13:29	0.12	72.09	0.35	3.62	8.42
12 Sep 24	13:30	0.04	72.89	0.43	3.67	8.35
12 Sep 24	13:31	0.12	72.98	0.27	3.64	8.43
12 Sep 24	13:32	0.07	72.84	0.34	3.72	8.38
12 Sep 24	13:33	0.07	72.58	0.23	3.63	8.38
Max		0.15	73.16	0.49	3.72	8.46
Avg		0.09	72.76	0.39	3.64	8.40

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	13:34	0.11	72.37	0.37	3.64	8.42
12 Sep 24	13:35	0.05	72.06	0.39	3.65	8.36
12 Sep 24	13:36	0.08	71.96	0.37	3.69	8.39
12 Sep 24	13:37	0.05	72.19	0.39	3.68	8.36
12 Sep 24	13:38	0.04	72.60	0.34	3.64	8.35
12 Sep 24	13:39	0.11	72.76	0.36	3.64	8.41
12 Sep 24	13:40	0.03	72.64	0.41	3.68	8.34
12 Sep 24	13:41	0.09	73.07	0.36	3.64	8.40
12 Sep 24	13:42	0.08	73.55	0.36	3.70	8.39
12 Sep 24	13:43	0.01	73.65	0.36	3.65	8.32
12 Sep 24	13:44	0.06	73.34	0.39	3.71	8.37
12 Sep 24	13:45	-0.02	73.33	0.40	3.73	8.29
12 Sep 24	13:46	0.08	73.42	0.45	3.69	8.39
12 Sep 24	13:47	0.06	72.98	0.62	3.66	8.37
12 Sep 24	13:48	0.07	72.37	0.62	3.60	8.38
12 Sep 24	13:49	0.11	72.54	0.64	3.67	8.42
12 Sep 24	13:50	0.07	72.82	0.39	3.76	8.37
12 Sep 24	13:51	0.05	72.86	0.61	3.69	8.36
12 Sep 24	13:52	0.08	72.89	0.62	3.73	8.39
12 Sep 24	13:53	-0.01	73.39	0.46	3.66	8.30
12 Sep 24	13:54	0.08	72.98	0.70	3.66	8.39
Max		0.11	73.65	0.70	3.76	8.42
Avg		0.06	72.85	0.46	3.67	8.37

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	13:55	0.01	72.50	0.36	3.78	8.32
12 Sep 24	13:56	0.08	72.28	0.62	3.66	8.39
12 Sep 24	13:57	0.07	72.51	0.42	3.70	8.38
12 Sep 24	13:58	0.00	72.85	0.44	3.67	8.31
12 Sep 24	13:59	0.07	72.68	0.53	3.70	8.38
12 Sep 24	14:00	0.06	72.31	0.58	3.79	8.37
12 Sep 24	14:01	0.09	72.23	0.51	3.67	8.40
12 Sep 24	14:02	0.09	72.05	0.48	3.70	8.40
12 Sep 24	14:03	0.05	72.25	0.51	3.72	8.36
12 Sep 24	14:04	0.06	72.15	0.48	3.75	8.37
12 Sep 24	14:05	-0.03	71.89	0.53	3.91	8.28
12 Sep 24	14:06	0.00	71.59	0.46	3.71	8.31
12 Sep 24	14:07	0.07	71.45	0.54	3.72	8.38
12 Sep 24	14:08	0.00	71.13	0.54	3.66	8.31
12 Sep 24	14:09	0.14	71.23	0.50	3.60	8.45
12 Sep 24	14:10	0.08	71.43	0.44	3.69	8.39
12 Sep 24	14:11	0.12	71.65	0.44	3.65	8.43
12 Sep 24	14:12	0.11	71.87	0.49	3.66	8.42
12 Sep 24	14:13	0.02	71.64	0.50	3.69	8.33
12 Sep 24	14:14	0.12	71.18	0.50	3.67	8.43
12 Sep 24	14:15	0.09	70.96	0.53	3.79	8.40
Max		0.14	72.85	0.62	3.91	8.45
Avg		0.06	71.90	0.50	3.71	8.37

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
12 Sep 24	14:16	0.01	70.93	0.54	3.69	8.32
12 Sep 24	14:17	0.05	70.80	0.51	3.70	8.36
12 Sep 24	14:18	0.01	70.99	0.49	3.65	8.32
12 Sep 24	14:19	0.11	71.04	0.47	3.71	8.42
12 Sep 24	14:20	0.04	71.18	0.53	3.77	8.35
12 Sep 24	14:21	0.04	70.87	0.49	3.67	8.35
12 Sep 24	14:22	0.07	70.77	0.53	3.67	8.38
12 Sep 24	14:23	0.04	71.06	0.50	3.70	8.35
12 Sep 24	14:24	0.05	71.27	0.53	3.69	8.36
12 Sep 24	14:25	0.08	71.04	0.53	3.70	8.39
12 Sep 24	14:26	0.06	71.19	0.54	3.64	8.36
12 Sep 24	14:27	0.13	71.27	0.47	3.65	8.44
12 Sep 24	14:28	-0.03	71.42	0.53	3.69	8.28
12 Sep 24	14:29	0.09	71.61	0.51	3.61	8.40
12 Sep 24	14:30	0.12	72.01	0.49	3.65	8.43
12 Sep 24	14:31	0.11	71.85	0.56	3.58	8.42
12 Sep 24	14:32	0.12	72.09	0.56	3.62	8.43
12 Sep 24	14:33	0.11	72.23	0.59	3.64	8.42
12 Sep 24	14:34	0.12	71.84	0.57	3.64	8.43
12 Sep 24	14:35	0.09	71.70	0.56	3.67	8.40
12 Sep 24	14:36	0.06	71.64	0.49	3.65	8.37
Max		0.13	72.23	0.59	3.77	8.44
Avg		0.07	71.39	0.52	3.67	8.38

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 03 Sep 24
Location: B-AT-1903 (F-190)

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	11:20	0.00	51.28	0.09	2.88	-
03 Sep 24	11:21	0.00	52.39	0.09	2.87	-
03 Sep 24	11:22	0.00	50.86	0.09	2.76	-
03 Sep 24	11:23	0.00	51.24	0.09	2.61	-
03 Sep 24	11:24	0.00	51.23	0.08	2.83	-
03 Sep 24	11:25	0.00	52.55	0.07	2.84	-
03 Sep 24	11:26	0.00	51.81	0.09	2.61	-
03 Sep 24	11:27	0.00	51.28	0.09	2.59	-
03 Sep 24	11:28	0.00	51.46	0.09	2.59	-
03 Sep 24	11:29	0.00	51.74	0.09	2.83	-
03 Sep 24	11:30	0.00	52.35	0.08	2.70	-
03 Sep 24	11:31	0.00	51.83	0.07	2.87	-
03 Sep 24	11:32	0.00	51.84	0.09	2.87	-
03 Sep 24	11:33	0.00	51.65	0.08	2.61	-
03 Sep 24	11:34	0.00	51.48	0.09	2.83	-
03 Sep 24	11:35	0.00	52.80	0.09	2.79	-
03 Sep 24	11:36	0.00	52.17	0.08	2.70	-
03 Sep 24	11:37	0.00	50.77	0.07	2.57	-
03 Sep 24	11:38	0.00	50.24	0.09	2.58	-
03 Sep 24	11:39	0.00	51.96	0.08	2.65	-
03 Sep 24	11:40	0.00	53.12	0.07	2.87	-
Max		0.00	53.12	0.09	2.87	-
Avg		0.00	51.71	0.08	2.66	-

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	11:41	0.00	52.28	0.08	2.66	-
03 Sep 24	11:42	0.00	51.26	0.07	2.58	-
03 Sep 24	11:43	0.00	51.85	0.07	2.61	-
03 Sep 24	11:44	0.00	53.47	0.07	2.73	-
03 Sep 24	11:45	0.00	54.64	0.07	2.93	-
03 Sep 24	11:46	0.00	52.08	0.07	2.68	-
03 Sep 24	11:47	0.00	52.20	0.09	2.63	-
03 Sep 24	11:48	0.00	51.85	0.09	2.50	-
03 Sep 24	11:49	0.00	52.85	0.09	2.69	-
03 Sep 24	11:50	0.00	53.80	0.09	2.98	-
03 Sep 24	11:51	0.00	54.01	0.09	2.77	-
03 Sep 24	11:52	0.00	53.61	0.08	2.75	-
03 Sep 24	11:53	0.00	52.32	0.09	2.58	-
03 Sep 24	11:54	0.00	52.75	0.08	2.66	-
03 Sep 24	11:55	0.00	54.12	0.09	2.82	-
03 Sep 24	11:56	0.00	53.49	0.09	2.72	-
03 Sep 24	11:57	0.00	53.10	0.09	2.69	-
03 Sep 24	11:58	0.00	52.73	0.09	2.57	-
03 Sep 24	11:59	0.00	53.05	0.09	2.69	-
03 Sep 24	12:00	0.00	53.94	0.09	2.87	-
03 Sep 24	12:01	0.00	53.53	0.08	2.72	-
Max		0.00	54.64	0.09	2.98	-
Avg		0.00	52.99	0.08	2.72	-

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	12:02	0.00	54.17	0.07	2.76	-
03 Sep 24	12:03	0.00	53.85	0.07	2.83	-
03 Sep 24	12:04	0.00	53.47	0.07	2.75	-
03 Sep 24	12:05	0.00	52.99	0.07	2.77	-
03 Sep 24	12:06	0.00	52.85	0.07	2.71	-
03 Sep 24	12:07	0.00	52.88	0.07	2.74	-
03 Sep 24	12:08	0.00	53.34	0.06	2.72	-
03 Sep 24	12:09	0.00	53.73	0.07	2.77	-
03 Sep 24	12:10	0.00	51.56	0.09	2.75	-
03 Sep 24	12:11	0.00	54.40	0.09	2.76	-
03 Sep 24	12:12	0.00	54.13	0.08	2.77	-
03 Sep 24	12:13	0.00	53.27	0.09	2.85	-
03 Sep 24	12:14	0.00	52.96	0.09	2.85	-
03 Sep 24	12:15	0.00	52.12	0.08	2.71	-
03 Sep 24	12:16	0.00	53.03	0.08	2.70	-
03 Sep 24	12:17	0.00	53.74	0.08	2.87	-
03 Sep 24	12:18	0.00	53.54	0.11	2.73	-
03 Sep 24	12:19	0.00	53.88	0.09	2.74	-
03 Sep 24	12:20	0.00	53.15	0.09	2.71	-
03 Sep 24	12:21	0.00	53.49	0.09	2.71	-
03 Sep 24	12:22	0.00	52.95	0.09	2.76	-
Max		0.00	54.40	0.11	2.77	-
Avg		0.00	53.30	0.08	2.72	-

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	12:23	0.00	53.48	0.09	2.81	-
03 Sep 24	12:24	0.00	53.50	0.09	2.73	-
03 Sep 24	12:25	0.00	53.09	0.09	2.72	-
03 Sep 24	12:26	0.00	52.25	0.09	2.82	-
03 Sep 24	12:27	0.00	52.80	0.09	2.69	-
03 Sep 24	12:28	0.00	53.60	0.09	2.80	-
03 Sep 24	12:29	0.00	52.26	0.09	2.60	-
03 Sep 24	12:30	0.00	50.85	0.08	2.48	-
03 Sep 24	12:31	0.00	52.34	0.08	2.53	-
03 Sep 24	12:32	0.00	52.73	0.09	2.76	-
03 Sep 24	12:33	0.00	53.57	0.09	2.84	-
03 Sep 24	12:34	0.00	52.56	0.08	2.80	-
03 Sep 24	12:35	0.00	52.62	0.09	2.70	-
03 Sep 24	12:36	0.00	51.91	0.09	2.82	-
03 Sep 24	12:37	0.00	52.40	0.09	2.84	-
03 Sep 24	12:38	0.00	52.76	0.09	2.88	-
03 Sep 24	12:39	0.00	53.36	0.09	2.72	-
03 Sep 24	12:40	0.00	51.58	0.08	2.62	-
03 Sep 24	12:41	0.00	52.58	0.07	2.62	-
03 Sep 24	12:42	0.00	52.00	0.07	2.67	-
03 Sep 24	12:43	0.00	52.44	0.06	2.88	-
Max		0.00	53.60	0.09	2.84	-
Avg		0.00	52.60	0.09	2.71	-

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	12:44	0.00	51.78	0.07	2.67	-
03 Sep 24	12:45	0.00	51.27	0.07	2.56	-
03 Sep 24	12:46	0.00	51.50	0.07	2.49	-
03 Sep 24	12:47	0.00	51.13	0.91	2.61	-
03 Sep 24	12:48	0.00	52.80	0.17	3.00	-
03 Sep 24	12:49	0.00	51.80	0.09	2.72	-
03 Sep 24	12:50	0.00	52.36	0.09	2.68	-
03 Sep 24	12:51	0.00	51.81	0.09	2.61	-
03 Sep 24	12:52	0.00	51.89	0.09	2.73	-
03 Sep 24	12:53	0.00	52.12	0.09	2.84	-
03 Sep 24	12:54	0.00	51.86	0.09	2.68	-
03 Sep 24	12:55	0.00	52.63	0.09	2.63	-
03 Sep 24	12:56	0.00	51.63	0.09	2.51	-
03 Sep 24	12:57	0.00	51.55	0.09	2.65	-
03 Sep 24	12:58	0.00	51.20	0.09	2.81	-
03 Sep 24	12:59	0.00	52.53	0.08	2.69	-
03 Sep 24	13:00	0.00	52.41	0.09	2.71	-
03 Sep 24	13:01	0.00	51.12	0.09	2.56	-
03 Sep 24	13:02	0.00	52.57	0.09	2.70	-
03 Sep 24	13:03	0.00	51.87	0.09	2.83	-
03 Sep 24	13:04	0.00	51.29	0.09	2.65	-
Max		0.00	52.80	0.91	3.00	-
Avg		0.00	51.86	0.13	2.69	-

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	13:05	0.00	51.95	0.09	2.65	-
03 Sep 24	13:06	0.00	52.72	0.09	2.60	-
03 Sep 24	13:07	0.00	51.81	0.09	2.66	-
03 Sep 24	13:08	0.00	50.95	0.09	2.59	-
03 Sep 24	13:09	0.00	51.68	0.09	2.59	-
03 Sep 24	13:10	0.00	51.81	0.09	2.63	-
03 Sep 24	13:11	0.00	51.55	0.08	2.68	-
03 Sep 24	13:12	0.00	51.28	0.09	2.62	-
03 Sep 24	13:13	0.00	51.80	0.09	2.64	-
03 Sep 24	13:14	0.00	51.08	0.09	2.62	-
03 Sep 24	13:15	0.00	51.31	0.08	2.68	-
03 Sep 24	13:16	0.00	52.62	0.08	2.76	-
03 Sep 24	13:17	0.00	51.96	0.08	2.67	-
03 Sep 24	13:18	0.00	50.93	0.08	2.59	-
03 Sep 24	13:19	0.00	51.71	0.08	2.56	-
03 Sep 24	13:20	0.00	51.78	0.08	2.67	-
03 Sep 24	13:21	0.00	51.89	0.08	2.78	-
03 Sep 24	13:22	0.00	51.75	0.09	2.74	-
03 Sep 24	13:23	0.00	51.37	0.09	2.56	-
03 Sep 24	13:24	0.00	49.69	0.09	2.54	-
03 Sep 24	13:25	0.00	50.95	0.09	2.62	-
Max		0.00	52.72	0.09	2.78	-
Avg		0.00	51.55	0.08	2.64	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 03 Sep 24
Location: B-AT-1903 (F-190)

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	13:26	0.00	52.75	0.09	2.81	-
03 Sep 24	13:27	0.00	50.89	0.09	2.59	-
03 Sep 24	13:28	0.00	51.50	0.09	2.55	-
03 Sep 24	13:29	0.00	50.98	0.09	2.51	-
03 Sep 24	13:30	0.00	52.10	0.09	2.59	-
03 Sep 24	13:31	0.00	52.57	0.09	2.88	-
03 Sep 24	13:32	0.00	51.09	0.09	2.68	-
03 Sep 24	13:33	0.00	51.80	0.11	2.57	-
03 Sep 24	13:34	0.00	50.54	0.11	2.51	-
03 Sep 24	13:35	0.00	51.81	0.08	2.68	-
03 Sep 24	13:36	0.00	52.39	0.09	2.88	-
03 Sep 24	13:37	0.00	51.18	0.09	2.61	-
03 Sep 24	13:38	0.00	51.60	0.09	2.62	-
03 Sep 24	13:39	0.00	52.11	0.09	2.57	-
03 Sep 24	13:40	0.00	52.74	0.09	2.66	-
03 Sep 24	13:41	0.00	51.88	0.09	2.87	-
03 Sep 24	13:42	0.00	51.03	0.09	2.60	-
03 Sep 24	13:43	0.00	51.64	0.09	2.60	-
03 Sep 24	13:44	0.00	50.87	0.09	2.42	-
03 Sep 24	13:45	0.00	51.69	0.09	2.60	-
03 Sep 24	13:46	0.00	51.15	0.09	2.83	-
Max		0.00	52.75	0.11	2.88	-
Avg		0.00	51.62	0.09	2.65	-

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	13:47	0.00	51.29	0.09	2.63	-
03 Sep 24	13:48	0.00	51.62	0.09	2.63	-
03 Sep 24	13:49	0.00	51.30	0.09	2.54	-
03 Sep 24	13:50	0.00	51.22	0.09	2.60	-
03 Sep 24	13:51	0.00	51.29	0.08	2.82	-
03 Sep 24	13:52	0.00	50.01	0.09	2.68	-
03 Sep 24	13:53	0.00	51.08	0.09	2.66	-
03 Sep 24	13:54	0.00	50.08	0.09	2.49	-
03 Sep 24	13:55	0.00	51.05	0.09	2.52	-
03 Sep 24	13:56	0.00	51.63	0.09	2.70	-
03 Sep 24	13:57	0.00	51.32	0.09	2.58	-
03 Sep 24	13:58	0.00	51.99	0.09	2.82	-
03 Sep 24	13:59	0.00	51.36	0.11	2.59	-
03 Sep 24	14:00	0.00	51.47	0.09	2.80	-
03 Sep 24	14:01	0.00	51.89	0.09	2.65	-
03 Sep 24	14:02	0.00	52.39	0.09	2.63	-
03 Sep 24	14:03	0.00	51.23	0.09	2.58	-
03 Sep 24	14:04	0.00	51.85	0.09	2.57	-
03 Sep 24	14:05	0.00	51.20	0.09	2.65	-
03 Sep 24	14:06	0.00	50.78	0.09	2.68	-
03 Sep 24	14:07	0.00	50.89	0.09	2.58	-
Max		0.00	52.39	0.11	2.82	-
Avg		0.00	51.28	0.09	2.62	-

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	14:08	0.00	51.55	0.09	2.65	-
03 Sep 24	14:09	0.00	51.94	0.09	2.67	-
03 Sep 24	14:10	0.00	51.33	0.09	2.62	-
03 Sep 24	14:11	0.00	50.52	0.11	2.58	-
03 Sep 24	14:12	0.00	51.46	0.09	2.62	-
03 Sep 24	14:13	0.00	52.03	0.11	2.59	-
03 Sep 24	14:14	0.00	52.06	0.09	2.60	-
03 Sep 24	14:15	0.00	51.62	0.09	2.60	-
03 Sep 24	14:16	0.00	51.01	0.09	2.54	-
03 Sep 24	14:17	0.00	51.14	0.09	2.52	-
03 Sep 24	14:18	0.00	51.97	0.09	2.63	-
03 Sep 24	14:19	0.00	52.58	0.09	2.76	-
03 Sep 24	14:20	0.00	51.53	0.09	2.68	-
03 Sep 24	14:21	0.00	51.23	0.09	2.56	-
03 Sep 24	14:22	0.00	51.32	0.09	2.57	-
03 Sep 24	14:23	0.00	51.23	0.08	2.84	-
03 Sep 24	14:24	0.00	52.40	0.07	2.77	-
03 Sep 24	14:25	0.00	51.63	0.07	2.57	-
03 Sep 24	14:26	0.00	50.23	0.07	2.46	-
03 Sep 24	14:27	0.00	51.20	0.07	2.55	-
03 Sep 24	14:28	0.00	51.94	0.07	2.68	-
Max		0.00	52.58	0.11	2.77	-
Avg		0.00	51.52	0.09	2.61	-

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	14:29	0.00	53.07	0.09	2.87	-
03 Sep 24	14:30	0.00	51.40	0.09	2.70	-
03 Sep 24	14:31	0.00	51.97	0.09	2.60	-
03 Sep 24	14:32	0.00	51.03	0.09	2.59	-
03 Sep 24	14:33	0.00	52.08	0.09	2.83	-
03 Sep 24	14:34	0.00	53.19	0.09	2.84	-
03 Sep 24	14:35	0.00	52.22	0.09	2.86	-
03 Sep 24	14:36	0.00	51.53	0.09	2.83	-
03 Sep 24	14:37	0.00	50.19	0.09	2.50	-
03 Sep 24	14:38	0.00	51.05	0.09	2.54	-
03 Sep 24	14:39	0.00	51.74	0.09	2.75	-
03 Sep 24	14:40	0.00	51.40	0.09	2.80	-
03 Sep 24	14:41	0.00	51.35	0.09	2.58	-
03 Sep 24	14:42	0.00	50.85	0.09	2.55	-
03 Sep 24	14:43	0.00	52.09	0.09	2.73	-
03 Sep 24	14:44	0.00	52.29	0.09	2.93	-
03 Sep 24	14:45	0.00	51.24	0.09	2.85	-
03 Sep 24	14:46	0.00	51.22	0.09	2.59	-
03 Sep 24	14:47	0.00	49.78	0.09	2.42	-
03 Sep 24	14:48	0.00	50.72	0.09	2.58	-
03 Sep 24	14:49	0.00	51.84	0.09	2.79	-
Max		0.00	53.19	0.09	2.93	-
Avg		0.00	51.54	0.09	2.65	-

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	14:50	0.00	51.12	0.09	2.60	-
03 Sep 24	14:51	0.00	52.27	0.09	2.64	-
03 Sep 24	14:52	0.00	50.86	0.09	2.53	-
03 Sep 24	14:53	0.00	51.08	0.09	2.61	-
03 Sep 24	14:54	0.00	51.39	0.09	2.83	-
03 Sep 24	14:55	0.00	50.83	0.09	2.63	-
03 Sep 24	14:56	0.00	50.56	0.09	2.68	-
03 Sep 24	14:57	0.00	50.77	0.09	2.60	-
03 Sep 24	14:58	0.00	51.43	0.08	2.64	-
03 Sep 24	14:59	0.00	50.29	0.07	2.64	-
03 Sep 24	15:00	0.00	50.44	0.07	2.58	-
03 Sep 24	15:01	0.00	50.75	0.07	2.57	-
03 Sep 24	15:02	0.00	51.09	0.07	2.51	-
03 Sep 24	15:03	0.00	51.62	0.07	2.57	-
03 Sep 24	15:04	0.00	50.92	0.09	2.60	-
03 Sep 24	15:05	0.00	51.31	0.09	2.55	-
03 Sep 24	15:06	0.00	51.58	0.09	2.66	-
03 Sep 24	15:07	0.00	53.40	0.09	2.85	-
03 Sep 24	15:08	0.00	52.54	0.09	2.83	-
03 Sep 24	15:09	0.00	50.89	0.11	2.54	-
03 Sep 24	15:10	0.00	51.52	0.09	2.58	-
Max		0.00	53.40	0.11	2.83	-
Avg		0.00	51.28	0.09	2.61	-

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	15:11	0.00	51.38	0.09	2.60	-
03 Sep 24	15:12	0.00	51.86	0.11	2.75	-
03 Sep 24	15:13	0.00	52.09	0.09	2.61	-
03 Sep 24	15:14	0.00	51.52	0.09	2.60	-
03 Sep 24	15:15	0.00	50.59	0.09	2.57	-
03 Sep 24	15:16	0.00	51.78	0.09	2.64	-
03 Sep 24	15:17	0.00	52.82	0.09	2.76	-
03 Sep 24	15:18	0.00	51.62	0.09	2.67	-
03 Sep 24	15:19	0.00	49.09	3.84	2.52	-
03 Sep 24	15:20	0.00	48.47	0.57	2.54	-
03 Sep 24	15:21	0.00	49.66	0.09	2.60	-
03 Sep 24	15:22	0.00	50.09	0.09	2.73	-
03 Sep 24	15:23	0.00	49.81	0.09	2.65	-
03 Sep 24	15:24	0.00	49.85	0.09	2.59	-
03 Sep 24	15:25	0.00	49.84	0.09	2.62	-
03 Sep 24	15:26	0.00	50.00	0.11	2.65	-
03 Sep 24	15:27	0.00	50.41	0.09	2.82	-
03 Sep 24	15:28	0.00	50.13	0.09	2.65	-
03 Sep 24	15:29	0.00	50.27	0.09	2.58	-
03 Sep 24	15:30	0.00	49.30	0.09	2.52	-
03 Sep 24	15:31	0.00	49.67	0.09	2.68	-
Max		0.00	52.82	3.84	2.82	-
Avg		0.00	50.48	0.30	2.63	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 03 Sep 24
Location: B-AT-1903 (F-190)

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	11:20	0.10	53.96	-0.03	2.86	9.02
03 Sep 24	11:21	0.11	53.76	1.33	2.84	9.03
03 Sep 24	11:22	0.14	53.42	0.23	2.81	9.06
03 Sep 24	11:23	0.06	52.74	0.59	2.94	8.98
03 Sep 24	11:24	0.16	52.66	0.32	2.79	9.08
03 Sep 24	11:25	0.10	52.89	-0.02	2.86	9.01
03 Sep 24	11:26	0.10	52.87	0.71	2.82	9.02
03 Sep 24	11:27	0.15	52.89	0.81	2.82	9.07
03 Sep 24	11:28	0.12	52.97	0.12	2.87	9.04
03 Sep 24	11:29	0.18	53.05	0.37	2.76	9.10
03 Sep 24	11:30	0.16	53.21	0.31	2.78	9.07
03 Sep 24	11:31	0.13	53.27	1.57	2.84	9.05
03 Sep 24	11:32	0.14	53.14	0.22	2.79	9.06
03 Sep 24	11:33	0.12	52.99	0.45	2.82	9.04
03 Sep 24	11:34	0.15	52.88	0.69	2.75	9.07
03 Sep 24	11:35	0.11	52.69	-0.01	2.83	9.03
03 Sep 24	11:36	0.09	52.99	0.23	2.91	9.00
03 Sep 24	11:37	0.12	53.04	0.67	2.79	9.04
03 Sep 24	11:38	0.12	52.79	-0.01	2.78	9.03
03 Sep 24	11:39	0.15	52.70	0.17	2.80	9.06
03 Sep 24	11:40	0.15	53.05	0.30	2.85	9.06
Max		0.18	53.96	1.57	2.94	9.10
Avg		0.13	53.04	0.43	2.82	9.04

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	11:41	0.11	53.23	0.99	2.89	9.02
03 Sep 24	11:42	0.14	52.90	0.20	2.77	9.06
03 Sep 24	11:43	0.09	52.78	0.38	2.77	9.01
03 Sep 24	11:44	0.16	52.98	0.10	2.78	9.08
03 Sep 24	11:45	0.12	52.91	0.22	2.78	9.03
03 Sep 24	11:46	0.06	52.82	-0.03	2.92	8.98
03 Sep 24	11:47	0.09	53.05	0.57	2.86	9.01
03 Sep 24	11:48	0.08	53.54	0.44	2.85	9.00
03 Sep 24	11:49	0.13	54.00	0.25	2.76	9.05
03 Sep 24	11:50	0.15	53.58	0.72	2.78	9.07
03 Sep 24	11:51	0.15	52.94	0.16	2.83	9.06
03 Sep 24	11:52	0.16	52.83	0.07	2.76	9.08
03 Sep 24	11:53	0.03	53.12	0.87	2.79	8.94
03 Sep 24	11:54	0.12	53.71	0.24	2.81	9.03
03 Sep 24	11:55	0.08	53.92	0.66	2.87	8.99
03 Sep 24	11:56	0.04	53.84	0.53	3.02	8.96
03 Sep 24	11:57	0.15	53.65	0.21	2.83	9.06
03 Sep 24	11:58	0.12	53.52	0.32	2.79	9.04
03 Sep 24	11:59	0.14	54.00	0.17	2.80	9.05
03 Sep 24	12:00	0.10	54.36	0.41	2.84	9.02
03 Sep 24	12:01	0.08	54.22	0.38	2.97	8.99
Max		0.16	54.36	0.99	3.02	9.08
Avg		0.11	53.42	0.37	2.83	9.03

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	12:02	0.11	54.11	0.39	2.82	9.02
03 Sep 24	12:03	0.03	54.07	0.32	2.87	8.95
03 Sep 24	12:04	0.12	54.06	0.40	2.87	9.03
03 Sep 24	12:05	0.08	53.99	0.87	2.83	9.00
03 Sep 24	12:06	0.01	54.06	0.69	3.02	8.93
03 Sep 24	12:07	0.11	54.28	0.88	2.86	9.02
03 Sep 24	12:08	0.10	54.25	0.95	2.85	9.01
03 Sep 24	12:09	0.13	53.98	0.84	2.81	9.05
03 Sep 24	12:10	0.13	53.57	0.36	2.87	9.05
03 Sep 24	12:11	0.04	53.47	0.49	2.98	8.95
03 Sep 24	12:12	0.09	53.56	1.01	2.90	9.00
03 Sep 24	12:13	0.07	53.65	0.58	2.92	8.98
03 Sep 24	12:14	0.08	53.61	0.67	2.90	8.99
03 Sep 24	12:15	0.10	54.04	0.92	2.89	9.02
03 Sep 24	12:16	0.04	54.27	0.87	2.94	8.96
03 Sep 24	12:17	0.13	54.07	0.34	2.76	9.05
03 Sep 24	12:18	0.10	53.56	0.54	2.85	9.02
03 Sep 24	12:19	0.13	53.17	0.73	2.88	9.05
03 Sep 24	12:20	0.16	53.25	0.15	2.84	9.07
03 Sep 24	12:21	0.09	53.51	0.39	2.84	9.01
03 Sep 24	12:22	0.11	53.63	0.38	2.80	9.03
Max		0.16	54.28	1.01	3.02	9.07
Avg		0.09	53.82	0.60	2.87	9.01

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	12:23	0.08	53.73	0.69	2.88	8.99
03 Sep 24	12:24	0.11	53.96	0.28	2.81	9.02
03 Sep 24	12:25	0.08	53.97	0.57	2.90	8.99
03 Sep 24	12:26	0.06	53.84	0.58	2.94	8.97
03 Sep 24	12:27	0.13	53.78	0.45	2.83	9.04
03 Sep 24	12:28	0.06	53.90	0.71	2.89	8.98
03 Sep 24	12:29	0.10	54.13	0.67	2.93	9.02
03 Sep 24	12:30	0.14	54.10	0.63	2.83	9.05
03 Sep 24	12:31	0.12	53.81	-0.03	2.75	9.04
03 Sep 24	12:32	0.17	53.70	0.32	2.74	9.08
03 Sep 24	12:33	0.18	53.34	0.10	2.69	9.09
03 Sep 24	12:34	0.15	52.66	0.61	2.78	9.06
03 Sep 24	12:35	0.16	52.85	0.38	2.78	9.08
03 Sep 24	12:36	0.02	53.25	1.02	2.92	8.93
03 Sep 24	12:37	0.10	53.47	0.79	2.85	9.02
03 Sep 24	12:38	0.11	53.36	0.90	2.88	9.03
03 Sep 24	12:39	0.07	53.27	0.44	3.00	8.98
03 Sep 24	12:40	0.16	53.33	0.49	2.79	9.08
03 Sep 24	12:41	0.09	53.57	0.31	2.76	9.01
03 Sep 24	12:42	0.15	53.40	1.29	2.75	9.07
03 Sep 24	12:43	0.13	53.47	0.29	2.80	9.04
Max		0.18	54.13	1.29	3.00	9.09
Avg		0.11	53.57	0.55	2.84	9.03

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	12:44	0.11	53.34	0.00	2.93	9.02
03 Sep 24	12:45	0.14	53.57	0.28	2.79	9.06
03 Sep 24	12:46	0.08	53.65	0.53	2.75	8.99
03 Sep 24	12:47	0.20	53.36	0.17	2.70	9.12
03 Sep 24	12:48	0.20	53.17	1.17	2.73	9.12
03 Sep 24	12:49	0.18	52.90	0.55	2.79	9.09
03 Sep 24	12:50	0.18	52.86	1.27	2.73	9.10
03 Sep 24	12:51	0.13	52.95	1.26	2.69	9.04
03 Sep 24	12:52	0.19	53.02	0.54	2.76	9.11
03 Sep 24	12:53	0.16	52.90	0.37	2.77	9.07
03 Sep 24	12:54	0.10	52.86	0.15	2.92	9.02
03 Sep 24	12:55	0.13	52.98	0.43	2.79	9.05
03 Sep 24	12:56	0.05	52.98	0.60	2.82	8.96
03 Sep 24	12:57	0.15	52.95	0.29	2.76	9.06
03 Sep 24	12:58	0.16	52.88	0.35	2.75	9.07
03 Sep 24	12:59	0.16	52.98	0.08	2.86	9.08
03 Sep 24	13:00	0.19	53.03	0.01	2.73	9.11
03 Sep 24	13:01	0.11	52.85	0.06	2.72	9.02
03 Sep 24	13:02	0.13	52.62	0.21	2.77	9.05
03 Sep 24	13:03	0.12	52.97	0.67	2.84	9.04
03 Sep 24	13:04	0.13	53.34	0.07	2.93	9.04
Max		0.20	53.65	1.27	2.93	9.12
Avg		0.14	53.06	0.43	2.79	9.06

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	13:05	0.16	53.28	0.63	2.78	9.07
03 Sep 24	13:06	0.11	52.99	0.34	2.83	9.02
03 Sep 24	13:07	0.12	52.96	0.05	2.82	9.03
03 Sep 24	13:08	0.14	52.89	0.18	2.77	9.06
03 Sep 24	13:09	0.15	52.82	0.06	2.87	9.07
03 Sep 24	13:10	0.20	53.24	0.46	2.77	9.11
03 Sep 24	13:11	0.15	53.56	-0.04	2.79	9.07
03 Sep 24	13:12	0.16	53.34	0.86	2.77	9.07
03 Sep 24	13:13	0.14	53.06	0.09	2.80	9.05
03 Sep 24	13:14	0.10	53.08	0.00	2.86	9.02
03 Sep 24	13:15	0.19	52.94	0.30	2.71	9.10
03 Sep 24	13:16	0.13	52.81	0.57	2.77	9.04
03 Sep 24	13:17	0.09	53.14	0.37	2.83	9.01
03 Sep 24	13:18	0.09	53.23	0.09	2.84	9.01
03 Sep 24	13:19	0.09	53.27	0.52	2.87	9.01
03 Sep 24	13:20	0.17	53.31	-0.03	2.78	9.08
03 Sep 24	13:21	0.15	53.35	0.80	2.85	9.06
03 Sep 24	13:22	0.15	53.13	0.65	2.88	9.07
03 Sep 24	13:23	0.15	53.18	0.51	2.80	9.06
03 Sep 24	13:24	0.09	53.20	0.23	2.81	9.01
03 Sep 24	13:25	0.13	53.18	0.35	2.80	9.05
Max		0.20	53.56	0.86	2.88	9.11
Avg		0.13	53.14	0.33	2.81	9.05

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/1
Date: 03 Sep 24
Location: B-AT-1903 (F-190)

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	13:26	0.11	53.06	-0.02	2.83	9.02
03 Sep 24	13:27	0.18	53.09	0.16	2.83	9.10
03 Sep 24	13:28	0.17	52.83	0.54	2.76	9.08
03 Sep 24	13:29	0.09	52.47	0.49	2.74	9.00
03 Sep 24	13:30	0.19	52.71	0.18	2.72	9.11
03 Sep 24	13:31	0.17	52.76	0.04	2.76	9.09
03 Sep 24	13:32	0.15	53.04	-0.04	2.91	9.07
03 Sep 24	13:33	0.19	53.39	0.08	2.72	9.10
03 Sep 24	13:34	0.09	53.48	0.20	2.77	9.00
03 Sep 24	13:35	0.12	53.18	0.24	2.79	9.04
03 Sep 24	13:36	0.13	53.10	0.00	2.82	9.05
03 Sep 24	13:37	0.13	53.00	0.57	2.81	9.05
03 Sep 24	13:38	0.20	53.00	0.21	2.76	9.12
03 Sep 24	13:39	0.09	53.05	0.64	2.82	9.01
03 Sep 24	13:40	0.17	53.05	0.55	2.75	9.08
03 Sep 24	13:41	0.20	53.04	0.23	2.76	9.12
03 Sep 24	13:42	0.13	53.11	0.14	2.91	9.04
03 Sep 24	13:43	0.13	53.34	0.61	2.83	9.05
03 Sep 24	13:44	0.14	53.50	0.18	2.78	9.06
03 Sep 24	13:45	0.18	53.26	0.00	2.75	9.10
03 Sep 24	13:46	0.17	53.01	0.60	2.76	9.08
Max		0.20	53.50	0.64	2.91	9.12
Avg		0.15	53.06	0.27	2.79	9.06

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	13:47	0.18	53.11	0.37	2.84	9.10
03 Sep 24	13:48	0.20	53.18	0.11	2.73	9.12
03 Sep 24	13:49	0.15	53.17	0.64	2.77	9.07
03 Sep 24	13:50	0.16	53.14	0.43	2.75	9.08
03 Sep 24	13:51	0.19	53.12	0.01	2.76	9.11
03 Sep 24	13:52	0.12	53.07	0.52	2.90	9.03
03 Sep 24	13:53	0.15	53.17	0.37	2.81	9.07
03 Sep 24	13:54	0.10	53.30	0.72	2.81	9.02
03 Sep 24	13:55	0.14	52.97	0.15	2.79	9.06
03 Sep 24	13:56	0.12	52.60	0.30	2.83	9.03
03 Sep 24	13:57	0.12	52.58	0.52	2.89	9.04
03 Sep 24	13:58	0.22	52.83	-0.02	2.69	9.13
03 Sep 24	13:59	0.11	52.74	0.65	2.74	9.02
03 Sep 24	14:00	0.19	52.81	0.61	2.75	9.11
03 Sep 24	14:01	0.20	53.10	-0.04	2.76	9.12
03 Sep 24	14:02	0.10	53.32	0.57	2.91	9.01
03 Sep 24	14:03	0.12	53.48	0.19	2.79	9.04
03 Sep 24	14:04	0.15	53.41	0.66	2.75	9.07
03 Sep 24	14:05	0.17	53.43	0.28	2.78	9.08
03 Sep 24	14:06	0.15	53.62	0.04	2.78	9.07
03 Sep 24	14:07	0.15	53.55	0.39	2.83	9.07
Max		0.22	53.62	0.72	2.91	9.13
Avg		0.15	53.13	0.38	2.79	9.07

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	14:08	0.17	53.31	0.21	2.78	9.09
03 Sep 24	14:09	0.12	53.29	0.89	2.87	9.03
03 Sep 24	14:10	0.17	53.02	0.92	2.81	9.08
03 Sep 24	14:11	0.17	52.97	0.34	2.81	9.09
03 Sep 24	14:12	0.12	53.03	-0.01	2.84	9.04
03 Sep 24	14:13	0.13	53.46	0.00	2.78	9.05
03 Sep 24	14:14	0.13	53.42	1.14	2.78	9.04
03 Sep 24	14:15	0.16	53.30	1.98	2.81	9.08
03 Sep 24	14:16	0.20	53.43	1.26	2.78	9.12
03 Sep 24	14:17	0.17	53.64	0.35	2.77	9.08
03 Sep 24	14:18	0.21	53.48	1.08	2.68	9.12
03 Sep 24	14:19	0.15	53.33	0.03	2.77	9.07
03 Sep 24	14:20	0.13	53.07	0.67	2.83	9.04
03 Sep 24	14:21	0.16	52.79	0.38	2.76	9.08
03 Sep 24	14:22	0.12	52.94	0.16	2.79	9.04
03 Sep 24	14:23	0.16	53.34	0.04	2.77	9.08
03 Sep 24	14:24	0.16	53.52	0.70	2.80	9.08
03 Sep 24	14:25	0.12	53.36	0.04	2.88	9.04
03 Sep 24	14:26	0.15	53.42	-0.03	2.79	9.07
03 Sep 24	14:27	0.13	53.43	0.00	2.78	9.05
03 Sep 24	14:28	0.19	53.37	0.30	2.75	9.11
Max		0.21	53.64	1.98	2.88	9.12
Avg		0.15	53.28	0.50	2.79	9.07

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	14:29	0.19	53.30	0.56	2.87	9.11
03 Sep 24	14:30	0.16	52.95	0.04	2.81	9.08
03 Sep 24	14:31	0.18	52.99	0.06	2.76	9.09
03 Sep 24	14:32	0.11	53.27	0.90	2.76	9.03
03 Sep 24	14:33	0.13	53.52	1.32	2.78	9.05
03 Sep 24	14:34	0.14	53.44	0.02	2.83	9.06
03 Sep 24	14:35	0.11	53.49	0.52	2.90	9.03
03 Sep 24	14:36	0.14	53.51	0.54	2.77	9.06
03 Sep 24	14:37	0.10	53.57	0.04	2.73	9.02
03 Sep 24	14:38	0.17	53.63	0.42	2.74	9.09
03 Sep 24	14:39	0.15	53.56	0.28	2.77	9.06
03 Sep 24	14:40	0.15	53.49	0.27	2.88	9.07
03 Sep 24	14:41	0.21	53.16	0.07	2.71	9.13
03 Sep 24	14:42	0.17	52.85	0.43	2.67	9.08
03 Sep 24	14:43	0.19	52.68	1.13	2.67	9.11
03 Sep 24	14:44	0.19	52.70	0.16	2.73	9.10
03 Sep 24	14:45	0.16	52.77	0.22	2.87	9.07
03 Sep 24	14:46	0.08	53.01	0.72	2.84	8.99
03 Sep 24	14:47	0.03	53.54	0.36	2.85	8.95
03 Sep 24	14:48	0.14	53.58	0.28	2.78	9.06
03 Sep 24	14:49	0.17	53.36	0.26	2.77	9.09
Max		0.21	53.63	1.32	2.90	9.13
Avg		0.15	53.26	0.41	2.78	9.06

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	14:50	0.18	53.18	0.43	2.84	9.10
03 Sep 24	14:51	0.23	53.09	1.02	2.67	9.15
03 Sep 24	14:52	0.14	53.09	0.62	2.72	9.06
03 Sep 24	14:53	0.13	53.21	0.43	2.72	9.05
03 Sep 24	14:54	0.14	53.37	0.14	2.77	9.06
03 Sep 24	14:55	0.13	53.54	0.04	2.91	9.05
03 Sep 24	14:56	0.13	53.48	0.08	2.76	9.05
03 Sep 24	14:57	0.14	53.32	0.65	2.74	9.06
03 Sep 24	14:58	0.14	53.35	0.01	2.81	9.05
03 Sep 24	14:59	0.15	53.53	0.38	2.80	9.06
03 Sep 24	15:00	0.11	53.46	0.00	2.90	9.03
03 Sep 24	15:01	0.18	53.37	-0.01	2.78	9.10
03 Sep 24	15:02	0.18	53.18	0.36	2.75	9.09
03 Sep 24	15:03	0.22	53.11	0.88	2.69	9.14
03 Sep 24	15:04	0.18	52.93	0.96	2.74	9.10
03 Sep 24	15:05	0.16	53.02	0.82	2.78	9.07
03 Sep 24	15:06	0.22	53.11	0.38	2.69	9.14
03 Sep 24	15:07	0.16	53.20	0.30	2.72	9.08
03 Sep 24	15:08	0.18	53.28	1.35	2.72	9.10
03 Sep 24	15:09	0.15	53.46	0.34	2.72	9.07
03 Sep 24	15:10	0.12	53.54	0.39	2.86	9.03
Max		0.23	53.54	1.35	2.91	9.15
Avg		0.16	53.28	0.46	2.77	9.08

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
03 Sep 24	15:11	0.18	53.97	0.32	2.73	9.09
03 Sep 24	15:12	0.17	54.05	0.15	2.77	9.08
03 Sep 24	15:13	0.18	53.63	0.45	2.80	9.10
03 Sep 24	15:14	0.21	53.48	0.12	2.76	9.13
03 Sep 24	15:15	0.12	53.51	0.04	2.79	9.04
03 Sep 24	15:16	0.18	53.23	0.14	2.75	9.09
03 Sep 24	15:17	0.15	53.24	0.28	2.76	9.06
03 Sep 24	15:18	0.15	53.34	0.62	2.88	9.06
03 Sep 24	15:19	0.21	53.32	0.53	2.74	9.13
03 Sep 24	15:20	0.11	53.10	0.17	2.78	9.03
03 Sep 24	15:21	0.20	53.28	0.03	2.74	9.12
03 Sep 24	15:22	0.18	53.51	1.59	2.76	9.10
03 Sep 24	15:23	0.20	52.65	2.66	2.76	9.12
03 Sep 24	15:24	0.22	51.83	0.08	2.73	9.14
03 Sep 24	15:25	0.17	51.34	0.40	2.65	9.08
03 Sep 24	15:26	0.21	51.29	0.57	2.69	9.13
03 Sep 24	15:27	0.14	51.40	1.14	2.76	9.05
03 Sep 24	15:28	0.14	51.56	0.58	2.89	9.05
03 Sep 24	15:29	0.16	51.85	0.25	2.76	9.07
03 Sep 24	15:30	0.14	51.87	0.19	2.79	9.06
03 Sep 24	15:31	0.16	51.83	0.24	2.72	9.08
Max		0.22	54.05	2.66	2.89	9.14
Avg		0.17	52.73	0.50	2.78	9.09

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10102/10103 (F-1010)

Run No: 1 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	10:30	0.00	21.52	3.96	-	-
05 Sep 24	10:31	0.00	22.12	4.09	-	-
05 Sep 24	10:32	0.00	21.33	4.28	-	-
05 Sep 24	10:33	0.00	22.14	4.26	-	-
05 Sep 24	10:34	0.00	21.89	4.22	-	-
05 Sep 24	10:35	0.00	22.01	4.00	-	-
05 Sep 24	10:36	0.00	22.39	4.37	-	-
05 Sep 24	10:37	0.00	22.08	4.27	-	-
05 Sep 24	10:38	0.00	22.24	3.86	-	-
05 Sep 24	10:39	0.00	22.34	4.14	-	-
05 Sep 24	10:40	0.00	21.61	4.54	-	-
05 Sep 24	10:41	0.00	21.52	4.18	-	-
05 Sep 24	10:42	0.00	21.69	3.95	-	-
05 Sep 24	10:43	0.00	22.26	3.69	-	-
05 Sep 24	10:44	0.00	21.97	3.94	-	-
05 Sep 24	10:45	0.00	21.68	3.68	-	-
05 Sep 24	10:46	0.00	21.49	4.10	-	-
05 Sep 24	10:47	0.00	21.98	4.16	-	-
05 Sep 24	10:48	0.00	22.19	4.27	-	-
05 Sep 24	10:49	0.00	22.20	3.47	-	-
05 Sep 24	10:50	0.00	21.63	4.04	-	-
Max		0.00	22.39	4.54	-	-
Avg		0.00	21.92	4.07	-	-

Run No: 2 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	10:51	0.00	21.93	3.23	-	-
05 Sep 24	10:52	0.00	22.35	3.55	-	-
05 Sep 24	10:53	0.00	22.08	3.57	-	-
05 Sep 24	10:54	0.00	21.48	3.86	-	-
05 Sep 24	10:55	0.00	21.76	3.85	-	-
05 Sep 24	10:56	0.00	22.39	4.22	-	-
05 Sep 24	10:57	0.00	22.33	3.82	-	-
05 Sep 24	10:58	0.00	21.47	3.71	-	-
05 Sep 24	10:59	0.00	21.42	3.65	-	-
05 Sep 24	11:00	0.00	21.90	3.72	-	-
05 Sep 24	11:01	0.00	22.30	3.60	-	-
05 Sep 24	11:02	0.00	21.90	4.06	-	-
05 Sep 24	11:03	0.00	22.10	3.88	-	-
05 Sep 24	11:04	0.00	21.93	3.93	-	-
05 Sep 24	11:05	0.00	22.09	3.90	-	-
05 Sep 24	11:06	0.00	22.29	3.81	-	-
05 Sep 24	11:07	0.00	21.85	4.02	-	-
05 Sep 24	11:08	0.00	21.57	4.34	-	-
05 Sep 24	11:09	0.00	21.59	4.14	-	-
05 Sep 24	11:10	0.00	21.63	4.51	-	-
05 Sep 24	11:11	0.00	21.92	4.04	-	-
Max		0.00	22.39	4.51	-	-
Avg		0.00	21.92	3.88	-	-

Run No: 3 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	11:12	0.00	21.76	3.82	-	-
05 Sep 24	11:13	0.00	22.02	4.81	-	-
05 Sep 24	11:14	0.00	21.64	3.20	-	-
05 Sep 24	11:15	0.00	21.82	4.02	-	-
05 Sep 24	11:16	0.00	22.33	4.14	-	-
05 Sep 24	11:17	0.00	21.60	4.42	-	-
05 Sep 24	11:18	0.00	21.65	3.87	-	-
05 Sep 24	11:19	0.00	21.54	4.22	-	-
05 Sep 24	11:20	0.00	21.36	4.03	-	-
05 Sep 24	11:21	0.00	21.69	3.96	-	-
05 Sep 24	11:22	0.00	21.85	3.62	-	-
05 Sep 24	11:23	0.00	21.39	4.23	-	-
05 Sep 24	11:24	0.00	21.69	3.46	-	-
05 Sep 24	11:25	0.00	21.88	3.99	-	-
05 Sep 24	11:26	0.00	21.80	4.01	-	-
05 Sep 24	11:27	0.00	21.82	3.98	-	-
05 Sep 24	11:28	0.00	21.48	4.40	-	-
05 Sep 24	11:29	0.00	21.36	4.21	-	-
05 Sep 24	11:30	0.00	21.50	4.06	-	-
05 Sep 24	11:31	0.00	21.62	4.08	-	-
05 Sep 24	11:32	0.00	22.01	3.98	-	-
Max		0.00	22.33	4.61	-	-
Avg		0.00	21.70	4.01	-	-

Run No: 4 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	11:33	0.00	21.16	3.89	-	-
05 Sep 24	11:34	0.00	20.68	4.10	-	-
05 Sep 24	11:35	0.00	21.57	3.32	-	-
05 Sep 24	11:36	0.00	21.34	4.14	-	-
05 Sep 24	11:37	0.00	20.84	4.43	-	-
05 Sep 24	11:38	0.00	21.65	3.95	-	-
05 Sep 24	11:39	0.00	21.42	4.32	-	-
05 Sep 24	11:40	0.00	21.40	2.86	-	-
05 Sep 24	11:41	0.00	20.73	4.12	-	-
05 Sep 24	11:42	0.00	21.12	3.75	-	-
05 Sep 24	11:43	0.00	21.12	3.65	-	-
05 Sep 24	11:44	0.00	21.06	4.19	-	-
05 Sep 24	11:45	0.00	21.71	3.91	-	-
05 Sep 24	11:46	0.00	21.01	3.88	-	-
05 Sep 24	11:47	0.00	20.45	4.10	-	-
05 Sep 24	11:48	0.00	21.06	4.38	-	-
05 Sep 24	11:49	0.00	21.00	3.32	-	-
05 Sep 24	11:50	0.00	20.98	4.16	-	-
05 Sep 24	11:51	0.00	20.79	4.26	-	-
05 Sep 24	11:52	0.00	20.86	3.42	-	-
05 Sep 24	11:53	0.00	20.87	4.03	-	-
Max		0.00	21.71	4.43	-	-
Avg		0.00	21.09	3.91	-	-

Run No: 5 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	11:54	0.00	21.25	3.11	-	-
05 Sep 24	11:55	0.00	21.41	3.77	-	-
05 Sep 24	11:56	0.00	21.34	3.33	-	-
05 Sep 24	11:57	0.00	20.83	3.35	-	-
05 Sep 24	11:58	0.00	21.18	3.40	-	-
05 Sep 24	11:59	0.00	20.99	4.47	-	-
05 Sep 24	12:00	0.00	21.08	4.23	-	-
05 Sep 24	12:01	0.00	21.23	3.50	-	-
05 Sep 24	12:02	0.00	21.04	4.13	-	-
05 Sep 24	12:03	0.00	21.23	4.22	-	-
05 Sep 24	12:04	0.00	21.27	4.34	-	-
05 Sep 24	12:05	0.00	21.24	3.53	-	-
05 Sep 24	12:06	0.00	21.32	4.11	-	-
05 Sep 24	12:07	0.00	20.52	3.46	-	-
05 Sep 24	12:08	0.00	21.11	3.49	-	-
05 Sep 24	12:09	0.00	20.42	4.41	-	-
05 Sep 24	12:10	0.00	20.07	4.27	-	-
05 Sep 24	12:11	0.00	20.56	4.22	-	-
05 Sep 24	12:12	0.00	20.92	3.99	-	-
05 Sep 24	12:13	0.00	21.19	4.01	-	-
05 Sep 24	12:14	0.00	20.97	3.72	-	-
Max		0.00	21.41	4.47	-	-
Avg		0.00	21.01	3.86	-	-

Run No: 6 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	12:15	0.00	20.57	3.98	-	-
05 Sep 24	12:16	0.00	20.34	4.08	-	-
05 Sep 24	12:17	0.00	20.57	4.04	-	-
05 Sep 24	12:18	0.00	20.74	4.52	-	-
05 Sep 24	12:19	0.00	20.95	4.07	-	-
05 Sep 24	12:20	0.00	21.29	3.29	-	-
05 Sep 24	12:21	0.00	20.32	4.15	-	-
05 Sep 24	12:22	0.00	20.78	3.85	-	-
05 Sep 24	12:23	0.00	20.85	4.05	-	-
05 Sep 24	12:24	0.00	21.40	3.99	-	-
05 Sep 24	12:25	0.00	20.30	4.28	-	-
05 Sep 24	12:26	0.00	20.87	4.14	-	-
05 Sep 24	12:27	0.00	20.57	4.06	-	-
05 Sep 24	12:28	0.00	21.03	3.96	-	-
05 Sep 24	12:29	0.00	20.33	4.46	-	-
05 Sep 24	12:30	0.00	20.89	3.80	-	-
05 Sep 24	12:31	0.00	20.78	3.91	-	-
05 Sep 24	12:32	0.00	20.16	3.64	-	-
05 Sep 24	12:33	0.00	21.16	3.97	-	-
05 Sep 24	12:34	0.00	20.51	4.46	-	-
05 Sep 24	12:35	0.00	20.26	3.98	-	-
Max		0.00	21.40	4.52	-	-
Avg		0.00	20.70	4.03	-	-

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10102/10103 (F-1010)

Run No: 7 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	12:36	0.00	20.80	4.07	-	-
05 Sep 24	12:37	0.00	20.39	4.09	-	-
05 Sep 24	12:38	0.00	20.70	3.88	-	-
05 Sep 24	12:39	0.00	20.58	3.58	-	-
05 Sep 24	12:40	0.00	19.78	3.98	-	-
05 Sep 24	12:41	0.00	20.25	3.65	-	-
05 Sep 24	12:42	0.00	20.83	3.92	-	-
05 Sep 24	12:43	0.00	21.06	4.07	-	-
05 Sep 24	12:44	0.00	20.91	3.99	-	-
05 Sep 24	12:45	0.00	20.03	3.96	-	-
05 Sep 24	12:46	0.00	20.79	4.36	-	-
05 Sep 24	12:47	0.00	20.92	4.17	-	-
05 Sep 24	12:48	0.00	20.67	4.13	-	-
05 Sep 24	12:49	0.00	20.94	4.31	-	-
05 Sep 24	12:50	0.00	20.64	3.94	-	-
05 Sep 24	12:51	0.00	20.78	4.28	-	-
05 Sep 24	12:52	0.00	20.83	3.99	-	-
05 Sep 24	12:53	0.00	21.07	4.09	-	-
05 Sep 24	12:54	0.00	20.43	3.82	-	-
05 Sep 24	12:55	0.00	20.24	3.63	-	-
05 Sep 24	12:56	0.00	20.02	4.11	-	-
Max		0.00	21.07	4.36	-	-
Avg		0.00	20.60	3.99	-	-

Run No: 8 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	12:57	0.00	19.72	4.25	-	-
05 Sep 24	12:58	0.00	20.38	3.85	-	-
05 Sep 24	12:59	0.00	20.54	3.82	-	-
05 Sep 24	13:00	0.00	19.80	4.07	-	-
05 Sep 24	13:01	0.00	20.60	3.98	-	-
05 Sep 24	13:02	0.00	20.51	4.13	-	-
05 Sep 24	13:03	0.00	20.56	3.82	-	-
05 Sep 24	13:04	0.00	20.53	3.85	-	-
05 Sep 24	13:05	0.00	20.84	3.84	-	-
05 Sep 24	13:06	0.00	20.78	3.79	-	-
05 Sep 24	13:07	0.00	20.16	3.85	-	-
05 Sep 24	13:08	0.00	20.52	3.69	-	-
05 Sep 24	13:09	0.00	21.27	3.81	-	-
05 Sep 24	13:10	0.00	20.63	3.89	-	-
05 Sep 24	13:11	0.00	20.03	4.63	-	-
05 Sep 24	13:12	0.00	20.50	4.59	-	-
05 Sep 24	13:13	0.00	21.33	3.76	-	-
05 Sep 24	13:14	0.00	21.24	4.14	-	-
05 Sep 24	13:15	0.00	20.58	4.33	-	-
05 Sep 24	13:16	0.00	20.25	3.78	-	-
05 Sep 24	13:17	0.00	20.59	3.98	-	-
Max		0.00	21.33	4.63	-	-
Avg		0.00	20.54	4.00	-	-

Run No: 9 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	13:18	0.00	20.96	3.70	-	-
05 Sep 24	13:19	0.00	20.92	4.04	-	-
05 Sep 24	13:20	0.00	20.65	4.27	-	-
05 Sep 24	13:21	0.00	20.32	4.19	-	-
05 Sep 24	13:22	0.00	19.94	4.37	-	-
05 Sep 24	13:23	0.00	19.85	4.48	-	-
05 Sep 24	13:24	0.00	20.24	4.21	-	-
05 Sep 24	13:25	0.00	20.57	4.18	-	-
05 Sep 24	13:26	0.00	21.20	3.96	-	-
05 Sep 24	13:27	0.00	21.22	4.12	-	-
05 Sep 24	13:28	0.00	20.75	4.44	-	-
05 Sep 24	13:29	0.00	20.68	3.57	-	-
05 Sep 24	13:30	0.00	20.61	4.02	-	-
05 Sep 24	13:31	0.00	20.21	4.20	-	-
05 Sep 24	13:32	0.00	20.17	3.88	-	-
05 Sep 24	13:33	0.00	20.08	3.81	-	-
05 Sep 24	13:34	0.00	20.44	4.09	-	-
05 Sep 24	13:35	0.00	20.13	4.31	-	-
05 Sep 24	13:36	0.00	20.18	4.32	-	-
05 Sep 24	13:37	0.00	20.00	3.87	-	-
05 Sep 24	13:38	0.00	20.25	3.77	-	-
Max		0.00	21.22	4.48	-	-
Avg		0.00	20.45	4.09	-	-

Run No: 10 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	13:39	0.00	20.78	4.35	-	-
05 Sep 24	13:40	0.00	20.75	4.39	-	-
05 Sep 24	13:41	0.00	20.45	4.87	-	-
05 Sep 24	13:42	0.00	20.51	4.15	-	-
05 Sep 24	13:43	0.00	20.34	3.83	-	-
05 Sep 24	13:44	0.00	20.55	3.80	-	-
05 Sep 24	13:45	0.00	20.84	3.78	-	-
05 Sep 24	13:46	0.00	20.17	4.22	-	-
05 Sep 24	13:47	0.00	20.49	4.24	-	-
05 Sep 24	13:48	0.00	19.86	4.48	-	-
05 Sep 24	13:49	0.00	20.07	4.56	-	-
05 Sep 24	13:50	0.00	20.79	3.75	-	-
05 Sep 24	13:51	0.00	21.07	3.84	-	-
05 Sep 24	13:52	0.00	20.46	4.35	-	-
05 Sep 24	13:53	0.00	20.17	4.56	-	-
05 Sep 24	13:54	0.00	20.78	4.73	-	-
05 Sep 24	13:55	0.00	20.92	4.02	-	-
05 Sep 24	13:56	0.00	20.62	4.20	-	-
05 Sep 24	13:57	0.00	20.84	4.27	-	-
05 Sep 24	13:58	0.00	21.10	3.67	-	-
05 Sep 24	13:59	0.00	20.88	4.01	-	-
Max		0.00	21.10	4.87	-	-
Avg		0.00	20.59	4.20	-	-

Run No: 11 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	14:00	0.00	20.10	4.34	-	-
05 Sep 24	14:01	0.00	20.65	4.19	-	-
05 Sep 24	14:02	0.00	20.43	4.72	-	-
05 Sep 24	14:03	0.00	20.09	3.59	-	-
05 Sep 24	14:04	0.00	20.57	3.97	-	-
05 Sep 24	14:05	0.00	20.24	4.28	-	-
05 Sep 24	14:06	0.00	20.35	4.00	-	-
05 Sep 24	14:07	0.00	21.30	3.75	-	-
05 Sep 24	14:08	0.00	20.46	3.81	-	-
05 Sep 24	14:09	0.00	20.34	4.37	-	-
05 Sep 24	14:10	0.00	20.68	4.02	-	-
05 Sep 24	14:11	0.00	20.87	3.80	-	-
05 Sep 24	14:12	0.00	21.18	4.09	-	-
05 Sep 24	14:13	0.00	21.21	3.86	-	-
05 Sep 24	14:14	0.00	20.27	4.18	-	-
05 Sep 24	14:15	0.00	19.83	4.22	-	-
05 Sep 24	14:16	0.00	20.24	3.84	-	-
05 Sep 24	14:17	0.00	20.64	3.87	-	-
05 Sep 24	14:18	0.00	21.14	4.17	-	-
05 Sep 24	14:19	0.00	-20.53	4.36	-	-
05 Sep 24	14:20	0.00	20.28	3.85	-	-
Max		0.00	21.30	4.72	-	-
Avg		0.00	20.54	4.05	-	-

Run No: 12 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	14:21	0.00	20.47	4.34	-	-
05 Sep 24	14:22	0.00	20.64	4.19	-	-
05 Sep 24	14:23	0.00	20.69	4.20	-	-
05 Sep 24	14:24	0.00	20.15	4.08	-	-
05 Sep 24	14:25	0.00	20.26	4.17	-	-
05 Sep 24	14:26	0.00	20.21	3.93	-	-
05 Sep 24	14:27	0.00	19.95	4.37	-	-
05 Sep 24	14:28	0.00	19.94	3.92	-	-
05 Sep 24	14:29	0.00	20.01	4.20	-	-
05 Sep 24	14:30	0.00	19.81	3.85	-	-
05 Sep 24	14:31	0.00	19.40	4.63	-	-
05 Sep 24	14:32	0.00	19.49	4.42	-	-
05 Sep 24	14:33	0.00	20.24	3.93	-	-
05 Sep 24	14:34	0.00	20.10	3.69	-	-
05 Sep 24	14:35	0.00	20.07	3.60	-	-
05 Sep 24	14:36	0.00	19.84	4.21	-	-
05 Sep 24	14:37	0.00	20.73	3.72	-	-
05 Sep 24	14:38	0.00	20.27	3.94	-	-
05 Sep 24	14:39	0.00	20.78	4.07	-	-
05 Sep 24	14:40	0.00	20.66	3.90	-	-
05 Sep 24	14:41	0.00	20.52	4.39	-	-
Max		0.00	20.78	4.63	-	-
Avg		0.00	20.19	4.08	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10102/10103 (F-1010)

Run No: 1 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	10:30	0.13	20.21	1.05	6.56	7.15
05 Sep 24	10:31	0.11	20.75	1.08	6.48	7.13
05 Sep 24	10:32	0.16	20.77	1.07	6.50	7.19
05 Sep 24	10:33	0.15	20.80	0.94	6.57	7.17
05 Sep 24	10:34	0.14	20.84	1.05	6.52	7.16
05 Sep 24	10:35	0.15	20.90	1.09	6.52	7.17
05 Sep 24	10:36	0.11	20.95	1.09	6.55	7.13
05 Sep 24	10:37	0.17	21.01	1.13	6.54	7.10
05 Sep 24	10:38	0.15	22.01	1.16	6.60	7.17
05 Sep 24	10:39	0.11	22.10	1.12	6.52	7.13
05 Sep 24	10:40	0.13	22.38	1.22	6.53	7.15
05 Sep 24	10:41	0.11	22.27	1.15	6.48	7.13
05 Sep 24	10:42	0.19	22.01	1.18	6.46	7.22
05 Sep 24	10:43	0.16	21.81	1.19	6.57	7.19
05 Sep 24	10:44	0.14	21.92	1.23	6.52	7.16
05 Sep 24	10:45	0.16	22.03	1.18	6.50	7.18
05 Sep 24	10:46	0.10	22.08	1.27	6.50	7.12
05 Sep 24	10:47	0.15	22.01	1.22	6.57	7.18
05 Sep 24	10:48	0.11	22.08	1.23	6.64	7.13
05 Sep 24	10:49	0.08	22.21	1.27	6.54	7.11
05 Sep 24	10:50	0.11	22.38	1.21	6.54	7.13
Max		0.19	22.38	1.27	6.64	7.22
Avg		0.13	21.59	1.15	6.53	7.16

Run No: 2 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	10:51	0.07	22.28	1.26	6.48	7.09
05 Sep 24	10:52	0.17	22.23	1.24	6.50	7.19
05 Sep 24	10:53	0.13	22.24	1.18	6.60	7.15
05 Sep 24	10:54	0.11	22.22	1.21	6.47	7.14
05 Sep 24	10:55	0.14	22.30	1.22	6.51	7.17
05 Sep 24	10:56	0.06	22.28	1.25	6.56	7.08
05 Sep 24	10:57	0.09	22.34	1.25	6.57	7.12
05 Sep 24	10:58	0.10	22.41	1.22	6.65	7.12
05 Sep 24	10:59	0.08	22.35	1.24	6.47	7.10
05 Sep 24	11:00	0.14	22.09	1.22	6.49	7.17
05 Sep 24	11:01	0.11	21.99	1.23	6.53	7.14
05 Sep 24	11:02	0.14	22.14	1.24	6.52	7.16
05 Sep 24	11:03	0.14	22.35	1.20	6.65	7.17
05 Sep 24	11:04	0.08	22.37	1.28	6.58	7.10
05 Sep 24	11:05	0.10	22.29	1.26	6.53	7.12
05 Sep 24	11:06	0.08	22.31	1.25	6.56	7.10
05 Sep 24	11:07	0.11	22.43	1.28	6.58	7.13
05 Sep 24	11:08	0.09	22.47	1.28	6.63	7.11
05 Sep 24	11:09	0.07	22.43	1.29	6.55	7.09
05 Sep 24	11:10	0.11	22.38	1.24	6.55	7.14
05 Sep 24	11:11	0.09	22.39	1.27	6.55	7.11
Max		0.17	22.47	1.29	6.65	7.19
Avg		0.11	22.30	1.24	6.55	7.13

Run No: 3 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	11:12	0.13	22.41	1.28	6.56	7.15
05 Sep 24	11:13	0.11	22.37	1.27	6.61	7.14
05 Sep 24	11:14	0.11	22.10	1.30	6.52	7.13
05 Sep 24	11:15	0.14	21.96	1.31	6.53	7.16
05 Sep 24	11:16	0.12	21.96	1.23	6.59	7.14
05 Sep 24	11:17	0.13	22.13	1.27	6.57	7.15
05 Sep 24	11:18	0.12	22.22	1.25	6.61	7.14
05 Sep 24	11:19	0.08	22.15	1.22	6.58	7.11
05 Sep 24	11:20	0.09	22.19	1.26	6.58	7.12
05 Sep 24	11:21	0.05	22.27	1.28	6.61	7.07
05 Sep 24	11:22	0.09	22.19	1.28	6.54	7.12
05 Sep 24	11:23	0.09	22.18	1.22	6.63	7.12
05 Sep 24	11:24	0.05	22.19	1.30	6.56	7.08
05 Sep 24	11:25	0.13	22.05	1.25	6.53	7.15
05 Sep 24	11:26	0.09	22.02	1.25	6.66	7.12
05 Sep 24	11:27	0.08	22.29	1.22	6.56	7.11
05 Sep 24	11:28	0.10	22.45	1.24	6.63	7.13
05 Sep 24	11:29	0.06	22.50	1.19	6.61	7.08
05 Sep 24	11:30	0.08	22.52	1.20	6.60	7.10
05 Sep 24	11:31	0.06	22.45	1.19	6.66	7.08
05 Sep 24	11:32	0.08	22.34	1.24	6.60	7.10
Max		0.14	22.52	1.31	6.66	7.16
Avg		0.10	22.24	1.25	6.59	7.12

Run No: 4 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	11:33	0.09	22.36	1.19	6.64	7.11
05 Sep 24	11:34	0.05	22.40	1.17	6.57	7.07
05 Sep 24	11:35	0.10	22.30	1.22	6.56	7.13
05 Sep 24	11:36	0.09	22.07	1.23	6.60	7.11
05 Sep 24	11:37	0.09	22.09	1.26	6.61	7.11
05 Sep 24	11:38	0.10	22.38	1.24	6.65	7.12
05 Sep 24	11:39	0.05	22.49	1.26	6.62	7.08
05 Sep 24	11:40	0.07	22.54	1.21	6.64	7.09
05 Sep 24	11:41	0.06	22.56	1.14	6.68	7.09
05 Sep 24	11:42	0.07	22.45	1.11	6.55	7.10
05 Sep 24	11:43	0.10	22.44	1.18	6.58	7.12
05 Sep 24	11:44	0.07	22.50	1.18	6.59	7.10
05 Sep 24	11:45	0.10	22.63	1.20	6.58	7.12
05 Sep 24	11:46	0.08	22.64	1.22	6.67	7.10
05 Sep 24	11:47	0.08	22.56	1.21	6.56	7.10
05 Sep 24	11:48	0.09	22.51	1.19	6.63	7.11
05 Sep 24	11:49	0.03	22.39	1.16	6.61	7.06
05 Sep 24	11:50	0.08	22.41	1.19	6.61	7.10
05 Sep 24	11:51	0.07	22.40	1.17	6.69	7.09
05 Sep 24	11:52	0.07	22.40	1.23	6.58	7.09
05 Sep 24	11:53	0.09	22.44	1.14	6.56	7.12
Max		0.10	22.64	1.26	6.69	7.13
Avg		0.08	22.43	1.20	6.61	7.10

Run No: 5 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	11:54	0.04	22.54	1.15	6.60	7.06
05 Sep 24	11:55	0.10	22.57	1.11	6.59	7.12
05 Sep 24	11:56	0.10	22.54	1.17	6.65	7.12
05 Sep 24	11:57	0.09	22.49	1.17	6.60	7.11
05 Sep 24	11:58	0.07	22.40	1.19	6.58	7.09
05 Sep 24	11:59	0.03	22.39	1.18	6.57	7.06
05 Sep 24	12:00	0.10	22.42	1.16	6.60	7.12
05 Sep 24	12:01	0.08	22.50	1.20	6.66	7.10
05 Sep 24	12:02	0.09	22.57	1.21	6.55	7.11
05 Sep 24	12:03	0.10	22.61	1.22	6.56	7.12
05 Sep 24	12:04	0.07	22.56	1.24	6.55	7.09
05 Sep 24	12:05	0.11	22.55	1.17	6.55	7.13
05 Sep 24	12:06	0.10	22.48	1.18	6.63	7.12
05 Sep 24	12:07	0.09	22.41	1.17	6.52	7.11
05 Sep 24	12:08	0.12	22.42	1.16	6.53	7.14
05 Sep 24	12:09	0.03	22.32	1.17	6.58	7.06
05 Sep 24	12:10	0.09	22.29	1.18	6.54	7.11
05 Sep 24	12:11	0.08	22.27	1.15	6.67	7.10
05 Sep 24	12:12	0.06	22.22	1.18	6.52	7.08
05 Sep 24	12:13	0.11	22.33	1.14	6.56	7.13
05 Sep 24	12:14	0.04	22.50	1.10	6.61	7.06
Max		0.12	22.61	1.24	6.67	7.14
Avg		0.08	22.45	1.17	6.58	7.10

Run No: 6 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	12:15	0.08	22.65	1.12	6.53	7.10
05 Sep 24	12:16	0.09	22.62	1.13	6.64	7.11
05 Sep 24	12:17	0.08	22.59	1.16	6.52	7.10
05 Sep 24	12:18	0.12	22.55	1.20	6.50	7.14
05 Sep 24	12:19	0.09	22.40	1.15	6.54	7.12
05 Sep 24	12:20	0.10	22.38	1.18	6.55	7.12
05 Sep 24	12:21	0.10	22.47	1.21	6.61	7.13
05 Sep 24	12:22	0.08	22.33	1.12	6.51	7.10
05 Sep 24	12:23	0.14	22.13	1.17	6.55	7.16
05 Sep 24	12:24	0.13	22.07	1.18	6.57	7.15
05 Sep 24	12:25	0.13	22.34	1.20	6.62	7.15
05 Sep 24	12:26	0.10	22.52	1.20	6.59	7.12
05 Sep 24	12:27	0.08	22.54	1.16	6.54	7.11
05 Sep 24	12:28	0.10	22.57	1.19	6.59	7.12
05 Sep 24	12:29	0.07	22.71	1.14	6.61	7.09
05 Sep 24	12:30	0.14	22.54	1.21	6.50	7.16
05 Sep 24	12:31	0.15	22.14	1.12	6.60	7.17
05 Sep 24	12:32	0.05	22.15	1.20	6.55	7.06
05 Sep 24	12:33	0.11	22.34	1.20	6.54	7.13
05 Sep 24	12:34	0.09	22.36	1.15	6.60	7.12
05 Sep 24	12:35	0.12	22.47	1.16	6.53	7.14
Max		0.15	22.71	1.21	6.64	7.17
Avg		0.10	22.42	1.17	6.58	7.13

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10102/10103 (F-1010)

Run No: 7 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	12:36	0.13	22.58	1.14	6.57	7.15
05 Sep 24	12:37	0.11	22.52	1.17	6.53	7.13
05 Sep 24	12:38	0.12	22.45	1.14	6.53	7.14
05 Sep 24	12:39	0.12	22.43	1.16	6.61	7.14
05 Sep 24	12:40	0.11	22.36	1.21	6.49	7.14
05 Sep 24	12:41	0.13	22.19	1.17	6.53	7.15
05 Sep 24	12:42	0.11	22.07	1.14	6.51	7.13
05 Sep 24	12:43	0.13	22.23	1.14	6.56	7.16
05 Sep 24	12:44	0.10	22.50	1.16	6.62	7.12
05 Sep 24	12:45	0.13	22.67	1.16	6.53	7.15
05 Sep 24	12:46	0.12	22.75	1.14	6.52	7.15
05 Sep 24	12:47	0.12	22.72	1.14	6.53	7.15
05 Sep 24	12:48	0.12	22.64	1.12	6.56	7.15
05 Sep 24	12:49	0.08	22.69	1.11	6.64	7.10
05 Sep 24	12:50	0.07	22.79	1.14	6.57	7.09
05 Sep 24	12:51	0.10	22.87	1.17	6.58	7.12
05 Sep 24	12:52	0.07	22.91	1.10	6.55	7.09
05 Sep 24	12:53	0.13	22.82	1.14	6.53	7.15
05 Sep 24	12:54	0.12	22.80	1.16	6.59	7.14
05 Sep 24	12:55	0.12	22.81	1.18	6.50	7.14
05 Sep 24	12:56	0.14	22.69	1.12	6.53	7.17
Max		0.14	22.91	1.21	6.64	7.17
Avg		0.11	22.59	1.15	6.55	7.14

Run No: 8 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	12:57	0.11	22.60	1.14	6.49	7.13
05 Sep 24	12:58	0.16	22.53	1.11	6.53	7.19
05 Sep 24	12:59	0.12	22.37	1.15	6.63	7.15
05 Sep 24	13:00	0.09	22.53	1.10	6.56	7.11
05 Sep 24	13:01	0.09	22.81	1.06	6.60	7.11
05 Sep 24	13:02	0.03	22.88	1.11	6.55	7.06
05 Sep 24	13:03	0.12	22.99	1.09	6.55	7.14
05 Sep 24	13:04	0.11	22.91	1.11	6.68	7.13
05 Sep 24	13:05	0.07	22.83	1.15	6.56	7.09
05 Sep 24	13:06	0.11	22.72	1.12	6.54	7.13
05 Sep 24	13:07	0.07	22.70	1.14	6.54	7.09
05 Sep 24	13:08	0.11	22.65	1.17	6.54	7.13
05 Sep 24	13:09	0.13	22.83	1.15	6.63	7.15
05 Sep 24	13:10	0.09	22.85	1.11	6.57	7.11
05 Sep 24	13:11	0.10	22.81	1.09	6.58	7.12
05 Sep 24	13:12	0.05	22.87	1.11	6.55	7.08
05 Sep 24	13:13	0.10	22.82	1.11	6.57	7.12
05 Sep 24	13:14	0.10	22.84	1.07	6.67	7.12
05 Sep 24	13:15	0.05	22.88	1.04	6.59	7.07
05 Sep 24	13:16	0.08	22.89	1.15	6.57	7.10
05 Sep 24	13:17	0.05	22.67	1.10	6.54	7.07
Max		0.16	22.99	1.17	6.68	7.19
Avg		0.09	22.74	1.11	6.57	7.12

Run No: 9 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	13:18	0.11	22.35	1.12	6.51	7.14
05 Sep 24	13:19	0.12	22.34	1.10	6.64	7.14
05 Sep 24	13:20	0.09	22.62	1.09	6.54	7.12
05 Sep 24	13:21	0.10	22.71	1.09	6.57	7.13
05 Sep 24	13:22	0.04	22.63	1.09	6.55	7.06
05 Sep 24	13:23	0.13	22.43	1.09	6.52	7.15
05 Sep 24	13:24	0.09	22.30	1.12	6.60	7.12
05 Sep 24	13:25	0.08	22.35	1.09	6.46	7.11
05 Sep 24	13:26	0.15	22.30	1.09	6.54	7.17
05 Sep 24	13:27	0.05	22.42	1.09	6.60	7.07
05 Sep 24	13:28	0.08	22.75	1.12	6.57	7.11
05 Sep 24	13:29	0.08	22.93	1.09	6.64	7.10
05 Sep 24	13:30	0.08	22.94	1.11	6.58	7.10
05 Sep 24	13:31	0.10	22.92	1.12	6.55	7.13
05 Sep 24	13:32	0.08	22.87	1.09	6.58	7.11
05 Sep 24	13:33	0.11	22.81	1.07	6.57	7.14
05 Sep 24	13:34	0.12	22.86	1.06	6.61	7.14
05 Sep 24	13:35	0.07	22.80	1.09	6.56	7.10
05 Sep 24	13:36	0.09	22.66	1.09	6.53	7.12
05 Sep 24	13:37	0.09	22.34	1.17	6.57	7.11
05 Sep 24	13:38	0.10	22.29	1.13	6.59	7.12
Max		0.15	22.94	1.17	6.64	7.17
Avg		0.09	22.60	1.10	6.57	7.12

Run No: 10 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	13:39	0.07	22.63	1.15	6.60	7.10
05 Sep 24	13:40	0.06	22.89	1.16	6.56	7.09
05 Sep 24	13:41	0.10	22.97	1.13	6.57	7.13
05 Sep 24	13:42	0.07	23.05	1.11	6.61	7.09
05 Sep 24	13:43	0.09	23.13	1.13	6.59	7.11
05 Sep 24	13:44	0.09	23.12	1.08	6.63	7.11
05 Sep 24	13:45	0.04	23.00	1.07	6.54	7.06
05 Sep 24	13:46	0.10	22.83	1.11	6.56	7.12
05 Sep 24	13:47	0.09	22.87	1.07	6.62	7.12
05 Sep 24	13:48	0.10	22.83	1.08	6.53	7.13
05 Sep 24	13:49	0.12	22.84	1.08	6.59	7.14
05 Sep 24	13:50	0.03	22.73	1.05	6.54	7.05
05 Sep 24	13:51	0.07	22.64	1.13	6.57	7.10
05 Sep 24	13:52	0.05	22.81	1.09	6.64	7.08
05 Sep 24	13:53	0.06	22.93	1.10	6.60	7.08
05 Sep 24	13:54	0.07	22.98	1.08	6.64	7.10
05 Sep 24	13:55	0.02	23.02	1.06	6.63	7.04
05 Sep 24	13:56	0.06	22.99	1.05	6.61	7.09
05 Sep 24	13:57	0.06	22.96	1.06	6.67	7.09
05 Sep 24	13:58	0.07	22.91	1.07	6.58	7.10
05 Sep 24	13:59	0.10	22.90	1.05	6.61	7.12
Max		0.12	23.13	1.16	6.67	7.14
Avg		0.07	22.91	1.09	6.59	7.10

Run No: 11 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	14:00	0.04	22.99	1.06	6.63	7.07
05 Sep 24	14:01	0.07	23.02	1.01	6.62	7.09
05 Sep 24	14:02	0.05	22.90	1.07	6.65	7.07
05 Sep 24	14:03	0.09	22.82	1.04	6.58	7.11
05 Sep 24	14:04	0.09	22.79	1.02	6.61	7.11
05 Sep 24	14:05	0.07	22.75	1.04	6.57	7.10
05 Sep 24	14:06	0.11	22.77	1.04	6.60	7.13
05 Sep 24	14:07	0.12	22.65	1.03	6.60	7.14
05 Sep 24	14:08	0.09	22.62	1.10	6.58	7.11
05 Sep 24	14:09	0.10	22.75	1.06	6.59	7.12
05 Sep 24	14:10	0.06	22.79	1.05	6.55	7.08
05 Sep 24	14:11	0.13	22.72	1.03	6.60	7.16
05 Sep 24	14:12	0.09	22.78	1.12	6.70	7.11
05 Sep 24	14:13	0.04	22.85	1.10	6.62	7.06
05 Sep 24	14:14	0.07	22.99	1.08	6.61	7.09
05 Sep 24	14:15	0.03	23.08	1.05	6.56	7.05
05 Sep 24	14:16	0.10	23.02	1.06	6.55	7.13
05 Sep 24	14:17	0.11	22.84	1.05	6.64	7.13
05 Sep 24	14:18	0.08	22.77	1.02	6.57	7.10
05 Sep 24	14:19	0.11	22.88	1.08	6.57	7.13
05 Sep 24	14:20	0.06	22.99	1.05	6.60	7.08
Max		0.13	23.08	1.12	6.70	7.16
Avg		0.08	22.85	1.05	6.60	7.10

Run No: 12 Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
05 Sep 24	14:21	0.11	22.68	1.04	6.56	7.14
05 Sep 24	14:22	0.12	22.49	1.07	6.68	7.14
05 Sep 24	14:23	0.06	22.57	1.03	6.63	7.09
05 Sep 24	14:24	0.06	22.84	1.09	6.61	7.09
05 Sep 24	14:25	0.03	22.92	0.98	6.61	7.05
05 Sep 24	14:26	0.08	22.62	1.06	6.60	7.10
05 Sep 24	14:27	0.09	22.57	1.08	6.64	7.11
05 Sep 24	14:28	0.09	22.54	1.11	6.56	7.12
05 Sep 24	14:29	0.11	22.50	1.06	6.57	7.14
05 Sep 24	14:30	0.07	22.51	1.06	6.55	7.10
05 Sep 24	14:31	0.13	22.59	1.03	6.59	7.15
05 Sep 24	14:32	0.11	22.51	1.05	6.58	7.13
05 Sep 24	14:33	0.11	22.00	1.09	6.49	7.13
05 Sep 24	14:34	0.16	21.77	1.04	6.59	7.18
05 Sep 24	14:35	0.05	21.98	0.97	6.56	7.08
05 Sep 24	14:36	0.11	22.24	0.99	6.55	7.14
05 Sep 24	14:37	0.11	22.34	1.03	6.64	7.13
05 Sep 24	14:38	0.07	22.45	1.03	6.54	7.10
05 Sep 24	14:39	0.13	22.41	0.93	6.54	7.15
05 Sep 24	14:40	0.10	22.39	1.02	6.60	7.12
05 Sep 24	14:41	0.10	22.62	0.97	6.60	7.12
Max		0.16	22.92	1.11	6.68	7.18
Avg		0.10	22.45	1.04	6.59	7.12

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10202/10203 (F-1020)

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	10:25	0.00	24.49	0.45	-	-
05 Sep 24	10:26	0.00	24.05	0.51	-	-
05 Sep 24	10:27	0.00	24.23	0.60	-	-
05 Sep 24	10:28	0.00	24.70	0.53	-	-
05 Sep 24	10:29	0.00	24.70	0.37	-	-
05 Sep 24	10:30	0.00	25.16	0.41	-	-
05 Sep 24	10:31	0.00	25.82	0.76	-	-
05 Sep 24	10:32	0.00	25.14	0.50	-	-
05 Sep 24	10:33	0.00	24.78	0.56	-	-
05 Sep 24	10:34	0.00	24.42	0.48	-	-
05 Sep 24	10:35	0.00	24.61	0.54	-	-
05 Sep 24	10:36	0.00	25.20	0.46	-	-
05 Sep 24	10:37	0.00	25.10	0.51	-	-
05 Sep 24	10:38	0.00	25.21	0.57	-	-
05 Sep 24	10:39	0.00	24.59	0.43	-	-
05 Sep 24	10:40	0.00	24.73	0.40	-	-
05 Sep 24	10:41	0.00	24.87	0.54	-	-
05 Sep 24	10:42	0.00	25.17	0.52	-	-
05 Sep 24	10:43	0.00	24.66	0.44	-	-
05 Sep 24	10:44	0.00	24.64	0.51	-	-
05 Sep 24	10:45	0.00	21.81	0.34	-	-
Max		0.00	25.82	0.76	-	-
Avg		0.00	24.69	0.50	-	-

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	10:46	0.00	24.39	0.39	-	-
05 Sep 24	10:47	0.00	25.17	0.55	-	-
05 Sep 24	10:48	0.00	25.22	0.43	-	-
05 Sep 24	10:49	0.00	24.52	0.30	-	-
05 Sep 24	10:50	0.00	25.18	0.53	-	-
05 Sep 24	10:51	0.00	25.77	0.53	-	-
05 Sep 24	10:52	0.00	26.38	0.94	-	-
05 Sep 24	10:53	0.00	25.43	0.64	-	-
05 Sep 24	10:54	0.00	25.04	0.41	-	-
05 Sep 24	10:55	0.00	25.11	0.52	-	-
05 Sep 24	10:56	0.00	25.04	0.43	-	-
05 Sep 24	10:57	0.00	24.77	0.40	-	-
05 Sep 24	10:58	0.00	25.38	0.54	-	-
05 Sep 24	10:59	0.00	24.83	0.31	-	-
05 Sep 24	11:00	0.00	25.93	0.51	-	-
05 Sep 24	11:01	0.00	25.16	0.45	-	-
05 Sep 24	11:02	0.00	24.69	0.35	-	-
05 Sep 24	11:03	0.00	25.08	0.41	-	-
05 Sep 24	11:04	0.00	25.47	0.49	-	-
05 Sep 24	11:05	0.00	24.88	0.34	-	-
05 Sep 24	11:06	0.00	25.15	0.43	-	-
Max		0.00	26.38	0.94	-	-
Avg		0.00	25.17	0.47	-	-

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	11:07	0.00	24.82	0.24	-	-
05 Sep 24	11:08	0.00	25.17	0.45	-	-
05 Sep 24	11:09	0.00	25.29	0.54	-	-
05 Sep 24	11:10	0.00	25.21	0.41	-	-
05 Sep 24	11:11	0.00	25.26	0.47	-	-
05 Sep 24	11:12	0.00	24.95	0.49	-	-
05 Sep 24	11:13	0.00	24.80	0.46	-	-
05 Sep 24	11:14	0.00	24.94	0.51	-	-
05 Sep 24	11:15	0.00	25.44	0.55	-	-
05 Sep 24	11:16	0.00	25.30	0.50	-	-
05 Sep 24	11:17	0.00	25.14	0.49	-	-
05 Sep 24	11:18	0.00	25.20	0.38	-	-
05 Sep 24	11:19	0.00	25.69	0.50	-	-
05 Sep 24	11:20	0.00	25.29	0.29	-	-
05 Sep 24	11:21	0.00	25.49	0.53	-	-
05 Sep 24	11:22	0.00	25.85	0.67	-	-
05 Sep 24	11:23	0.00	24.99	0.48	-	-
05 Sep 24	11:24	0.00	25.16	0.44	-	-
05 Sep 24	11:25	0.00	25.15	0.40	-	-
05 Sep 24	11:26	0.00	25.25	0.40	-	-
05 Sep 24	11:27	0.00	25.28	0.45	-	-
Max		0.00	25.85	0.67	-	-
Avg		0.00	25.22	0.46	-	-

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	11:28	0.00	25.26	0.56	-	-
05 Sep 24	11:29	0.00	25.11	0.40	-	-
05 Sep 24	11:30	0.00	25.41	0.33	-	-
05 Sep 24	11:31	0.00	25.40	0.43	-	-
05 Sep 24	11:32	0.00	25.10	0.42	-	-
05 Sep 24	11:33	0.00	25.21	0.47	-	-
05 Sep 24	11:34	0.00	24.64	0.42	-	-
05 Sep 24	11:35	0.00	24.99	0.38	-	-
05 Sep 24	11:36	0.00	24.76	0.43	-	-
05 Sep 24	11:37	0.00	25.11	0.35	-	-
05 Sep 24	11:38	0.00	24.82	0.43	-	-
05 Sep 24	11:39	0.00	24.94	0.39	-	-
05 Sep 24	11:40	0.00	24.99	0.42	-	-
05 Sep 24	11:41	0.00	25.39	0.50	-	-
05 Sep 24	11:42	0.00	25.04	0.53	-	-
05 Sep 24	11:43	0.00	25.37	0.52	-	-
05 Sep 24	11:44	0.00	25.66	0.43	-	-
05 Sep 24	11:45	0.00	22.35	0.37	-	-
05 Sep 24	11:46	0.00	24.50	0.48	-	-
05 Sep 24	11:47	0.00	24.92	0.44	-	-
05 Sep 24	11:48	0.00	24.94	0.51	-	-
Max		0.00	25.66	0.56	-	-
Avg		0.00	24.95	0.44	-	-

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	11:49	0.00	25.06	0.43	-	-
05 Sep 24	11:50	0.00	25.07	0.20	-	-
05 Sep 24	11:51	0.00	25.19	0.64	-	-
05 Sep 24	11:52	0.00	25.34	0.63	-	-
05 Sep 24	11:53	0.00	26.10	0.49	-	-
05 Sep 24	11:54	0.00	25.16	0.37	-	-
05 Sep 24	11:55	0.00	24.19	0.05	-	-
05 Sep 24	11:56	0.00	25.56	0.29	-	-
05 Sep 24	11:57	0.00	25.56	0.53	-	-
05 Sep 24	11:58	0.00	25.44	0.48	-	-
05 Sep 24	11:59	0.00	25.42	0.48	-	-
05 Sep 24	12:00	0.00	25.40	0.54	-	-
05 Sep 24	12:01	0.00	25.38	0.59	-	-
05 Sep 24	12:02	0.00	25.53	0.54	-	-
05 Sep 24	12:03	0.00	25.69	0.53	-	-
05 Sep 24	12:04	0.00	25.37	0.33	-	-
05 Sep 24	12:05	0.00	26.28	0.68	-	-
05 Sep 24	12:06	0.00	25.41	0.48	-	-
05 Sep 24	12:07	0.00	25.02	0.51	-	-
05 Sep 24	12:08	0.00	25.13	0.53	-	-
05 Sep 24	12:09	0.00	25.08	0.48	-	-
Max		0.00	26.28	0.68	-	-
Avg		0.00	25.35	0.47	-	-

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	12:10	0.00	25.24	0.42	-	-
05 Sep 24	12:11	0.00	25.50	0.45	-	-
05 Sep 24	12:12	0.00	25.32	0.53	-	-
05 Sep 24	12:13	0.00	25.38	0.45	-	-
05 Sep 24	12:14	0.00	25.10	0.35	-	-
05 Sep 24	12:15	0.00	25.00	0.48	-	-
05 Sep 24	12:16	0.00	25.46	0.46	-	-
05 Sep 24	12:17	0.00	25.36	0.42	-	-
05 Sep 24	12:18	0.00	25.29	0.40	-	-
05 Sep 24	12:19	0.00	25.42	0.42	-	-
05 Sep 24	12:20	0.00	25.31	0.47	-	-
05 Sep 24	12:21	0.00	25.10	0.46	-	-
05 Sep 24	12:22	0.00	25.10	0.54	-	-
05 Sep 24	12:23	0.00	25.38	0.50	-	-
05 Sep 24	12:24	0.00	25.40	0.38	-	-
05 Sep 24	12:25	0.00	25.27	0.38	-	-
05 Sep 24	12:26	0.00	25.95	0.40	-	-
05 Sep 24	12:27	0.00	26.38	0.59	-	-
05 Sep 24	12:28	0.00	25.12	0.28	-	-
05 Sep 24	12:29	0.00	25.05	0.42	-	-
05 Sep 24	12:30	0.00	25.14	0.54	-	-
Max		0.00	26.38	0.59	-	-
Avg		0.00	25.35	0.44	-	-

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10202/10203 (F-1020)

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	12:31	0.00	25.27	0.50	-	-
05 Sep 24	12:32	0.00	25.13	0.49	-	-
05 Sep 24	12:33	0.00	25.63	0.55	-	-
05 Sep 24	12:34	0.00	25.44	0.50	-	-
05 Sep 24	12:35	0.00	25.04	0.48	-	-
05 Sep 24	12:36	0.00	25.27	0.49	-	-
05 Sep 24	12:37	0.00	25.42	0.49	-	-
05 Sep 24	12:38	0.00	25.41	0.44	-	-
05 Sep 24	12:39	0.00	24.75	0.66	-	-
05 Sep 24	12:40	0.00	25.08	0.45	-	-
05 Sep 24	12:41	0.00	25.04	0.57	-	-
05 Sep 24	12:42	0.00	25.30	0.45	-	-
05 Sep 24	12:43	0.00	25.57	0.44	-	-
05 Sep 24	12:44	0.00	25.80	0.54	-	-
05 Sep 24	12:45	0.00	22.51	0.38	-	-
05 Sep 24	12:46	0.00	24.49	0.46	-	-
05 Sep 24	12:47	0.00	25.30	0.41	-	-
05 Sep 24	12:48	0.00	25.61	0.54	-	-
05 Sep 24	12:49	0.00	25.81	0.48	-	-
05 Sep 24	12:50	0.00	25.21	0.42	-	-
05 Sep 24	12:51	0.00	25.49	0.38	-	-
Max		0.00	25.80	0.66	-	-
Avg		0.00	25.16	0.48	-	-

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	12:52	0.00	25.43	0.50	-	-
05 Sep 24	12:53	0.00	25.95	0.58	-	-
05 Sep 24	12:54	0.00	25.48	0.52	-	-
05 Sep 24	12:55	0.00	25.46	0.56	-	-
05 Sep 24	12:56	0.00	25.11	0.54	-	-
05 Sep 24	12:57	0.00	24.78	0.40	-	-
05 Sep 24	12:58	0.00	25.86	0.67	-	-
05 Sep 24	12:59	0.00	26.03	0.53	-	-
05 Sep 24	13:00	0.00	26.07	0.51	-	-
05 Sep 24	13:01	0.00	25.99	0.62	-	-
05 Sep 24	13:02	0.00	25.24	0.44	-	-
05 Sep 24	13:03	0.00	25.24	0.42	-	-
05 Sep 24	13:04	0.00	25.21	0.44	-	-
05 Sep 24	13:05	0.00	25.24	0.40	-	-
05 Sep 24	13:06	0.00	25.17	0.48	-	-
05 Sep 24	13:07	0.00	24.93	0.48	-	-
05 Sep 24	13:08	0.00	24.90	0.29	-	-
05 Sep 24	13:09	0.00	25.48	0.52	-	-
05 Sep 24	13:10	0.00	25.43	0.40	-	-
05 Sep 24	13:11	0.00	25.16	0.38	-	-
05 Sep 24	13:12	0.00	25.32	0.41	-	-
Max		0.00	26.07	0.67	-	-
Avg		0.00	25.40	0.48	-	-

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	13:13	0.00	25.23	0.32	-	-
05 Sep 24	13:14	0.00	25.14	0.46	-	-
05 Sep 24	13:15	0.00	25.16	0.36	-	-
05 Sep 24	13:16	0.00	25.03	0.39	-	-
05 Sep 24	13:17	0.00	24.88	0.52	-	-
05 Sep 24	13:18	0.00	25.16	0.39	-	-
05 Sep 24	13:19	0.00	25.45	0.41	-	-
05 Sep 24	13:20	0.00	25.15	0.42	-	-
05 Sep 24	13:21	0.00	25.02	0.35	-	-
05 Sep 24	13:22	0.00	24.95	0.34	-	-
05 Sep 24	13:23	0.00	24.73	0.41	-	-
05 Sep 24	13:24	0.00	24.68	0.42	-	-
05 Sep 24	13:25	0.00	24.79	0.33	-	-
05 Sep 24	13:26	0.00	25.31	0.41	-	-
05 Sep 24	13:27	0.00	25.14	0.33	-	-
05 Sep 24	13:28	0.00	24.63	0.29	-	-
05 Sep 24	13:29	0.00	25.64	0.57	-	-
05 Sep 24	13:30	0.00	25.92	0.37	-	-
05 Sep 24	13:31	0.00	24.91	0.36	-	-
05 Sep 24	13:32	0.00	25.17	0.45	-	-
05 Sep 24	13:33	0.00	25.05	0.49	-	-
Max		0.00	25.92	0.57	-	-
Avg		0.00	25.11	0.40	-	-

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	13:34	0.00	25.07	0.39	-	-
05 Sep 24	13:35	0.00	24.70	0.41	-	-
05 Sep 24	13:36	0.00	24.87	0.44	-	-
05 Sep 24	13:37	0.00	25.49	0.37	-	-
05 Sep 24	13:38	0.00	25.41	0.45	-	-
05 Sep 24	13:39	0.00	26.11	0.56	-	-
05 Sep 24	13:40	0.00	25.26	0.31	-	-
05 Sep 24	13:41	0.00	25.23	0.40	-	-
05 Sep 24	13:42	0.00	25.17	0.40	-	-
05 Sep 24	13:43	0.00	25.06	0.37	-	-
05 Sep 24	13:44	0.00	25.30	0.43	-	-
05 Sep 24	13:45	0.00	22.49	0.23	-	-
05 Sep 24	13:46	0.00	24.93	0.36	-	-
05 Sep 24	13:47	0.00	25.36	0.36	-	-
05 Sep 24	13:48	0.00	24.88	0.46	-	-
05 Sep 24	13:49	0.00	25.26	0.32	-	-
05 Sep 24	13:50	0.00	25.28	0.44	-	-
05 Sep 24	13:51	0.00	25.40	0.35	-	-
05 Sep 24	13:52	0.00	25.53	0.38	-	-
05 Sep 24	13:53	0.00	25.17	0.35	-	-
05 Sep 24	13:54	0.00	25.47	0.41	-	-
Max		0.00	26.11	0.56	-	-
Avg		0.00	25.12	0.39	-	-

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	13:55	0.00	25.37	0.35	-	-
05 Sep 24	13:56	0.00	25.36	0.34	-	-
05 Sep 24	13:57	0.00	25.32	0.31	-	-
05 Sep 24	13:58	0.00	25.35	0.40	-	-
05 Sep 24	13:59	0.00	24.99	0.35	-	-
05 Sep 24	14:00	0.00	25.23	0.33	-	-
05 Sep 24	14:01	0.00	24.64	0.19	-	-
05 Sep 24	14:02	0.00	25.49	0.20	-	-
05 Sep 24	14:03	0.00	25.33	0.39	-	-
05 Sep 24	14:04	0.00	25.32	0.25	-	-
05 Sep 24	14:05	0.00	26.01	0.45	-	-
05 Sep 24	14:06	0.00	25.70	0.41	-	-
05 Sep 24	14:07	0.00	25.90	0.25	-	-
05 Sep 24	14:08	0.00	25.09	0.48	-	-
05 Sep 24	14:09	0.00	25.49	0.24	-	-
05 Sep 24	14:10	0.00	25.65	0.21	-	-
05 Sep 24	14:11	0.00	26.39	0.53	-	-
05 Sep 24	14:12	0.00	25.72	0.69	-	-
05 Sep 24	14:13	0.00	25.84	0.42	-	-
05 Sep 24	14:14	0.00	25.50	0.40	-	-
05 Sep 24	14:15	0.00	25.35	0.30	-	-
Max		0.00	26.39	0.69	-	-
Avg		0.00	25.48	0.36	-	-

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	14:16	0.00	25.45	0.35	-	-
05 Sep 24	14:17	0.00	25.47	0.33	-	-
05 Sep 24	14:18	0.00	25.66	0.48	-	-
05 Sep 24	14:19	0.00	25.01	0.25	-	-
05 Sep 24	14:20	0.00	25.09	0.40	-	-
05 Sep 24	14:21	0.00	25.24	0.42	-	-
05 Sep 24	14:22	0.00	25.41	0.32	-	-
05 Sep 24	14:23	0.00	25.23	0.34	-	-
05 Sep 24	14:24	0.00	25.39	0.39	-	-
05 Sep 24	14:25	0.00	25.36	0.35	-	-
05 Sep 24	14:26	0.00	25.13	0.31	-	-
05 Sep 24	14:27	0.00	24.92	0.30	-	-
05 Sep 24	14:28	0.00	25.48	0.34	-	-
05 Sep 24	14:29	0.00	25.61	0.38	-	-
05 Sep 24	14:30	0.00	25.40	0.35	-	-
05 Sep 24	14:31	0.00	25.02	0.41	-	-
05 Sep 24	14:32	0.00	24.64	0.40	-	-
05 Sep 24	14:33	0.00	25.53	0.40	-	-
05 Sep 24	14:34	0.00	25.38	0.40	-	-
05 Sep 24	14:35	0.00	25.19	0.18	-	-
05 Sep 24	14:36	0.00	25.47	0.39	-	-
Max		0.00	25.66	0.48	-	-
Avg		0.00	25.29	0.36	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10202/10203 (F-1020)

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	10:25	0.15	23.04	0.14	6.88	7.02
05 Sep 24	10:26	0.20	23.05	0.18	6.94	7.08
05 Sep 24	10:27	0.16	22.74	0.15	7.00	7.03
05 Sep 24	10:28	0.20	22.57	0.18	6.91	7.08
05 Sep 24	10:29	0.14	22.79	0.15	6.94	7.01
05 Sep 24	10:30	0.12	23.03	0.18	6.89	6.99
05 Sep 24	10:31	0.20	22.98	0.19	6.94	7.07
05 Sep 24	10:32	0.15	23.01	0.21	7.04	7.03
05 Sep 24	10:33	0.18	23.06	0.24	6.94	7.06
05 Sep 24	10:34	0.19	23.13	0.21	6.91	7.06
05 Sep 24	10:35	0.12	24.31	0.17	6.94	7.00
05 Sep 24	10:36	0.16	24.33	0.20	6.95	7.04
05 Sep 24	10:37	0.17	24.34	0.24	7.09	7.04
05 Sep 24	10:38	0.13	24.39	0.20	6.95	7.00
05 Sep 24	10:39	0.16	24.39	0.20	6.94	7.04
05 Sep 24	10:40	0.11	24.35	0.23	6.91	6.98
05 Sep 24	10:41	0.19	24.13	0.16	6.91	7.07
05 Sep 24	10:42	0.18	23.98	0.17	7.04	7.05
05 Sep 24	10:43	0.18	24.00	0.14	6.90	7.06
05 Sep 24	10:44	0.18	24.08	0.17	6.90	7.06
05 Sep 24	10:45	0.13	24.13	0.21	6.89	7.00
Max		0.20	24.39	0.24	7.09	7.08
Avg		0.16	23.61	0.19	6.94	7.04

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	10:46	0.17	24.17	0.28	6.96	7.05
05 Sep 24	10:47	0.13	24.17	0.21	7.08	7.00
05 Sep 24	10:48	0.17	24.24	0.20	6.96	7.05
05 Sep 24	10:49	0.13	24.39	0.19	6.97	7.01
05 Sep 24	10:50	0.08	24.43	0.15	6.86	6.95
05 Sep 24	10:51	0.24	24.47	0.17	6.92	7.12
05 Sep 24	10:52	0.15	24.44	0.25	7.04	7.03
05 Sep 24	10:53	0.15	24.35	0.28	6.97	7.03
05 Sep 24	10:54	0.21	24.40	0.21	6.92	7.09
05 Sep 24	10:55	0.08	24.41	0.21	6.98	6.95
05 Sep 24	10:56	0.15	24.43	0.25	6.99	7.03
05 Sep 24	10:57	0.13	24.49	0.25	7.07	7.01
05 Sep 24	10:58	0.16	24.38	0.21	6.91	7.03
05 Sep 24	10:59	0.19	24.30	0.22	6.91	7.07
05 Sep 24	11:00	0.10	24.27	0.19	6.95	6.97
05 Sep 24	11:01	0.18	24.37	0.22	6.94	7.05
05 Sep 24	11:02	0.18	24.53	0.23	7.04	7.03
05 Sep 24	11:03	0.13	24.57	0.22	6.94	7.00
05 Sep 24	11:04	0.15	24.45	0.24	6.97	7.02
05 Sep 24	11:05	0.09	24.42	0.21	6.99	6.96
05 Sep 24	11:06	0.15	24.39	0.24	6.97	7.02
Max		0.24	24.57	0.28	7.08	7.12
Avg		0.15	24.38	0.22	6.96	7.02

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	11:07	0.11	24.37	0.25	7.00	6.98
05 Sep 24	11:08	0.12	24.42	0.26	6.94	6.99
05 Sep 24	11:09	0.14	24.37	0.22	6.98	7.01
05 Sep 24	11:10	0.12	24.38	0.23	6.96	6.99
05 Sep 24	11:11	0.18	24.43	0.20	6.98	7.06
05 Sep 24	11:12	0.15	24.43	0.25	6.97	7.02
05 Sep 24	11:13	0.15	24.35	0.26	6.91	7.03
05 Sep 24	11:14	0.15	24.18	0.25	6.96	7.03
05 Sep 24	11:15	0.11	24.08	0.30	7.05	6.98
05 Sep 24	11:16	0.15	24.30	0.27	6.96	7.02
05 Sep 24	11:17	0.14	24.44	0.24	6.98	7.01
05 Sep 24	11:18	0.13	24.40	0.20	6.94	7.00
05 Sep 24	11:19	0.15	24.41	0.20	7.00	7.03
05 Sep 24	11:20	0.09	24.44	0.30	7.07	6.96
05 Sep 24	11:21	0.15	24.37	0.24	6.97	7.02
05 Sep 24	11:22	0.14	24.35	0.27	7.02	7.01
05 Sep 24	11:23	0.09	24.39	0.33	6.94	6.96
05 Sep 24	11:24	0.16	24.25	0.30	6.94	7.04
05 Sep 24	11:25	0.09	24.20	0.27	7.13	6.97
05 Sep 24	11:26	0.14	24.40	0.30	6.95	7.01
05 Sep 24	11:27	0.15	24.44	0.29	6.98	7.02
Max		0.18	24.44	0.33	7.13	7.06
Avg		0.13	24.35	0.26	6.98	7.01

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	11:28	0.08	24.58	0.31	6.99	6.95
05 Sep 24	11:29	0.11	24.69	0.30	7.02	6.99
05 Sep 24	11:30	0.07	24.55	0.33	7.12	6.95
05 Sep 24	11:31	0.15	24.45	0.30	7.00	7.02
05 Sep 24	11:32	0.11	24.57	0.37	6.99	6.99
05 Sep 24	11:33	0.09	24.63	0.29	6.98	6.97
05 Sep 24	11:34	0.15	24.58	0.30	7.01	7.02
05 Sep 24	11:35	0.13	24.32	0.32	7.07	7.00
05 Sep 24	11:36	0.14	24.28	0.28	7.01	7.02
05 Sep 24	11:37	0.12	24.44	0.28	7.00	6.99
05 Sep 24	11:38	0.09	24.55	0.22	6.96	6.96
05 Sep 24	11:39	0.16	24.63	0.27	7.03	7.03
05 Sep 24	11:40	0.10	24.63	0.25	7.13	6.97
05 Sep 24	11:41	0.15	24.58	0.21	6.95	7.02
05 Sep 24	11:42	0.14	24.52	0.21	6.97	7.01
05 Sep 24	11:43	0.10	24.53	0.16	6.95	6.97
05 Sep 24	11:44	0.15	24.61	0.14	7.01	7.03
05 Sep 24	11:45	0.11	24.69	0.11	7.12	6.99
05 Sep 24	11:46	0.14	24.66	0.18	6.97	7.01
05 Sep 24	11:47	0.11	24.51	0.18	7.00	6.99
05 Sep 24	11:48	0.08	24.48	0.13	6.98	6.95
Max		0.16	24.69	0.37	7.13	7.03
Avg		0.12	24.55	0.24	7.01	6.99

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	11:49	0.14	24.53	0.11	7.00	7.02
05 Sep 24	11:50	0.13	24.70	0.19	7.15	7.00
05 Sep 24	11:51	0.12	24.73	0.20	6.97	6.99
05 Sep 24	11:52	0.14	24.59	0.18	6.97	7.01
05 Sep 24	11:53	0.10	24.61	0.17	6.97	6.98
05 Sep 24	11:54	0.17	24.65	0.22	7.00	7.04
05 Sep 24	11:55	0.17	24.63	0.23	7.09	7.04
05 Sep 24	11:56	0.16	24.58	0.23	6.89	7.03
05 Sep 24	11:57	0.11	24.57	0.24	6.97	6.98
05 Sep 24	11:58	0.08	24.56	0.16	6.97	6.95
05 Sep 24	11:59	0.13	24.60	0.18	7.03	7.00
05 Sep 24	12:00	0.13	24.66	0.18	7.08	7.00
05 Sep 24	12:01	0.15	24.71	0.19	6.97	7.02
05 Sep 24	12:02	0.15	24.71	0.18	6.98	7.03
05 Sep 24	12:03	0.10	24.71	0.25	6.97	6.98
05 Sep 24	12:04	0.14	24.83	0.21	6.99	7.02
05 Sep 24	12:05	0.16	24.73	0.18	7.04	7.03
05 Sep 24	12:06	0.17	24.62	0.22	6.94	7.04
05 Sep 24	12:07	0.16	24.61	0.20	6.99	7.03
05 Sep 24	12:08	0.07	24.54	0.14	7.00	6.94
05 Sep 24	12:09	0.15	24.51	0.21	6.97	7.02
Max		0.17	24.83	0.25	7.15	7.04
Avg		0.13	24.64	0.19	7.00	7.01

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	12:10	0.13	24.57	0.16	7.11	7.00
05 Sep 24	12:11	0.16	24.66	0.15	6.96	7.04
05 Sep 24	12:12	0.15	24.76	0.19	7.01	7.03
05 Sep 24	12:13	0.08	24.86	0.19	7.04	6.93
05 Sep 24	12:14	0.15	24.86	0.19	6.95	7.02
05 Sep 24	12:15	0.16	24.76	0.14	7.04	7.04
05 Sep 24	12:16	0.14	24.69	0.17	6.95	7.01
05 Sep 24	12:17	0.16	24.74	0.13	6.98	7.04
05 Sep 24	12:18	0.09	24.69	0.13	7.01	6.96
05 Sep 24	12:19	0.17	24.61	0.12	6.96	7.05
05 Sep 24	12:20	0.15	24.73	0.15	6.99	7.03
05 Sep 24	12:21	0.09	24.65	0.14	6.91	6.96
05 Sep 24	12:22	0.15	24.48	0.12	6.98	7.03
05 Sep 24	12:23	0.14	24.40	0.15	7.02	7.02
05 Sep 24	12:24	0.18	24.67	0.09	7.02	7.05
05 Sep 24	12:25	0.11	24.79	0.12	6.96	6.98
05 Sep 24	12:26	0.13	24.83	0.11	6.94	7.00
05 Sep 24	12:27	0.14	24.88	0.08	7.02	7.01
05 Sep 24	12:28	0.09	24.84	0.16	7.05	6.96
05 Sep 24	12:29	0.17	24.60	0.16	6.92	7.04
05 Sep 24	12:30	0.13	24.45	0.10	7.02	7.01
Max		0.18	24.88	0.19	7.11	7.05
Avg		0.14	24.69	0.14	6.99	7.01

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 05 Sep 24
Plant Name: I-4/1 Location: B-AT-10202/10203 (F-1020)

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	12:31	0.09	24.56	0.08	6.93	6.97
05 Sep 24	12:32	0.16	24.64	0.10	6.94	7.03
05 Sep 24	12:33	0.14	24.62	0.08	7.09	7.02
05 Sep 24	12:34	0.20	24.69	0.05	6.93	7.09
05 Sep 24	12:35	0.17	24.85	0.19	6.94	7.04
05 Sep 24	12:36	0.14	24.81	0.15	6.90	7.01
05 Sep 24	12:37	0.18	24.60	0.08	6.95	7.05
05 Sep 24	12:38	0.11	24.77	0.19	7.11	6.99
05 Sep 24	12:39	0.15	24.66	0.14	6.91	7.02
05 Sep 24	12:40	0.18	24.53	0.20	6.91	7.06
05 Sep 24	12:41	0.14	24.42	0.04	6.89	7.01
05 Sep 24	12:42	0.14	24.55	0.17	6.97	7.01
05 Sep 24	12:43	0.11	24.81	0.12	7.10	6.99
05 Sep 24	12:44	0.15	24.91	0.14	6.97	7.02
05 Sep 24	12:45	0.18	24.99	0.05	6.90	7.06
05 Sep 24	12:46	0.13	24.99	0.14	6.92	7.01
05 Sep 24	12:47	0.17	24.95	0.18	6.98	7.05
05 Sep 24	12:48	0.08	25.01	0.13	7.09	6.96
05 Sep 24	12:49	0.14	25.10	0.10	7.00	7.01
05 Sep 24	12:50	0.15	25.12	0.18	6.98	7.03
05 Sep 24	12:51	0.08	25.09	0.19	6.94	6.96
Max		0.20	25.12	0.20	7.11	7.08
Avg		0.14	24.80	0.13	6.97	7.02

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	12:52	0.17	25.01	0.14	6.97	7.05
05 Sep 24	12:53	0.11	24.95	0.20	7.10	6.99
05 Sep 24	12:54	0.18	24.96	0.18	6.93	7.05
05 Sep 24	12:55	0.16	24.89	0.16	6.94	7.03
05 Sep 24	12:56	0.12	24.84	0.17	6.91	6.99
05 Sep 24	12:57	0.17	24.74	0.15	6.97	7.05
05 Sep 24	12:58	0.12	24.60	0.11	7.12	7.00
05 Sep 24	12:59	0.12	24.80	0.14	6.98	6.99
05 Sep 24	13:00	0.11	24.95	0.07	7.02	6.98
05 Sep 24	13:01	0.08	24.98	0.09	6.96	6.96
05 Sep 24	13:02	0.17	25.16	0.11	7.00	7.05
05 Sep 24	13:03	0.11	25.13	0.10	7.17	6.98
05 Sep 24	13:04	0.08	24.97	0.14	7.00	6.95
05 Sep 24	13:05	0.16	24.89	0.07	6.96	7.04
05 Sep 24	13:06	0.08	24.86	0.08	6.98	6.96
05 Sep 24	13:07	0.15	24.76	0.13	6.95	7.03
05 Sep 24	13:08	0.14	24.86	0.11	7.06	7.01
05 Sep 24	13:09	0.14	24.95	0.13	6.96	7.02
05 Sep 24	13:10	0.12	25.05	0.16	6.97	6.99
05 Sep 24	13:11	0.08	25.16	0.21	6.98	6.95
05 Sep 24	13:12	0.14	25.13	0.15	6.97	7.02
Max		0.18	25.16	0.21	7.17	7.05
Avg		0.13	24.93	0.13	6.99	7.00

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	13:13	0.14	25.09	0.13	7.10	7.02
05 Sep 24	13:14	0.12	25.03	0.17	6.98	7.00
05 Sep 24	13:15	0.13	24.97	0.22	7.00	7.01
05 Sep 24	13:16	0.10	24.78	0.20	6.93	6.97
05 Sep 24	13:17	0.20	24.67	0.22	6.93	7.07
05 Sep 24	13:18	0.15	24.65	0.17	7.04	7.02
05 Sep 24	13:19	0.18	24.85	0.24	6.93	7.05
05 Sep 24	13:20	0.15	25.01	0.14	7.00	7.03
05 Sep 24	13:21	0.09	24.94	0.17	6.98	6.98
05 Sep 24	13:22	0.18	24.84	0.15	6.94	7.05
05 Sep 24	13:23	0.15	24.71	0.18	6.98	7.03
05 Sep 24	13:24	0.14	24.63	0.21	6.88	7.02
05 Sep 24	13:25	0.19	24.47	0.17	6.96	7.06
05 Sep 24	13:26	0.10	24.69	0.16	7.03	6.97
05 Sep 24	13:27	0.14	24.92	0.21	6.98	7.01
05 Sep 24	13:28	0.15	25.11	0.19	7.03	7.02
05 Sep 24	13:29	0.10	25.08	0.15	6.98	6.98
05 Sep 24	13:30	0.16	25.06	0.22	7.00	7.03
05 Sep 24	13:31	0.09	25.01	0.21	7.06	6.97
05 Sep 24	13:32	0.17	24.98	0.15	7.00	7.04
05 Sep 24	13:33	0.14	25.03	0.14	6.98	7.01
Max		0.20	25.11	0.24	7.10	7.07
Avg		0.14	24.88	0.18	6.99	7.02

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	13:34	0.12	25.06	0.21	6.98	6.99
05 Sep 24	13:35	0.16	24.88	0.15	6.96	7.03
05 Sep 24	13:36	0.13	24.70	0.18	7.03	7.00
05 Sep 24	13:37	0.17	24.57	0.20	7.01	7.05
05 Sep 24	13:38	0.13	24.83	0.26	7.01	7.00
05 Sep 24	13:39	0.12	25.06	0.26	6.93	7.00
05 Sep 24	13:40	0.16	25.13	0.17	7.02	7.06
05 Sep 24	13:41	0.12	25.09	0.27	7.09	6.99
05 Sep 24	13:42	0.15	25.02	0.21	7.01	7.02
05 Sep 24	13:43	0.12	25.01	0.21	7.01	6.99
05 Sep 24	13:44	0.11	25.01	0.26	6.91	6.99
05 Sep 24	13:45	0.15	24.92	0.18	7.00	7.03
05 Sep 24	13:46	0.07	24.88	0.19	7.10	6.95
05 Sep 24	13:47	0.14	24.96	0.25	6.95	7.02
05 Sep 24	13:48	0.14	25.04	0.25	6.96	7.02
05 Sep 24	13:49	0.09	24.91	0.20	6.91	6.96
05 Sep 24	13:50	0.16	24.84	0.25	6.98	7.04
05 Sep 24	13:51	0.09	25.05	0.21	7.13	6.97
05 Sep 24	13:52	0.15	25.19	0.20	6.99	7.03
05 Sep 24	13:53	0.15	25.20	0.21	7.00	7.03
05 Sep 24	13:54	0.08	25.16	0.17	6.97	6.96
Max		0.18	25.20	0.27	7.13	7.06
Avg		0.13	24.98	0.21	7.00	7.01

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	13:55	0.13	25.14	0.21	6.99	7.01
05 Sep 24	13:56	0.13	25.21	0.21	7.12	7.01
05 Sep 24	13:57	0.15	25.12	0.17	6.95	7.03
05 Sep 24	13:58	0.16	25.11	0.16	6.95	7.04
05 Sep 24	13:59	0.06	25.20	0.22	6.99	6.93
05 Sep 24	14:00	0.12	25.17	0.22	7.01	7.00
05 Sep 24	14:01	0.12	25.06	0.18	7.09	6.99
05 Sep 24	14:02	0.17	25.03	0.19	6.94	7.04
05 Sep 24	14:03	0.13	24.94	0.17	6.97	7.01
05 Sep 24	14:04	0.10	24.94	0.21	6.93	6.98
05 Sep 24	14:05	0.14	24.98	0.20	7.02	7.02
05 Sep 24	14:06	0.16	24.95	0.19	7.05	7.03
05 Sep 24	14:07	0.22	24.92	0.17	6.97	7.10
05 Sep 24	14:08	0.17	24.98	0.15	6.97	7.04
05 Sep 24	14:09	0.11	25.02	0.19	6.92	6.98
05 Sep 24	14:10	0.20	24.96	0.23	7.00	7.07
05 Sep 24	14:11	0.12	24.96	0.19	7.13	7.00
05 Sep 24	14:12	0.12	24.96	0.16	6.98	7.00
05 Sep 24	14:13	0.12	25.11	0.19	7.02	7.00
05 Sep 24	14:14	0.05	25.23	0.20	6.96	6.92
05 Sep 24	14:15	0.19	25.23	0.19	6.98	7.06
Max		0.22	25.23	0.23	7.13	7.10
Avg		0.14	25.06	0.19	7.00	7.01

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
05 Sep 24	14:16	0.16	25.19	0.24	7.07	7.03
05 Sep 24	14:17	0.20	25.23	0.14	6.91	7.07
05 Sep 24	14:18	0.17	25.30	0.15	6.94	7.04
05 Sep 24	14:19	0.08	25.23	0.21	6.99	6.95
05 Sep 24	14:20	0.20	24.86	0.15	6.93	7.07
05 Sep 24	14:21	0.15	24.76	0.21	7.07	7.03
05 Sep 24	14:22	0.14	24.88	0.17	6.98	7.02
05 Sep 24	14:23	0.14	25.04	0.19	7.02	7.02
05 Sep 24	14:24	0.08	24.99	0.19	7.00	6.95
05 Sep 24	14:25	0.14	25.00	0.16	6.99	7.02
05 Sep 24	14:26	0.15	24.88	0.16	7.00	7.02
05 Sep 24	14:27	0.17	24.77	0.19	6.93	7.04
05 Sep 24	14:28	0.17	24.79	0.22	6.96	7.04
05 Sep 24	14:29	0.12	24.81	0.18	6.95	7.00
05 Sep 24	14:30	0.16	24.91	0.09	6.97	7.03
05 Sep 24	14:31	0.14	24.82	0.17	6.97	7.02
05 Sep 24	14:32	0.19	24.61	0.14	6.85	7.06
05 Sep 24	14:33	0.16	24.39	0.19	7.00	7.03
05 Sep 24	14:34	0.08	24.51	0.17	7.02	6.96
05 Sep 24	14:35	0.18	24.77	0.21	6.97	7.06
05 Sep 24	14:36	0.14	24.85	0.17	7.00	7.01
Max		0.20	25.30	0.24	7.07	7.07
Avg		0.15	24.88	0.18	6.98	7.02

CEMs Data

Client Name: PTT Global Chemical PCL | Date: 04 Sep 24
Plant Name: I-4/2 | Location: B-AT-310101A (Model : URAS14) (F-3101)

Run No: 1 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	9:50	0.00	28.35	0.98	-	-
04 Sep 24	9:51	0.00	29.22	0.91	-	-
04 Sep 24	9:52	0.00	25.80	0.99	-	-
04 Sep 24	9:53	0.00	27.00	1.03	-	-
04 Sep 24	9:54	0.00	25.29	0.90	-	-
04 Sep 24	9:55	0.00	26.55	0.96	-	-
04 Sep 24	9:56	0.00	27.41	0.93	-	-
04 Sep 24	9:57	0.00	27.74	1.00	-	-
04 Sep 24	9:58	0.00	30.17	1.01	-	-
04 Sep 24	9:59	0.00	28.88	1.09	-	-
04 Sep 24	10:00	0.00	30.25	0.91	-	-
04 Sep 24	10:01	0.00	28.35	1.01	-	-
04 Sep 24	10:02	0.00	28.68	1.02	-	-
04 Sep 24	10:03	0.00	27.40	0.95	-	-
04 Sep 24	10:04	0.00	28.79	0.89	-	-
04 Sep 24	10:05	0.00	28.57	0.97	-	-
04 Sep 24	10:06	0.00	28.27	0.92	-	-
04 Sep 24	10:07	0.00	28.37	1.01	-	-
04 Sep 24	10:08	0.00	27.53	1.12	-	-
04 Sep 24	10:09	0.00	27.88	1.08	-	-
04 Sep 24	10:10	0.00	27.47	1.04	-	-
Max		0.00	30.25	1.12	-	-
Avg		0.00	27.95	0.99	-	-

Run No: 2 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	10:11	0.00	27.07	0.95	-	-
04 Sep 24	10:12	0.00	26.76	0.87	-	-
04 Sep 24	10:13	0.00	28.34	0.91	-	-
04 Sep 24	10:14	0.00	26.67	0.90	-	-
04 Sep 24	10:15	0.00	27.20	0.84	-	-
04 Sep 24	10:16	0.00	27.92	0.92	-	-
04 Sep 24	10:17	0.00	27.78	0.89	-	-
04 Sep 24	10:18	0.00	28.04	1.01	-	-
04 Sep 24	10:19	0.00	27.62	0.87	-	-
04 Sep 24	10:20	0.00	28.42	0.96	-	-
04 Sep 24	10:21	0.00	28.86	1.00	-	-
04 Sep 24	10:22	0.00	29.01	1.04	-	-
04 Sep 24	10:23	0.01	29.49	0.98	-	-
04 Sep 24	10:24	0.00	28.67	1.03	-	-
04 Sep 24	10:25	0.00	29.03	1.07	-	-
04 Sep 24	10:26	0.00	29.07	1.01	-	-
04 Sep 24	10:27	0.00	28.21	0.84	-	-
04 Sep 24	10:28	0.00	26.82	0.82	-	-
04 Sep 24	10:29	0.00	27.95	0.87	-	-
04 Sep 24	10:30	0.00	27.73	0.85	-	-
04 Sep 24	10:31	0.00	27.74	1.06	-	-
Max		0.01	29.49	1.07	-	-
Avg		0.00	27.92	0.95	-	-

Run No: 3 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	10:32	0.00	27.69	0.89	-	-
04 Sep 24	10:33	0.00	27.83	1.14	-	-
04 Sep 24	10:34	0.00	27.75	0.97	-	-
04 Sep 24	10:35	0.00	27.75	0.92	-	-
04 Sep 24	10:36	0.00	27.92	1.08	-	-
04 Sep 24	10:37	0.00	27.61	1.06	-	-
04 Sep 24	10:38	0.00	27.29	0.83	-	-
04 Sep 24	10:39	0.00	27.91	0.90	-	-
04 Sep 24	10:40	0.00	29.00	0.90	-	-
04 Sep 24	10:41	0.00	27.88	1.03	-	-
04 Sep 24	10:42	0.00	27.27	0.90	-	-
04 Sep 24	10:43	0.00	27.37	0.87	-	-
04 Sep 24	10:44	0.00	27.57	1.01	-	-
04 Sep 24	10:45	0.00	27.76	0.97	-	-
04 Sep 24	10:46	0.00	27.45	1.04	-	-
04 Sep 24	10:47	0.00	26.99	1.04	-	-
04 Sep 24	10:48	0.00	26.80	0.96	-	-
04 Sep 24	10:49	0.00	24.99	0.98	-	-
04 Sep 24	10:50	0.00	25.53	0.96	-	-
04 Sep 24	10:51	0.00	24.50	1.00	-	-
04 Sep 24	10:52	0.00	24.45	1.03	-	-
Max		0.00	29.00	1.14	-	-
Avg		0.00	27.11	0.98	-	-

Run No: 4 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	10:53	0.00	24.33	0.90	-	-
04 Sep 24	10:54	0.00	24.51	0.93	-	-
04 Sep 24	10:55	0.00	24.98	0.94	-	-
04 Sep 24	10:56	0.00	24.86	0.95	-	-
04 Sep 24	10:57	0.01	26.72	0.93	-	-
04 Sep 24	10:58	0.00	26.48	1.00	-	-
04 Sep 24	10:59	0.00	27.11	0.93	-	-
04 Sep 24	11:00	0.00	26.32	1.04	-	-
04 Sep 24	11:01	0.01	29.16	0.91	-	-
04 Sep 24	11:02	0.00	24.37	0.97	-	-
04 Sep 24	11:03	0.00	26.65	0.93	-	-
04 Sep 24	11:04	0.00	27.01	0.97	-	-
04 Sep 24	11:05	0.00	26.59	0.90	-	-
04 Sep 24	11:06	0.00	26.86	0.90	-	-
04 Sep 24	11:07	0.00	27.45	1.07	-	-
04 Sep 24	11:08	0.00	27.41	1.08	-	-
04 Sep 24	11:09	0.00	27.16	1.12	-	-
04 Sep 24	11:10	0.00	26.87	0.87	-	-
04 Sep 24	11:11	0.00	27.22	0.99	-	-
04 Sep 24	11:12	0.00	26.35	1.10	-	-
04 Sep 24	11:13	0.00	26.50	0.95	-	-
Max		0.01	29.16	1.12	-	-
Avg		0.00	26.42	0.97	-	-

Run No: 5 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	11:14	0.00	26.88	0.95	-	-
04 Sep 24	11:15	0.00	27.50	1.02	-	-
04 Sep 24	11:16	0.00	27.95	1.06	-	-
04 Sep 24	11:17	0.00	26.92	1.08	-	-
04 Sep 24	11:18	0.00	27.62	0.93	-	-
04 Sep 24	11:19	0.00	27.64	1.00	-	-
04 Sep 24	11:20	0.00	27.05	0.87	-	-
04 Sep 24	11:21	0.01	27.35	0.92	-	-
04 Sep 24	11:22	0.00	28.12	0.93	-	-
04 Sep 24	11:23	0.00	27.36	0.96	-	-
04 Sep 24	11:24	0.00	28.30	1.06	-	-
04 Sep 24	11:25	0.00	27.53	0.97	-	-
04 Sep 24	11:26	0.00	27.08	0.99	-	-
04 Sep 24	11:27	0.01	26.64	1.05	-	-
04 Sep 24	11:28	0.00	26.27	0.93	-	-
04 Sep 24	11:29	0.00	26.54	0.98	-	-
04 Sep 24	11:30	0.00	26.20	0.96	-	-
04 Sep 24	11:31	0.00	26.31	1.01	-	-
04 Sep 24	11:32	0.00	26.82	1.04	-	-
04 Sep 24	11:33	0.00	25.48	0.88	-	-
04 Sep 24	11:34	0.00	25.58	0.83	-	-
Max		0.01	28.30	1.08	-	-
Avg		0.00	27.01	0.97	-	-

Run No: 6 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	11:35	0.00	25.03	0.88	-	-
04 Sep 24	11:36	0.00	26.37	1.01	-	-
04 Sep 24	11:37	0.00	26.54	1.00	-	-
04 Sep 24	11:38	0.00	28.16	0.91	-	-
04 Sep 24	11:39	0.00	26.57	0.85	-	-
04 Sep 24	11:40	0.00	27.28	0.99	-	-
04 Sep 24	11:41	0.00	28.75	1.00	-	-
04 Sep 24	11:42	0.00	28.53	1.11	-	-
04 Sep 24	11:43	0.00	26.57	0.79	-	-
04 Sep 24	11:44	0.00	26.46	0.84	-	-
04 Sep 24	11:45	0.00	28.15	0.92	-	-
04 Sep 24	11:46	0.00	30.75	0.94	-	-
04 Sep 24	11:47	0.00	26.03	0.95	-	-
04 Sep 24	11:48	0.00	28.34	1.06	-	-
04 Sep 24	11:49	0.00	27.66	1.03	-	-
04 Sep 24	11:50	0.00	28.46	1.01	-	-
04 Sep 24	11:51	0.00	28.07	1.15	-	-
04 Sep 24	11:52	0.00	28.76	1.07	-	-
04 Sep 24	11:53	0.00	28.81	0.92	-	-
04 Sep 24	11:54	0.00	29.13	0.89	-	-
04 Sep 24	11:55	0.00	28.55	0.94	-	-
Max		0.00	30.75	1.15	-	-
Avg		0.00	27.76	0.96	-	-

CEMs Data

Client Name: PTT Global Chemical PCL | Date: 04 Sep 24
Plant Name: I-4/2 | Location: B-AT-310101A (Model : URAS14) (F-3101)

Run No: 7 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	11:56	0.00	29.05	1.05	-	-
04 Sep 24	11:57	0.00	28.19	0.96	-	-
04 Sep 24	11:58	0.00	27.14	0.80	-	-
04 Sep 24	11:59	0.00	29.23	0.91	-	-
04 Sep 24	12:00	0.00	28.05	1.03	-	-
04 Sep 24	12:01	0.00	27.60	0.92	-	-
04 Sep 24	12:02	0.00	28.97	0.98	-	-
04 Sep 24	12:03	0.00	28.82	0.93	-	-
04 Sep 24	12:04	0.00	28.97	1.03	-	-
04 Sep 24	12:05	0.00	29.67	1.10	-	-
04 Sep 24	12:06	0.00	28.04	1.09	-	-
04 Sep 24	12:07	0.00	28.68	1.06	-	-
04 Sep 24	12:08	0.00	28.10	1.07	-	-
04 Sep 24	12:09	0.00	27.82	1.08	-	-
04 Sep 24	12:10	0.00	25.54	1.02	-	-
04 Sep 24	12:11	0.00	27.11	0.98	-	-
04 Sep 24	12:12	0.00	26.73	0.96	-	-
04 Sep 24	12:13	0.00	25.88	0.96	-	-
04 Sep 24	12:14	0.00	27.28	0.97	-	-
04 Sep 24	12:15	0.00	28.17	1.01	-	-
04 Sep 24	12:16	0.00	28.49	1.05	-	-
Max		0.00	29.67	1.10	-	-
Avg		0.00	27.94	1.00	-	-

Run No: 8 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	12:17	0.00	26.55	0.98	-	-
04 Sep 24	12:18	0.00	26.80	1.07	-	-
04 Sep 24	12:19	0.00	27.02	1.03	-	-
04 Sep 24	12:20	0.00	25.13	0.83	-	-
04 Sep 24	12:21	0.00	25.26	0.89	-	-
04 Sep 24	12:22	0.00	24.85	0.86	-	-
04 Sep 24	12:23	0.00	26.11	0.84	-	-
04 Sep 24	12:24	0.00	25.63	0.87	-	-
04 Sep 24	12:25	0.00	25.27	0.88	-	-
04 Sep 24	12:26	0.00	25.51	0.99	-	-
04 Sep 24	12:27	0.00	26.69	0.90	-	-
04 Sep 24	12:28	0.00	26.33	1.05	-	-
04 Sep 24	12:29	0.00	27.48	0.98	-	-
04 Sep 24	12:30	0.00	27.12	0.96	-	-
04 Sep 24	12:31	0.00	27.13	1.01	-	-
04 Sep 24	12:32	0.00	28.18	0.93	-	-
04 Sep 24	12:33	0.00	27.48	0.90	-	-
04 Sep 24	12:34	0.00	27.36	0.80	-	-
04 Sep 24	12:35	0.00	28.29	0.92	-	-
04 Sep 24	12:36	0.00	27.43	0.87	-	-
04 Sep 24	12:37	0.00	28.53	0.88	-	-
Max		0.00	28.53	1.07	-	-
Avg		0.00	26.68	0.94	-	-

Run No: 9 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	12:38	0.00	25.97	0.92	-	-
04 Sep 24	12:39	0.00	27.10	1.04	-	-
04 Sep 24	12:40	0.00	27.50	1.03	-	-
04 Sep 24	12:41	0.00	28.36	1.06	-	-
04 Sep 24	12:42	0.00	27.81	1.03	-	-
04 Sep 24	12:43	0.00	27.62	0.93	-	-
04 Sep 24	12:44	0.00	27.49	1.05	-	-
04 Sep 24	12:45	0.00	29.23	0.99	-	-
04 Sep 24	12:46	0.00	26.75	0.96	-	-
04 Sep 24	12:47	0.00	26.58	0.95	-	-
04 Sep 24	12:48	0.00	26.23	0.99	-	-
04 Sep 24	12:49	0.00	26.67	1.03	-	-
04 Sep 24	12:50	0.00	25.97	1.09	-	-
04 Sep 24	12:51	0.00	26.07	0.91	-	-
04 Sep 24	12:52	0.00	24.95	0.92	-	-
04 Sep 24	12:53	0.00	26.75	0.98	-	-
04 Sep 24	12:54	0.00	26.28	1.01	-	-
04 Sep 24	12:55	0.00	27.36	0.90	-	-
04 Sep 24	12:56	0.00	28.57	1.03	-	-
04 Sep 24	12:57	0.00	28.09	1.05	-	-
04 Sep 24	12:58	0.00	28.48	0.95	-	-
Max		0.00	29.23	1.09	-	-
Avg		0.00	27.13	0.99	-	-

Run No: 10 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	12:59	0.00	28.25	1.07	-	-
04 Sep 24	13:00	0.00	28.83	0.88	-	-
04 Sep 24	13:01	0.00	28.29	0.84	-	-
04 Sep 24	13:02	0.00	28.36	0.88	-	-
04 Sep 24	13:03	0.00	29.41	0.93	-	-
04 Sep 24	13:04	0.00	28.49	0.98	-	-
04 Sep 24	13:05	0.00	30.71	1.02	-	-
04 Sep 24	13:06	0.00	27.49	0.86	-	-
04 Sep 24	13:07	0.00	27.42	0.88	-	-
04 Sep 24	13:08	0.00	26.32	1.01	-	-
04 Sep 24	13:09	0.00	25.64	0.95	-	-
04 Sep 24	13:10	0.00	26.39	0.89	-	-
04 Sep 24	13:11	0.00	26.15	1.02	-	-
04 Sep 24	13:12	0.00	27.38	1.06	-	-
04 Sep 24	13:13	0.00	27.36	0.93	-	-
04 Sep 24	13:14	0.00	25.73	0.96	-	-
04 Sep 24	13:15	0.00	25.39	1.14	-	-
04 Sep 24	13:16	0.00	25.67	1.04	-	-
04 Sep 24	13:17	0.00	25.74	0.98	-	-
04 Sep 24	13:18	0.00	26.60	0.96	-	-
04 Sep 24	13:19	0.00	25.88	1.03	-	-
Max		0.00	30.71	1.14	-	-
Avg		0.00	27.21	0.97	-	-

Run No: 11 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	13:20	0.00	26.36	1.02	-	-
04 Sep 24	13:21	0.00	26.80	0.92	-	-
04 Sep 24	13:22	0.00	27.83	1.05	-	-
04 Sep 24	13:23	0.00	26.85	0.98	-	-
04 Sep 24	13:24	0.00	27.04	0.94	-	-
04 Sep 24	13:25	0.00	27.07	1.00	-	-
04 Sep 24	13:26	0.00	26.48	1.01	-	-
04 Sep 24	13:27	0.00	27.74	1.02	-	-
04 Sep 24	13:28	0.00	27.06	0.97	-	-
04 Sep 24	13:29	0.00	27.25	0.95	-	-
04 Sep 24	13:30	0.00	27.08	0.93	-	-
04 Sep 24	13:31	0.00	27.40	1.12	-	-
04 Sep 24	13:32	0.00	26.66	0.95	-	-
04 Sep 24	13:33	0.00	27.81	1.11	-	-
04 Sep 24	13:34	0.00	27.50	0.87	-	-
04 Sep 24	13:35	0.00	27.53	0.93	-	-
04 Sep 24	13:36	0.00	28.56	0.88	-	-
04 Sep 24	13:37	0.00	27.03	0.93	-	-
04 Sep 24	13:38	0.00	29.22	0.98	-	-
04 Sep 24	13:39	0.00	27.00	0.95	-	-
04 Sep 24	13:40	0.00	27.27	1.07	-	-
Max		0.00	29.22	1.12	-	-
Avg		0.00	27.31	0.98	-	-

Run No: 12 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	13:41	0.00	27.53	0.83	-	-
04 Sep 24	13:42	0.00	27.06	0.99	-	-
04 Sep 24	13:43	0.00	26.45	0.93	-	-
04 Sep 24	13:44	0.00	26.74	0.81	-	-
04 Sep 24	13:45	0.00	26.83	0.98	-	-
04 Sep 24	13:46	0.00	26.86	0.94	-	-
04 Sep 24	13:47	0.00	26.60	0.96	-	-
04 Sep 24	13:48	0.00	26.75	1.00	-	-
04 Sep 24	13:49	0.00	26.75	0.94	-	-
04 Sep 24	13:50	0.00	26.32	0.87	-	-
04 Sep 24	13:51	0.00	26.49	0.89	-	-
04 Sep 24	13:52	0.00	26.27	0.94	-	-
04 Sep 24	13:53	0.00	25.91	0.91	-	-
04 Sep 24	13:54	0.00	25.83	0.90	-	-
04 Sep 24	13:55	0.00	26.42	1.08	-	-
04 Sep 24	13:56	0.00	27.08	1.04	-	-
04 Sep 24	13:57	0.00	27.23	1.00	-	-
04 Sep 24	13:58	0.00	26.24	0.89	-	-
04 Sep 24	13:59	0.00	26.10	0.79	-	-
04 Sep 24	14:00	0.00	26.66	0.92	-	-
04 Sep 24	14:01	0.00	26.98	1.05	-	-
Max		0.00	27.53	1.08	-	-
Avg		0.00	26.62	0.94	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL | Date: 04 Sep 24
Plant Name: I-4/2 | Location: B-AT-310101A (Model : URAS14) (F-3101)

Run No: 1 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	9:50	0.01	29.90	1.64	6.39	6.16
04 Sep 24	9:51	0.01	30.06	1.62	6.18	6.28
04 Sep 24	9:52	0.05	30.24	1.66	6.40	6.10
04 Sep 24	9:53	0.08	30.32	1.65	6.29	6.30
04 Sep 24	9:54	0.03	30.46	1.66	6.25	6.22
04 Sep 24	9:55	-0.01	30.26	1.59	6.35	6.26
04 Sep 24	9:56	-0.03	29.90	1.62	6.08	6.28
04 Sep 24	9:57	0.04	29.82	1.60	6.38	6.20
04 Sep 24	9:58	0.07	30.11	1.57	6.08	6.35
04 Sep 24	9:59	0.08	30.40	1.54	6.28	6.22
04 Sep 24	10:00	-0.01	30.49	1.59	6.18	6.40
04 Sep 24	10:01	0.03	30.34	1.65	6.21	6.26
04 Sep 24	10:02	-0.02	30.22	1.67	6.30	6.30
04 Sep 24	10:03	0.05	30.40	1.62	6.19	6.31
04 Sep 24	10:04	0.06	30.67	1.62	6.31	6.22
04 Sep 24	10:05	0.04	30.63	1.59	6.17	6.34
04 Sep 24	10:06	0.08	30.51	1.54	6.27	6.23
04 Sep 24	10:07	0.08	30.59	1.61	6.22	6.29
04 Sep 24	10:08	0.06	30.73	1.57	6.26	6.25
04 Sep 24	10:09	0.05	30.55	1.63	6.27	6.25
04 Sep 24	10:10	0.05	30.45	1.59	6.34	6.08
Max		0.08	30.73	1.67	6.40	6.40
Avg		0.04	30.34	1.61	6.26	6.25

Run No: 2 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	10:11	0.08	30.41	1.58	6.53	5.90
04 Sep 24	10:12	0.11	30.61	1.65	6.52	5.94
04 Sep 24	10:13	0.11	30.77	1.64	6.47	6.04
04 Sep 24	10:14	0.06	30.95	1.59	6.27	6.22
04 Sep 24	10:15	0.01	30.69	1.56	6.24	6.25
04 Sep 24	10:16	-0.01	30.43	1.65	6.14	6.44
04 Sep 24	10:17	-0.01	30.20	1.68	6.09	6.46
04 Sep 24	10:18	-0.01	29.97	1.69	6.08	6.52
04 Sep 24	10:19	0.04	29.71	1.66	5.99	6.47
04 Sep 24	10:20	0.06	29.64	1.71	6.12	6.50
04 Sep 24	10:21	0.04	29.81	1.67	6.01	6.51
04 Sep 24	10:22	0.06	30.03	1.68	6.10	6.48
04 Sep 24	10:23	0.09	30.21	1.66	6.00	6.50
04 Sep 24	10:24	0.08	30.26	1.65	6.17	6.41
04 Sep 24	10:25	0.07	30.52	1.68	6.10	6.42
04 Sep 24	10:26	0.08	30.61	1.69	6.17	6.33
04 Sep 24	10:27	0.05	30.59	1.71	6.21	6.31
04 Sep 24	10:28	0.07	30.55	1.69	6.17	6.32
04 Sep 24	10:29	0.03	30.45	1.59	6.22	6.30
04 Sep 24	10:30	0.01	30.15	1.66	6.12	6.34
04 Sep 24	10:31	0.07	29.95	1.59	6.23	6.30
Max		0.11	30.95	1.71	6.53	6.52
Avg		0.05	30.31	1.65	6.19	6.33

Run No: 3 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	10:32	0.09	30.04	1.63	6.17	6.31
04 Sep 24	10:33	0.02	30.32	1.71	6.24	6.26
04 Sep 24	10:34	0.03	30.34	1.65	6.25	6.33
04 Sep 24	10:35	0.06	30.22	1.72	6.16	6.32
04 Sep 24	10:36	0.03	30.27	1.61	6.21	6.32
04 Sep 24	10:37	0.05	30.24	1.68	6.17	6.33
04 Sep 24	10:38	0.04	30.17	1.59	6.25	6.32
04 Sep 24	10:39	0.01	29.99	1.62	6.15	6.37
04 Sep 24	10:40	0.02	29.87	1.67	6.17	6.37
04 Sep 24	10:41	0.08	30.00	1.74	6.10	6.40
04 Sep 24	10:42	0.12	30.16	1.70	6.33	6.13
04 Sep 24	10:43	0.10	30.20	1.65	6.32	6.31
04 Sep 24	10:44	0.08	30.09	1.72	6.14	6.33
04 Sep 24	10:45	0.12	30.09	1.72	6.20	6.38
04 Sep 24	10:46	0.05	30.19	1.66	6.12	6.40
04 Sep 24	10:47	0.03	30.19	1.64	6.24	6.38
04 Sep 24	10:48	0.03	30.04	1.65	6.04	6.46
04 Sep 24	10:49	-0.01	29.58	1.63	6.15	6.38
04 Sep 24	10:50	0.02	29.24	1.64	6.10	6.45
04 Sep 24	10:51	0.00	29.08	1.65	6.04	6.45
04 Sep 24	10:52	0.01	28.84	1.69	6.18	6.41
Max		0.12	30.34	1.74	6.33	6.46
Avg		0.05	29.96	1.66	6.18	6.35

Run No: 4 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	10:53	0.01	28.61	1.72	6.05	6.44
04 Sep 24	10:54	0.04	28.42	1.68	6.15	6.37
04 Sep 24	10:55	0.06	28.35	1.66	6.11	6.43
04 Sep 24	10:56	0.05	28.55	1.62	6.11	6.38
04 Sep 24	10:57	0.03	28.43	1.83	6.17	6.44
04 Sep 24	10:58	0.00	28.22	1.69	6.01	6.44
04 Sep 24	10:59	0.03	27.83	1.68	6.25	6.37
04 Sep 24	11:00	0.04	27.83	1.70	6.01	6.41
04 Sep 24	11:01	0.14	28.39	1.65	6.29	6.31
04 Sep 24	11:02	0.13	28.78	1.71	6.07	6.47
04 Sep 24	11:03	0.07	29.09	1.69	6.20	6.49
04 Sep 24	11:04	0.07	28.96	1.66	6.10	6.49
04 Sep 24	11:05	0.08	28.99	1.70	6.12	6.47
04 Sep 24	11:06	0.08	29.02	1.69	6.23	6.37
04 Sep 24	11:07	0.06	29.23	1.65	5.96	6.49
04 Sep 24	11:08	0.09	29.30	1.65	6.33	6.28
04 Sep 24	11:09	0.10	29.41	1.78	5.94	6.54
04 Sep 24	11:10	0.08	29.51	1.78	6.30	6.34
04 Sep 24	11:11	0.07	29.42	1.74	6.17	6.36
04 Sep 24	11:12	0.13	29.44	1.78	6.24	6.31
04 Sep 24	11:13	0.13	29.71	1.74	6.38	6.40
Max		0.14	29.71	1.83	6.38	6.54
Avg		0.07	28.84	1.70	6.15	6.41

Run No: 5 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	11:14	0.09	29.74	1.73	6.16	6.23
04 Sep 24	11:15	0.07	29.60	1.73	6.52	6.38
04 Sep 24	11:16	0.12	29.69	1.74	6.09	6.32
04 Sep 24	11:17	0.09	30.09	1.68	6.38	6.27
04 Sep 24	11:18	0.10	30.39	1.69	6.19	6.51
04 Sep 24	11:19	0.11	30.47	1.79	6.31	6.21
04 Sep 24	11:20	0.06	30.42	1.73	6.16	6.45
04 Sep 24	11:21	0.09	30.16	1.72	6.30	6.34
04 Sep 24	11:22	0.05	29.94	1.64	6.21	6.35
04 Sep 24	11:23	0.07	29.85	1.77	6.08	6.40
04 Sep 24	11:24	0.09	29.86	1.71	6.33	6.38
04 Sep 24	11:25	0.05	29.89	1.70	6.15	6.36
04 Sep 24	11:26	0.04	29.76	1.68	6.24	6.37
04 Sep 24	11:27	0.13	29.50	1.73	6.22	6.42
04 Sep 24	11:28	0.09	29.66	1.73	6.28	6.30
04 Sep 24	11:29	0.06	29.45	1.77	6.09	6.42
04 Sep 24	11:30	0.02	29.05	1.62	6.10	6.36
04 Sep 24	11:31	0.10	28.81	1.77	6.30	6.41
04 Sep 24	11:32	0.09	28.74	1.72	6.15	6.33
04 Sep 24	11:33	0.08	29.04	1.80	6.22	6.29
04 Sep 24	11:34	0.13	29.42	1.75	6.21	6.42
Max		0.13	30.47	1.80	6.52	6.51
Avg		0.08	29.69	1.72	6.22	6.36

Run No: 6 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	11:35	0.10	29.50	1.83	6.29	6.32
04 Sep 24	11:36	0.09	29.73	1.77	6.17	6.37
04 Sep 24	11:37	0.13	29.57	1.80	6.24	6.31
04 Sep 24	11:38	0.09	29.71	1.80	6.28	6.38
04 Sep 24	11:39	0.12	29.77	1.77	6.10	6.40
04 Sep 24	11:40	0.11	30.12	1.76	6.27	6.32
04 Sep 24	11:41	0.15	30.44	1.74	6.13	6.43
04 Sep 24	11:42	0.13	30.46	1.75	6.30	6.27
04 Sep 24	11:43	0.16	30.56	1.83	6.27	6.41
04 Sep 24	11:44	0.16	30.56	1.80	6.20	6.36
04 Sep 24	11:45	0.11	30.30	1.83	6.36	6.34
04 Sep 24	11:46	0.10	30.10	1.76	6.13	6.38
04 Sep 24	11:47	0.17	30.30	1.78	6.37	6.29
04 Sep 24	11:48	0.18	30.81	1.75	6.15	6.41
04 Sep 24	11:49	0.16	31.02	1.78	6.32	6.30
04 Sep 24	11:50	0.11	31.15	1.74	6.21	6.42
04 Sep 24	11:51	0.13	31.06	1.74	6.30	6.31
04 Sep 24	11:52	0.12	30.91	1.80	6.31	6.38
04 Sep 24	11:53	0.11	30.96	1.76	6.26	6.28
04 Sep 24	11:54	0.16	31.04	1.77	6.37	6.33
04 Sep 24	11:55	0.16	30.86	1.75	6.39	6.08
Max		0.18	31.15	1.83	6.39	6.43
Avg		0.13	30.43	1.78	6.26	6.34

Reference Method Data

Client Name: PTT Global Chemical PCL | Date: 04 Sep 24
Plant Name: I-4/2 | Location: B-AT-310101A (Model : URAS14) (F-3101)

Run No: 7 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	11:56	0.19	30.83	1.83	6.62	5.98
04 Sep 24	11:57	0.24	31.06	1.78	6.30	6.26
04 Sep 24	11:58	0.15	31.26	1.77	6.37	6.20
04 Sep 24	11:59	0.09	31.24	1.83	6.37	6.32
04 Sep 24	12:00	0.11	31.09	1.81	6.24	6.27
04 Sep 24	12:01	0.14	31.03	1.75	6.37	6.36
04 Sep 24	12:02	0.14	31.13	1.81	6.03	6.49
04 Sep 24	12:03	0.12	31.08	1.72	6.34	6.36
04 Sep 24	12:04	0.11	30.84	1.73	6.13	6.49
04 Sep 24	12:05	0.11	30.70	1.69	6.24	6.41
04 Sep 24	12:06	0.07	30.58	1.71	6.17	6.49
04 Sep 24	12:07	0.08	30.54	1.72	6.05	6.48
04 Sep 24	12:08	0.03	30.44	1.67	6.27	6.40
04 Sep 24	12:09	0.07	30.12	1.72	6.06	6.43
04 Sep 24	12:10	0.06	29.86	1.69	6.31	6.28
04 Sep 24	12:11	0.06	29.73	1.74	6.22	6.41
04 Sep 24	12:12	0.06	29.51	1.68	6.13	6.39
04 Sep 24	12:13	0.14	29.39	1.67	6.39	6.30
04 Sep 24	12:14	0.19	29.84	1.75	6.09	6.47
04 Sep 24	12:15	0.15	30.03	1.63	6.24	6.33
04 Sep 24	12:16	0.13	29.81	1.73	6.23	6.44
Max		0.24	31.26	1.83	6.62	6.49
Avg		0.11	30.49	1.73	6.25	6.36

Run No: 8 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	12:17	0.09	29.69	1.85	6.08	6.39
04 Sep 24	12:18	0.11	29.52	1.66	6.36	6.31
04 Sep 24	12:19	0.10	29.50	1.69	6.14	6.42
04 Sep 24	12:20	0.10	29.47	1.70	6.30	6.28
04 Sep 24	12:21	0.12	29.39	1.70	6.23	6.41
04 Sep 24	12:22	0.14	29.51	1.69	6.13	6.37
04 Sep 24	12:23	0.13	29.69	1.72	6.37	6.32
04 Sep 24	12:24	0.10	29.85	1.64	6.10	6.43
04 Sep 24	12:25	0.13	29.81	1.66	6.29	6.27
04 Sep 24	12:26	0.14	29.88	1.66	6.25	6.44
04 Sep 24	12:27	0.05	29.78	1.74	6.16	6.36
04 Sep 24	12:28	0.09	29.69	1.78	6.38	6.30
04 Sep 24	12:29	0.16	29.79	1.79	6.17	6.42
04 Sep 24	12:30	0.11	29.98	1.73	6.27	6.27
04 Sep 24	12:31	0.12	30.03	1.78	6.26	6.39
04 Sep 24	12:32	0.12	29.91	1.75	6.14	6.41
04 Sep 24	12:33	0.14	29.94	1.76	6.37	6.35
04 Sep 24	12:34	0.15	30.04	1.84	6.17	6.47
04 Sep 24	12:35	0.08	30.04	1.71	6.26	6.22
04 Sep 24	12:36	0.12	30.09	1.71	6.38	6.27
04 Sep 24	12:37	0.16	30.17	1.75	6.17	6.40
Max		0.16	30.17	1.84	6.38	6.47
Avg		0.12	29.77	1.72	6.24	6.36

Run No: 9 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	12:38	0.13	30.12	1.75	6.39	6.31
04 Sep 24	12:39	0.12	29.96	1.72	6.24	6.40
04 Sep 24	12:40	0.12	29.85	1.72	6.23	6.33
04 Sep 24	12:41	0.10	29.93	1.64	6.32	6.35
04 Sep 24	12:42	0.13	29.96	1.74	6.20	6.41
04 Sep 24	12:43	0.15	29.94	1.65	6.32	6.30
04 Sep 24	12:44	0.15	30.02	1.69	6.28	6.38
04 Sep 24	12:45	0.15	30.10	1.72	6.15	6.40
04 Sep 24	12:46	0.10	29.98	1.78	6.31	6.36
04 Sep 24	12:47	0.14	29.93	1.74	6.29	6.38
04 Sep 24	12:48	0.10	29.92	1.75	6.07	6.53
04 Sep 24	12:49	0.08	29.80	1.73	6.16	6.46
04 Sep 24	12:50	0.13	29.82	1.67	6.16	6.51
04 Sep 24	12:51	0.13	30.08	1.72	6.05	6.55
04 Sep 24	12:52	0.09	30.15	1.68	6.15	6.57
04 Sep 24	12:53	0.08	30.14	1.72	6.05	6.61
04 Sep 24	12:54	0.10	30.04	1.60	6.18	6.43
04 Sep 24	12:55	0.13	29.98	1.67	6.29	6.45
04 Sep 24	12:56	0.13	30.01	1.62	6.07	6.46
04 Sep 24	12:57	0.12	30.05	1.65	6.30	6.33
04 Sep 24	12:58	0.14	30.20	1.65	6.17	6.48
Max		0.15	30.20	1.78	6.39	6.61
Avg		0.12	30.00	1.70	6.21	6.43

Run No: 10 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	12:59	0.15	30.41	1.67	6.15	6.43
04 Sep 24	13:00	0.17	30.72	1.64	6.33	6.35
04 Sep 24	13:01	0.17	30.96	1.70	6.14	6.47
04 Sep 24	13:02	0.12	30.75	1.72	6.18	6.45
04 Sep 24	13:03	0.12	30.65	1.68	6.26	6.38
04 Sep 24	13:04	0.16	30.66	1.61	6.25	6.41
04 Sep 24	13:05	0.14	30.89	1.68	6.14	6.43
04 Sep 24	13:06	0.15	30.72	1.65	6.33	6.32
04 Sep 24	13:07	0.18	31.06	1.65	6.32	6.44
04 Sep 24	13:08	0.10	31.30	1.68	6.14	6.40
04 Sep 24	13:09	0.08	31.05	1.68	6.36	6.32
04 Sep 24	13:10	0.10	30.49	1.64	6.05	6.54
04 Sep 24	13:11	0.04	29.87	1.73	6.19	6.34
04 Sep 24	13:12	0.11	29.64	1.80	6.33	6.38
04 Sep 24	13:13	0.12	29.64	1.77	6.15	6.42
04 Sep 24	13:14	0.10	29.77	1.70	6.39	6.26
04 Sep 24	13:15	0.21	30.10	1.78	6.29	6.31
04 Sep 24	13:16	0.12	30.16	1.78	6.20	6.37
04 Sep 24	13:17	0.03	29.78	1.73	6.35	6.26
04 Sep 24	13:18	0.07	29.47	1.80	6.32	6.30
04 Sep 24	13:19	0.15	29.34	1.79	6.17	6.34
Max		0.21	31.30	1.80	6.39	6.54
Avg		0.12	30.37	1.71	6.24	6.38

Run No: 11 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	13:20	0.16	29.50	1.75	6.38	6.24
04 Sep 24	13:21	0.14	29.76	1.77	6.34	6.36
04 Sep 24	13:22	0.07	29.73	1.76	6.15	6.37
04 Sep 24	13:23	0.14	29.44	1.79	6.36	6.27
04 Sep 24	13:24	0.12	29.64	1.76	6.10	6.41
04 Sep 24	13:25	0.14	29.75	1.72	6.24	6.29
04 Sep 24	13:26	0.10	29.68	1.81	6.38	6.31
04 Sep 24	13:27	0.16	29.75	1.83	6.14	6.44
04 Sep 24	13:28	0.13	29.50	1.82	6.22	6.32
04 Sep 24	13:29	0.17	29.27	1.82	6.27	6.44
04 Sep 24	13:30	0.20	29.34	1.75	6.08	6.47
04 Sep 24	13:31	0.12	29.84	1.75	6.26	6.34
04 Sep 24	13:32	0.10	29.73	1.79	6.20	6.37
04 Sep 24	13:33	0.11	29.93	1.74	6.18	6.40
04 Sep 24	13:34	0.12	30.05	1.79	6.31	6.33
04 Sep 24	13:35	0.16	30.18	1.77	6.25	6.42
04 Sep 24	13:36	0.17	30.26	1.70	6.18	6.36
04 Sep 24	13:37	0.16	30.29	1.70	6.43	6.24
04 Sep 24	13:38	0.16	30.19	1.74	6.12	6.44
04 Sep 24	13:39	0.17	30.16	1.73	6.29	6.26
04 Sep 24	13:40	0.16	30.30	1.64	6.32	6.38
Max		0.20	30.30	1.83	6.43	6.47
Avg		0.14	29.81	1.76	6.25	6.35

Run No: 12 — Time Base : 21 min

Date	Time	SO_2	NO_x	CO	O_2	CO_2
		ppm	ppm	ppm	Vol%	Vol%
04 Sep 24	13:41	0.12	30.32	1.73	6.19	6.38
04 Sep 24	13:42	0.15	30.41	1.72	6.35	6.27
04 Sep 24	13:43	0.16	30.55	1.75	6.24	6.33
04 Sep 24	13:44	0.17	30.57	1.68	6.21	6.36
04 Sep 24	13:45	0.15	30.65	1.69	6.31	6.30
04 Sep 24	13:46	0.20	30.88	1.76	6.25	6.36
04 Sep 24	13:47	0.15	30.92	1.82	6.22	6.33
04 Sep 24	13:48	0.19	30.86	1.83	6.34	6.29
04 Sep 24	13:49	0.17	30.61	1.82	6.27	6.42
04 Sep 24	13:50	0.13	30.41	1.78	6.18	6.32
04 Sep 24	13:51	0.11	30.19	1.77	6.31	6.35
04 Sep 24	13:52	0.10	29.91	1.78	6.03	6.42
04 Sep 24	13:53	0.13	29.69	1.76	6.34	6.23
04 Sep 24	13:54	0.13	29.63	1.85	6.17	6.44
04 Sep 24	13:55	0.12	29.59	1.87	6.11	6.33
04 Sep 24	13:56	0.09	29.21	1.90	6.31	6.31
04 Sep 24	13:57	0.12	29.01	1.83	6.09	6.42
04 Sep 24	13:58	0.19	29.14	1.85	6.19	6.31
04 Sep 24	13:59	0.19	29.61	1.89	6.26	6.33
04 Sep 24	14:00	0.14	29.84	1.89	6.11	6.44
04 Sep 24	14:01	0.09	29.62	1.88	6.09	6.39
Max		0.20	30.92	1.90	6.35	6.44
Avg		0.14	30.08	1.80	6.22	6.35

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 06 Sep 24
Location: B-AT-310101A (Model : URAS14) (F-3102)

Run No: 1 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	10:10	0.00	31.49	1.33	-	-
06 Sep 24	10:11	0.00	30.84	1.23	-	-
06 Sep 24	10:12	0.00	31.95	1.18	-	-
06 Sep 24	10:13	0.00	30.82	1.18	-	-
06 Sep 24	10:14	0.00	32.27	1.14	-	-
06 Sep 24	10:15	0.00	31.92	1.14	-	-
06 Sep 24	10:16	0.00	30.77	1.15	-	-
06 Sep 24	10:17	0.00	31.48	1.20	-	-
06 Sep 24	10:18	0.00	31.20	1.23	-	-
06 Sep 24	10:19	0.00	31.32	1.22	-	-
06 Sep 24	10:20	0.00	31.27	1.11	-	-
06 Sep 24	10:21	0.00	30.95	1.27	-	-
06 Sep 24	10:22	0.00	32.03	1.30	-	-
06 Sep 24	10:23	0.00	32.58	1.31	-	-
06 Sep 24	10:24	0.00	31.28	1.11	-	-
06 Sep 24	10:25	0.00	31.35	1.12	-	-
06 Sep 24	10:26	0.00	31.76	1.25	-	-
06 Sep 24	10:27	0.00	31.71	1.13	-	-
06 Sep 24	10:28	0.00	34.83	1.35	-	-
06 Sep 24	10:29	0.00	33.17	1.23	-	-
06 Sep 24	10:30	0.00	31.18	1.24	-	-
Max		0.00	34.83	1.35	-	-
Avg		0.00	31.72	1.21	-	-

Run No: 2 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	10:31	0.00	29.51	1.11	-	-
06 Sep 24	10:32	0.00	28.39	0.98	-	-
06 Sep 24	10:33	0.00	29.70	1.07	-	-
06 Sep 24	10:34	0.00	29.88	1.05	-	-
06 Sep 24	10:35	0.00	30.76	1.03	-	-
06 Sep 24	10:36	0.01	31.45	1.06	-	-
06 Sep 24	10:37	0.00	30.78	1.02	-	-
06 Sep 24	10:38	0.00	33.18	1.15	-	-
06 Sep 24	10:39	0.00	32.84	1.17	-	-
06 Sep 24	10:40	0.00	30.86	1.24	-	-
06 Sep 24	10:41	0.00	31.87	1.12	-	-
06 Sep 24	10:42	0.00	29.52	1.15	-	-
06 Sep 24	10:43	0.00	30.69	1.14	-	-
06 Sep 24	10:44	0.00	29.58	1.00	-	-
06 Sep 24	10:45	0.00	30.14	1.07	-	-
06 Sep 24	10:46	0.00	32.57	1.16	-	-
06 Sep 24	10:47	0.00	31.80	1.12	-	-
06 Sep 24	10:48	0.00	31.92	1.17	-	-
06 Sep 24	10:49	0.00	31.80	1.18	-	-
06 Sep 24	10:50	0.00	33.22	1.20	-	-
06 Sep 24	10:51	0.00	33.49	1.12	-	-
Max		0.01	33.49	1.24	-	-
Avg		0.00	31.12	1.11	-	-

Run No: 3 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	10:52	0.00	31.62	1.19	-	-
06 Sep 24	10:53	0.00	30.78	1.19	-	-
06 Sep 24	10:54	0.00	30.62	1.20	-	-
06 Sep 24	10:55	0.00	28.87	1.07	-	-
06 Sep 24	10:56	0.00	29.06	1.19	-	-
06 Sep 24	10:57	0.00	29.19	1.23	-	-
06 Sep 24	10:58	0.00	28.84	1.16	-	-
06 Sep 24	10:59	0.00	28.99	1.06	-	-
06 Sep 24	11:00	0.00	28.78	1.14	-	-
06 Sep 24	11:01	0.00	30.86	1.06	-	-
06 Sep 24	11:02	0.00	30.12	1.01	-	-
06 Sep 24	11:03	0.00	30.22	1.20	-	-
06 Sep 24	11:04	0.00	30.75	1.13	-	-
06 Sep 24	11:05	0.00	28.68	1.18	-	-
06 Sep 24	11:06	0.00	30.69	1.11	-	-
06 Sep 24	11:07	0.00	30.21	1.14	-	-
06 Sep 24	11:08	0.00	29.89	1.11	-	-
06 Sep 24	11:09	0.00	30.83	1.12	-	-
06 Sep 24	11:10	0.00	30.98	1.20	-	-
06 Sep 24	11:11	0.00	30.88	1.26	-	-
06 Sep 24	11:12	0.00	31.39	1.22	-	-
Max		0.00	31.62	1.26	-	-
Avg		0.00	30.14	1.15	-	-

Run No: 4 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	11:13	0.00	29.89	1.05	-	-
06 Sep 24	11:14	0.00	31.23	1.11	-	-
06 Sep 24	11:15	0.00	30.78	1.21	-	-
06 Sep 24	11:16	0.00	29.36	1.21	-	-
06 Sep 24	11:17	0.00	34.01	1.10	-	-
06 Sep 24	11:18	0.00	32.36	1.08	-	-
06 Sep 24	11:19	0.00	33.28	1.12	-	-
06 Sep 24	11:20	0.00	30.75	1.37	-	-
06 Sep 24	11:21	0.00	30.20	1.11	-	-
06 Sep 24	11:22	0.00	29.87	1.11	-	-
06 Sep 24	11:23	0.00	29.11	1.23	-	-
06 Sep 24	11:24	0.00	29.91	1.16	-	-
06 Sep 24	11:25	0.00	29.60	1.22	-	-
06 Sep 24	11:26	0.01	29.36	1.08	-	-
06 Sep 24	11:27	0.00	29.64	1.17	-	-
06 Sep 24	11:28	0.00	31.12	1.18	-	-
06 Sep 24	11:29	0.00	31.05	1.19	-	-
06 Sep 24	11:30	0.00	30.23	1.12	-	-
06 Sep 24	11:31	0.00	30.52	1.24	-	-
06 Sep 24	11:32	0.00	30.59	1.30	-	-
06 Sep 24	11:33	0.00	30.94	1.01	-	-
Max		0.01	34.01	1.37	-	-
Avg		0.00	30.66	1.16	-	-

Run No: 5 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	11:34	0.00	30.31	1.24	-	-
06 Sep 24	11:35	0.00	30.39	1.07	-	-
06 Sep 24	11:36	0.00	29.59	1.14	-	-
06 Sep 24	11:37	0.00	31.08	1.05	-	-
06 Sep 24	11:38	0.00	30.91	1.12	-	-
06 Sep 24	11:39	0.00	30.88	1.13	-	-
06 Sep 24	11:40	0.00	31.11	1.19	-	-
06 Sep 24	11:41	0.00	31.23	1.20	-	-
06 Sep 24	11:42	0.00	30.92	1.21	-	-
06 Sep 24	11:43	0.00	29.64	1.18	-	-
06 Sep 24	11:44	0.00	32.52	1.13	-	-
06 Sep 24	11:45	0.00	30.60	1.22	-	-
06 Sep 24	11:46	0.00	30.33	1.24	-	-
06 Sep 24	11:47	0.00	31.09	1.19	-	-
06 Sep 24	11:48	0.00	30.53	1.17	-	-
06 Sep 24	11:49	0.00	29.06	1.17	-	-
06 Sep 24	11:50	0.00	29.71	1.15	-	-
06 Sep 24	11:51	0.00	28.61	1.13	-	-
06 Sep 24	11:52	0.00	30.89	1.36	-	-
06 Sep 24	11:53	0.00	31.51	1.21	-	-
06 Sep 24	11:54	0.00	29.02	1.29	-	-
Max		0.00	32.52	1.36	-	-
Avg		0.00	30.47	1.18	-	-

Run No: 6 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	11:55	0.00	31.00	1.19	-	-
06 Sep 24	11:56	0.00	30.48	1.12	-	-
06 Sep 24	11:57	0.00	31.48	1.23	-	-
06 Sep 24	11:58	0.00	30.77	1.09	-	-
06 Sep 24	11:59	0.00	31.92	1.11	-	-
06 Sep 24	12:00	0.00	31.92	1.28	-	-
06 Sep 24	12:01	0.00	31.21	1.25	-	-
06 Sep 24	12:02	0.00	30.04	1.16	-	-
06 Sep 24	12:03	0.00	31.21	1.15	-	-
06 Sep 24	12:04	0.00	30.55	1.29	-	-
06 Sep 24	12:05	0.00	30.42	1.13	-	-
06 Sep 24	12:06	0.00	31.28	1.20	-	-
06 Sep 24	12:07	0.00	30.19	1.05	-	-
06 Sep 24	12:08	0.00	30.88	1.12	-	-
06 Sep 24	12:09	0.00	31.26	1.17	-	-
06 Sep 24	12:10	0.00	30.43	1.16	-	-
06 Sep 24	12:11	0.00	31.38	1.22	-	-
06 Sep 24	12:12	0.00	31.19	1.14	-	-
06 Sep 24	12:13	0.00	31.75	1.19	-	-
06 Sep 24	12:14	0.00	30.69	1.13	-	-
06 Sep 24	12:15	0.00	29.89	1.02	-	-
Max		0.00	31.92	1.29	-	-
Avg		0.00	30.95	1.16	-	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 06 Sep 24
Location: B-AT-310101A (Model : URAS14) (F-3102)

Run No: 7 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	12:16	0.00	29.69	1.07	-	-
06 Sep 24	12:17	0.00	29.77	1.13	-	-
06 Sep 24	12:18	0.00	29.66	1.18	-	-
06 Sep 24	12:19	0.00	30.19	1.32	-	-
06 Sep 24	12:20	0.00	29.52	1.29	-	-
06 Sep 24	12:21	0.00	30.00	1.17	-	-
06 Sep 24	12:22	0.00	30.81	1.14	-	-
06 Sep 24	12:23	0.00	30.40	1.18	-	-
06 Sep 24	12:24	0.00	30.24	1.23	-	-
06 Sep 24	12:25	0.00	32.97	1.35	-	-
06 Sep 24	12:26	0.00	28.58	1.13	-	-
06 Sep 24	12:27	0.00	29.73	1.17	-	-
06 Sep 24	12:28	0.00	29.48	1.13	-	-
06 Sep 24	12:29	0.00	30.65	1.17	-	-
06 Sep 24	12:30	0.00	29.80	1.08	-	-
06 Sep 24	12:31	0.00	30.64	1.27	-	-
06 Sep 24	12:32	0.00	31.25	1.36	-	-
06 Sep 24	12:33	0.00	29.92	1.05	-	-
06 Sep 24	12:34	0.00	30.60	1.16	-	-
06 Sep 24	12:35	0.01	30.48	1.07	-	-
06 Sep 24	12:36	0.00	31.48	1.24	-	-
Max		0.01	32.97	1.36	-	-
Avg		0.00	30.28	1.18	-	-

Run No: 8 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	12:37	0.00	30.88	1.21	-	-
06 Sep 24	12:38	0.00	35.24	1.30	-	-
06 Sep 24	12:39	0.00	31.28	1.20	-	-
06 Sep 24	12:40	0.00	30.21	1.10	-	-
06 Sep 24	12:41	0.00	28.40	1.11	-	-
06 Sep 24	12:42	0.00	32.35	1.23	-	-
06 Sep 24	12:43	0.00	31.84	1.13	-	-
06 Sep 24	12:44	0.00	33.11	1.18	-	-
06 Sep 24	12:45	0.00	33.59	1.13	-	-
06 Sep 24	12:46	0.00	31.25	1.18	-	-
06 Sep 24	12:47	0.00	29.55	1.19	-	-
06 Sep 24	12:48	0.00	29.16	1.29	-	-
06 Sep 24	12:49	0.00	29.70	1.20	-	-
06 Sep 24	12:50	0.00	29.85	1.10	-	-
06 Sep 24	12:51	0.00	28.48	1.21	-	-
06 Sep 24	12:52	0.00	29.57	1.27	-	-
06 Sep 24	12:53	0.00	29.25	1.37	-	-
06 Sep 24	12:54	0.00	29.12	1.19	-	-
06 Sep 24	12:55	0.00	32.01	1.27	-	-
06 Sep 24	12:56	0.00	31.58	1.26	-	-
06 Sep 24	12:57	0.00	30.11	1.09	-	-
Max		0.00	35.24	1.37	-	-
Avg		0.00	30.77	1.20	-	-

Run No: 9 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	12:58	0.00	29.40	1.18	-	-
06 Sep 24	12:59	0.00	29.19	1.09	-	-
06 Sep 24	13:00	0.00	29.19	1.16	-	-
06 Sep 24	13:01	0.00	29.65	1.12	-	-
06 Sep 24	13:02	0.00	30.31	1.25	-	-
06 Sep 24	13:03	0.00	28.75	1.09	-	-
06 Sep 24	13:04	0.00	28.49	1.16	-	-
06 Sep 24	13:05	0.00	30.65	1.21	-	-
06 Sep 24	13:06	0.00	29.90	1.13	-	-
06 Sep 24	13:07	0.00	30.32	1.10	-	-
06 Sep 24	13:08	0.00	30.82	1.18	-	-
06 Sep 24	13:09	0.00	30.60	1.17	-	-
06 Sep 24	13:10	0.00	30.21	1.26	-	-
06 Sep 24	13:11	0.00	31.20	1.22	-	-
06 Sep 24	13:12	0.00	30.46	1.14	-	-
06 Sep 24	13:13	0.00	30.84	1.19	-	-
06 Sep 24	13:14	0.00	31.31	1.18	-	-
06 Sep 24	13:15	0.00	30.53	1.19	-	-
06 Sep 24	13:16	0.00	30.55	1.11	-	-
06 Sep 24	13:17	0.00	30.55	1.19	-	-
06 Sep 24	13:18	0.00	31.30	1.19	-	-
Max		0.00	31.31	1.26	-	-
Avg		0.00	30.20	1.17	-	-

Run No: 10 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	13:19	0.00	29.37	1.02	-	-
06 Sep 24	13:20	0.00	30.37	1.09	-	-
06 Sep 24	13:21	0.00	31.04	1.05	-	-
06 Sep 24	13:22	0.00	30.63	1.18	-	-
06 Sep 24	13:23	0.00	29.72	1.16	-	-
06 Sep 24	13:24	0.00	30.52	1.31	-	-
06 Sep 24	13:25	0.00	30.29	1.08	-	-
06 Sep 24	13:26	0.00	30.60	1.04	-	-
06 Sep 24	13:27	0.00	30.34	1.13	-	-
06 Sep 24	13:28	0.00	30.28	1.17	-	-
06 Sep 24	13:29	0.00	31.15	1.07	-	-
06 Sep 24	13:30	0.00	30.70	0.99	-	-
06 Sep 24	13:31	0.00	32.10	1.11	-	-
06 Sep 24	13:32	0.00	31.95	1.11	-	-
06 Sep 24	13:33	0.00	31.11	1.13	-	-
06 Sep 24	13:34	0.00	31.47	1.07	-	-
06 Sep 24	13:35	0.00	31.44	1.11	-	-
06 Sep 24	13:36	0.00	32.18	1.05	-	-
06 Sep 24	13:37	0.00	32.41	1.09	-	-
06 Sep 24	13:38	0.00	32.50	1.18	-	-
06 Sep 24	13:39	0.00	32.77	1.12	-	-
Max		0.00	32.77	1.31	-	-
Avg		0.00	31.09	1.11	-	-

Run No: 11 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	13:40	0.00	33.23	1.30	-	-
06 Sep 24	13:41	0.00	31.97	1.23	-	-
06 Sep 24	13:42	0.01	33.13	1.14	-	-
06 Sep 24	13:43	0.00	32.34	1.13	-	-
06 Sep 24	13:44	0.00	33.57	1.19	-	-
06 Sep 24	13:45	0.00	32.57	1.03	-	-
06 Sep 24	13:46	0.00	32.75	1.04	-	-
06 Sep 24	13:47	0.00	33.04	1.04	-	-
06 Sep 24	13:48	0.00	32.15	1.20	-	-
06 Sep 24	13:49	0.00	32.70	1.26	-	-
06 Sep 24	13:50	0.00	33.42	1.14	-	-
06 Sep 24	13:51	0.00	32.62	1.28	-	-
06 Sep 24	13:52	0.00	32.53	1.19	-	-
06 Sep 24	13:53	0.00	31.45	1.03	-	-
06 Sep 24	13:54	0.00	30.57	1.12	-	-
06 Sep 24	13:55	0.00	31.22	1.12	-	-
06 Sep 24	13:56	0.00	31.01	1.22	-	-
06 Sep 24	13:57	0.00	30.67	1.24	-	-
06 Sep 24	13:58	0.00	32.31	1.23	-	-
06 Sep 24	13:59	0.00	32.58	1.23	-	-
06 Sep 24	14:00	0.00	32.89	1.11	-	-
Max		0.01	33.57	1.30	-	-
Avg		0.00	32.32	1.17	-	-

Run No: 12 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	14:01	0.00	33.29	1.11	-	-
06 Sep 24	14:02	0.00	32.00	1.30	-	-
06 Sep 24	14:03	0.00	32.93	1.14	-	-
06 Sep 24	14:04	0.00	32.23	1.18	-	-
06 Sep 24	14:05	0.00	33.28	1.17	-	-
06 Sep 24	14:06	0.00	32.72	1.27	-	-
06 Sep 24	14:07	0.00	32.53	1.06	-	-
06 Sep 24	14:08	0.00	32.79	1.16	-	-
06 Sep 24	14:09	0.00	32.93	1.14	-	-
06 Sep 24	14:10	0.00	32.72	1.13	-	-
06 Sep 24	14:11	0.00	33.89	1.01	-	-
06 Sep 24	14:12	0.00	31.49	1.12	-	-
06 Sep 24	14:13	0.00	32.75	1.18	-	-
06 Sep 24	14:14	0.00	32.89	1.20	-	-
06 Sep 24	14:15	0.00	32.60	1.26	-	-
06 Sep 24	14:16	0.00	33.00	1.16	-	-
06 Sep 24	14:17	0.00	32.85	1.21	-	-
06 Sep 24	14:18	0.00	32.70	1.20	-	-
06 Sep 24	14:19	0.00	31.98	1.23	-	-
06 Sep 24	14:20	0.00	32.01	1.25	-	-
06 Sep 24	14:21	0.00	32.20	1.19	-	-
Max		0.00	33.89	1.30	-	-
Avg		0.00	32.66	1.17	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 06 Sep 24
Location: B-AT-310101A (Model : URAS14) (F-3102)

Run No: 1 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	10:10	0.15	30.96	0.22	7.79	5.42
06 Sep 24	10:11	0.10	30.89	0.22	7.68	5.36
06 Sep 24	10:12	0.25	30.94	0.27	7.70	5.51
06 Sep 24	10:13	0.13	31.09	0.15	7.78	5.38
06 Sep 24	10:14	0.14	31.11	0.19	7.71	5.40
06 Sep 24	10:15	0.14	30.87	0.18	7.82	5.40
06 Sep 24	10:16	0.09	30.76	0.16	7.81	5.35
06 Sep 24	10:17	0.18	30.73	0.19	7.69	5.44
06 Sep 24	10:18	0.13	30.90	0.21	7.60	5.40
06 Sep 24	10:19	0.10	30.96	0.16	7.72	5.36
06 Sep 24	10:20	0.17	30.71	0.23	7.82	5.43
06 Sep 24	10:21	0.08	30.87	0.16	7.80	5.34
06 Sep 24	10:22	0.18	30.90	0.18	7.70	5.44
06 Sep 24	10:23	0.11	30.79	0.09	7.80	5.37
06 Sep 24	10:24	0.12	30.88	0.08	7.75	5.38
06 Sep 24	10:25	0.17	30.99	0.10	7.68	5.43
06 Sep 24	10:26	0.17	30.89	0.11	7.78	5.43
06 Sep 24	10:27	0.15	30.81	0.11	7.65	5.41
06 Sep 24	10:28	0.18	30.93	0.08	7.83	5.44
06 Sep 24	10:29	0.09	31.16	0.12	7.72	5.35
06 Sep 24	10:30	0.21	31.26	0.11	7.69	5.47
Max		0.25	31.26	0.27	7.83	5.51
Avg		0.14	30.91	0.16	7.75	5.41

Run No: 2 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	10:31	0.18	30.82	0.21	7.76	5.44
06 Sep 24	10:32	0.18	30.32	0.17	7.64	5.44
06 Sep 24	10:33	0.20	30.17	0.20	7.77	5.46
06 Sep 24	10:34	0.12	30.58	0.20	7.76	5.38
06 Sep 24	10:35	0.20	30.88	0.26	7.64	5.46
06 Sep 24	10:36	0.20	30.96	0.24	7.75	5.46
06 Sep 24	10:37	0.13	31.00	0.25	7.64	5.39
06 Sep 24	10:38	0.21	31.05	0.30	7.68	5.47
06 Sep 24	10:39	0.13	30.99	0.27	7.75	5.39
06 Sep 24	10:40	0.20	30.79	0.36	7.65	5.46
06 Sep 24	10:41	0.13	30.45	0.30	7.76	5.39
06 Sep 24	10:42	0.10	30.58	0.29	7.71	5.38
06 Sep 24	10:43	0.17	30.86	0.34	7.71	5.43
06 Sep 24	10:44	0.14	30.72	0.32	7.81	5.40
06 Sep 24	10:45	0.11	30.67	0.33	7.73	5.37
06 Sep 24	10:46	0.14	30.68	0.37	7.76	5.40
06 Sep 24	10:47	0.10	30.71	0.35	7.76	5.36
06 Sep 24	10:48	0.18	30.70	0.39	7.67	5.44
06 Sep 24	10:49	0.13	30.71	0.42	7.75	5.39
06 Sep 24	10:50	0.16	30.74	0.40	7.67	5.42
06 Sep 24	10:51	0.15	30.81	0.41	7.76	5.41
Max		0.21	31.05	0.42	7.81	5.47
Avg		0.16	30.72	0.30	7.72	5.42

Run No: 3 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	10:52	0.12	30.97	0.41	7.77	5.38
06 Sep 24	10:53	0.16	31.11	0.41	7.69	5.43
06 Sep 24	10:54	0.15	30.97	0.39	7.81	5.41
06 Sep 24	10:55	0.10	30.97	0.41	7.70	5.36
06 Sep 24	10:56	0.15	30.96	0.42	7.76	5.41
06 Sep 24	10:57	0.11	30.82	0.39	7.79	5.37
06 Sep 24	10:58	0.18	30.64	0.46	7.65	5.44
06 Sep 24	10:59	0.16	30.83	0.46	7.76	5.43
06 Sep 24	11:00	0.14	30.77	0.44	7.64	5.40
06 Sep 24	11:01	0.18	30.83	0.46	7.69	5.45
06 Sep 24	11:02	0.14	31.00	0.43	7.74	5.40
06 Sep 24	11:03	0.17	31.06	0.37	7.64	5.43
06 Sep 24	11:04	0.24	30.82	0.39	7.74	5.50
06 Sep 24	11:05	0.12	30.84	0.36	7.72	5.38
06 Sep 24	11:06	0.24	30.78	0.25	7.65	5.50
06 Sep 24	11:07	0.15	30.72	0.36	7.76	5.41
06 Sep 24	11:08	0.15	30.79	0.26	7.66	5.42
06 Sep 24	11:09	0.18	31.04	0.15	7.75	5.46
06 Sep 24	11:10	0.13	30.97	0.26	7.75	5.39
06 Sep 24	11:11	0.17	31.07	0.19	7.69	5.43
06 Sep 24	11:12	0.16	30.91	-0.01	7.74	5.42
Max		0.24	31.11	0.46	7.81	5.50
Avg		0.16	30.89	0.35	7.72	5.42

Run No: 4 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	11:13	0.12	30.86	0.20	7.76	5.38
06 Sep 24	11:14	0.15	30.81	0.08	7.70	5.41
06 Sep 24	11:15	0.11	30.86	-0.02	7.80	5.37
06 Sep 24	11:16	0.17	30.73	-0.02	7.66	5.43
06 Sep 24	11:17	0.16	30.51	0.06	7.83	5.42
06 Sep 24	11:18	0.07	30.58	0.04	7.75	5.34
06 Sep 24	11:19	0.16	30.82	0.06	7.78	5.42
06 Sep 24	11:20	0.11	30.90	0.06	7.82	5.37
06 Sep 24	11:21	0.10	30.80	0.03	7.77	5.36
06 Sep 24	11:22	0.13	30.73	0.52	7.75	5.39
06 Sep 24	11:23	0.08	30.73	-0.03	7.89	5.34
06 Sep 24	11:24	0.13	30.84	0.39	7.70	5.39
06 Sep 24	11:25	0.13	30.91	0.37	7.82	5.39
06 Sep 24	11:26	0.07	30.86	0.35	7.75	5.33
06 Sep 24	11:27	0.19	30.85	0.54	7.75	5.45
06 Sep 24	11:28	0.11	30.91	0.60	7.77	5.38
06 Sep 24	11:29	0.15	31.14	0.60	7.74	5.41
06 Sep 24	11:30	0.16	31.24	0.62	7.76	5.42
06 Sep 24	11:31	0.12	31.15	0.65	7.84	5.38
06 Sep 24	11:32	0.16	31.22	0.72	7.66	5.42
06 Sep 24	11:33	0.15	31.16	0.71	7.65	5.41
Max		0.19	31.24	0.72	7.89	5.45
Avg		0.13	30.89	0.31	7.77	5.39

Run No: 5 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	11:34	0.10	31.19	0.68	7.72	5.36
06 Sep 24	11:35	0.17	30.95	0.73	7.80	5.43
06 Sep 24	11:36	0.11	30.81	0.72	7.83	5.37
06 Sep 24	11:37	0.20	30.87	0.72	7.71	5.46
06 Sep 24	11:38	0.14	30.99	0.72	7.83	5.41
06 Sep 24	11:39	0.10	31.14	0.77	7.77	5.36
06 Sep 24	11:40	0.15	31.26	0.75	7.76	5.41
06 Sep 24	11:41	0.13	31.21	0.75	7.83	5.39
06 Sep 24	11:42	0.13	31.05	0.87	7.69	5.39
06 Sep 24	11:43	0.18	30.79	0.78	7.80	5.45
06 Sep 24	11:44	0.11	30.58	0.71	7.77	5.37
06 Sep 24	11:45	0.22	30.72	0.80	7.71	5.48
06 Sep 24	11:46	0.12	30.97	0.76	7.77	5.38
06 Sep 24	11:47	0.16	31.04	0.75	7.73	5.42
06 Sep 24	11:48	0.16	31.13	0.76	7.75	5.42
06 Sep 24	11:49	0.13	31.10	0.76	7.85	5.40
06 Sep 24	11:50	0.16	30.98	0.81	7.67	5.43
06 Sep 24	11:51	0.15	30.92	0.78	7.86	5.41
06 Sep 24	11:52	0.09	31.10	0.81	7.72	5.35
06 Sep 24	11:53	0.23	30.88	0.81	7.76	5.49
06 Sep 24	11:54	0.14	30.82	0.78	7.80	5.40
Max		0.23	31.26	0.87	7.86	5.49
Avg		0.15	30.98	0.76	7.77	5.41

Run No: 6 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	11:55	0.21	30.86	0.77	7.66	5.47
06 Sep 24	11:56	0.17	30.97	0.75	7.82	5.43
06 Sep 24	11:57	0.13	31.08	0.84	7.74	5.39
06 Sep 24	11:58	0.18	31.39	0.85	7.73	5.44
06 Sep 24	11:59	0.17	31.25	0.88	7.82	5.43
06 Sep 24	12:00	0.15	31.39	0.92	7.68	5.41
06 Sep 24	12:01	0.23	31.39	0.81	7.78	5.49
06 Sep 24	12:02	0.14	31.30	0.83	7.73	5.40
06 Sep 24	12:03	0.22	31.01	0.85	7.75	5.48
06 Sep 24	12:04	0.15	30.91	0.82	7.79	5.41
06 Sep 24	12:05	0.15	31.00	0.81	7.70	5.41
06 Sep 24	12:06	0.23	30.85	0.88	7.74	5.49
06 Sep 24	12:07	0.13	30.82	0.88	7.81	5.39
06 Sep 24	12:08	0.21	30.77	0.88	7.68	5.47
06 Sep 24	12:09	0.16	30.81	0.83	7.84	5.42
06 Sep 24	12:10	0.12	30.84	0.87	7.73	5.38
06 Sep 24	12:11	0.21	30.97	0.83	7.77	5.47
06 Sep 24	12:12	0.13	31.08	0.85	7.83	5.39
06 Sep 24	12:13	0.17	31.34	0.91	7.73	5.43
06 Sep 24	12:14	0.13	31.20	0.83	7.82	5.39
06 Sep 24	12:15	0.12	31.00	0.86	7.81	5.38
Max		0.23	31.39	0.92	7.84	5.49
Avg		0.17	31.06	0.84	7.76	5.43

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 06 Sep 24
Location: B-AT-310101A (Model : URAS14) (F-3102)

Run No: 7 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	12:16	0.16	31.12	0.86	7.74	5.42
06 Sep 24	12:17	0.14	31.08	0.83	7.83	5.40
06 Sep 24	12:18	0.14	30.97	0.84	7.72	5.40
06 Sep 24	12:19	0.19	30.93	0.85	7.85	5.45
06 Sep 24	12:20	0.08	31.10	0.90	7.82	5.34
06 Sep 24	12:21	0.19	31.08	0.94	7.77	5.45
06 Sep 24	12:22	0.12	30.94	0.85	7.82	5.38
06 Sep 24	12:23	0.10	30.85	0.89	7.82	5.36
06 Sep 24	12:24	0.13	30.79	0.89	7.80	5.40
06 Sep 24	12:25	0.06	30.80	0.94	7.92	5.32
06 Sep 24	12:26	0.10	30.89	0.98	7.70	5.36
06 Sep 24	12:27	0.14	30.81	0.89	7.91	5.40
06 Sep 24	12:28	0.05	30.77	0.95	7.85	5.31
06 Sep 24	12:29	0.10	30.87	0.91	7.86	5.36
06 Sep 24	12:30	0.07	30.95	0.87	7.91	5.33
06 Sep 24	12:31	0.04	31.15	0.89	7.82	5.30
06 Sep 24	12:32	0.15	31.17	0.92	7.81	5.41
06 Sep 24	12:33	0.10	31.13	0.89	7.88	5.36
06 Sep 24	12:34	0.12	31.01	0.89	7.75	5.38
06 Sep 24	12:35	0.12	30.92	0.86	7.87	5.38
06 Sep 24	12:36	0.09	30.86	0.85	7.78	5.35
Max		0.19	31.17	0.98	7.92	5.45
Avg		0.11	30.98	0.89	7.82	5.38

Run No: 8 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	12:37	0.17	30.81	0.89	7.79	5.43
06 Sep 24	12:38	0.15	30.74	0.92	7.85	5.41
06 Sep 24	12:39	0.12	30.85	0.90	7.75	5.38
06 Sep 24	12:40	0.22	30.91	0.86	7.81	5.48
06 Sep 24	12:41	0.10	30.82	0.90	7.88	5.36
06 Sep 24	12:42	0.20	30.59	0.86	7.73	5.46
06 Sep 24	12:43	0.09	30.61	0.82	7.87	5.35
06 Sep 24	12:44	0.09	30.80	0.91	7.80	5.36
06 Sep 24	12:45	0.16	31.11	0.86	7.76	5.43
06 Sep 24	12:46	0.13	31.13	0.86	7.88	5.39
06 Sep 24	12:47	0.11	31.27	0.81	7.75	5.37
06 Sep 24	12:48	0.15	31.15	0.80	7.88	5.41
06 Sep 24	12:49	0.09	31.05	0.92	7.79	5.35
06 Sep 24	12:50	0.14	31.05	0.85	7.93	5.41
06 Sep 24	12:51	0.05	31.23	0.85	7.90	5.31
06 Sep 24	12:52	0.11	31.35	0.89	7.83	5.37
06 Sep 24	12:53	0.12	31.15	0.90	7.88	5.38
06 Sep 24	12:54	0.06	31.04	0.93	7.93	5.32
06 Sep 24	12:55	0.15	30.98	0.89	7.79	5.41
06 Sep 24	12:56	0.11	30.78	0.92	7.95	5.37
06 Sep 24	12:57	0.11	30.86	0.87	7.81	5.37
Max		0.22	31.35	0.93	7.95	5.48
Avg		0.12	30.96	0.88	7.83	5.39

Run No: 9 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	12:58	0.13	30.64	0.98	7.89	5.39
06 Sep 24	12:59	0.09	30.56	0.86	7.93	5.35
06 Sep 24	13:00	0.14	30.49	0.86	7.84	5.40
06 Sep 24	13:01	0.17	30.34	0.86	7.80	5.43
06 Sep 24	13:02	0.14	30.26	0.97	7.82	5.40
06 Sep 24	13:03	0.16	30.16	0.88	7.85	5.42
06 Sep 24	13:04	0.10	30.18	0.88	7.95	5.36
06 Sep 24	13:05	0.19	30.19	0.95	7.78	5.45
06 Sep 24	13:06	0.16	30.35	0.91	7.89	5.42
06 Sep 24	13:07	0.16	30.39	0.94	7.84	5.42
06 Sep 24	13:08	0.19	30.51	0.93	7.79	5.45
06 Sep 24	13:09	0.15	30.67	0.94	7.94	5.41
06 Sep 24	13:10	0.15	30.88	0.95	7.75	5.41
06 Sep 24	13:11	0.19	30.87	0.92	7.94	5.45
06 Sep 24	13:12	0.11	30.50	0.94	7.88	5.38
06 Sep 24	13:13	0.22	30.51	0.94	7.80	5.49
06 Sep 24	13:14	0.14	30.74	0.95	7.91	5.40
06 Sep 24	13:15	0.15	30.86	0.99	7.80	5.41
06 Sep 24	13:16	0.20	30.80	0.99	7.82	5.46
06 Sep 24	13:17	0.18	30.77	0.94	7.91	5.44
06 Sep 24	13:18	0.21	30.76	0.93	7.76	5.48
Max		0.22	30.88	0.99	7.95	5.49
Avg		0.16	30.54	0.92	7.86	5.42

Run No: 10 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	13:19	0.14	30.85	0.94	7.97	5.41
06 Sep 24	13:20	0.19	30.81	0.90	7.74	5.45
06 Sep 24	13:21	0.16	30.92	0.93	7.98	5.42
06 Sep 24	13:22	0.05	30.93	0.93	7.98	5.31
06 Sep 24	13:23	0.12	31.16	0.98	7.84	5.38
06 Sep 24	13:24	0.13	31.00	0.82	7.95	5.39
06 Sep 24	13:25	0.07	31.09	0.86	7.95	5.33
06 Sep 24	13:26	0.15	31.56	0.87	7.88	5.41
06 Sep 24	13:27	0.05	31.68	0.91	8.07	5.31
06 Sep 24	13:28	0.11	31.69	0.90	7.83	5.37
06 Sep 24	13:29	0.11	31.81	0.89	7.98	5.37
06 Sep 24	13:30	0.08	32.02	0.96	7.93	5.34
06 Sep 24	13:31	0.11	32.04	0.91	7.98	5.37
06 Sep 24	13:32	0.10	31.83	0.93	8.03	5.36
06 Sep 24	13:33	0.07	31.84	0.85	7.90	5.33
06 Sep 24	13:34	0.17	31.86	0.90	7.98	5.43
06 Sep 24	13:35	0.06	31.98	0.84	7.99	5.32
06 Sep 24	13:36	0.14	32.02	0.90	7.93	5.41
06 Sep 24	13:37	0.11	32.05	0.97	8.02	5.37
06 Sep 24	13:38	0.09	32.05	0.91	7.93	5.35
06 Sep 24	13:39	0.14	32.09	0.91	7.95	5.40
Max		0.19	32.09	0.97	8.07	5.45
Avg		0.11	31.59	0.90	7.94	5.37

Run No: 11 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	13:40	0.13	32.09	0.96	7.88	5.38
06 Sep 24	13:41	0.11	32.29	0.93	7.89	5.37
06 Sep 24	13:42	0.16	32.17	0.93	8.00	5.42
06 Sep 24	13:43	0.06	32.08	0.94	7.90	5.32
06 Sep 24	13:44	0.17	32.08	0.92	7.93	5.43
06 Sep 24	13:45	0.11	32.02	0.94	7.98	5.37
06 Sep 24	13:46	0.10	32.09	0.95	7.91	5.36
06 Sep 24	13:47	0.18	32.09	0.90	7.94	5.44
06 Sep 24	13:48	0.07	32.09	0.97	8.05	5.33
06 Sep 24	13:49	0.13	31.99	0.92	7.90	5.39
06 Sep 24	13:50	0.14	31.86	0.85	8.03	5.41
06 Sep 24	13:51	0.07	32.06	0.88	7.92	5.33
06 Sep 24	13:52	0.16	32.13	0.94	7.98	5.42
06 Sep 24	13:53	0.11	32.03	0.93	7.92	5.37
06 Sep 24	13:54	0.15	32.19	0.93	7.89	5.41
06 Sep 24	13:55	0.15	32.08	0.91	8.01	5.41
06 Sep 24	13:56	0.05	32.07	0.88	8.00	5.31
06 Sep 24	13:57	0.19	32.06	0.97	7.90	5.45
06 Sep 24	13:58	0.10	32.00	0.94	8.01	5.36
06 Sep 24	13:59	0.08	32.00	0.86	7.85	5.34
06 Sep 24	14:00	0.14	32.16	0.90	8.03	5.40
Max		0.19	32.29	0.97	8.05	5.45
Avg		0.12	32.08	0.91	7.95	5.38

Run No: 12 — Time Base : 21 min

Date	Time	SO_2 ppm	NOx ppm	CO ppm	O_2 Vol%	CO_2 Vol%
06 Sep 24	14:01	0.07	32.22	0.90	7.95	5.33
06 Sep 24	14:02	0.10	32.26	0.98	7.94	5.36
06 Sep 24	14:03	0.14	32.15	0.87	7.93	5.41
06 Sep 24	14:04	0.10	32.16	0.93	7.91	5.36
06 Sep 24	14:05	0.17	32.19	0.92	7.91	5.43
06 Sep 24	14:06	0.05	32.34	0.89	8.02	5.31
06 Sep 24	14:07	0.13	32.36	0.91	7.88	5.39
06 Sep 24	14:08	0.10	32.37	0.93	8.01	5.36
06 Sep 24	14:09	0.06	32.45	0.93	7.97	5.32
06 Sep 24	14:10	0.11	32.55	0.85	7.94	5.37
06 Sep 24	14:11	0.03	32.32	0.89	8.02	5.30
06 Sep 24	14:12	0.01	32.30	0.90	7.96	5.28
06 Sep 24	14:13	0.12	31.87	0.92	7.95	5.38
06 Sep 24	14:14	-0.02	31.81	0.89	8.10	5.24
06 Sep 24	14:15	0.09	31.92	0.94	7.89	5.36
06 Sep 24	14:16	0.03	32.00	0.93	8.04	5.30
06 Sep 24	14:17	0.03	31.98	0.98	7.95	5.29
06 Sep 24	14:18	0.07	32.13	0.95	7.94	5.33
06 Sep 24	14:19	0.05	32.09	0.93	8.01	5.31
06 Sep 24	14:20	0.08	32.25	0.91	7.89	5.34
06 Sep 24	14:21	0.11	32.23	0.98	7.97	5.37
Max		0.17	32.55	0.98	8.10	5.43
Avg		0.08	32.19	0.92	7.98	5.34

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 20 Sep 24
Plant Name: I-4/2 Location: F-3103

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	9:30	0.00	33.97	0.01	-	-
20 Sep 24	9:31	0.00	33.89	0.01	-	-
20 Sep 24	9:32	0.00	33.96	0.09	-	-
20 Sep 24	9:33	0.00	33.87	0.04	-	-
20 Sep 24	9:34	0.00	34.15	0.16	-	-
20 Sep 24	9:35	0.00	33.71	0.03	-	-
20 Sep 24	9:36	0.00	33.00	0.13	-	-
20 Sep 24	9:37	0.00	33.79	0.19	-	-
20 Sep 24	9:38	0.10	34.16	0.13	-	-
20 Sep 24	9:39	0.01	32.81	0.08	-	-
20 Sep 24	9:40	0.00	32.10	0.01	-	-
20 Sep 24	9:41	0.00	31.26	0.08	-	-
20 Sep 24	9:42	0.00	32.15	0.15	-	-
20 Sep 24	9:43	0.00	31.95	0.15	-	-
20 Sep 24	9:44	0.00	31.84	0.03	-	-
20 Sep 24	9:45	0.01	32.04	0.08	-	-
20 Sep 24	9:46	0.00	31.98	0.21	-	-
20 Sep 24	9:47	0.00	33.01	0.08	-	-
20 Sep 24	9:48	0.03	32.45	0.17	-	-
20 Sep 24	9:49	0.00	31.95	0.01	-	-
20 Sep 24	9:50	0.00	32.15	0.02	-	-
Max		0.10	34.16	0.21	-	-
Avg		0.01	32.87	0.09	-	-

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	9:51	0.00	32.88	0.10	-	-
20 Sep 24	9:52	0.00	33.51	0.01	-	-
20 Sep 24	9:53	0.00	32.74	0.10	-	-
20 Sep 24	9:54	0.00	34.17	0.10	-	-
20 Sep 24	9:55	0.00	33.39	0.13	-	-
20 Sep 24	9:56	0.00	36.87	0.12	-	-
20 Sep 24	9:57	0.00	34.85	0.13	-	-
20 Sep 24	9:58	0.00	33.70	0.11	-	-
20 Sep 24	9:59	0.00	35.04	0.02	-	-
20 Sep 24	10:00	0.00	35.31	0.13	-	-
20 Sep 24	10:01	0.00	35.54	0.01	-	-
20 Sep 24	10:02	0.00	35.39	0.13	-	-
20 Sep 24	10:03	0.00	31.75	0.02	-	-
20 Sep 24	10:04	0.00	32.23	0.18	-	-
20 Sep 24	10:05	0.00	31.03	0.15	-	-
20 Sep 24	10:06	0.00	32.71	0.16	-	-
20 Sep 24	10:07	0.00	33.20	0.02	-	-
20 Sep 24	10:08	0.00	34.07	0.00	-	-
20 Sep 24	10:09	0.00	35.10	0.01	-	-
20 Sep 24	10:10	0.00	35.48	0.01	-	-
20 Sep 24	10:11	0.00	34.52	0.09	-	-
Max		0.00	36.87	0.18	-	-
Avg		0.00	33.97	0.08	-	-

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	10:12	0.00	35.49	0.01	-	-
20 Sep 24	10:13	0.00	34.43	0.05	-	-
20 Sep 24	10:14	0.00	34.47	0.16	-	-
20 Sep 24	10:15	0.00	33.86	0.01	-	-
20 Sep 24	10:16	0.00	35.13	0.01	-	-
20 Sep 24	10:17	0.00	32.65	0.03	-	-
20 Sep 24	10:18	0.01	32.86	0.16	-	-
20 Sep 24	10:19	0.00	31.38	0.05	-	-
20 Sep 24	10:20	0.00	31.48	0.02	-	-
20 Sep 24	10:21	0.00	32.13	0.02	-	-
20 Sep 24	10:22	0.00	32.46	0.12	-	-
20 Sep 24	10:23	0.00	31.50	0.16	-	-
20 Sep 24	10:24	0.00	31.47	0.02	-	-
20 Sep 24	10:25	0.00	32.23	0.03	-	-
20 Sep 24	10:26	0.00	33.51	0.22	-	-
20 Sep 24	10:27	0.00	33.32	0.07	-	-
20 Sep 24	10:28	0.00	33.20	0.03	-	-
20 Sep 24	10:29	0.00	33.39	0.04	-	-
20 Sep 24	10:30	0.00	33.46	0.01	-	-
20 Sep 24	10:31	0.00	33.59	0.01	-	-
20 Sep 24	10:32	0.00	33.81	0.01	-	-
Max		0.01	35.49	0.22	-	-
Avg		0.00	33.14	0.06	-	-

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	10:33	0.00	33.25	0.04	-	-
20 Sep 24	10:34	0.00	33.32	0.04	-	-
20 Sep 24	10:35	0.00	32.75	0.01	-	-
20 Sep 24	10:36	0.00	33.42	0.01	-	-
20 Sep 24	10:37	0.00	34.26	0.05	-	-
20 Sep 24	10:38	0.00	33.83	0.06	-	-
20 Sep 24	10:39	0.00	33.77	0.05	-	-
20 Sep 24	10:40	0.00	32.29	0.01	-	-
20 Sep 24	10:41	0.00	32.39	0.02	-	-
20 Sep 24	10:42	0.00	32.01	0.05	-	-
20 Sep 24	10:43	0.00	31.79	0.06	-	-
20 Sep 24	10:44	0.00	32.76	0.05	-	-
20 Sep 24	10:45	0.00	32.81	0.13	-	-
20 Sep 24	10:46	0.00	32.73	0.08	-	-
20 Sep 24	10:47	0.00	34.05	0.07	-	-
20 Sep 24	10:48	0.00	33.30	0.01	-	-
20 Sep 24	10:49	0.00	34.09	0.11	-	-
20 Sep 24	10:50	0.00	33.94	0.01	-	-
20 Sep 24	10:51	0.00	34.00	0.09	-	-
20 Sep 24	10:52	0.00	33.89	0.07	-	-
20 Sep 24	10:53	0.00	32.72	0.05	-	-
Max		0.00	34.26	0.13	-	-
Avg		0.00	33.21	0.05	-	-

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	10:54	0.00	34.30	0.09	-	-
20 Sep 24	10:55	0.00	33.99	0.05	-	-
20 Sep 24	10:56	0.00	34.82	0.03	-	-
20 Sep 24	10:57	0.00	34.07	0.05	-	-
20 Sep 24	10:58	0.00	33.92	0.09	-	-
20 Sep 24	10:59	0.00	33.70	0.02	-	-
20 Sep 24	11:00	0.00	33.31	0.01	-	-
20 Sep 24	11:01	0.00	33.13	0.02	-	-
20 Sep 24	11:02	0.00	32.65	0.01	-	-
20 Sep 24	11:03	0.00	32.36	0.12	-	-
20 Sep 24	11:04	0.00	32.75	0.13	-	-
20 Sep 24	11:05	0.00	32.16	0.05	-	-
20 Sep 24	11:06	0.00	32.31	0.02	-	-
20 Sep 24	11:07	0.00	33.02	0.01	-	-
20 Sep 24	11:08	0.00	33.55	0.01	-	-
20 Sep 24	11:09	0.00	34.53	0.02	-	-
20 Sep 24	11:10	0.00	33.49	0.03	-	-
20 Sep 24	11:11	0.00	34.07	0.01	-	-
20 Sep 24	11:12	0.00	33.39	0.01	-	-
20 Sep 24	11:13	0.00	34.41	0.13	-	-
20 Sep 24	11:14	0.01	36.53	0.04	-	-
Max		0.01	36.53	0.13	-	-
Avg		0.00	33.64	0.04	-	-

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	11:15	0.00	34.41	0.08	-	-
20 Sep 24	11:16	0.01	34.59	0.11	-	-
20 Sep 24	11:17	0.00	34.92	0.09	-	-
20 Sep 24	11:18	0.00	34.01	0.01	-	-
20 Sep 24	11:19	0.00	33.55	0.03	-	-
20 Sep 24	11:20	0.00	34.44	0.07	-	-
20 Sep 24	11:21	0.00	33.20	0.01	-	-
20 Sep 24	11:22	0.00	33.43	0.01	-	-
20 Sep 24	11:23	0.00	33.13	0.01	-	-
20 Sep 24	11:24	0.00	32.84	0.02	-	-
20 Sep 24	11:25	0.00	31.77	0.03	-	-
20 Sep 24	11:26	0.00	31.97	0.00	-	-
20 Sep 24	11:27	0.00	32.67	0.01	-	-
20 Sep 24	11:28	0.00	31.90	0.02	-	-
20 Sep 24	11:29	0.00	33.10	0.12	-	-
20 Sep 24	11:30	0.00	32.69	0.08	-	-
20 Sep 24	11:31	0.05	32.86	0.05	-	-
20 Sep 24	11:32	0.01	32.83	0.12	-	-
20 Sep 24	11:33	0.00	32.55	0.20	-	-
20 Sep 24	11:34	0.02	33.27	0.14	-	-
20 Sep 24	11:35	0.01	32.42	0.11	-	-
Max		0.05	34.92	0.20	-	-
Avg		0.01	33.17	0.06	-	-

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 20 Sep 24
Plant Name: I-4/2 Location: F-3103

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	11:36	0.01	32.69	0.08	-	-
20 Sep 24	11:37	0.00	32.03	0.03	-	-
20 Sep 24	11:38	0.00	32.00	0.01	-	-
20 Sep 24	11:39	0.00	33.19	0.00	-	-
20 Sep 24	11:40	0.01	33.67	0.13	-	-
20 Sep 24	11:41	0.00	31.96	0.11	-	-
20 Sep 24	11:42	0.05	34.09	0.11	-	-
20 Sep 24	11:43	0.00	31.79	0.01	-	-
20 Sep 24	11:44	0.00	32.47	0.10	-	-
20 Sep 24	11:45	0.00	32.65	0.21	-	-
20 Sep 24	11:46	0.00	34.52	0.08	-	-
20 Sep 24	11:47	0.00	35.40	0.02	-	-
20 Sep 24	11:48	0.00	34.49	0.08	-	-
20 Sep 24	11:49	0.00	33.06	0.05	-	-
20 Sep 24	11:50	0.00	33.37	0.17	-	-
20 Sep 24	11:51	0.00	32.00	0.08	-	-
20 Sep 24	11:52	0.00	31.21	0.07	-	-
20 Sep 24	11:53	0.00	31.39	0.05	-	-
20 Sep 24	11:54	0.00	32.03	0.10	-	-
20 Sep 24	11:55	0.00	34.78	0.17	-	-
20 Sep 24	11:56	0.00	31.90	0.03	-	-
Max		0.05	35.40	0.21	-	-
Avg		0.01	32.89	0.08	-	-

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	11:57	0.00	32.40	0.23	-	-
20 Sep 24	11:58	0.00	32.57	0.12	-	-
20 Sep 24	11:59	0.00	33.37	0.08	-	-
20 Sep 24	12:00	0.00	33.63	0.10	-	-
20 Sep 24	12:01	0.00	32.80	0.02	-	-
20 Sep 24	12:02	0.00	33.72	0.10	-	-
20 Sep 24	12:03	0.00	33.35	0.09	-	-
20 Sep 24	12:04	0.00	33.43	0.08	-	-
20 Sep 24	12:05	0.00	34.18	0.01	-	-
20 Sep 24	12:06	0.00	33.45	0.12	-	-
20 Sep 24	12:07	0.00	33.71	0.10	-	-
20 Sep 24	12:08	0.00	35.19	0.04	-	-
20 Sep 24	12:09	0.00	35.04	0.01	-	-
20 Sep 24	12:10	0.00	35.57	0.14	-	-
20 Sep 24	12:11	0.00	32.14	0.15	-	-
20 Sep 24	12:12	0.00	32.10	0.18	-	-
20 Sep 24	12:13	0.00	35.48	0.16	-	-
20 Sep 24	12:14	0.00	33.82	0.02	-	-
20 Sep 24	12:15	0.00	32.86	0.01	-	-
20 Sep 24	12:16	0.00	33.04	0.03	-	-
20 Sep 24	12:17	0.00	33.32	0.02	-	-
Max		0.00	35.57	0.23	-	-
Avg		0.00	33.58	0.09	-	-

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	12:18	0.00	33.39	0.06	-	-
20 Sep 24	12:19	0.00	31.35	0.04	-	-
20 Sep 24	12:20	0.00	32.27	0.05	-	-
20 Sep 24	12:21	0.00	33.28	0.02	-	-
20 Sep 24	12:22	0.00	33.08	0.17	-	-
20 Sep 24	12:23	0.00	34.00	0.02	-	-
20 Sep 24	12:24	0.00	33.69	0.02	-	-
20 Sep 24	12:25	0.00	33.32	0.03	-	-
20 Sep 24	12:26	0.00	34.19	0.08	-	-
20 Sep 24	12:27	0.00	33.58	0.02	-	-
20 Sep 24	12:28	0.00	33.36	0.01	-	-
20 Sep 24	12:29	0.00	33.10	0.02	-	-
20 Sep 24	12:30	0.00	33.01	0.01	-	-
20 Sep 24	12:31	0.00	32.84	0.10	-	-
20 Sep 24	12:32	0.00	33.14	0.22	-	-
20 Sep 24	12:33	0.00	32.93	0.12	-	-
20 Sep 24	12:34	0.00	33.90	0.10	-	-
20 Sep 24	12:35	0.00	32.84	0.10	-	-
20 Sep 24	12:36	0.00	33.84	0.01	-	-
20 Sep 24	12:37	0.02	33.94	0.12	-	-
20 Sep 24	12:38	0.00	33.99	0.12	-	-
Max		0.02	34.19	0.22	-	-
Avg		0.00	33.29	0.07	-	-

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	12:39	0.12	32.88	0.04	-	-
20 Sep 24	12:40	0.01	32.32	0.01	-	-
20 Sep 24	12:41	0.04	32.42	0.02	-	-
20 Sep 24	12:42	0.10	32.22	0.09	-	-
20 Sep 24	12:43	0.01	31.53	0.15	-	-
20 Sep 24	12:44	0.05	32.94	0.15	-	-
20 Sep 24	12:45	0.01	32.42	0.10	-	-
20 Sep 24	12:46	0.19	35.23	0.02	-	-
20 Sep 24	12:47	0.01	33.85	0.26	-	-
20 Sep 24	12:48	0.12	33.18	0.05	-	-
20 Sep 24	12:49	0.01	33.09	0.13	-	-
20 Sep 24	12:50	0.00	33.93	0.19	-	-
20 Sep 24	12:51	0.02	33.57	0.11	-	-
20 Sep 24	12:52	0.00	32.94	0.14	-	-
20 Sep 24	12:53	0.00	33.28	0.11	-	-
20 Sep 24	12:54	0.00	33.18	0.16	-	-
20 Sep 24	12:55	0.00	32.72	0.23	-	-
20 Sep 24	12:56	0.00	33.16	0.24	-	-
20 Sep 24	12:57	0.00	33.11	0.07	-	-
20 Sep 24	12:58	0.00	34.86	0.18	-	-
20 Sep 24	12:59	0.00	32.93	0.14	-	-
Max		0.19	35.23	0.26	-	-
Avg		0.03	33.14	0.12	-	-

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	13:00	0.00	32.45	0.04	-	-
20 Sep 24	13:01	0.00	33.20	0.01	-	-
20 Sep 24	13:02	0.00	32.45	0.09	-	-
20 Sep 24	13:03	0.00	32.93	0.02	-	-
20 Sep 24	13:04	0.00	32.95	0.08	-	-
20 Sep 24	13:05	0.00	32.84	0.12	-	-
20 Sep 24	13:06	0.00	33.20	0.16	-	-
20 Sep 24	13:07	0.00	33.16	0.07	-	-
20 Sep 24	13:08	0.00	31.87	0.07	-	-
20 Sep 24	13:09	0.00	31.51	0.03	-	-
20 Sep 24	13:10	0.00	30.62	0.16	-	-
20 Sep 24	13:11	0.00	31.99	0.07	-	-
20 Sep 24	13:12	0.03	32.38	0.12	-	-
20 Sep 24	13:13	0.00	32.86	0.15	-	-
20 Sep 24	13:14	0.00	32.96	0.09	-	-
20 Sep 24	13:15	0.00	32.46	0.01	-	-
20 Sep 24	13:16	0.00	34.95	0.04	-	-
20 Sep 24	13:17	0.00	33.42	0.04	-	-
20 Sep 24	13:18	0.00	33.08	0.13	-	-
20 Sep 24	13:19	0.00	32.41	0.14	-	-
20 Sep 24	13:20	0.00	32.03	0.13	-	-
Max		0.03	34.95	0.16	-	-
Avg		0.00	32.65	0.08	-	-

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	13:21	0.00	32.89	0.19	-	-
20 Sep 24	13:22	0.00	35.32	0.04	-	-
20 Sep 24	13:23	0.00	35.51	0.07	-	-
20 Sep 24	13:24	0.00	34.70	0.06	-	-
20 Sep 24	13:25	0.00	33.69	0.11	-	-
20 Sep 24	13:26	0.00	35.25	0.05	-	-
20 Sep 24	13:27	0.00	34.98	0.14	-	-
20 Sep 24	13:28	0.00	35.17	0.14	-	-
20 Sep 24	13:29	0.00	33.40	0.08	-	-
20 Sep 24	13:30	0.00	33.12	0.04	-	-
20 Sep 24	13:31	0.00	33.31	0.07	-	-
20 Sep 24	13:32	0.00	32.59	0.18	-	-
20 Sep 24	13:33	0.00	32.38	0.10	-	-
20 Sep 24	13:34	0.00	33.46	0.14	-	-
20 Sep 24	13:35	0.00	32.48	0.02	-	-
20 Sep 24	13:36	0.00	33.55	0.06	-	-
20 Sep 24	13:37	0.00	32.64	0.02	-	-
20 Sep 24	13:38	0.00	32.81	0.16	-	-
20 Sep 24	13:39	0.00	32.16	0.07	-	-
20 Sep 24	13:40	0.00	32.14	0.08	-	-
20 Sep 24	13:41	0.03	31.69	0.21	-	-
Max		0.03	35.51	0.21	-	-
Avg		0.00	33.49	0.10	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 20 Sep 24
Plant Name: I-4/2 Location: F-3103

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	9:30	0.20	32.62	0.37	4.33	6.34
20 Sep 24	9:31	0.19	32.79	0.42	4.30	6.33
20 Sep 24	9:32	0.20	32.73	0.45	4.36	6.34
20 Sep 24	9:33	0.15	32.68	0.40	4.33	6.28
20 Sep 24	9:34	0.19	32.68	0.46	4.41	6.33
20 Sep 24	9:35	0.25	32.42	0.43	4.22	6.39
20 Sep 24	9:36	0.17	32.28	0.44	4.35	6.31
20 Sep 24	9:37	0.20	32.34	0.41	4.36	6.34
20 Sep 24	9:38	0.16	32.63	0.45	4.32	6.30
20 Sep 24	9:39	0.16	32.58	0.49	4.44	6.31
20 Sep 24	9:40	0.16	32.42	0.53	4.23	6.32
20 Sep 24	9:41	0.20	32.20	0.47	4.32	6.34
20 Sep 24	9:42	0.21	32.07	0.47	4.29	6.35
20 Sep 24	9:43	0.18	32.18	0.51	4.37	6.31
20 Sep 24	9:44	0.17	32.06	0.59	4.36	6.30
20 Sep 24	9:45	0.19	31.89	0.55	4.20	6.33
20 Sep 24	9:46	0.14	31.79	0.58	4.33	6.28
20 Sep 24	9:47	0.19	31.79	0.62	4.37	6.32
20 Sep 24	9:48	0.15	32.08	0.61	4.35	6.29
20 Sep 24	9:49	0.18	31.99	0.65	4.32	6.31
20 Sep 24	9:50	0.19	31.96	0.58	4.29	6.33
Max		0.25	32.79	0.65	4.44	6.39
Avg		0.18	32.29	0.50	4.33	6.32

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	9:51	0.15	32.11	0.56	4.37	6.28
20 Sep 24	9:52	0.22	32.24	0.64	4.37	6.35
20 Sep 24	9:53	0.17	32.17	0.63	4.31	6.31
20 Sep 24	9:54	0.17	31.86	0.62	4.32	6.31
20 Sep 24	9:55	0.15	31.81	0.64	4.26	6.29
20 Sep 24	9:56	0.15	31.99	0.60	4.41	6.29
20 Sep 24	9:57	0.15	32.13	0.56	4.40	6.29
20 Sep 24	9:58	0.14	32.00	0.63	4.35	6.28
20 Sep 24	9:59	0.15	31.77	0.63	4.34	6.29
20 Sep 24	10:00	0.15	31.90	0.65	4.35	6.29
20 Sep 24	10:01	0.11	32.53	0.59	4.45	6.24
20 Sep 24	10:02	0.12	32.78	0.64	4.43	6.25
20 Sep 24	10:03	0.09	32.72	0.61	4.38	6.23
20 Sep 24	10:04	0.11	32.38	0.64	4.40	6.24
20 Sep 24	10:05	0.09	32.24	0.61	4.35	6.23
20 Sep 24	10:06	0.11	32.36	0.64	4.44	6.25
20 Sep 24	10:07	0.13	32.51	0.66	4.40	6.26
20 Sep 24	10:08	0.13	32.76	0.63	4.38	6.26
20 Sep 24	10:09	0.11	32.79	0.69	4.37	6.25
20 Sep 24	10:10	0.13	32.79	0.63	4.33	6.26
20 Sep 24	10:11	0.15	32.73	0.67	4.43	6.26
Max		0.22	32.79	0.69	4.45	6.35
Avg		0.14	32.31	0.63	4.37	6.27

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	10:12	0.17	32.70	0.68	4.29	6.30
20 Sep 24	10:13	0.14	32.77	0.69	4.35	6.27
20 Sep 24	10:14	0.15	32.65	0.71	4.32	6.29
20 Sep 24	10:15	0.14	32.67	0.70	4.37	6.27
20 Sep 24	10:16	0.15	32.70	0.68	4.46	6.29
20 Sep 24	10:17	0.12	32.75	0.70	4.36	6.26
20 Sep 24	10:18	0.11	32.63	0.68	4.28	6.25
20 Sep 24	10:19	0.12	32.60	0.76	4.36	6.26
20 Sep 24	10:20	0.12	32.81	0.67	4.37	6.26
20 Sep 24	10:21	0.13	32.80	0.70	4.43	6.27
20 Sep 24	10:22	0.14	32.84	0.68	4.33	6.28
20 Sep 24	10:23	0.09	32.81	0.72	4.28	6.23
20 Sep 24	10:24	0.12	32.79	0.64	4.42	6.26
20 Sep 24	10:25	0.17	32.89	0.75	4.32	6.30
20 Sep 24	10:26	0.16	32.92	0.74	4.45	6.30
20 Sep 24	10:27	0.17	32.80	0.72	4.33	6.31
20 Sep 24	10:28	0.11	32.91	0.75	4.32	6.25
20 Sep 24	10:29	0.13	32.84	0.70	4.40	6.27
20 Sep 24	10:30	0.13	32.95	0.76	4.32	6.27
20 Sep 24	10:31	0.18	32.87	0.67	4.45	6.32
20 Sep 24	10:32	0.21	32.89	0.78	4.20	6.35
Max		0.21	32.99	0.78	4.46	6.35
Avg		0.14	32.81	0.71	4.35	6.28

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	10:33	0.15	33.01	0.70	4.27	6.29
20 Sep 24	10:34	0.21	32.67	0.67	4.29	6.35
20 Sep 24	10:35	0.11	32.61	0.69	4.29	6.25
20 Sep 24	10:36	0.21	32.63	0.72	4.44	6.35
20 Sep 24	10:37	0.14	32.87	0.72	4.30	6.28
20 Sep 24	10:38	0.17	33.08	0.72	4.35	6.31
20 Sep 24	10:39	0.15	33.04	0.65	4.36	6.29
20 Sep 24	10:40	0.13	32.78	0.69	4.34	6.27
20 Sep 24	10:41	0.16	32.73	0.71	4.39	6.30
20 Sep 24	10:42	0.21	32.63	0.72	4.25	6.35
20 Sep 24	10:43	0.11	32.59	0.70	4.31	6.25
20 Sep 24	10:44	0.16	32.56	0.71	4.37	6.30
20 Sep 24	10:45	0.14	32.60	0.66	4.33	6.28
20 Sep 24	10:46	0.13	32.55	0.69	4.41	6.27
20 Sep 24	10:47	0.17	32.69	0.70	4.25	6.31
20 Sep 24	10:48	0.11	32.86	0.69	4.32	6.24
20 Sep 24	10:49	0.17	32.83	0.73	4.39	6.31
20 Sep 24	10:50	0.11	33.04	0.69	4.34	6.25
20 Sep 24	10:51	0.16	32.98	0.65	4.45	6.30
20 Sep 24	10:52	0.23	32.79	0.72	4.19	6.37
20 Sep 24	10:53	0.15	32.58	0.72	4.31	6.29
Max		0.23	33.08	0.73	4.45	6.37
Avg		0.16	32.77	0.70	4.33	6.29

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	10:54	0.22	32.47	0.74	4.32	6.35
20 Sep 24	10:55	0.17	32.70	0.72	4.40	6.31
20 Sep 24	10:56	0.21	32.71	0.72	4.37	6.35
20 Sep 24	10:57	0.16	32.62	0.74	4.27	6.30
20 Sep 24	10:58	0.17	32.45	0.71	4.28	6.30
20 Sep 24	10:59	0.21	32.32	0.76	4.34	6.34
20 Sep 24	11:00	0.22	32.25	0.72	4.34	6.35
20 Sep 24	11:01	0.18	32.41	0.69	4.34	6.32
20 Sep 24	11:02	0.22	32.55	0.76	4.24	6.36
20 Sep 24	11:03	0.14	32.59	0.75	4.34	6.28
20 Sep 24	11:04	0.15	32.47	0.71	4.37	6.29
20 Sep 24	11:05	0.18	32.50	0.67	4.31	6.32
20 Sep 24	11:06	0.18	32.60	0.68	4.36	6.32
20 Sep 24	11:07	0.22	32.68	0.70	4.22	6.36
20 Sep 24	11:08	0.12	32.82	0.72	4.32	6.26
20 Sep 24	11:09	0.22	32.73	0.74	4.36	6.36
20 Sep 24	11:10	0.17	32.70	0.73	4.32	6.31
20 Sep 24	11:11	0.21	32.63	0.75	4.41	6.34
20 Sep 24	11:12	0.24	32.84	0.71	4.19	6.38
20 Sep 24	11:13	0.04	33.06	0.70	4.43	6.18
20 Sep 24	11:14	0.17	33.12	0.77	4.40	6.31
Max		0.24	33.12	0.78	4.43	6.38
Avg		0.18	32.63	0.72	4.33	6.32

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	11:15	0.15	33.17	0.71	4.37	6.29
20 Sep 24	11:16	0.14	33.26	0.73	4.40	6.27
20 Sep 24	11:17	0.18	33.33	0.85	4.25	6.32
20 Sep 24	11:18	0.14	33.28	0.72	4.29	6.28
20 Sep 24	11:19	0.12	33.00	0.70	4.45	6.26
20 Sep 24	11:20	0.15	32.89	0.75	4.33	6.28
20 Sep 24	11:21	0.14	32.91	0.68	4.40	6.28
20 Sep 24	11:22	0.18	32.72	0.68	4.23	6.32
20 Sep 24	11:23	0.10	32.84	0.71	4.39	6.23
20 Sep 24	11:24	0.16	32.85	0.74	4.37	6.29
20 Sep 24	11:25	0.12	32.95	0.73	4.30	6.26
20 Sep 24	11:26	0.13	32.95	0.69	4.42	6.27
20 Sep 24	11:27	0.13	32.96	0.72	4.25	6.27
20 Sep 24	11:28	0.09	32.84	0.79	4.45	6.23
20 Sep 24	11:29	0.18	32.71	0.79	4.38	6.32
20 Sep 24	11:30	0.14	32.69	0.84	4.27	6.27
20 Sep 24	11:31	0.14	32.41	0.70	4.34	6.28
20 Sep 24	11:32	0.21	32.19	0.72	4.20	6.35
20 Sep 24	11:33	0.11	32.12	0.71	4.40	6.25
20 Sep 24	11:34	0.24	32.12	0.77	4.30	6.38
20 Sep 24	11:35	0.15	32.22	0.78	4.25	6.29
Max		0.24	33.33	0.84	4.45	6.38
Avg		0.15	32.78	0.73	4.33	6.29

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 20 Sep 24
Plant Name: I-4/2 Location: F-3103

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	11:36	0.15	32.06	0.74	4.38	6.29
20 Sep 24	11:37	0.23	32.01	0.72	4.17	6.37
20 Sep 24	11:38	0.12	31.91	0.74	4.37	6.26
20 Sep 24	11:39	0.26	31.87	0.74	4.28	6.40
20 Sep 24	11:40	0.15	32.13	0.77	4.24	6.29
20 Sep 24	11:41	0.22	32.00	0.76	4.31	6.36
20 Sep 24	11:42	0.15	31.84	0.74	4.18	6.28
20 Sep 24	11:43	0.17	31.84	0.74	4.42	6.31
20 Sep 24	11:44	0.22	31.86	0.79	4.27	6.36
20 Sep 24	11:45	0.15	31.84	0.71	4.29	6.28
20 Sep 24	11:46	0.17	31.89	0.69	4.26	6.31
20 Sep 24	11:47	0.17	31.80	0.76	4.28	6.30
20 Sep 24	11:48	0.14	32.07	0.70	4.34	6.28
20 Sep 24	11:49	0.20	32.18	0.65	4.37	6.34
20 Sep 24	11:50	0.17	32.23	0.65	4.23	6.31
20 Sep 24	11:51	0.16	32.12	0.77	4.28	6.29
20 Sep 24	11:52	0.17	32.14	0.72	4.28	6.31
20 Sep 24	11:53	0.15	32.32	0.68	4.40	6.29
20 Sep 24	11:54	0.14	32.40	0.82	4.32	6.28
20 Sep 24	11:55	0.12	32.28	0.76	4.27	6.26
20 Sep 24	11:56	0.17	32.20	0.75	4.31	6.31
Max		0.26	32.40	0.82	4.42	6.40
Avg		0.17	32.07	0.73	4.30	6.31

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	11:57	0.17	32.17	0.71	4.28	6.31
20 Sep 24	11:58	0.15	32.10	0.77	4.37	6.28
20 Sep 24	11:59	0.18	32.07	0.73	4.26	6.32
20 Sep 24	12:00	0.10	32.18	0.72	4.28	6.24
20 Sep 24	12:01	0.16	32.08	0.76	4.30	6.30
20 Sep 24	12:02	0.17	32.22	0.77	4.27	6.31
20 Sep 24	12:03	0.10	32.26	0.71	4.42	6.24
20 Sep 24	12:04	0.19	32.24	0.76	4.27	6.33
20 Sep 24	12:05	0.13	32.27	0.70	4.23	6.27
20 Sep 24	12:06	0.22	32.16	0.76	4.31	6.36
20 Sep 24	12:07	0.19	32.16	0.74	4.19	6.33
20 Sep 24	12:08	0.16	32.08	0.68	4.36	6.30
20 Sep 24	12:09	0.25	31.90	0.71	4.25	6.39
20 Sep 24	12:10	0.09	32.06	0.71	4.29	6.23
20 Sep 24	12:11	0.18	32.13	0.70	4.34	6.32
20 Sep 24	12:12	0.15	32.09	0.69	4.32	6.29
20 Sep 24	12:13	0.12	32.21	0.70	4.44	6.26
20 Sep 24	12:14	0.18	32.39	0.73	4.23	6.32
20 Sep 24	12:15	0.10	32.46	0.77	4.28	6.24
20 Sep 24	12:16	0.12	32.46	0.78	4.37	6.26
20 Sep 24	12:17	0.12	32.52	0.78	4.32	6.25
Max		0.25	32.52	0.78	4.44	6.39
Avg		0.15	32.20	0.73	4.30	6.29

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	12:18	0.15	32.46	0.72	4.39	6.29
20 Sep 24	12:19	0.16	32.37	0.77	4.31	6.30
20 Sep 24	12:20	0.06	32.44	0.72	4.33	6.19
20 Sep 24	12:21	0.14	32.64	0.74	4.38	6.28
20 Sep 24	12:22	0.13	32.68	0.69	4.35	6.27
20 Sep 24	12:23	0.15	32.67	0.70	4.45	6.28
20 Sep 24	12:24	0.22	32.71	0.74	4.21	6.35
20 Sep 24	12:25	0.08	32.85	0.72	4.34	6.22
20 Sep 24	12:26	0.14	32.75	0.77	4.36	6.28
20 Sep 24	12:27	0.13	32.77	0.76	4.32	6.26
20 Sep 24	12:28	0.17	32.61	0.81	4.42	6.31
20 Sep 24	12:29	0.15	32.83	0.80	4.27	6.29
20 Sep 24	12:30	0.13	32.89	0.74	4.29	6.26
20 Sep 24	12:31	0.17	32.48	0.73	4.36	6.31
20 Sep 24	12:32	0.14	32.44	0.76	4.35	6.28
20 Sep 24	12:33	0.17	32.45	0.71	4.33	6.31
20 Sep 24	12:34	0.18	32.51	0.77	4.19	6.32
20 Sep 24	12:35	0.11	32.66	0.75	4.40	6.25
20 Sep 24	12:36	0.14	32.68	0.76	4.43	6.28
20 Sep 24	12:37	0.14	32.76	0.80	4.36	6.28
20 Sep 24	12:38	0.17	32.85	0.73	4.41	6.31
Max		0.22	32.89	0.81	4.45	6.35
Avg		0.14	32.63	0.75	4.35	6.28

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	12:39	0.16	32.55	0.80	4.24	6.30
20 Sep 24	12:40	0.13	32.40	0.78	4.31	6.27
20 Sep 24	12:41	0.15	32.25	0.86	4.38	6.29
20 Sep 24	12:42	0.15	32.22	0.79	4.31	6.29
20 Sep 24	12:43	0.11	32.31	0.72	4.40	6.25
20 Sep 24	12:44	0.14	32.57	0.76	4.27	6.28
20 Sep 24	12:45	0.09	32.93	0.72	4.33	6.23
20 Sep 24	12:46	0.15	32.92	0.78	4.41	6.29
20 Sep 24	12:47	0.14	32.75	0.74	4.34	6.28
20 Sep 24	12:48	0.15	32.54	0.76	4.34	6.29
20 Sep 24	12:49	0.14	32.35	0.77	4.27	6.28
20 Sep 24	12:50	0.11	32.45	0.71	4.29	6.25
20 Sep 24	12:51	0.18	32.36	0.72	4.38	6.32
20 Sep 24	12:52	0.17	32.44	0.78	4.25	6.31
20 Sep 24	12:53	0.15	32.51	0.72	4.35	6.28
20 Sep 24	12:54	0.16	32.51	0.79	4.18	6.29
20 Sep 24	12:55	0.09	32.42	0.74	4.32	6.23
20 Sep 24	12:56	0.21	32.08	0.76	4.37	6.35
20 Sep 24	12:57	0.15	32.14	0.82	4.28	6.28
20 Sep 24	12:58	0.17	32.26	0.75	4.34	6.31
20 Sep 24	12:59	0.22	32.32	0.74	4.23	6.35
Max		0.22	32.93	0.86	4.41	6.35
Avg		0.15	32.44	0.76	4.31	6.29

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	13:00	0.08	32.34	0.81	4.37	6.22
20 Sep 24	13:01	0.21	32.15	0.73	4.41	6.34
20 Sep 24	13:02	0.22	32.24	0.66	4.24	6.36
20 Sep 24	13:03	0.21	32.19	0.73	4.34	6.35
20 Sep 24	13:04	0.25	32.17	0.74	4.18	6.39
20 Sep 24	13:05	0.19	32.21	0.70	4.31	6.33
20 Sep 24	13:06	0.23	32.15	0.71	4.35	6.36
20 Sep 24	13:07	0.23	32.14	0.70	4.27	6.37
20 Sep 24	13:08	0.24	32.24	0.75	4.23	6.37
20 Sep 24	13:09	0.25	32.26	0.73	4.18	6.39
20 Sep 24	13:10	0.13	32.32	0.74	4.36	6.26
20 Sep 24	13:11	0.23	32.36	0.71	4.34	6.37
20 Sep 24	13:12	0.17	32.55	0.73	4.29	6.31
20 Sep 24	13:13	0.19	32.63	0.70	4.31	6.33
20 Sep 24	13:14	0.17	32.56	0.70	4.26	6.31
20 Sep 24	13:15	0.12	32.48	0.68	4.36	6.26
20 Sep 24	13:16	0.14	32.50	0.77	4.46	6.28
20 Sep 24	13:17	0.16	32.59	0.78	4.29	6.30
20 Sep 24	13:18	0.10	32.60	0.74	4.37	6.24
20 Sep 24	13:19	0.15	32.54	0.78	4.27	6.29
20 Sep 24	13:20	0.08	32.64	0.77	4.45	6.22
Max		0.25	32.64	0.81	4.46	6.39
Avg		0.18	32.37	0.73	4.31	6.32

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
20 Sep 24	13:21	0.16	32.66	0.77	4.46	6.30
20 Sep 24	13:22	0.14	32.76	0.81	4.21	6.28
20 Sep 24	13:23	0.12	32.71	0.81	4.39	6.26
20 Sep 24	13:24	0.18	32.72	0.77	4.20	6.32
20 Sep 24	13:25	0.11	32.72	0.81	4.42	6.25
20 Sep 24	13:26	0.23	32.71	0.77	4.35	6.36
20 Sep 24	13:27	0.15	32.86	0.78	4.26	6.29
20 Sep 24	13:28	0.15	32.71	0.77	4.36	6.29
20 Sep 24	13:29	0.14	32.63	0.77	4.25	6.28
20 Sep 24	13:30	0.13	32.73	0.77	4.42	6.27
20 Sep 24	13:31	0.18	32.69	0.82	4.37	6.31
20 Sep 24	13:32	0.18	32.73	0.83	4.24	6.32
20 Sep 24	13:33	0.11	32.74	0.78	4.35	6.25
20 Sep 24	13:34	0.15	32.54	0.80	4.30	6.29
20 Sep 24	13:35	0.09	32.48	0.76	4.41	6.23
20 Sep 24	13:36	0.22	32.33	0.77	4.36	6.35
20 Sep 24	13:37	0.11	32.45	0.78	4.23	6.25
20 Sep 24	13:38	0.10	32.55	0.78	4.39	6.24
20 Sep 24	13:39	0.10	32.57	0.77	4.35	6.24
20 Sep 24	13:40	0.08	32.54	0.78	4.51	6.21
20 Sep 24	13:41	0.11	32.51	0.78	4.35	6.25
Max		0.23	32.86	0.83	4.51	6.36
Avg		0.14	32.64	0.78	4.34	6.28

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: Plant I-4/2 (Furnace)
Date: 06 Sep 24
Location: B-AT-310401B (F-3104)

Run No: 1 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	10:10	0.00	25.60	0.00	-	-
06 Sep 24	10:11	0.00	24.89	0.00	-	-
06 Sep 24	10:12	0.00	26.23	0.00	-	-
06 Sep 24	10:13	0.00	25.69	0.00	-	-
06 Sep 24	10:14	0.00	25.48	0.00	-	-
06 Sep 24	10:15	0.00	25.44	0.00	-	-
06 Sep 24	10:16	0.00	24.62	0.00	-	-
06 Sep 24	10:17	0.00	25.33	0.00	-	-
06 Sep 24	10:18	0.00	25.35	0.00	-	-
06 Sep 24	10:19	0.00	25.42	0.00	-	-
06 Sep 24	10:20	0.00	25.50	0.00	-	-
06 Sep 24	10:21	0.00	24.92	0.00	-	-
06 Sep 24	10:22	0.00	25.72	0.00	-	-
06 Sep 24	10:23	0.00	26.02	0.00	-	-
06 Sep 24	10:24	0.00	25.72	0.00	-	-
06 Sep 24	10:25	0.00	25.52	0.00	-	-
06 Sep 24	10:26	0.00	26.07	0.00	-	-
06 Sep 24	10:27	0.00	25.86	0.00	-	-
06 Sep 24	10:28	0.00	25.69	0.00	-	-
06 Sep 24	10:29	0.00	26.70	0.00	-	-
06 Sep 24	10:30	0.00	25.07	0.00	-	-
Max		0.00	26.70	0.00	-	-
Avg		0.00	25.58	0.00	-	-

Run No: 2 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	10:31	0.00	24.46	0.00	-	-
06 Sep 24	10:32	0.00	23.55	0.00	-	-
06 Sep 24	10:33	0.00	23.02	0.00	-	-
06 Sep 24	10:34	0.00	23.49	0.00	-	-
06 Sep 24	10:35	0.00	23.62	0.00	-	-
06 Sep 24	10:36	0.00	23.53	0.00	-	-
06 Sep 24	10:37	0.00	23.86	0.00	-	-
06 Sep 24	10:38	0.00	24.16	0.00	-	-
06 Sep 24	10:39	0.00	23.97	0.00	-	-
06 Sep 24	10:40	0.00	24.50	0.00	-	-
06 Sep 24	10:41	0.00	24.75	0.00	-	-
06 Sep 24	10:42	0.00	25.13	0.00	-	-
06 Sep 24	10:43	0.00	25.00	0.00	-	-
06 Sep 24	10:44	0.00	25.32	0.00	-	-
06 Sep 24	10:45	0.00	25.41	0.00	-	-
06 Sep 24	10:46	0.00	25.72	0.00	-	-
06 Sep 24	10:47	0.00	25.76	0.00	-	-
06 Sep 24	10:48	0.00	25.89	0.00	-	-
06 Sep 24	10:49	0.00	25.47	0.00	-	-
06 Sep 24	10:50	0.00	25.16	0.00	-	-
06 Sep 24	10:51	0.00	25.29	0.00	-	-
Max		0.00	25.89	0.00	-	-
Avg		0.00	24.62	0.00	-	-

Run No: 3 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	10:52	0.00	25.21	0.00	-	-
06 Sep 24	10:53	0.00	25.71	0.00	-	-
06 Sep 24	10:54	0.00	25.34	0.00	-	-
06 Sep 24	10:55	0.00	25.09	0.00	-	-
06 Sep 24	10:56	0.00	24.41	0.00	-	-
06 Sep 24	10:57	0.00	23.63	0.00	-	-
06 Sep 24	10:58	0.00	22.74	0.00	-	-
06 Sep 24	10:59	0.00	22.74	0.00	-	-
06 Sep 24	11:00	0.00	23.11	0.00	-	-
06 Sep 24	11:01	0.00	23.02	0.00	-	-
06 Sep 24	11:02	0.00	23.34	0.00	-	-
06 Sep 24	11:03	0.00	23.64	0.00	-	-
06 Sep 24	11:04	0.00	24.26	0.00	-	-
06 Sep 24	11:05	0.00	24.26	0.00	-	-
06 Sep 24	11:06	0.00	24.69	0.00	-	-
06 Sep 24	11:07	0.00	24.72	0.00	-	-
06 Sep 24	11:08	0.00	24.52	0.00	-	-
06 Sep 24	11:09	0.00	24.77	0.00	-	-
06 Sep 24	11:10	0.00	24.52	0.00	-	-
06 Sep 24	11:11	0.00	24.95	0.00	-	-
06 Sep 24	11:12	0.00	24.51	0.00	-	-
Max		0.00	25.71	0.00	-	-
Avg		0.00	24.25	0.00	-	-

Run No: 4 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	11:13	0.00	24.86	0.00	-	-
06 Sep 24	11:14	0.00	25.28	0.00	-	-
06 Sep 24	11:15	0.00	25.05	0.00	-	-
06 Sep 24	11:16	0.00	24.20	0.00	-	-
06 Sep 24	11:17	0.00	25.10	0.00	-	-
06 Sep 24	11:18	0.00	24.51	0.00	-	-
06 Sep 24	11:19	0.00	24.81	0.00	-	-
06 Sep 24	11:20	0.00	25.33	0.00	-	-
06 Sep 24	11:21	0.00	24.91	0.00	-	-
06 Sep 24	11:22	0.00	24.68	0.00	-	-
06 Sep 24	11:23	0.00	24.04	0.00	-	-
06 Sep 24	11:24	0.00	24.06	0.00	-	-
06 Sep 24	11:25	0.00	23.18	0.00	-	-
06 Sep 24	11:26	0.00	22.63	0.00	-	-
06 Sep 24	11:27	0.00	23.35	0.00	-	-
06 Sep 24	11:28	0.00	23.87	0.00	-	-
06 Sep 24	11:29	0.00	23.58	0.00	-	-
06 Sep 24	11:30	0.00	24.60	0.00	-	-
06 Sep 24	11:31	0.00	24.04	0.00	-	-
06 Sep 24	11:32	0.00	24.65	0.00	-	-
06 Sep 24	11:33	0.00	24.81	0.00	-	-
Max		0.00	25.33	0.00	-	-
Avg		0.00	24.37	0.00	-	-

Run No: 5 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	11:34	0.00	24.58	0.00	-	-
06 Sep 24	11:35	0.00	25.73	0.00	-	-
06 Sep 24	11:36	0.00	25.79	0.00	-	-
06 Sep 24	11:37	0.00	25.72	0.00	-	-
06 Sep 24	11:38	0.00	26.55	0.00	-	-
06 Sep 24	11:39	0.00	25.57	0.00	-	-
06 Sep 24	11:40	0.00	25.73	0.00	-	-
06 Sep 24	11:41	0.00	25.85	0.00	-	-
06 Sep 24	11:42	0.00	25.11	0.00	-	-
06 Sep 24	11:43	0.00	24.95	0.00	-	-
06 Sep 24	11:44	0.00	25.19	0.00	-	-
06 Sep 24	11:45	0.00	25.37	0.00	-	-
06 Sep 24	11:46	0.00	24.98	0.00	-	-
06 Sep 24	11:47	0.00	25.46	0.00	-	-
06 Sep 24	11:48	0.00	24.83	0.00	-	-
06 Sep 24	11:49	0.00	24.76	0.00	-	-
06 Sep 24	11:50	0.00	24.09	0.00	-	-
06 Sep 24	11:51	0.00	24.22	0.00	-	-
06 Sep 24	11:52	0.00	23.02	0.00	-	-
06 Sep 24	11:53	0.00	22.95	0.00	-	-
06 Sep 24	11:54	0.00	23.12	0.00	-	-
Max		0.00	26.55	0.00	-	-
Avg		0.00	24.93	0.00	-	-

Run No: 6 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	11:55	0.00	22.89	0.00	-	-
06 Sep 24	11:56	0.00	23.29	0.00	-	-
06 Sep 24	11:57	0.00	23.17	0.00	-	-
06 Sep 24	11:58	0.00	23.87	0.00	-	-
06 Sep 24	11:59	0.00	24.38	0.00	-	-
06 Sep 24	12:00	0.00	24.47	0.00	-	-
06 Sep 24	12:01	0.00	24.96	0.00	-	-
06 Sep 24	12:02	0.00	24.77	0.00	-	-
06 Sep 24	12:03	0.00	25.00	0.00	-	-
06 Sep 24	12:04	0.00	25.49	0.00	-	-
06 Sep 24	12:05	0.00	25.29	0.00	-	-
06 Sep 24	12:06	0.00	25.90	0.00	-	-
06 Sep 24	12:07	0.00	24.86	0.00	-	-
06 Sep 24	12:08	0.00	25.45	0.00	-	-
06 Sep 24	12:09	0.00	24.83	0.00	-	-
06 Sep 24	12:10	0.00	24.50	0.00	-	-
06 Sep 24	12:11	0.00	25.28	0.00	-	-
06 Sep 24	12:12	0.00	25.13	0.00	-	-
06 Sep 24	12:13	0.00	25.18	0.00	-	-
06 Sep 24	12:14	0.00	25.52	0.00	-	-
06 Sep 24	12:15	0.00	25.29	0.00	-	-
Max		0.00	25.90	0.00	-	-
Avg		0.00	24.74	0.00	-	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: Plant I-4/2 (Furnace)
Date: 06 Sep 24
Location: B-AT-310401B (F-3104)

Run No: 7 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	12:16	0.00	24.77	0.00	-	-
06 Sep 24	12:17	0.00	24.42	0.00	-	-
06 Sep 24	12:18	0.00	24.05	0.00	-	-
06 Sep 24	12:19	0.00	23.17	0.00	-	-
06 Sep 24	12:20	0.00	22.32	0.00	-	-
06 Sep 24	12:21	0.00	22.20	0.00	-	-
06 Sep 24	12:22	0.00	22.46	0.00	-	-
06 Sep 24	12:23	0.00	22.77	0.00	-	-
06 Sep 24	12:24	0.00	23.96	0.00	-	-
06 Sep 24	12:25	0.00	24.17	0.00	-	-
06 Sep 24	12:26	0.00	23.81	0.00	-	-
06 Sep 24	12:27	0.00	24.58	0.00	-	-
06 Sep 24	12:28	0.00	24.38	0.00	-	-
06 Sep 24	12:29	0.00	24.46	0.00	-	-
06 Sep 24	12:30	0.00	25.37	0.00	-	-
06 Sep 24	12:31	0.00	24.76	0.00	-	-
06 Sep 24	12:32	0.00	24.88	0.00	-	-
06 Sep 24	12:33	0.00	24.96	0.00	-	-
06 Sep 24	12:34	0.00	25.14	0.00	-	-
06 Sep 24	12:35	0.00	25.28	0.00	-	-
06 Sep 24	12:36	0.00	24.61	0.00	-	-
Max		0.00	25.37	0.00	-	-
Avg		0.00	24.12	0.00	-	-

Run No: 8 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	12:37	0.00	25.64	0.00	-	-
06 Sep 24	12:38	0.00	25.10	0.00	-	-
06 Sep 24	12:39	0.00	24.54	0.00	-	-
06 Sep 24	12:40	0.00	25.22	0.00	-	-
06 Sep 24	12:41	0.00	24.74	0.00	-	-
06 Sep 24	12:42	0.00	25.45	0.00	-	-
06 Sep 24	12:43	0.00	24.97	0.00	-	-
06 Sep 24	12:44	0.00	24.81	0.00	-	-
06 Sep 24	12:45	0.00	25.53	0.00	-	-
06 Sep 24	12:46	0.00	25.27	0.00	-	-
06 Sep 24	12:47	0.00	24.69	0.00	-	-
06 Sep 24	12:48	0.00	25.50	0.00	-	-
06 Sep 24	12:49	0.00	24.12	0.00	-	-
06 Sep 24	12:50	0.00	24.19	0.00	-	-
06 Sep 24	12:51	0.00	23.37	0.00	-	-
06 Sep 24	12:52	0.00	23.28	0.00	-	-
06 Sep 24	12:53	0.00	23.20	0.00	-	-
06 Sep 24	12:54	0.00	22.82	0.00	-	-
06 Sep 24	12:55	0.00	23.06	0.00	-	-
06 Sep 24	12:56	0.00	23.53	0.00	-	-
06 Sep 24	12:57	0.00	22.89	0.00	-	-
Max		0.00	25.64	0.00	-	-
Avg		0.00	24.38	0.00	-	-

Run No: 9 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	12:58	0.00	23.80	0.00	-	-
06 Sep 24	12:59	0.00	24.13	0.00	-	-
06 Sep 24	13:00	0.00	23.70	0.00	-	-
06 Sep 24	13:01	0.00	24.04	0.00	-	-
06 Sep 24	13:02	0.00	23.42	0.00	-	-
06 Sep 24	13:03	0.00	24.28	0.00	-	-
06 Sep 24	13:04	0.00	23.68	0.00	-	-
06 Sep 24	13:05	0.00	23.49	0.00	-	-
06 Sep 24	13:06	0.00	24.01	0.00	-	-
06 Sep 24	13:07	0.00	24.22	0.00	-	-
06 Sep 24	13:08	0.00	24.09	0.00	-	-
06 Sep 24	13:09	0.00	24.41	0.00	-	-
06 Sep 24	13:10	0.00	24.14	0.00	-	-
06 Sep 24	13:11	0.00	24.44	0.00	-	-
06 Sep 24	13:12	0.00	24.64	0.00	-	-
06 Sep 24	13:13	0.00	24.46	0.00	-	-
06 Sep 24	13:14	0.00	24.64	0.00	-	-
06 Sep 24	13:15	0.00	25.14	0.00	-	-
06 Sep 24	13:16	0.00	25.07	0.00	-	-
06 Sep 24	13:17	0.00	24.42	0.00	-	-
06 Sep 24	13:18	0.00	24.88	0.00	-	-
Max		0.00	25.14	0.00	-	-
Avg		0.00	24.24	0.00	-	-

Run No: 10 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	13:19	0.00	25.06	0.00	-	-
06 Sep 24	13:20	0.00	24.50	0.00	-	-
06 Sep 24	13:21	0.00	25.24	0.00	-	-
06 Sep 24	13:22	0.00	25.37	0.00	-	-
06 Sep 24	13:23	0.00	24.17	0.00	-	-
06 Sep 24	13:24	0.00	24.35	0.00	-	-
06 Sep 24	13:25	0.00	24.13	0.00	-	-
06 Sep 24	13:26	0.00	23.83	0.00	-	-
06 Sep 24	13:27	0.00	23.68	0.00	-	-
06 Sep 24	13:28	0.00	23.35	0.00	-	-
06 Sep 24	13:29	0.00	24.40	0.00	-	-
06 Sep 24	13:30	0.00	24.44	0.00	-	-
06 Sep 24	13:31	0.00	23.95	0.00	-	-
06 Sep 24	13:32	0.00	24.50	0.00	-	-
06 Sep 24	13:33	0.00	24.96	0.00	-	-
06 Sep 24	13:34	0.00	26.33	0.00	-	-
06 Sep 24	13:35	0.00	26.55	0.00	-	-
06 Sep 24	13:36	0.00	26.29	0.00	-	-
06 Sep 24	13:37	0.00	25.85	0.00	-	-
06 Sep 24	13:38	0.00	26.62	0.00	-	-
06 Sep 24	13:39	0.00	26.47	0.00	-	-
Max		0.00	26.62	0.00	-	-
Avg		0.00	24.95	0.00	-	-

Run No: 11 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	13:40	0.00	26.78	0.00	-	-
06 Sep 24	13:41	0.00	26.82	0.00	-	-
06 Sep 24	13:42	0.00	27.38	0.00	-	-
06 Sep 24	13:43	0.00	26.83	0.00	-	-
06 Sep 24	13:44	0.00	27.23	0.00	-	-
06 Sep 24	13:45	0.00	26.92	0.00	-	-
06 Sep 24	13:46	0.00	26.72	0.00	-	-
06 Sep 24	13:47	0.00	27.09	0.00	-	-
06 Sep 24	13:48	0.00	27.83	0.00	-	-
06 Sep 24	13:49	0.00	27.39	0.00	-	-
06 Sep 24	13:50	0.00	27.28	0.00	-	-
06 Sep 24	13:51	0.00	26.34	0.00	-	-
06 Sep 24	13:52	0.00	26.61	0.00	-	-
06 Sep 24	13:53	0.00	26.37	0.00	-	-
06 Sep 24	13:54	0.00	25.32	0.00	-	-
06 Sep 24	13:55	0.00	24.92	0.00	-	-
06 Sep 24	13:56	0.00	24.72	0.00	-	-
06 Sep 24	13:57	0.00	24.34	0.00	-	-
06 Sep 24	13:58	0.00	24.76	0.00	-	-
06 Sep 24	13:59	0.00	24.33	0.00	-	-
06 Sep 24	14:00	0.00	24.97	0.00	-	-
Max		0.00	27.83	0.00	-	-
Avg		0.00	26.23	0.00	-	-

Run No: 12 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	14:01	0.00	25.16	0.00	-	-
06 Sep 24	14:02	0.00	25.63	0.00	-	-
06 Sep 24	14:03	0.00	26.48	0.00	-	-
06 Sep 24	14:04	0.00	26.14	0.00	-	-
06 Sep 24	14:05	0.00	26.38	0.00	-	-
06 Sep 24	14:06	0.00	26.60	0.00	-	-
06 Sep 24	14:07	0.00	26.85	0.00	-	-
06 Sep 24	14:08	0.00	26.83	0.00	-	-
06 Sep 24	14:09	0.00	27.13	0.00	-	-
06 Sep 24	14:10	0.00	27.14	0.00	-	-
06 Sep 24	14:11	0.00	27.13	0.00	-	-
06 Sep 24	14:12	0.00	26.38	0.00	-	-
06 Sep 24	14:13	0.00	27.04	0.00	-	-
06 Sep 24	14:14	0.00	26.74	0.00	-	-
06 Sep 24	14:15	0.00	27.04	0.00	-	-
06 Sep 24	14:16	0.00	27.04	0.00	-	-
06 Sep 24	14:17	0.00	27.23	0.00	-	-
06 Sep 24	14:18	0.00	26.38	0.00	-	-
06 Sep 24	14:19	0.00	26.54	0.00	-	-
06 Sep 24	14:20	0.00	25.94	0.00	-	-
06 Sep 24	14:21	0.00	25.85	-0.01	-	-
Max		0.00	27.23	0.00	-	-
Avg		0.00	26.57	0.00	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: Plant I-4/2 (Furnace)
Date: 06 Sep 24
Location: B-AT-310401B (F-3104)

Run No: 1 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	10:10	0.09	28.28	0.03	6.93	5.66
06 Sep 24	10:11	0.18	28.06	0.02	6.85	5.74
06 Sep 24	10:12	0.11	27.97	0.01	6.87	5.68
06 Sep 24	10:13	0.14	28.07	0.03	6.86	5.70
06 Sep 24	10:14	0.12	28.10	-0.03	6.95	5.69
06 Sep 24	10:15	0.07	27.97	0.05	6.98	5.64
06 Sep 24	10:16	0.17	27.95	0.05	6.87	5.73
06 Sep 24	10:17	0.13	27.89	0.05	6.99	5.70
06 Sep 24	10:18	0.07	27.87	0.05	6.93	5.63
06 Sep 24	10:19	0.15	27.87	0.06	6.91	5.71
06 Sep 24	10:20	0.02	27.79	0.08	6.99	5.59
06 Sep 24	10:21	0.15	27.66	0.06	6.87	5.71
06 Sep 24	10:22	0.10	27.74	0.07	6.98	5.67
06 Sep 24	10:23	0.09	28.11	0.13	6.95	5.66
06 Sep 24	10:24	0.13	28.25	0.13	6.89	5.70
06 Sep 24	10:25	0.12	27.97	0.11	6.98	5.69
06 Sep 24	10:26	0.14	28.04	0.09	6.85	5.70
06 Sep 24	10:27	0.18	28.06	0.17	7.02	5.72
06 Sep 24	10:28	0.06	28.21	0.12	6.95	5.62
06 Sep 24	10:29	0.20	28.46	0.12	6.86	5.77
06 Sep 24	10:30	0.11	28.40	0.12	6.93	5.68
Max		0.20	28.46	0.17	7.02	5.77
Avg		0.12	28.03	0.07	6.93	5.69

Run No: 2 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	10:31	0.13	27.98	0.14	6.83	5.69
06 Sep 24	10:32	0.17	27.68	0.12	6.95	5.73
06 Sep 24	10:33	0.10	27.54	0.11	6.98	5.67
06 Sep 24	10:34	0.17	27.49	0.18	6.85	5.73
06 Sep 24	10:35	0.17	27.18	0.17	6.94	5.73
06 Sep 24	10:36	0.09	26.99	0.12	6.91	5.66
06 Sep 24	10:37	0.18	26.79	0.18	6.90	5.75
06 Sep 24	10:38	0.09	26.90	0.14	6.99	5.65
06 Sep 24	10:39	0.15	26.99	0.16	6.82	5.72
06 Sep 24	10:40	0.10	26.99	0.19	7.00	5.67
06 Sep 24	10:41	0.05	27.04	0.20	6.93	5.62
06 Sep 24	10:42	0.11	27.31	0.18	6.90	5.68
06 Sep 24	10:43	0.11	27.44	0.16	6.97	5.68
06 Sep 24	10:44	0.07	27.50	0.17	6.93	5.64
06 Sep 24	10:45	0.12	27.73	0.20	6.99	5.69
06 Sep 24	10:46	0.04	27.85	0.18	7.03	5.60
06 Sep 24	10:47	0.15	27.91	0.19	6.88	5.71
06 Sep 24	10:48	0.07	27.78	0.19	7.00	5.64
06 Sep 24	10:49	0.11	27.68	0.21	6.87	5.69
06 Sep 24	10:50	0.12	27.46	0.22	7.00	5.69
06 Sep 24	10:51	0.09	27.39	0.19	6.99	5.66
Max		0.18	27.98	0.22	7.03	5.75
Avg		0.11	27.41	0.17	6.94	5.68

Run No: 3 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	10:52	0.11	27.61	0.22	6.89	5.68
06 Sep 24	10:53	0.12	27.67	0.27	6.98	5.69
06 Sep 24	10:54	0.09	27.82	0.24	6.92	5.66
06 Sep 24	10:55	0.18	27.82	0.19	6.91	5.74
06 Sep 24	10:56	0.12	27.64	0.25	6.97	5.69
06 Sep 24	10:57	0.13	27.57	0.27	6.84	5.69
06 Sep 24	10:58	0.13	27.53	0.28	6.89	5.69
06 Sep 24	10:59	0.09	27.50	0.28	6.89	5.68
06 Sep 24	11:00	0.14	27.83	0.30	6.91	5.71
06 Sep 24	11:01	0.11	27.98	0.32	6.92	5.68
06 Sep 24	11:02	0.12	28.08	0.31	6.86	5.69
06 Sep 24	11:03	0.20	27.89	0.27	6.89	5.77
06 Sep 24	11:04	0.10	27.68	0.28	6.95	5.67
06 Sep 24	11:05	0.21	27.62	0.27	6.83	5.78
06 Sep 24	11:06	0.09	27.55	0.27	6.96	5.66
06 Sep 24	11:07	0.13	27.55	0.24	6.83	5.69
06 Sep 24	11:08	0.20	27.41	0.27	6.90	5.76
06 Sep 24	11:09	0.09	27.21	0.24	6.97	5.66
06 Sep 24	11:10	0.11	27.27	0.26	6.86	5.68
06 Sep 24	11:11	0.12	27.29	0.23	6.96	5.69
06 Sep 24	11:12	0.09	27.49	0.19	6.98	5.66
Max		0.21	28.08	0.32	6.99	5.78
Avg		0.13	27.62	0.26	6.92	5.70

Run No: 4 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	11:13	0.14	27.85	0.25	6.89	5.70
06 Sep 24	11:14	0.07	28.01	0.21	7.05	5.63
06 Sep 24	11:15	0.06	28.01	0.24	6.87	5.63
06 Sep 24	11:16	0.13	27.74	0.21	7.02	5.69
06 Sep 24	11:17	0.04	27.61	0.29	7.00	5.61
06 Sep 24	11:18	0.12	27.49	0.28	6.99	5.69
06 Sep 24	11:19	0.07	27.23	0.24	6.99	5.63
06 Sep 24	11:20	0.05	27.20	0.19	6.97	5.62
06 Sep 24	11:21	0.09	27.32	0.25	6.91	5.65
06 Sep 24	11:22	0.06	27.32	0.19	7.08	5.63
06 Sep 24	11:23	0.10	27.33	0.32	6.88	5.66
06 Sep 24	11:24	0.10	27.58	0.23	7.03	5.67
06 Sep 24	11:25	0.04	27.76	0.24	7.00	5.61
06 Sep 24	11:26	0.14	27.78	0.24	6.92	5.71
06 Sep 24	11:27	0.07	27.96	0.20	7.02	5.64
06 Sep 24	11:28	0.10	28.40	0.22	6.94	5.66
06 Sep 24	11:29	0.11	28.68	0.24	6.97	5.68
06 Sep 24	11:30	0.08	28.51	0.23	7.05	5.65
06 Sep 24	11:31	0.13	28.15	0.23	6.91	5.69
06 Sep 24	11:32	0.11	27.96	0.24	7.02	5.68
06 Sep 24	11:33	0.04	27.98	0.22	6.92	5.61
Max		0.14	28.68	0.32	7.08	5.71
Avg		0.09	27.80	0.24	6.97	5.66

Run No: 5 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	11:34	0.15	28.09	0.18	6.95	5.71
06 Sep 24	11:35	0.09	28.10	0.24	6.99	5.66
06 Sep 24	11:36	0.15	28.32	0.25	6.86	5.71
06 Sep 24	11:37	0.13	28.38	0.26	7.02	5.69
06 Sep 24	11:38	0.07	28.32	0.25	6.97	5.64
06 Sep 24	11:39	0.12	28.39	0.23	6.91	5.68
06 Sep 24	11:40	0.10	28.27	0.24	6.98	5.67
06 Sep 24	11:41	0.11	28.07	0.22	6.93	5.67
06 Sep 24	11:42	0.13	27.80	0.26	6.91	5.69
06 Sep 24	11:43	0.07	27.45	0.21	7.00	5.64
06 Sep 24	11:44	0.15	27.55	0.24	6.89	5.71
06 Sep 24	11:45	0.08	27.82	0.21	7.01	5.65
06 Sep 24	11:46	0.10	27.82	0.21	6.90	5.67
06 Sep 24	11:47	0.12	27.52	0.19	6.97	5.69
06 Sep 24	11:48	0.06	27.24	0.20	6.98	5.62
06 Sep 24	11:49	0.09	27.28	0.24	6.88	5.65
06 Sep 24	11:50	0.15	27.35	0.20	7.01	5.71
06 Sep 24	11:51	0.06	27.59	0.26	6.91	5.62
06 Sep 24	11:52	0.18	27.36	0.21	6.89	5.74
06 Sep 24	11:53	0.07	27.16	0.25	7.01	5.64
06 Sep 24	11:54	0.14	27.46	0.21	6.88	5.70
Max		0.18	28.39	0.26	7.02	5.74
Avg		0.11	27.77	0.23	6.94	5.68

Run No: 6 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	11:55	0.11	27.89	0.23	6.97	5.68
06 Sep 24	11:56	0.07	28.00	0.26	6.92	5.63
06 Sep 24	11:57	0.18	27.88	0.23	6.90	5.75
06 Sep 24	11:58	0.15	27.67	0.28	6.98	5.71
06 Sep 24	11:59	0.08	27.62	0.22	6.91	5.65
06 Sep 24	12:00	0.17	27.58	0.23	6.92	5.74
06 Sep 24	12:01	0.07	27.56	0.24	6.94	5.64
06 Sep 24	12:02	0.21	27.39	0.23	6.86	5.77
06 Sep 24	12:03	0.10	27.30	0.21	6.97	5.67
06 Sep 24	12:04	0.10	27.56	0.22	6.93	5.66
06 Sep 24	12:05	0.17	27.96	0.26	6.88	5.74
06 Sep 24	12:06	0.10	28.07	0.29	7.00	5.68
06 Sep 24	12:07	0.12	27.88	0.25	6.84	5.68
06 Sep 24	12:08	0.13	27.55	0.23	6.99	5.70
06 Sep 24	12:09	0.07	27.35	0.22	7.02	5.63
06 Sep 24	12:10	0.12	27.36	0.34	6.91	5.69
06 Sep 24	12:11	0.08	27.38	0.32	7.06	5.64
06 Sep 24	12:12	0.07	27.65	0.39	6.90	5.63
06 Sep 24	12:13	0.13	27.62	0.35	6.95	5.69
06 Sep 24	12:14	0.08	27.53	0.28	7.02	5.65
06 Sep 24	12:15	0.12	27.68	0.25	6.93	5.68
Max		0.21	28.07	0.39	7.06	5.77
Avg		0.11	27.64	0.27	6.94	5.68

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: Plant I-4/2 (Furnace)
Date: 06 Sep 24
Location: B-AT-310401B (F-3104)

Run No: 7 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	12:16	0.11	27.82	0.26	7.05	5.68
06 Sep 24	12:17	0.06	27.77	0.25	6.96	5.63
06 Sep 24	12:18	0.11	27.70	0.36	6.96	5.68
06 Sep 24	12:19	0.05	27.70	0.35	7.05	5.62
06 Sep 24	12:20	0.16	27.55	0.33	6.92	5.72
06 Sep 24	12:21	0.10	27.38	0.28	7.02	5.67
06 Sep 24	12:22	0.06	27.50	0.30	7.03	5.62
06 Sep 24	12:23	0.08	27.72	0.25	6.93	5.65
06 Sep 24	12:24	0.07	27.89	0.27	7.03	5.63
06 Sep 24	12:25	0.05	28.29	0.26	6.92	5.61
06 Sep 24	12:26	0.12	28.15	0.23	7.08	5.69
06 Sep 24	12:27	0.01	27.99	0.23	7.03	5.58
06 Sep 24	12:28	0.03	27.96	0.26	6.99	5.60
06 Sep 24	12:29	0.03	27.79	0.29	7.00	5.59
06 Sep 24	12:30	0.01	27.98	0.30	7.06	5.57
06 Sep 24	12:31	0.10	28.16	0.26	6.88	5.67
06 Sep 24	12:32	0.09	27.80	0.23	7.03	5.65
06 Sep 24	12:33	0.09	27.75	0.32	6.90	5.66
06 Sep 24	12:34	0.12	28.06	0.26	6.97	5.68
06 Sep 24	12:35	0.07	28.37	0.29	6.98	5.64
06 Sep 24	12:36	0.17	28.21	0.26	6.88	5.74
Max		0.17	28.37	0.36	7.06	5.74
Avg		0.08	27.89	0.28	6.98	5.65

Run No: 8 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	12:37	0.12	27.82	0.34	6.93	5.69
06 Sep 24	12:38	0.08	27.79	0.27	6.97	5.65
06 Sep 24	12:39	0.14	27.82	0.36	6.84	5.70
06 Sep 24	12:40	0.14	27.60	0.33	7.05	5.70
06 Sep 24	12:41	0.12	27.56	0.40	6.85	5.68
06 Sep 24	12:42	0.17	27.54	0.42	6.85	5.74
06 Sep 24	12:43	0.09	27.44	0.38	6.96	5.66
06 Sep 24	12:44	0.09	27.31	0.35	6.91	5.66
06 Sep 24	12:45	0.10	27.18	0.35	6.99	5.67
06 Sep 24	12:46	0.08	27.42	0.36	6.98	5.64
06 Sep 24	12:47	0.11	27.61	0.32	6.99	5.68
06 Sep 24	12:48	0.04	27.66	0.34	7.06	5.61
06 Sep 24	12:49	0.05	28.04	0.33	7.01	5.62
06 Sep 24	12:50	-0.01	28.14	0.32	7.14	5.55
06 Sep 24	12:51	0.04	28.03	0.26	7.02	5.61
06 Sep 24	12:52	0.06	28.06	0.31	7.07	5.62
06 Sep 24	12:53	-0.02	28.09	0.41	7.11	5.55
06 Sep 24	12:54	0.01	28.41	0.33	7.01	5.57
06 Sep 24	12:55	0.07	28.28	0.43	7.13	5.64
06 Sep 24	12:56	0.03	27.98	0.37	7.05	5.59
06 Sep 24	12:57	0.07	27.59	0.36	7.05	5.64
Max		0.17	28.41	0.43	7.14	5.74
Avg		0.07	27.79	0.35	7.01	5.64

Run No: 9 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	12:58	0.07	27.36	0.35	7.09	5.64
06 Sep 24	12:59	0.06	27.42	0.35	7.02	5.62
06 Sep 24	13:00	0.11	27.40	0.38	6.99	5.68
06 Sep 24	13:01	0.10	27.15	0.31	7.00	5.66
06 Sep 24	13:02	0.15	27.01	0.28	6.93	5.72
06 Sep 24	13:03	0.13	27.16	0.31	7.07	5.69
06 Sep 24	13:04	0.11	27.21	0.33	6.90	5.68
06 Sep 24	13:05	0.20	26.86	0.35	6.99	5.76
06 Sep 24	13:06	0.13	26.37	0.35	6.98	5.70
06 Sep 24	13:07	0.14	26.46	0.35	6.92	5.71
06 Sep 24	13:08	0.17	26.72	0.37	6.97	5.74
06 Sep 24	13:09	0.11	26.94	0.34	6.96	5.68
06 Sep 24	13:10	0.24	27.15	0.30	6.92	5.81
06 Sep 24	13:11	0.18	27.25	0.37	6.99	5.74
06 Sep 24	13:12	0.15	27.44	0.42	6.87	5.71
06 Sep 24	13:13	0.21	27.53	0.39	6.97	5.78
06 Sep 24	13:14	-0.15	27.44	0.50	7.19	5.42
06 Sep 24	13:15	0.11	27.00	0.59	6.91	5.68
06 Sep 24	13:16	0.19	26.81	0.48	6.90	5.76
06 Sep 24	13:17	0.17	27.15	0.47	6.94	5.74
06 Sep 24	13:18	0.21	27.20	0.44	6.92	5.78
Max		0.24	27.53	0.59	7.19	5.81
Avg		0.13	27.10	0.38	6.97	5.70

Run No: 10 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	13:19	0.12	27.24	0.41	6.96	5.68
06 Sep 24	13:20	0.20	27.35	0.40	6.91	5.76
06 Sep 24	13:21	0.10	27.56	0.40	7.08	5.67
06 Sep 24	13:22	0.08	27.96	0.39	6.98	5.65
06 Sep 24	13:23	0.12	28.29	0.37	6.95	5.68
06 Sep 24	13:24	0.09	28.34	0.38	7.03	5.66
06 Sep 24	13:25	0.14	28.21	0.37	6.94	5.70
06 Sep 24	13:26	0.14	28.29	0.40	7.04	5.70
06 Sep 24	13:27	0.04	28.38	0.41	7.03	5.61
06 Sep 24	13:28	0.12	28.67	0.40	6.98	5.68
06 Sep 24	13:29	0.08	28.98	0.39	7.03	5.64
06 Sep 24	13:30	0.07	29.32	0.44	7.04	5.64
06 Sep 24	13:31	0.10	29.53	0.43	7.03	5.66
06 Sep 24	13:32	0.08	29.17	0.40	7.09	5.65
06 Sep 24	13:33	0.12	28.71	0.43	6.92	5.69
06 Sep 24	13:34	0.12	28.87	0.46	7.06	5.69
06 Sep 24	13:35	0.07	29.40	0.42	7.02	5.63
06 Sep 24	13:36	0.12	29.94	0.44	7.03	5.69
06 Sep 24	13:37	0.07	29.83	0.46	7.07	5.64
06 Sep 24	13:38	0.13	29.48	0.37	6.99	5.70
06 Sep 24	13:39	0.14	29.51	0.35	7.03	5.71
Max		0.20	29.94	0.46	7.09	5.76
Avg		0.11	28.72	0.41	7.01	5.67

Run No: 11 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	13:40	0.08	29.70	0.35	7.05	5.65
06 Sep 24	13:41	0.14	29.80	0.42	6.95	5.71
06 Sep 24	13:42	0.08	29.85	0.53	7.09	5.65
06 Sep 24	13:43	0.05	29.89	0.54	6.98	5.62
06 Sep 24	13:44	0.16	29.86	0.51	7.05	5.72
06 Sep 24	13:45	-0.10	29.60	0.55	7.18	5.47
06 Sep 24	13:46	0.09	29.44	0.60	6.95	5.65
06 Sep 24	13:47	0.15	29.34	0.53	7.00	5.72
06 Sep 24	13:48	0.10	29.70	0.50	7.02	5.67
06 Sep 24	13:49	0.17	29.97	0.47	6.93	5.73
06 Sep 24	13:50	0.07	30.05	0.41	7.07	5.64
06 Sep 24	13:51	0.14	29.92	0.42	6.93	5.70
06 Sep 24	13:52	0.10	29.66	0.44	7.04	5.67
06 Sep 24	13:53	0.12	29.62	0.39	7.00	5.68
06 Sep 24	13:54	-0.13	29.42	0.49	7.18	5.44
06 Sep 24	13:55	0.08	29.15	0.55	7.06	5.65
06 Sep 24	13:56	0.10	29.15	0.46	6.97	5.67
06 Sep 24	13:57	0.16	29.35	0.40	6.98	5.72
06 Sep 24	13:58	0.09	29.47	0.36	7.05	5.66
06 Sep 24	13:59	0.14	29.58	0.35	6.98	5.70
06 Sep 24	14:00	0.07	29.62	0.41	7.07	5.64
Max		0.17	30.05	0.60	7.18	5.73
Avg		0.09	29.63	0.46	7.02	5.65

Run No: 12 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
06 Sep 24	14:01	0.08	29.58	0.41	7.02	5.64
06 Sep 24	14:02	0.11	29.69	0.39	6.98	5.69
06 Sep 24	14:03	0.09	29.77	0.43	7.07	5.66
06 Sep 24	14:04	0.10	29.97	0.41	6.93	5.67
06 Sep 24	14:05	0.12	29.84	0.47	7.05	5.68
06 Sep 24	14:06	0.06	29.73	0.45	7.01	5.63
06 Sep 24	14:07	0.13	29.64	0.43	7.01	5.69
06 Sep 24	14:08	0.06	29.72	0.42	7.10	5.63
06 Sep 24	14:09	0.06	29.79	0.41	7.00	5.63
06 Sep 24	14:10	0.07	29.72	0.37	7.05	5.63
06 Sep 24	14:11	0.05	29.63	0.42	7.08	5.61
06 Sep 24	14:12	0.06	29.55	0.34	6.98	5.63
06 Sep 24	14:13	0.07	29.34	0.38	7.09	5.64
06 Sep 24	14:14	0.00	29.30	0.41	7.08	5.56
06 Sep 24	14:15	0.06	29.29	0.44	7.02	5.63
06 Sep 24	14:16	0.05	29.20	0.48	7.06	5.62
06 Sep 24	14:17	0.05	29.23	0.48	7.02	5.62
06 Sep 24	14:18	0.08	29.28	0.47	7.02	5.64
06 Sep 24	14:19	0.05	29.34	0.43	7.07	5.62
06 Sep 24	14:20	0.07	29.36	0.45	6.96	5.63
06 Sep 24	14:21	0.08	29.41	0.47	7.04	5.65
Max		0.13	29.97	0.48	7.10	5.69
Avg		0.07	29.54	0.43	7.03	5.64

CEMs Data

Client Name: PTT Global Chemical PCL. — Date: 13 Sep 24
Plant Name: Plant I-4/2 (Furnace) — Location: B-AT-310401B (F-3105)

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	9:45	0.00	30.34	0.00	-	-
13 Sep 24	9:46	0.00	30.59	0.00	-	-
13 Sep 24	9:47	0.00	30.66	0.00	-	-
13 Sep 24	9:48	0.00	30.39	0.00	-	-
13 Sep 24	9:49	0.00	30.27	0.00	-	-
13 Sep 24	9:50	0.00	30.58	0.00	-	-
13 Sep 24	9:51	0.00	30.32	0.00	-	-
13 Sep 24	9:52	0.00	30.64	0.00	-	-
13 Sep 24	9:53	0.00	30.10	0.00	-	-
13 Sep 24	9:54	0.00	29.86	0.00	-	-
13 Sep 24	9:55	0.00	29.10	0.00	-	-
13 Sep 24	9:56	0.00	28.41	0.00	-	-
13 Sep 24	9:57	0.00	28.48	0.00	-	-
13 Sep 24	9:58	0.00	27.97	0.00	-	-
13 Sep 24	9:59	0.00	28.13	0.00	-	-
13 Sep 24	10:00	0.00	28.43	0.00	-	-
13 Sep 24	10:01	0.00	29.04	0.00	-	-
13 Sep 24	10:02	0.00	29.28	0.00	-	-
13 Sep 24	10:03	0.00	30.54	0.00	-	-
13 Sep 24	10:04	0.00	30.47	0.00	-	-
13 Sep 24	10:05	0.00	30.56	0.00	-	-
Max		0.00	30.66	0.00	-	-
Avg		0.00	29.73	0.00	-	-

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	10:06	0.00	30.75	0.00	-	-
13 Sep 24	10:07	0.00	30.65	0.00	-	-
13 Sep 24	10:08	0.00	30.42	0.00	-	-
13 Sep 24	10:09	0.00	30.59	0.00	-	-
13 Sep 24	10:10	0.00	30.34	0.00	-	-
13 Sep 24	10:11	0.00	30.93	0.00	-	-
13 Sep 24	10:12	0.00	30.62	0.00	-	-
13 Sep 24	10:13	0.00	30.74	0.00	-	-
13 Sep 24	10:14	0.00	30.40	0.00	-	-
13 Sep 24	10:15	0.00	30.61	0.00	-	-
13 Sep 24	10:16	0.00	30.30	0.00	-	-
13 Sep 24	10:17	0.00	29.75	0.00	-	-
13 Sep 24	10:18	0.00	30.00	0.00	-	-
13 Sep 24	10:19	0.00	29.25	0.00	-	-
13 Sep 24	10:20	0.00	28.84	0.00	-	-
13 Sep 24	10:21	0.00	28.35	0.00	-	-
13 Sep 24	10:22	0.00	27.73	0.00	-	-
13 Sep 24	10:23	0.00	28.44	0.00	-	-
13 Sep 24	10:24	0.00	28.10	0.00	-	-
13 Sep 24	10:25	0.00	28.75	0.00	-	-
13 Sep 24	10:26	0.00	29.11	0.00	-	-
Max		0.00	30.93	0.00	-	-
Avg		0.00	29.75	0.00	-	-

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	10:27	0.00	29.93	0.00	-	-
13 Sep 24	10:28	0.00	29.95	0.00	-	-
13 Sep 24	10:29	0.00	29.84	0.00	-	-
13 Sep 24	10:30	0.00	30.40	0.00	-	-
13 Sep 24	10:31	0.00	30.43	0.00	-	-
13 Sep 24	10:32	0.00	30.16	0.00	-	-
13 Sep 24	10:33	0.00	29.84	0.00	-	-
13 Sep 24	10:34	0.00	29.81	0.00	-	-
13 Sep 24	10:35	0.00	30.36	0.00	-	-
13 Sep 24	10:36	0.00	30.28	0.00	-	-
13 Sep 24	10:37	0.00	30.42	0.00	-	-
13 Sep 24	10:38	0.00	30.57	0.00	-	-
13 Sep 24	10:39	0.00	30.51	0.00	-	-
13 Sep 24	10:40	0.00	30.36	0.00	-	-
13 Sep 24	10:41	0.00	30.47	0.00	-	-
13 Sep 24	10:42	0.00	29.76	0.00	-	-
13 Sep 24	10:43	0.00	29.24	0.00	-	-
13 Sep 24	10:44	0.00	29.31	0.00	-	-
13 Sep 24	10:45	0.00	28.43	0.00	-	-
13 Sep 24	10:46	0.00	27.73	0.00	-	-
13 Sep 24	10:47	0.00	27.89	0.00	-	-
Max		0.00	30.57	0.00	-	-
Avg		0.00	29.80	0.00	-	-

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	10:48	0.00	27.45	0.00	-	-
13 Sep 24	10:49	0.00	27.53	0.00	-	-
13 Sep 24	10:50	0.00	27.93	0.00	-	-
13 Sep 24	10:51	0.00	28.21	0.00	-	-
13 Sep 24	10:52	0.00	28.64	0.00	-	-
13 Sep 24	10:53	0.00	29.31	0.00	-	-
13 Sep 24	10:54	0.00	29.96	0.00	-	-
13 Sep 24	10:55	0.00	29.67	0.00	-	-
13 Sep 24	10:56	0.00	30.11	0.00	-	-
13 Sep 24	10:57	0.00	30.27	0.00	-	-
13 Sep 24	10:58	0.00	30.65	0.00	-	-
13 Sep 24	10:59	0.00	30.73	0.00	-	-
13 Sep 24	11:00	0.00	30.83	0.00	-	-
13 Sep 24	11:01	0.00	30.14	0.00	-	-
13 Sep 24	11:02	0.00	30.40	0.00	-	-
13 Sep 24	11:03	0.00	29.94	0.00	-	-
13 Sep 24	11:04	0.00	30.44	0.00	-	-
13 Sep 24	11:05	0.00	30.45	0.00	-	-
13 Sep 24	11:06	0.00	30.65	0.00	-	-
13 Sep 24	11:07	0.00	30.02	0.00	-	-
13 Sep 24	11:08	0.00	29.90	0.00	-	-
Max		0.00	30.83	0.00	-	-
Avg		0.00	29.88	0.00	-	-

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	11:09	0.00	29.17	0.00	-	-
13 Sep 24	11:10	0.00	29.95	0.00	-	-
13 Sep 24	11:11	0.00	29.31	0.00	-	-
13 Sep 24	11:12	0.00	28.88	0.00	-	-
13 Sep 24	11:13	0.00	28.45	0.00	-	-
13 Sep 24	11:14	0.00	28.51	0.00	-	-
13 Sep 24	11:15	0.00	28.91	0.00	-	-
13 Sep 24	11:16	0.00	29.47	0.00	-	-
13 Sep 24	11:17	0.00	29.53	0.00	-	-
13 Sep 24	11:18	0.00	30.32	0.00	-	-
13 Sep 24	11:19	0.00	29.95	0.00	-	-
13 Sep 24	11:20	0.00	30.81	0.00	-	-
13 Sep 24	11:21	0.00	31.11	0.00	-	-
13 Sep 24	11:22	0.00	30.54	0.00	-	-
13 Sep 24	11:23	0.00	30.59	0.00	-	-
13 Sep 24	11:24	0.00	31.43	0.00	-	-
13 Sep 24	11:25	0.00	30.64	0.00	-	-
13 Sep 24	11:26	0.00	30.74	0.00	-	-
13 Sep 24	11:27	0.00	31.20	0.00	-	-
13 Sep 24	11:28	0.00	31.23	0.00	-	-
13 Sep 24	11:29	0.00	30.88	0.00	-	-
Max		0.00	31.43	0.00	-	-
Avg		0.00	30.08	0.00	-	-

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	11:30	0.00	30.88	0.00	-	-
13 Sep 24	11:31	0.00	31.01	0.00	-	-
13 Sep 24	11:32	0.00	30.87	0.00	-	-
13 Sep 24	11:33	0.00	30.44	0.00	-	-
13 Sep 24	11:34	0.00	29.58	0.00	-	-
13 Sep 24	11:35	0.00	29.40	0.00	-	-
13 Sep 24	11:36	0.00	28.50	0.00	-	-
13 Sep 24	11:37	0.00	28.59	0.00	-	-
13 Sep 24	11:38	0.00	28.10	0.00	-	-
13 Sep 24	11:39	0.00	28.30	0.00	-	-
13 Sep 24	11:40	0.00	28.35	0.00	-	-
13 Sep 24	11:41	0.00	29.82	0.00	-	-
13 Sep 24	11:42	0.00	29.54	0.00	-	-
13 Sep 24	11:43	0.00	30.37	0.00	-	-
13 Sep 24	11:44	0.00	30.16	0.00	-	-
13 Sep 24	11:45	0.00	30.54	0.00	-	-
13 Sep 24	11:46	0.00	30.97	0.00	-	-
13 Sep 24	11:47	0.00	30.96	0.00	-	-
13 Sep 24	11:48	0.00	30.60	0.00	-	-
13 Sep 24	11:49	0.00	30.66	0.00	-	-
13 Sep 24	11:50	0.00	30.66	0.00	-	-
Max		0.00	31.01	0.00	-	-
Avg		0.00	29.92	0.00	-	-

CEMs Data

Client Name: PTT Global Chemical PCL. — Date: 13 Sep 24
Plant Name: Plant I-4/2 (Furnace) — Location: B-AT-310401B (F-3105)

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	11:51	0.00	31.09	0.00	-	-
13 Sep 24	11:52	0.00	30.18	0.00	-	-
13 Sep 24	11:53	0.00	30.46	0.00	-	-
13 Sep 24	11:54	0.00	30.85	0.00	-	-
13 Sep 24	11:55	0.00	31.14	0.00	-	-
13 Sep 24	11:56	0.00	30.65	0.00	-	-
13 Sep 24	11:57	0.00	29.85	0.00	-	-
13 Sep 24	11:58	0.00	29.49	0.00	-	-
13 Sep 24	11:59	0.00	29.20	0.00	-	-
13 Sep 24	12:00	0.00	28.92	0.00	-	-
13 Sep 24	12:01	0.00	29.13	0.00	-	-
13 Sep 24	12:02	0.00	28.69	0.00	-	-
13 Sep 24	12:03	0.00	28.52	0.00	-	-
13 Sep 24	12:04	0.00	28.81	0.00	-	-
13 Sep 24	12:05	0.00	29.33	0.00	-	-
13 Sep 24	12:06	0.00	30.02	0.00	-	-
13 Sep 24	12:07	0.00	29.41	0.00	-	-
13 Sep 24	12:08	0.00	29.89	0.00	-	-
13 Sep 24	12:09	0.00	30.87	0.00	-	-
13 Sep 24	12:10	0.00	30.54	0.00	-	-
13 Sep 24	12:11	0.00	31.37	0.00	-	-
Max		0.00	31.37	0.00	-	-
Avg		0.00	29.93	0.00	-	-

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	12:12	0.00	31.30	0.00	-	-
13 Sep 24	12:13	0.00	31.03	0.00	-	-
13 Sep 24	12:14	0.00	30.26	0.00	-	-
13 Sep 24	12:15	0.00	31.71	0.00	-	-
13 Sep 24	12:16	0.00	30.92	0.00	-	-
13 Sep 24	12:17	0.00	30.85	0.00	-	-
13 Sep 24	12:18	0.00	30.36	0.00	-	-
13 Sep 24	12:19	0.00	29.22	0.00	-	-
13 Sep 24	12:20	0.00	29.14	0.00	-	-
13 Sep 24	12:21	0.00	28.55	0.00	-	-
13 Sep 24	12:22	0.00	28.63	0.00	-	-
13 Sep 24	12:23	0.00	28.46	0.00	-	-
13 Sep 24	12:24	0.00	29.34	0.00	-	-
13 Sep 24	12:25	0.00	28.95	0.00	-	-
13 Sep 24	12:26	0.00	29.39	0.00	-	-
13 Sep 24	12:27	0.00	30.54	0.00	-	-
13 Sep 24	12:28	0.00	30.35	0.00	-	-
13 Sep 24	12:29	0.00	30.70	0.00	-	-
13 Sep 24	12:30	0.00	30.91	0.00	-	-
13 Sep 24	12:31	0.00	31.76	0.00	-	-
13 Sep 24	12:32	0.00	31.08	0.00	-	-
Max		0.00	31.76	0.00	-	-
Avg		0.00	30.17	0.00	-	-

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	12:33	0.00	31.50	0.00	-	-
13 Sep 24	12:34	0.00	31.43	0.00	-	-
13 Sep 24	12:35	0.00	31.89	0.00	-	-
13 Sep 24	12:36	0.00	31.72	0.00	-	-
13 Sep 24	12:37	0.00	31.10	0.00	-	-
13 Sep 24	12:38	0.00	30.63	0.00	-	-
13 Sep 24	12:39	0.00	30.63	0.00	-	-
13 Sep 24	12:40	0.00	30.56	0.00	-	-
13 Sep 24	12:41	0.00	29.45	0.00	-	-
13 Sep 24	12:42	0.00	29.13	0.00	-	-
13 Sep 24	12:43	0.00	29.00	0.00	-	-
13 Sep 24	12:44	0.00	29.65	0.00	-	-
13 Sep 24	12:45	0.00	29.17	0.00	-	-
13 Sep 24	12:46	0.00	29.09	0.00	-	-
13 Sep 24	12:47	0.00	29.84	0.00	-	-
13 Sep 24	12:48	0.00	30.40	0.00	-	-
13 Sep 24	12:49	0.00	30.23	0.00	-	-
13 Sep 24	12:50	0.00	31.25	0.00	-	-
13 Sep 24	12:51	0.00	30.96	0.00	-	-
13 Sep 24	12:52	0.00	31.71	0.00	-	-
13 Sep 24	12:53	0.00	31.42	0.00	-	-
Max		0.00	31.89	0.00	-	-
Avg		0.00	30.46	0.00	-	-

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	12:54	0.00	31.82	0.00	-	-
13 Sep 24	12:55	0.00	31.57	0.00	-	-
13 Sep 24	12:56	0.00	31.62	0.00	-	-
13 Sep 24	12:57	0.00	31.36	0.00	-	-
13 Sep 24	12:58	0.00	31.29	0.00	-	-
13 Sep 24	12:59	0.00	30.67	0.00	-	-
13 Sep 24	13:00	0.00	30.59	0.00	-	-
13 Sep 24	13:01	0.00	30.49	0.00	-	-
13 Sep 24	13:02	0.00	29.10	0.00	-	-
13 Sep 24	13:03	0.00	28.29	0.00	-	-
13 Sep 24	13:04	0.00	28.56	0.00	-	-
13 Sep 24	13:05	0.00	28.45	0.00	-	-
13 Sep 24	13:06	0.00	28.83	0.00	-	-
13 Sep 24	13:07	0.00	29.80	0.00	-	-
13 Sep 24	13:08	0.00	30.02	0.00	-	-
13 Sep 24	13:09	0.00	30.12	0.00	-	-
13 Sep 24	13:10	0.00	30.39	0.00	-	-
13 Sep 24	13:11	0.00	30.80	0.00	-	-
13 Sep 24	13:12	0.00	30.57	0.00	-	-
13 Sep 24	13:13	0.00	30.74	0.00	-	-
13 Sep 24	13:14	0.00	31.14	0.00	-	-
Max		0.00	31.82	0.00	-	-
Avg		0.00	30.30	0.00	-	-

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	13:15	0.00	31.01	0.00	-	-
13 Sep 24	13:16	0.00	31.11	0.00	-	-
13 Sep 24	13:17	0.00	31.34	0.00	-	-
13 Sep 24	13:18	0.00	30.58	0.00	-	-
13 Sep 24	13:19	0.00	30.58	0.00	-	-
13 Sep 24	13:20	0.00	30.05	0.00	-	-
13 Sep 24	13:21	0.00	30.33	0.00	-	-
13 Sep 24	13:22	0.00	29.03	0.00	-	-
13 Sep 24	13:23	0.00	28.50	0.00	-	-
13 Sep 24	13:24	0.00	29.01	0.00	-	-
13 Sep 24	13:25	0.00	28.78	0.00	-	-
13 Sep 24	13:26	0.00	29.56	0.00	-	-
13 Sep 24	13:27	0.00	29.84	0.00	-	-
13 Sep 24	13:28	0.00	30.21	0.00	-	-
13 Sep 24	13:29	0.00	30.72	0.00	-	-
13 Sep 24	13:30	0.00	30.40	0.00	-	-
13 Sep 24	13:31	0.00	30.35	0.00	-	-
13 Sep 24	13:32	0.00	31.58	0.00	-	-
13 Sep 24	13:33	0.00	31.46	0.00	-	-
13 Sep 24	13:34	0.00	31.75	0.00	-	-
13 Sep 24	13:35	0.00	31.98	0.00	-	-
Max		0.00	31.98	0.00	-	-
Avg		0.00	30.39	0.00	-	-

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	13:36	0.00	31.59	0.00	-	-
13 Sep 24	13:37	0.00	31.84	0.00	-	-
13 Sep 24	13:38	0.00	31.89	0.00	-	-
13 Sep 24	13:39	0.00	32.22	0.00	-	-
13 Sep 24	13:40	0.00	31.90	0.00	-	-
13 Sep 24	13:41	0.00	31.11	0.00	-	-
13 Sep 24	13:42	0.00	30.52	0.00	-	-
13 Sep 24	13:43	0.00	30.32	0.00	-	-
13 Sep 24	13:44	0.00	29.67	0.00	-	-
13 Sep 24	13:45	0.00	29.88	0.00	-	-
13 Sep 24	13:46	0.00	29.69	0.00	-	-
13 Sep 24	13:47	0.00	30.54	0.00	-	-
13 Sep 24	13:48	0.00	30.87	0.00	-	-
13 Sep 24	13:49	0.00	31.55	0.00	-	-
13 Sep 24	13:50	0.00	31.75	0.00	-	-
13 Sep 24	13:51	0.00	32.62	0.00	-	-
13 Sep 24	13:52	0.00	32.27	0.00	-	-
13 Sep 24	13:53	0.00	32.34	0.00	-	-
13 Sep 24	13:54	0.00	32.92	0.00	-	-
13 Sep 24	13:55	0.00	33.50	0.00	-	-
13 Sep 24	13:56	0.00	33.04	0.00	-	-
Max		0.00	33.50	0.00	-	-
Avg		0.00	31.52	0.00	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL. — Date: 13 Sep 24
Plant Name: Plant I-4/2 (Furnace) — Location: B-AT-310401B (F-3105)

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	9:45	0.13	28.60	2.03	6.11	5.44
13 Sep 24	9:46	0.13	28.54	2.02	6.21	5.38
13 Sep 24	9:47	0.13	28.52	1.99	6.15	5.40
13 Sep 24	9:48	0.13	28.44	1.99	6.28	5.34
13 Sep 24	9:49	0.13	28.24	1.92	6.21	5.38
13 Sep 24	9:50	0.13	28.25	1.92	6.37	5.31
13 Sep 24	9:51	0.13	28.17	1.90	6.23	5.31
13 Sep 24	9:52	0.13	28.16	1.87	6.47	5.28
13 Sep 24	9:53	0.13	28.26	1.94	6.15	5.39
13 Sep 24	9:54	0.13	28.48	1.88	6.23	5.33
13 Sep 24	9:55	0.13	28.58	1.92	6.15	5.48
13 Sep 24	9:56	0.13	28.56	1.85	6.19	5.42
13 Sep 24	9:57	0.13	28.57	1.80	6.11	5.38
13 Sep 24	9:58	0.13	28.59	1.86	6.35	5.37
13 Sep 24	9:59	0.13	28.60	1.80	6.12	5.44
13 Sep 24	10:00	0.13	28.55	1.76	6.34	5.34
13 Sep 24	10:01	0.13	28.41	1.84	6.30	5.32
13 Sep 24	10:02	0.13	28.41	1.79	6.24	5.37
13 Sep 24	10:03	0.13	28.43	1.78	6.21	5.35
13 Sep 24	10:04	0.13	28.57	1.78	6.42	5.36
13 Sep 24	10:05	0.13	28.65	1.78	6.21	5.32
Max		0.13	28.65	2.03	6.47	5.48
Avg		0.13	28.46	1.88	6.24	5.37

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	10:06	0.13	28.60	1.78	6.33	5.35
13 Sep 24	10:07	0.13	28.62	1.71	6.25	5.31
13 Sep 24	10:08	0.13	28.42	1.77	6.34	5.37
13 Sep 24	10:09	0.13	28.21	1.82	6.22	5.30
13 Sep 24	10:10	0.13	28.05	1.79	6.36	5.34
13 Sep 24	10:11	0.13	28.09	1.72	6.26	5.30
13 Sep 24	10:12	0.13	28.24	1.76	6.30	5.34
13 Sep 24	10:13	0.13	28.25	1.76	6.39	5.29
13 Sep 24	10:14	0.13	28.09	1.73	6.29	5.37
13 Sep 24	10:15	0.13	28.01	1.70	6.33	5.29
13 Sep 24	10:16	0.13	27.93	1.68	6.39	5.35
13 Sep 24	10:17	0.13	27.87	1.72	6.39	5.22
13 Sep 24	10:18	0.13	27.79	1.70	6.23	5.40
13 Sep 24	10:19	0.13	27.83	1.71	6.39	5.25
13 Sep 24	10:20	0.13	27.89	1.73	6.30	5.39
13 Sep 24	10:21	0.13	27.82	1.65	6.36	5.27
13 Sep 24	10:22	0.13	27.59	1.67	6.27	5.29
13 Sep 24	10:23	0.13	27.54	1.63	6.38	5.30
13 Sep 24	10:24	0.13	27.60	1.72	6.20	5.32
13 Sep 24	10:25	0.13	27.62	1.70	6.44	5.27
13 Sep 24	10:26	0.13	27.71	1.75	6.30	5.29
Max		0.13	28.62	1.82	6.44	5.40
Avg		0.13	27.99	1.72	6.32	5.31

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	10:27	0.13	27.83	1.70	6.42	5.26
13 Sep 24	10:28	0.13	27.97	1.71	6.24	5.23
13 Sep 24	10:29	0.13	28.02	1.69	6.54	5.22
13 Sep 24	10:30	0.13	27.83	1.75	6.22	5.24
13 Sep 24	10:31	0.13	27.77	1.70	6.43	5.24
13 Sep 24	10:32	0.13	27.81	1.71	6.34	5.25
13 Sep 24	10:33	0.13	27.67	1.71	6.34	5.28
13 Sep 24	10:34	0.13	27.57	1.72	6.27	5.20
13 Sep 24	10:35	0.13	27.77	1.72	6.30	5.30
13 Sep 24	10:36	0.13	27.99	1.69	6.24	5.24
13 Sep 24	10:37	0.13	28.10	1.72	6.31	5.29
13 Sep 24	10:38	0.13	28.20	1.73	6.21	5.23
13 Sep 24	10:39	0.13	28.27	1.70	6.27	5.37
13 Sep 24	10:40	0.13	28.25	1.72	6.16	5.27
13 Sep 24	10:41	0.13	28.28	1.76	6.28	5.34
13 Sep 24	10:42	0.13	28.21	1.77	6.28	5.27
13 Sep 24	10:43	0.13	28.16	1.74	6.26	5.39
13 Sep 24	10:44	0.13	28.18	1.70	6.27	5.27
13 Sep 24	10:45	0.13	27.92	1.73	6.36	5.35
13 Sep 24	10:46	0.13	27.74	1.74	6.35	5.25
13 Sep 24	10:47	0.13	27.66	1.67	6.32	5.35
Max		0.13	28.28	1.77	6.54	5.39
Avg		0.13	27.96	1.72	6.31	5.28

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	10:48	0.13	27.79	1.74	6.25	5.24
13 Sep 24	10:49	0.13	27.85	1.67	6.45	5.34
13 Sep 24	10:50	0.13	27.96	1.71	6.29	5.23
13 Sep 24	10:51	0.13	27.89	1.72	6.34	5.32
13 Sep 24	10:52	0.13	27.86	1.74	6.32	5.26
13 Sep 24	10:53	0.13	27.84	1.75	6.32	5.33
13 Sep 24	10:54	0.13	27.90	1.81	6.26	5.28
13 Sep 24	10:55	0.13	27.97	1.75	6.30	5.35
13 Sep 24	10:56	0.13	27.97	1.70	6.35	5.24
13 Sep 24	10:57	0.13	27.96	1.71	6.30	5.38
13 Sep 24	10:58	0.13	28.19	1.75	6.23	5.22
13 Sep 24	10:59	0.13	28.30	1.74	6.29	5.36
13 Sep 24	11:00	0.13	28.42	1.73	6.30	5.30
13 Sep 24	11:01	0.13	28.32	1.73	6.26	5.34
13 Sep 24	11:02	0.13	28.24	1.70	6.23	5.27
13 Sep 24	11:03	0.13	28.19	1.70	6.35	5.29
13 Sep 24	11:04	0.13	28.08	1.71	6.28	5.22
13 Sep 24	11:05	0.13	27.96	1.71	6.29	5.28
13 Sep 24	11:06	0.13	28.03	1.75	6.38	5.21
13 Sep 24	11:07	0.13	28.09	1.81	6.38	5.26
13 Sep 24	11:08	0.13	28.11	1.73	6.39	5.09
Max		0.13	28.42	1.81	6.45	5.38
Avg		0.13	28.05	1.73	6.31	5.28

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	11:09	0.13	28.06	1.71	6.38	5.12
13 Sep 24	11:10	0.13	28.16	1.66	6.44	5.05
13 Sep 24	11:11	0.13	28.37	1.65	6.41	5.05
13 Sep 24	11:12	0.13	28.62	1.72	6.41	4.97
13 Sep 24	11:13	0.13	28.68	1.73	6.43	5.01
13 Sep 24	11:14	0.13	28.67	1.71	6.47	4.99
13 Sep 24	11:15	0.13	28.51	1.70	6.43	5.03
13 Sep 24	11:16	0.13	28.49	1.69	6.53	4.99
13 Sep 24	11:17	0.13	28.57	1.77	6.47	5.10
13 Sep 24	11:18	0.13	28.65	1.74	6.47	5.00
13 Sep 24	11:19	0.13	28.53	1.76	6.38	5.10
13 Sep 24	11:20	0.13	28.46	1.75	6.49	5.04
13 Sep 24	11:21	0.13	28.42	1.77	6.47	5.11
13 Sep 24	11:22	0.13	28.51	1.70	6.43	5.05
13 Sep 24	11:23	0.13	28.55	1.65	6.39	5.13
13 Sep 24	11:24	0.13	28.54	1.70	6.50	5.07
13 Sep 24	11:25	0.13	28.48	1.68	6.43	5.15
13 Sep 24	11:26	0.13	28.49	1.74	6.36	5.06
13 Sep 24	11:27	0.13	28.22	1.68	6.43	5.14
13 Sep 24	11:28	0.13	28.27	1.67	6.43	5.09
13 Sep 24	11:29	0.13	28.45	1.75	6.43	5.10
Max		0.13	28.68	1.77	6.53	5.15
Avg		0.13	28.46	1.71	6.44	5.06

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	11:30	0.13	28.41	1.73	6.43	5.08
13 Sep 24	11:31	0.13	28.35	1.68	6.44	5.09
13 Sep 24	11:32	0.13	28.41	1.74	6.39	5.06
13 Sep 24	11:33	0.13	28.40	1.76	6.32	5.20
13 Sep 24	11:34	0.13	28.51	1.76	6.40	5.07
13 Sep 24	11:35	0.13	28.51	1.74	6.37	5.10
13 Sep 24	11:36	0.13	28.35	1.73	6.31	5.12
13 Sep 24	11:37	0.13	28.22	1.77	6.36	5.13
13 Sep 24	11:38	0.13	28.34	1.75	6.28	5.10
13 Sep 24	11:39	0.13	28.40	1.73	6.43	5.12
13 Sep 24	11:40	0.13	28.33	1.84	6.30	5.12
13 Sep 24	11:41	0.13	28.48	1.80	6.42	5.10
13 Sep 24	11:42	0.13	28.72	1.82	6.32	5.06
13 Sep 24	11:43	0.13	28.67	1.75	6.44	5.14
13 Sep 24	11:44	0.13	28.49	1.78	6.28	5.07
13 Sep 24	11:45	0.13	28.48	1.75	6.43	5.08
13 Sep 24	11:46	0.13	28.50	1.77	6.35	5.11
13 Sep 24	11:47	0.13	28.65	1.79	6.32	5.12
13 Sep 24	11:48	0.13	28.79	1.95	6.18	5.17
13 Sep 24	11:49	0.13	28.68	1.84	6.35	5.09
13 Sep 24	11:50	0.13	28.47	1.50	6.24	5.18
Max		0.13	28.79	1.95	6.44	5.20
Avg		0.13	28.48	1.76	6.35	5.11

Reference Method Data

Client Name: PTT Global Chemical PCL. — Date: 13 Sep 24
Plant Name: Plant I-4/2 (Furnace) — Location: B-AT-310401B (F-3105)

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	11:51	0.13	28.52	1.46	6.39	5.13
13 Sep 24	11:52	0.13	28.43	1.59	6.28	5.11
13 Sep 24	11:53	0.13	28.35	1.47	6.42	5.05
13 Sep 24	11:54	0.13	28.44	1.64	6.31	5.11
13 Sep 24	11:55	0.13	28.61	1.49	6.39	5.07
13 Sep 24	11:56	0.13	28.64	1.58	6.27	5.13
13 Sep 24	11:57	0.13	28.60	1.37	6.41	5.08
13 Sep 24	11:58	0.13	28.61	1.60	6.28	5.12
13 Sep 24	11:59	0.13	28.52	1.54	6.43	5.04
13 Sep 24	12:00	0.13	28.43	1.62	6.33	5.10
13 Sep 24	12:01	0.13	28.45	1.63	6.42	5.08
13 Sep 24	12:02	0.13	28.42	1.65	6.28	5.13
13 Sep 24	12:03	0.13	28.43	1.66	6.32	5.08
13 Sep 24	12:04	0.13	28.38	1.63	6.34	5.14
13 Sep 24	12:05	0.13	28.29	1.62	6.36	5.08
13 Sep 24	12:06	0.13	28.27	1.63	6.30	5.16
13 Sep 24	12:07	0.13	28.38	1.62	6.35	5.12
13 Sep 24	12:08	0.13	28.44	1.61	6.36	5.13
13 Sep 24	12:09	0.13	28.47	1.62	6.36	5.07
13 Sep 24	12:10	0.13	28.53	1.62	6.35	5.09
13 Sep 24	12:11	0.13	28.40	1.66	6.41	5.09
Max		0.13	28.64	1.66	6.43	5.16
Avg		0.13	28.46	1.59	6.35	5.10

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	12:12	0.13	28.38	1.63	6.39	5.09
13 Sep 24	12:13	0.13	28.42	1.63	6.36	5.07
13 Sep 24	12:14	0.13	28.32	1.60	6.33	5.16
13 Sep 24	12:15	0.13	28.36	1.65	6.43	5.07
13 Sep 24	12:16	0.13	28.52	1.65	6.28	5.12
13 Sep 24	12:17	0.13	28.75	1.56	6.37	5.05
13 Sep 24	12:18	0.13	28.79	1.63	6.39	5.15
13 Sep 24	12:19	0.13	28.78	1.63	6.39	5.10
13 Sep 24	12:20	0.13	28.63	1.68	6.35	5.12
13 Sep 24	12:21	0.13	28.49	1.57	6.36	5.09
13 Sep 24	12:22	0.13	28.43	1.63	6.38	5.11
13 Sep 24	12:23	0.13	28.48	1.64	6.36	5.09
13 Sep 24	12:24	0.13	28.54	1.63	6.34	5.11
13 Sep 24	12:25	0.13	28.61	1.63	6.41	5.08
13 Sep 24	12:26	0.13	28.62	1.62	6.47	5.10
13 Sep 24	12:27	0.13	28.74	1.62	6.35	5.04
13 Sep 24	12:28	0.13	28.70	1.61	6.37	5.10
13 Sep 24	12:29	0.13	28.60	1.57	6.39	5.05
13 Sep 24	12:30	0.13	28.51	1.70	6.46	5.11
13 Sep 24	12:31	0.13	28.50	1.57	6.29	5.13
13 Sep 24	12:32	0.13	28.52	1.65	6.33	5.13
Max		0.13	28.79	1.70	6.47	5.16
Avg		0.13	28.58	1.62	6.37	5.10

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	12:33	0.13	28.58	1.67	6.30	5.11
13 Sep 24	12:34	0.13	28.61	1.63	6.30	5.19
13 Sep 24	12:35	0.13	28.71	1.61	6.23	5.13
13 Sep 24	12:36	0.13	28.75	1.68	6.35	5.16
13 Sep 24	12:37	0.13	28.61	1.67	6.28	5.10
13 Sep 24	12:38	0.13	28.34	1.64	6.34	5.13
13 Sep 24	12:39	0.13	28.25	1.62	6.31	5.10
13 Sep 24	12:40	0.13	28.27	1.73	6.48	5.08
13 Sep 24	12:41	0.13	28.23	1.71	6.31	5.09
13 Sep 24	12:42	0.13	28.17	1.68	6.46	5.10
13 Sep 24	12:43	0.13	28.23	1.63	6.35	5.03
13 Sep 24	12:44	0.13	28.43	1.64	6.42	5.05
13 Sep 24	12:45	0.13	28.67	1.63	6.30	5.05
13 Sep 24	12:46	0.13	28.73	1.63	6.33	5.10
13 Sep 24	12:47	0.13	28.70	1.66	6.32	5.07
13 Sep 24	12:48	0.13	28.76	1.63	6.44	5.06
13 Sep 24	12:49	0.13	28.69	1.67	6.28	5.10
13 Sep 24	12:50	0.13	28.57	1.66	6.43	5.02
13 Sep 24	12:51	0.13	28.61	1.70	6.27	5.10
13 Sep 24	12:52	0.13	28.73	1.63	6.32	5.09
13 Sep 24	12:53	0.13	28.64	1.62	6.27	5.11
Max		0.13	28.76	1.73	6.48	5.19
Avg		0.13	28.54	1.65	6.34	5.09

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	12:54	0.13	28.72	1.82	6.41	5.04
13 Sep 24	12:55	0.13	28.69	1.71	6.33	5.09
13 Sep 24	12:56	0.13	28.61	1.64	6.30	5.08
13 Sep 24	12:57	0.13	28.51	1.64	6.30	5.08
13 Sep 24	12:58	0.13	28.46	1.63	6.43	5.09
13 Sep 24	12:59	0.13	28.36	1.66	6.29	5.12
13 Sep 24	13:00	0.13	28.42	1.68	6.40	5.05
13 Sep 24	13:01	0.13	28.52	1.67	6.29	5.10
13 Sep 24	13:02	0.13	28.57	1.66	6.42	5.05
13 Sep 24	13:03	0.13	28.45	1.66	6.37	5.10
13 Sep 24	13:04	0.13	28.20	1.68	6.46	5.04
13 Sep 24	13:05	0.13	27.89	1.67	6.37	5.04
13 Sep 24	13:06	0.13	28.02	1.64	6.44	5.04
13 Sep 24	13:07	0.13	28.26	1.63	6.33	5.07
13 Sep 24	13:08	0.13	28.45	1.62	6.47	5.02
13 Sep 24	13:09	0.13	28.38	1.62	6.43	5.04
13 Sep 24	13:10	0.13	28.11	1.65	6.46	4.98
13 Sep 24	13:11	0.13	28.05	1.62	6.37	5.03
13 Sep 24	13:12	0.13	28.31	1.64	6.47	4.97
13 Sep 24	13:13	0.13	28.34	1.59	6.34	5.10
13 Sep 24	13:14	0.13	28.35	1.65	6.42	5.02
Max		0.13	28.72	1.71	6.47	5.12
Avg		0.13	28.36	1.65	6.39	5.05

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	13:15	0.13	28.32	1.70	6.47	5.01
13 Sep 24	13:16	0.13	28.31	1.63	6.52	4.97
13 Sep 24	13:17	0.13	28.37	1.67	6.37	5.03
13 Sep 24	13:18	0.13	28.57	1.67	6.32	5.03
13 Sep 24	13:19	0.13	28.66	1.64	6.29	5.09
13 Sep 24	13:20	0.13	28.67	1.60	6.35	5.06
13 Sep 24	13:21	0.13	28.71	1.62	6.30	5.08
13 Sep 24	13:22	0.13	28.65	1.60	6.36	5.00
13 Sep 24	13:23	0.13	28.59	1.60	6.34	5.08
13 Sep 24	13:24	0.13	28.33	1.62	6.42	5.00
13 Sep 24	13:25	0.13	28.23	1.63	6.37	5.06
13 Sep 24	13:26	0.13	28.41	1.60	6.34	5.04
13 Sep 24	13:27	0.13	28.55	1.61	6.42	5.02
13 Sep 24	13:28	0.13	28.58	1.69	6.44	4.95
13 Sep 24	13:29	0.13	28.51	1.68	6.34	5.06
13 Sep 24	13:30	0.13	28.42	1.62	6.42	5.00
13 Sep 24	13:31	0.13	28.30	1.63	6.42	5.08
13 Sep 24	13:32	0.13	28.41	1.63	6.38	4.98
13 Sep 24	13:33	0.13	28.50	1.63	6.39	5.01
13 Sep 24	13:34	0.13	28.70	1.79	6.35	5.01
13 Sep 24	13:35	0.13	28.74	1.73	6.35	5.08
Max		0.13	28.74	1.79	6.52	5.09
Avg		0.13	28.50	1.65	6.38	5.03

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
13 Sep 24	13:36	0.13	28.84	1.75	6.31	4.98
13 Sep 24	13:37	0.13	28.88	1.74	6.37	5.07
13 Sep 24	13:38	0.13	29.01	1.74	6.28	5.04
13 Sep 24	13:39	0.13	29.11	1.73	6.40	5.02
13 Sep 24	13:40	0.13	29.34	1.62	6.25	5.03
13 Sep 24	13:41	0.13	29.53	1.60	6.38	5.05
13 Sep 24	13:42	0.13	29.55	1.57	6.27	5.01
13 Sep 24	13:43	0.13	29.56	1.62	6.32	5.05
13 Sep 24	13:44	0.13	29.60	1.56	6.28	5.01
13 Sep 24	13:45	0.13	29.70	1.61	6.31	5.02
13 Sep 24	13:46	0.13	29.78	1.57	6.10	5.07
13 Sep 24	13:47	0.13	29.94	1.63	6.22	5.02
13 Sep 24	13:48	0.13	30.07	1.59	6.14	5.08
13 Sep 24	13:49	0.13	30.14	1.59	6.23	5.01
13 Sep 24	13:50	0.13	30.13	1.57	6.21	5.03
13 Sep 24	13:51	0.13	30.11	1.56	6.29	4.97
13 Sep 24	13:52	0.13	30.07	1.56	6.28	4.98
13 Sep 24	13:53	0.13	30.04	1.56	6.36	5.00
13 Sep 24	13:54	0.13	30.03	1.57	6.29	5.00
13 Sep 24	13:55	0.13	30.13	1.60	6.44	4.96
13 Sep 24	13:56	0.13	30.13	1.57	6.43	4.96
Max		0.13	30.14	1.75	6.44	5.08
Avg		0.13	29.71	1.61	6.29	5.02

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 18 Sep 24
Location: F-3106

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	10:00	0.00	29.24	0.00	-	-
18 Sep 24	10:01	0.00	29.87	0.00	-	-
18 Sep 24	10:02	0.00	30.04	0.00	-	-
18 Sep 24	10:03	0.00	29.86	0.00	-	-
18 Sep 24	10:04	0.00	30.71	0.00	-	-
18 Sep 24	10:05	0.00	30.56	0.00	-	-
18 Sep 24	10:06	0.00	30.95	0.00	-	-
18 Sep 24	10:07	0.00	30.93	0.00	-	-
18 Sep 24	10:08	0.00	30.88	0.00	-	-
18 Sep 24	10:09	0.00	30.23	0.00	-	-
18 Sep 24	10:10	0.00	30.13	0.00	-	-
18 Sep 24	10:11	0.00	30.25	0.00	-	-
18 Sep 24	10:12	0.00	29.22	0.00	-	-
18 Sep 24	10:13	0.00	28.72	0.00	-	-
18 Sep 24	10:14	0.00	28.16	0.00	-	-
18 Sep 24	10:15	0.00	28.46	0.00	-	-
18 Sep 24	10:16	0.00	28.70	0.00	-	-
18 Sep 24	10:17	0.00	28.99	0.00	-	-
18 Sep 24	10:18	0.00	29.99	0.00	-	-
18 Sep 24	10:19	0.00	30.13	0.00	-	-
18 Sep 24	10:20	0.00	30.61	0.00	-	-
Max		0.00	30.95	0.00	-	-
Avg		0.00	29.84	0.00	-	-

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	10:21	0.00	31.07	0.00	-	-
18 Sep 24	10:22	0.00	31.04	0.00	-	-
18 Sep 24	10:23	0.00	31.28	0.00	-	-
18 Sep 24	10:24	0.00	31.33	0.00	-	-
18 Sep 24	10:25	0.00	30.71	0.00	-	-
18 Sep 24	10:26	0.00	30.82	0.00	-	-
18 Sep 24	10:27	0.00	29.84	0.00	-	-
18 Sep 24	10:28	0.00	29.51	0.00	-	-
18 Sep 24	10:29	0.00	28.98	0.00	-	-
18 Sep 24	10:30	0.00	28.47	0.00	-	-
18 Sep 24	10:31	0.00	28.66	0.00	-	-
18 Sep 24	10:32	0.00	28.85	0.00	-	-
18 Sep 24	10:33	0.00	28.98	0.00	-	-
18 Sep 24	10:34	0.00	18.63	0.00	-	-
18 Sep 24	10:35	0.00	28.47	0.00	-	-
18 Sep 24	10:36	0.00	30.53	0.00	-	-
18 Sep 24	10:37	0.00	31.11	0.00	-	-
18 Sep 24	10:38	0.00	31.11	0.00	-	-
18 Sep 24	10:39	0.00	30.84	0.00	-	-
18 Sep 24	10:40	0.00	31.03	0.00	-	-
18 Sep 24	10:41	0.00	30.95	0.00	-	-
Max		0.00	31.33	0.00	-	-
Avg		0.00	29.53	0.00	-	-

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	10:42	0.00	30.37	0.00	-	-
18 Sep 24	10:43	0.00	30.01	0.00	-	-
18 Sep 24	10:44	0.00	29.45	0.00	-	-
18 Sep 24	10:45	0.00	28.85	0.00	-	-
18 Sep 24	10:46	0.00	28.40	0.00	-	-
18 Sep 24	10:47	0.00	28.20	0.00	-	-
18 Sep 24	10:48	0.00	28.65	0.00	-	-
18 Sep 24	10:49	0.00	28.38	0.00	-	-
18 Sep 24	10:50	0.00	29.00	0.00	-	-
18 Sep 24	10:51	0.00	29.41	0.00	-	-
18 Sep 24	10:52	0.00	29.79	0.00	-	-
18 Sep 24	10:53	0.00	30.53	0.00	-	-
18 Sep 24	10:54	0.00	30.70	0.00	-	-
18 Sep 24	10:55	0.00	31.17	0.00	-	-
18 Sep 24	10:56	0.00	31.30	0.00	-	-
18 Sep 24	10:57	0.00	31.05	0.00	-	-
18 Sep 24	10:58	0.00	30.84	0.00	-	-
18 Sep 24	10:59	0.00	30.14	0.00	-	-
18 Sep 24	11:00	0.00	29.64	0.00	-	-
18 Sep 24	11:01	0.00	29.49	0.00	-	-
18 Sep 24	11:02	0.00	28.95	0.00	-	-
Max		0.00	31.30	0.00	-	-
Avg		0.00	29.73	0.00	-	-

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	11:03	0.00	28.20	0.00	-	-
18 Sep 24	11:04	0.00	28.20	0.00	-	-
18 Sep 24	11:05	0.00	28.35	0.00	-	-
18 Sep 24	11:06	0.00	28.73	0.00	-	-
18 Sep 24	11:07	0.00	29.03	0.00	-	-
18 Sep 24	11:08	0.00	29.36	0.00	-	-
18 Sep 24	11:09	0.00	30.00	0.00	-	-
18 Sep 24	11:10	0.00	30.21	0.00	-	-
18 Sep 24	11:11	0.00	30.93	0.00	-	-
18 Sep 24	11:12	0.00	30.41	0.00	-	-
18 Sep 24	11:13	0.00	30.83	0.00	-	-
18 Sep 24	11:14	0.00	30.88	0.00	-	-
18 Sep 24	11:15	0.00	30.39	0.00	-	-
18 Sep 24	11:16	0.00	30.20	0.00	-	-
18 Sep 24	11:17	0.00	30.13	0.00	-	-
18 Sep 24	11:18	0.00	29.28	0.00	-	-
18 Sep 24	11:19	0.00	28.64	0.00	-	-
18 Sep 24	11:20	0.00	28.09	0.00	-	-
18 Sep 24	11:21	0.00	28.35	0.00	-	-
18 Sep 24	11:22	0.00	28.49	0.00	-	-
18 Sep 24	11:23	0.00	28.51	0.00	-	-
Max		0.00	30.93	0.00	-	-
Avg		0.00	29.39	0.00	-	-

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	11:24	0.00	29.10	0.00	-	-
18 Sep 24	11:25	0.00	29.43	0.00	-	-
18 Sep 24	11:26	0.00	29.64	0.00	-	-
18 Sep 24	11:27	0.00	29.84	0.00	-	-
18 Sep 24	11:28	0.00	29.01	0.00	-	-
18 Sep 24	11:29	0.00	30.82	0.00	-	-
18 Sep 24	11:30	0.00	30.54	0.00	-	-
18 Sep 24	11:31	0.00	30.88	0.00	-	-
18 Sep 24	11:32	0.00	30.71	0.00	-	-
18 Sep 24	11:33	0.00	30.35	0.00	-	-
18 Sep 24	11:34	0.00	16.70	0.00	-	-
18 Sep 24	11:35	0.00	28.09	0.00	-	-
18 Sep 24	11:36	0.00	29.27	0.00	-	-
18 Sep 24	11:37	0.00	29.63	0.00	-	-
18 Sep 24	11:38	0.00	29.12	0.00	-	-
18 Sep 24	11:39	0.00	28.86	0.00	-	-
18 Sep 24	11:40	0.00	28.89	0.00	-	-
18 Sep 24	11:41	0.00	28.85	0.00	-	-
18 Sep 24	11:42	0.00	29.26	0.00	-	-
18 Sep 24	11:43	0.00	29.60	0.00	-	-
18 Sep 24	11:44	0.00	30.26	0.00	-	-
Max		0.00	30.88	0.00	-	-
Avg		0.00	28.98	0.00	-	-

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	11:45	0.00	30.90	0.00	-	-
18 Sep 24	11:46	0.00	30.65	0.00	-	-
18 Sep 24	11:47	0.00	30.45	0.00	-	-
18 Sep 24	11:48	0.00	30.84	0.00	-	-
18 Sep 24	11:49	0.00	31.14	0.00	-	-
18 Sep 24	11:50	0.00	30.79	0.00	-	-
18 Sep 24	11:51	0.00	30.44	0.00	-	-
18 Sep 24	11:52	0.00	29.96	0.00	-	-
18 Sep 24	11:53	0.00	29.27	0.00	-	-
18 Sep 24	11:54	0.00	28.90	0.00	-	-
18 Sep 24	11:55	0.00	28.18	0.00	-	-
18 Sep 24	11:56	0.00	28.10	0.00	-	-
18 Sep 24	11:57	0.00	28.40	0.00	-	-
18 Sep 24	11:58	0.00	28.53	0.00	-	-
18 Sep 24	11:59	0.00	29.30	0.00	-	-
18 Sep 24	12:00	0.00	29.58	0.00	-	-
18 Sep 24	12:01	0.00	30.17	0.00	-	-
18 Sep 24	12:02	0.00	30.26	0.00	-	-
18 Sep 24	12:03	0.00	30.64	0.00	-	-
18 Sep 24	12:04	0.00	30.20	0.00	-	-
18 Sep 24	12:05	0.00	30.25	0.00	-	-
Max		0.00	31.14	0.00	-	-
Avg		0.00	29.85	0.00	-	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 18 Sep 24
Location: F-3106

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	12:06	0.00	30.58	0.00	-	-
18 Sep 24	12:07	0.00	31.00	0.00	-	-
18 Sep 24	12:08	0.00	30.10	0.00	-	-
18 Sep 24	12:09	0.00	29.99	0.00	-	-
18 Sep 24	12:10	0.00	29.95	0.00	-	-
18 Sep 24	12:11	0.00	28.83	0.00	-	-
18 Sep 24	12:12	0.00	28.62	0.00	-	-
18 Sep 24	12:13	0.00	27.66	0.00	-	-
18 Sep 24	12:14	0.00	27.33	0.00	-	-
18 Sep 24	12:15	0.00	28.00	0.00	-	-
18 Sep 24	12:16	0.00	27.87	0.00	-	-
18 Sep 24	12:17	0.00	28.49	0.00	-	-
18 Sep 24	12:18	0.00	28.88	0.00	-	-
18 Sep 24	12:19	0.00	29.35	0.00	-	-
18 Sep 24	12:20	0.00	29.63	0.00	-	-
18 Sep 24	12:21	0.00	30.15	0.00	-	-
18 Sep 24	12:22	0.00	30.00	0.00	-	-
18 Sep 24	12:23	0.00	29.95	0.00	-	-
18 Sep 24	12:24	0.00	30.16	0.00	-	-
18 Sep 24	12:25	0.00	30.76	0.00	-	-
18 Sep 24	12:26	0.00	30.71	0.00	-	-
Max		0.00	31.00	0.00	-	-
Avg		0.00	29.43	0.00	-	-

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	12:27	0.00	30.13	0.00	-	-
18 Sep 24	12:28	0.00	30.27	0.00	-	-
18 Sep 24	12:29	0.00	30.24	0.00	-	-
18 Sep 24	12:30	0.00	29.49	0.00	-	-
18 Sep 24	12:31	0.00	28.93	0.00	-	-
18 Sep 24	12:32	0.00	28.29	0.00	-	-
18 Sep 24	12:33	0.00	27.70	0.00	-	-
18 Sep 24	12:34	0.00	15.16	0.00	-	-
18 Sep 24	12:35	0.00	26.78	0.00	-	-
18 Sep 24	12:36	0.00	28.33	0.00	-	-
18 Sep 24	12:37	0.00	28.85	0.00	-	-
18 Sep 24	12:38	0.00	28.74	0.00	-	-
18 Sep 24	12:39	0.00	28.66	0.00	-	-
18 Sep 24	12:40	0.00	29.52	0.00	-	-
18 Sep 24	12:41	0.00	29.82	0.00	-	-
18 Sep 24	12:42	0.00	29.85	0.00	-	-
18 Sep 24	12:43	0.00	29.81	0.00	-	-
18 Sep 24	12:44	0.00	29.99	0.00	-	-
18 Sep 24	12:45	0.00	29.30	0.00	-	-
18 Sep 24	12:46	0.00	29.66	0.00	-	-
18 Sep 24	12:47	0.00	29.80	0.00	-	-
Max		0.00	30.27	0.00	-	-
Avg		0.00	28.64	0.00	-	-

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	12:48	0.00	29.88	0.00	-	-
18 Sep 24	12:49	0.00	29.26	0.00	-	-
18 Sep 24	12:50	0.00	29.19	0.00	-	-
18 Sep 24	12:51	0.00	28.75	0.00	-	-
18 Sep 24	12:52	0.00	28.43	0.00	-	-
18 Sep 24	12:53	0.00	28.30	0.00	-	-
18 Sep 24	12:54	0.00	27.71	0.00	-	-
18 Sep 24	12:55	0.00	27.77	0.00	-	-
18 Sep 24	12:56	0.00	27.62	0.00	-	-
18 Sep 24	12:57	0.00	28.40	0.00	-	-
18 Sep 24	12:58	0.00	28.69	0.00	-	-
18 Sep 24	12:59	0.00	29.68	0.00	-	-
18 Sep 24	13:00	0.00	30.03	0.00	-	-
18 Sep 24	13:01	0.00	30.31	0.00	-	-
18 Sep 24	13:02	0.00	30.41	0.00	-	-
18 Sep 24	13:03	0.00	29.97	0.00	-	-
18 Sep 24	13:04	0.00	30.17	0.00	-	-
18 Sep 24	13:05	0.00	30.83	0.00	-	-
18 Sep 24	13:06	0.00	30.30	0.00	-	-
18 Sep 24	13:07	0.00	30.07	0.00	-	-
18 Sep 24	13:08	0.00	29.87	0.00	-	-
Max		0.00	30.83	0.00	-	-
Avg		0.00	29.31	0.00	-	-

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	13:09	0.00	30.15	0.00	-	-
18 Sep 24	13:10	0.00	30.05	0.00	-	-
18 Sep 24	13:11	0.00	29.89	0.00	-	-
18 Sep 24	13:12	0.00	29.84	0.00	-	-
18 Sep 24	13:13	0.00	29.51	0.00	-	-
18 Sep 24	13:14	0.00	29.47	0.00	-	-
18 Sep 24	13:15	0.00	28.13	0.00	-	-
18 Sep 24	13:16	0.00	27.87	0.00	-	-
18 Sep 24	13:17	0.00	27.71	0.00	-	-
18 Sep 24	13:18	0.00	27.01	0.00	-	-
18 Sep 24	13:19	0.00	27.63	0.00	-	-
18 Sep 24	13:20	0.00	27.84	0.00	-	-
18 Sep 24	13:21	0.00	28.29	0.00	-	-
18 Sep 24	13:22	0.00	28.56	0.00	-	-
18 Sep 24	13:23	0.00	29.70	0.00	-	-
18 Sep 24	13:24	0.00	29.82	0.00	-	-
18 Sep 24	13:25	0.00	30.01	0.00	-	-
18 Sep 24	13:26	0.00	29.85	0.00	-	-
18 Sep 24	13:27	0.00	29.45	0.00	-	-
18 Sep 24	13:28	0.00	29.85	0.00	-	-
18 Sep 24	13:29	0.00	29.73	0.00	-	-
Max		0.00	30.15	0.00	-	-
Avg		0.00	29.07	0.00	-	-

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	13:30	0.00	29.49	0.00	-	-
18 Sep 24	13:31	0.00	28.99	0.00	-	-
18 Sep 24	13:32	0.00	29.28	0.00	-	-
18 Sep 24	13:33	0.00	29.42	0.00	-	-
18 Sep 24	13:34	0.00	15.76	0.00	-	-
18 Sep 24	13:35	0.00	27.42	0.00	-	-
18 Sep 24	13:36	0.00	29.50	0.00	-	-
18 Sep 24	13:37	0.00	29.65	0.00	-	-
18 Sep 24	13:38	0.00	29.69	0.00	-	-
18 Sep 24	13:39	0.00	29.14	0.00	-	-
18 Sep 24	13:40	0.00	28.96	0.00	-	-
18 Sep 24	13:41	0.00	28.34	0.00	-	-
18 Sep 24	13:42	0.00	27.37	0.00	-	-
18 Sep 24	13:43	0.00	26.53	0.00	-	-
18 Sep 24	13:44	0.00	26.82	0.00	-	-
18 Sep 24	13:45	0.00	27.00	0.00	-	-
18 Sep 24	13:46	0.00	26.45	0.00	-	-
18 Sep 24	13:47	0.00	27.01	0.00	-	-
18 Sep 24	13:48	0.00	26.99	0.00	-	-
18 Sep 24	13:49	0.00	27.80	0.00	-	-
18 Sep 24	13:50	0.00	27.80	0.00	-	-
Max		0.00	29.69	0.00	-	-
Avg		0.00	27.59	0.00	-	-

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	13:51	0.00	28.75	0.00	-	-
18 Sep 24	13:52	0.00	28.85	0.00	-	-
18 Sep 24	13:53	0.00	29.08	0.00	-	-
18 Sep 24	13:54	0.00	28.99	0.00	-	-
18 Sep 24	13:55	0.00	29.10	0.00	-	-
18 Sep 24	13:56	0.00	29.34	0.00	-	-
18 Sep 24	13:57	0.00	29.29	0.00	-	-
18 Sep 24	13:58	0.00	29.35	0.00	-	-
18 Sep 24	13:59	0.00	28.92	0.00	-	-
18 Sep 24	14:00	0.00	29.43	0.00	-	-
18 Sep 24	14:01	0.00	29.13	0.00	-	-
18 Sep 24	14:02	0.00	28.96	0.00	-	-
18 Sep 24	14:03	0.00	29.32	0.00	-	-
18 Sep 24	14:04	0.00	28.01	0.00	-	-
18 Sep 24	14:05	0.00	28.03	0.00	-	-
18 Sep 24	14:06	0.00	27.57	0.00	-	-
18 Sep 24	14:07	0.00	27.52	0.00	-	-
18 Sep 24	14:08	0.00	27.61	0.00	-	-
18 Sep 24	14:09	0.00	26.94	0.00	-	-
18 Sep 24	14:10	0.00	27.36	0.00	-	-
18 Sep 24	14:11	0.00	27.78	0.00	-	-
Max		0.00	29.43	0.00	-	-
Avg		0.00	28.54	0.00	-	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 18 Sep 24
Location: F-3106

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	10:00	0.28	27.20	0.17	5.46	7.99
18 Sep 24	10:01	0.27	27.17	0.22	5.56	7.98
18 Sep 24	10:02	0.25	28.23	0.23	5.64	7.96
18 Sep 24	10:03	0.18	28.14	0.26	5.68	7.88
18 Sep 24	10:04	0.16	27.91	0.29	5.71	7.87
18 Sep 24	10:05	0.14	27.93	0.29	5.69	7.84
18 Sep 24	10:06	0.19	27.92	0.19	5.70	7.89
18 Sep 24	10:07	0.18	27.92	0.23	5.70	7.88
18 Sep 24	10:08	0.16	27.88	0.24	5.72	7.87
18 Sep 24	10:09	0.14	27.88	0.22	5.76	7.85
18 Sep 24	10:10	0.13	27.88	0.25	5.74	7.83
18 Sep 24	10:11	0.11	27.78	0.33	5.76	7.81
18 Sep 24	10:12	0.15	27.84	0.34	5.74	7.86
18 Sep 24	10:13	0.14	27.82	0.35	5.77	7.85
18 Sep 24	10:14	0.17	27.71	0.23	5.71	7.88
18 Sep 24	10:15	0.21	27.53	0.29	5.67	7.91
18 Sep 24	10:16	0.15	27.50	0.28	5.74	7.86
18 Sep 24	10:17	0.13	27.55	0.28	5.73	7.83
18 Sep 24	10:18	0.14	27.63	0.29	5.76	7.84
18 Sep 24	10:19	0.14	27.75	0.35	5.78	7.84
18 Sep 24	10:20	0.12	27.72	0.35	5.77	7.83
Max		0.28	28.23	0.35	5.78	7.99
Avg		0.17	27.76	0.27	5.70	7.87

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	10:21	0.10	27.66	0.41	5.86	7.80
18 Sep 24	10:22	0.09	27.63	0.32	5.81	7.80
18 Sep 24	10:23	0.09	27.62	0.36	5.86	7.80
18 Sep 24	10:24	0.10	27.52	0.42	5.80	7.81
18 Sep 24	10:25	0.10	27.43	0.33	5.82	7.81
18 Sep 24	10:26	0.09	27.42	0.40	5.89	7.80
18 Sep 24	10:27	0.06	27.47	0.40	5.84	7.76
18 Sep 24	10:28	0.07	27.49	0.29	5.91	7.77
18 Sep 24	10:29	0.09	27.47	0.37	5.82	7.80
18 Sep 24	10:30	0.09	27.38	0.34	5.84	7.79
18 Sep 24	10:31	0.08	27.32	0.39	5.89	7.78
18 Sep 24	10:32	0.07	27.31	0.28	5.86	7.77
18 Sep 24	10:33	0.05	27.32	0.36	5.92	7.75
18 Sep 24	10:34	0.19	27.31	0.41	5.89	7.74
18 Sep 24	10:35	0.18	27.34	0.34	5.84	7.74
18 Sep 24	10:36	0.19	27.30	0.38	5.85	7.74
18 Sep 24	10:37	0.20	27.27	0.46	5.92	7.75
18 Sep 24	10:38	0.21	27.22	0.46	5.96	7.76
18 Sep 24	10:39	0.15	27.20	0.40	5.95	7.70
18 Sep 24	10:40	0.15	27.15	0.44	5.87	7.71
18 Sep 24	10:41	0.16	27.11	0.42	5.99	7.72
Max		0.21	27.66	0.46	5.99	7.81
Avg		0.12	27.38	0.38	5.89	7.77

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	10:42	0.16	27.12	0.38	5.98	7.72
18 Sep 24	10:43	0.17	28.37	0.36	5.94	7.73
18 Sep 24	10:44	0.18	28.35	0.43	5.93	7.73
18 Sep 24	10:45	0.16	28.34	0.37	5.94	7.72
18 Sep 24	10:46	0.17	28.34	0.45	5.93	7.73
18 Sep 24	10:47	0.21	28.30	0.41	5.93	7.76
18 Sep 24	10:48	0.19	28.21	0.44	5.94	7.74
18 Sep 24	10:49	0.15	28.19	0.50	5.92	7.71
18 Sep 24	10:50	0.15	28.14	0.48	5.97	7.70
18 Sep 24	10:51	0.19	28.13	0.47	5.94	7.74
18 Sep 24	10:52	0.20	28.20	0.42	5.94	7.75
18 Sep 24	10:53	0.21	28.19	0.43	5.89	7.78
18 Sep 24	10:54	0.19	28.15	0.47	5.90	7.74
18 Sep 24	10:55	0.20	28.19	0.50	5.90	7.75
18 Sep 24	10:56	0.22	28.34	0.50	5.93	7.77
18 Sep 24	10:57	0.17	28.43	0.41	5.96	7.72
18 Sep 24	10:58	0.18	28.42	0.44	5.93	7.73
18 Sep 24	10:59	0.17	28.34	0.39	5.98	7.72
18 Sep 24	11:00	0.14	28.20	0.39	5.97	7.70
18 Sep 24	11:01	0.13	28.23	0.44	6.00	7.68
18 Sep 24	11:02	0.13	28.26	0.46	5.99	7.69
Max		0.22	28.43	0.50	6.00	7.77
Avg		0.17	28.21	0.44	5.94	7.73

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	11:03	0.14	28.19	0.45	5.98	7.70
18 Sep 24	11:04	0.15	28.14	0.51	5.97	7.71
18 Sep 24	11:05	0.17	28.18	0.50	5.96	7.72
18 Sep 24	11:06	0.13	28.15	0.46	5.99	7.69
18 Sep 24	11:07	0.12	28.06	0.54	5.99	7.67
18 Sep 24	11:08	0.13	28.05	0.42	5.94	7.68
18 Sep 24	11:09	0.13	28.08	0.53	5.96	7.69
18 Sep 24	11:10	0.15	28.16	0.47	5.91	7.71
18 Sep 24	11:11	0.20	28.20	0.48	5.94	7.75
18 Sep 24	11:12	0.17	28.18	0.40	5.88	7.72
18 Sep 24	11:13	0.18	28.18	0.45	5.87	7.73
18 Sep 24	11:14	0.21	28.19	0.40	5.81	7.77
18 Sep 24	11:15	0.21	28.18	0.42	5.93	7.76
18 Sep 24	11:16	0.20	28.19	0.38	5.96	7.75
18 Sep 24	11:17	0.18	28.22	0.42	5.95	7.73
18 Sep 24	11:18	0.14	28.24	0.38	5.98	7.70
18 Sep 24	11:19	0.11	28.24	0.46	6.01	7.68
18 Sep 24	11:20	0.13	28.24	0.44	6.01	7.69
18 Sep 24	11:21	0.14	28.16	0.57	6.01	7.70
18 Sep 24	11:22	0.14	28.11	0.52	5.93	7.70
18 Sep 24	11:23	0.14	28.19	0.58	5.85	7.69
Max		0.21	28.24	0.58	6.01	7.77
Avg		0.16	28.17	0.47	5.95	7.71

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	11:24	0.13	28.21	0.54	6.03	7.69
18 Sep 24	11:25	0.13	28.20	0.53	6.02	7.69
18 Sep 24	11:26	0.17	28.19	0.38	5.87	7.73
18 Sep 24	11:27	0.14	28.27	0.46	5.89	7.70
18 Sep 24	11:28	0.18	28.33	0.48	5.89	7.73
18 Sep 24	11:29	0.19	28.40	0.51	5.89	7.74
18 Sep 24	11:30	0.19	28.48	0.44	5.90	7.74
18 Sep 24	11:31	0.21	28.48	0.47	5.89	7.76
18 Sep 24	11:32	0.21	28.44	0.46	5.87	7.76
18 Sep 24	11:33	0.20	28.44	0.60	5.91	7.75
18 Sep 24	11:34	0.17	28.43	0.51	5.91	7.72
18 Sep 24	11:35	0.18	28.40	0.59	5.90	7.73
18 Sep 24	11:36	0.19	28.34	0.46	5.92	7.74
18 Sep 24	11:37	0.19	28.28	0.43	5.97	7.75
18 Sep 24	11:38	0.18	28.28	0.52	5.90	7.73
18 Sep 24	11:39	0.15	28.41	0.57	5.94	7.70
18 Sep 24	11:40	0.15	28.45	0.55	6.01	7.70
18 Sep 24	11:41	0.15	28.49	0.54	5.99	7.70
18 Sep 24	11:42	0.18	28.44	0.50	5.97	7.73
18 Sep 24	11:43	0.17	28.44	0.54	5.90	7.72
18 Sep 24	11:44	0.17	28.48	0.57	5.96	7.72
Max		0.21	28.49	0.60	6.03	7.76
Avg		0.17	28.37	0.51	5.94	7.73

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	11:45	0.17	28.42	0.56	5.96	7.72
18 Sep 24	11:46	0.17	28.39	0.49	5.91	7.72
18 Sep 24	11:47	0.21	28.34	0.50	5.96	7.76
18 Sep 24	11:48	0.17	28.33	0.51	5.91	7.73
18 Sep 24	11:49	0.20	28.32	0.52	5.95	7.75
18 Sep 24	11:50	0.21	28.40	0.49	5.94	7.78
18 Sep 24	11:51	0.17	28.42	0.51	5.98	7.73
18 Sep 24	11:52	0.14	28.33	0.48	6.02	7.69
18 Sep 24	11:53	0.18	28.30	0.46	5.93	7.73
18 Sep 24	11:54	0.21	28.29	0.49	6.03	7.76
18 Sep 24	11:55	0.20	28.34	0.45	5.97	7.75
18 Sep 24	11:56	0.17	28.40	0.51	5.96	7.73
18 Sep 24	11:57	0.18	28.39	0.52	5.97	7.73
18 Sep 24	11:58	0.14	28.38	0.53	5.98	7.69
18 Sep 24	11:59	0.20	28.41	0.46	5.94	7.76
18 Sep 24	12:00	0.24	28.40	0.40	5.90	7.80
18 Sep 24	12:01	0.24	28.42	0.49	5.91	7.80
18 Sep 24	12:02	0.21	28.40	0.49	5.90	7.78
18 Sep 24	12:03	0.20	28.49	0.45	5.93	7.75
18 Sep 24	12:04	0.21	28.54	0.48	5.88	7.77
18 Sep 24	12:05	0.25	28.53	0.55	5.89	7.80
Max		0.25	28.54	0.56	6.03	7.80
Avg		0.19	28.39	0.49	5.95	7.75

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4/2
Date: 18 Sep 24
Location: F-3106

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	12:06	0.22	28.46	0.48	5.83	7.78
18 Sep 24	12:07	0.18	28.42	0.54	5.86	7.73
18 Sep 24	12:08	0.17	28.45	0.53	5.88	7.72
18 Sep 24	12:09	0.18	28.46	0.44	5.98	7.73
18 Sep 24	12:10	0.17	28.43	0.56	5.81	7.72
18 Sep 24	12:11	0.21	28.39	0.42	5.93	7.77
18 Sep 24	12:12	0.18	28.39	0.45	5.93	7.73
18 Sep 24	12:13	0.18	28.48	0.42	5.96	7.73
18 Sep 24	12:14	0.19	28.48	0.50	5.98	7.75
18 Sep 24	12:15	0.15	28.43	0.43	5.94	7.70
18 Sep 24	12:16	0.17	28.41	0.46	5.95	7.73
18 Sep 24	12:17	0.19	28.50	0.45	5.89	7.75
18 Sep 24	12:18	0.21	28.38	0.42	5.95	7.76
18 Sep 24	12:19	0.19	28.30	0.49	6.06	7.74
18 Sep 24	12:20	0.15	28.28	0.46	5.97	7.70
18 Sep 24	12:21	0.15	28.25	0.46	6.01	7.70
18 Sep 24	12:22	0.17	28.30	0.51	5.92	7.73
18 Sep 24	12:23	0.21	28.31	0.53	5.91	7.76
18 Sep 24	12:24	0.21	28.29	0.46	5.92	7.76
18 Sep 24	12:25	0.18	28.38	0.48	5.95	7.74
18 Sep 24	12:26	0.20	28.51	0.42	5.93	7.75
Max		0.22	28.51	0.56	6.06	7.78
Avg		0.18	28.39	0.47	5.95	7.74

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	12:27	0.15	28.62	0.51	5.96	7.71
18 Sep 24	12:28	0.21	28.54	0.58	5.95	7.76
18 Sep 24	12:29	0.19	28.46	0.51	5.95	7.74
18 Sep 24	12:30	0.19	28.47	0.43	6.01	7.74
18 Sep 24	12:31	0.18	28.57	0.52	5.92	7.73
18 Sep 24	12:32	0.18	28.50	0.36	6.01	7.73
18 Sep 24	12:33	0.19	28.38	0.41	5.97	7.74
18 Sep 24	12:34	0.21	28.18	0.44	5.94	7.76
18 Sep 24	12:35	0.18	28.15	0.39	5.96	7.73
18 Sep 24	12:36	0.21	28.20	0.42	5.83	7.76
18 Sep 24	12:37	0.20	28.19	0.34	5.95	7.75
18 Sep 24	12:38	0.23	28.25	0.43	5.93	7.78
18 Sep 24	12:39	0.23	28.32	0.35	5.89	7.78
18 Sep 24	12:40	0.21	28.33	0.42	5.96	7.78
18 Sep 24	12:41	0.21	28.28	0.36	5.86	7.76
18 Sep 24	12:42	0.21	28.31	0.39	5.98	7.76
18 Sep 24	12:43	0.19	28.41	0.32	5.98	7.74
18 Sep 24	12:44	0.19	28.36	0.42	5.97	7.74
18 Sep 24	12:45	0.18	28.31	0.30	5.99	7.73
18 Sep 24	12:46	0.17	28.19	0.35	5.98	7.72
18 Sep 24	12:47	0.16	28.10	0.38	6.11	7.71
Max		0.23	28.62	0.58	6.11	7.78
Avg		0.19	28.34	0.41	5.96	7.74

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	12:48	0.14	28.08	0.38	6.08	7.69
18 Sep 24	12:49	0.13	28.12	0.36	6.10	7.68
18 Sep 24	12:50	0.14	28.08	0.29	6.09	7.69
18 Sep 24	12:51	0.14	27.99	0.34	6.03	7.69
18 Sep 24	12:52	0.15	27.95	0.27	6.08	7.70
18 Sep 24	12:53	0.15	28.02	0.36	6.05	7.70
18 Sep 24	12:54	0.14	28.06	0.33	6.09	7.69
18 Sep 24	12:55	0.16	27.99	0.35	6.08	7.71
18 Sep 24	12:56	0.14	27.89	0.34	6.05	7.69
18 Sep 24	12:57	0.13	28.02	0.32	6.12	7.69
18 Sep 24	12:58	0.13	28.03	0.33	6.06	7.69
18 Sep 24	12:59	0.15	28.05	0.32	6.08	7.70
18 Sep 24	13:00	0.14	28.07	0.35	6.08	7.69
18 Sep 24	13:01	0.13	28.09	0.30	6.04	7.69
18 Sep 24	13:02	0.13	28.09	0.35	6.09	7.69
18 Sep 24	13:03	0.17	28.09	0.32	6.03	7.72
18 Sep 24	13:04	0.15	28.09	0.28	6.05	7.70
18 Sep 24	13:05	0.14	27.98	0.28	6.06	7.69
18 Sep 24	13:06	0.16	28.00	0.39	6.03	7.71
18 Sep 24	13:07	0.17	28.01	0.35	6.10	7.72
18 Sep 24	13:08	0.15	27.99	0.33	6.08	7.70
Max		0.17	28.12	0.39	6.12	7.72
Avg		0.14	28.04	0.33	6.07	7.70

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	13:09	0.14	27.84	0.34	6.13	7.69
18 Sep 24	13:10	0.12	27.77	0.24	6.11	7.68
18 Sep 24	13:11	0.10	27.76	0.26	6.05	7.66
18 Sep 24	13:12	0.15	27.84	0.28	6.09	7.70
18 Sep 24	13:13	0.15	28.02	0.32	6.08	7.70
18 Sep 24	13:14	0.13	28.14	0.30	6.13	7.68
18 Sep 24	13:15	0.12	28.14	0.35	6.08	7.68
18 Sep 24	13:16	0.11	28.05	0.39	6.05	7.67
18 Sep 24	13:17	0.10	28.00	0.34	6.15	7.66
18 Sep 24	13:18	0.11	28.00	0.30	6.11	7.66
18 Sep 24	13:19	0.11	27.90	0.31	6.18	7.66
18 Sep 24	13:20	0.09	27.87	0.31	6.14	7.65
18 Sep 24	13:21	0.08	27.80	0.28	6.18	7.62
18 Sep 24	13:22	0.10	27.79	0.39	6.26	7.66
18 Sep 24	13:23	0.05	27.80	0.31	6.18	7.60
18 Sep 24	13:24	0.08	27.87	0.36	6.20	7.64
18 Sep 24	13:25	0.07	27.89	0.36	6.17	7.63
18 Sep 24	13:26	0.06	27.82	0.32	6.19	7.62
18 Sep 24	13:27	0.05	27.77	0.33	6.21	7.61
18 Sep 24	13:28	0.06	27.78	0.30	6.20	7.62
18 Sep 24	13:29	0.05	27.86	0.30	6.19	7.61
Max		0.15	28.14	0.39	6.26	7.70
Avg		0.10	27.89	0.32	6.15	7.65

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	13:30	0.10	27.90	0.33	6.16	7.65
18 Sep 24	13:31	0.09	27.80	0.34	6.14	7.64
18 Sep 24	13:32	0.08	27.73	0.33	6.17	7.63
18 Sep 24	13:33	0.08	27.67	0.28	6.13	7.63
18 Sep 24	13:34	0.10	27.88	0.39	6.15	7.65
18 Sep 24	13:35	0.11	27.64	0.35	6.19	7.63
18 Sep 24	13:36	0.10	27.61	0.31	6.22	7.62
18 Sep 24	13:37	0.07	27.59	0.34	6.22	7.60
18 Sep 24	13:38	0.07	27.62	0.40	6.26	7.59
18 Sep 24	13:39	0.05	27.57	0.33	6.25	7.58
18 Sep 24	13:40	0.04	27.48	0.37	6.25	7.56
18 Sep 24	13:41	0.04	27.44	0.41	6.26	7.57
18 Sep 24	13:42	0.04	27.49	0.30	6.31	7.57
18 Sep 24	13:43	0.01	27.49	0.31	6.30	7.53
18 Sep 24	13:44	0.03	27.46	0.40	6.29	7.55
18 Sep 24	13:45	0.04	27.50	0.29	6.26	7.56
18 Sep 24	13:46	0.06	27.56	0.40	6.26	7.59
18 Sep 24	13:47	0.09	27.62	0.41	6.22	7.61
18 Sep 24	13:48	0.08	27.67	0.36	6.23	7.60
18 Sep 24	13:49	0.09	27.65	0.40	6.15	7.61
18 Sep 24	13:50	0.09	27.56	0.39	6.21	7.61
Max		0.11	27.90	0.41	6.31	7.65
Avg		0.07	27.60	0.36	6.22	7.60

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
18 Sep 24	13:51	0.08	27.45	0.37	6.27	7.59
18 Sep 24	13:52	0.08	27.45	0.38	6.25	7.60
18 Sep 24	13:53	0.07	27.47	0.42	6.28	7.59
18 Sep 24	13:54	0.07	27.49	0.42	6.21	7.59
18 Sep 24	13:55	0.06	27.46	0.37	6.22	7.58
18 Sep 24	13:56	0.06	27.47	0.51	6.25	7.58
18 Sep 24	13:57	0.07	27.47	0.40	6.27	7.59
18 Sep 24	13:58	0.07	27.35	0.41	6.31	7.59
18 Sep 24	13:59	0.06	27.43	0.44	6.28	7.58
18 Sep 24	14:00	0.02	27.55	0.39	6.32	7.55
18 Sep 24	14:01	0.03	27.64	0.42	6.28	7.56
18 Sep 24	14:02	0.06	27.75	0.38	6.22	7.58
18 Sep 24	14:03	0.07	27.66	0.43	6.34	7.59
18 Sep 24	14:04	0.06	27.59	0.40	6.23	7.58
18 Sep 24	14:05	0.07	27.57	0.50	6.27	7.59
18 Sep 24	14:06	0.07	27.60	0.45	6.22	7.59
18 Sep 24	14:07	0.07	27.66	0.49	6.28	7.59
18 Sep 24	14:08	0.07	27.83	0.44	6.25	7.59
18 Sep 24	14:09	0.07	27.99	0.43	6.21	7.59
18 Sep 24	14:10	0.07	28.08	0.54	6.29	7.59
18 Sep 24	14:11	0.04	28.12	0.46	6.25	7.56
Max		0.08	28.12	0.54	6.34	7.60
Avg		0.06	27.62	0.43	6.26	7.58

CEMs Data

Client Name: PTT Global Chemical PCL. — Date: 19 Sep 24
Plant Name: BV Plant (I-4) — Location: F-4301

Run No: 1 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	9:45	0.00	9.45	0.15	5.41	-
19 Sep 24	9:46	0.00	9.80	0.18	5.36	-
19 Sep 24	9:47	0.00	10.14	0.21	5.41	-
19 Sep 24	9:48	0.00	10.41	0.24	5.23	-
19 Sep 24	9:49	0.00	10.64	0.42	5.37	-
19 Sep 24	9:50	0.00	10.63	0.38	5.34	-
19 Sep 24	9:51	0.00	10.31	0.08	5.43	-
19 Sep 24	9:52	0.00	10.03	0.04	5.47	-
19 Sep 24	9:53	0.00	9.80	0.08	5.31	-
19 Sep 24	9:54	0.00	9.39	0.13	5.38	-
19 Sep 24	9:55	0.00	9.36	0.18	5.41	-
19 Sep 24	9:56	0.00	9.62	0.23	5.41	-
19 Sep 24	9:57	0.00	10.07	0.28	5.37	-
19 Sep 24	9:58	0.00	10.23	0.32	5.39	-
19 Sep 24	9:59	0.00	10.43	0.53	5.43	-
19 Sep 24	10:00	0.00	10.48	0.26	5.49	-
19 Sep 24	10:01	0.00	10.36	0.39	5.53	-
19 Sep 24	10:02	0.00	10.23	0.11	5.52	-
19 Sep 24	10:03	0.00	9.78	0.09	5.43	-
19 Sep 24	10:04	0.00	9.60	0.20	5.45	-
19 Sep 24	10:05	0.00	9.53	0.32	5.50	-
Max		0.00	10.64	0.53	5.53	-
Avg		0.00	10.01	0.23	5.41	-

Run No: 2 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	10:06	0.00	9.74	0.43	5.49	-
19 Sep 24	10:07	0.00	9.97	0.55	5.45	-
19 Sep 24	10:08	0.00	10.24	0.66	5.45	-
19 Sep 24	10:09	0.00	10.47	0.77	5.49	-
19 Sep 24	10:10	0.00	10.69	0.23	5.55	-
19 Sep 24	10:11	0.00	10.79	0.10	5.50	-
19 Sep 24	10:12	0.00	10.41	0.03	5.50	-
19 Sep 24	10:13	0.00	9.99	0.00	5.52	-
19 Sep 24	10:14	0.00	9.63	0.00	5.45	-
19 Sep 24	10:15	0.00	9.37	0.00	5.47	-
19 Sep 24	10:16	0.00	9.42	0.00	5.41	-
19 Sep 24	10:17	0.00	9.76	0.00	5.41	-
19 Sep 24	10:18	0.00	10.03	0.00	5.52	-
19 Sep 24	10:19	0.00	10.42	0.00	5.54	-
19 Sep 24	10:20	0.00	10.65	0.00	5.48	-
19 Sep 24	10:21	0.00	10.69	0.01	5.37	-
19 Sep 24	10:22	0.00	10.61	0.08	5.27	-
19 Sep 24	10:23	0.00	10.33	0.02	5.38	-
19 Sep 24	10:24	0.00	9.93	0.01	5.38	-
19 Sep 24	10:25	0.00	9.56	0.02	5.43	-
19 Sep 24	10:26	0.00	9.24	0.04	5.35	-
Max		0.00	10.79	0.77	5.55	-
Avg		0.00	10.09	0.14	5.45	-

Run No: 3 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	10:27	0.00	9.37	0.05	5.37	-
19 Sep 24	10:28	0.00	9.55	0.07	5.47	-
19 Sep 24	10:29	0.00	10.03	0.08	5.38	-
19 Sep 24	10:30	0.00	10.39	0.09	5.44	-
19 Sep 24	10:31	0.00	10.58	0.11	5.36	-
19 Sep 24	10:32	0.00	10.66	0.12	5.40	-
19 Sep 24	10:33	0.00	10.53	0.03	5.46	-
19 Sep 24	10:34	0.00	10.17	0.01	5.41	-
19 Sep 24	10:35	0.00	9.87	0.01	5.38	-
19 Sep 24	10:36	0.00	9.50	0.02	5.33	-
19 Sep 24	10:37	0.00	9.22	0.03	5.34	-
19 Sep 24	10:38	0.00	9.24	0.04	5.41	-
19 Sep 24	10:39	0.00	9.51	0.04	5.24	-
19 Sep 24	10:40	0.00	9.89	0.05	5.17	-
19 Sep 24	10:41	0.00	10.18	0.06	5.15	-
19 Sep 24	10:42	0.00	10.51	0.07	5.17	-
19 Sep 24	10:43	0.00	10.75	0.07	5.24	-
19 Sep 24	10:44	0.00	10.63	0.02	5.25	-
19 Sep 24	10:45	0.00	10.34	0.00	5.18	-
19 Sep 24	10:46	0.00	10.03	0.00	5.11	-
19 Sep 24	10:47	0.00	9.65	0.00	5.14	-
Max		0.00	10.75	0.12	5.47	-
Avg		0.00	10.03	0.05	5.30	-

Run No: 4 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	10:48	0.00	9.27	0.00	5.24	-
19 Sep 24	10:49	0.00	9.23	0.00	5.19	-
19 Sep 24	10:50	0.00	9.48	0.00	5.13	-
19 Sep 24	10:51	0.00	9.92	0.00	5.05	-
19 Sep 24	10:52	0.00	10.28	0.00	5.01	-
19 Sep 24	10:53	0.00	10.38	0.00	5.01	-
19 Sep 24	10:54	0.00	10.70	0.00	5.10	-
19 Sep 24	10:55	0.00	10.65	0.00	5.09	-
19 Sep 24	10:56	0.00	10.41	0.00	5.10	-
19 Sep 24	10:57	0.00	10.00	0.00	5.05	-
19 Sep 24	10:58	0.00	9.78	0.00	5.17	-
19 Sep 24	10:59	0.00	9.38	0.00	5.06	-
19 Sep 24	11:00	0.00	9.11	0.00	5.02	-
19 Sep 24	11:01	0.00	9.39	0.00	5.00	-
19 Sep 24	11:02	0.00	9.99	0.00	5.06	-
19 Sep 24	11:03	0.00	10.12	0.00	5.08	-
19 Sep 24	11:04	0.00	10.37	0.00	5.00	-
19 Sep 24	11:05	0.00	10.70	0.04	5.05	-
19 Sep 24	11:06	0.00	10.72	0.10	5.04	-
19 Sep 24	11:07	0.00	10.56	0.03	5.07	-
19 Sep 24	11:08	0.00	10.11	0.00	5.06	-
Max		0.00	10.72	0.10	5.24	-
Avg		0.00	10.03	0.01	5.07	-

Run No: 5 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	11:09	0.00	8.73	0.00	5.23	-
19 Sep 24	11:10	0.00	9.21	0.00	5.00	-
19 Sep 24	11:11	0.00	9.37	0.00	5.02	-
19 Sep 24	11:12	0.00	9.29	0.00	4.98	-
19 Sep 24	11:13	0.00	9.47	0.00	4.96	-
19 Sep 24	11:14	0.00	9.74	0.00	4.96	-
19 Sep 24	11:15	0.00	10.15	0.00	4.97	-
19 Sep 24	11:16	0.00	10.43	0.00	4.98	-
19 Sep 24	11:17	0.00	10.62	0.00	5.00	-
19 Sep 24	11:18	0.00	10.72	0.00	4.99	-
19 Sep 24	11:19	0.00	10.39	0.00	5.03	-
19 Sep 24	11:20	0.00	9.98	0.00	4.98	-
19 Sep 24	11:21	0.00	9.65	0.00	5.01	-
19 Sep 24	11:22	0.00	9.48	0.00	5.06	-
19 Sep 24	11:23	0.00	9.34	0.00	4.95	-
19 Sep 24	11:24	0.00	9.33	0.00	4.94	-
19 Sep 24	11:25	0.00	9.65	0.00	5.02	-
19 Sep 24	11:26	0.00	10.10	0.00	4.95	-
19 Sep 24	11:27	0.00	10.34	0.00	5.02	-
19 Sep 24	11:28	0.00	10.69	0.00	4.98	-
19 Sep 24	11:29	0.00	10.74	0.00	5.09	-
Max		0.00	10.74	0.00	5.23	-
Avg		0.00	9.88	0.00	5.00	-

Run No: 6 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	11:30	0.00	10.69	0.00	4.97	-
19 Sep 24	11:31	0.00	10.29	0.00	5.06	-
19 Sep 24	11:32	0.00	9.90	0.00	5.10	-
19 Sep 24	11:33	0.00	9.55	0.00	4.98	-
19 Sep 24	11:34	0.00	9.34	0.00	5.00	-
19 Sep 24	11:35	0.00	9.25	0.00	4.99	-
19 Sep 24	11:36	0.00	9.41	0.00	5.02	-
19 Sep 24	11:37	0.00	9.76	0.00	4.97	-
19 Sep 24	11:38	0.00	10.16	0.00	5.02	-
19 Sep 24	11:39	0.00	10.48	0.00	4.92	-
19 Sep 24	11:40	0.00	10.69	0.00	4.84	-
19 Sep 24	11:41	0.00	10.70	0.00	5.14	-
19 Sep 24	11:42	0.00	10.50	0.00	4.93	-
19 Sep 24	11:43	0.00	10.20	0.00	4.80	-
19 Sep 24	11:44	0.00	9.83	0.00	4.65	-
19 Sep 24	11:45	0.00	9.44	0.00	4.60	-
19 Sep 24	11:46	0.00	9.15	0.00	4.71	-
19 Sep 24	11:47	0.00	9.20	0.00	4.71	-
19 Sep 24	11:48	0.00	9.43	0.00	4.72	-
19 Sep 24	11:49	0.00	9.97	0.00	4.66	-
19 Sep 24	11:50	0.00	10.27	0.00	4.63	-
Max		0.00	10.70	0.00	5.14	-
Avg		0.00	9.91	0.00	4.86	-

CEMs Data

Client Name: PTT Global Chemical PCL. — Date: 19 Sep 24
Plant Name: BV Plant (I-4) — Location: F-4301

Run No: 7 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	11:51	0.00	10.47	0.00	4.66	-
19 Sep 24	11:52	0.00	10.79	0.00	4.50	-
19 Sep 24	11:53	0.00	10.77	0.00	4.41	-
19 Sep 24	11:54	0.00	10.52	0.00	4.37	-
19 Sep 24	11:55	0.00	10.22	0.00	4.47	-
19 Sep 24	11:56	0.00	9.83	0.00	4.61	-
19 Sep 24	11:57	0.00	9.29	0.00	4.50	-
19 Sep 24	11:58	0.00	9.15	0.04	4.40	-
19 Sep 24	11:59	0.00	9.21	0.09	4.41	-
19 Sep 24	12:00	0.00	9.46	0.14	4.37	-
19 Sep 24	12:01	0.00	9.84	0.19	4.53	-
19 Sep 24	12:02	0.00	10.23	0.24	4.42	-
19 Sep 24	12:03	0.00	10.48	0.29	4.35	-
19 Sep 24	12:04	0.00	10.67	0.34	4.30	-
19 Sep 24	12:05	0.00	10.76	0.19	4.35	-
19 Sep 24	12:06	0.00	10.62	0.03	4.45	-
19 Sep 24	12:07	0.00	10.38	0.00	4.31	-
19 Sep 24	12:08	0.00	10.03	0.00	4.32	-
19 Sep 24	12:09	0.00	9.62	0.00	4.28	-
19 Sep 24	12:10	0.00	9.27	0.00	4.34	-
19 Sep 24	12:11	0.00	9.20	0.00	4.47	-
Max		0.00	10.79	0.34	4.66	-
Avg		0.00	10.04	0.07	4.42	-

Run No: 8 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	12:12	0.00	9.24	0.00	4.40	-
19 Sep 24	12:13	0.00	9.49	0.00	4.39	-
19 Sep 24	12:14	0.00	9.96	0.00	4.20	-
19 Sep 24	12:15	0.00	10.36	0.00	4.26	-
19 Sep 24	12:16	0.00	10.58	0.00	4.37	-
19 Sep 24	12:17	0.00	10.84	0.32	4.28	-
19 Sep 24	12:18	0.00	10.88	0.45	4.22	-
19 Sep 24	12:19	0.00	10.64	0.54	4.16	-
19 Sep 24	12:20	0.00	10.47	0.14	4.31	-
19 Sep 24	12:21	0.00	9.90	0.04	4.38	-
19 Sep 24	12:22	0.00	9.67	0.10	4.30	-
19 Sep 24	12:23	0.00	9.38	0.15	4.40	-
19 Sep 24	12:24	0.00	9.13	0.20	4.21	-
19 Sep 24	12:25	0.00	9.10	0.26	4.28	-
19 Sep 24	12:26	0.00	9.34	0.31	4.33	-
19 Sep 24	12:27	0.00	9.70	0.37	4.21	-
19 Sep 24	12:28	0.00	10.20	0.42	4.37	-
19 Sep 24	12:29	0.00	10.55	0.48	4.20	-
19 Sep 24	12:30	0.00	10.72	0.65	4.15	-
19 Sep 24	12:31	0.00	10.78	0.67	4.18	-
19 Sep 24	12:32	0.00	10.65	0.89	4.18	-
Max		0.00	10.88	0.89	4.40	-
Avg		0.00	10.08	0.29	4.28	-

Run No: 9 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	12:33	0.00	10.46	0.24	4.24	-
19 Sep 24	12:34	0.00	10.07	0.05	4.24	-
19 Sep 24	12:35	0.00	9.78	0.12	4.19	-
19 Sep 24	12:36	0.00	9.49	0.19	4.43	-
19 Sep 24	12:37	0.00	9.36	0.26	4.22	-
19 Sep 24	12:38	0.00	9.19	0.33	4.32	-
19 Sep 24	12:39	0.00	9.17	0.40	4.26	-
19 Sep 24	12:40	0.00	9.51	0.47	4.41	-
19 Sep 24	12:41	0.00	10.05	0.54	4.24	-
19 Sep 24	12:42	0.00	10.33	0.61	4.15	-
19 Sep 24	12:43	0.00	10.55	0.66	4.21	-
19 Sep 24	12:44	0.00	10.85	0.78	4.16	-
19 Sep 24	12:45	0.00	10.99	0.85	4.30	-
19 Sep 24	12:46	0.00	10.61	0.78	4.22	-
19 Sep 24	12:47	0.00	10.28	0.31	4.25	-
19 Sep 24	12:48	0.00	9.84	0.04	4.35	-
19 Sep 24	12:49	0.00	9.62	0.06	4.38	-
19 Sep 24	12:50	0.00	9.40	0.13	4.44	-
19 Sep 24	12:51	0.00	9.16	0.21	4.45	-
19 Sep 24	12:52	0.00	9.19	0.28	4.31	-
19 Sep 24	12:53	0.00	9.52	0.36	4.33	-
Max		0.00	10.99	0.85	4.45	-
Avg		0.00	9.89	0.37	4.29	-

Run No: 10 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	12:54	0.00	9.99	0.43	4.34	-
19 Sep 24	12:55	0.00	10.35	0.51	4.21	-
19 Sep 24	12:56	0.00	10.56	0.59	4.25	-
19 Sep 24	12:57	0.00	10.81	1.34	4.19	-
19 Sep 24	12:58	0.00	10.89	1.53	4.29	-
19 Sep 24	12:59	0.00	10.68	1.25	4.28	-
19 Sep 24	13:00	0.00	10.26	0.92	4.21	-
19 Sep 24	13:01	0.00	9.85	0.21	4.27	-
19 Sep 24	13:02	0.00	9.53	0.48	4.12	-
19 Sep 24	13:03	0.00	9.31	0.16	4.25	-
19 Sep 24	13:04	0.00	9.14	0.06	4.30	-
19 Sep 24	13:05	0.00	9.28	0.13	4.31	-
19 Sep 24	13:06	0.00	9.38	0.21	4.36	-
19 Sep 24	13:07	0.00	9.76	0.29	4.34	-
19 Sep 24	13:08	0.00	10.16	0.36	4.32	-
19 Sep 24	13:09	0.00	10.53	0.47	4.45	-
19 Sep 24	13:10	0.00	10.72	1.14	4.30	-
19 Sep 24	13:11	0.00	11.00	1.50	4.31	-
19 Sep 24	13:12	0.00	10.91	1.54	4.21	-
19 Sep 24	13:13	0.00	10.43	1.35	4.18	-
19 Sep 24	13:14	0.00	9.98	0.76	4.34	-
Max		0.00	11.00	1.54	4.45	-
Avg		0.00	10.17	0.73	4.28	-

Run No: 11 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	13:15	0.00	9.70	0.19	4.48	-
19 Sep 24	13:16	0.00	9.40	0.02	4.56	-
19 Sep 24	13:17	0.00	9.34	0.09	4.37	-
19 Sep 24	13:18	0.00	9.12	0.21	4.34	-
19 Sep 24	13:19	0.00	9.09	0.32	4.56	-
19 Sep 24	13:20	0.00	9.45	0.44	4.51	-
19 Sep 24	13:21	0.00	10.10	0.56	4.49	-
19 Sep 24	13:22	0.00	10.47	0.68	4.28	-
19 Sep 24	13:23	0.00	10.84	1.11	4.46	-
19 Sep 24	13:24	0.00	10.86	1.33	4.52	-
19 Sep 24	13:25	0.00	10.78	1.73	4.46	-
19 Sep 24	13:26	0.00	10.55	1.27	4.66	-
19 Sep 24	13:27	0.00	10.19	1.29	4.39	-
19 Sep 24	13:28	0.00	9.80	0.63	4.37	-
19 Sep 24	13:29	0.00	9.51	0.10	4.51	-
19 Sep 24	13:30	0.00	9.28	0.01	4.30	-
19 Sep 24	13:31	0.00	9.14	0.03	4.49	-
19 Sep 24	13:32	0.00	9.24	0.05	4.36	-
19 Sep 24	13:33	0.00	9.53	0.06	4.34	-
19 Sep 24	13:34	0.00	9.90	0.31	4.39	-
19 Sep 24	13:35	0.00	10.23	0.85	4.47	-
Max		0.00	10.86	1.73	4.66	-
Avg		0.00	9.83	0.54	4.44	-

Run No: 12 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	13:36	0.00	10.57	1.08	4.54	-
19 Sep 24	13:37	0.00	10.79	2.20	4.39	-
19 Sep 24	13:38	0.00	10.74	2.12	4.46	-
19 Sep 24	13:39	0.00	10.45	1.31	4.72	-
19 Sep 24	13:40	0.00	10.10	0.94	4.65	-
19 Sep 24	13:41	0.00	9.85	0.41	4.61	-
19 Sep 24	13:42	0.00	9.51	0.06	4.59	-
19 Sep 24	13:43	0.00	9.28	0.09	4.80	-
19 Sep 24	13:44	0.00	9.16	0.22	4.70	-
19 Sep 24	13:45	0.00	9.03	0.34	4.79	-
19 Sep 24	13:46	0.00	9.27	0.47	4.80	-
19 Sep 24	13:47	0.00	9.65	0.59	4.81	-
19 Sep 24	13:48	0.00	10.13	0.72	4.80	-
19 Sep 24	13:49	0.00	10.45	1.11	4.83	-
19 Sep 24	13:50	0.00	10.63	1.69	4.95	-
19 Sep 24	13:51	0.00	10.81	1.75	4.97	-
19 Sep 24	13:52	0.00	10.66	1.16	4.98	-
19 Sep 24	13:53	0.00	10.25	0.58	5.01	-
19 Sep 24	13:54	0.00	9.88	0.35	5.10	-
19 Sep 24	13:55	0.00	9.55	0.08	5.04	-
19 Sep 24	13:56	0.00	9.28	0.06	5.04	-
Max		0.00	10.81	2.20	5.10	-
Avg		0.00	10.00	0.82	4.79	-

Reference Method Data

Client Name: PTT Global Chemical PCL. — Date: 19 Sep 24
Plant Name: BV Plant (I-4) — Location: F-4301

Run No: 1 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	9:45	0.26	11.90	0.01	4.93	7.85
19 Sep 24	9:46	0.25	11.89	0.06	4.96	7.88
19 Sep 24	9:47	0.24	11.88	0.14	4.90	7.84
19 Sep 24	9:48	0.22	11.87	0.17	4.98	7.87
19 Sep 24	9:49	0.21	11.85	0.16	4.98	7.85
19 Sep 24	9:50	0.19	11.84	0.15	5.00	7.86
19 Sep 24	9:51	0.22	11.86	0.32	4.93	7.87
19 Sep 24	9:52	0.22	11.87	0.23	4.94	7.83
19 Sep 24	9:53	0.21	11.86	0.06	5.03	7.86
19 Sep 24	9:54	0.18	11.82	0.18	4.99	7.84
19 Sep 24	9:55	0.15	11.78	0.23	4.91	7.85
19 Sep 24	9:56	0.09	11.74	0.20	5.06	7.88
19 Sep 24	9:57	0.09	11.72	0.42	5.03	7.81
19 Sep 24	9:58	0.11	11.73	0.22	5.01	7.84
19 Sep 24	9:59	0.12	11.73	0.34	5.04	7.85
19 Sep 24	10:00	0.08	11.69	0.05	5.00	7.83
19 Sep 24	10:01	0.04	11.67	0.10	5.07	7.82
19 Sep 24	10:02	0.12	11.74	0.21	5.06	7.78
19 Sep 24	10:03	0.23	11.86	0.05	5.06	7.81
19 Sep 24	10:04	0.27	11.91	0.26	5.08	7.81
19 Sep 24	10:05	0.18	11.95	0.05	5.02	7.82
Max		0.27	11.95	0.42	5.08	7.88
Avg		0.17	11.82	0.17	5.00	7.84

Run No: 2 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	10:06	0.25	11.99	0.19	4.97	7.85
19 Sep 24	10:07	0.28	12.01	0.15	5.03	7.81
19 Sep 24	10:08	0.27	12.01	0.23	4.97	7.85
19 Sep 24	10:09	0.25	12.00	0.00	5.08	7.83
19 Sep 24	10:10	0.19	12.03	0.21	5.01	7.81
19 Sep 24	10:11	0.21	12.04	0.17	5.04	7.84
19 Sep 24	10:12	0.19	12.04	0.26	4.98	7.81
19 Sep 24	10:13	0.23	12.04	0.26	5.07	7.83
19 Sep 24	10:14	0.24	12.03	0.11	5.12	7.81
19 Sep 24	10:15	0.19	11.99	0.15	5.01	7.81
19 Sep 24	10:16	0.17	11.99	0.12	5.06	7.87
19 Sep 24	10:17	0.24	11.95	0.18	4.98	7.84
19 Sep 24	10:18	0.24	11.96	0.22	5.02	7.85
19 Sep 24	10:19	0.23	11.93	0.23	5.01	7.85
19 Sep 24	10:20	0.18	11.92	0.06	4.97	7.84
19 Sep 24	10:21	0.27	11.91	0.18	5.01	7.84
19 Sep 24	10:22	0.24	11.89	0.13	4.94	7.80
19 Sep 24	10:23	0.21	11.88	0.05	4.97	7.82
19 Sep 24	10:24	0.12	11.76	-0.02	5.06	7.85
19 Sep 24	10:25	0.09	11.74	0.10	4.92	7.81
19 Sep 24	10:26	0.14	11.77	0.03	4.99	7.89
Max		0.28	12.04	0.26	5.12	7.89
Avg		0.21	11.95	0.14	5.01	7.83

Run No: 3 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	10:27	0.13	11.78	0.07	4.96	7.84
19 Sep 24	10:28	0.12	11.75	0.12	5.03	7.84
19 Sep 24	10:29	0.12	11.76	0.04	4.96	7.84
19 Sep 24	10:30	0.11	11.75	0.00	4.92	7.85
19 Sep 24	10:31	0.10	11.75	0.07	5.01	7.88
19 Sep 24	10:32	0.11	11.73	0.11	4.97	7.84
19 Sep 24	10:33	0.10	11.73	0.12	5.00	7.83
19 Sep 24	10:34	0.09	11.73	0.15	5.01	7.83
19 Sep 24	10:35	0.04	11.68	0.12	4.95	7.80
19 Sep 24	10:36	0.03	11.69	0.09	4.94	7.85
19 Sep 24	10:37	0.07	11.74	0.23	4.97	7.87
19 Sep 24	10:38	0.09	11.78	0.09	4.90	7.86
19 Sep 24	10:39	0.04	11.70	0.15	4.87	7.91
19 Sep 24	10:40	0.20	11.67	0.12	4.83	7.85
19 Sep 24	10:41	0.19	11.65	-0.01	4.80	7.95
19 Sep 24	10:42	0.17	11.63	-0.01	4.81	7.94
19 Sep 24	10:43	0.17	11.62	0.01	4.79	7.94
19 Sep 24	10:44	0.15	11.60	0.12	4.81	7.92
19 Sep 24	10:45	0.13	11.58	0.13	4.75	7.92
19 Sep 24	10:46	0.16	11.62	0.25	4.79	7.92
19 Sep 24	10:47	0.22	11.66	0.11	4.77	7.93
Max		0.22	11.78	0.25	5.03	7.95
Avg		0.12	11.69	0.10	4.90	7.88

Run No: 4 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	10:48	0.20	11.66	0.11	4.72	7.98
19 Sep 24	10:49	0.18	11.63	0.04	4.71	7.98
19 Sep 24	10:50	0.15	11.58	0.00	4.63	7.97
19 Sep 24	10:51	0.08	11.55	0.03	4.69	7.99
19 Sep 24	10:52	0.05	11.52	0.08	4.70	7.99
19 Sep 24	10:53	0.06	11.54	0.10	4.70	8.01
19 Sep 24	10:54	0.10	11.54	0.08	4.75	7.99
19 Sep 24	10:55	0.12	11.55	0.15	4.66	7.97
19 Sep 24	10:56	0.07	11.50	0.15	4.72	7.98
19 Sep 24	10:57	0.02	11.47	0.11	4.76	7.96
19 Sep 24	10:58	0.04	11.48	0.05	4.64	8.01
19 Sep 24	10:59	0.07	11.51	0.22	4.69	8.02
19 Sep 24	11:00	0.11	11.54	0.16	4.65	7.97
19 Sep 24	11:01	0.10	11.55	0.15	4.65	7.97
19 Sep 24	11:02	0.08	11.54	0.16	4.70	7.98
19 Sep 24	11:03	0.06	11.54	0.15	4.61	8.02
19 Sep 24	11:04	0.06	11.53	0.17	4.64	8.02
19 Sep 24	11:05	0.05	11.53	0.24	4.63	7.99
19 Sep 24	11:06	0.07	11.53	0.14	4.71	8.01
19 Sep 24	11:07	0.05	11.52	0.14	4.72	7.99
19 Sep 24	11:08	0.00	11.48	0.07	4.64	8.00
Max		0.20	11.66	0.24	4.76	8.02
Avg		0.08	11.54	0.12	4.68	7.99

Run No: 5 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	11:09	0.11	11.44	0.06	4.66	8.02
19 Sep 24	11:10	0.13	11.43	0.18	4.50	8.04
19 Sep 24	11:11	0.13	11.42	0.08	4.53	8.08
19 Sep 24	11:12	0.12	11.43	0.13	4.62	8.07
19 Sep 24	11:13	0.13	11.41	0.20	4.62	8.03
19 Sep 24	11:14	0.15	11.42	0.20	4.65	8.02
19 Sep 24	11:15	0.10	11.40	0.11	4.58	8.00
19 Sep 24	11:16	0.06	11.39	0.07	4.63	8.06
19 Sep 24	11:17	0.09	11.41	0.20	4.61	8.02
19 Sep 24	11:18	0.18	11.49	0.19	4.56	8.02
19 Sep 24	11:19	0.19	11.48	0.14	4.62	8.01
19 Sep 24	11:20	0.11	11.42	0.12	4.54	8.02
19 Sep 24	11:21	0.08	11.43	0.08	4.57	8.05
19 Sep 24	11:22	0.11	11.44	0.12	4.65	8.06
19 Sep 24	11:23	0.18	11.45	0.15	4.59	8.04
19 Sep 24	11:24	0.18	11.47	0.08	4.56	8.04
19 Sep 24	11:25	0.21	11.54	0.21	4.47	8.04
19 Sep 24	11:26	0.25	11.55	0.13	4.56	8.08
19 Sep 24	11:27	0.23	11.52	0.13	4.62	8.05
19 Sep 24	11:28	0.19	11.50	0.23	4.54	8.01
19 Sep 24	11:29	0.14	11.48	0.08	4.56	8.03
Max		0.25	11.55	0.23	4.66	8.08
Avg		0.15	11.45	0.14	4.58	8.04

Run No: 6 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	11:30	0.13	11.46	0.13	4.54	8.01
19 Sep 24	11:31	0.13	11.47	0.10	4.59	8.01
19 Sep 24	11:32	0.13	11.46	0.11	4.60	8.03
19 Sep 24	11:33	0.09	11.44	0.09	4.55	8.02
19 Sep 24	11:34	0.09	11.42	0.15	4.61	8.02
19 Sep 24	11:35	0.12	11.45	0.18	4.55	7.98
19 Sep 24	11:36	0.11	11.43	0.07	4.54	7.99
19 Sep 24	11:37	0.09	11.42	0.13	4.60	8.07
19 Sep 24	11:38	0.11	11.42	0.15	4.53	8.06
19 Sep 24	11:39	0.08	11.42	0.07	4.60	8.08
19 Sep 24	11:40	0.05	11.40	0.10	4.50	8.01
19 Sep 24	11:41	0.03	11.38	0.11	4.53	8.04
19 Sep 24	11:42	0.01	11.35	0.18	4.57	8.04
19 Sep 24	11:43	-0.01	11.33	0.00	4.49	8.10
19 Sep 24	11:44	-0.01	11.32	0.02	4.51	8.07
19 Sep 24	11:45	0.00	11.35	-0.01	4.21	8.11
19 Sep 24	11:46	0.02	11.35	0.06	4.27	8.22
19 Sep 24	11:47	0.16	11.30	0.05	4.36	8.16
19 Sep 24	11:48	0.14	11.29	0.07	4.26	8.17
19 Sep 24	11:49	0.13	11.28	0.11	4.32	8.19
19 Sep 24	11:50	0.14	11.28	0.05	4.33	8.17
Max		0.16	11.47	0.18	4.61	8.22
Avg		0.08	11.38	0.09	4.49	8.08

Reference Method Data

Client Name: PTT Global Chemical PCL. — Date: 19 Sep 24
Plant Name: BV Plant (I-4) — Location: F-4301

Run No: 7 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	11:51	0.11	11.28	0.18	4.26	8.17
19 Sep 24	11:52	0.09	11.26	0.33	4.20	8.20
19 Sep 24	11:53	0.10	11.25	0.22	4.08	8.22
19 Sep 24	11:54	0.11	11.25	0.14	4.13	8.27
19 Sep 24	11:55	0.11	11.25	0.17	4.04	8.27
19 Sep 24	11:56	0.08	11.25	0.33	4.07	8.31
19 Sep 24	11:57	0.02	11.20	0.15	4.01	8.30
19 Sep 24	11:58	-0.01	11.15	0.32	3.96	8.26
19 Sep 24	11:59	0.02	11.13	0.35	4.09	8.30
19 Sep 24	12:00	0.05	11.10	0.38	3.99	8.27
19 Sep 24	12:01	0.05	11.13	0.45	4.07	8.28
19 Sep 24	12:02	0.04	11.14	0.43	4.02	8.32
19 Sep 24	12:03	0.05	11.12	0.32	3.99	8.26
19 Sep 24	12:04	0.07	11.12	0.33	4.11	8.32
19 Sep 24	12:05	0.08	11.09	0.21	4.02	8.27
19 Sep 24	12:06	0.06	11.08	0.31	4.07	8.34
19 Sep 24	12:07	0.04	11.10	0.26	4.02	8.32
19 Sep 24	12:08	0.06	11.11	0.28	3.95	8.30
19 Sep 24	12:09	0.13	11.08	0.51	4.00	8.36
19 Sep 24	12:10	0.13	11.07	0.32	3.87	8.31
19 Sep 24	12:11	0.10	11.07	0.34	4.08	8.33
Max		0.13	11.28	0.51	4.26	8.36
Avg		0.07	11.15	0.30	4.05	8.28

Run No: 8 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	12:12	0.10	11.08	0.31	4.03	8.30
19 Sep 24	12:13	0.13	11.07	0.33	3.94	8.28
19 Sep 24	12:14	0.15	11.05	0.41	4.04	8.31
19 Sep 24	12:15	0.23	11.01	0.42	3.98	8.28
19 Sep 24	12:16	0.23	11.01	0.46	3.95	8.36
19 Sep 24	12:17	0.22	10.98	0.50	4.02	8.35
19 Sep 24	12:18	0.25	10.96	0.77	3.87	8.33
19 Sep 24	12:19	0.08	10.96	0.60	3.98	8.40
19 Sep 24	12:20	0.14	10.97	0.48	3.97	8.34
19 Sep 24	12:21	0.18	10.98	0.58	3.99	8.35
19 Sep 24	12:22	0.17	10.97	0.61	3.91	8.34
19 Sep 24	12:23	0.15	10.98	0.55	3.82	8.35
19 Sep 24	12:24	0.09	10.98	0.46	4.03	8.38
19 Sep 24	12:25	0.11	10.99	0.23	3.97	8.29
19 Sep 24	12:26	0.09	10.95	0.51	3.96	8.34
19 Sep 24	12:27	0.13	10.92	0.53	3.97	8.36
19 Sep 24	12:28	0.13	10.91	0.60	3.84	8.33
19 Sep 24	12:29	0.09	10.93	0.89	3.98	8.40
19 Sep 24	12:30	0.07	10.96	0.52	3.95	8.32
19 Sep 24	12:31	0.14	10.96	0.78	3.89	8.34
19 Sep 24	12:32	0.14	10.96	0.53	3.91	8.39
Max		0.25	11.08	0.89	4.04	8.40
Avg		0.14	10.98	0.53	3.95	8.34

Run No: 9 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	12:33	0.13	10.94	0.51	3.84	8.35
19 Sep 24	12:34	0.08	10.91	0.59	3.92	8.38
19 Sep 24	12:35	0.20	10.90	0.55	3.99	8.32
19 Sep 24	12:36	0.18	10.93	0.65	3.94	8.34
19 Sep 24	12:37	0.17	10.96	0.37	4.02	8.33
19 Sep 24	12:38	0.20	10.95	0.39	3.85	8.32
19 Sep 24	12:39	0.20	10.91	0.39	3.92	8.38
19 Sep 24	12:40	0.19	10.93	0.44	4.06	8.34
19 Sep 24	12:41	0.18	10.92	0.84	3.93	8.33
19 Sep 24	12:42	0.15	10.96	0.30	3.97	8.29
19 Sep 24	12:43	0.14	10.98	0.26	3.80	8.32
19 Sep 24	12:44	0.18	10.94	0.42	3.89	8.41
19 Sep 24	12:45	0.24	10.91	0.45	3.87	8.35
19 Sep 24	12:46	0.21	10.96	0.55	3.85	8.37
19 Sep 24	12:47	0.16	11.00	0.26	3.86	8.36
19 Sep 24	12:48	0.16	10.99	0.66	3.87	8.30
19 Sep 24	12:49	0.19	10.99	0.59	3.95	8.36
19 Sep 24	12:50	0.17	10.99	0.36	4.02	8.35
19 Sep 24	12:51	0.16	10.97	0.35	3.99	8.34
19 Sep 24	12:52	0.16	10.94	0.31	4.04	8.30
19 Sep 24	12:53	0.19	10.93	0.15	3.89	8.30
Max		0.24	11.00	0.84	4.06	8.41
Avg		0.17	10.95	0.45	3.94	8.34

Run No: 10 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	12:54	0.12	10.92	0.39	4.00	8.36
19 Sep 24	12:55	0.14	10.92	0.27	3.93	8.35
19 Sep 24	12:56	0.14	10.90	0.61	3.89	8.39
19 Sep 24	12:57	0.14	10.92	0.40	3.86	8.40
19 Sep 24	12:58	0.13	10.92	0.50	3.80	8.38
19 Sep 24	12:59	0.16	10.90	0.59	3.91	8.39
19 Sep 24	13:00	0.17	10.89	0.54	3.95	8.35
19 Sep 24	13:01	0.19	10.88	0.52	3.88	8.38
19 Sep 24	13:02	0.21	10.86	0.47	3.91	8.40
19 Sep 24	13:03	0.24	10.83	0.58	3.83	8.37
19 Sep 24	13:04	0.25	10.83	0.85	3.98	8.39
19 Sep 24	13:05	0.22	10.86	0.65	3.97	8.38
19 Sep 24	13:06	0.15	10.90	0.34	4.00	8.31
19 Sep 24	13:07	0.11	10.92	0.32	4.00	8.35
19 Sep 24	13:08	0.16	10.88	0.58	3.91	8.29
19 Sep 24	13:09	0.20	10.85	0.50	3.97	8.35
19 Sep 24	13:10	0.13	10.89	0.50	3.92	8.35
19 Sep 24	13:11	0.10	10.94	0.42	3.90	8.36
19 Sep 24	13:12	0.10	10.96	0.32	3.87	8.40
19 Sep 24	13:13	0.19	10.95	0.25	3.83	8.37
19 Sep 24	13:14	0.09	10.94	0.44	3.87	8.40
Max		0.25	10.96	0.85	4.00	8.40
Avg		0.16	10.90	0.48	3.92	8.37

Run No: 11 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	13:15	0.14	10.92	0.53	3.94	8.35
19 Sep 24	13:16	0.20	10.87	0.74	3.99	8.34
19 Sep 24	13:17	0.21	10.85	0.49	4.06	8.29
19 Sep 24	13:18	0.19	10.85	0.32	4.07	8.26
19 Sep 24	13:19	0.15	10.89	0.30	4.18	8.29
19 Sep 24	13:20	0.17	10.87	0.32	4.16	8.27
19 Sep 24	13:21	0.17	10.89	0.23	3.98	8.27
19 Sep 24	13:22	0.15	10.89	0.26	4.04	8.31
19 Sep 24	13:23	0.13	10.91	0.17	3.99	8.29
19 Sep 24	13:24	0.14	10.92	0.22	4.11	8.35
19 Sep 24	13:25	0.11	10.91	0.13	4.18	8.27
19 Sep 24	13:26	0.11	10.88	0.34	4.05	8.25
19 Sep 24	13:27	0.03	10.97	0.31	4.15	8.26
19 Sep 24	13:28	0.06	10.98	0.23	4.16	8.19
19 Sep 24	13:29	0.09	10.98	0.53	4.09	8.26
19 Sep 24	13:30	0.12	10.98	0.45	4.07	8.30
19 Sep 24	13:31	0.13	10.98	0.22	4.04	8.31
19 Sep 24	13:32	0.12	10.97	0.37	4.09	8.32
19 Sep 24	13:33	0.10	10.97	0.12	4.09	8.25
19 Sep 24	13:34	0.15	11.00	0.11	4.10	8.28
19 Sep 24	13:35	0.17	11.01	0.64	4.08	8.28
Max		0.21	11.01	0.74	4.18	8.35
Avg		0.13	10.93	0.33	4.08	8.29

Run No: 12 — Time Base : 21 min

Date	Time	SO2	NOx	CO	O2	CO2
		ppm	ppm	ppm	Vol%	Vol%
19 Sep 24	13:36	0.20	10.98	0.49	4.07	8.28
19 Sep 24	13:37	0.21	10.97	0.15	4.13	8.30
19 Sep 24	13:38	0.18	10.98	0.19	4.24	8.20
19 Sep 24	13:39	0.21	10.97	0.62	4.17	8.23
19 Sep 24	13:40	0.25	10.96	0.31	4.26	8.22
19 Sep 24	13:41	0.23	10.95	0.15	4.25	8.16
19 Sep 24	13:42	0.17	11.01	0.20	4.25	8.20
19 Sep 24	13:43	0.14	11.06	0.07	4.34	8.17
19 Sep 24	13:44	0.13	11.05	0.09	4.34	8.19
19 Sep 24	13:45	0.17	11.01	0.26	4.39	8.15
19 Sep 24	13:46	0.13	10.95	0.11	4.37	8.19
19 Sep 24	13:47	0.17	10.90	0.07	4.39	8.18
19 Sep 24	13:48	0.17	10.88	0.00	4.49	8.10
19 Sep 24	13:49	0.13	10.91	0.05	4.44	8.12
19 Sep 24	13:50	0.09	10.97	0.04	4.39	8.11
19 Sep 24	13:51	0.13	11.04	0.03	4.44	8.09
19 Sep 24	13:52	0.09	11.09	0.00	4.47	8.08
19 Sep 24	13:53	0.08	11.10	0.01	4.65	8.06
19 Sep 24	13:54	0.09	11.09	-0.02	4.57	8.05
19 Sep 24	13:55	0.12	11.06	0.00	4.58	8.04
19 Sep 24	13:56	0.12	11.04	0.03	4.63	8.00
Max		0.25	11.10	0.62	4.65	8.30
Avg		0.15	11.00	0.14	4.37	8.15

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 24 Sep 24
Plant Name: BV Plant (I-4) Location: F-4302

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	10:00	0.00	8.56	0.00	6.33	-
24 Sep 24	10:01	0.00	8.62	0.00	6.29	-
24 Sep 24	10:02	0.00	8.72	0.00	6.23	-
24 Sep 24	10:03	0.00	8.95	0.00	6.23	-
24 Sep 24	10:04	0.00	9.14	0.00	6.26	-
24 Sep 24	10:05	0.00	9.18	0.00	6.17	-
24 Sep 24	10:06	0.00	9.37	0.00	6.38	-
24 Sep 24	10:07	0.00	9.43	0.00	6.59	-
24 Sep 24	10:08	0.00	9.24	0.00	6.55	-
24 Sep 24	10:09	0.00	9.09	0.00	6.43	-
24 Sep 24	10:10	0.00	8.84	0.00	6.49	-
24 Sep 24	10:11	0.00	8.76	0.00	6.52	-
24 Sep 24	10:12	0.00	8.54	0.00	6.57	-
24 Sep 24	10:13	0.00	8.31	0.00	6.61	-
24 Sep 24	10:14	0.00	8.31	0.00	6.59	-
24 Sep 24	10:15	0.00	8.29	0.00	6.49	-
24 Sep 24	10:16	0.00	8.18	0.00	6.46	-
24 Sep 24	10:17	0.00	8.14	0.00	6.52	-
24 Sep 24	10:18	0.00	8.07	0.00	6.64	-
24 Sep 24	10:19	0.00	7.95	0.00	6.70	-
24 Sep 24	10:20	0.00	8.15	0.00	6.50	-
Max		0.00	9.43	0.00	6.70	-
Avg		0.00	8.68	0.00	6.45	-

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	10:21	0.00	8.33	0.00	6.35	-
24 Sep 24	10:22	0.00	8.35	0.00	6.39	-
24 Sep 24	10:23	0.00	8.20	0.00	6.74	-
24 Sep 24	10:24	0.00	8.29	0.00	6.76	-
24 Sep 24	10:25	0.00	8.39	0.00	6.35	-
24 Sep 24	10:26	0.00	8.24	0.00	6.23	-
24 Sep 24	10:27	0.00	8.00	0.00	6.35	-
24 Sep 24	10:28	0.00	7.94	0.00	6.39	-
24 Sep 24	10:29	0.00	8.00	0.00	6.29	-
24 Sep 24	10:30	0.00	7.93	0.00	6.26	-
24 Sep 24	10:31	0.00	7.79	0.00	6.38	-
24 Sep 24	10:32	0.00	7.71	0.00	6.49	-
24 Sep 24	10:33	0.00	7.75	0.00	6.47	-
24 Sep 24	10:34	0.00	7.71	0.00	6.50	-
24 Sep 24	10:35	0.00	7.72	0.00	6.45	-
24 Sep 24	10:36	0.00	7.72	0.00	6.43	-
24 Sep 24	10:37	0.00	7.92	0.00	6.44	-
24 Sep 24	10:38	0.00	8.05	0.00	6.59	-
24 Sep 24	10:39	0.00	8.09	0.00	6.68	-
24 Sep 24	10:40	0.00	8.33	0.00	6.47	-
24 Sep 24	10:41	0.00	8.37	0.00	6.38	-
Max		0.00	8.39	0.00	6.76	-
Avg		0.00	8.04	0.00	6.45	-

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	10:42	0.00	8.37	0.00	6.54	-
24 Sep 24	10:43	0.00	8.42	0.00	6.60	-
24 Sep 24	10:44	0.00	8.53	0.00	6.51	-
24 Sep 24	10:45	0.00	8.73	0.00	6.32	-
24 Sep 24	10:46	0.00	8.94	0.00	6.33	-
24 Sep 24	10:47	0.00	9.28	0.00	6.52	-
24 Sep 24	10:48	0.00	9.81	0.00	6.53	-
24 Sep 24	10:49	0.00	10.45	0.00	6.47	-
24 Sep 24	10:50	0.00	11.15	0.00	6.31	-
24 Sep 24	10:51	0.00	11.43	0.00	6.39	-
24 Sep 24	10:52	0.00	11.28	0.00	6.50	-
24 Sep 24	10:53	0.00	11.00	0.00	6.36	-
24 Sep 24	10:54	0.00	10.66	0.00	6.35	-
24 Sep 24	10:55	0.00	10.51	0.00	6.28	-
24 Sep 24	10:56	0.00	10.34	0.00	6.27	-
24 Sep 24	10:57	0.00	10.23	0.00	6.41	-
24 Sep 24	10:58	0.00	10.13	0.00	6.51	-
24 Sep 24	10:59	0.00	9.86	0.00	6.63	-
24 Sep 24	11:00	0.00	9.74	0.00	6.60	-
24 Sep 24	11:01	0.00	9.55	0.00	6.54	-
24 Sep 24	11:02	0.00	9.35	0.00	6.59	-
Max		0.00	11.43	0.00	6.63	-
Avg		0.00	9.89	0.00	6.46	-

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	11:03	0.00	9.31	0.00	6.63	-
24 Sep 24	11:04	0.00	9.20	0.00	6.50	-
24 Sep 24	11:05	0.00	9.13	0.00	6.40	-
24 Sep 24	11:06	0.00	8.99	0.00	6.40	-
24 Sep 24	11:07	0.00	8.90	0.00	6.40	-
24 Sep 24	11:08	0.00	8.88	0.00	6.33	-
24 Sep 24	11:09	0.00	8.83	0.00	6.38	-
24 Sep 24	11:10	0.00	8.68	0.00	6.42	-
24 Sep 24	11:11	0.00	8.93	0.00	6.46	-
24 Sep 24	11:12	0.00	8.90	0.00	6.66	-
24 Sep 24	11:13	0.00	8.98	0.00	6.60	-
24 Sep 24	11:14	0.00	9.03	0.00	6.55	-
24 Sep 24	11:15	0.00	9.01	0.00	6.56	-
24 Sep 24	11:16	0.00	8.81	0.00	6.50	-
24 Sep 24	11:17	0.00	8.67	0.00	6.47	-
24 Sep 24	11:18	0.00	8.67	0.00	6.41	-
24 Sep 24	11:19	0.00	8.56	0.00	6.35	-
24 Sep 24	11:20	0.00	8.56	0.00	6.29	-
24 Sep 24	11:21	0.00	8.47	0.00	6.32	-
24 Sep 24	11:22	0.00	8.35	0.00	6.34	-
24 Sep 24	11:23	0.00	8.34	0.00	6.33	-
Max		0.00	9.31	0.00	6.66	-
Avg		0.00	8.83	0.00	6.44	-

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	11:24	0.00	8.32	0.00	6.39	-
24 Sep 24	11:25	0.00	8.48	0.00	6.41	-
24 Sep 24	11:26	0.00	8.40	0.00	6.60	-
24 Sep 24	11:27	0.00	8.45	0.00	6.68	-
24 Sep 24	11:28	0.00	8.65	0.00	6.54	-
24 Sep 24	11:29	0.00	8.54	0.00	6.81	-
24 Sep 24	11:30	0.00	8.41	0.00	6.77	-
24 Sep 24	11:31	0.00	8.40	0.00	6.80	-
24 Sep 24	11:32	0.00	8.28	0.00	6.75	-
24 Sep 24	11:33	0.00	8.18	0.00	6.60	-
24 Sep 24	11:34	0.00	8.19	0.00	6.55	-
24 Sep 24	11:35	0.00	8.21	0.00	6.50	-
24 Sep 24	11:36	0.00	8.09	0.00	6.68	-
24 Sep 24	11:37	0.00	7.99	0.00	6.86	-
24 Sep 24	11:38	0.00	8.00	0.00	6.84	-
24 Sep 24	11:39	0.00	7.97	0.00	6.81	-
24 Sep 24	11:40	0.00	7.95	0.00	6.83	-
24 Sep 24	11:41	0.00	7.98	0.00	6.88	-
24 Sep 24	11:42	0.00	8.10	0.00	6.75	-
24 Sep 24	11:43	0.00	8.16	0.00	6.59	-
24 Sep 24	11:44	0.00	8.08	0.00	6.67	-
Max		0.00	8.65	0.00	6.88	-
Avg		0.00	8.23	0.00	6.67	-

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	11:45	0.00	7.99	0.00	6.58	-
24 Sep 24	11:46	0.00	7.98	0.00	6.45	-
24 Sep 24	11:47	0.00	7.98	0.00	6.33	-
24 Sep 24	11:48	0.00	7.91	0.00	6.33	-
24 Sep 24	11:49	0.00	7.90	0.00	6.40	-
24 Sep 24	11:50	0.00	7.98	0.00	6.45	-
24 Sep 24	11:51	0.00	8.16	0.00	6.48	-
24 Sep 24	11:52	0.00	8.21	0.00	6.47	-
24 Sep 24	11:53	0.00	8.22	0.00	6.32	-
24 Sep 24	11:54	0.00	8.09	0.00	6.41	-
24 Sep 24	11:55	0.00	7.94	0.00	6.51	-
24 Sep 24	11:56	0.00	7.84	0.00	6.37	-
24 Sep 24	11:57	0.00	7.88	0.00	6.23	-
24 Sep 24	11:58	0.00	7.96	0.00	6.14	-
24 Sep 24	11:59	0.00	7.93	0.00	6.19	-
24 Sep 24	12:00	0.00	7.90	0.00	6.39	-
24 Sep 24	12:01	0.00	8.01	0.00	6.34	-
24 Sep 24	12:02	0.00	8.06	0.00	6.22	-
24 Sep 24	12:03	0.00	7.97	0.00	6.18	-
24 Sep 24	12:04	0.00	7.86	0.00	6.24	-
24 Sep 24	12:05	0.00	7.68	0.00	6.35	-
Max		0.00	8.22	0.00	6.58	-
Avg		0.00	7.97	0.00	6.35	-

CEMs Data

Client Name: PTT Global Chemical PCL. Date: 24 Sep 24
Plant Name: BV Plant (I-4) Location: F-4302

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	12:06	0.00	7.68	0.00	6.34	-
24 Sep 24	12:07	0.00	7.78	0.00	6.37	-
24 Sep 24	12:08	0.00	7.87	0.00	6.32	-
24 Sep 24	12:09	0.00	7.88	0.00	6.36	-
24 Sep 24	12:10	0.00	7.82	0.00	6.45	-
24 Sep 24	12:11	0.00	7.93	0.00	6.35	-
24 Sep 24	12:12	0.00	7.91	0.00	6.23	-
24 Sep 24	12:13	0.00	7.77	0.00	6.10	-
24 Sep 24	12:14	0.00	7.62	0.00	6.26	-
24 Sep 24	12:15	0.00	7.64	0.00	6.58	-
24 Sep 24	12:16	0.00	7.69	0.00	6.70	-
24 Sep 24	12:17	0.00	7.76	0.00	6.63	-
24 Sep 24	12:18	0.00	7.93	0.00	6.47	-
24 Sep 24	12:19	0.00	7.93	0.00	6.42	-
24 Sep 24	12:20	0.00	7.86	0.00	6.49	-
24 Sep 24	12:21	0.00	7.76	0.00	6.53	-
24 Sep 24	12:22	0.00	7.59	0.00	6.55	-
24 Sep 24	12:23	0.00	7.51	0.00	6.41	-
24 Sep 24	12:24	0.00	7.56	0.00	6.44	-
24 Sep 24	12:25	0.00	7.58	0.00	6.60	-
24 Sep 24	12:26	0.00	7.69	0.00	6.50	-
Max		0.00	7.93	0.00	6.70	-
Avg		0.00	7.75	0.00	6.43	-

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	12:27	0.00	7.75	0.00	6.46	-
24 Sep 24	12:28	0.00	7.86	0.00	6.44	-
24 Sep 24	12:29	0.00	7.88	0.00	6.45	-
24 Sep 24	12:30	0.00	7.80	0.00	6.59	-
24 Sep 24	12:31	0.00	7.71	0.00	6.47	-
24 Sep 24	12:32	0.00	7.72	0.00	6.30	-
24 Sep 24	12:33	0.00	7.81	0.00	6.32	-
24 Sep 24	12:34	0.00	7.81	0.00	6.39	-
24 Sep 24	12:35	0.00	7.82	0.00	6.40	-
24 Sep 24	12:36	0.00	7.96	0.00	6.34	-
24 Sep 24	12:37	0.00	8.04	0.00	6.33	-
24 Sep 24	12:38	0.00	7.87	0.00	6.29	-
24 Sep 24	12:39	0.00	7.79	0.00	6.29	-
24 Sep 24	12:40	0.00	7.64	0.00	6.31	-
24 Sep 24	12:41	0.00	7.60	0.00	6.32	-
24 Sep 24	12:42	0.00	7.66	0.00	6.35	-
24 Sep 24	12:43	0.00	7.72	0.00	6.33	-
24 Sep 24	12:44	0.00	7.77	0.00	6.47	-
24 Sep 24	12:45	0.00	7.91	0.00	6.43	-
24 Sep 24	12:46	0.00	7.99	0.00	6.41	-
24 Sep 24	12:47	0.00	7.99	0.00	6.41	-
Max		0.00	8.04	0.00	6.59	-
Avg		0.00	7.82	0.00	6.39	-

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	12:48	0.00	7.94	0.00	6.25	-
24 Sep 24	12:49	0.00	7.86	0.00	6.18	-
24 Sep 24	12:50	0.00	7.76	0.00	6.18	-
24 Sep 24	12:51	0.00	7.79	0.00	6.14	-
24 Sep 24	12:52	0.00	7.84	0.00	6.24	-
24 Sep 24	12:53	0.00	7.93	0.00	6.28	-
24 Sep 24	12:54	0.00	7.86	0.00	6.26	-
24 Sep 24	12:55	0.00	7.86	0.00	6.28	-
24 Sep 24	12:56	0.00	8.02	0.00	6.19	-
24 Sep 24	12:57	0.00	7.76	0.00	6.31	-
24 Sep 24	12:58	0.00	7.86	0.00	6.32	-
24 Sep 24	12:59	0.00	7.85	0.00	6.46	-
24 Sep 24	13:00	0.00	7.77	0.00	6.55	-
24 Sep 24	13:01	0.00	7.89	0.00	6.34	-
24 Sep 24	13:02	0.00	7.93	0.00	6.27	-
24 Sep 24	13:03	0.00	7.86	0.00	6.37	-
24 Sep 24	13:04	0.00	7.95	0.00	6.43	-
24 Sep 24	13:05	0.00	7.90	0.00	6.54	-
24 Sep 24	13:06	0.00	7.78	0.00	6.53	-
24 Sep 24	13:07	0.00	7.71	0.00	6.48	-
24 Sep 24	13:08	0.00	7.87	0.00	6.51	-
Max		0.00	8.02	0.00	6.55	-
Avg		0.00	7.84	0.00	6.34	-

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	13:09	0.00	7.71	0.00	6.40	-
24 Sep 24	13:10	0.00	7.78	0.00	6.24	-
24 Sep 24	13:11	0.00	7.79	0.00	6.17	-
24 Sep 24	13:12	0.00	7.88	0.00	6.21	-
24 Sep 24	13:13	0.00	7.93	0.00	6.21	-
24 Sep 24	13:14	0.00	7.88	0.00	6.13	-
24 Sep 24	13:15	0.00	7.77	0.00	6.23	-
24 Sep 24	13:16	0.00	7.75	0.00	6.28	-
24 Sep 24	13:17	0.00	7.69	0.00	6.43	-
24 Sep 24	13:18	0.00	7.72	0.00	6.55	-
24 Sep 24	13:19	0.00	7.77	0.00	6.47	-
24 Sep 24	13:20	0.00	7.82	0.00	6.37	-
24 Sep 24	13:21	0.00	7.98	0.00	6.33	-
24 Sep 24	13:22	0.00	7.94	0.00	6.37	-
24 Sep 24	13:23	0.00	7.87	0.00	6.42	-
24 Sep 24	13:24	0.00	7.73	0.00	6.37	-
24 Sep 24	13:25	0.00	7.66	0.00	6.35	-
24 Sep 24	13:26	0.00	7.77	0.00	6.31	-
24 Sep 24	13:27	0.00	7.85	0.00	6.31	-
24 Sep 24	13:28	0.00	7.85	0.00	6.27	-
24 Sep 24	13:29	0.00	7.91	0.00	6.23	-
Max		0.00	7.98	0.00	6.55	-
Avg		0.00	7.82	0.00	6.32	-

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	13:30	0.00	7.98	0.00	6.40	-
24 Sep 24	13:31	0.00	7.96	0.00	6.30	-
24 Sep 24	13:32	0.00	7.78	0.00	6.29	-
24 Sep 24	13:33	0.00	7.68	0.00	6.39	-
24 Sep 24	13:34	0.00	7.55	0.00	6.37	-
24 Sep 24	13:35	0.00	7.47	0.00	6.44	-
24 Sep 24	13:36	0.00	7.68	0.00	6.44	-
24 Sep 24	13:37	0.00	7.74	0.00	6.31	-
24 Sep 24	13:38	0.00	7.78	0.00	6.37	-
24 Sep 24	13:39	0.00	7.80	0.00	6.35	-
24 Sep 24	13:40	0.00	7.75	0.00	6.32	-
24 Sep 24	13:41	0.00	7.71	0.00	6.35	-
24 Sep 24	13:42	0.00	7.48	0.00	6.48	-
24 Sep 24	13:43	0.00	7.48	0.00	6.51	-
24 Sep 24	13:44	0.00	7.58	0.00	6.39	-
24 Sep 24	13:45	0.00	7.57	0.00	6.46	-
24 Sep 24	13:46	0.00	7.57	0.00	6.41	-
24 Sep 24	13:47	0.00	7.54	0.00	6.40	-
24 Sep 24	13:48	0.00	7.53	0.00	6.49	-
24 Sep 24	13:49	0.00	7.58	0.00	6.51	-
24 Sep 24	13:50	0.00	7.54	0.00	6.50	-
Max		0.00	7.98	0.00	6.51	-
Avg		0.00	7.66	0.00	6.40	-

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	13:51	0.00	7.65	0.00	6.30	-
24 Sep 24	13:52	0.00	7.68	0.00	6.25	-
24 Sep 24	13:53	0.00	7.47	0.00	6.34	-
24 Sep 24	13:54	0.00	7.52	0.00	6.34	-
24 Sep 24	13:55	0.00	7.61	0.00	6.29	-
24 Sep 24	13:56	0.00	7.54	0.00	6.22	-
24 Sep 24	13:57	0.00	7.49	0.00	6.25	-
24 Sep 24	13:58	0.00	7.42	0.00	6.33	-
24 Sep 24	13:59	0.00	7.43	0.00	6.41	-
24 Sep 24	14:00	0.00	7.45	0.00	6.35	-
24 Sep 24	14:01	0.00	7.47	0.00	6.27	-
24 Sep 24	14:02	0.00	7.58	0.00	6.32	-
24 Sep 24	14:03	0.00	7.65	0.00	6.33	-
24 Sep 24	14:04	0.00	7.65	0.00	6.26	-
24 Sep 24	14:05	0.00	7.60	0.00	6.27	-
24 Sep 24	14:06	0.00	7.52	0.00	6.44	-
24 Sep 24	14:07	0.00	7.62	0.00	6.69	-
24 Sep 24	14:08	0.00	7.59	0.00	6.69	-
24 Sep 24	14:09	0.00	7.44	0.00	6.60	-
24 Sep 24	14:10	0.00	7.40	0.00	6.54	-
24 Sep 24	14:11	0.00	7.39	0.00	6.56	-
Max		0.00	7.68	0.00	6.69	-
Avg		0.00	7.53	0.00	6.38	-

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 24 Sep 24
Plant Name: BV Plant (I-4) Location: F-4302

Run No: 1 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	10:00	0.24	8.04	0.11	6.06	7.44
24 Sep 24	10:01	0.22	8.03	0.02	5.80	7.46
24 Sep 24	10:02	0.24	7.97	0.13	5.97	7.50
24 Sep 24	10:03	0.19	7.93	0.04	5.98	7.48
24 Sep 24	10:04	0.21	7.94	0.13	5.98	7.47
24 Sep 24	10:05	0.16	7.94	0.11	5.87	7.49
24 Sep 24	10:06	0.20	7.92	0.01	5.81	7.51
24 Sep 24	10:07	0.16	7.94	0.02	6.10	7.49
24 Sep 24	10:08	0.16	8.02	0.08	6.35	7.32
24 Sep 24	10:09	0.19	8.10	0.09	6.13	7.33
24 Sep 24	10:10	0.18	8.11	0.03	5.99	7.42
24 Sep 24	10:11	0.16	8.09	0.25	6.08	7.48
24 Sep 24	10:12	0.14	8.06	0.10	6.15	7.42
24 Sep 24	10:13	0.15	8.09	0.20	6.26	7.39
24 Sep 24	10:14	0.15	8.15	0.08	6.25	7.33
24 Sep 24	10:15	0.13	8.12	0.03	6.36	7.32
24 Sep 24	10:16	0.17	8.17	0.18	6.22	7.29
24 Sep 24	10:17	0.14	8.16	0.10	6.14	7.40
24 Sep 24	10:18	0.14	8.13	0.17	6.28	7.39
24 Sep 24	10:19	0.12	8.12	0.14	6.24	7.38
24 Sep 24	10:20	0.12	8.14	0.03	6.28	7.35
Max		0.24	8.17	0.25	6.36	7.51
Avg		0.17	8.06	0.10	6.11	7.41

Run No: 2 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	10:21	0.27	8.17	0.19	6.17	7.32
24 Sep 24	10:22	0.30	8.23	0.11	6.02	7.43
24 Sep 24	10:23	0.27	8.18	0.08	6.14	7.44
24 Sep 24	10:24	0.27	8.13	0.04	6.33	7.40
24 Sep 24	10:25	0.27	8.18	0.09	6.48	7.22
24 Sep 24	10:26	0.27	8.31	0.06	6.03	7.28
24 Sep 24	10:27	0.27	8.37	0.09	5.97	7.50
24 Sep 24	10:28	0.27	8.31	0.08	5.99	7.50
24 Sep 24	10:29	0.23	8.23	0.06	6.04	7.49
24 Sep 24	10:30	0.28	8.25	0.11	5.93	7.50
24 Sep 24	10:31	0.26	8.31	0.05	5.97	7.47
24 Sep 24	10:32	0.09	8.32	0.06	6.09	7.47
24 Sep 24	10:33	0.31	8.32	0.00	6.14	7.43
24 Sep 24	10:34	0.25	8.33	0.14	6.08	7.40
24 Sep 24	10:35	0.29	8.39	0.00	6.22	7.41
24 Sep 24	10:36	0.25	8.48	0.00	6.14	7.38
24 Sep 24	10:37	0.25	8.60	0.18	6.11	7.41
24 Sep 24	10:38	0.24	8.69	0.10	6.11	7.41
24 Sep 24	10:39	0.25	8.74	0.23	6.19	7.41
24 Sep 24	10:40	0.28	8.80	0.05	6.35	7.35
24 Sep 24	10:41	0.26	8.88	0.09	6.20	7.31
Max		0.31	8.88	0.23	6.48	7.50
Avg		0.26	8.39	0.08	6.13	7.41

Run No: 3 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	10:42	0.26	9.03	0.10	6.04	7.45
24 Sep 24	10:43	0.24	9.07	0.15	6.23	7.41
24 Sep 24	10:44	0.26	9.16	0.09	6.13	7.35
24 Sep 24	10:45	0.21	9.43	0.03	6.13	7.39
24 Sep 24	10:46	0.23	9.73	0.03	6.03	7.41
24 Sep 24	10:47	0.18	10.17	0.06	5.99	7.50
24 Sep 24	10:48	0.22	10.80	0.02	6.17	7.47
24 Sep 24	10:49	0.18	11.96	0.01	6.04	7.41
24 Sep 24	10:50	0.19	13.05	0.22	6.09	7.42
24 Sep 24	10:51	0.21	14.22	0.03	6.06	7.42
24 Sep 24	10:52	0.20	15.67	0.11	6.16	7.43
24 Sep 24	10:53	0.18	16.19	0.01	6.12	7.39
24 Sep 24	10:54	0.16	15.97	0.13	5.93	7.44
24 Sep 24	10:55	0.17	15.32	0.01	5.95	7.47
24 Sep 24	10:56	0.17	14.36	0.13	5.95	7.45
24 Sep 24	10:57	0.15	13.82	0.04	5.97	7.49
24 Sep 24	10:58	0.19	13.49	0.02	6.03	7.49
24 Sep 24	10:59	0.16	13.11	0.14	6.11	7.43
24 Sep 24	11:00	0.16	12.89	0.06	6.25	7.37
24 Sep 24	11:01	0.14	12.58	0.00	6.29	7.29
24 Sep 24	11:02	0.14	12.45	0.00	6.19	7.37
Max		0.26	16.19	0.22	6.29	7.50
Avg		0.19	12.50	0.07	6.09	7.42

Run No: 4 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	11:03	0.29	12.27	0.06	6.19	7.38
24 Sep 24	11:04	0.32	12.00	0.08	6.16	7.37
24 Sep 24	11:05	0.29	11.90	0.04	6.18	7.38
24 Sep 24	11:06	0.29	11.87	0.24	6.11	7.38
24 Sep 24	11:07	0.29	11.80	0.03	6.05	7.45
24 Sep 24	11:08	0.29	11.66	0.03	5.99	7.49
24 Sep 24	11:09	0.29	11.55	0.21	5.94	7.47
24 Sep 24	11:10	0.29	11.47	0.05	5.99	7.48
24 Sep 24	11:11	0.25	11.32	0.02	6.08	7.45
24 Sep 24	11:12	0.26	11.25	0.03	6.14	7.43
24 Sep 24	11:13	0.26	11.17	0.06	6.29	7.40
24 Sep 24	11:14	0.25	11.10	0.07	6.22	7.31
24 Sep 24	11:15	0.24	11.09	0.05	6.22	7.36
24 Sep 24	11:16	0.22	11.05	0.08	6.23	7.38
24 Sep 24	11:17	0.28	10.87	0.05	6.15	7.38
24 Sep 24	11:18	0.22	10.75	0.24	6.14	7.40
24 Sep 24	11:19	0.22	10.71	0.13	6.01	7.40
24 Sep 24	11:20	0.24	10.66	0.18	5.93	7.51
24 Sep 24	11:21	0.25	10.60	0.06	6.08	7.47
24 Sep 24	11:22	0.24	10.56	0.03	5.92	7.51
24 Sep 24	11:23	0.22	10.50	0.09	5.94	7.50
Max		0.32	12.27	0.24	6.29	7.51
Avg		0.26	11.25	0.09	6.09	7.42

Run No: 5 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	11:24	0.21	10.41	0.10	5.99	7.48
24 Sep 24	11:25	0.22	10.33	0.12	6.06	7.47
24 Sep 24	11:26	0.18	10.31	0.20	6.15	7.39
24 Sep 24	11:27	0.19	10.31	0.03	6.14	7.42
24 Sep 24	11:28	0.17	10.34	0.00	6.36	7.32
24 Sep 24	11:29	0.20	10.36	0.06	6.10	7.34
24 Sep 24	11:30	0.18	10.39	0.04	6.30	7.40
24 Sep 24	11:31	0.16	10.24	0.13	6.53	7.29
24 Sep 24	11:32	0.16	10.19	0.01	6.37	7.24
24 Sep 24	11:33	0.32	10.19	0.02	6.52	7.23
24 Sep 24	11:34	0.29	10.13	0.01	6.20	7.26
24 Sep 24	11:35	0.08	10.11	0.11	6.17	7.41
24 Sep 24	11:36	0.31	10.05	0.00	6.10	7.39
24 Sep 24	11:37	0.25	10.00	0.03	6.18	7.45
24 Sep 24	11:38	0.29	9.91	0.03	6.47	7.27
24 Sep 24	11:39	0.25	9.90	0.11	6.56	7.16
24 Sep 24	11:40	0.25	9.97	0.01	6.58	7.19
24 Sep 24	11:41	0.24	10.02	0.03	6.40	7.26
24 Sep 24	11:42	0.25	10.00	0.03	6.52	7.28
24 Sep 24	11:43	0.28	9.95	0.05	6.33	7.27
24 Sep 24	11:44	0.26	9.94	0.05	6.17	7.34
Max		0.32	10.41	0.20	6.58	7.48
Avg		0.23	10.14	0.06	6.30	7.33

Run No: 6 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	11:45	0.26	9.89	0.00	6.35	7.34
24 Sep 24	11:46	0.24	9.87	0.12	6.21	7.30
24 Sep 24	11:47	0.26	9.86	0.00	6.10	7.43
24 Sep 24	11:48	0.21	9.83	0.12	5.98	7.46
24 Sep 24	11:49	0.23	9.74	0.16	6.03	7.46
24 Sep 24	11:50	0.18	9.67	0.32	6.09	7.45
24 Sep 24	11:51	0.22	9.66	0.08	6.09	7.45
24 Sep 24	11:52	0.18	9.63	0.36	6.13	7.42
24 Sep 24	11:53	0.18	9.59	0.37	6.04	7.43
24 Sep 24	11:54	0.21	9.62	0.28	6.00	7.42
24 Sep 24	11:55	0.20	9.64	0.07	6.02	7.46
24 Sep 24	11:56	0.18	9.61	0.17	6.20	7.39
24 Sep 24	11:57	0.16	9.58	0.05	6.00	7.46
24 Sep 24	11:58	0.17	9.58	0.03	5.98	7.50
24 Sep 24	11:59	0.17	9.55	0.09	5.96	7.49
24 Sep 24	12:00	0.15	9.50	0.03	5.85	7.54
24 Sep 24	12:01	0.19	9.45	0.09	5.97	7.55
24 Sep 24	12:02	0.16	9.41	0.01	5.91	7.46
24 Sep 24	12:03	0.16	9.41	0.02	5.92	7.52
24 Sep 24	12:04	0.14	9.33	0.17	5.93	7.50
24 Sep 24	12:05	0.14	9.24	0.10	6.00	7.53
Max		0.26	9.89	0.37	6.35	7.55
Avg		0.19	9.60	0.13	6.04	7.46

Reference Method Data

Client Name: PTT Global Chemical PCL. Date: 24 Sep 24
Plant Name: BV Plant (I-4) Location: F-4302

Run No: 7 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	12:06	0.29	9.28	0.22	5.98	7.47
24 Sep 24	12:07	0.32	9.30	0.02	5.88	7.49
24 Sep 24	12:08	0.29	9.34	0.22	5.97	7.50
24 Sep 24	12:09	0.28	9.36	0.11	6.03	7.48
24 Sep 24	12:10	0.28	9.38	0.10	6.02	7.51
24 Sep 24	12:11	0.30	9.30	0.09	6.06	7.51
24 Sep 24	12:12	0.30	9.26	0.07	6.00	7.46
24 Sep 24	12:13	0.30	9.23	0.09	5.91	7.52
24 Sep 24	12:14	0.28	9.20	0.09	5.84	7.54
24 Sep 24	12:15	0.27	9.10	0.08	5.93	7.57
24 Sep 24	12:16	0.27	9.01	0.14	6.23	7.44
24 Sep 24	12:17	0.26	9.06	0.05	6.27	7.32
24 Sep 24	12:18	0.25	9.19	0.05	6.25	7.32
24 Sep 24	12:19	0.23	9.26	0.05	6.21	7.32
24 Sep 24	12:20	0.29	9.23	0.18	6.07	7.45
24 Sep 24	12:21	0.23	9.12	0.26	6.07	7.48
24 Sep 24	12:22	0.23	9.06	0.12	6.19	7.44
24 Sep 24	12:23	0.25	9.10	0.15	6.17	7.37
24 Sep 24	12:24	0.26	9.09	0.20	6.12	7.39
24 Sep 24	12:25	0.25	9.08	0.14	5.99	7.47
24 Sep 24	12:26	0.23	9.00	0.21	6.21	7.44
Max		0.32	9.38	0.26	6.27	7.57
Avg		0.27	9.19	0.12	6.07	7.45

Run No: 8 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	12:27	0.22	8.96	0.14	6.00	7.39
24 Sep 24	12:28	0.23	8.96	0.34	6.13	7.46
24 Sep 24	12:29	0.19	8.96	0.36	6.12	7.43
24 Sep 24	12:30	0.20	8.91	0.47	6.21	7.42
24 Sep 24	12:31	0.18	8.92	0.35	6.19	7.43
24 Sep 24	12:32	0.21	8.96	0.14	6.01	7.40
24 Sep 24	12:33	0.19	8.99	0.17	5.98	7.48
24 Sep 24	12:34	0.17	9.01	0.13	6.05	7.47
24 Sep 24	12:35	0.17	8.96	0.07	6.03	7.48
24 Sep 24	12:36	0.33	8.92	0.23	6.05	7.47
24 Sep 24	12:37	0.30	8.83	0.04	5.91	7.52
24 Sep 24	12:38	0.34	8.87	0.03	6.02	7.54
24 Sep 24	12:39	0.29	8.82	0.04	6.08	7.47
24 Sep 24	12:40	0.32	8.91	0.02	5.92	7.51
24 Sep 24	12:41	0.21	8.87	0.14	5.98	7.51
24 Sep 24	12:42	0.25	8.81	0.28	5.87	7.49
24 Sep 24	12:43	0.23	8.82	0.27	6.07	7.49
24 Sep 24	12:44	0.21	8.89	0.13	6.04	7.51
24 Sep 24	12:45	0.20	8.91	0.18	6.05	7.48
24 Sep 24	12:46	0.18	8.91	0.11	6.16	7.40
24 Sep 24	12:47	0.21	8.98	0.02	5.99	7.41
Max		0.34	9.01	0.47	6.21	7.54
Avg		0.23	8.93	0.17	6.04	7.47

Run No: 9 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	12:48	0.21	9.03	0.13	6.20	7.42
24 Sep 24	12:49	0.18	9.01	0.04	5.98	7.43
24 Sep 24	12:50	0.18	9.03	0.13	5.80	7.58
24 Sep 24	12:51	0.20	8.95	0.11	5.82	7.59
24 Sep 24	12:52	0.18	8.84	0.01	5.77	7.59
24 Sep 24	12:53	0.16	8.79	0.02	6.02	7.55
24 Sep 24	12:54	0.15	8.79	0.08	5.98	7.49
24 Sep 24	12:55	0.14	8.82	0.09	5.93	7.54
24 Sep 24	12:56	0.14	8.83	0.03	5.90	7.55
24 Sep 24	12:57	0.10	8.82	0.25	5.87	7.47
24 Sep 24	12:58	0.12	8.83	0.10	5.95	7.58
24 Sep 24	12:59	0.09	8.79	0.20	6.09	7.50
24 Sep 24	13:00	0.09	8.82	0.06	6.04	7.54
24 Sep 24	13:01	0.09	8.90	0.03	6.15	7.44
24 Sep 24	13:02	0.10	8.96	0.16	6.11	7.42
24 Sep 24	13:03	0.07	9.04	0.10	5.96	7.53
24 Sep 24	13:04	0.08	9.00	0.17	6.01	7.54
24 Sep 24	13:05	0.09	8.88	0.14	6.10	7.48
24 Sep 24	13:06	0.09	8.89	0.03	6.25	7.43
24 Sep 24	13:07	0.32	8.87	0.19	6.16	7.35
24 Sep 24	13:08	0.26	9.05	0.11	6.16	7.42
Max		0.32	9.05	0.25	6.25	7.59
Avg		0.14	8.91	0.10	6.01	7.50

Run No: 10 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	13:09	0.30	9.03	0.08	6.14	7.43
24 Sep 24	13:10	0.26	8.99	0.04	5.99	7.44
24 Sep 24	13:11	0.26	8.98	0.09	5.92	7.54
24 Sep 24	13:12	0.25	8.96	0.06	5.84	7.56
24 Sep 24	13:13	0.26	8.88	0.08	5.91	7.61
24 Sep 24	13:14	0.28	8.88	0.08	5.80	7.58
24 Sep 24	13:15	0.27	8.86	0.06	5.72	7.61
24 Sep 24	13:16	0.27	8.83	0.11	5.92	7.62
24 Sep 24	13:17	0.25	8.82	0.05	5.99	7.51
24 Sep 24	13:18	0.27	8.85	0.06	6.08	7.51
24 Sep 24	13:19	0.22	8.88	0.00	6.29	7.37
24 Sep 24	13:20	0.24	8.95	0.14	6.09	7.43
24 Sep 24	13:21	0.19	9.01	0.00	6.05	7.46
24 Sep 24	13:22	0.23	9.00	0.00	6.11	7.45
24 Sep 24	13:23	0.19	8.99	0.18	6.01	7.53
24 Sep 24	13:24	0.19	8.91	0.10	6.09	7.49
24 Sep 24	13:25	0.22	8.87	0.23	5.91	7.52
24 Sep 24	13:26	0.21	8.83	0.05	6.10	7.48
24 Sep 24	13:27	0.19	8.85	0.09	6.11	7.44
24 Sep 24	13:28	0.17	8.89	0.10	6.01	7.48
24 Sep 24	13:29	0.18	8.93	0.15	5.91	7.52
Max		0.30	9.03	0.23	6.29	7.62
Avg		0.23	8.91	0.08	6.00	7.50

Run No: 11 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	13:30	0.18	8.91	0.09	5.83	7.57
24 Sep 24	13:31	0.16	8.84	0.03	5.98	7.58
24 Sep 24	13:32	0.20	8.79	0.03	6.09	7.40
24 Sep 24	13:33	0.17	8.76	0.08	5.97	7.57
24 Sep 24	13:34	0.17	8.84	0.02	5.94	7.57
24 Sep 24	13:35	0.15	8.83	0.01	5.95	7.51
24 Sep 24	13:36	0.15	8.80	0.22	6.04	7.51
24 Sep 24	13:37	0.30	8.74	0.03	6.20	7.38
24 Sep 24	13:38	0.33	8.78	0.11	6.02	7.49
24 Sep 24	13:39	0.30	8.81	0.01	6.02	7.49
24 Sep 24	13:40	0.30	8.81	0.12	5.93	7.50
24 Sep 24	13:41	0.30	8.81	0.01	5.87	7.53
24 Sep 24	13:42	0.30	8.77	0.13	6.25	7.38
24 Sep 24	13:43	0.30	8.77	0.04	6.13	7.43
24 Sep 24	13:44	0.30	8.81	0.02	6.10	7.45
24 Sep 24	13:45	0.26	8.83	0.14	5.93	7.47
24 Sep 24	13:46	0.27	8.82	0.06	6.08	7.53
24 Sep 24	13:47	0.27	8.79	0.00	6.04	7.44
24 Sep 24	13:48	0.26	8.79	0.00	6.09	7.48
24 Sep 24	13:49	0.25	8.77	0.06	6.11	7.46
24 Sep 24	13:50	0.23	8.72	0.08	6.14	7.39
Max		0.33	8.91	0.22	6.25	7.58
Avg		0.25	8.80	0.06	6.03	7.48

Run No: 12 Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
24 Sep 24	13:51	0.29	8.71	0.04	6.20	7.41
24 Sep 24	13:52	0.23	8.73	0.24	6.06	7.40
24 Sep 24	13:53	0.23	8.80	0.03	5.95	7.54
24 Sep 24	13:54	0.25	8.79	0.03	5.84	7.55
24 Sep 24	13:55	0.26	8.74	0.21	6.00	7.54
24 Sep 24	13:56	0.25	8.72	0.00	5.91	7.53
24 Sep 24	13:57	0.23	8.72	0.03	6.02	7.52
24 Sep 24	13:58	0.22	8.73	0.01	5.99	7.52
24 Sep 24	13:59	0.23	8.72	0.03	6.02	7.48
24 Sep 24	14:00	0.19	8.70	0.07	6.12	7.43
24 Sep 24	14:01	0.20	8.73	0.15	5.89	7.45
24 Sep 24	14:02	0.18	8.76	0.01	5.97	7.52
24 Sep 24	14:03	0.21	8.75	0.16	5.87	7.55
24 Sep 24	14:04	0.19	8.70	0.00	6.03	7.55
24 Sep 24	14:05	0.17	8.70	0.03	5.83	7.54
24 Sep 24	14:06	0.17	8.68	0.06	5.93	7.53
24 Sep 24	14:07	0.33	8.67	0.21	6.19	7.48
24 Sep 24	14:08	0.30	8.70	0.09	6.29	7.41
24 Sep 24	14:09	0.34	8.72	0.04	6.40	7.25
24 Sep 24	14:10	0.29	8.74	0.19	6.25	7.30
24 Sep 24	14:11	0.32	8.77	0.12	6.19	7.36
Max		0.34	8.80	0.24	6.40	7.55
Avg		0.24	8.73	0.08	6.05	7.47

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4
Date: 17 Dec 24
Location: B-AT-2411 to 2414 (Model : URAS 14)

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	10:20	0.01	36.74	13.96	8.35	-
17 Dec 24	10:21	0.01	37.05	13.90	8.23	-
17 Dec 24	10:22	0.01	36.78	12.73	8.13	-
17 Dec 24	10:23	0.01	36.60	14.73	8.22	-
17 Dec 24	10:24	0.01	37.16	15.46	8.04	-
17 Dec 24	10:25	0.01	36.97	14.29	8.14	-
17 Dec 24	10:26	0.01	36.64	14.49	8.16	-
17 Dec 24	10:27	0.01	36.48	15.48	8.13	-
17 Dec 24	10:28	0.01	37.68	14.04	8.20	-
17 Dec 24	10:29	0.01	37.27	15.08	8.25	-
17 Dec 24	10:30	0.01	36.86	16.56	8.00	-
17 Dec 24	10:31	0.01	36.32	14.77	8.14	-
17 Dec 24	10:32	0.01	36.09	16.64	8.07	-
17 Dec 24	10:33	0.01	36.16	19.44	8.07	-
17 Dec 24	10:34	0.01	36.33	16.86	8.04	-
17 Dec 24	10:35	0.01	37.37	15.28	8.19	-
17 Dec 24	10:36	0.01	36.30	14.03	7.97	-
17 Dec 24	10:37	0.01	35.95	17.10	8.13	-
17 Dec 24	10:38	0.01	36.24	13.66	8.24	-
17 Dec 24	10:39	0.01	35.10	14.75	8.00	-
17 Dec 24	10:40	0.01	37.55	12.27	8.27	-
Max		0.01	37.68	19.44	8.35	-
Avg		0.01	36.64	15.02	8.14	-

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	10:41	0.01	36.62	14.50	8.31	-
17 Dec 24	10:42	0.01	36.83	13.96	8.32	-
17 Dec 24	10:43	0.01	37.05	13.70	8.30	-
17 Dec 24	10:44	0.01	36.34	13.32	8.19	-
17 Dec 24	10:45	0.01	35.59	15.84	8.12	-
17 Dec 24	10:46	0.01	36.60	15.75	8.11	-
17 Dec 24	10:47	0.01	36.39	15.14	8.04	-
17 Dec 24	10:48	0.01	35.90	14.83	8.02	-
17 Dec 24	10:49	0.02	34.98	13.82	8.34	-
17 Dec 24	10:50	0.02	35.86	13.50	8.33	-
17 Dec 24	10:51	0.02	36.41	15.79	8.04	-
17 Dec 24	10:52	0.02	35.72	16.44	8.15	-
17 Dec 24	10:53	0.02	36.32	13.16	8.36	-
17 Dec 24	10:54	0.02	35.95	11.99	8.19	-
17 Dec 24	10:55	0.02	35.52	15.99	8.10	-
17 Dec 24	10:56	0.02	36.56	14.07	8.21	-
17 Dec 24	10:57	0.02	35.89	15.97	8.04	-
17 Dec 24	10:58	0.02	35.41	12.76	8.32	-
17 Dec 24	10:59	0.02	35.98	13.86	8.26	-
17 Dec 24	11:00	0.02	35.82	13.15	8.22	-
17 Dec 24	11:01	0.02	34.97	15.19	8.21	-
Max		0.02	37.05	16.44	8.36	-
Avg		0.01	36.03	14.42	8.20	-

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	11:02	0.02	35.86	14.90	7.99	-
17 Dec 24	11:03	0.02	35.78	13.82	8.18	-
17 Dec 24	11:04	0.02	35.95	12.78	8.34	-
17 Dec 24	11:05	0.02	35.99	13.93	8.21	-
17 Dec 24	11:06	0.02	34.95	15.73	8.02	-
17 Dec 24	11:07	0.02	36.09	14.36	8.07	-
17 Dec 24	11:08	0.02	36.28	14.20	8.20	-
17 Dec 24	11:09	0.02	35.25	14.45	8.13	-
17 Dec 24	11:10	0.02	34.89	15.86	8.17	-
17 Dec 24	11:11	0.02	34.86	14.37	8.04	-
17 Dec 24	11:12	0.02	34.50	16.25	7.91	-
17 Dec 24	11:13	0.02	35.08	14.52	8.13	-
17 Dec 24	11:14	0.02	34.64	15.79	8.06	-
17 Dec 24	11:15	0.02	34.82	14.10	8.22	-
17 Dec 24	11:16	0.02	34.81	14.01	8.24	-
17 Dec 24	11:17	0.02	33.54	17.83	8.09	-
17 Dec 24	11:18	0.02	34.38	19.73	8.16	-
17 Dec 24	11:19	0.02	35.04	16.29	8.05	-
17 Dec 24	11:20	0.02	34.07	13.72	8.10	-
17 Dec 24	11:21	0.02	34.11	17.57	7.86	-
17 Dec 24	11:22	0.02	33.01	15.25	7.89	-
Max		0.02	36.28	19.73	8.34	-
Avg		0.02	34.95	15.21	8.10	-

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	11:23	0.02	33.26	17.21	8.02	-
17 Dec 24	11:24	0.02	34.47	14.74	8.15	-
17 Dec 24	11:25	0.02	33.70	16.17	8.12	-
17 Dec 24	11:26	0.02	34.40	14.37	8.21	-
17 Dec 24	11:27	0.02	34.31	14.73	7.99	-
17 Dec 24	11:28	0.02	34.51	14.77	8.05	-
17 Dec 24	11:29	0.02	34.55	13.38	8.23	-
17 Dec 24	11:30	0.02	34.28	14.25	8.18	-
17 Dec 24	11:31	0.02	34.57	16.15	8.07	-
17 Dec 24	11:32	0.02	33.16	16.19	8.10	-
17 Dec 24	11:33	0.02	34.01	15.91	8.11	-
17 Dec 24	11:34	0.02	33.09	16.46	8.04	-
17 Dec 24	11:35	0.02	33.13	16.01	8.12	-
17 Dec 24	11:36	0.02	33.22	15.84	8.07	-
17 Dec 24	11:37	0.02	33.11	16.47	8.05	-
17 Dec 24	11:38	0.02	32.24	16.05	8.14	-
17 Dec 24	11:39	0.02	33.53	16.08	8.11	-
17 Dec 24	11:40	0.02	34.59	14.10	8.22	-
17 Dec 24	11:41	0.02	32.49	13.99	8.26	-
17 Dec 24	11:42	0.02	30.79	15.38	8.14	-
17 Dec 24	11:43	0.02	34.13	16.09	8.16	-
Max		0.02	34.59	17.21	8.26	-
Avg		0.02	33.60	15.45	8.12	-

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	11:44	0.02	32.80	14.75	8.26	-
17 Dec 24	11:45	0.02	30.95	14.99	8.14	-
17 Dec 24	11:46	0.02	34.89	17.26	8.17	-
17 Dec 24	11:47	0.02	33.39	16.29	8.09	-
17 Dec 24	11:48	0.02	31.03	16.31	8.14	-
17 Dec 24	11:49	0.02	34.68	15.92	8.15	-
17 Dec 24	11:50	0.02	32.52	14.42	8.12	-
17 Dec 24	11:51	0.02	32.73	16.41	8.16	-
17 Dec 24	11:52	0.02	34.38	16.24	8.20	-
17 Dec 24	11:53	0.02	31.51	15.87	8.12	-
17 Dec 24	11:54	0.02	34.38	16.10	8.12	-
17 Dec 24	11:55	0.02	31.85	14.66	8.11	-
17 Dec 24	11:56	0.02	32.79	13.71	8.31	-
17 Dec 24	11:57	0.02	33.48	15.36	8.09	-
17 Dec 24	11:58	0.02	31.25	16.34	7.93	-
17 Dec 24	11:59	0.02	33.96	19.86	7.84	-
17 Dec 24	12:00	0.02	31.00	20.80	7.83	-
17 Dec 24	12:01	0.02	32.16	16.06	8.22	-
17 Dec 24	12:02	0.02	32.57	14.76	8.11	-
17 Dec 24	12:03	0.02	29.83	16.53	8.13	-
17 Dec 24	12:04	0.02	33.00	15.82	8.17	-
Max		0.02	34.89	20.80	8.31	-
Avg		0.02	32.63	16.21	8.11	-

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	12:05	0.02	30.34	18.00	8.00	-
17 Dec 24	12:06	0.02	32.77	17.66	8.10	-
17 Dec 24	12:07	0.02	29.10	16.42	7.98	-
17 Dec 24	12:08	0.02	32.60	18.04	8.13	-
17 Dec 24	12:09	0.02	30.19	17.26	8.05	-
17 Dec 24	12:10	0.02	32.80	18.53	8.01	-
17 Dec 24	12:11	0.02	30.29	17.18	8.17	-
17 Dec 24	12:12	0.02	34.19	17.62	8.07	-
17 Dec 24	12:13	0.02	29.37	16.81	8.17	-
17 Dec 24	12:14	0.02	33.43	16.04	8.19	-
17 Dec 24	12:15	0.02	29.18	17.36	8.14	-
17 Dec 24	12:16	0.02	33.82	16.33	8.07	-
17 Dec 24	12:17	0.02	29.05	17.35	8.05	-
17 Dec 24	12:18	0.02	33.72	16.98	8.22	-
17 Dec 24	12:19	0.02	29.77	18.72	8.02	-
17 Dec 24	12:20	0.02	32.41	18.12	7.90	-
17 Dec 24	12:21	0.02	29.75	16.20	8.17	-
17 Dec 24	12:22	0.02	32.21	21.10	7.97	-
17 Dec 24	12:23	0.02	29.63	18.25	8.13	-
17 Dec 24	12:24	0.02	32.15	19.60	7.98	-
17 Dec 24	12:25	0.02	29.45	16.94	8.07	-
Max		0.02	34.19	21.10	8.22	-
Avg		0.02	31.25	17.64	8.08	-

CEMs Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4
Date: 17 Dec 24
Location: B-AT-2411 to 2414 (Model : URAS 14)

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	12:26	0.02	33.58	17.08	8.08	-
17 Dec 24	12:27	0.02	28.94	19.01	7.99	-
17 Dec 24	12:28	0.02	33.70	17.35	8.13	-
17 Dec 24	12:29	0.02	29.60	17.92	8.09	-
17 Dec 24	12:30	0.02	33.46	19.61	7.95	-
17 Dec 24	12:31	0.02	30.00	18.00	8.03	-
17 Dec 24	12:32	0.02	32.93	16.98	8.10	-
17 Dec 24	12:33	0.02	31.53	14.66	8.30	-
17 Dec 24	12:34	0.02	32.19	17.62	8.10	-
17 Dec 24	12:35	0.02	31.29	19.86	8.02	-
17 Dec 24	12:36	0.02	32.48	17.19	8.17	-
17 Dec 24	12:37	0.02	30.98	18.76	8.05	-
17 Dec 24	12:38	0.02	31.87	19.10	8.06	-
17 Dec 24	12:39	0.02	31.72	17.02	8.18	-
17 Dec 24	12:40	0.02	30.86	16.84	8.12	-
17 Dec 24	12:41	0.02	32.65	17.38	8.12	-
17 Dec 24	12:42	0.02	28.34	17.88	8.00	-
17 Dec 24	12:43	0.02	32.82	18.78	8.11	-
17 Dec 24	12:44	0.02	30.34	17.57	8.05	-
17 Dec 24	12:45	0.02	33.17	18.36	8.04	-
17 Dec 24	12:46	0.02	29.69	19.99	8.03	-
Max		0.02	33.70	19.99	8.30	-
Avg		0.02	31.53	17.94	8.08	-

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	12:47	0.02	32.87	19.65	7.91	-
17 Dec 24	12:48	0.02	31.95	18.43	7.91	-
17 Dec 24	12:49	0.02	29.34	17.37	8.06	-
17 Dec 24	12:50	0.02	32.90	19.95	7.95	-
17 Dec 24	12:51	0.02	30.38	18.36	7.94	-
17 Dec 24	12:52	0.02	32.33	18.90	7.90	-
17 Dec 24	12:53	0.02	31.30	18.56	7.87	-
17 Dec 24	12:54	0.02	28.59	19.59	8.07	-
17 Dec 24	12:55	0.02	32.02	18.52	8.11	-
17 Dec 24	12:56	0.02	30.57	17.07	8.16	-
17 Dec 24	12:57	0.02	29.75	20.06	8.11	-
17 Dec 24	12:58	0.02	31.51	19.67	7.93	-
17 Dec 24	12:59	0.02	30.17	18.62	8.00	-
17 Dec 24	13:00	0.02	29.47	19.03	7.92	-
17 Dec 24	13:01	0.02	31.44	18.95	7.95	-
17 Dec 24	13:02	0.02	31.05	18.52	8.09	-
17 Dec 24	13:03	0.02	30.59	17.72	8.21	-
17 Dec 24	13:04	0.02	30.05	17.57	8.24	-
17 Dec 24	13:05	0.02	31.60	18.49	8.18	-
17 Dec 24	13:06	0.02	30.67	17.13	8.12	-
17 Dec 24	13:07	0.02	31.39	17.99	8.09	-
Max		0.02	32.90	20.06	8.24	-
Avg		0.02	30.95	18.63	8.04	-

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	13:08	0.02	31.37	19.56	7.92	-
17 Dec 24	13:09	0.02	31.28	18.79	7.94	-
17 Dec 24	13:10	0.02	30.89	17.83	8.02	-
17 Dec 24	13:11	0.02	30.74	18.08	7.99	-
17 Dec 24	13:12	0.02	31.02	19.44	7.95	-
17 Dec 24	13:13	0.02	30.91	19.38	7.89	-
17 Dec 24	13:14	0.02	31.24	16.92	8.03	-
17 Dec 24	13:15	0.02	32.31	17.56	8.04	-
17 Dec 24	13:16	0.02	31.68	19.84	8.03	-
17 Dec 24	13:17	0.02	31.12	17.86	8.00	-
17 Dec 24	13:18	0.02	30.88	19.94	7.91	-
17 Dec 24	13:19	0.02	30.79	20.07	8.18	-
17 Dec 24	13:20	0.02	31.89	17.72	7.95	-
17 Dec 24	13:21	0.02	30.33	18.11	7.98	-
17 Dec 24	13:22	0.02	31.83	21.02	7.86	-
17 Dec 24	13:23	0.02	31.40	18.63	7.86	-
17 Dec 24	13:24	0.02	30.83	17.91	7.99	-
17 Dec 24	13:25	0.02	31.92	18.87	7.98	-
17 Dec 24	13:26	0.02	31.29	18.56	7.97	-
17 Dec 24	13:27	0.02	31.40	18.88	8.01	-
17 Dec 24	13:28	0.02	31.47	18.78	7.94	-
Max		0.02	32.31	21.02	8.18	-
Avg		0.02	31.27	18.75	7.97	-

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	13:29	0.02	32.09	18.95	7.94	-
17 Dec 24	13:30	0.02	31.80	20.09	8.09	-
17 Dec 24	13:31	0.02	31.98	18.60	8.11	-
17 Dec 24	13:32	0.02	32.25	19.60	7.96	-
17 Dec 24	13:33	0.02	30.85	18.95	8.00	-
17 Dec 24	13:34	0.02	31.95	17.84	8.05	-
17 Dec 24	13:35	0.02	31.89	18.82	7.94	-
17 Dec 24	13:36	0.02	32.23	18.18	8.09	-
17 Dec 24	13:37	0.02	31.98	18.29	8.03	-
17 Dec 24	13:38	0.02	32.29	18.63	8.02	-
17 Dec 24	13:39	0.02	30.37	18.91	8.04	-
17 Dec 24	13:40	0.02	32.10	19.01	7.93	-
17 Dec 24	13:41	0.02	31.11	18.08	8.04	-
17 Dec 24	13:42	0.02	31.69	19.45	7.93	-
17 Dec 24	13:43	0.02	31.37	19.98	7.94	-
17 Dec 24	13:44	0.02	31.55	18.58	8.08	-
17 Dec 24	13:45	0.02	30.81	21.20	7.87	-
17 Dec 24	13:46	0.02	30.47	24.77	7.75	-
17 Dec 24	13:47	0.02	32.35	19.29	8.02	-
17 Dec 24	13:48	0.02	31.98	21.10	7.86	-
17 Dec 24	13:49	0.02	31.54	18.76	7.80	-
Max		0.02	32.35	24.77	8.11	-
Avg		0.02	31.64	19.29	7.98	-

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	13:50	0.02	32.31	20.27	7.79	-
17 Dec 24	13:51	0.02	31.35	18.95	7.92	-
17 Dec 24	13:52	0.02	30.71	19.59	7.87	-
17 Dec 24	13:53	0.02	31.16	17.04	8.03	-
17 Dec 24	13:54	0.02	31.67	15.53	8.18	-
17 Dec 24	13:55	0.02	31.58	16.97	8.04	-
17 Dec 24	13:56	0.02	31.68	18.31	7.95	-
17 Dec 24	13:57	0.02	32.01	17.52	8.01	-
17 Dec 24	13:58	0.02	32.73	18.82	8.00	-
17 Dec 24	13:59	0.02	32.77	17.21	7.95	-
17 Dec 24	14:00	0.02	32.07	18.87	7.89	-
17 Dec 24	14:01	0.02	31.98	19.21	7.94	-
17 Dec 24	14:02	0.02	32.03	18.72	7.94	-
17 Dec 24	14:03	0.02	33.14	18.42	8.02	-
17 Dec 24	14:04	0.02	32.40	19.60	8.01	-
17 Dec 24	14:05	0.02	31.61	17.21	8.01	-
17 Dec 24	14:06	0.02	30.99	17.94	8.00	-
17 Dec 24	14:07	0.02	31.00	18.89	8.12	-
17 Dec 24	14:08	0.02	30.72	20.84	7.83	-
17 Dec 24	14:09	0.02	31.93	21.89	7.78	-
17 Dec 24	14:10	0.02	32.55	20.21	7.84	-
Max		0.02	33.14	21.89	8.18	-
Avg		0.02	31.83	18.71	7.96	-

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	14:11	0.02	31.84	21.14	7.82	-
17 Dec 24	14:12	0.02	31.56	19.02	7.91	-
17 Dec 24	14:13	0.02	31.94	18.51	7.95	-
17 Dec 24	14:14	0.02	31.42	18.73	7.92	-
17 Dec 24	14:15	0.02	30.98	20.57	7.81	-
17 Dec 24	14:16	0.02	31.40	20.66	7.74	-
17 Dec 24	14:17	0.02	32.50	16.96	8.01	-
17 Dec 24	14:18	0.02	31.82	16.61	8.02	-
17 Dec 24	14:19	0.02	32.94	16.39	8.13	-
17 Dec 24	14:20	0.02	32.23	18.78	8.11	-
17 Dec 24	14:21	0.02	33.01	19.60	8.01	-
17 Dec 24	14:22	0.02	32.47	16.49	8.13	-
17 Dec 24	14:23	0.02	31.64	20.04	7.85	-
17 Dec 24	14:24	0.02	31.76	19.14	8.02	-
17 Dec 24	14:25	0.02	32.10	19.51	7.87	-
17 Dec 24	14:26	0.02	31.67	19.37	7.82	-
17 Dec 24	14:27	0.02	31.84	16.58	8.13	-
17 Dec 24	14:28	0.02	32.81	16.20	8.06	-
17 Dec 24	14:29	0.02	32.70	15.24	8.20	-
17 Dec 24	14:30	0.02	32.20	17.57	8.15	-
17 Dec 24	14:31	0.02	31.24	16.66	8.04	-
Max		0.02	33.01	21.14	8.20	-
Avg		0.02	32.01	18.27	7.98	-

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4
Date: 17 Dec 24
Location: B-AT-2411 to 2414 (Model : URAS 14)

Run No: 1 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	10:20	0.26	34.66	12.52	7.81	6.56
17 Dec 24	10:21	0.25	34.80	13.74	7.82	6.54
17 Dec 24	10:22	0.26	34.95	11.69	7.82	6.51
17 Dec 24	10:23	0.27	35.04	12.09	7.80	6.52
17 Dec 24	10:24	0.26	35.19	10.80	7.80	6.55
17 Dec 24	10:25	0.26	35.17	11.42	7.77	6.56
17 Dec 24	10:26	0.27	35.17	11.62	7.75	6.58
17 Dec 24	10:27	0.24	35.10	12.05	7.76	6.57
17 Dec 24	10:28	0.26	35.05	12.39	7.68	6.59
17 Dec 24	10:29	0.24	35.01	11.52	7.75	6.59
17 Dec 24	10:30	0.23	34.97	11.85	7.78	6.56
17 Dec 24	10:31	0.23	34.95	11.99	7.76	6.59
17 Dec 24	10:32	0.26	34.78	13.14	7.67	6.61
17 Dec 24	10:33	0.20	34.50	13.41	7.58	6.64
17 Dec 24	10:34	0.22	34.43	14.43	7.71	6.62
17 Dec 24	10:35	0.21	34.49	13.76	7.79	6.58
17 Dec 24	10:36	0.20	34.64	12.78	7.76	6.58
17 Dec 24	10:37	0.26	34.77	12.13	7.67	6.56
17 Dec 24	10:38	0.27	34.83	13.56	7.69	6.61
17 Dec 24	10:39	0.28	34.63	12.29	7.74	6.59
17 Dec 24	10:40	0.27	34.58	11.55	7.71	6.59
Max		0.28	35.19	14.43	7.82	6.64
Avg		0.25	34.84	12.41	7.74	6.58

Run No: 2 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	10:41	0.26	34.80	11.22	7.87	6.53
17 Dec 24	10:42	0.27	35.07	10.98	7.83	6.53
17 Dec 24	10:43	0.25	35.24	10.87	7.93	6.50
17 Dec 24	10:44	0.26	35.24	10.73	7.93	6.48
17 Dec 24	10:45	0.25	35.23	11.50	7.84	6.50
17 Dec 24	10:46	0.24	35.15	11.36	7.81	6.55
17 Dec 24	10:47	0.23	35.20	12.50	7.75	6.59
17 Dec 24	10:48	0.26	35.10	12.59	7.86	6.60
17 Dec 24	10:49	0.26	34.90	11.44	7.74	6.59
17 Dec 24	10:50	0.31	34.84	12.50	7.73	6.61
17 Dec 24	10:51	0.31	35.01	11.81	7.81	6.55
17 Dec 24	10:52	0.30	35.02	11.15	7.84	6.52
17 Dec 24	10:53	0.30	34.90	11.95	7.78	6.57
17 Dec 24	10:54	0.30	34.53	12.77	7.73	6.59
17 Dec 24	10:55	0.29	34.56	10.68	7.89	6.50
17 Dec 24	10:56	0.27	34.62	11.38	7.77	6.54
17 Dec 24	10:57	0.26	34.59	12.12	7.65	6.62
17 Dec 24	10:58	0.28	34.56	11.20	7.75	6.59
17 Dec 24	10:59	0.26	34.77	10.99	7.88	6.54
17 Dec 24	11:00	0.24	34.81	10.95	7.79	6.53
17 Dec 24	11:01	0.25	34.82	10.85	7.86	6.51
Max		0.31	35.24	12.77	7.93	6.62
Avg		0.27	34.90	11.50	7.80	6.55

Run No: 3 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	11:02	0.26	34.82	11.54	7.82	6.53
17 Dec 24	11:03	0.24	34.83	11.92	7.76	6.57
17 Dec 24	11:04	0.26	34.76	10.93	7.73	6.61
17 Dec 24	11:05	0.24	34.93	10.06	7.87	6.56
17 Dec 24	11:06	0.21	35.07	11.52	7.75	6.54
17 Dec 24	11:07	0.24	34.90	12.11	7.71	6.59
17 Dec 24	11:08	0.25	34.48	13.25	7.71	6.64
17 Dec 24	11:09	0.26	34.46	11.70	7.79	6.59
17 Dec 24	11:10	0.27	34.68	10.95	7.84	6.53
17 Dec 24	11:11	0.29	34.88	11.67	7.78	6.56
17 Dec 24	11:12	0.26	34.75	12.29	7.73	6.58
17 Dec 24	11:13	0.25	34.68	11.09	7.69	6.60
17 Dec 24	11:14	0.26	34.67	11.72	7.72	6.64
17 Dec 24	11:15	0.27	34.70	12.65	7.69	6.60
17 Dec 24	11:16	0.26	34.58	12.72	7.66	6.60
17 Dec 24	11:17	0.26	34.59	10.85	7.81	6.57
17 Dec 24	11:18	0.27	34.77	12.93	7.69	6.58
17 Dec 24	11:19	0.24	34.72	13.50	7.76	6.59
17 Dec 24	11:20	0.26	34.48	13.12	7.75	6.57
17 Dec 24	11:21	0.24	34.52	11.97	7.53	6.66
17 Dec 24	11:22	0.23	34.67	12.14	7.63	6.63
Max		0.29	35.07	13.50	7.87	6.66
Avg		0.25	34.72	11.94	7.73	6.59

Run No: 4 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	11:23	0.23	34.48	13.12	7.57	6.67
17 Dec 24	11:24	0.26	34.25	13.66	7.52	6.71
17 Dec 24	11:25	0.20	34.13	12.05	7.74	6.61
17 Dec 24	11:26	0.22	34.60	11.91	7.70	6.58
17 Dec 24	11:27	0.21	34.88	12.07	7.73	6.58
17 Dec 24	11:28	0.20	34.96	10.53	7.72	6.57
17 Dec 24	11:29	0.20	35.07	10.31	7.75	6.58
17 Dec 24	11:30	0.19	34.93	10.95	7.73	6.59
17 Dec 24	11:31	0.20	34.81	10.26	7.78	6.56
17 Dec 24	11:32	0.19	34.85	10.24	7.77	6.56
17 Dec 24	11:33	0.18	34.97	11.72	7.87	6.61
17 Dec 24	11:34	0.17	34.88	11.39	7.73	6.61
17 Dec 24	11:35	0.18	34.87	12.51	7.58	6.63
17 Dec 24	11:36	0.17	34.89	13.20	7.65	6.64
17 Dec 24	11:37	0.18	34.87	12.23	7.76	6.62
17 Dec 24	11:38	0.16	34.71	12.03	7.71	6.61
17 Dec 24	11:39	0.15	34.60	12.54	7.69	6.63
17 Dec 24	11:40	0.15	34.54	12.25	7.80	6.56
17 Dec 24	11:41	0.14	34.54	12.15	7.72	6.59
17 Dec 24	11:42	0.31	34.70	10.66	7.86	6.56
17 Dec 24	11:43	0.31	34.83	10.57	7.81	6.55
Max		0.31	35.07	13.66	7.86	6.71
Avg		0.20	34.73	11.73	7.71	6.60

Run No: 5 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	11:44	0.30	34.90	11.54	7.68	6.61
17 Dec 24	11:45	0.30	34.83	11.00	7.76	6.59
17 Dec 24	11:46	0.30	34.74	10.96	7.79	6.55
17 Dec 24	11:47	0.29	34.84	10.59	7.81	6.55
17 Dec 24	11:48	0.27	34.67	11.18	7.69	6.61
17 Dec 24	11:49	0.26	34.70	11.84	7.70	6.64
17 Dec 24	11:50	0.28	34.71	11.55	7.80	6.56
17 Dec 24	11:51	0.26	34.76	10.75	7.76	6.55
17 Dec 24	11:52	0.24	34.95	11.24	7.74	6.59
17 Dec 24	11:53	0.25	34.89	12.17	7.78	6.58
17 Dec 24	11:54	0.26	34.73	13.61	7.73	6.58
17 Dec 24	11:55	0.24	34.72	11.69	7.77	6.59
17 Dec 24	11:56	0.26	34.68	10.81	7.78	6.58
17 Dec 24	11:57	0.24	34.68	10.59	7.82	6.58
17 Dec 24	11:58	0.26	34.64	10.66	7.74	6.58
17 Dec 24	11:59	0.25	34.89	11.49	7.63	6.62
17 Dec 24	12:00	0.26	34.51	14.77	7.43	6.74
17 Dec 24	12:01	0.27	34.00	13.60	7.46	6.73
17 Dec 24	12:02	0.26	33.77	13.82	7.64	6.67
17 Dec 24	12:03	0.26	34.11	10.82	7.74	6.58
17 Dec 24	12:04	0.27	34.59	12.66	7.62	6.63
Max		0.30	34.95	14.77	7.82	6.74
Avg		0.27	34.62	11.77	7.71	6.61

Run No: 6 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	12:05	0.24	34.70	12.58	7.76	6.62
17 Dec 24	12:06	0.26	34.66	12.26	7.56	6.64
17 Dec 24	12:07	0.24	34.63	13.07	7.65	6.65
17 Dec 24	12:08	0.23	34.50	12.86	7.62	6.64
17 Dec 24	12:09	0.23	34.49	12.15	7.60	6.65
17 Dec 24	12:10	0.26	34.54	12.97	7.66	6.66
17 Dec 24	12:11	0.20	34.60	11.72	7.69	6.64
17 Dec 24	12:12	0.22	34.55	12.26	7.70	6.62
17 Dec 24	12:13	0.21	34.42	12.50	7.80	6.64
17 Dec 24	12:14	0.20	34.35	12.08	7.69	6.64
17 Dec 24	12:15	0.20	34.55	11.10	7.76	6.60
17 Dec 24	12:16	0.19	34.71	11.33	7.72	6.61
17 Dec 24	12:17	0.20	34.68	11.05	7.78	6.59
17 Dec 24	12:18	0.19	34.68	11.72	7.66	6.62
17 Dec 24	12:19	0.18	34.83	11.88	7.64	6.63
17 Dec 24	12:20	0.17	34.87	11.99	7.60	6.65
17 Dec 24	12:21	0.16	34.59	13.42	7.45	6.71
17 Dec 24	12:22	0.17	34.38	12.85	7.54	6.73
17 Dec 24	12:23	0.16	34.41	12.17	7.68	6.64
17 Dec 24	12:24	0.16	34.40	13.81	7.50	6.68
17 Dec 24	12:25	0.15	34.38	12.87	7.58	6.65
Max		0.26	34.87	13.81	7.78	6.73
Avg		0.20	34.57	12.31	7.64	6.64

Reference Method Data

Client Name: PTT Global Chemical PCL.
Plant Name: I-4
Date: 17 Dec 24
Location: B-AT-2411 to 2414 (Model : URAS 14)

Run No: 7 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	12:26	0.15	34.33	13.79	7.60	6.66
17 Dec 24	12:27	0.14	34.45	11.83	7.72	6.62
17 Dec 24	12:28	0.31	34.62	12.85	7.54	6.69
17 Dec 24	12:29	0.31	34.58	12.79	7.48	6.69
17 Dec 24	12:30	0.30	34.42	12.19	7.69	6.62
17 Dec 24	12:31	0.30	34.57	13.12	7.56	6.65
17 Dec 24	12:32	0.30	34.69	13.38	7.50	6.71
17 Dec 24	12:33	0.29	34.57	12.20	7.67	6.65
17 Dec 24	12:34	0.27	34.60	11.23	7.69	6.63
17 Dec 24	12:35	0.26	34.94	9.70	7.77	6.58
17 Dec 24	12:36	0.28	34.91	11.49	7.63	6.62
17 Dec 24	12:37	0.28	34.69	12.78	7.65	6.66
17 Dec 24	12:38	0.24	34.48	12.85	7.69	6.64
17 Dec 24	12:39	0.25	34.40	13.70	7.57	6.67
17 Dec 24	12:40	0.26	34.47	12.31	7.65	6.67
17 Dec 24	12:41	0.24	34.61	11.26	7.69	6.63
17 Dec 24	12:42	0.26	34.74	12.30	7.66	6.61
17 Dec 24	12:43	0.24	34.75	12.63	7.54	6.68
17 Dec 24	12:44	0.30	34.68	13.82	7.56	6.70
17 Dec 24	12:45	0.30	34.65	12.45	7.65	6.66
17 Dec 24	12:46	0.30	34.70	12.25	7.61	6.65
Max		0.31	34.94	13.82	7.77	6.71
Avg		0.26	34.61	12.43	7.62	6.65

Run No: 8 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	12:47	0.29	34.62	12.40	7.49	6.69
17 Dec 24	12:48	0.27	34.39	13.62	7.45	6.72
17 Dec 24	12:49	0.26	34.26	13.73	7.43	6.76
17 Dec 24	12:50	0.28	34.35	12.51	7.55	6.73
17 Dec 24	12:51	0.26	34.67	12.31	7.47	6.71
17 Dec 24	12:52	0.24	34.67	13.83	7.33	6.77
17 Dec 24	12:53	0.25	34.56	12.62	7.48	6.74
17 Dec 24	12:54	0.26	34.58	13.60	7.48	6.74
17 Dec 24	12:55	0.24	34.66	12.86	7.56	6.72
17 Dec 24	12:56	0.26	34.75	11.45	7.65	6.68
17 Dec 24	12:57	0.24	34.90	11.84	7.65	6.66
17 Dec 24	12:58	0.22	34.95	11.77	7.61	6.66
17 Dec 24	12:59	0.23	34.79	12.70	7.61	6.66
17 Dec 24	13:00	0.22	34.50	13.20	7.52	6.69
17 Dec 24	13:01	0.21	34.34	13.13	7.42	6.75
17 Dec 24	13:02	0.23	34.14	13.87	7.39	6.78
17 Dec 24	13:03	0.22	34.11	14.00	7.53	6.73
17 Dec 24	13:04	0.21	34.22	11.47	7.72	6.60
17 Dec 24	13:05	0.20	34.46	11.76	7.79	6.56
17 Dec 24	13:06	0.20	34.69	11.62	7.74	6.56
17 Dec 24	13:07	0.20	34.75	11.44	7.68	6.64
Max		0.29	34.95	14.00	7.79	6.78
Avg		0.24	34.54	12.66	7.55	6.69

Run No: 9 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	13:08	0.18	34.78	11.92	7.64	6.65
17 Dec 24	13:09	0.21	34.89	12.43	7.57	6.66
17 Dec 24	13:10	0.18	34.93	12.94	7.58	6.68
17 Dec 24	13:11	0.17	34.81	13.45	7.52	6.71
17 Dec 24	13:12	0.32	34.67	12.29	7.58	6.70
17 Dec 24	13:13	0.30	34.61	12.93	7.50	6.70
17 Dec 24	13:14	0.32	34.70	13.95	7.46	6.71
17 Dec 24	13:15	0.30	34.71	13.29	7.49	6.74
17 Dec 24	13:16	0.32	34.84	11.50	7.58	6.67
17 Dec 24	13:17	0.30	34.57	12.68	7.45	6.73
17 Dec 24	13:18	0.32	34.49	12.44	7.44	6.74
17 Dec 24	13:19	0.30	34.54	12.26	7.50	6.74
17 Dec 24	13:20	0.30	34.59	12.70	7.69	6.65
17 Dec 24	13:21	0.29	34.57	13.19	7.63	6.62
17 Dec 24	13:22	0.29	34.60	13.51	7.42	6.74
17 Dec 24	13:23	0.30	34.52	12.27	7.56	6.72
17 Dec 24	13:24	0.30	34.22	14.31	7.44	6.75
17 Dec 24	13:25	0.27	34.28	12.97	7.53	6.71
17 Dec 24	13:26	0.27	34.54	11.77	7.61	6.65
17 Dec 24	13:27	0.30	34.61	13.21	7.44	6.70
17 Dec 24	13:28	0.28	34.52	12.64	7.51	6.72
Max		0.32	34.93	14.31	7.69	6.75
Avg		0.28	34.61	12.79	7.53	6.70

Run No: 10 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	13:29	0.28	34.38	13.24	7.56	6.70
17 Dec 24	13:30	0.29	34.49	12.77	7.52	6.71
17 Dec 24	13:31	0.27	34.48	12.50	7.55	6.69
17 Dec 24	13:32	0.27	34.50	12.79	7.59	6.65
17 Dec 24	13:33	0.26	34.56	12.67	7.57	6.65
17 Dec 24	13:34	0.25	34.69	13.55	7.49	6.71
17 Dec 24	13:35	0.27	34.56	12.66	7.55	6.70
17 Dec 24	13:36	0.25	34.51	12.82	7.50	6.69
17 Dec 24	13:37	0.25	34.55	12.77	7.55	6.70
17 Dec 24	13:38	0.24	34.55	12.32	7.59	6.68
17 Dec 24	13:39	0.27	34.47	12.61	7.49	6.71
17 Dec 24	13:40	0.23	34.49	13.24	7.54	6.71
17 Dec 24	13:41	0.22	34.48	13.48	7.48	6.72
17 Dec 24	13:42	0.35	34.51	12.25	7.50	6.71
17 Dec 24	13:43	0.35	34.51	13.30	7.53	6.69
17 Dec 24	13:44	0.35	34.59	13.78	7.42	6.72
17 Dec 24	13:45	0.34	34.58	13.16	7.44	6.74
17 Dec 24	13:46	0.33	34.61	12.88	7.46	6.73
17 Dec 24	13:47	0.32	34.42	14.58	7.35	6.75
17 Dec 24	13:48	0.33	34.01	15.83	7.42	6.77
17 Dec 24	13:49	0.32	34.11	12.97	7.55	6.68
Max		0.35	34.69	15.83	7.59	6.77
Avg		0.29	34.48	13.15	7.51	6.70

Run No: 11 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	13:50	0.32	34.36	14.36	7.35	6.81
17 Dec 24	13:51	0.31	34.33	14.20	7.31	6.81
17 Dec 24	13:52	0.32	34.17	14.48	7.33	6.82
17 Dec 24	13:53	0.31	34.19	13.47	7.45	6.77
17 Dec 24	13:54	0.31	34.16	12.82	7.54	6.72
17 Dec 24	13:55	0.32	34.42	11.38	7.67	6.66
17 Dec 24	13:56	0.30	34.63	10.76	7.66	6.63
17 Dec 24	13:57	0.31	34.67	11.78	7.54	6.66
17 Dec 24	13:58	0.31	34.59	12.69	7.52	6.72
17 Dec 24	13:59	0.28	34.64	12.09	7.58	6.69
17 Dec 24	14:00	0.29	34.66	12.42	7.51	6.70
17 Dec 24	14:01	0.29	34.59	11.93	7.48	6.71
17 Dec 24	14:02	0.28	34.43	13.87	7.38	6.79
17 Dec 24	14:03	0.27	34.39	12.70	7.51	6.74
17 Dec 24	14:04	0.28	34.53	12.43	7.51	6.72
17 Dec 24	14:05	0.27	34.85	12.12	7.54	6.71
17 Dec 24	14:06	0.26	34.95	12.61	7.53	6.70
17 Dec 24	14:07	0.27	34.89	12.72	7.52	6.69
17 Dec 24	14:08	0.26	34.67	12.35	7.60	6.69
17 Dec 24	14:09	0.26	34.58	12.56	7.57	6.67
17 Dec 24	14:10	0.28	34.27	14.82	7.33	6.80
Max		0.32	34.95	14.82	7.67	6.82
Avg		0.29	34.52	12.79	7.50	6.72

Run No: 12 — Time Base : 21 min

Date	Time	SO2 ppm	NOx ppm	CO ppm	O2 Vol%	CO2 Vol%
17 Dec 24	14:11	0.27	34.05	15.31	7.17	6.85
17 Dec 24	14:12	0.35	34.05	15.08	7.28	6.84
17 Dec 24	14:13	0.34	34.15	13.62	7.42	6.79
17 Dec 24	14:14	0.35	34.31	13.69	7.40	6.78
17 Dec 24	14:15	0.34	34.49	14.10	7.42	6.77
17 Dec 24	14:16	0.36	34.46	14.55	7.35	6.78
17 Dec 24	14:17	0.35	34.30	14.71	7.29	6.79
17 Dec 24	14:18	0.33	34.25	13.27	7.43	6.79
17 Dec 24	14:19	0.35	34.46	12.08	7.52	6.71
17 Dec 24	14:20	0.32	34.60	12.29	7.57	6.69
17 Dec 24	14:21	0.33	34.68	12.59	7.61	6.66
17 Dec 24	14:22	0.32	34.59	13.05	7.53	6.67
17 Dec 24	14:23	0.32	34.49	11.91	7.61	6.68
17 Dec 24	14:24	0.33	34.55	11.96	7.51	6.70
17 Dec 24	14:25	0.31	34.47	14.30	7.26	6.86
17 Dec 24	14:26	0.31	34.16	13.41	7.46	6.76
17 Dec 24	14:27	0.32	34.21	13.60	7.43	6.76
17 Dec 24	14:28	0.32	34.39	12.68	7.58	6.72
17 Dec 24	14:29	0.31	34.49	11.22	7.65	6.65
17 Dec 24	14:30	0.32	34.53	12.25	7.59	6.69
17 Dec 24	14:31	0.30	34.67	10.50	7.69	6.66
Max		0.36	34.68	15.31	7.69	6.86
Avg		0.33	34.40	13.15	7.47	6.74

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Certificate Calibration Standard Gas

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer:	AIR LIQUIDE (THAILAND) LTD		
Part Number:	E04NI99E3HA0066	Reference Number:	160-402340012-1
Cylinder Number:	GN0027222	Cylinder Volume:	247.2 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2215 PSIG
PGVP Number:	A12022	Valve Outlet:	660
Gas Code:	CO,NO,NOX,SO2,BALN	Certification Date:	Feb 09, 2022

Expiration Date: Feb 09, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	55.00 PPM	55.88 PPM	G1	+/- 1.0% NIST Traceable	02/02/2022, 02/09/2022
CARBON MONOXIDE	55.00 PPM	55.22 PPM	G1	+/- 0.6% NIST Traceable	02/02/2022
NITRIC OXIDE	55.00 PPM	55.68 PPM	G1	+/- 1.0% NIST Traceable	02/02/2022, 02/09/2022
SULFUR DIOXIDE	55.00 PPM	55.30 PPM	G1	+/- 0.8% NIST Traceable	02/02/2022, 02/09/2022
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	09010212	KAL004777	98.48 PPM CARBON MONOXIDE/NITROGEN	+/- 0.5%	Oct 16, 2024
NTRM	200610-15	CC733106	98.61 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Oct 06, 2026
GMIS	124200889139	CC323707	4.097 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Sep 03, 2024
NTRM	11010419	KAL004813	99.6 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Jul 28, 2023

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 FTIR AUP2010245 CO	FTIR	Jan 06, 2022
Nicolet iS50 FTIR AUP2010245 NO	FTIR	Jan 12, 2022
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Jan 27, 2022
Nicolet iS50 FTIR AUP2010245 SO2	FTIR	Jan 20, 2022

Triad Data Available Upon Request

NOTES:Gross Weight: 49.4 Kg
Net Weight: 8.4 Kg

Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer:	AIR LIQUIDE (THAILAND) LTD		
Part Number:	E04NI99E3HA0002	Reference Number:	160-402340013-1
Cylinder Number:	GN0027214	Cylinder Volume:	247.2 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2215 PSIG
PGVP Number:	A12022	Valve Outlet:	660
Gas Code:	CO,NO,NOX,SO2,BALN	Certification Date:	Feb 11, 2022

Expiration Date: Feb 11, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	80.00 PPM	80.49 PPM	G1	+/- 1.0% NIST Traceable	02/04/2022, 02/11/2022
CARBON MONOXIDE	80.00 PPM	79.95 PPM	G1	+/- 0.6% NIST Traceable	02/04/2022
NITRIC OXIDE	80.00 PPM	80.47 PPM	G1	+/- 1.0% NIST Traceable	02/04/2022, 02/11/2022
SULFUR DIOXIDE	80.00 PPM	79.51 PPM	G1	+/- 0.8% NIST Traceable	02/04/2022, 02/11/2022
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	09010212	KAL004777	98.48 PPM CARBON MONOXIDE/NITROGEN	+/- 0.5%	Oct 16, 2024
NTRM	200610-15	CC733106	98.61 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Oct 06, 2026
NTRM	200610-04	CC708044	99.61 PPM NITRIC OXIDE/NITROGEN	+/- 0.9%	Oct 06, 2026
GMIS	124200889139	CC323707	4.097 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Sep 03, 2024
NTRM	11010419	KAL004813	99.6 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.8%	Jul 28, 2023

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 FTIR AUP2010245 CO	FTIR	Feb 03, 2022
Nicolet iS50 FTIR AUP2010245 NO	FTIR	Feb 10, 2022
Nicolet iS50 FTIR AUP2010245 NO2	FTIR	Jan 27, 2022
Nicolet iS50 FTIR AUP2010245 SO2	FTIR	Jan 20, 2022

Triad Data Available Upon Request

NOTES:Gross Weight: 48.5 Kg
Net Weight: 8.1 Kg

Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer:	AIR LIQUIDE (THAILAND) LTD		
Part Number:	E02NI92E3HA0000	Reference Number:	160-402340009-1
Cylinder Number:	GN0027033	Cylinder Volume:	248.4 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2214 PSIG
PGVP Number:	A12022	Valve Outlet:	590
Gas Code:	O2,BALN	Certification Date:	Feb 10, 2022

Expiration Date: Feb 10, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	8.000 %	7.975 %	G1	+/- 0.4% NIST Traceable	02/10/2022
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	10010635	K022176	9.867 % OXYGEN/NITROGEN	+/- 0.3%	Apr 19, 2022

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2	PARAMAGNETIC	Jan 27, 2022

Triad Data Available Upon Request

NOTES:Gross Weight: 48.3 Kg
Net Weight: 8.1 Kg

Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer:	AIR LIQUIDE (THAILAND) LTD		
Part Number:	E02NI84E3HA0001	Reference Number:	160-402340010-1
Cylinder Number:	GN0027201	Cylinder Volume:	249.8 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2214 PSIG
PGVP Number:	A12022	Valve Outlet:	590
Gas Code:	O2,BALN	Certification Date:	Feb 02, 2022

Expiration Date: Feb 02, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	16.00 %	16.04 %	G1	+/- 0.4% NIST Traceable	02/02/2022
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	08010230	K005228	23.20 % OXYGEN/NITROGEN	+/- 0.4%	Jun 01, 2022

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS OXYMAT 6 - N1-W5-951 - O2	PARAMAGNETIC	Jan 27, 2022

Triad Data Available Upon Request

NOTES: Gross Weight: 48.8 Kg
Net Weight: 8.2 Kg

Approved for Release

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Certificate Calibration Equipment

ALS

Lot No. 2447712-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-110
Date : 13 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	8.01	7.99	0.08
Span Gas	16.04	16.03	16.02	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.03	0.02
Low-Level Gas	55.88	55.76	55.82	0.06
Span Gas	80.49	80.46	80.37	0.09

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	56.21	56.18	0.03
Span Gas	79.51	79.49	79.30	0.19

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.04	0.02
Low-Level Gas	55.22	55.34	55.51	0.17
Span Gas	79.95	79.98	80.02	0.04

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

ALS

Lot No. 2447712-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-110
Date : 13 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.08	0.01	0.04	0.04
Upscale Gas	16.03	16.01	0.08	15.99	0.16	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.04	0.03	0.06	0.05	0.02
Upscale Gas	80.46	79.88	0.58	79.92	0.54	0.04

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.01	0.01
Upscale Gas	79.49	79.33	0.16	79.28	0.21	0.05

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.09	0.07	0.13	0.11	0.04
Upscale Gas	79.98	80.45	0.47	79.99	0.01	0.46

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447713-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-120
Date : 14 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	7.97	7.99	0.08
Span Gas	16.04	16.03	16.05	0.08

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	55.88	55.69	55.76	0.07
Span Gas	80.49	80.44	80.46	0.02

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	56.30	56.08	55.97	0.11
Span Gas	79.51	79.40	79.28	0.12

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.03	0.01
Low-Level Gas	55.22	55.17	55.25	0.08
Span Gas	79.95	79.89	79.77	0.12

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447713-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-120
Date : 14 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.01	0.04	0.00
Upscale Gas	16.03	16.06	0.12	16.04	0.04	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.05	0.05	0.08	0.08	0.03
Upscale Gas	80.44	80.10	0.34	79.96	0.48	0.14

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.01	0.01
Upscale Gas	79.40	79.24	0.16	79.17	0.23	0.07

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.12	0.10	0.15	0.13	0.03
Upscale Gas	79.89	78.90	0.99	79.41	0.48	0.51

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447714-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-130
Date : 15 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	7.99	8.01	0.08
Span Gas	16.04	16.04	16.05	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.03	0.03
Low-Level Gas	55.88	55.81	55.74	0.07
Span Gas	80.49	80.42	80.37	0.05

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	55.98	55.68	0.30
Span Gas	79.51	79.50	79.39	0.11

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.03	0.02
Low-Level Gas	55.22	55.20	55.11	0.09
Span Gas	79.95	79.96	79.81	0.15

Calibrated by

Worawich T.

(Mr.Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447714-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-130
Date : 15 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.02	0.08	0.08
Upscale Gas	16.04	16.01	0.12	16.03	0.04	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.04	0.04	0.07	0.07	0.03
Upscale Gas	80.42	80.27	0.15	80.35	0.07	0.08

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.01	0.00	0.00	0.01
Upscale Gas	79.50	79.40	0.10	79.09	0.41	0.31

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.09	0.08	0.11	0.10	0.02
Upscale Gas	79.96	79.88	0.08	79.54	0.42	0.34

Calibrated by

Worawich T.

(Mr.Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447715-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-140
Date : 14 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	8.00	8.02	0.08
Span Gas	16.04	16.04	16.05	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	55.88	55.82	55.74	0.08
Span Gas	80.49	80.48	80.42	0.06

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	56.30	56.26	56.09	0.17
Span Gas	79.51	79.47	79.25	0.22

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.02	0.01
Low-Level Gas	55.22	55.18	55.05	0.13
Span Gas	79.95	79.90	79.83	0.07

Calibrated by

Worawich T.

(Mr.Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447715-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-140
Date : 14 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.04	0.04
Upscale Gas	16.04	16.05	0.04	16.07	0.12	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.04	0.04	0.02
Upscale Gas	80.48	79.99	0.49	80.02	0.46	0.03

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.47	79.50	0.03	79.38	0.09	0.12

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.05	0.02	0.09	0.06	0.04
Upscale Gas	79.90	79.88	0.02	79.79	0.11	0.09

Calibrated by

Worawich T.

(Mr.Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447716-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-150
Date : 15 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	7.97	7.98	0.04
Span Gas	16.04	16.04	16.03	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	55.88	55.79	55.88	0.11
Span Gas	80.49	80.42	80.31	0.11

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	56.19	56.27	0.08
Span Gas	79.51	79.50	79.44	0.06

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.03	0.02
Low-Level Gas	55.22	55.09	54.84	0.25
Span Gas	79.95	79.93	79.90	0.03

Calibrated by

Worawich T.

(Mr.Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447716-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-150
Date : 15 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	16.04	16.02	0.08	16.05	0.04	0.12

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.05	0.05	0.02	0.02	0.03
Upscale Gas	80.42	80.05	0.37	79.97	0.45	0.08

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.01	0.01
Upscale Gas	79.50	79.43	0.07	79.52	0.02	0.09

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.07	0.06	0.10	0.09	0.03
Upscale Gas	79.93	79.91	0.02	79.88	0.05	0.03

Calibrated by

Worawich T.

(Mr.Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447717-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-160
Date : 16 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	8.00	7.98	0.08
Span Gas	16.04	16.03	16.02	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.04
Low-Level Gas	55.88	55.79	55.68	0.11
Span Gas	80.49	80.41	80.27	0.14

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	56.15	55.98	0.18
Span Gas	79.51	79.46	79.25	0.21

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.03	0.05	0.02
Low-Level Gas	55.22	55.08	55.11	0.03
Span Gas	79.95	79.89	79.78	0.11

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447717-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-160
Date : 16 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.02	0.08	0.04
Upscale Gas	16.03	16.08	0.20	16.06	0.12	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.03	0.03	0.06	0.06	0.03
Upscale Gas	80.41	79.85	0.58	79.92	0.49	0.07

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.01	0.01
Upscale Gas	79.46	79.34	0.12	79.19	0.27	0.15

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.03	0.11	0.06	0.13	0.10	0.02
Upscale Gas	79.89	79.68	0.21	79.48	0.41	0.20

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447718-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-170
Date : 16 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.08
Low-Level Gas	7.98	7.99	8.01	0.08
Span Gas	16.04	16.05	16.03	0.08

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	55.88	55.83	55.79	0.04
Span Gas	80.49	80.38	80.17	0.21

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	55.90	56.15	0.25
Span Gas	79.51	79.37	79.40	0.03

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.02	0.03
Low-Level Gas	55.22	55.27	55.12	0.15
Span Gas	79.95	79.88	79.69	0.19

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447718-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-170
Date : 16 Aug 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.00	0.00	0.04
Upscale Gas	16.05	16.04	0.04	16.07	0.08	0.12

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.06	0.06	0.04	0.04	0.02
Upscale Gas	80.38	79.73	0.65	79.67	0.71	0.06

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.01	0.01	0.01	0.00
Upscale Gas	79.37	79.18	0.19	79.05	0.32	0.13

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.05	0.00	0.09	0.04	0.04
Upscale Gas	79.88	79.77	0.11	79.57	0.31	0.20

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447719-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-1803
Date : 12 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	7.99	8.00	0.04
Span Gas	16.04	16.05	16.05	0.00

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	55.88	55.46	55.38	0.08
Span Gas	80.49	80.33	80.28	0.05

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	56.30	56.00	56.03	0.03
Span Gas	79.51	79.60	79.40	0.20

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.02	0.01
Low-Level Gas	55.22	55.10	55.05	0.05
Span Gas	79.95	79.83	79.60	0.23

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447719-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-1803
Date : 12 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.08	0.03	0.12	0.04
Upscale Gas	16.05	16.08	0.12	16.10	0.20	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.03	0.03	0.01
Upscale Gas	80.33	79.72	0.61	79.50	0.83	0.22

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.01	0.02	0.01	0.00
Upscale Gas	79.60	79.10	0.50	79.09	0.51	0.01

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.03	0.02	0.03	0.02	0.00
Upscale Gas	79.83	79.26	0.57	79.13	0.70	0.13

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447720-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-1903 (F-190)
Date : 03 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.01	0.04
Low-Level Gas	7.98	7.99	8.00	0.04
Span Gas	16.04	16.03	16.05	0.08

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.02	0.00
Low-Level Gas	55.88	55.58	55.41	0.17
Span Gas	80.49	80.26	80.32	0.06

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	56.05	56.00	0.05
Span Gas	79.51	79.44	79.25	0.19

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.02	0.01
Low-Level Gas	55.22	55.10	55.05	0.05
Span Gas	79.95	79.87	79.64	0.23

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447720-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-1903 (F-190)
Date : 03 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.02	0.00	0.05	0.12	0.12
Upscale Gas	16.03	16.07	0.16	16.07	0.16	0.00

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.02	0.00	0.03	0.01	0.01
Upscale Gas	80.26	79.59	0.67	79.34	0.92	0.25

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.02	0.02	0.00
Upscale Gas	79.44	79.13	0.31	79.00	0.44	0.13

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.05	0.04	0.05	0.04	0.00
Upscale Gas	79.87	79.45	0.42	79.27	0.60	0.18

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447721-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-10102/10103 (F-1010)
Date : 05 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	8.00	7.99	0.04
Span Gas	16.04	16.03	16.02	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.03	0.01
Low-Level Gas	55.88	55.44	55.52	0.08
Span Gas	80.49	80.62	80.37	0.25

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.02	0.00
Low-Level Gas	56.30	56.18	56.13	0.05
Span Gas	79.51	79.35	79.30	0.05

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.04	0.02
Low-Level Gas	55.22	55.34	55.51	0.17
Span Gas	79.95	79.67	80.05	0.38

CO2 ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (%) : 25

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.00	0.04
Low-Level Gas	16.08	16.07	16.09	0.08
Span Gas	22.05	22.03	22.01	0.08

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO.: F 06-062 REVISION NO.: 4 ISSUE DATE: 18/01/24

ALS Laboratory Group

Lot No. 2447721-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-10102/10103 (F-1010)
Date : 05 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.08	0.02	0.08	0.00
Upscale Gas	16.03	16.05	0.08	16.03	0.00	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.04	0.02	0.06	0.04	0.02
Upscale Gas	80.62	80.00	0.62	79.93	0.69	0.07

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.03	0.01	0.04	0.02	0.01
Upscale Gas	79.35	79.06	0.29	79.11	0.24	0.05

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.04	0.02	0.05	0.03	0.01
Upscale Gas	79.67	79.22	0.45	79.30	0.37	0.08

CO2 ANALYZER
Cylinder Conc. (%) : 22.05 Span (%) : 25

	CO2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.01	0.00	0.00	0.04	0.04
Upscale Gas	22.03	21.93	0.40	21.91	0.48	0.08

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO.: F 06-063 REVISION NO.: 4 ISSUE DATE: 18/01/24

ALS Laboratory Group

Lot No. 2447722-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-10202/10203 (F-1020)
Date : 05 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	8.00	8.02	0.08
Span Gas	16.04	16.02	16.05	0.12

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.02	0.00
Low-Level Gas	55.88	55.74	55.80	0.14
Span Gas	80.49	80.56	80.32	0.24

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	56.30	56.00	56.11	0.11
Span Gas	79.51	79.65	79.25	0.40

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.02	0.00
Low-Level Gas	55.22	55.00	55.05	0.05
Span Gas	79.95	80.03	79.67	0.36

CO2 ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (%) : 25

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	16.08	16.07	16.06	0.04
Span Gas	22.05	22.02	22.03	0.04

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO.: F 06-062 REVISION NO.: 4 ISSUE DATE: 18/01/24

ALS Laboratory Group

Lot No. 2447722-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-10202/10203 (F-1020)
Date : 05 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.04	0.04
Upscale Gas	16.02	16.05	0.12	16.07	0.20	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.02	0.00	0.04	0.02	0.02
Upscale Gas	80.56	79.59	0.97	79.34	1.22	0.25

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.01	0.02	0.01	0.00
Upscale Gas	79.65	79.23	0.42	79.36	0.29	0.13

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.05	0.03	0.05	0.03	0.00
Upscale Gas	80.03	79.80	0.23	79.48	0.55	0.32

CO2 ANALYZER
Cylinder Conc. (%) : 22.05 Span (%) : 25

	CO2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	22.02	21.95	0.28	21.93	0.36	0.08

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

FORM NO.: F 06-063 REVISION NO.: 4 ISSUE DATE: 18/01/24

ALS Laboratory Group

Lot No. 2447723-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-310101A (Model : URAS 14) (F-3101)
Date : 04 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	8.00	8.00	0.00
Span Gas	16.04	16.05	16.05	0.00

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	55.88	55.46	55.38	0.08
Span Gas	80.49	80.33	80.28	0.05

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	56.30	56.12	56.03	0.09
Span Gas	79.51	79.64	79.40	0.24

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.02	0.01
Low-Level Gas	55.22	55.10	55.05	0.05
Span Gas	79.95	79.77	79.60	0.17

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447723-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-310101A (Model : URAS 14) (F-3101)
Date : 04 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.08	0.05	0.20	0.12
Upscale Gas	16.05	16.08	0.12	16.06	0.04	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.03	0.03	0.01
Upscale Gas	80.33	79.67	0.66	79.44	0.89	0.23

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.01	0.02	0.01	0.00
Upscale Gas	79.64	79.00	0.64	79.09	0.55	0.09

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.03	0.02	0.03	0.02	0.00
Upscale Gas	79.77	79.26	0.51	79.13	0.64	0.13

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447724-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-310101A (Model : URAS 14) (F-3102)
Date : 06 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	7.98	7.97	7.99	0.08
Span Gas	16.04	16.04	16.05	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 922
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	55.88	55.53	55.39	0.14
Span Gas	80.49	80.41	80.37	0.04

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 534
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	56.30	56.12	56.08	0.04
Span Gas	79.51	79.59	79.35	0.24

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 844
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.02	0.01
Low-Level Gas	55.22	55.05	55.18	0.13
Span Gas	79.95	79.83	80.05	0.22

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447724-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-310101A (Model : URAS 14) (F-3102)
Date : 06 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.04	0.05	0.16	0.12
Upscale Gas	16.04	16.06	0.08	16.08	0.16	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.04	0.04	0.07	0.07	0.03
Upscale Gas	80.41	79.88	0.53	79.71	0.70	0.17

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.03	0.03	0.04	0.04	0.01
Upscale Gas	79.59	79.23	0.36	79.04	0.55	0.19

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.03	0.02	0.05	0.04	0.02
Upscale Gas	79.83	79.38	0.45	79.30	0.53	0.08

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447725-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-3103
Date : 20 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	8.00	8.00	0.00
Span Gas	16.04	16.05	16.05	0.00

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	55.88	55.46	55.38	0.08
Span Gas	80.49	80.33	80.28	0.05

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.05	0.05	0.00
Low-Level Gas	56.30	56.12	56.03	0.09
Span Gas	79.51	79.64	79.40	0.24

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.02	0.01
Low-Level Gas	55.22	55.10	55.05	0.05
Span Gas	79.95	79.77	79.60	0.17

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447725-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-3103
Date : 20 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.08	0.05	0.20	0.12
Upscale Gas	16.05	16.08	0.12	16.06	0.04	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.03	0.03	0.01
Upscale Gas	80.33	79.67	0.66	79.44	0.89	0.23

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.05	0.05	0.00	0.05	0.00	0.00
Upscale Gas	79.64	79.00	0.64	79.09	0.55	0.09

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.03	0.02	0.03	0.02	0.00
Upscale Gas	79.77	79.26	0.51	79.13	0.64	0.13

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447726-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-310401B (F-3104)
Date : 06 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.98	7.99	8.00	0.04
Span Gas	16.04	16.05	16.05	0.00

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.02	0.02	0.00
Low-Level Gas	55.88	55.47	55.40	0.07
Span Gas	80.49	80.62	80.36	0.26

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	56.30	56.06	56.13	0.07
Span Gas	79.51	79.40	79.32	0.08

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.02	0.01
Low-Level Gas	55.22	55.07	55.00	0.07
Span Gas	79.95	79.80	79.58	0.22

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447726-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-310401B (F-3104)
Date : 06 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.01	0.04	0.00
Upscale Gas	16.05	16.07	0.08	16.06	0.04	0.04

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.02	0.03	0.01	0.05	0.03	0.02
Upscale Gas	80.62	79.48	1.14	79.26	1.36	0.22

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.03	0.03	0.05	0.05	0.02
Upscale Gas	79.40	79.00	0.40	79.18	0.22	0.18

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.01	0.05	0.04	0.03
Upscale Gas	79.80	79.42	0.38	79.25	0.55	0.17

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447727-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : B-AT-310401B (F-3105)
Date : 13 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	7.99	8.00	0.04
Span Gas	16.04	16.04	16.05	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.88	55.46	55.50	0.04
Span Gas	80.49	80.42	80.30	0.12

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	56.30	56.00	56.03	0.03
Span Gas	79.51	79.64	79.40	0.24

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	55.22	55.10	55.05	0.05
Span Gas	79.95	79.77	79.60	0.17

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447727-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : B-AT-310401B (F-3105)
Date : 13 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.08	0.03	0.12	0.04
Upscale Gas	16.04	16.08	0.16	16.07	0.12	0.04

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.03	0.03	0.01
Upscale Gas	80.42	79.67	0.75	79.70	0.72	0.03

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.01	0.02	0.01	0.00
Upscale Gas	79.64	78.70	0.94	79.56	0.08	0.86

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.03	0.02	0.03	0.02	0.00
Upscale Gas	79.77	79.20	0.57	79.10	0.67	0.10

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447728-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-3106
Date : 18 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	7.97	7.95	0.08
Span Gas	16.04	16.03	16.05	0.08

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.88	55.53	55.38	0.15
Span Gas	80.49	80.58	80.27	0.31

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	56.06	55.92	0.14
Span Gas	79.51	79.47	79.65	0.18

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	55.22	55.00	54.84	0.16
Span Gas	79.95	79.86	79.58	0.28

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447728-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-3106
Date : 18 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.03	0.12	0.08
Upscale Gas	16.03	16.05	0.08	16.07	0.16	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.03	0.03	0.01
Upscale Gas	80.58	79.52	1.06	79.76	0.82	0.24

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.03	0.03	0.03
Upscale Gas	79.47	78.68	0.79	78.31	1.16	0.37

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.03	0.03	0.01
Upscale Gas	79.86	79.00	0.86	79.04	0.82	0.04

Calibrated by

(Mr. Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447729-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-4301
Date : 19 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	8.00	8.00	0.00
Span Gas	16.04	16.05	16.04	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	55.88	55.98	56.00	0.02
Span Gas	80.49	80.60	80.74	0.14

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	55.95	55.78	0.17
Span Gas	79.51	79.63	79.27	0.36

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.01	0.01	0.00
Low-Level Gas	55.22	54.90	54.84	0.06
Span Gas	79.95	80.00	79.50	0.50

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447729-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-4301
Date : 19 Sep 24 Test Operator : Ussaree N.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.03	0.12	0.08
Upscale Gas	16.05	16.07	0.08	16.10	0.20	0.12

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.01	0.03	0.03	0.02
Upscale Gas	80.60	79.44	1.16	79.26	1.34	0.18

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.03	0.03	0.03
Upscale Gas	79.63	78.46	1.17	78.28	1.35	0.18

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.01	0.02	0.01	0.03	0.02	0.01
Upscale Gas	80.00	79.23	0.77	79.15	0.85	0.08

Calibrated by

(Mr.Ussaree Namburee)

Environmental Field Scientist (4)

Lot No. 2447731-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL. Location : F-4302
Date : 24 Sep 24 Test Operator : Worawich T.

O_2 ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	7.98	7.99	8.01	0.08
Span Gas	16.04	16.05	16.04	0.04

NO_x ANALYZER
Model : TELEDYNE API T200H Serial No. : 923
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.03	0.03
Low-Level Gas	55.88	55.75	55.68	0.07
Span Gas	80.49	80.47	80.30	0.17

SO2 ANALYZER
Model : TELEDYNE API T100H Serial No. : 536
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	56.30	56.20	55.89	0.31
Span Gas	79.51	79.50	79.37	0.13

CO ANALYZER
Model : TELEDYNE API T300M Serial No. : 845
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	55.22	55.12	55.07	0.05
Span Gas	79.95	79.96	79.67	0.29

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447731-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL. Location : F-4302
Date : 24 Sep 24 Test Operator : Worawich T.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04 Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.02	0.08	0.04
Upscale Gas	16.05	16.01	0.16	16.03	0.08	0.08

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.49 Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.04	0.04	0.02
Upscale Gas	80.47	79.88	0.59	79.92	0.55	0.04

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.51 Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.01	0.01	0.01
Upscale Gas	79.50	79.08	0.42	78.99	0.51	0.09

CO ANALYZER
Cylinder Conc. (ppm) : 79.95 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.01	0.00	0.00	0.01
Upscale Gas	79.96	79.69	0.27	79.77	0.19	0.08

Calibrated by

Worawich T.

(Mr. Worawich Tongpoom)

Environmental Field Scientist (3)

Lot No. 2447732-1

ANALYZER CALIBRATION DATA

Client : PTT Global Chemical PCL.
Date : 17 Dec 24
Location : B-AT-2411 to 2414 (Model : URAS 14)
Test Operator : Anuvat M.

O_2 ANALYZER
Model : TELEDYNE API T200H
Serial No. : 991
Span (%) : 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.10	0.10	0.00
Low-Level Gas	7.98	8.11	7.90	0.84
Span Gas	16.04	16.00	16.00	0.00

NO_x ANALYZER
Model : TELEDYNE API T200H
Serial No. : 991
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.12	0.00	0.12
Low-Level Gas	55.88	54.77	54.24	0.53
Span Gas	80.73	80.11	79.87	0.24

SO2 ANALYZER
Model : TELEDYNE API T100H
Serial No. : 553
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.11	0.10	0.01
Low-Level Gas	56.30	55.80	55.78	0.02
Span Gas	79.43	80.00	79.88	0.12

CO ANALYZER
Model : TELEDYNE API T300M
Serial No. : 924
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.11	0.00	0.11
Low-Level Gas	55.22	54.20	55.00	0.80
Span Gas	79.82	79.80	80.00	0.20

Calibrated by

Anuvat M

(Mr.Anuvat Moungpair)

Environmental Field Scientist (2)

FORM NO.: F 06-104 REVISION NO.: - ISSUE DATE: 3/06/19

ALS Laboratory Group

Lot No. 2447732-1

SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : PTT Global Chemical PCL.
Date : 17 Dec 24
Location : B-AT-2411 to 2414 (Model : URAS 14)
Test Operator : Anuvat M.

O_2 ANALYZER
Cylinder Conc. (%) : 16.04
Span (%) : 25

	O_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.10	0.00	0.40	0.00	0.40	0.00
Upscale Gas	16.00	16.00	0.00	16.00	0.00	0.00

NO_x ANALYZER
Cylinder Conc. (ppm) : 80.73
Span (ppm) : 100

	NO_x Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.12	0.10	0.02	0.10	0.02	0.00
Upscale Gas	80.11	79.80	0.31	79.00	1.11	0.80

SO_2 ANALYZER
Cylinder Conc. (ppm) : 79.43
Span (ppm) : 100

	SO_2 Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.11	0.00	0.11	0.00	0.11	0.00
Upscale Gas	80.00	78.80	1.20	79.40	0.60	0.60

CO ANALYZER
Cylinder Conc. (ppm) : 79.82
Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.11	0.00	0.11	0.00	0.11	0.00
Upscale Gas	79.80	80.00	0.20	79.80	0.00	0.20

Calibrated by

Anuvat M

(Mr.Anuvat Moungpair)

Environmental Field Scientist (2)

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ALS Laboratory Group

ภาคผนวก จ

เอกสารขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

ที่ อก ๐๓๑๐(๑)/ ๑๖๑๖๘

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๐ พฤศจิกายน ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๔ สิงหาคม ๒๕๖๖

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๕ แผ่น
๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๑ แผ่น

ตามหนังสือที่อ้างถึง บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย ตามสิ่งที่ส่งมาด้วย ๑
ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ ๑๘๑ ราย ตามสิ่งที่ส่งมาด้วย ๒
ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล หรือวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ กันยายน ๒๕๖๙ หากประสงค์จะต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายศิระ ฉันทร์เจิด)
นักวิทยาศาสตร์เชี่ยวชาญ รักษาราชการแทน
ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

Green Industry "อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ว-๒๐๔
ที่ อก ๐๓๑๐(๑)/ ๑๖๑๖๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๖ ราย

๑) นางสาวยุพาพร จันทร์เปล่ง	ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๑
๒) นางสาวชัชนัย โกมารกุล ณ นคร	ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๒
๓) นายศรายุทธ จิตรานนท์	ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๓
๔) นางสาวกนกกร เอนก	ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๔
๕) นายสุริยา สอนแก้ว	ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๕
๖) นายวิชาญ ชุณหรัต	ทะเบียนเลขที่ ว-๒๐๔-ค-๐๐๐๖

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ว-๒๐๔
ที่ อก ๐๓๑๐(๑)/ ๑๖๑๖๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑๘๑ ราย

๑) นายกาจบัณฑิต กิตติศุภวณิชย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๑
๒) นายภัทรพล สว่างใจธรรม์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๒
๓) นายนราธิป เหือกชัยดำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๓
๔) นายศิริโชค พงษ์ประสม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๔
๕) นายณัฐวุฒิ ด้วงแพง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๕
๖) นางสาวจินดา โจจุลธรรม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๖
๗) นางสาวสาวิตรี น้อยเสงี่ยม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๗
๘) นางสาวชณัฐกาญจน์ อิ่มชม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๘
๙) นางสาวมรินทร์ สายเส็ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๐๙
๑๐) นางสาวนันทวดี สมบูรณ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๐
๑๑) นางสาวศรัณยา เฉลิมธำรงค์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๑
๑๒) นางสาวรัญญธร มงคลจิรวุฒิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๒
๑๓) นางสาวศิริลักษณ์ บุนนาค	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๓
๑๔) นายนพพงศ์ จันทรุพันธุ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๔
๑๕) นายนรเศรษฐ์ โกมาลย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๕
๑๖) นายธันวา จริยา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๖
๑๗) นางสาวเกศรินทร์ แก้วมั่น	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๗
๑๘) นางสาวสุวิมล ชัยเรืองวุฒิ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๘
๑๙) นางสาวสุชาดา ธรรมถาวร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๑๙
๒๐) นางสาวเปมิกา ชัยเดชธนกุล	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๐
๒๑) นางสาวศศิธร หมูสวัสดิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๑
๒๒) นางสาวเสาวลักษณ์ ภู่นภาอำพร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๒
๒๓) นายอภิสิทธิ์ สิงหา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๓
๒๔) นายศักดิ์สิทธิ์ ไพศาลพิสุทธิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๔
๒๕) ว่าที่ร้อยตรีหญิง พรรณิภา ขำเจริญ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๕
๒๖) นางจิลดา คำภูแก้ว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๖
๒๗) นางสาวอรวรรณ รักยง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๗
๒๘) นางสาวนพรัตน์ แย้มกรานต์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๘
๒๙) นายจุลเดช วารินทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๒๙
๓๐) นางสาวดายุรัตน์ ร้องคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๐
๓๑) นายพรมมี ศรีบัดเนตร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๑
๓๒) นายอุทิศ อุ่นลิ้ม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๒
๓๓) ว่าที่ร้อยตรี เฉลิมเกียรติ อมรศรีเสริม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๓
๓๔) นางสาววิยา สร้างนา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๔
๓๕) นายอนุพงศ์ รัตนศรีประเสริฐ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๕

๓๖) นางสาวจุฑารัตน์...

๓๖) นางสาวจุฑารัตน์ โอนสันเทียะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๖
๓๗) นางสาวจารุวรรณ พิมพ์อภิกฤติยา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๗
๓๘) นางสาวปรางค์ทิพย์ กิจไพศาลศักดิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๘
๓๙) นางสาวเดือนใจ ทางกลาง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๓๙
๔๐) นางสาวจิรารพร ศิริเวช	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๐
๔๑) นายวรากร ผูกรักษ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๑
๔๒) นายทนง วิริยะสหกิจ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๒
๔๓) นายธนิต เจนจบ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๓
๔๔) นายคณิศร ชำเพชร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๔
๔๕) นายภูวิช พรหมสะอาด	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๕
๔๖) นายธนเดช โภคาพิพัฒน์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๖
๔๗) นายชวฤทธิ์ วงษ์จันทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๗
๔๘) นายอาทิตย์ ศรีเสน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๘
๔๙) นายเจษดินทร์ คงศักดิ์ไทย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๔๙
๕๐) นายจรัส บุญยิ่ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๐
๕๑) นายธนาณัติ เอนก	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๑
๕๒) นายอภิวัฒน์ ทุมหนู	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๒
๕๓) นางสาวสุภาขวัญ มาก	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๓
๕๔) นางสาวทัตพร ชวาลสมบูรณ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๔
๕๕) นางสาวธิติมา บุญเพ็ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๕
๕๖) นางสาวภานุมาศ นามวัฒน์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๖
๕๗) นางสาวอุไรรัตน์ ทึงสร้างแป้น	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๗
๕๘) นายธีรวัฒน์ ปวงสุข	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๘
๕๙) นายอิทธิพล ยะโส	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๕๙
๖๐) นายประพจน์ วรรณชูชัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๐
๖๑) นายชยธร พวงทิพย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๑
๖๒) นางสาวกนกวรรณ จันทบาล	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๒
๖๓) นายสิทธิโชค ธงเงิน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๓
๖๔) นางศิลาวรรณ ใจบุญ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๔
๖๕) นางสาวพรรณธิดา พุ่มคง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๕
๖๖) นายนวภัทร ศรีวิริยะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๖
๖๗) นายสุวิชา ทองอ่อน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๗
๖๘) นายวิญญู บุญตะนัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๘
๖๙) นายสมบูรณ์ บุตรจันทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๙
๗๐) นายวิรัตน์ ไชยนะรา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๐
๗๑) นายนฤเบศน์ เพิ่มพูน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๑
๗๒) นายจิรณัฐ ขาวละออ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๒
๗๓) นายอัสรี นามบุรี	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๓
๗๔) นายอัศวเรศ จ่อสาว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๔

๗๕) นายประเสริฐ...

๗๕) นายประเสริฐ สุระขันธ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๕
๗๖) นายนุกูล จันทร์เนียม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๖
๗๗) นายพีรพงษ์ ทองคูณปรีดา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๗
๗๘) นายฤพล ทองนุช	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๘
๗๙) นายอนุวัฒน์ ม่วงแพร	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๙
๘๐) นายเจตศราวุฒิ ปัตตะมะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๐
๘๑) นายกฤษณะ สายวรรณ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๑
๘๒) นายพิชัย บุญยงค์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๒
๘๓) นายภานุพงศ์ โอมวงศ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๓
๘๔) นายสามารถ คุ้มปลี	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๔
๘๕) นายสัญชัย โกศรีนาม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๕
๘๖) นายณัฐวุฒิ ศรีประเสริฐ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๖
๘๗) นายชวัลธัช นาคพนม	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๗
๘๘) นายพงศธร ชัยทิพย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๘
๘๙) นายสิทธิโชค ทาสีดา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๘๙
๙๐) นายธนากร อินสุดา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๐
๙๑) นางสาววรณิชชา ชาติวันชัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๑
๙๒) นางสาวพิมพ์ตะวัน มินากูล	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๒
๙๓) นางสาวเพชรัตน์ สิงห์สมบุญ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๓
๙๔) นางสาวชญานิน พรหมจันทร์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๔
๙๕) นายกีรติ ทวีราช	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๕
๙๖) นายจักริน หมั่นวิชา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๖
๙๗) นายฉัตรชัย สุขเปีย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๗
๙๘) นายณรนนท์ ต๊ะทองคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๘
๙๙) นายดุลยพล สนนอก	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๙๙
๑๐๐) นายทักษ์ดนัย อุบลศรี	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๐
๑๐๑) นายธนศวร นามะกุณณา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๑
๑๐๒) นายธิติพงศ์ บัวแดง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๒
๑๐๓) นายนนทชัย อุปถัมภ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๓
๑๐๔) นายนัฐพล คุณสุทธิ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๔
๑๐๕) นายนันทวัฒน์ สาริน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๕
๑๐๖) นายปิยะนัฐ พลมะศรี	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๖
๑๐๗) นายพงศ์สิริ โสมเขียว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๗
๑๐๘) นายพีรพัฒน์ กำคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๘
๑๐๙) นายภาณุพงศ์ มานิตย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๙
๑๑๐) นายมงคล ผลาทิพย์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๐
๑๑๑) นายสิรินนท์ ทองอั้น	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๑
๑๑๒) นายอเนชา ทันสมัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๒
๑๑๓) นายอดิศักดิ์ ผมไผ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๓

๑๑๔) นายอนันตชัย...

๑๑๔) นายอนันตชัย วีสม ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๔
๑๑๕) นายวรวุธ ดีนัก ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๕
๑๑๖) นายแสงตะวัน นะตะสัต ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๖
๑๑๗) นายยุทธพงศ์ รัตนะ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๗
๑๑๘) นายชยัณวุฒิ ไชยอะนิจ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๘
๑๑๙) นายวิศรุต ศรีธรรมมา ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๑๙
๑๒๐) นายนนทกร เผือกผ่อง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๐
๑๒๑) นายกำชัย สุทธะ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๑
๑๒๒) นางสาวณัฐภรณ์ บุญตะนัย ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๒
๑๒๓) นางสาวพัชรินทร์ แสนสร้อย ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๓
๑๒๔) นายไพรวัลย์ เปรี่ยมพิมาย ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๔
๑๒๕) นางสาวศุภมาศ ทองมาก ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๕
๑๒๖) นางสาวลลิตา จิตรสว่าง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๖
๑๒๗) นางสาวชไมพร เลิกภู่เขียว ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๗
๑๒๘) นางสาวภฤติมาพร คำมีแก่น ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๘
๑๒๙) นางสาวสกุลรัตน์ ภาคภูมิ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๙
๑๓๐) นางสาวไพรินทร์ ศรีรูปี ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๐
๑๓๑) นางสาวพิพเนตร ผุยปัญญา ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๑
๑๓๒) นางสาวสาธิตา ปานทอง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๒
๑๓๓) นางสาวอริสา ทองนวล ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๓
๑๓๔) นางสาวอรยา ค้าคล่อง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๔
๑๓๕) นางสาวชุดาภรณ์ สุนทรสนาน ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๕
๑๓๖) นางสาวอัญชลี คำจันทร์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๖
๑๓๗) นายบุญฤทธิ์ เอี่ยมเทศ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๗
๑๓๘) นางสาวศุภรดา ปั้นมยุรา ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๘
๑๓๙) นางสาวพาฤดี คุณนาน ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๙
๑๔๐) นางสาวจิราเจต ฟองตา ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๐
๑๔๑) นางสาวอารยา มีชัย ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๑
๑๔๒) นางสาววิชชุตา นาคผจญ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๒
๑๔๓) นางสาวนันทิยา จันทะลุน ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๓
๑๔๔) นายกิตติพงศ์ แซ่ลี้ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๔
๑๔๕) นายอนุวัติ ภูถวิล ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๕
๑๔๖) นายธีรพล แสงทอง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๖
๑๔๗) นายศักดิ์พิพัฒน์ บุญมั่น ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๗
๑๔๘) นายฐิติวัลค์ เอมอุไร ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๘
๑๔๙) นายชัยณรงค์ ศรีบุรินทร์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๙
๑๕๐) นางสาวอัจฉราวรรณ สวนสนอง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๐
๑๕๑) นางสาวณัฐฐาพร สิงหา ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๑
๑๕๒) นายภีมเรศ แหยมโต ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๒

๑๕๓) นางสาวอุบล...

๑๕๓) นางสาวอุบล เศิกศิริ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๓
๑๕๔) นางสาวมโนรัตน์ ทองบุตร ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๔
๑๕๕) นายภาคภูมิ แทนไทย ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๕
๑๕๖) นางสาวสุภาณัฐ เมล์พ่วง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๖
๑๕๗) นางสาวพรทิวา สาตาชนม์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๗
๑๕๘) นายเอกวิทย์ วันทะนา ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๘
๑๕๙) นายไตรมณฑล ทิพย์วรรณ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๕๙
๑๖๐) นายจิรเมธ ประเสริฐสิริพงศ์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๐
๑๖๑) นายจิรายุส เกษมสุข ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๑
๑๖๒) นายจีรศักดิ์ ศรีวิชัย ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๒
๑๖๓) นายณัฐกฤษณ์ สะพานแก้ว ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๓
๑๖๔) นายบูรณศักดิ์ ปะทิ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๔
๑๖๕) นายปัณณวิชญ์ เสมอทรัพย์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๕
๑๖๖) นายพิษณุพงษ์ ไชยา ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๖
๑๖๗) นายภัทรพงษ์ มณฑาทอง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๗
๑๖๘) นายวสันต์ ตรีนกุล ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๘
๑๖๙) นายภาณุเดช เพชรอุด ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๙
๑๗๐) นายอนุกูล วิละแสง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๐
๑๗๑) นายภัทรพงษ์ มีสุข ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๑
๑๗๒) นางสาวนุชรวี ลีละพีป ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๒
๑๗๓) นางสาวสุภาวดี โกศรีนาม ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๓
๑๗๔) นางสาวอรณิช เพียนดำ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๔
๑๗๕) นางสาวพรเพ็ญ ชอบสอน ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๕
๑๗๖) นางสาววันวิสา ขอนพิกุล ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๖
๑๗๗) นางสาวอรวรรณ เถาว์ทอง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๗
๑๗๘) นางสาวอัยย์ลิณ เมอร์วิณณ์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๘
๑๗๙) นางสาวรวิสรา คุ้ยครอง ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๗๙
๑๘๐) นายวุฒิกร ศิริวรรณ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๐
๑๘๑) นางสาวจารุวรรณ กระจ่างพันธุ์ ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๑

สิ่งที่ส่งมาด้วย ๓

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด เลขทะเบียน ว-๒๐๔
ที่ อก ๐๓๑๐(๑)/ ๑๖๖๘ ลงวันที่ ๒๐ พฤศจิกายน ๒๕๖๖

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๗๔ รายการ

<u>น้ำเสีย จำนวน 60 รายการ</u>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldicarb	High-Performance Liquid Chromatographic Method[4]
2	Aldicarb Sulfone	High-Performance Liquid Chromatographic Method[4]
3	Aldicarb Sulfoxide	High-Performance Liquid Chromatographic Method[4]
4	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
5	Arsenic	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
6	Barium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
7	α-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
8	β-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
9	δ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
10	γ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
11	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method[4] 2) 5-Day BOD Test, Membrane Electrode Method[4]
12	Carbaryl	High-Performance Liquid Chromatographic Method[4]
13	Carbofuran	High-Performance Liquid Chromatographic Method[4]
14	Cadmium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
15	Chemical Oxygen Demand	1) Closed Reflux, Colorimetric Method[4] 2) Closed Reflux, Tritimetric Method[4]
16	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
17	Chromium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
18	Color	ADMI Weighted-Ordinate Spectrophotometric Method[4]

19 Copper...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Copper	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
20	Cyanide	Distillation, Colorimetric Method[4]
21	2,4´-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
22	4,4´-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
23	2,4´-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
24	4,4´-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
25	2,4´-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
26	4,4´-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
27	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
28	Endosulfan Sulfate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
29	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
30	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
31	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
32	Endrin Aldehyde	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
33	Formaldehyde	Distillation, Colorimetric Method[3]
34	Free Chlorine	1) DPD Ferrous Titrimetric Method[4] 2) DPD Colorimetric Method[4]
35	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
36	Heptachlor Epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
37	Hexavalent Chromium	Colorimetric Method[4]
38	3-Hydroxycarbofuran	High-Performance Liquid Chromatographic Method[4]
39	Lead	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]

40 Manganese...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	Manganese	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
41	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass spectrometric Method[4]
42	Methiocarb	High-Performance Liquid Chromatographic Method[4]
43	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
44	Methomyl	High-Performance Liquid Chromatographic Method[4]
45	Nickel	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
46	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method[4] 2) Soxhlet Extraction Method[4]
47	Oxamyl	High-Performance Liquid Chromatographic Method[4]
48	Propoxur	High-Performance Liquid Chromatographic Method[4]
49	pH	Electrometric Method[4]
50	Phenols	1) Distillation, Chloroform Extraction Method[4] 2) Distillation, Direct Photometric Method[4]
51	Selenium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
52	Sulfide	Iodometric Method[4]
53	Temperature	Laboratory and Field Methods[4]
54	Total Dissolved Solids	Dried at 180 °C[4]
55	Total Kjeldahl Nitrogen	Semi-Micro Kjeldahl Method[4]
56	Total Phosphorous	Digestion, Colorimetric Method[4]
57	Total Suspended Solids	Dried from 103-105 °C[4]
58	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
59	Trivalent Chromium	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation[4]
60	Zinc	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[4]

น้ำใต้ดิน...

น้ำใต้ดิน จำนวน 126 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
3	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
5	Antimony	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
8	Barium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
13	Benzoic Acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
15	Benzo[g,h,i]perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

18 Bis(2-ethylhexyl)phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
27	Chlordane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
33	Chromium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Colorimetric Method; Calculation[4]
35	Chromium (VI)	Colorimetric Method[4]

36 Chrysene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
37	Cyanide	Distillation, Colorimetric Method[4]
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
39	DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
40	DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
41	DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
43	Di-n-Butyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
47	3,3-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]

56 1,3-Dichloropropene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
57	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
58	Diethyl Phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
63	Di-n-octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
64	Endosulfan	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
65	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
69	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
70	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
74	α-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
75	β-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

76 γ-HCH...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
76	γ-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
81	Lead	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
82	Manganese	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
83	Mercury	1) Digestion, Cold Vapor Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
84	Methanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
86	Methyl bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
87	Methylene chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
89	2-Methylnapthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
90	Methyl tert-butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
92	Nickel	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

94 N-Nitrosodiphenylamine...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
95	N-Nitrosodi-n-Propylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
96	Polychlorinated Biphenyls - PCB 1016 - PCB 1221 - PCB 1232 - PCB 1242 - PCB 1248 - PCB 1254 - PCB 1260	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
98	pH	Electrometric Method[4]
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
100	Phenol	1) Distillation, Chloroform Extraction Method[4] 2) Distillation, Direct Photometric Method[4] 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
102	Selenium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
103	Silver	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
104	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
105	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
106	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
107	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
108	Toxaphene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
109	TPH (C_5-C_8)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[14,25]

110 TPH ($C_{>8}$-C_{16})...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
110	TPH ($C_{>8}$-C_{16})	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[9,22]
111	TPH ($C_{>16}$-C_{35})	Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[9,22]
112	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
113	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
114	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
115	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
116	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
117	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
118	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
119	Vanadium	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]
120	Vinyl acetate	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
121	Vinyl chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
122	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
123	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
124	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
125	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[4]
126	Zinc	1) Digestion, Inductively Coupled Plasma Method[4] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[4]

อากาศเสีย...

อากาศเสีย (ปล่องระบาย) จำนวน 28 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
2	Arsenic	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
3	Beryllium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
4	Cadmium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
5	Carbon Monoxide	1) Instrumental Analyzer Method[5] 2) Sampling Bag Non-Dispersive Infrared Method[5]
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method[5] 2) Isokinetic Sampling, Ion Chromatographic Method [5]
7	Chromium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
8	Cobalt	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
9	Copper	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
10	Cresol	Adsorption Sampling, Gas Chromatographic Method[5]
11	Dioxins	Isokinetic Sampling[5]
12	Hydrogen Chloride	1) Absorption Sampling, Ion Chromatographic Method[5] 2) Isokinetic Sampling, Ion Chromatographic Method[5]
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method[5] 2) Isokinetic Sampling, Ion Chromatographic Method[5]
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method[5]

15 Lead...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
15	Lead	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
16	Manganese	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
17	Mercury	1) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[5] 2) Isokinetic Sampling, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method[5]
18	Nickel	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
19	Opacity	Ringelmann's Method[2]
20	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic Acid Method[5] 2) Absorption Sampling, Alkaline Permanganate/ Colorimetric Method[5] 3) Instrumental Analyzer Method[5]
21	Selenium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
22	Sulfur Dioxide	1) Absorption Sampling, Barium-Thorin Titrimetric Method[5] 2) Instrumental Analyzer Method[5]
23	Sulfuric Acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method[5]
24	Tellurium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
25	Tin	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
26	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method[5] 2) Paired Train, Isokinetic Sampling, Gravimetric Method[5]

27 Vanadium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Vanadium	1) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[5]
28	Xylene	Adsorption Sampling, Gas Chromatographic Method[5]

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 35 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
2	Antimony	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
3	Arsenic	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
4	Barium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]

5 Beryllium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
6	Cadmium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
8	Chromium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
9	Chromium (III)	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method[1,6,16,19] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method[1,6,17,19] 3) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method[7,8,16,19] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method[7,8, 17,19]

10 Chromium (VI)...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method[1,6,19] 2) Alkaline Digestion, Colorimetric Method[8,19]
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
12	Copper	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
13	2,4-D	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
17	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
20	Lead	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[1,6,20] 2) Waste Extraction, Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method[1,6,30] 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[20] 4) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method[30] 5) Thermal Decomposition Amalgamation and Atomic Absorption Spectrometric Method[21]
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic /Mass Spectrometric Method[11,26]
24	Mirex	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic /Mass Spectrometric Method[11,26]
25	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
26	Nickel	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
27	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic Method[11,26]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
	- 2-Chlorobiphenyl - 2,3-Dichlorobiphenyl - 2,2',5-Trichlorobiphenyl - 2,4',5-Trichlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3,3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5',6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	
28	Pentachlorophenol	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
29	pH	Electrometric Method[23,24]
30	Selenium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
31	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
32	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
33	Toxaphene	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[1,9,26] 2) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 3) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
34	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
35	Zinc	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma/Mass Spectrometric Method[1,6,17] 3) Digestion, Inductively Coupled Plasma Method[7,16] 4) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]

ดิน...

ดิน จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
2	Acetone	1)Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25] 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method[13]
3	Aldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
4	Anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
5	Antimony	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
6	Arsenic	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
7	Atrazine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
8	Barium	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
9	Benz(a)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]

11 Benzo(b)fluoranthene

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
11	Benzo(b)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
12	Benzo(k)fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
13	Benzoic acid	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
14	Benzo(a)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
15	Benzo(g,h,i)perylene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
16	Beryllium	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
17	Bis(2-chloroethyl)ether	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
18	Bis(2-ethylhexyl)phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
21	Butanol	Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method[13,25]
22	Butyl Benzyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]

23 Cadmium...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
23	Cadmium	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
24	Carbazole	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
25	Carbon Disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
27	Chlordane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
28	p-Chloroaniline	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
31	Chloroform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
32	2-Chlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
33	Chromium	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
34	Chromium (III)	1) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method[7,8,16,19] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method[7,8,17,19]
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method[8,19]

36 Chrysene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
36	Chrysene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
37	Cyanide	Extraction, Distillation, Colorimetric Method[27,28,29]
38	2,4-D	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
39	DDD	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
40	DDE	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
41	DDT	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
42	Dibenz(a,h)anthracene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
43	Di-n-Butyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
47	3,3-Dichlorobenzidine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]

49 1,2-Dichloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
53	2,4-Dichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
57	Dieldrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
58	Diethyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
59	2,4-Dimethylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
60	2,4-Dinitrophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
61	2,4-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
62	2,6-Dinitrotoluene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]

63 Di-n-Octyl Phthalate...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
63	Di-n-Octyl Phthalate	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
64	Endosulfan	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
65	Endrin	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
67	Fluoranthene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
68	Fluorene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
69	Heptachlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
70	Heptachlor epoxide	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
71	Hexachlorobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
73	n-Hexane	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25] 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method[13]

73 n-Hexane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
74	α-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
75	β-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
76	γ-HCH	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
77	Hexachlorocyclopentadiene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
78	Hexachloroethane	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
79	Indeno(1,2,3-cd)pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
80	Isophorone	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
81	Lead	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
82	Manganese	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[20] 2) Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry[21] 3) Digestion, Cold-Vapor Atomic Fluorescence Spectrometric Method[30]

84 Methanol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
84	Methanol	1) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25] 2) Equilibrium Headspace, Gas Chromatographic/ Mass Spectrometric Method[13,25]
85	Methoxychlor	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
86	Methyl Bromide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
87	Methylene Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
88	2-methylphenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
89	2-Methylnaphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
90	Methyl tert-Butyl Ether	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
91	Naphthalene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
92	Nickel	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
93	Nitrobenzene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26
94	N-Nitrosodiphenylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
95	N-Nitrosodi-n-propylamine	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]

96 Polychlorinated biphenyls (PCBs)

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
96	Polychlorinated biphenyls (PCBs) - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 - 2-Chlorobiphenyl - 2,2',3,5'-Tetrachlorobiphenyl - 2,2',5,5'-Tetrachlorobiphenyl - 2,3',4,4'-Tetrachlorobiphenyl - 2,2',3,4,5'-Pentachlorobiphenyl - 2,2',4,5,5'-Pentachlorobiphenyl - 2,3,3',4',6-Pentachlorobiphenyl - 2,2',3,4,4',5'-Hexachlorobiphenyl - 2,2',3,4,5,5'-Hexachlorobiphenyl - 2,2',3,5,5',6-Hexachlorobiphenyl - 2,2',4,4',5,5'-Hexachlorobiphenyl - 2,2',3,3',4,4',5-Heptachlorobiphenyl - 2,2',3,4,4',5,5'-Heptachlorobiphenyl - 2,2',3,4,4',5',6-Heptachlorobiphenyl - 2,2',3,4',5,5',6-Heptachlorobiphenyl - 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
97	Pentachlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
98	Phenanthrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]

99 Phenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
100	Pyrene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
101	Selenium	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
102	Silver	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
103	Styrene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
106	Toluene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
107	Toxaphene	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
108	TPH (C_5–C_8)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
109	TPH ($C_{>8}$– C_{16})	1) Automate Extraction, Gas Chromatographic Method[11,22] 2) Solvent Extraction, Gas Chromatographic Method[12,22] 3) Ultrasonic Extraction, Gas Chromatographic Method[22,31]
110	TPH ($C_{>16}$ – C_{35})	1) Automate Extraction, Gas Chromatographic Method[11,22] 2) Solvent Extraction, Gas Chromatographic Method[12,22] 3) Ultrasonic Extraction, Gas Chromatographic Method[22,31]
111	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
112	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
113	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
114	Trichloroethylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]

115 2,4,5-Trichlorophenol...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
115	2,4,5-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
116	2,4,6-Trichlorophenol	1) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,26] 2) Automated Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,26]
117	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
118	Vanadium	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]
119	Vinyl Acetate	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
120	Vinyl Chloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
121	m-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
122	o-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
123	p-Xylene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
124	Xylene (Total)	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[15,25]
125	Zinc	1) Digestion, Inductively Coupled Plasma Method[7,16] 2) Digestion, Inductively Coupled Plasma/ Mass Spectrometric Method[7,17]

<u>เอกสารอ้างอิง</u>

1. กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2566. เรื่อง การจัดการสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว. ราชกิจจานุเบกษา. 31 พฤษภาคม 2566. เล่มที่ 140 ตอนพิเศษ 126 ง.

2. กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2549. เรื่อง กำหนดค่าปริมาณเขม่าควันที่เจือปนในอากาศที่ระบายออกจากปล่องของหม้อน้ำโรงสีข้าวที่ใช้แกลบเป็นเชื้อเพลิง. ราชกิจจานุเบกษา. 4 ธันวาคม 2549. เล่มที่ 123 ตอนพิเศษ 125ง.

3. สมาคมวิศวกรรมสิ่งแวดล้อมแห่งประเทศไทย. คู่มือวิเคราะห์น้ำเสีย. พิมพ์ครั้งที่ 4. กรุงเทพฯ: เรือนแก้วการพิมพ์, 2547.

4. APHA, AWWA, WEF. Standard Methods for the Examination of Water and Wastewater. 24th ed. Washington, DC: APHA, 2023.

5. United States...

5. United States Environmental Protection Agency. Standards of Performance for New Stationary Sources. 40 CFR 60. Appendix A, 2023.

6. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. SW-846, 2014.

7. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Acid Digestion of Sludges and Sediments and Soils. SW-846 Method 3050B, 1996.

8. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Alkaline Digestion for Hexavalent Chromium. SW-846 Method 3060A, 1996.

9. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Separatory Funnel Liquid-Liquid Extraction. SW-846 Method 3510C, 1996.

10. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Soxhlet Extraction. SW-846 Method 3540C, 1996.

11. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Automated Soxhlet Extraction. SW-846 Method 3541, 1994.

12. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Microscale Solvent Extraction (MSE). SW-846 Method 3570, 2002.

13. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Volatile Organic Compounds (VOCs) in Various Sample Matrices Using Equilibrium Headspace Analysis. SW-846 Method 5021A, 2014.

14. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Purge-and-Trap for Aqueous Samples. SW-846 Method 5030B, 1996.

15. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples. SW-846 Method 5035, 1996.

16. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Inductively Coupled Plasma-Atomic Emission Spectrometry. SW-846 Method 6010B, 1996.

17. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Inductively Coupled Plasma-Mass Spectrometry. SW-846 Method 6020A, 2007.

18. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Antimony and Arsenic (Atomic Absorption, Borohydride Reduction). SW-846 Method 7062, 1994. เพิ่มใหม่

19. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Chromium, Hexavalent (Colorimetric). SW-846 Method 7196A, 1992.

20. United States...

20. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique). SW-846 Method 7471B, 2007.

21. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry. SW-846 Method 7473, 2007.

22. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Nonhalogenated Organics by Gas Chromatography. SW-846 Method 8015C, 2007.

23. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. pH Electrometric Measurement. SW-846 Method 9040C, 2004.

24. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Soil and Waste pH. SW-846 Method 9045D, 2004.

25. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS). SW-846 Method 8260D, 2018.

26. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Semivolatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS). SW-846 Method 8270E, 2018.

27. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Total and Amenable Cyanide: Distillation SW-846 Method 9010B, 1996.

28. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Cyanide Extraction Procedure for Solids and Oil. SW-846 Method 9013A, 1996.

29. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Cyanide in Waters and Extracts Using Titrimetric and Manual Spectrophotometric Procedures. SW-846 Method 9014, 2014.

30. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Mercury in Sediment and Tissue Samples by Atomic Fluorescence Spectrometry. SW-846 Method 7474, 2007.

31. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste Physical/Chemical Methods. Ultrasonic Extraction. SW-846 Method 3550C, 2007.

ที่ อก ๐๓๑๐(๑)/ ๔ ๑ ๒ ๑

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๕ เมษายน ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และขนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๒๘ มีนาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๙ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓ ราย

๑) นางสาวพรรณสิตา พุ่มดง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๕
๒) นายก้าชัย สุทธะ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๒๑
๓) นางสาวศุภรดา ปั้นมยุรา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๘

๒. ให้เพิ่มเจ้าหน้าที่ห้องปฏิบัติการวิเคราะห์เอกชน จำนวน ๑๒ ราย

๑) นางสาวฐานิดา กลิ่นเขียว	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๒
๒) นางสาวกัญญ์กัสสร สายคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๓
๓) นางสาวณัฐนันท์ กันทะวงค์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๔
๔) นายอำนาจ วงษาเคน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๕
๕) นายกฤษณพล ปัญญาวงศ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๖
๖) นายณชากร หรรษา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๗
๗) นายวัชรินทร์ ผ่องสามสวน	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๘
๘) นายณัฐพงศ์ โสภา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๙
๙) นายศักรินทร์ ปานเพ็ง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๐
๑๐) นายณัฐพล ชุ่มชื่น	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๑
๑๑) นายธนา สุพาพันธุ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๒
๑๒) นายนราธร แก้วพงษ์ษา	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๙๓

อนึ่ง หนังสือฉบับนี้...

อนึ่ง หนังสือฉบับนี้จะหมดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ในวันที่ ๒ กันยายน ๒๕๖๗

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายพรชัย กลั่นกรอง)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๓๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๓๑๙
ไปรษณีย์อิเล็กทรอนิกส์ sarabon@diw.mail.go.th

ที่ อก ๐๓๑๐(๑)/ ๑๒๓๖๘ ๑

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๑๘ ธันวาคม ๒๕๖๗

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๒ ธันวาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท เอแอลเอส แลบอราทอรี กรุ๊ป (ประเทศไทย) จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๐๔ สถานที่ตั้งเลขที่ ๑๐๔ ซอยพัฒนาการ ๔๐ ถนนพัฒนาการ แขวงพัฒนาการ เขตสวนหลวง กรุงเทพมหานคร ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๘ ราย ได้แก่

๑) นายประพจน์ วรรณชูชัย	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๖๐
๒) นายจิรณัฐ ขาวละออ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๐๗๒
๓) นายพีรพัฒน์ กำคำ	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๐๘
๔) นางสาวอรยา ค้าคล่อง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๓๔
๕) นายกิตติพงศ์ แซ่ลี้	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๔๔
๖) นายจิรเมธ ประเสริฐสิริพงศ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๐
๗) นายภัทรพงษ์ มณฑาทอง	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๖๗
๘) นางสาวจารุวรรณ กระจ่างพันธุ์	ทะเบียนเลขที่ ว-๒๐๔-จ-๐๑๘๑

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายธีรทัศน์ อิศรางกูร ณ อยุธยา)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

"อุตสาหกรรมก้าวไกล ประเทศไทยก้าวหน้า ร่วมกันพัฒนา อุตสาหกรรมสีเขียว"

ALS Bangkok (Head Office)
104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250

ALS Rayong
616/10 Moo 5, T. Maenamkoo, A. Pluakdaeng, Rayong 21140

ALS Songkhla
114/1 Moo 8, Karnchanawanich Rd., T. Ban Phru, A. Hat Yai, Songkhla 90250

ALS Chiang Mai
55 Moo 7, Hod-Chiang Mai Rd., T. Suthep, A. Muang, Chiang Mai 50200

ALS Nakhon Ratchasima
C.P. Tower, Room no. NMA1-01, 3320/9 Mittraphap Rd., T. Nai-Muang, A. Muang, Nakhon Ratchasima 30000

ALS Surat Thani
130/325 Moo 10, T. Watpradoo, A. Muang Surat Thani, Surat Thani 84000

ALS Udon Thani
C.P. Tower, Room no. 1-01/1 Floor 1, 45 Mittraphap Rd., T. Ban Chan, A. Muang Udonthani, Udon Thani 41000

ALS Phuket
Phuket Boat Lagoon (Park Plaza E) 20/121, Moo 2, Thepkrasattri Rd., T. Koh Kaew, A. Muang Phuket, Phuket 83000

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ภาคผนวก ค.3

แบบบันทึกปริมาณรถเข้า-ออก

รายงายยอดรถเข้าประตู G1 เดือน มกราคม		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-01-25	134	127
02-01-25	268	258
03-01-25	257	250
04-01-25	126	123
05-01-25	104	94
06-01-25	342	321
07-01-25	365	347
08-01-25	355	344
09-01-25	360	349
10-01-25	358	343
11-01-25	166	161
12-01-25	118	107
13-01-25	348	341
14-01-25	292	224
15-01-25	393	379
16-01-25	322	370
17-01-25	351	353
18-01-25	178	178
19-01-25	106	108
20-01-25	346	330
21-01-25	397	379
22-01-25	ระบบ Server Error	ระบบ Server Error
23-01-25	399	382
24-01-25	372	367
25-01-25	207	210
26-01-25	151	138
27-01-25	270	366
28-01-25	372	361
29-01-25	360	307
30-01-25	393	380
31-01-25	375	376

รายงายยอดรถเข้าประตู G1 เดือน กุมภาพันธ์		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-02-25	183	181
02-02-25	127	126
03-02-25	311	338
04-02-25	386	367
05-02-25	372	355
06-02-25	422	400
07-02-25	401	372
08-02-25	201	198
09-02-25	158	162
10-02-25	357	322
11-02-25	383	371
12-02-25	173	159
13-02-25	359	344
14-02-25	348	351
15-02-25	175	171
16-02-25	112	106
17-02-25	398	380
18-02-25	418	399
19-02-25	384	378
20-02-25	393	373
21-02-25	366	349
22-02-25	202	185
23-02-25	135	133
24-02-25	299	136
25-02-25	404	398
26-02-25	429	411
27-02-25	352	141
28-02-25	365	356

รายงานยอดรถเข้าประตู G1 เดือน มีนาคม		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-03-25	187	188
02-03-25	135	129
03-03-25	382	384
04-03-25	381	371
05-03-25	394	382
06-03-25	404	398
07-03-25	378	355
08-03-25	181	181
09-03-25	150	133
10-03-25	387	382
11-03-25	388	360
12-03-25	347	409
13-03-25	407	401
14-03-25	397	377
15-03-25	222	204
16-03-25	147	145
17-03-25	394	360
18-03-25	416	401
19-03-25	416	394
20-03-25	395	378
21-03-25	390	377
22-03-25	226	213
23-03-25	152	150
24-03-25	336	112
25-03-25	384	358
26-03-25	414	379
27-03-25	407	394
28-03-25	405	387
29-03-25	199	199
30-03-25	131	1129
31-03-25	361	346

รายงานยอดรถเข้าประตู G1 เดือน เมษายน		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-04-25	429	414
02-04-25	384	379
03-04-25	432	404
04-04-25	456	373
05-04-25	264	300
06-04-25	229	228
07-04-25	254	250
08-04-25	443	416
09-04-25	459	435
10-04-25	409	418
11-04-25	405	388
12-04-25	241	232
13-04-25	156	154
14-04-25	133	116
15-04-25	160	154
16-04-25	153	150
17-04-25	381	348
18-04-25	388	381
19-04-25	312	281
20-04-25	268	266
21-04-25	452	426
22-04-25	482	417
23-04-25	533	482
24-04-25	581	537
25-04-25	563	529
26-04-25	480	447
27-04-25	420	423
28-04-25	591	556
29-04-25	621	570
30-04-25	661	609

รายงานยอดรถเข้าประตู G1 เดือน พฤษภาคม		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-05-25	426	431
02-05-25	570	530
03-05-25	557	532
04-05-25	457	443
05-05-25	496	463
06-05-25	591	575
07-05-25	572	478
08-05-25	132	609
09-05-25	583	551
10-05-25	474	474
11-05-25	446	399
12-05-25	432	434
13-05-25	435	499
14-05-25	559	537
15-05-25	578	560
16-05-25	565	449
17-05-25	480	464
18-05-25	440	443
19-05-25	563	348
20-05-25	575	552
21-05-25	493	393
22-05-25	545	516
23-05-25	551	550
24-05-25	398	395
25-05-25	320	371
26-05-25	554	586
27-05-25	470	512
28-05-25	542	520
29-05-25	520	521
30-05-25	520	503
31-05-25	469	451

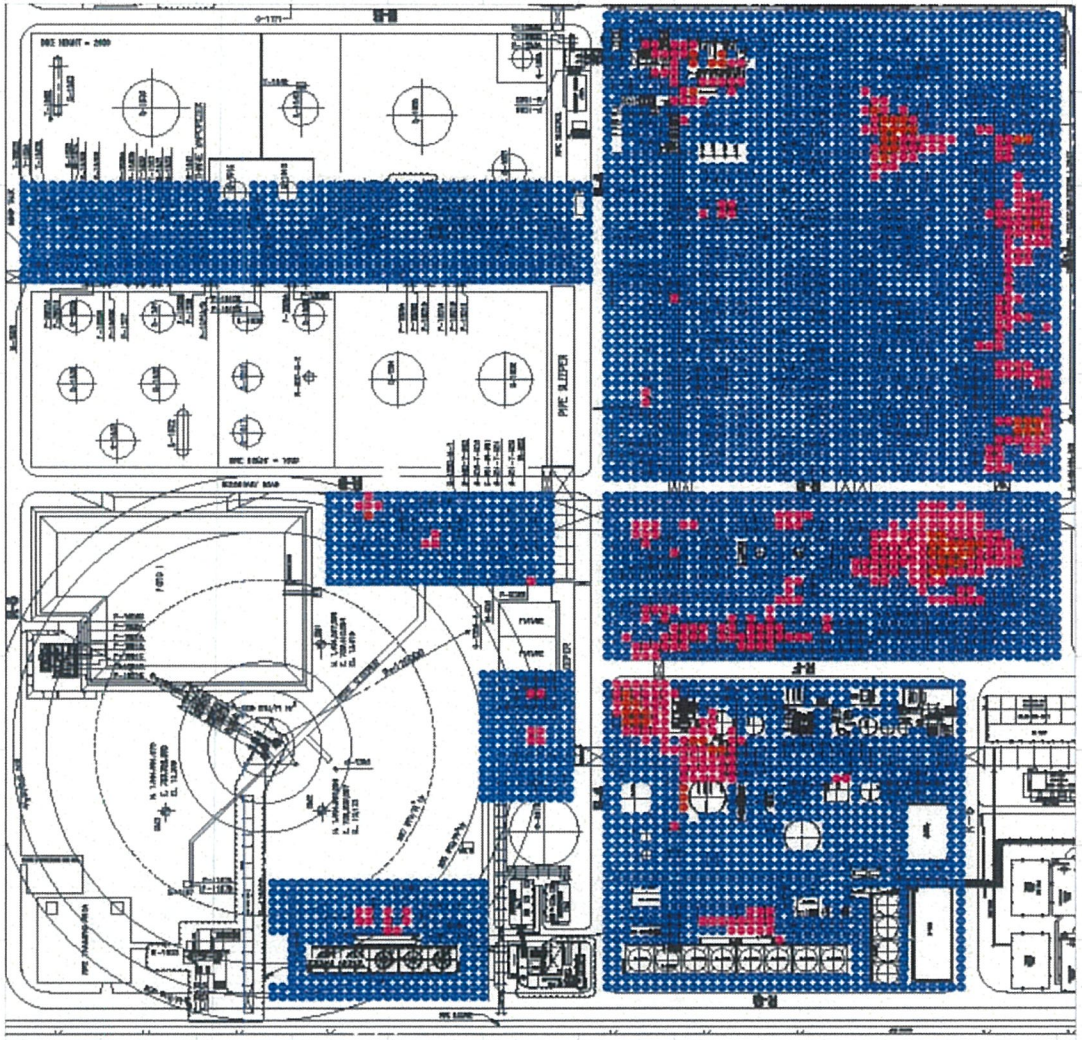
รายงานยอดรถเข้าประตู G1 เดือน มิถุนายน		
วันที่	ทางรถเข้าประตู G1/จำนวน	ทางรถออกประตู G1/จำนวน
01-06-25	382	373
02-06-25	510	498
03-06-25	370	357
04-06-25	490	484
05-06-25	535	513
06-06-25	513	494
07-06-25	345	321
08-06-25	275	269
09-06-25	463	488
10-06-25	473	444
11-06-25	461	448
12-06-25	454	455
13-06-25	460	425
14-06-25	334	439
15-06-25	267	251
16-06-25	516	476
17-06-25	483	479
18-06-25	486	490
19-06-25	480	466
20-06-25	462	416
21-06-25	192	198
22-06-25	135	123
23-06-25	435	415
24-06-25	442	430
25-06-25	381	349
26-06-25	425	409
27-06-25	376	356
28-06-25	176	176
29-06-25	128	127
30-06-25	389	373

ภาคผนวก ค.4

สถิติอุบัติเหตุ

ภาคผนวก ค.5

แผนผังแสดงเส้นเสียง (Noise Contour Map)



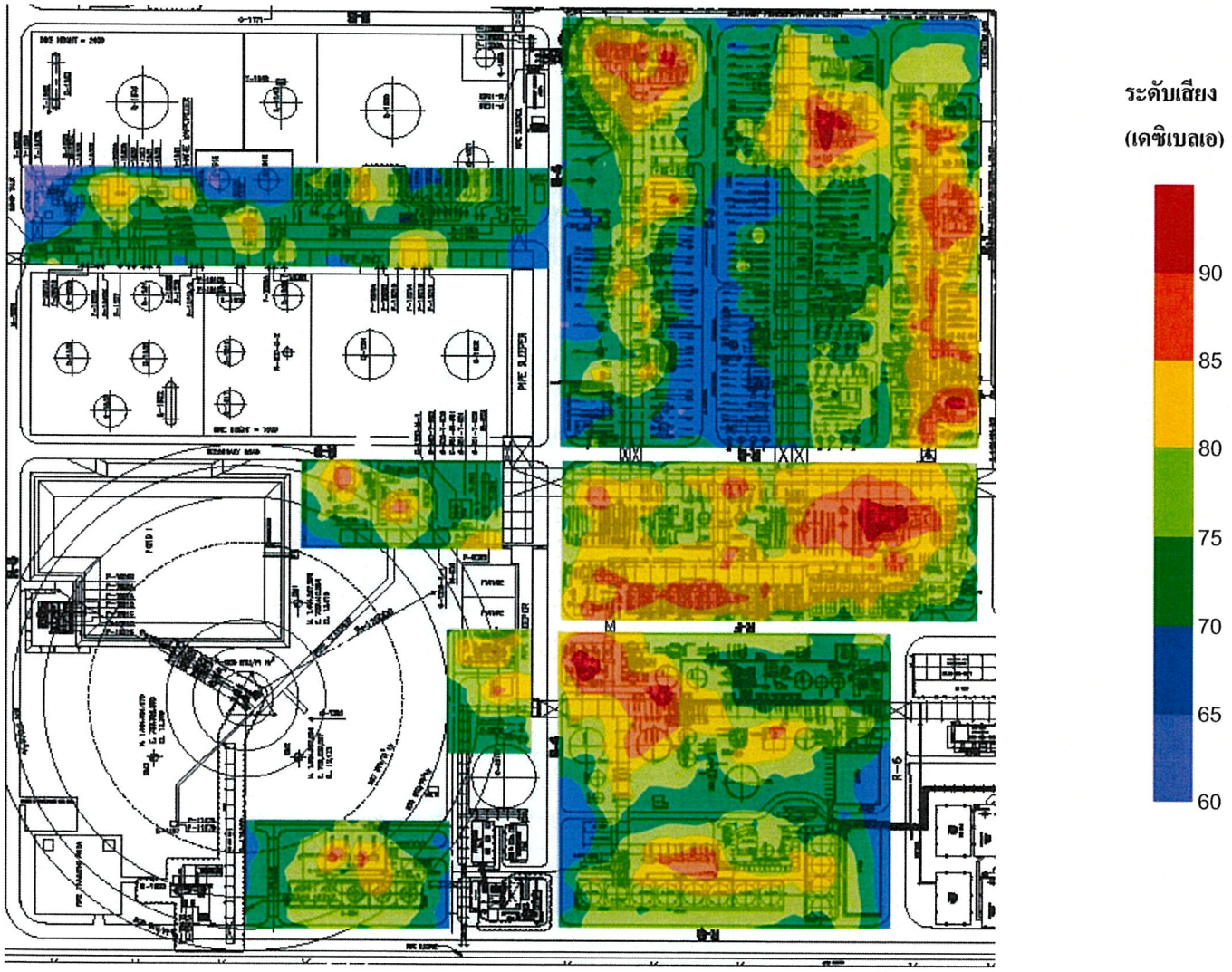
ระดับเสียงต่ำสุด 60.2 เดซิเบลเอ

ระดับเสียงสูงสุด 95.9 เดซิเบลเอ

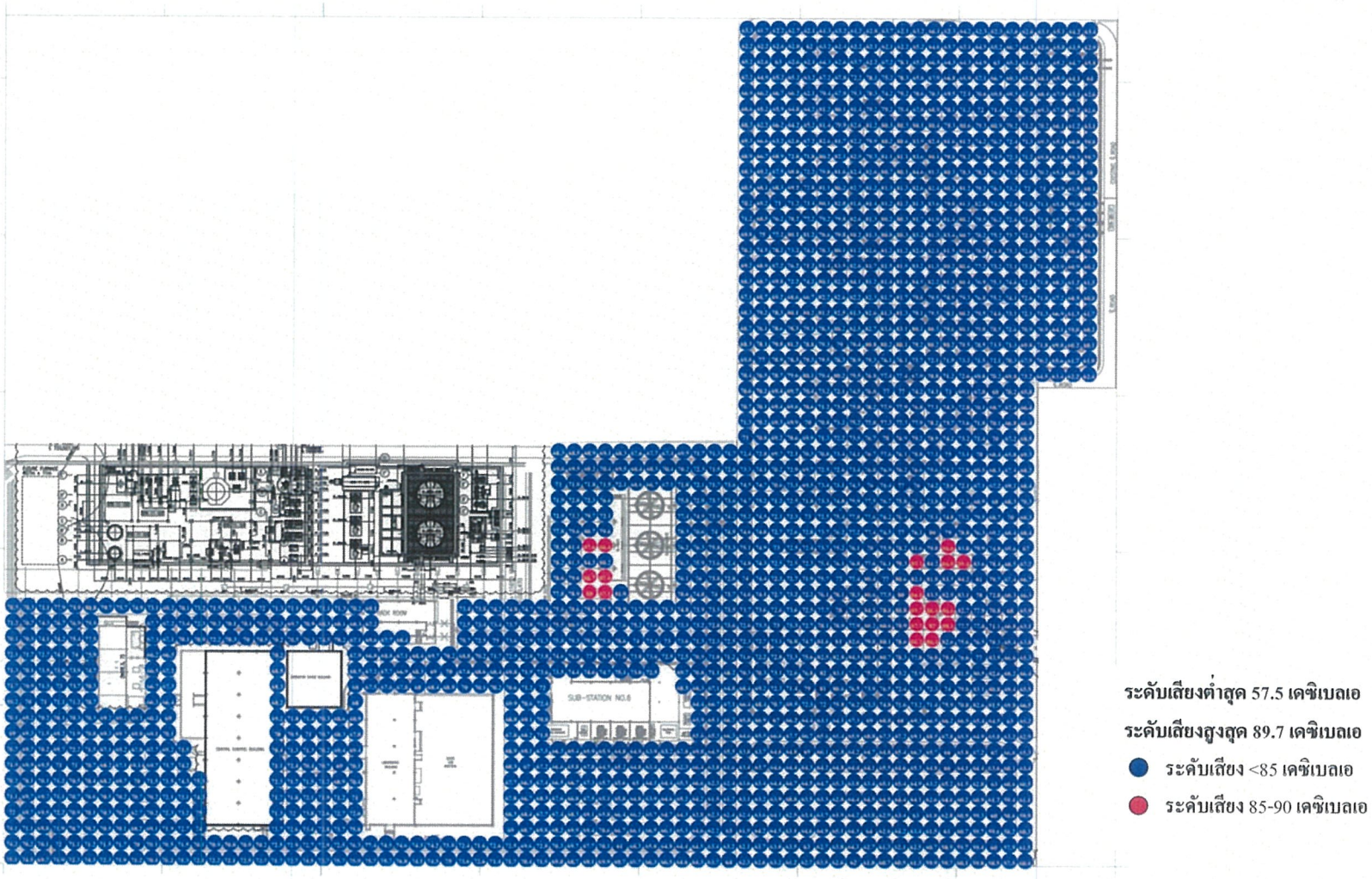
- ระดับเสียง <85 เดซิเบลเอ
- ระดับเสียง 85-90 เดซิเบลเอ
- ระดับเสียง >90 เดซิเบลเอ

รูปที่ 1 ผลการตรวจวัดระดับเสียงภายในสถานประกอบการ เพื่อจัดทำแผนผังแสดงระดับเสียง (Noise Contour Map) บริเวณโรงผลิตสารโอเลฟินส์ โรงที่ 2/1 และโรงที่ 2/2 ประจำปี พ.ศ.2567

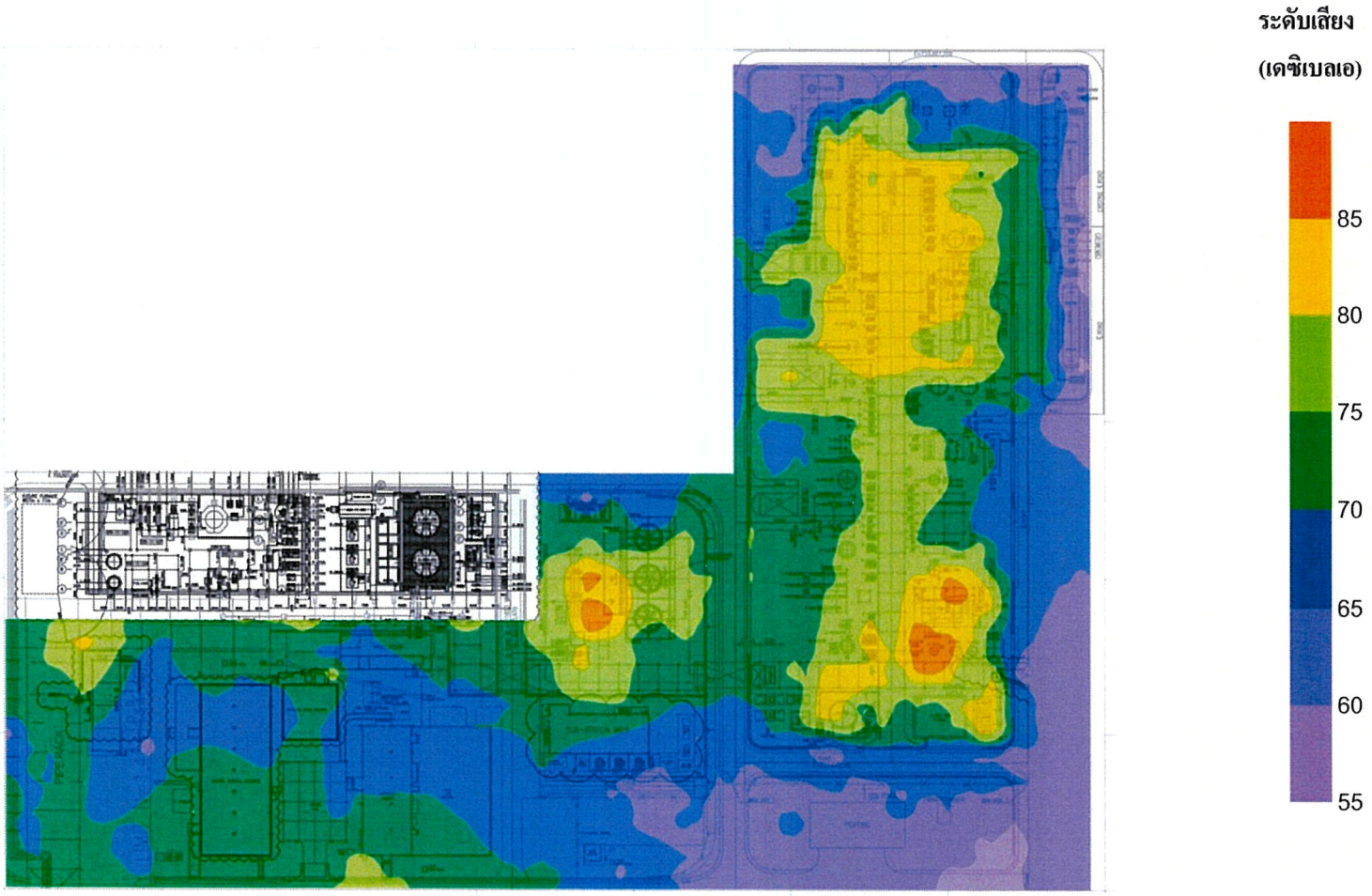
โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3



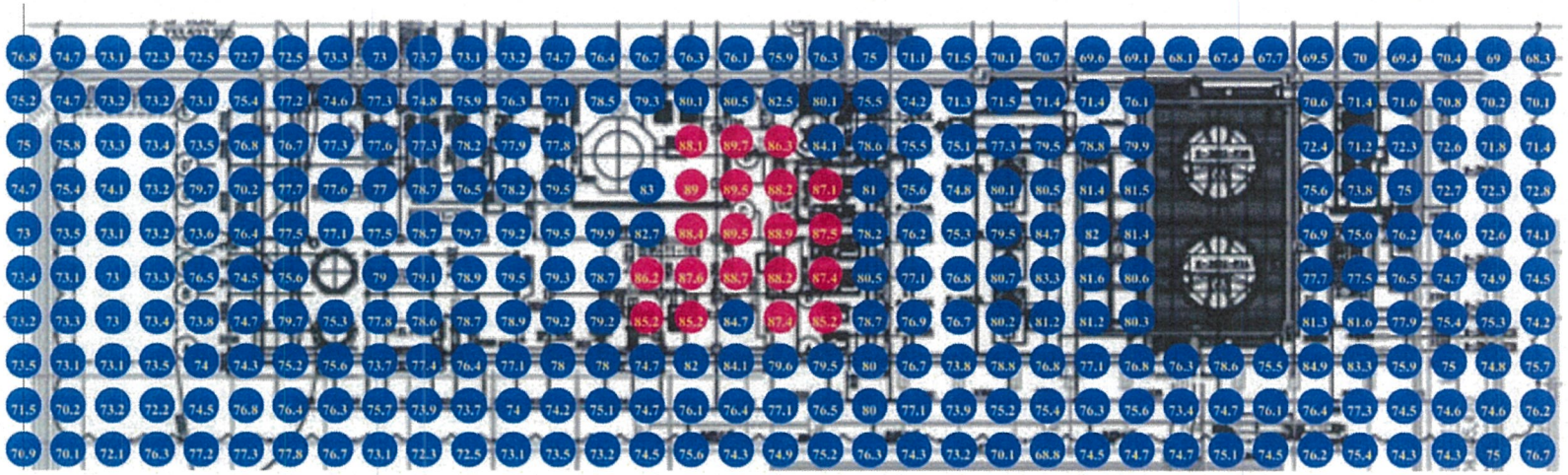
รูปที่ 2 แผนผังแสดงระดับเสียง (Noise Contour Map) บริเวณโรงผลิตสารโอเลฟินส์ โรงที่ 2/1 และโรงที่ 2/2 ประจำปี พ.ศ.2567
โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3



รูปที่ 3 ผลการตรวจวัดระดับเสียงภายในสถานประกอบการ เพื่อจัดทำแผนผังแสดงระดับเสียง (Noise Contour Map) บริเวณหน่วยผลิต Butadiene และ Butene-1 ประจำปี พ.ศ.2567
โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3



รูปที่ 4 แผนผังแสดงระดับเสียง (Noise Contour Map) บริเวณหน่วยผลิต Butadiene และ Butene-1 ประจำปี พ.ศ.2567
โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3

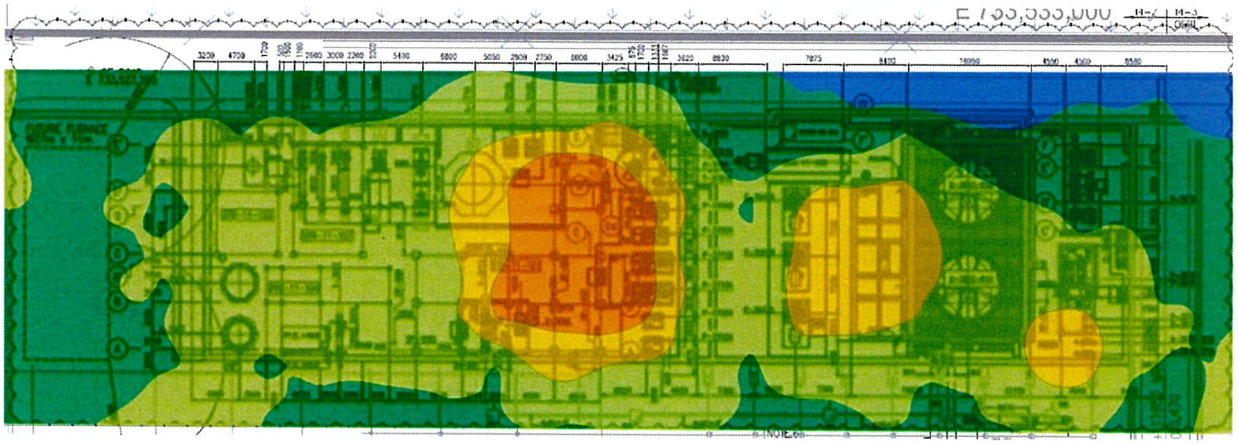


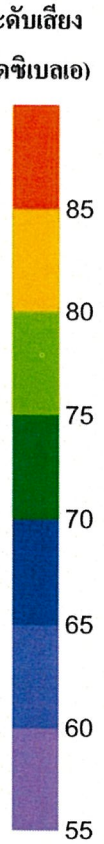
ระดับเสียงต่ำสุด 67.4 เดซิเบลเอ

ระดับเสียงสูงสุด 89.7 เดซิเบลเอ

- ระดับเสียง <85 เดซิเบลเอ
- ระดับเสียง 85-90 เดซิเบลเอ

รูปที่ 5 ผลการตรวจวัดระดับเสียงภายในสถานประกอบการ เพื่อจัดทำแผนผังแสดงระดับเสียง (Noise Contour Map) บริเวณ Olefins 2-2 (OMP project) ประจำปี พ.ศ.2567
โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3





รูปที่ 6 **แผนผังแสดงระดับเสียง (Noise Contour Map) บริเวณ Olefins 2-2 (OMP project) ประจำปี พ.ศ.2567**
โครงการโรงผลิตสารโอเลฟินส์ บริษัท พีทีที โกลบอล เคมิคอล จำกัด (มหาชน) สาขา 3

ภาคผนวก ค.6

ข้อมูลสถิติการเจ็บป่วยของพนักงาน

Occ Health Statistic FA 2025																All	
No	Disease	Jan		Feb		Mar		Apr		May		Jun					
		Staff GC	Contractor	Staff GC	Contractor	Staff GC	Contractor	Staff GC	Contractor	Staff GC	Contractor	Staff GC	Contractor			Staff GC	Contractor
1	ระบบทางเดินหายใจ																
2 (1)	ระบบกระดูก และกล้ามเนื้อ(ทั่วไป)																
2 (2)	ระบบกระดูก และกล้ามเนื้อ(เกิดจากงาน)																
3	ระบบทางเดินอาหาร																
4	ระบบผิวหนัง																
5	ระบบ ตา หู คอ จมูก																
6	ระบบประสาท สมอง																
7	ระบบต่อไร้ท่อ																
8	ระบบสืบพันธุ์																
9	ระบบทางเดินปัสสาวะ																
10	ระบบหัวใจและหลอดเลือด																
11	อุบัติเหตุในบริษัท PTTGC2																
12	ระบบภูมิคุ้มกัน / ฉีดวัคซีน																
13	อื่น ๆ เบิกยา ล้างแผลต่อเนื่อง																
All																	

ภาคผนวก ง

ใบรับรองผลการตรวจวัดคุณภาพสิ่งแวดล้อม

ภาคผนวก ง.1

ใบรับรองผลการตรวจวัดคุณภาพอากาศในบรรยากาศ

Ambient Air Monitoring Results : Nitrogen dioxide
MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site
Monitor Period : 27 Mar 2025-03 Apr 2025
Analyzer Model : API 200A
Station No : SCT-14
Serial No : 2385
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E
Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 08 Jan 2025
Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2026

Time	NO2 Concentration (ppm)						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
09:00 - 10:00	0.0071	0.0036	0.0031	0.0049	0.0042	0.0033	0.0059
10:00 - 11:00	0.0032	0.0037	0.0056	0.0049	0.0037	0.0026	0.0031
11:00 - 12:00	0.0040	0.0047	0.0025	0.0044	0.0032	0.0054	0.0024
12:00 - 13:00	0.0039	0.0050	0.0036	0.0025	0.0039	0.0061	0.0059
13:00 - 14:00	0.0040	0.0036	0.0021	0.0048	0.0021	0.0024	0.0023
14:00 - 15:00	0.0052	0.0027	0.0042	0.0031	0.0025	0.0036	0.0035
15:00 - 16:00	0.0030	0.0039	0.0025	0.0054	0.0038	0.0039	0.0031
16:00 - 17:00	0.0043	0.0043	0.0032	0.0037	0.0021	0.0047	0.0030
17:00 - 18:00	0.0041	0.0038	0.0060	0.0023	0.0030	0.0047	0.0052
18:00 - 19:00	0.0020	0.0055	0.0036	0.0046	0.0041	0.0058	0.0059
19:00 - 20:00	0.0060	0.0038	0.0056	0.0022	0.0045	0.0054	0.0024
20:00 - 21:00	0.0066	0.0070	0.0020	0.0050	0.0034	0.0026	0.0054
21:00 - 22:00	0.0073	0.0109	0.0021	0.0049	0.0036	0.0058	0.0034
22:00 - 23:00	0.0070	0.0084	0.0108	0.0058	0.0030	0.0038	0.0038
23:00 - 00:00	0.0078	0.0063	0.0062	0.0060	0.0055	0.0038	0.0050
00:00 - 01:00	0.0050	0.0056	0.0066	0.0077	0.0059	0.0024	0.0025
01:00 - 02:00	0.0035	0.0058	0.0075	0.0067	0.0047	0.0040	0.0042
02:00 - 03:00	0.0049	0.0038	0.0036	0.0053	0.0034	0.0031	0.0031
03:00 - 04:00	0.0059	0.0055	0.0023	0.0051	0.0043	0.0039	0.0126
04:00 - 05:00	0.0039	0.0036	0.0062	0.0031	0.0045	0.0032	0.0118
05:00 - 06:00	0.0039	0.0035	0.0070	0.0099	0.0048	0.0058	0.0147
06:00 - 07:00	0.0062	0.0067	0.0082	0.0102	0.0038	0.0052	0.0099
07:00 - 08:00	0.0084	0.0107	0.0069	0.0116	0.0039	0.0058	0.0091
08:00 - 09:00	0.0064	0.0027	0.0078	0.0109	0.0027	0.0037	0.0074
Average-24Hr*	0.0052	0.0052	0.0050	0.0056	0.0038	0.0042	0.0057
Max-1Hr	0.0084	0.0109	0.0108	0.0116	0.0059	0.0061	0.0147
Min-1Hr	0.0020	0.0027	0.0020	0.0022	0.0021	0.0024	0.0023
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel: +66(0)2959-3600 Fax:+66(0)2959-3535

Ambient Air Monitoring Results : Nitrogen dioxide
MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site
Monitor Period : 27 Mar 2025-03 Apr 2025
Analyzer Model : Teledyne T200
Station No : SS2-04
Serial No : 110
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E
Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 08 Jan 2025
Cal Concentration (ppb) : 0,100,200,400
Expire Date : 07 Jan 2026

Time	NO2 Concentration (ppm)						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
08:00 - 09:00	0.0088	0.0052	0.0030	0.0043	0.0029	0.0076	0.0077
09:00 - 10:00	0.0055	0.0054	0.0050	0.0035	0.0063	0.0044	0.0052
10:00 - 11:00	0.0068	0.0032	0.0038	0.0059	0.0052	0.0019	0.0055
11:00 - 12:00	0.0060	0.0054	0.0047	0.0038	0.0060	0.0038	0.0038
12:00 - 13:00	0.0064	0.0069	0.0057	0.0058	0.0040	0.0057	0.0032
13:00 - 14:00	0.0039	0.0033	0.0035	0.0039	0.0039	0.0044	0.0045
14:00 - 15:00	0.0046	0.0028	0.0024	0.0030	0.0054	0.0042	0.0036
15:00 - 16:00	0.0029	0.0029	0.0053	0.0024	0.0056	0.0055	0.0030
16:00 - 17:00	0.0061	0.0049	0.0039	0.0031	0.0055	0.0050	0.0042
17:00 - 18:00	0.0039	0.0049	0.0049	0.0032	0.0056	0.0047	0.0050
18:00 - 19:00	0.0039	0.0032	0.0058	0.0051	0.0027	0.0029	0.0033
19:00 - 20:00	0.0039	0.0043	0.0035	0.0023	0.0057	0.0020	0.0055
20:00 - 21:00	0.0059	0.0044	0.0046	0.0061	0.0052	0.0062	0.0039
21:00 - 22:00	0.0038	0.0037	0.0064	0.0036	0.0071	0.0024	0.0081
22:00 - 23:00	0.0042	0.0059	0.0027	0.0078	0.0097	0.0060	0.0069
23:00 - 00:00	0.0034	0.0059	0.0036	0.0050	0.0083	0.0063	0.0023
00:00 - 01:00	0.0046	0.0061	0.0042	0.0039	0.0073	0.0024	0.0028
01:00 - 02:00	0.0090	0.0055	0.0078	0.0035	0.0034	0.0029	0.0043
02:00 - 03:00	0.0054	0.0033	0.0063	0.0037	0.0078	0.0056	0.0036
03:00 - 04:00	0.0051	0.0026	0.0039	0.0057	0.0027	0.0053	0.0022
04:00 - 05:00	0.0035	0.0052	0.0046	0.0048	0.0052	0.0030	0.0051
05:00 - 06:00	0.0044	0.0048	0.0047	0.0052	0.0048	0.0030	0.0034
06:00 - 07:00	0.0063	0.0062	0.0041	0.0068	0.0072	0.0055	0.0054
07:00 - 08:00	0.0032	0.0027	0.0062	0.0075	0.0063	0.0103	0.0066
Average-24Hr*	0.0051	0.0045	0.0046	0.0046	0.0056	0.0046	0.0045
Max-1Hr	0.0090	0.0069	0.0078	0.0075	0.0097	0.0103	0.0081
Min-1Hr	0.0029	0.0026	0.0024	0.0023	0.0027	0.0019	0.0022
Standard-1Hr	0.17 ppm(320 ug/cu.m)						
Standard-24Hr	-						

Remark : * Average time between 08:00-08:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel: +66(0)2959-3600 Fax:+66(0)2959-3535

Ambient Air Monitoring Results : Sulfur dioxide
MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site
Analyzer Model : API 100A
Serial No : 906
Monitor Period : 27 Mar 2025-03 Apr 2025
Station No : SCT-14
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E
Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 10 Jan 2025
Cal Concentration (ppb) : 0,100,200,400
Expire Date : 09 Jan 2026

Time	SO2 Concentration (ppm)						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
09:00 - 10:00	0.0042	0.0087	0.0053	0.0093	0.0064	0.0062	0.0057
10:00 - 11:00	0.0046	0.0046	0.0034	0.0043	0.0028	0.0040	0.0034
11:00 - 12:00	0.0054	0.0024	0.0150	0.0065	0.0028	0.0051	0.0073
12:00 - 13:00	0.0089	0.0027	0.0039	0.0039	0.0059	0.0078	0.0049
13:00 - 14:00	0.0052	0.0028	0.0092	0.0084	0.0035	0.0069	0.0075
14:00 - 15:00	0.0035	0.0048	0.0039	0.0086	0.0048	0.0048	0.0093
15:00 - 16:00	0.0045	0.0022	0.0041	0.0062	0.0033	0.0079	0.0077
16:00 - 17:00	0.0034	0.0025	0.0048	0.0094	0.0055	0.0085	0.0053
17:00 - 18:00	0.0016	0.0057	0.0047	0.0096	0.0033	0.0035	0.0043
18:00 - 19:00	0.0016	0.0089	0.0074	0.0091	0.0080	0.0044	0.0043
19:00 - 20:00	0.0040	0.0040	0.0043	0.0025	0.0070	0.0072	0.0052
20:00 - 21:00	0.0049	0.0037	0.0037	0.0061	0.0046	0.0039	0.0060
21:00 - 22:00	0.0030	0.0025	0.0051	0.0026	0.0036	0.0049	0.0041
22:00 - 23:00	0.0012	0.0042	0.0052	0.0026	0.0029	0.0064	0.0055
23:00 - 00:00	0.0039	0.0039	0.0022	0.0055	0.0049	0.0081	0.0064
00:00 - 01:00	0.0038	0.0050	0.0026	0.0042	0.0059	0.0044	0.0055
01:00 - 02:00	0.0052	0.0041	0.0032	0.0070	0.0030	0.0042	0.0055
02:00 - 03:00	0.0041	0.0042	0.0044	0.0079	0.0071	0.0036	0.0055
03:00 - 04:00	0.0033	0.0053	0.0024	0.0068	0.0057	0.0071	0.0064
04:00 - 05:00	0.0034	0.0034	0.0044	0.0041	0.0077	0.0045	0.0048
05:00 - 06:00	0.0025	0.0055	0.0021	0.0052	0.0070	0.0051	0.0067
06:00 - 07:00	0.0042	0.0026	0.0044	0.0056	0.0036	0.0068	0.0040
07:00 - 08:00	0.0018	0.0037	0.0024	0.0062	0.0079	0.0074	0.0049
08:00 - 09:00	0.0055	0.0035	0.0073	0.0050	0.0060	0.0064	0.0045
Average-24Hr*	0.0039	0.0042	0.0048	0.0061	0.0051	0.0058	0.0056
Max-1Hr	0.0089	0.0089	0.0150	0.0096	0.0080	0.0085	0.0093
Min-1Hr	0.0012	0.0022	0.0021	0.0025	0.0028	0.0035	0.0034
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 09:00-09:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel: +66(0)2959-3600 Fax:+66(0)2959-3535

Ambient Air Monitoring Results : Sulfur dioxide
MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site
Analyzer Model : API 100A
Serial No : 083
Monitor Period : 27 Mar 2025-03 Apr 2025
Station No : SS2-04
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Teledyne 700E
Serial No : 587
Calibration Gas Cylinder I.D.: EB0102326
Certified Date : 10 Jan 2025
Cal Concentration (ppb) : 0,100,200,400
Expire Date : 09 Jan 2026

Time	SO2 Concentration (ppm)						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
08:00 - 09:00	0.0087	0.0020	0.0026	0.0070	0.0033	0.0017	0.0025
09:00 - 10:00	0.0047	0.0019	0.0027	0.0036	0.0032	0.0024	0.0028
10:00 - 11:00	0.0014	0.0012	0.0050	0.0025	0.0016	0.0048	0.0021
11:00 - 12:00	0.0038	0.0022	0.0049	0.0040	0.0017	0.0016	0.0055
12:00 - 13:00	0.0025	0.0041	0.0020	0.0044	0.0055	0.0022	0.0034
13:00 - 14:00	0.0042	0.0024	0.0023	0.0028	0.0092	0.0024	0.0031
14:00 - 15:00	0.0042	0.0039	0.0086	0.0079	0.0076	0.0081	0.0045
15:00 - 16:00	0.0029	0.0014	0.0094	0.0092	0.0070	0.0041	0.0057
16:00 - 17:00	0.0028	0.0070	0.0055	0.0095	0.0028	0.0047	0.0089
17:00 - 18:00	0.0019	0.0052	0.0021	0.0025	0.0033	0.0037	0.0063
18:00 - 19:00	0.0038	0.0045	0.0029	0.0150	0.0050	0.0020	0.0053
19:00 - 20:00	0.0025	0.0098	0.0035	0.0110	0.0053	0.0022	0.0033
20:00 - 21:00	0.0046	0.0044	0.0049	0.0037	0.0026	0.0042	0.0047
21:00 - 22:00	0.0026	0.0044	0.0095	0.0022	0.0030	0.0039	0.0023
22:00 - 23:00	0.0049	0.0043	0.0032	0.0078	0.0046	0.0028	0.0048
23:00 - 00:00	0.0021	0.0050	0.0050	0.0068	0.0051	0.0019	0.0020
00:00 - 01:00	0.0046	0.0036	0.0025	0.0055	0.0034	0.0029	0.0025
01:00 - 02:00	0.0059	0.0025	0.0047	0.0019	0.0019	0.0053	0.0049
02:00 - 03:00	0.0044	0.0052	0.0067	0.0055	0.0020	0.0051	0.0043
03:00 - 04:00	0.0034	0.0047	0.0030	0.0017	0.0018	0.0024	0.0033
04:00 - 05:00	0.0041	0.0027	0.0017	0.0030	0.0046	0.0033	0.0039
05:00 - 06:00	0.0049	0.0043	0.0029	0.0030	0.0018	0.0034	0.0025
06:00 - 07:00	0.0020	0.0027	0.0061	0.0050	0.0017	0.0041	0.0036
07:00 - 08:00	0.0040	0.0029	0.0074	0.0044	0.0018	0.0048	0.0032
Average-24Hr*	0.0038	0.0038	0.0045	0.0054	0.0037	0.0035	0.0040
Max-1Hr	0.0087	0.0098	0.0095	0.0150	0.0092	0.0081	0.0089
Min-1Hr	0.0014	0.0012	0.0017	0.0017	0.0016	0.0016	0.0020
Standard-1Hr	0.30 ppm(780 ug/cu.m)						
Standard-24Hr	0.12 ppm(300 ug/cu.m)						

Remark : * Average time between 08:00-08:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

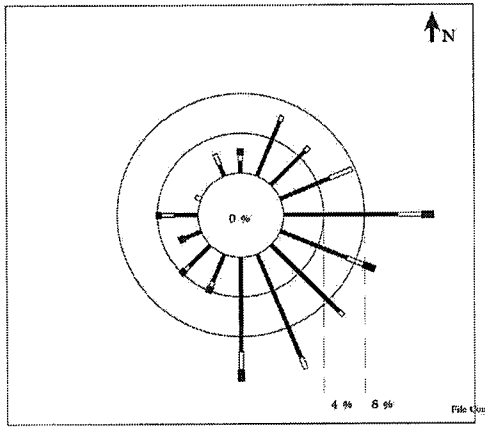
Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel: +66(0)2959-3600 Fax:+66(0)2959-3535

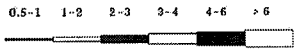
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site
Monitor period : 27 Mar 2025-03 Apr 2025
Wind Speed Model : Novalynx WS-25
Serial No : A5092
Wind Direction Model : Novalynx WS-25
Serial No : A5092

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0119	0.0060	0.0060	0.0000	0.0000	0.0000	0.0238
NNE	0.0595	0.0060	0.0000	0.0000	0.0000	0.0000	0.0655
NE	0.0476	0.0060	0.0000	0.0000	0.0000	0.0000	0.0536
ENE	0.0536	0.0238	0.0000	0.0000	0.0000	0.0000	0.0774
E	0.1131	0.0238	0.0119	0.0000	0.0000	0.0000	0.1488
ESE	0.0714	0.0179	0.0119	0.0000	0.0000	0.0000	0.1012
SE	0.0952	0.0060	0.0000	0.0000	0.0000	0.0000	0.1012
SSE	0.1131	0.0119	0.0000	0.0000	0.0000	0.0000	0.1250
S	0.0952	0.0179	0.0119	0.0000	0.0000	0.0000	0.1250
SSW	0.0298	0.0060	0.0060	0.0000	0.0000	0.0000	0.0417
SW	0.0298	0.0060	0.0060	0.0000	0.0000	0.0000	0.0417
WSW	0.0179	0.0000	0.0060	0.0000	0.0000	0.0000	0.0238
W	0.0238	0.0119	0.0060	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NNW	0.0119	0.0119	0.0000	0.0000	0.0000	0.0000	0.0238
CALM				0.0000			



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg. Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-225009-South Fence of Project Site 27 Mar 2025-03 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel:66(0)2959-3600 Fax:+66(0)2959-3535

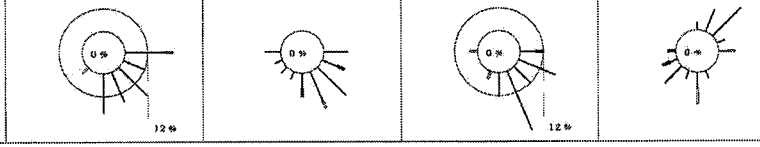
R:\Database\Windrose\FileControl\Win-225009-South Fence of Project Site 27 Mar 2025-03 Apr 2025

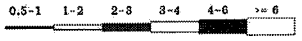
Meteorological Monitoring Results : Wind Rose
MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site
Monitor period : 27 Mar 2025-03 Apr 2025
Wind Speed Model : Novalynx WS-25
Serial No : A5092
Wind Direction Model : Novalynx WS-25
Serial No : A5092

Time	27-28 Mar 2025		28-29 Mar 2025		29-30 Mar 2025		30-31 Mar 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
08:00 - 09:00	1.5	E	0.9	SSW	0.7	ESE	2.2	W
09:00 - 10:00	0.9	E	0.9	SW	0.9	SE	0.8	SW
10:00 - 11:00	0.7	SSE	0.8	S	0.8	ESE	0.9	SW
11:00 - 12:00	0.7	SE	0.7	W	0.8	SSE	1.9	S
12:00 - 13:00	0.7	ESE	0.9	W	0.7	SE	0.9	SSE
13:00 - 14:00	0.7	S	2.2	ESE	0.8	SSE	2.1	WSW
14:00 - 15:00	0.9	ESE	2.4	S	0.9	S	0.9	SSW
15:00 - 16:00	0.7	S	0.8	WSW	0.8	SSE	0.8	SW
16:00 - 17:00	0.8	ESE	1.0	SSE	0.7	SSE	0.9	WSW
17:00 - 18:00	0.9	SE	0.7	E	1.1	SSW	0.9	S
18:00 - 19:00	0.8	S	0.9	SSE	2.5	E	1.6	S
19:00 - 20:00	0.9	S	0.9	SE	0.8	ESE	0.9	S
20:00 - 21:00	0.7	SSE	0.9	SSE	0.8	SSE	1.8	E
21:00 - 22:00	0.7	E	0.7	SE	0.9	S	0.8	NNE
22:00 - 23:00	0.7	S	0.7	SSE	0.8	E	0.7	ENE
23:00 - 24:00	0.8	SE	0.8	SE	0.8	SSE	0.8	NNE
00:00 - 01:00	0.9	SE	0.8	ESE	0.8	ESE	0.8	NE
01:00 - 02:00	0.8	SE	0.7	ESE	0.9	ESE	0.7	NE
02:00 - 03:00	0.7	E	0.7	SE	0.8	SE	0.7	NE
03:00 - 04:00	0.9	E	0.9	SSE	0.7	S	0.9	N
04:00 - 05:00	0.9	E	0.9	S	0.9	E	0.7	NE
05:00 - 06:00	0.9	SSE	0.7	SE	0.9	SSE	0.9	NE
06:00 - 07:00	0.9	SSE	0.7	E	0.8	SSE	0.9	NNE
07:00 - 08:00	1.5	SW	0.7	E	1.0	W	0.9	E

Wind Rose





File Control :R:\Database\Windrose\FileControl\Win-225009-South Fence of Project Site 27 Mar 2025-03 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

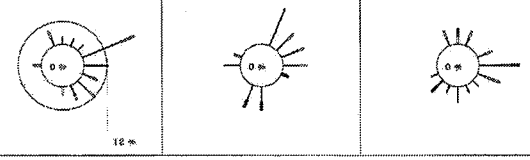
SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel:66(0)2959-3600 Fax:+66(0)2959-3535

Meteorological Monitoring Results : Wind Rose
MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site
Monitor period : 27 Mar 2025-03 Apr 2025
Wind Speed Model : Novalynx WS-25
Serial No : A5092
Wind Direction Model : Novalynx WS-25
Serial No : A5092

Time	31-01 Apr 2025		01-02 Apr 2025		02-03 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
08:00 - 09:00	0.9	ENE	0.8	NNE	0.8	E
09:00 - 10:00	0.7	E	0.8	NNE	1.7	E
10:00 - 11:00	0.9	N	0.9	E	0.9	E
11:00 - 12:00	1.5	ESE	2.3	ESE	2.0	E
12:00 - 13:00	1.3	W	2.0	SSW	2.0	N
13:00 - 14:00	1.4	SSE	1.9	E	2.1	SW
14:00 - 15:00	0.8	ESE	2.2	S	0.8	WSW
15:00 - 16:00	0.8	SE	0.9	SSW	0.8	SSW
16:00 - 17:00	0.9	SE	0.9	W	0.7	SW
17:00 - 18:00	1.1	S	0.8	SSW	0.9	S
18:00 - 19:00	1.6	SE	0.7	S	1.2	NNE
19:00 - 20:00	0.9	SSE	0.7	W	1.4	NNW
20:00 - 21:00	0.8	E	0.7	S	0.8	NNW
21:00 - 22:00	1.2	ENE	1.3	NE	1.9	ESE
22:00 - 23:00	0.8	ENE	0.8	E	1.7	ENE
23:00 - 24:00	0.9	E	0.9	NE	1.8	ESE
00:00 - 01:00	1.6	NNW	0.8	ENE	0.8	SSE
01:00 - 02:00	0.7	NNW	0.8	NNE	0.8	ESE
02:00 - 03:00	1.4	ENE	1.8	WNW	0.9	SE
03:00 - 04:00	0.8	NNE	1.7	ENE	0.8	S
04:00 - 05:00	0.8	NE	0.7	NNE	0.8	E
05:00 - 06:00	0.8	ENE	0.8	NNE	1.6	N
06:00 - 07:00	0.8	ENE	0.9	ENE	0.8	ENE
07:00 - 08:00	0.9	ENE	0.8	NE	0.8	NNE

Wind Rose



0.5-1 1-2 2-3 3-4 4-6 >= 6

WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-225009-South Fence of Project Site 27 Mar 2025-03 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

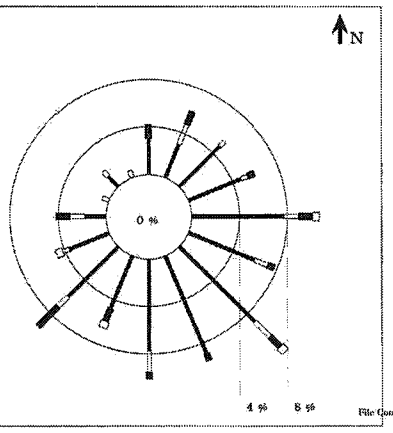
Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangrue, Bangkok 10800
Tel:66(0)2959-3600 Fax:+66(0)2959-3535

Meteorological Monitoring Results : Wind Rose
MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site
Monitor period : 27 Mar 2025-03 Apr 2025
Wind Speed Model : Novalynx WS-25
Serial No : A5086
Wind Direction Model : Novalynx WS-25
Serial No : A5086

Direction	Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed						
	0.5-1 m/s	1-2 m/s	2-3 m/s	3-4 m/s	4-6 m/s	More than 6	Total
N	0.0298	0.0000	0.0119	0.0000	0.0000	0.0000	0.0417
NNE	0.0298	0.0179	0.0119	0.0000	0.0000	0.0000	0.0595
NE	0.0476	0.0060	0.0000	0.0000	0.0000	0.0000	0.0536
ENE	0.0476	0.0060	0.0060	0.0000	0.0000	0.0000	0.0595
E	0.0774	0.0119	0.0119	0.0060	0.0000	0.0000	0.1071
ESE	0.0595	0.0119	0.0060	0.0000	0.0000	0.0000	0.0774
SE	0.0893	0.0179	0.0119	0.0060	0.0000	0.0000	0.1250
SSE	0.0893	0.0000	0.0060	0.0000	0.0000	0.0000	0.0952
S	0.0774	0.0179	0.0060	0.0000	0.0000	0.0000	0.1012
SSW	0.0476	0.0000	0.0119	0.0060	0.0000	0.0000	0.0655
SW	0.0595	0.0119	0.0238	0.0000	0.0000	0.0000	0.0952
WSW	0.0357	0.0060	0.0000	0.0060	0.0000	0.0000	0.0476
W	0.0179	0.0119	0.0119	0.0000	0.0000	0.0000	0.0417
WNW	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
NW	0.0119	0.0060	0.0000	0.0000	0.0000	0.0000	0.0179
NNW	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0060
CALM	0.0000						



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With Calm Wind < 0.5 m/s
Data Unit : Direction in Deg. Wind Speed in m/s

0.5-1 1-2 2-3 3-4 4-6 > 6

WIND SPEED (m/s)

NOTE : Frequencies indicate direction from which the wind is bolwing

File Control : R:\Database\Windrose\FileControl\Win-225009-North Fence of Project Site 27 Mar 2025-03 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

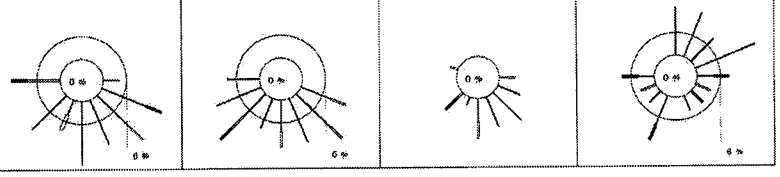
SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangrue, Bangkok 10800
Tel:66(0)2959-3600 Fax:+66(0)2959-3535

Meteorological Monitoring Results : Wind Rose
MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site
Monitor period : 27 Mar 2025-03 Apr 2025
Wind Speed Model : Novalynx WS-25
Serial No : A5086
Wind Direction Model : Novalynx WS-25
Serial No : A5086

Time	27-28 Mar 2025		28-29 Mar 2025		29-30 Mar 2025		30-31 Mar 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	2.7	ESE	0.9	S	0.7	SSE	2.7	W
10:00 - 11:00	0.9	SSE	0.8	W	0.7	SSE	1.5	WSW
11:00 - 12:00	0.9	SE	0.9	W	0.9	SE	1.2	ESE
12:00 - 13:00	0.7	SE	0.9	SW	0.9	S	0.7	E
13:00 - 14:00	0.8	S	1.0	SE	0.9	SE	2.7	SSW
14:00 - 15:00	0.9	ESE	1.3	SW	0.8	ESE	0.8	SW
15:00 - 16:00	0.9	SSE	0.9	SSW	0.7	ESE	0.8	W
16:00 - 17:00	0.8	ESE	1.9	ESE	0.8	SSE	0.7	SSW
17:00 - 18:00	1.6	W	0.9	S	1.9	WNW	0.7	SSW
18:00 - 19:00	0.8	SW	0.9	SE	1.0	S	2.7	SE
19:00 - 20:00	0.9	S	0.7	SSE	0.8	SE	0.8	SSE
20:00 - 21:00	0.7	SSW	0.8	SE	0.8	SE	2.4	E
21:00 - 22:00	0.8	S	0.7	SE	0.8	SSE	0.9	NNE
22:00 - 23:00	2.0	W	0.9	SSE	0.9	SE	0.9	N
23:00 - 24:00	1.2	W	0.7	SSE	1.2	SW	0.9	ENE
00:00 - 01:00	0.9	S	0.7	ESE	1.7	S	0.9	ENE
01:00 - 02:00	0.9	SW	0.8	ESE	2.0	SW	0.8	NNE
02:00 - 03:00	1.1	SE	2.3	SW	1.0	E	0.7	ENE
03:00 - 04:00	0.9	ESE	0.7	WSW	0.8	ESE	0.9	N
04:00 - 05:00	0.7	SE	0.8	WSW	0.7	S	0.8	NE
05:00 - 06:00	0.8	SSE	0.7	SSW	0.7	E	0.7	ENE
06:00 - 07:00	0.9	E	0.7	WSW	0.9	S	0.7	N
07:00 - 08:00	3.0	SSW	0.7	SW	2.0	SW	0.9	NNE
08:00 - 09:00	0.7	SW	1.1	S	0.8	SSW	0.8	NE

Wind Rose



0.5-1 1-2 2-3 3-4 4-6 >= 6

WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-225009-North Fence of Project Site 27 Mar 2025-03 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel:+66(0)2959-3600 Fax:+66(0)2959-3585

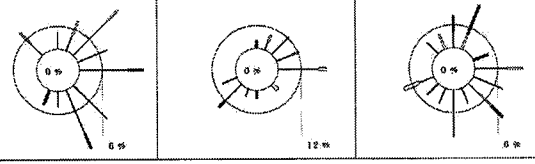
R:\Database\Windrose\FileControl\Win-225009-North Fence of Project Site 27 Mar 2025-03 Apr 2025

Meteorological Monitoring Results : Wind Rose
MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site
Monitor period : 27 Mar 2025-03 Apr 2025
Wind Speed Model : Novalynx WS-25
Serial No : A5086
Wind Direction Model : Novalynx WS-25
Serial No : A5086

Time	31-01 Apr 2025		01-02 Apr 2025		02-03 Apr 2025	
	WS(m/s)	WD	WS(m/s)	WD	WS(m/s)	WD
09:00 - 10:00	0.8	NE	0.8	E	2.0	SE
10:00 - 11:00	0.9	E	0.9	NNE	0.8	ESE
11:00 - 12:00	2.1	SSE	3.0	E	1.9	NNE
12:00 - 13:00	2.8	SSW	2.1	SW	1.7	NNW
13:00 - 14:00	2.1	E	3.0	SE	3.0	WSW
14:00 - 15:00	0.9	SSE	2.3	S	0.7	WSW
15:00 - 16:00	0.7	SE	0.8	SSW	0.9	S
16:00 - 17:00	0.7	SSE	0.8	WSW	0.7	SSW
17:00 - 18:00	0.7	S	0.8	SW	0.7	SW
18:00 - 19:00	0.9	SE	0.8	SW	2.8	NNE
19:00 - 20:00	0.7	SE	0.9	SW	2.6	N
20:00 - 21:00	0.7	SSE	0.8	WSW	0.9	NW
21:00 - 22:00	1.8	NE	1.5	NNE	1.5	E
22:00 - 23:00	0.9	NNE	0.9	NE	2.3	ENE
23:00 - 24:00	0.7	E	0.8	NE	1.6	SE
00:00 - 01:00	1.5	NW	0.8	E	0.7	SSE
01:00 - 02:00	0.8	NW	0.9	ENE	0.8	SE
02:00 - 03:00	1.6	NNE	2.9	N	0.7	S
03:00 - 04:00	0.8	N	1.5	ENE	0.9	S
04:00 - 05:00	0.8	NE	0.8	E	0.9	ESE
05:00 - 06:00	0.9	NE	0.7	E	2.5	NNE
06:00 - 07:00	0.7	E	0.7	ENE	0.7	E
07:00 - 08:00	0.7	ENE	0.9	E	0.8	E
08:00 - 09:00	0.7	ENE	0.9	NE	0.7	N

Wind Rose



0.5-1 1-2 2-3 3-4 4-6 >= 6

WIND SPEED (m/s) - Scale 1:3

File Control :R:\Database\Windrose\FileControl\Win-225009-North Fence of Project Site 27 Mar 2025-03 Apr 2025

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel:+66(0)2959-3600 Fax:+66(0)2959-3585

ภาคผนวก ง.2

ใบรับรองผลการตรวจวัดคุณภาพอากาศที่แหล่งกำเนิด

บริษัท ซีคอท จำกัด
SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 28/03/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: Cracking Furnace-120 (F-120)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 33.5	m	**Flow Rate***	: 1,180	Ncu.m/min
Diameter	: 1.5	m	**Excess Oxygen**	: 4.3	%
Temperature	: 162.1	^{o}C	**Moisture Content**	: 14.7	%
Gas Velocity	: 19.1	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	4.3%O_2	7%O_2	4.3%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	26.69	22.35	50.21	42.05	200/35	376/66	0.988	1.72	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.17	0.15	0.44	0.39	60/19	157/50	0.009	1.30	US.EPA Method 6C
Carbon Monoxide (CO)	1.18	0.99	1.35	1.13	690/-	790/-	0.027	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-ข-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * At standard pressure of 760 mmHg and temperature of 25 ^{o}C, dry basis.

4. [1/]Notification of the Ministry of Industry, B.E.2549 (2006) and the Ministry of Natural Resources and Environment, B.E.2549 (2006).

5. [2/]The assigned value is specified in EIA report at 7% O_2.

บริษัท ซีคอท จำกัด
SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 28/03/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: Cracking Furnace-160 (F-160)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 33.5	m	**Flow Rate***	: 993	Ncu.m/min
Diameter	: 1.5	m	**Excess Oxygen**	: 3.5	%
Temperature	: 178.5	^{o}C	**Moisture Content**	: 15.1	%
Gas Velocity	: 16.8	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	3.5%O_2	7%O_2	3.5%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	61.25	48.91	115.24	92.02	200/74	376/140	1.907	3.59	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.29	0.23	0.76	0.60	60/9	157/22.5	0.013	0.58	US.EPA Method 6C
Carbon Monoxide (CO)	0.22	0.18	0.25	0.21	690/-	790/-	0.004	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-ข-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

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3. * At standard pressure of 760 mmHg and temperature of 25 ^{o}C, dry basis.

4. [1/]Notification of the Ministry of Industry, B.E.2549 (2006) and the Ministry of Natural Resources and Environment, B.E.2549 (2006).

5. [2/]The assigned value is specified in EIA report at 7% O_2.

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239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 28/03/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: Cracking Furnace-170 (F-170)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 33.5	m	**Flow Rate***	: 1,054	Ncu.m/min
Diameter	: 1.5	m	**Excess Oxygen**	: 4.8	%
Temperature	: 154.1	^{o}C	**Moisture Content**	: 11.5	%
Gas Velocity	: 16.1	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	4.8%O_2	7%O_2	4.8%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	49.20	42.46	92.56	79.88	200/74	376/140	1.626	3.59	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.18	0.16	0.47	0.42	60/9	157/22.5	0.008	0.58	US.EPA Method 6C
Carbon Monoxide (CO)	0.16	0.14	0.18	0.16	690/-	790/-	0.003	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-ข-0006

Preeda S.
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Technical Management Team
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3. * At standard pressure of 760 mmHg and temperature of 25 ^{o}C, dry basis.

4. [1/]Notification of the Ministry of Industry, B.E.2549 (2006) and the Ministry of Natural Resources and Environment, B.E.2549 (2006).

5. [2/]The assigned value is specified in EIA report at 7% O_2.

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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	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 31/03/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: Cracking Furnace-1010 (F-1010)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 33.5	m	**Flow Rate***	: 803	Ncu.m/min
Diameter	: 1.5	m	**Excess Oxygen**	: 6.4	%
Temperature	: 122.6	^{o}C	**Moisture Content**	: 13.8	%
Gas Velocity	: 11.7	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	6.4%O_2	7%O_2	6.4%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	25.25	24.17	47.51	45.47	200/35	376/66	0.636	1.72	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.15	0.14	0.39	0.37	60/19	157/50	0.005	1.30	US.EPA Method 6C
Carbon Monoxide (CO)	0.87	0.83	1.00	0.95	690/-	790/-	0.013	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-ข-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

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3. * At standard pressure of 760 mmHg and temperature of 25 ^{o}C, dry basis.

4. [1/]Notification of the Ministry of Industry, B.E.2549 (2006) and the Ministry of Natural Resources and Environment, B.E.2549 (2006).

5. [2/]The assigned value is specified in EIA report at 7% O_2.

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 01/04/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: GHU (F-740)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 15.0	m	**Flow Rate***	: 30.3	Ncu.m/min
Diameter	: 0.6	m	**Excess Oxygen**	: 8.9	%
Temperature	: 263.4	^{o}C	**Moisture Content**	: 13.3	%
Gas Velocity	: 3.4	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	8.9%O_2	7%O_2	8.9%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	8.54	9.93	16.07	18.68	200/49	376/91	0.008	0.12	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.15	0.17	0.39	0.44	60/1.7	157/4.4	0.0002	0.006	US.EPA Method 6C
Carbon Monoxide (CO)	437.81	509.11	501.38	583.03	690/-	790/-	0.253	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-จ-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 28/03/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: Cracking Furnace-3101 (F-3101)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 46.5	m	**Flow Rate***	: 858	Ncu.m/min
Diameter	: 1.5	m	**Excess Oxygen**	: 5.7	%
Temperature	: 169.0	^{o}C	**Moisture Content**	: 17.5	%
Gas Velocity	: 14.7	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	5.7%O_2	7%O_2	5.7%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	37.84	34.58	71.19	65.06	200/35	376/66	1.018	1.72	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.11	0.10	0.29	0.26	60/1.5	157/4.0	0.004	0.10	US.EPA Method 6C
Carbon Monoxide (CO)	0.15	0.13	0.17	0.15	690/-	790/-	0.002	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-จ-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 28/03/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: Cracking Furnace-3104 (F-3104)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 46.5	m	**Flow Rate***	: 867	Ncu.m/min
Diameter	: 1.5	m	**Excess Oxygen**	: 6.6	%
Temperature	: 208.8	^{o}C	**Moisture Content**	: 17.8	%
Gas Velocity	: 16.2	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	6.6%O_2	7%O_2	6.6%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	32.49	31.53	61.13	59.32	200/35	376/66	0.883	1.72	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.29	0.28	0.76	0.73	60/1.5	157/4.0	0.011	0.10	US.EPA Method 6C
Carbon Monoxide (CO)	0.35	0.34	0.40	0.39	690/-	790/-	0.006	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-ข-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

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SECOT CO., LTD.
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CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	**REFERENCE NO.**	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	**SAMPLING DATE**	: 28/03/2025
SAMPLING BY	: SECOT Co., Ltd.	**ANALYTICAL DATE**	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	**SAMPLE CONDITION**	: Normal
REPORT DATE	: 08/05/2025	**FUEL TYPE**	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	**STACK LOCATION**	: Cracking Furnace-3106 (F-3106)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 46.5	m	**Flow Rate***	: 1,394	Ncu.m/min
Diameter	: 2.0x1.26	m	**Excess Oxygen**	: 3.6	%
Temperature	: 128.5	^{o}C	**Moisture Content**	: 15.3	%
Gas Velocity	: 14.8	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	3.6%O_2	7%O_2	3.6%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	24.46	19.60	46.02	36.88	200/35	376/66	1.069	1.25	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.18	0.15	0.47	0.39	60/1.5	157/4.0	0.011	0.10	US.EPA Method 6C
Carbon Monoxide (CO)	0.06	0.05	0.07	0.06	690/-	790/-	0.002	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-ข-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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STACK EMISSION ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Co., Ltd.	REFERENCE NO.	: 225009-CEMs-2503-0123
	Branch 3, Olefins 2	SAMPLING DATE	: 01/04/2025
SAMPLING BY	: SECOT Co., Ltd.	ANALYTICAL DATE	: 07/04/2025-07/05/2025
RECEIVED DATE	: 03/04/2025	SAMPLE CONDITION	: Normal
REPORT DATE	: 08/05/2025	FUEL TYPE	: Fuel Gas
SOURCE DESCRIPTION	: Combustion	STACK LOCATION	: Isomerization Feed Heater (F-4301)
OPERATOR	: Mr. Kittipong Thakoengsuk		

STACK DESCRIPTION

Height	: 30.0	m	Flow Rate*	: 78.1	Ncu.m/min
Diameter	: 0.9	m	Excess Oxygen	: 4.5	%
Temperature	: 314.5	^{o}C	Moisture Content	: 12.7	%
Gas Velocity	: 4.7	m/s			

PARAMETER	RESULT*				STANDARD[1/] / EIA[2/]		EMISSION RATE		REFERENCE METHOD
	ppm		mg/Ncu.m.		ppm	mg/Ncu.m.	g/s		
	4.5%O_2	7%O_2	4.5%O_2	7%O_2	7%O_2	7%O_2	RESULT	EIA[2/]	
Oxide of Nitrogen (NOx)	9.70	8.20	18.25	15.43	200/55	376/104	0.024	0.65	US.EPA Method 7E
Sulfur Dioxide (SO_2)	0.11	0.09	0.29	0.24	60/19	157/50	0.0004	0.31	US.EPA Method 6C
Carbon Monoxide (CO)	1.38	1.17	1.58	1.34	690/-	790/-	0.002	-	US.EPA Method 10

(Miss Katesarin Vorradetwittaya)
Environmental Scientist
REG.NO. ว-239-จ-0006

Preeda S.
(Miss Preeda Somjai)
Technical Management Team
REG.NO. ว-239-ค-0006

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PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
F-120
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
March 28, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.33	4.25	27.06	27.05	22.58
2	4.39	4.30	26.51	26.50	22.19
3	4.47	4.36	26.54	26.52	22.29
Average	**4.39**	**4.30**	**26.70**	**26.69**	**22.35**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.33	4.25	0.25	0.18	0.15
2	4.39	4.30	0.24	0.17	0.14
3	4.47	4.36	0.24	0.17	0.14
Average	**4.39**	**4.30**	**0.24**	**0.17**	**0.15**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.33	4.25	1.26	1.20	1.00
2	4.39	4.30	1.22	1.17	0.98
3	4.47	4.36	1.23	1.18	0.99
Average	**4.39**	**4.30**	**1.24**	**1.18**	**0.99**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: March 28, 2025 **Location :** F-120

Start time: 11:20 AM **Finish time :** 11:40 AM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 186

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
11:20 AM	4.35	27.11	0.26	1.32
11:21 AM	4.35	27.53	0.26	1.32
11:22 AM	4.35	26.65	0.25	1.32
11:23 AM	4.34	27.09	0.26	1.31
11:24 AM	4.33	28.39	0.26	1.23
11:25 AM	4.32	27.25	0.26	1.28
11:26 AM	4.33	27.55	0.22	1.32
11:27 AM	4.32	26.77	0.25	1.32
11:28 AM	4.33	27.55	0.26	1.32
11:29 AM	4.33	27.57	0.23	1.32
11:30 AM	4.32	27.21	0.24	1.23
11:31 AM	4.33	26.47	0.24	1.22
11:32 AM	4.32	28.15	0.26	1.22
11:33 AM	4.31	27.43	0.26	1.22
11:34 AM	4.32	26.06	0.27	1.22
11:35 AM	4.32	28.29	0.27	1.22
11:36 AM	4.32	26.07	0.24	1.22
11:37 AM	4.32	26.94	0.22	1.22
11:38 AM	4.33	26.08	0.26	1.22
11:39 AM	4.34	26.23	0.25	1.22
11:40 AM	4.34	25.93	0.21	1.22
Average	4.33	27.06	0.25	1.26

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: March 28, 2025 **Location :** F-120

Start time: 11:41 AM **Finish time :** 12:01 PM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 186

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
11:41 AM	4.35	25.78	0.25	1.22
11:42 AM	4.34	25.93	0.22	1.18
11:43 AM	4.34	26.20	0.21	1.22
11:44 AM	4.35	28.27	0.24	1.22
11:45 AM	4.35	25.98	0.23	1.22
11:46 AM	4.35	26.56	0.23	1.22
11:47 AM	4.37	27.15	0.23	1.22
11:48 AM	4.36	26.91	0.26	1.22
11:49 AM	4.38	27.10	0.25	1.22
11:50 AM	4.38	27.37	0.23	1.22
11:51 AM	4.39	26.87	0.23	1.22
11:52 AM	4.40	25.58	0.23	1.22
11:53 AM	4.40	28.31	0.24	1.22
11:54 AM	4.40	27.19	0.24	1.22
11:55 AM	4.40	26.01	0.27	1.22
11:56 AM	4.41	27.33	0.24	1.22
11:57 AM	4.41	25.15	0.27	1.22
11:58 AM	4.43	26.93	0.23	1.22
11:59 AM	4.43	24.03	0.23	1.21
12:00 PM	4.43	27.13	0.24	1.22
12:01 PM	4.44	24.95	0.23	1.22
Average	4.39	26.51	0.24	1.22

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: March 28, 2025 | **Location :** F-120

Start time: 12:02 PM | **Finish time :** 12:22 PM

O_2 instrument Model: AMI 70 | **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM | **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH | **Serial No.:** 186

CO instrument Model: API 300 A | **Serial No.:** 1070

Fuel Type : Fuel Gas | **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
12:02 PM	4.43	25.15	0.23	1.23
12:03 PM	4.43	26.13	0.24	1.21
12:04 PM	4.45	26.53	0.23	1.26
12:05 PM	4.44	26.57	0.23	1.32
12:06 PM	4.45	25.99	0.23	1.29
12:07 PM	4.45	26.89	0.23	1.21
12:08 PM	4.46	25.83	0.24	1.21
12:09 PM	4.45	25.38	0.25	1.21
12:10 PM	4.46	25.15	0.24	1.21
12:11 PM	4.45	26.06	0.23	1.21
12:12 PM	4.46	28.26	0.24	1.21
12:13 PM	4.46	27.07	0.23	1.21
12:14 PM	4.46	26.96	0.23	1.21
12:15 PM	4.48	28.07	0.27	1.21
12:16 PM	4.47	25.93	0.26	1.21
12:17 PM	4.47	26.96	0.23	1.21
12:18 PM	4.46	26.45	0.23	1.22
12:19 PM	4.49	27.09	0.25	1.36
12:20 PM	4.51	26.98	0.23	1.23
12:21 PM	4.52	26.43	0.23	1.21
12:22 PM	4.53	27.40	0.23	1.26
Average	4.47	26.54	0.24	1.23

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-160
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
March 28, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.59	3.52	61.83	61.85	49.47
2	3.55	3.48	61.07	61.10	48.75
3	3.55	3.48	60.77	60.80	48.51
Average	**3.56**	**3.49**	**61.22**	**61.25**	**48.91**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.59	3.52	0.34	0.28	0.22
2	3.55	3.48	0.33	0.28	0.22
3	3.55	3.48	0.34	0.30	0.24
Average	**3.56**	**3.49**	**0.34**	**0.29**	**0.23**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.59	3.52	0.27	0.23	0.18
2	3.55	3.48	0.25	0.21	0.17
3	3.55	3.48	0.25	0.22	0.18
Average	**3.56**	**3.49**	**0.26**	**0.22**	**0.18**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: March 28, 2025 **Location :** F-160

Start time: 1:20 PM **Finish time :** 1:40 PM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-13

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: THERMO 48 C **Serial No.:** 78253-388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
1:20 PM	3.64	60.09	0.35	0.28
1:21 PM	3.70	60.79	0.36	0.28
1:22 PM	3.64	61.16	0.35	0.28
1:23 PM	3.64	61.51	0.35	0.28
1:24 PM	3.64	61.93	0.35	0.28
1:25 PM	3.57	62.27	0.35	0.28
1:26 PM	3.62	62.68	0.35	0.27
1:27 PM	3.60	62.64	0.35	0.27
1:28 PM	3.54	62.47	0.35	0.27
1:29 PM	3.60	62.14	0.35	0.27
1:30 PM	3.51	62.01	0.35	0.27
1:31 PM	3.57	62.18	0.35	0.27
1:32 PM	3.58	61.86	0.35	0.26
1:33 PM	3.64	61.58	0.31	0.26
1:34 PM	3.61	61.54	0.31	0.26
1:35 PM	3.43	61.92	0.31	0.26
1:36 PM	3.54	62.49	0.31	0.26
1:37 PM	3.65	62.26	0.36	0.26
1:38 PM	3.50	61.60	0.35	0.26
1:39 PM	3.64	61.48	0.35	0.26
1:40 PM	3.54	61.78	0.35	0.26
Average	3.59	61.83	0.34	0.27

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: March 28, 2025 **Location :** F-160

Start time: 1:41 PM **Finish time :** 2:01 PM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-13

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: THERMO 48 C **Serial No.:** 78253-388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
1:41 PM	3.54	62.15	0.32	0.25
1:42 PM	3.55	62.02	0.33	0.25
1:43 PM	3.60	61.53	0.33	0.25
1:44 PM	3.62	61.20	0.33	0.25
1:45 PM	3.56	60.74	0.33	0.25
1:46 PM	3.46	60.62	0.33	0.25
1:47 PM	3.57	60.63	0.33	0.25
1:48 PM	3.48	60.93	0.33	0.25
1:49 PM	3.66	61.25	0.33	0.25
1:50 PM	3.49	60.92	0.33	0.25
1:51 PM	3.51	60.63	0.33	0.25
1:52 PM	3.50	60.77	0.33	0.25
1:53 PM	3.54	61.36	0.33	0.25
1:54 PM	3.66	61.79	0.33	0.25
1:55 PM	3.59	61.56	0.33	0.25
1:56 PM	3.52	61.22	0.33	0.25
1:57 PM	3.58	60.81	0.33	0.25
1:58 PM	3.52	60.51	0.33	0.25
1:59 PM	3.60	60.50	0.33	0.25
2:00 PM	3.52	60.45	0.33	0.25
2:01 PM	3.57	60.78	0.33	0.25
Average	3.55	61.07	0.33	0.25

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Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: March 28, 2025 **Location :** F-160

Start time: 2:02 PM **Finish time :** 2:22 PM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-13

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: THERMO 48 C **Serial No.:** 78253-388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
2:02 PM	3.59	60.75	0.33	0.25
2:03 PM	3.51	60.54	0.33	0.25
2:04 PM	3.56	60.77	0.33	0.25
2:05 PM	3.57	60.69	0.33	0.25
2:06 PM	3.55	60.94	0.33	0.25
2:07 PM	3.63	61.18	0.33	0.25
2:08 PM	3.52	61.00	0.33	0.25
2:09 PM	3.54	60.67	0.33	0.25
2:10 PM	3.46	60.17	0.37	0.25
2:11 PM	3.41	60.12	0.37	0.25
2:12 PM	3.54	60.46	0.37	0.25
2:13 PM	3.49	60.57	0.37	0.25
2:14 PM	3.52	60.97	0.32	0.25
2:15 PM	3.57	61.28	0.32	0.25
2:16 PM	3.56	61.23	0.33	0.25
2:17 PM	3.59	61.05	0.37	0.25
2:18 PM	3.50	61.01	0.33	0.25
2:19 PM	3.61	61.25	0.34	0.25
2:20 PM	3.66	60.78	0.37	0.25
2:21 PM	3.59	60.24	0.37	0.25
2:22 PM	3.58	60.55	0.37	0.25
Average	3.55	60.77	0.34	0.25

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Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-170
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
March 28, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.82	4.82	49.35	49.36	42.67
2	4.83	4.79	49.76	49.77	42.94
3	4.84	4.77	48.47	48.48	41.78
Average	**4.83**	**4.79**	**49.19**	**49.20**	**42.46**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.82	4.82	0.24	0.20	0.17
2	4.83	4.79	0.24	0.19	0.16
3	4.84	4.77	0.22	0.16	0.14
Average	**4.83**	**4.79**	**0.23**	**0.18**	**0.16**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.82	4.82	0.24	0.18	0.16
2	4.83	4.79	0.18	0.13	0.11
3	4.84	4.77	0.22	0.18	0.16
Average	**4.83**	**4.79**	**0.22**	**0.16**	**0.14**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: March 28, 2025 **Location :** F-170

Start time: 11:20 AM **Finish time :** 11:40 AM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-13

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: THERMO 48 C **Serial No.:** 78253-388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
11:20 AM	4.83	48.89	0.17	0.20
11:21 AM	4.83	48.80	0.18	0.23
11:22 AM	4.83	49.57	0.19	0.20
11:23 AM	4.82	49.89	0.21	0.20
11:24 AM	4.83	49.66	0.22	0.19
11:25 AM	4.83	49.72	0.25	0.14
11:26 AM	4.82	50.25	0.23	0.29
11:27 AM	4.82	50.08	0.23	0.28
11:28 AM	4.82	49.88	0.23	0.24
11:29 AM	4.80	48.73	0.25	0.23
11:30 AM	4.82	49.63	0.26	0.23
11:31 AM	4.80	50.24	0.22	0.23
11:32 AM	4.81	50.38	0.22	0.23
11:33 AM	4.80	48.23	0.22	0.25
11:34 AM	4.80	49.05	0.26	0.28
11:35 AM	4.81	48.58	0.28	0.28
11:36 AM	4.80	49.10	0.26	0.28
11:37 AM	4.80	48.68	0.27	0.29
11:38 AM	4.83	48.42	0.30	0.29
11:39 AM	4.84	48.73	0.26	0.29
11:40 AM	4.83	49.80	0.26	0.27
Average	4.82	49.35	0.24	0.24

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: March 28, 2025 **Location :** F-170

Start time: 11:41 AM **Finish time :** 12:01 PM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-13

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: THERMO 48 C **Serial No.:** 78253-388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
11:41 AM	4.83	50.72	0.25	0.23
11:42 AM	4.83	50.61	0.28	0.22
11:43 AM	4.84	50.97	0.26	0.17
11:44 AM	4.83	49.73	0.23	0.20
11:45 AM	4.84	49.35	0.25	0.21
11:46 AM	4.83	49.55	0.27	0.19
11:47 AM	4.82	49.34	0.28	0.23
11:48 AM	4.84	50.67	0.26	0.20
11:49 AM	4.84	50.72	0.26	0.18
11:50 AM	4.83	50.24	0.23	0.23
11:51 AM	4.84	48.88	0.23	0.23
11:52 AM	4.82	48.84	0.24	0.25
11:53 AM	4.82	48.61	0.22	0.28
11:54 AM	4.83	48.48	0.23	0.11
11:55 AM	4.82	49.64	0.24	0.15
11:56 AM	4.84	49.82	0.22	0.14
11:57 AM	4.84	50.75	0.22	0.11
11:58 AM	4.84	49.99	0.22	0.13
11:59 AM	4.85	49.06	0.22	0.14
12:00 PM	4.85	49.61	0.22	0.14
12:01 PM	4.83	49.34	0.22	0.14
Average	4.83	49.76	0.24	0.18

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: March 28, 2025 **Location :** F-170

Start time: 12:02 PM **Finish time :** 12:22 PM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-13

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: THERMO 48 C **Serial No.:** 78253-388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
12:02 PM	4.85	49.21	0.22	0.14
12:03 PM	4.83	49.17	0.20	0.14
12:04 PM	4.83	49.47	0.20	0.18
12:05 PM	4.83	49.46	0.26	0.20
12:06 PM	4.84	47.67	0.27	0.23
12:07 PM	4.84	47.81	0.22	0.26
12:08 PM	4.83	47.79	0.22	0.22
12:09 PM	4.84	48.74	0.17	0.22
12:10 PM	4.82	49.37	0.22	0.20
12:11 PM	4.83	47.74	0.22	0.20
12:12 PM	4.83	48.91	0.23	0.20
12:13 PM	4.84	48.50	0.24	0.20
12:14 PM	4.85	49.02	0.22	0.20
12:15 PM	4.84	49.28	0.21	0.23
12:16 PM	4.85	48.50	0.22	0.26
12:17 PM	4.86	47.30	0.22	0.26
12:18 PM	4.85	47.62	0.22	0.26
12:19 PM	4.83	47.69	0.22	0.26
12:20 PM	4.85	48.63	0.22	0.26
12:21 PM	4.85	47.45	0.22	0.26
12:22 PM	4.79	48.64	0.17	0.27
Average	4.84	48.47	0.22	0.22

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Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-1010
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
March 31, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.44	6.39	25.27	25.26	24.20
2	6.44	6.38	25.27	25.26	24.18
3	6.43	6.36	25.24	25.23	24.12
Average	**6.43**	**6.38**	**25.26**	**25.25**	**24.17**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.44	6.39	0.21	0.15	0.14
2	6.44	6.38	0.20	0.15	0.14
3	6.43	6.36	0.19	0.15	0.14
Average	**6.43**	**6.38**	**0.20**	**0.15**	**0.14**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.44	6.39	0.92	0.86	0.82
2	6.44	6.38	0.97	0.92	0.88
3	6.43	6.36	0.88	0.83	0.79
Average	**6.43**	**6.38**	**0.93**	**0.87**	**0.83**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: March 31, 2025 **Location :** F-1010

Start time: 10:10 AM **Finish time :** 10:30 AM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-14

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
10:10 AM	6.39	25.34	0.22	0.88
10:11 AM	6.46	25.31	0.19	0.88
10:12 AM	6.48	25.28	0.24	0.88
10:13 AM	6.44	25.29	0.24	0.88
10:14 AM	6.47	25.28	0.21	0.88
10:15 AM	6.41	25.31	0.20	0.88
10:16 AM	6.41	25.30	0.21	0.88
10:17 AM	6.48	25.27	0.19	0.88
10:18 AM	6.41	25.26	0.19	0.92
10:19 AM	6.51	25.26	0.19	1.00
10:20 AM	6.39	25.34	0.19	1.00
10:21 AM	6.44	25.37	0.19	1.00
10:22 AM	6.44	25.29	0.22	0.95
10:23 AM	6.40	25.25	0.24	0.89
10:24 AM	6.42	25.34	0.19	1.00
10:25 AM	6.42	25.42	0.20	1.01
10:26 AM	6.42	25.28	0.23	1.01
10:27 AM	6.46	25.14	0.23	0.90
10:28 AM	6.41	25.15	0.24	0.89
10:29 AM	6.46	25.12	0.23	0.89
10:30 AM	6.42	25.17	0.19	0.89
Average	6.44	25.27	0.21	0.92

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: March 31, 2025 **Location :** F-1010

Start time: 10:31 AM **Finish time :** 10:51 AM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-14

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
10:31 AM	6.45	25.18	0.23	0.89
10:32 AM	6.45	25.23	0.22	0.89
10:33 AM	6.38	25.34	0.19	0.89
10:34 AM	6.37	25.31	0.19	0.89
10:35 AM	6.41	25.33	0.23	0.89
10:36 AM	6.37	25.43	0.24	0.89
10:37 AM	6.46	25.43	0.19	0.90
10:38 AM	6.33	25.45	0.22	0.92
10:39 AM	6.45	25.35	0.24	1.01
10:40 AM	6.42	25.22	0.21	1.01
10:41 AM	6.46	25.16	0.19	1.01
10:42 AM	6.50	25.15	0.18	1.01
10:43 AM	6.41	25.18	0.21	1.01
10:44 AM	6.43	25.15	0.18	1.01
10:45 AM	6.50	25.16	0.18	1.02
10:46 AM	6.43	25.22	0.18	1.02
10:47 AM	6.51	25.35	0.21	1.02
10:48 AM	6.40	25.42	0.18	1.02
10:49 AM	6.46	25.29	0.18	1.02
10:50 AM	6.49	25.19	0.18	1.02
10:51 AM	6.46	25.08	0.19	1.02
Average	6.44	25.27	0.20	0.97

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: March 31, 2025 **Location :** F-1010

Start time: 10:52 AM **Finish time :** 11:12 AM

O_2 instrument Model: AMI 70 **Serial No.:** 161212-14

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: API 100 AH **Serial No.:** 058

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
10:52 AM	6.49	25.05	0.18	1.02
10:53 AM	6.41	25.11	0.22	1.02
10:54 AM	6.43	25.09	0.21	1.02
10:55 AM	6.48	25.13	0.18	1.02
10:56 AM	6.40	25.14	0.18	1.02
10:57 AM	6.48	25.06	0.20	1.02
10:58 AM	6.41	25.02	0.20	1.02
10:59 AM	6.45	25.00	0.18	1.00
11:00 AM	6.46	24.97	0.18	0.90
11:01 AM	6.45	25.19	0.18	0.90
11:02 AM	6.46	25.38	0.19	0.85
11:03 AM	6.41	25.33	0.19	0.78
11:04 AM	6.40	25.30	0.19	0.78
11:05 AM	6.42	25.36	0.17	0.78
11:06 AM	6.36	25.38	0.19	0.78
11:07 AM	6.42	25.42	0.19	0.78
11:08 AM	6.37	25.50	0.18	0.78
11:09 AM	6.43	25.43	0.20	0.77
11:10 AM	6.44	25.44	0.19	0.77
11:11 AM	6.38	25.47	0.19	0.77
11:12 AM	6.42	25.36	0.19	0.77
Average	6.43	25.24	0.19	0.88

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-740
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
April 1, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	8.10	7.96	9.65	9.60	10.31
2	8.82	8.69	8.45	8.41	9.57
3	10.33	10.19	7.65	7.62	9.89
Average	**9.09**	**8.95**	**8.58**	**8.54**	**9.93**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	8.10	7.96	0.16	0.11	0.12
2	8.82	8.69	0.18	0.14	0.16
3	10.33	10.19	0.22	0.19	0.25
Average	**9.09**	**8.95**	**0.18**	**0.15**	**0.17**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	8.10	7.96	584.16	584.72	628.10
2	8.82	8.69	431.19	431.66	491.41
3	10.33	10.19	296.71	297.06	385.54
Average	**9.09**	**8.95**	**437.35**	**437.81**	**509.11**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: April 1, 2025 **Location :** F-740

Start time: 10:30 AM **Finish time :** 10:50 AM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 182

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
10:30 AM	8.35	10.28	0.18	502.05
10:31 AM	8.25	10.27	0.18	561.92
10:32 AM	8.01	10.27	0.16	630.45
10:33 AM	7.91	10.16	0.16	617.74
10:34 AM	8.08	10.07	0.15	615.04
10:35 AM	7.94	9.96	0.16	617.64
10:36 AM	8.05	9.88	0.17	624.55
10:37 AM	8.02	9.91	0.16	630.85
10:38 AM	8.00	9.86	0.16	634.92
10:39 AM	8.05	9.73	0.15	633.39
10:40 AM	8.09	9.59	0.15	622.93
10:41 AM	8.09	9.52	0.16	605.93
10:42 AM	8.14	9.40	0.16	541.57
10:43 AM	8.18	9.27	0.15	526.78
10:44 AM	8.21	9.25	0.15	542.85
10:45 AM	8.08	9.28	0.15	587.98
10:46 AM	8.08	9.33	0.15	583.18
10:47 AM	8.10	9.36	0.14	581.05
10:48 AM	7.98	9.24	0.14	571.99
10:49 AM	8.36	9.10	0.15	520.46
10:50 AM	8.20	9.02	0.14	514.04
Average	8.10	9.65	0.16	584.16

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: April 1, 2025 **Location :** F-740

Start time: 10:51 AM **Finish time :** 11:11 AM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 182

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
10:51 AM	8.23	9.00	0.15	516.90
10:52 AM	8.22	8.97	0.14	517.22
10:53 AM	8.25	8.83	0.15	515.30
10:54 AM	8.46	8.65	0.15	508.06
10:55 AM	8.52	8.64	0.15	501.91
10:56 AM	8.34	8.83	0.15	500.62
10:57 AM	8.49	8.90	0.15	498.97
10:58 AM	8.45	8.82	0.15	484.51
10:59 AM	8.72	8.67	0.16	443.04
11:00 AM	8.78	8.60	0.18	437.24
11:01 AM	8.71	8.62	0.18	438.34
11:02 AM	8.86	8.51	0.20	424.10
11:03 AM	9.05	8.26	0.21	375.37
11:04 AM	9.16	8.07	0.21	370.72
11:05 AM	9.24	8.11	0.21	369.14
11:06 AM	9.18	8.11	0.21	367.64
11:07 AM	9.17	8.05	0.21	366.39
11:08 AM	9.25	8.01	0.22	364.30
11:09 AM	9.37	8.00	0.21	363.10
11:10 AM	9.39	7.95	0.22	357.47
11:11 AM	9.46	7.86	0.22	334.57
Average	8.82	8.45	0.18	431.19

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: April 1, 2025 **Location :** F-740

Start time: 11:12 AM **Finish time :** 11:32 AM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 182

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
11:12 AM	9.67	7.74	0.22	303.89
11:13 AM	9.62	7.63	0.22	296.03
11:14 AM	9.66	7.65	0.22	297.48
11:15 AM	9.75	7.62	0.22	298.54
11:16 AM	9.83	7.54	0.23	296.47
11:17 AM	9.87	7.53	0.22	294.47
11:18 AM	10.13	7.52	0.22	290.90
11:19 AM	10.20	7.58	0.22	287.97
11:20 AM	10.11	7.67	0.22	289.30
11:21 AM	10.22	7.71	0.22	290.32
11:22 AM	10.23	7.61	0.22	289.73
11:23 AM	10.35	7.51	0.21	289.98
11:24 AM	10.54	7.58	0.21	288.63
11:25 AM	10.70	7.64	0.21	284.81
11:26 AM	10.68	7.64	0.21	284.70
11:27 AM	10.84	7.74	0.21	306.77
11:28 AM	10.84	7.77	0.22	298.45
11:29 AM	10.89	7.66	0.22	295.02
11:30 AM	10.79	7.68	0.22	296.85
11:31 AM	10.91	7.76	0.21	321.61
11:32 AM	11.08	7.82	0.19	328.89
Average	10.33	7.65	0.22	296.71

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-3101
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
March 28, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.81	5.77	37.58	37.55	34.50
2	5.77	5.72	37.99	37.95	34.75
3	5.63	5.57	38.07	38.03	34.48
Average	**5.73**	**5.69**	**37.88**	**37.84**	**34.58**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.81	5.77	0.10	0.10	0.10
2	5.77	5.72	0.10	0.10	0.09
3	5.63	5.57	0.14	0.14	0.13
Average	**5.73**	**5.69**	**0.11**	**0.11**	**0.10**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	5.81	5.77	0.31	0.21	0.19
2	5.77	5.72	0.28	0.16	0.15
3	5.63	5.57	0.20	0.07	0.06
Average	**5.73**	**5.69**	**0.27**	**0.15**	**0.13**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
F-3101

Run # : 1

Date: March 28, 2025 **Location :** F-3101

Start time: 12:10 PM **Finish time :** 12:30 PM

O_2 instrument Model: AMI 70 **Serial No.:** 111117-2

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 060

CO instrument Model: THERMO 48 C **Serial No.:** 388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
12:10 PM	5.77	38.67	0.10	0.30
12:11 PM	5.77	38.47	0.10	0.30
12:12 PM	5.79	37.90	0.10	0.30
12:13 PM	5.77	37.63	0.10	0.30
12:14 PM	5.80	37.78	0.10	0.30
12:15 PM	5.76	37.48	0.10	0.30
12:16 PM	5.80	37.10	0.10	0.30
12:17 PM	5.77	37.12	0.10	0.33
12:18 PM	5.80	37.14	0.10	0.30
12:19 PM	5.78	36.98	0.10	0.30
12:20 PM	5.82	37.51	0.10	0.30
12:21 PM	5.81	37.51	0.10	0.30
12:22 PM	5.82	37.64	0.10	0.30
12:23 PM	5.81	37.52	0.10	0.30
12:24 PM	5.84	37.81	0.10	0.30
12:25 PM	5.83	37.80	0.10	0.30
12:26 PM	5.88	37.73	0.10	0.30
12:27 PM	5.81	37.54	0.10	0.37
12:28 PM	5.86	37.05	0.10	0.40
12:29 PM	5.79	36.95	0.10	0.40
12:30 PM	5.83	37.75	0.20	0.31
Average	5.81	37.58	0.10	0.31

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
F-3101

Run # : 2

Date: March 28, 2025 **Location :** F-3101

Start time: 12:31 PM **Finish time :** 12:51 PM

O_2 instrument Model: AMI 70 **Serial No.:** 111117-2

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 060

CO instrument Model: THERMO 48 C **Serial No.:** 388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
12:31 PM	5.84	38.10	0.10	0.30
12:32 PM	5.86	37.70	0.10	0.30
12:33 PM	5.82	37.93	0.10	0.30
12:34 PM	5.81	38.03	0.10	0.30
12:35 PM	5.77	37.91	0.10	0.30
12:36 PM	5.78	37.78	0.10	0.30
12:37 PM	5.80	37.98	0.10	0.30
12:38 PM	5.81	38.19	0.10	0.30
12:39 PM	5.77	37.82	0.10	0.30
12:40 PM	5.79	37.87	0.10	0.30
12:41 PM	5.74	37.76	0.10	0.30
12:42 PM	5.78	37.65	0.10	0.30
12:43 PM	5.73	38.02	0.10	0.30
12:44 PM	5.76	38.19	0.10	0.21
12:45 PM	5.73	37.93	0.10	0.29
12:46 PM	5.71	37.63	0.10	0.30
12:47 PM	5.70	37.73	0.10	0.30
12:48 PM	5.73	38.10	0.10	0.30
12:49 PM	5.73	38.49	0.10	0.22
12:50 PM	5.73	38.53	0.10	0.20
12:51 PM	5.74	38.50	0.10	0.20
Average	5.77	37.99	0.10	0.28

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
F-3101

Run # : 3

Date: March 28, 2025 **Location :** F-3101

Start time: 12:52 PM **Finish time :** 1:12 PM

O_2 instrument Model: AMI 70 **Serial No.:** 111117-2

NO_x instrument Model: API 200 AH **Serial No.:** 314

SO_2 instrument Model: API 100 AH **Serial No.:** 060

CO instrument Model: THERMO 48 C **Serial No.:** 388

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
12:52 PM	5.70	38.96	0.10	0.20
12:53 PM	5.71	38.30	0.10	0.20
12:54 PM	5.71	37.77	0.10	0.20
12:55 PM	5.71	37.82	0.10	0.20
12:56 PM	5.67	38.45	0.20	0.20
12:57 PM	5.67	38.71	0.20	0.20
12:58 PM	5.63	38.71	0.20	0.20
12:59 PM	5.69	38.68	0.20	0.20
1:00 PM	5.67	38.57	0.20	0.20
1:01 PM	5.68	38.01	0.10	0.20
1:02 PM	5.68	38.02	0.20	0.20
1:03 PM	5.62	38.49	0.10	0.20
1:04 PM	5.63	38.45	0.10	0.20
1:05 PM	5.60	37.78	0.10	0.20
1:06 PM	5.57	37.73	0.10	0.20
1:07 PM	5.57	37.74	0.10	0.20
1:08 PM	5.56	37.43	0.10	0.20
1:09 PM	5.53	37.42	0.20	0.20
1:10 PM	5.49	37.47	0.10	0.20
1:11 PM	5.52	37.29	0.20	0.20
1:12 PM	5.52	37.70	0.10	0.20
Average	5.63	38.07	0.14	0.20

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-3104
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
March 28, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.60	6.48	32.83	32.82	31.64
2	6.61	6.54	31.99	31.98	30.96
3	6.73	6.71	32.67	32.66	31.99
Average	**6.65**	**6.58**	**32.50**	**32.49**	**31.53**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.60	6.48	0.43	0.37	0.36
2	6.61	6.54	0.31	0.27	0.26
3	6.73	6.71	0.26	0.23	0.23
Average	**6.65**	**6.58**	**0.33**	**0.29**	**0.28**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	6.60	6.48	0.38	0.33	0.32
2	6.61	6.54	0.40	0.35	0.34
3	6.73	6.71	0.44	0.38	0.37
Average	**6.65**	**6.58**	**0.41**	**0.35**	**0.34**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: March 28, 2025 **Location :** F-3104

Start time: 1:20 PM **Finish time :** 1:40 PM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: TELEDYNE 200 EM **Serial No.:** 435

SO_2 instrument Model: TELEDYNE 100 EH **Serial No.:** 186

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
1:20 PM	6.72	33.17	0.50	0.49
1:21 PM	6.67	33.47	0.49	0.53
1:22 PM	6.72	33.53	0.49	0.45
1:23 PM	6.67	33.47	0.48	0.35
1:24 PM	6.67	33.31	0.47	0.29
1:25 PM	6.61	32.74	0.46	0.31
1:26 PM	6.63	33.05	0.45	0.33
1:27 PM	6.68	33.19	0.45	0.37
1:28 PM	6.65	32.74	0.44	0.34
1:29 PM	6.59	32.94	0.43	0.32
1:30 PM	6.53	32.89	0.42	0.41
1:31 PM	6.61	32.86	0.41	0.31
1:32 PM	6.60	32.51	0.41	0.42
1:33 PM	6.51	32.43	0.40	0.35
1:34 PM	6.57	32.93	0.40	0.27
1:35 PM	6.54	32.73	0.39	0.38
1:36 PM	6.53	32.24	0.39	0.37
1:37 PM	6.54	31.78	0.38	0.32
1:38 PM	6.53	32.33	0.38	0.43
1:39 PM	6.52	32.55	0.37	0.49
1:40 PM	6.52	32.61	0.36	0.49
Average	6.60	32.83	0.43	0.38

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: March 28, 2025 **Location :** F-3104

Start time: 1:41 PM **Finish time :** 2:01 PM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: TELEDYNE 200 EM **Serial No.:** 435

SO_2 instrument Model: TELEDYNE 100 EH **Serial No.:** 186

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
1:41 PM	6.52	32.43	0.36	0.46
1:42 PM	6.51	32.19	0.35	0.35
1:43 PM	6.48	32.66	0.35	0.44
1:44 PM	6.68	32.79	0.34	0.37
1:45 PM	6.58	32.04	0.34	0.32
1:46 PM	6.63	31.86	0.33	0.26
1:47 PM	6.55	31.84	0.32	0.30
1:48 PM	6.66	32.12	0.32	0.37
1:49 PM	6.56	32.10	0.31	0.34
1:50 PM	6.62	32.86	0.31	0.41
1:51 PM	6.56	32.68	0.31	0.42
1:52 PM	6.68	32.25	0.30	0.34
1:53 PM	6.57	31.78	0.30	0.35
1:54 PM	6.67	31.50	0.29	0.40
1:55 PM	6.60	31.63	0.29	0.51
1:56 PM	6.69	31.23	0.29	0.50
1:57 PM	6.62	30.84	0.29	0.45
1:58 PM	6.69	31.39	0.28	0.48
1:59 PM	6.60	31.95	0.28	0.44
2:00 PM	6.68	31.84	0.28	0.49
2:01 PM	6.65	31.89	0.28	0.49
Average	6.61	31.99	0.31	0.40

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: March 28, 2025 **Location :** F-3104

Start time: 2:02 PM **Finish time :** 2:22 PM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: TELEDYNE 200 EM **Serial No.:** 435

SO_2 instrument Model: TELEDYNE 100 EH **Serial No.:** 186

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
2:02 PM	6.69	32.35	0.28	0.46
2:03 PM	6.69	32.43	0.27	0.42
2:04 PM	6.70	32.23	0.27	0.39
2:05 PM	6.71	32.53	0.27	0.42
2:06 PM	6.76	32.33	0.27	0.49
2:07 PM	6.67	32.40	0.27	0.40
2:08 PM	6.75	32.63	0.27	0.47
2:09 PM	6.76	32.53	0.26	0.50
2:10 PM	6.80	33.22	0.26	0.47
2:11 PM	6.74	33.00	0.26	0.37
2:12 PM	6.75	32.66	0.26	0.34
2:13 PM	6.69	32:43	0.26	0.41
2:14 PM	6.72	32.35	0.26	0.44
2:15 PM	6.69	32.98	0.25	0.46
2:16 PM	6.74	33.06	0.25	0.45
2:17 PM	6.76	33.23	0.25	0.50
2:18 PM	6.76	32.94	0.24	0.49
2:19 PM	6.76	32.59	0.24	0.47
2:20 PM	6.77	32.84	0.24	0.52
2:21 PM	6.77	32.27	0.23	0.39
2:22 PM	6.74	33.00	0.23	0.40
Average	6.73	32.67	0.26	0.44

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-3106
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
March 28, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.59	3.55	24.01	23.95	19.19
2	3.60	3.56	24.71	24.65	19.76
3	3.59	3.55	24.85	24.79	19.86
Average	**3.59**	**3.55**	**24.53**	**24.46**	**19.60**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.59	3.55	0.29	0.20	0.16
2	3.60	3.56	0.23	0.16	0.13
3	3.59	3.55	0.25	0.19	0.15
Average	**3.59**	**3.55**	**0.25**	**0.18**	**0.15**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	3.59	3.55	0.00	0.00	0.00
2	3.60	3.56	0.07	0.07	0.06
3	3.59	3.55	0.10	0.10	0.08
Average	**3.59**	**3.55**	**0.06**	**0.06**	**0.05**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: March 28, 2025 **Location :** F-3106

Start time: 2:00 PM **Finish time :** 2:20 PM

O_2 instrument Model: AMI 70 **Serial No.:** 121121-10

NO_x instrument Model: API 200 AH **Serial No.:** 41

SO_2 instrument Model: API 100 AH **Serial No.:** 060

CO instrument Model: THERMO 48 C **Serial No.:** 365

Fuel Type : Fuel Gas **Test Operator :** Kittipong T.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
2:00 PM	3.58	23.06	0.30	0.00
2:01 PM	3.65	23.26	0.30	0.00
2:02 PM	3.63	23.40	0.30	0.00
2:03 PM	3.59	23.51	0.30	0.00
2:04 PM	3.58	23.72	0.30	0.00
2:05 PM	3.57	23.80	0.30	0.00
2:06 PM	3.59	23.96	0.30	0.00
2:07 PM	3.58	24.02	0.30	0.00
2:08 PM	3.57	24.12	0.30	0.00
2:09 PM	3.56	23.98	0.30	0.00
2:10 PM	3.55	24.04	0.30	0.00
2:11 PM	3.57	24.17	0.30	0.00
2:12 PM	3.58	24.19	0.30	0.00
2:13 PM	3.57	24.27	0.30	0.00
2:14 PM	3.56	24.35	0.30	0.00
2:15 PM	3.56	24.33	0.20	0.00
2:16 PM	3.62	24.28	0.20	0.00
2:17 PM	3.58	24.40	0.30	0.00
2:18 PM	3.61	24.38	0.30	0.00
2:19 PM	3.60	24.48	0.20	0.00
2:20 PM	3.61	24.53	0.30	0.00
Average	3.59	24.01	0.29	0.00

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: March 28, 2025 **Location :** F-3106

Start time: 2:21 PM **Finish time :** 2:41 PM

O_2 instrument Model: AMI 70 **Serial No.:** 121121-10

NO_x instrument Model: API 200 AH **Serial No.:** 41

SO_2 instrument Model: API 100 AH **Serial No.:** 060

CO instrument Model: THERMO 48 C **Serial No.:** 365

Fuel Type : Fuel Gas **Test Operator :** Kittipong T.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
2:21 PM	3.64	24.48	0.20	0.00
2:22 PM	3.65	24.50	0.30	0.08
2:23 PM	3.63	24.61	0.30	0.02
2:24 PM	3.58	24.50	0.30	0.00
2:25 PM	3.57	24.57	0.20	0.08
2:26 PM	3.66	24.76	0.20	0.07
2:27 PM	3.60	24.70	0.20	0.07
2:28 PM	3.60	24.71	0.20	0.10
2:29 PM	3.58	24.78	0.20	0.07
2:30 PM	3.59	24.81	0.30	0.05
2:31 PM	3.62	24.69	0.20	0.10
2:32 PM	3.58	24.68	0.20	0.03
2:33 PM	3.57	24.82	0.20	0.07
2:34 PM	3.61	24.87	0.20	0.10
2:35 PM	3.56	24.67	0.20	0.10
2:36 PM	3.60	24.79	0.20	0.10
2:37 PM	3.58	24.98	0.30	0.10
2:38 PM	3.58	24.92	0.20	0.10
2:39 PM	3.56	24.68	0.30	0.10
2:40 PM	3.57	24.69	0.20	0.10
2:41 PM	3.57	24.78	0.20	0.10
Average	3.60	24.71	0.23	0.07

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: March 28, 2025 **Location :** F-3106

Start time: 2:42 PM **Finish time :** 3:02 PM

O_2 instrument Model: AMI 70 **Serial No.:** 121121-10

NO_x instrument Model: API 200 AH **Serial No.:** 41

SO_2 instrument Model: API 100 AH **Serial No.:** 060

CO instrument Model: THERMO 48 C **Serial No.:** 365

Fuel Type : Fuel Gas **Test Operator :** Kittipong T.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
2:42 PM	3.57	24.89	0.20	0.10
2:43 PM	3.60	24.79	0.20	0.10
2:44 PM	3.61	24.76	0.20	0.10
2:45 PM	3.59	24.79	0.20	0.10
2:46 PM	3.63	24.85	0.20	0.10
2:47 PM	3.61	24.83	0.30	0.10
2:48 PM	3.62	24.97	0.20	0.10
2:49 PM	3.64	24.96	0.20	0.10
2:50 PM	3.61	24.97	0.30	0.10
2:51 PM	3.62	24.86	0.20	0.10
2:52 PM	3.59	24.83	0.30	0.10
2:53 PM	3.59	24.95	0.20	0.10
2:54 PM	3.60	24.84	0.30	0.10
2:55 PM	3.57	24.87	0.20	0.10
2:56 PM	3.57	24.92	0.20	0.10
2:57 PM	3.56	24.85	0.30	0.10
2:58 PM	3.56	24.76	0.30	0.10
2:59 PM	3.57	24.79	0.30	0.10
3:00 PM	3.56	24.84	0.30	0.11
3:01 PM	3.57	24.75	0.30	0.11
3:02 PM	3.54	24.78	0.30	0.11
Average	3.59	24.85	0.25	0.10

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

The Monitoring Result of Emission Concentration
F-4301
PTT Global Chemical Public Co., Ltd.
(Branch 3 : Olefins 2)
April 1, 2025

Run Number	Oxygen content (%)		Oxide of Nitrogen (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.39	4.31	10.02	9.99	8.37
2	4.65	4.57	9.67	9.63	8.20
3	4.55	4.47	9.53	9.48	8.02
Average	**4.53**	**4.45**	**9.74**	**9.70**	**8.20**

Run Number	Oxygen content (%)		Sulfur dioxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.39	4.31	0.17	0.14	0.12
2	4.65	4.57	0.13	0.10	0.09
3	4.55	4.47	0.12	0.08	0.07
Average	**4.53**	**4.45**	**0.14**	**0.11**	**0.09**

Run Number	Oxygen content (%)		Carbonmonoxide (ppm)		
	RM Stack Gas Conc	Corrected Gas Conc	RM Stack Gas Conc	Corrected Gas Conc @Actual O2	Corrected Gas Conc @7% O2
1	4.39	4.31	1.38	1.33	1.11
2	4.65	4.57	1.42	1.38	1.17
3	4.55	4.47	1.47	1.44	1.22
Average	**4.53**	**4.45**	**1.42**	**1.38**	**1.17**

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 1

Date: April 1, 2025 **Location :** F-4301

Start time: 12:40 PM **Finish time :** 1:00 PM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 182

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
12:40 PM	4.63	9.52	0.23	1.84
12:41 PM	4.54	9.91	0.13	1.68
12:42 PM	4.43	10.14	0.26	1.19
12:43 PM	4.39	10.14	0.17	1.19
12:44 PM	4.50	10.08	0.13	1.19
12:45 PM	4.55	10.11	0.14	1.36
12:46 PM	4.58	10.15	0.21	1.34
12:47 PM	4.50	10.13	0.17	1.31
12:48 PM	4.41	10.12	0.23	1.33
12:49 PM	4.32	10.10	0.18	1.33
12:50 PM	4.15	10.04	0.18	1.35
12:51 PM	4.10	10.00	0.21	1.35
12:52 PM	4.33	10.01	0.20	1.33
12:53 PM	4.44	10.03	0.18	1.37
12:54 PM	4.67	10.04	0.13	1.41
12:55 PM	4.64	10.06	0.13	1.44
12:56 PM	4.59	10.06	0.17	1.40
12:57 PM	4.35	10.00	0.13	1.41
12:58 PM	4.10	9.94	0.12	1.43
12:59 PM	3.98	9.93	0.13	1.38
1:00 PM	4.02	9.93	0.13	1.43
Average	4.39	10.02	0.17	1.38

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 2

Date: April 1, 2025 **Location :** F-4301

Start time: 1:01 PM **Finish time :** 1:21 PM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 182

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
1:01 PM	4.37	9.88	0.18	1.42
1:02 PM	4.86	9.83	0.17	1.47
1:03 PM	5.16	9.82	0.16	1.44
1:04 PM	5.03	9.73	0.15	1.43
1:05 PM	4.79	9.66	0.13	1.36
1:06 PM	4.66	9.66	0.14	1.38
1:07 PM	4.57	9.67	0.14	1.38
1:08 PM	4.48	9.68	0.11	1.38
1:09 PM	4.45	9.68	0.11	1.61
1:10 PM	4.54	9.66	0.11	1.35
1:11 PM	4.63	9.65	0.11	1.40
1:12 PM	4.74	9.63	0.11	1.40
1:13 PM	4.71	9.62	0.11	1.41
1:14 PM	4.69	9.61	0.11	1.42
1:15 PM	4.61	9.63	0.11	1.45
1:16 PM	4.55	9.65	0.11	1.46
1:17 PM	4.52	9.64	0.12	1.45
1:18 PM	4.52	9.66	0.14	1.42
1:19 PM	4.61	9.65	0.15	1.39
1:20 PM	4.55	9.60	0.17	1.40
1:21 PM	4.62	9.56	0.18	1.44
Average	4.65	9.67	0.13	1.42

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

PTT Global Chemical Public Co., Ltd. (Branch 3 : Olefins 2)
EMISSION TEST RESULT

Run # : 3

Date: April 1, 2025 **Location :** F-4301

Start time: 1:22 PM **Finish time :** 1:42 PM

O_2 instrument Model: AMI 70 **Serial No.:** 071023-47

NO_x instrument Model: Teledyne 200 EM **Serial No.:** 435

SO_2 instrument Model: Teledyne 100 EH **Serial No.:** 182

CO instrument Model: API 300 A **Serial No.:** 1070

Fuel Type : Fuel Gas **Test Operator :** Song H.

Time, min	O_2 (%)	NOx (ppm)	SO_2 (ppm)	CO (ppm)
1:22 PM	4.71	9.56	0.18	1.46
1:23 PM	4.66	9.63	0.15	1.44
1:24 PM	4.60	9.57	0.16	1.45
1:25 PM	4.53	9.56	0.16	1.46
1:26 PM	4.50	9.60	0.11	1.50
1:27 PM	4.63	9.59	0.11	1.54
1:28 PM	4.63	9.61	0.11	1.54
1:29 PM	4.57	9.58	0.11	1.59
1:30 PM	4.53	9.54	0.11	1.59
1:31 PM	4.47	9.55	0.11	1.57
1:32 PM	4.44	9.56	0.11	1.53
1:33 PM	4.47	9.53	0.11	1.51
1:34 PM	4.49	9.48	0.11	1.34
1:35 PM	4.69	9.45	0.11	1.34
1:36 PM	4.60	9.46	0.11	1.36
1:37 PM	4.62	9.46	0.11	1.41
1:38 PM	4.62	9.48	0.11	1.42
1:39 PM	4.51	9.49	0.11	1.39
1:40 PM	4.35	9.48	0.11	1.41
1:41 PM	4.38	9.46	0.11	1.48
1:42 PM	4.48	9.43	0.11	1.49
Average	4.55	9.53	0.12	1.47

Signature

Miss Katesarin Vorradetwittaya

Environmental Scientist

ภาคผนวก ง.3

ใบรับรองผลการตรวจวัดระดับเสียงทั่วไป

Noise Monitoring Result : Community Noise
MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site
Monitor Period : 27 Mar 2025-03 Apr 2025
SLM Model : Cirrus CR161B
Serial No : G303385
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 01 Oct 2025
Cal Sheet No.: CR-515-2025-084

Time	Equivalent Sound Pressure Level (dB(A))						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
11:00 - 12:00	59.9	61.8	59.4	66.0	64.8	59.9	59.7
12:00 - 13:00	59.4	59.0	57.6	58.6	59.8	57.9	58.1
13:00 - 14:00	62.6	59.2	57.5	59.5	59.9	59.8	59.5
14:00 - 15:00	62.2	62.9	68.8	59.2	64.1	66.7	59.4
15:00 - 16:00	60.5	61.2	59.5	60.1	60.7	63.0	64.7
16:00 - 17:00	60.3	61.0	59.0	60.3	65.0	60.0	62.2
17:00 - 18:00	61.2	60.5	60.3	60.0	60.2	60.5	60.1
18:00 - 19:00	60.4	60.0	59.3	59.6	59.9	60.0	63.1
19:00 - 20:00	60.2	60.2	58.8	59.6	59.4	59.4	59.4
20:00 - 21:00	59.6	59.5	58.9	59.3	59.2	58.9	58.6
21:00 - 22:00	59.4	58.8	58.0	58.9	58.4	58.4	57.3
22:00 - 23:00	58.8	59.2	57.3	58.9	58.3	57.7	57.2
23:00 - 00:00	58.3	58.5	57.2	58.8	58.0	57.4	57.2
00:00 - 01:00	58.8	58.9	57.2	58.3	57.5	57.4	57.6
01:00 - 02:00	58.9	57.9	57.4	58.2	58.0	57.0	65.7
02:00 - 03:00	58.9	57.9	57.2	58.7	58.2	57.2	57.8
03:00 - 04:00	59.1	57.6	57.4	58.1	58.5	57.0	56.4
04:00 - 05:00	59.2	57.7	57.3	58.1	59.3	57.0	56.5
05:00 - 06:00	59.2	58.1	57.4	58.9	59.3	57.8	57.0
06:00 - 07:00	60.6	60.6	58.7	60.5	60.7	58.9	58.8
07:00 - 08:00	61.0	59.6	59.8	61.3	60.5	59.4	59.5
08:00 - 09:00	61.0	60.4	58.7	61.2	60.7	61.8	59.8
09:00 - 10:00	61.5	59.6	59.9	61.3	61.6	61.5	60.9
10:00 - 11:00	60.6	62.8	60.4	67.2	60.2	62.6	62.4
Leq(24)*	60.2	60.0	60.0	60.8	60.6	60.2	60.4
Ldn	65.8	65.4	64.6	65.8	65.7	64.7	66.1
Lmax **	90.6	100.6	105.1	99.3	99.2	96.4	95.1
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 11:00-11:00
** Maximum Sound Pressure Level between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel:+66(0)2959-3600 Fax:+66(0)2959-3535

Noise Monitoring Result : Background Noise
MTR-PTTGC Branch 3 (Olefins 2)

Location : North Fence of Project Site
Monitor Period : 27 Mar 2025-03 Apr 2025
SLM Model : Cirrus CR161B
Serial No : G303385
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 01 Oct 2025
Cal Sheet No.: CR-515-2025-084

Time	L90 (dB(A))						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
11:00 - 12:00	58.2	58.0	56.7	57.2	58.7	57.2	57.2
12:00 - 13:00	57.9	57.2	55.8	56.6	58.0	56.3	56.5
13:00 - 14:00	58.4	57.4	55.9	56.9	57.9	56.9	57.4
14:00 - 15:00	58.6	58.0	56.1	57.5	58.2	59.0	56.9
15:00 - 16:00	58.5	57.6	56.3	58.2	58.0	57.9	57.1
16:00 - 17:00	58.7	57.8	56.9	58.4	58.0	58.0	57.8
17:00 - 18:00	58.8	58.1	56.9	58.1	57.8	58.0	58.1
18:00 - 19:00	58.6	58.3	57.0	57.6	57.8	58.2	58.0
19:00 - 20:00	58.3	58.3	57.2	58.1	57.7	57.6	57.6
20:00 - 21:00	58.3	57.8	57.1	57.7	57.9	57.7	57.6
21:00 - 22:00	58.1	57.9	56.8	57.8	57.3	56.6	56.1
22:00 - 23:00	57.8	57.9	56.2	57.8	57.1	56.5	56.0
23:00 - 00:00	57.6	57.6	56.3	57.8	57.2	56.4	56.1
00:00 - 01:00	57.9	57.4	56.3	57.6	56.7	56.5	56.3
01:00 - 02:00	58.3	57.3	56.4	57.6	57.3	56.1	56.5
02:00 - 03:00	58.3	57.2	56.5	58.0	57.2	56.5	56.7
03:00 - 04:00	58.5	57.0	56.7	57.6	57.2	56.3	55.7
04:00 - 05:00	58.5	57.0	56.5	57.4	57.8	56.1	55.7
05:00 - 06:00	58.4	57.1	56.4	57.8	57.9	56.3	55.9
06:00 - 07:00	58.7	57.8	57.0	58.9	58.4	56.7	56.5
07:00 - 08:00	58.9	57.6	57.1	59.0	57.8	56.8	56.6
08:00 - 09:00	59.1	57.5	56.9	58.9	58.2	57.7	57.1
09:00 - 10:00	59.1	57.5	58.1	59.5	57.5	57.5	57.0
10:00 - 11:00	58.6	57.3	58.8	58.5	57.1	57.8	56.6
L90(avg)*	58.4	57.6	56.8	58.0	57.7	57.2	56.8

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangsue, Bangkok 10800
Tel:+66(0)2959-3600 Fax:+66(0)2959-3535

Noise Monitoring Result : Community Noise
MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site
Monitor Period : 27 Mar 2025-03 Apr 2025
SLM Model : Cirrus CR161B
Serial No : G303833
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 01 Oct 2025
Cal Sheet No.: CR-515-2025-084

Time	Equivalent Sound Pressure Level (dB(A))						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
11:00 - 12:00	58.2	57.6	58.4	58.0	63.6	58.7	58.6
12:00 - 13:00	56.3	57.0	55.8	55.9	61.7	55.9	55.3
13:00 - 14:00	58.8	57.2	58.1	55.5	57.3	58.9	59.7
14:00 - 15:00	58.2	59.4	58.6	55.7	57.2	58.3	60.6
15:00 - 16:00	58.4	60.2	59.8	55.7	55.8	59.0	60.9
16:00 - 17:00	57.3	57.8	58.4	55.4	58.0	57.3	57.6
17:00 - 18:00	57.4	58.4	57.0	55.8	56.0	57.7	57.7
18:00 - 19:00	60.3	58.1	58.8	59.1	58.5	57.9	64.1
19:00 - 20:00	57.0	56.5	56.0	55.5	55.0	55.8	54.9
20:00 - 21:00	55.5	55.3	55.2	54.4	54.8	54.9	54.3
21:00 - 22:00	54.6	53.7	53.8	53.7	52.8	54.0	54.5
22:00 - 23:00	54.3	54.3	53.7	54.7	53.6	54.4	54.7
23:00 - 00:00	54.7	54.1	53.5	53.0	53.4	54.2	55.7
00:00 - 01:00	54.5	54.0	54.3	53.8	55.1	53.9	53.0
01:00 - 02:00	54.5	54.5	53.2	54.6	53.6	53.1	63.5
02:00 - 03:00	54.2	53.8	53.1	53.0	52.4	52.6	58.8
03:00 - 04:00	54.8	53.4	53.4	57.4	52.7	52.7	51.4
04:00 - 05:00	55.6	54.4	53.9	53.2	53.1	53.4	51.9
05:00 - 06:00	57.5	57.6	57.2	55.1	56.0	54.7	52.6
06:00 - 07:00	58.6	58.7	58.4	58.4	58.4	58.0	53.8
07:00 - 08:00	60.6	60.1	57.0	59.6	60.1	59.8	58.7
08:00 - 09:00	59.7	59.7	56.0	58.1	57.6	58.0	56.9
09:00 - 10:00	57.4	57.1	56.2	56.1	55.7	56.4	54.9
10:00 - 11:00	56.5	56.4	55.8	55.4	55.8	56.0	58.6
Leq(24)*	57.3	57.2	56.5	56.1	57.3	56.6	58.2
Ldn	62.5	62.3	61.8	61.9	61.8	61.4	63.8
Lmax **	91.2	81.0	85.1	79.7	81.9	86.1	97.3
Standard-24Hr	70 dB(A)						
Standard-Max	115 dB(A)						

Remark : * Average time between 11:00-11:00
** Maximum Sound Pressure Level between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangrue, Bangkok 10800
Tel:+66(0)2959-3600 Fax:+66(0)2959-3535

Noise Monitoring Result : Background Noise
MTR-PTTGC Branch 3 (Olefins 2)

Location : South Fence of Project Site
Monitor Period : 27 Mar 2025-03 Apr 2025
SLM Model : Cirrus CR161B
Serial No : G303833
Site Operator : Mr. Siwanon Kulawong

Calibrator Model : Cirrus CR:515
Serial No : 97097
Calibration Ref dB(A) : 94.0
Certified Date : 02 Oct 2024
SLM Reading / Adjust dB(A) : 93.7/0.0
Expire Date : 01 Oct 2025
Cal Sheet No.: CR-515-2025-084

Time	L90 (dB(A))						
	27-28 Mar 2025	28-29 Mar 2025	29-30 Mar 2025	30-31 Mar 2025	31-01 Apr 2025	01-02 Apr 2025	02-03 Apr 2025
11:00 - 12:00	55.6	54.9	54.8	53.0	56.3	54.5	54.1
12:00 - 13:00	53.9	54.0	53.2	52.6	54.2	53.6	52.5
13:00 - 14:00	55.3	54.5	53.9	52.4	53.7	54.7	55.4
14:00 - 15:00	55.0	54.6	54.1	53.0	53.7	54.6	55.1
15:00 - 16:00	55.0	55.7	55.2	53.0	52.7	54.8	55.7
16:00 - 17:00	54.8	54.8	53.8	53.0	53.6	54.5	54.5
17:00 - 18:00	54.9	54.8	53.6	52.8	53.0	54.8	54.6
18:00 - 19:00	54.7	54.3	53.6	53.5	53.2	54.3	54.1
19:00 - 20:00	53.7	53.1	53.4	53.2	51.8	53.3	54.4
20:00 - 21:00	53.2	52.8	52.9	52.4	51.8	52.7	49.3
21:00 - 22:00	53.0	52.5	52.8	52.1	51.6	52.4	54.0
22:00 - 23:00	53.1	53.0	52.4	52.1	52.3	52.9	52.9
23:00 - 00:00	52.9	53.1	52.4	51.8	52.6	52.9	50.0
00:00 - 01:00	53.2	53.0	52.2	52.1	52.2	52.9	50.4
01:00 - 02:00	53.5	52.9	52.2	51.9	52.1	52.2	50.4
02:00 - 03:00	53.3	52.8	52.4	52.0	51.8	51.5	51.2
03:00 - 04:00	53.5	52.6	52.6	52.0	51.9	52.1	49.4
04:00 - 05:00	54.3	52.9	52.8	52.3	52.3	52.4	49.8
05:00 - 06:00	54.2	53.3	52.9	52.2	52.7	52.2	49.8
06:00 - 07:00	55.3	54.8	53.8	53.3	53.9	53.6	51.4
07:00 - 08:00	57.7	56.8	53.9	56.4	56.1	56.2	54.2
08:00 - 09:00	54.9	55.4	53.1	54.3	54.4	54.4	52.6
09:00 - 10:00	54.4	53.8	53.2	53.4	53.3	53.4	51.2
10:00 - 11:00	53.9	53.7	53.3	52.9	53.2	53.6	51.1
L90(avg)*	54.5	54.1	53.3	53.0	53.3	53.7	52.9

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

SECOT CO.,LTD
239 Rimklongprapa Rd.
Bangrue, Bangkok 10800
Tel:+66(0)2959-3600 Fax:+66(0)2959-3535

ภาคผนวก ง.4

ใบรับรองผลการวิเคราะห์คุณภาพน้ำทิ้ง

คุณภาพน้ำทิ้งที่ออกจาก Equalization Tank (SC-11371)

บริษัท ซีคอท จำกัด
SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0034/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:27
SAMPLING DATE	: 08/01/2025	ANALYTICAL DATE	: 09-17/01/2025
RECEIVED DATE	: 09/01/2025	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 17/01/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 225009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H^+ B	< 0.10	8.20	-
Total Dissolved Solids	mg/l	2540 C	< 25	3,864	-
Total Suspended Solids	mg/l	2540 D	< 2.5	68	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	3.8	-
Phenols	mg/l	5530 B,D	< 0.10	ND	-
BOD_5	mg/l	5210 B	< 1.0	272	-
COD	mg/l	5220 C	< 15.00	454	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0178/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:08
SAMPLING DATE	: 05/02/2025	ANALYTICAL DATE	: 06-18/02/2025
RECEIVED DATE	: 06/02/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 19/02/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 225009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H^+ B	< 0.10	8.89	-
Total Dissolved Solids	mg/l	2540 C	< 50	4,712	-
Total Suspended Solids	mg/l	2540 D	< 5	23	-
Fat Oil & Grease	mg/l	5520 B	< 0.50	ND	-
Phenols	mg/l	5530 B,D	< 0.10	1.2	-
BOD_5	mg/l	5210 B	< 1.0	301	-
COD	mg/l	5220 C	< 15.00	413	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0393/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:48
SAMPLING DATE	: 05/03/2025	ANALYTICAL DATE	: 06-14/03/2025
RECEIVED DATE	: 06/03/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 15/03/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 225009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H^+ B	< 0.10	8.91	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,780	-
Total Suspended Solids	mg/l	2540 D	< 2.5	31	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	2.0	-
Phenols	mg/l	5530 B,D	< 0.10	1.8	-
BOD_5	mg/l	5210 B	< 1.0	296	-
COD	mg/l	5220 C	< 15.00	542	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0010	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0030	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0652/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:51
SAMPLING DATE	: 09/04/2025	ANALYTICAL DATE	: 10-22/04/2025
RECEIVED DATE	: 10/04/2025	SITE OPERATOR	: Mr.Tanachot Changlor
REPORT DATE	: 22/04/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 225009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H^+ B	< 0.10	7.46	-
Total Dissolved Solids	mg/l	2540 C	< 25	8,130	-
Total Suspended Solids	mg/l	2540 D	< 2.5	176	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	6.6	-
Phenols	mg/l	5530 B,D	< 0.10	0.48	-
BOD_5	mg/l	5210 B	< 1.0	125	-
COD	mg/l	5220 C	< 15.00	619	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0029	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0298	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0924/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 16:57
SAMPLING DATE	: 21/05/2025	ANALYTICAL DATE	: 22-28/05/2025
RECEIVED DATE	: 22/05/2025	SITE OPERATOR	: Mr. Baworn Deechaiya
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 225009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H^+ B	< 0.10	7.31	-
Total Dissolved Solids	mg/l	2540 C	< 25	648	-
Total Suspended Solids	mg/l	2540 D	< 2.5	108	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	9.4	-
Phenols	mg/l	5530 B,D	< 0.10	0.19	-
BOD_5	mg/l	5210 B	< 1.0	151	-
COD	mg/l	5220 C	< 15.00	502	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0033	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0043	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 1104/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:50
SAMPLING DATE	: 13/06/2025	ANALYTICAL DATE	: 14-23/06/2025
RECEIVED DATE	: 14/06/2025	SITE OPERATOR	: Mr.Thanawut Duansaeng
REPORT DATE	: 23/06/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 1 = น้ำเสียที่ออกจาก Equalization Tank (SC-11371)	FILE CODE	: 225009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 1	STANDARD
pH	-	4500-H^+ B	< 0.10	7.30	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,416	-
Total Suspended Solids	mg/l	2540 D	< 2.5	194	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	2.1	-
Phenols	mg/l	5530 B,D	< 0.10	ND	-
BOD_5	mg/l	5210 B	< 1.0	132	-
COD	mg/l	5220 C	< 15.00	428	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0024	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0087	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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คุณภาพน้ำทิ้งที่ออกจาก Final Clarifier #1 (SC-11441)

บริษัท ซีคอท จำกัด
SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0034/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:34
SAMPLING DATE	: 08/01/2025	ANALYTICAL DATE	: 09-17/01/2025
RECEIVED DATE	: 09/01/2025	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 17/01/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 225009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H^+ B	< 0.10	7.47	-
Total Dissolved Solids	mg/l	2540 C	< 25	5,344	-
Total Suspended Solids	mg/l	2540 D	< 2.5	73	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	5.6	-
COD	mg/l	5220 C	< 15.00	150	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0178/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:02
SAMPLING DATE	: 05/02/2025	ANALYTICAL DATE	: 06-18/02/2025
RECEIVED DATE	: 06/02/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 19/02/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 225009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H^+ B	< 0.10	7.29	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,144	-
Total Suspended Solids	mg/l	2540 D	< 2.5	27	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	6.1	-
COD	mg/l	5220 C	< 15.00	130	-
Arsenic (As)	mg/l	3114 C	< 0.0001	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0393/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:52
SAMPLING DATE	: 05/03/2025	ANALYTICAL DATE	: 06-14/03/2025
RECEIVED DATE	: 06/03/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 15/03/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 225009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H^+ B	< 0.10	7.31	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,720	-
Total Suspended Solids	mg/l	2540 D	< 2.5	26	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	12.2	-
COD	mg/l	5220 C	< 15.00	131	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0652/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:59
SAMPLING DATE	: 09/04/2025	ANALYTICAL DATE	: 10-22/04/2025
RECEIVED DATE	: 10/04/2025	SITE OPERATOR	: Mr.Tanachot Changlor
REPORT DATE	: 22/04/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 225009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H^+ B	< 0.10	7.43	-
Total Dissolved Solids	mg/l	2540 C	< 25	5,940	-
Total Suspended Solids	mg/l	2540 D	< 2.5	34	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	35.0	-
COD	mg/l	5220 C	< 15.00	202	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0016	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0018	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0924/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 17:04
SAMPLING DATE	: 21/05/2025	ANALYTICAL DATE	: 22-28/05/2025
RECEIVED DATE	: 22/05/2025	SITE OPERATOR	: Mr. Bawom Deechaiya
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 225009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H^+ B	< 0.10	7.71	-
Total Dissolved Solids	mg/l	2540 C	< 25	856	-
Total Suspended Solids	mg/l	2540 D	< 2.5	19	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	4.1	-
COD	mg/l	5220 C	< 15.00	132	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0017	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0008	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 1104/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:47
SAMPLING DATE	: 13/06/2025	ANALYTICAL DATE	: 14-23/06/2025
RECEIVED DATE	: 14/06/2025	SITE OPERATOR	: Mr.Thanawut Duansaeng
REPORT DATE	: 23/06/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 3 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11441)	FILE CODE	: 225009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 3	STANDARD
pH	-	4500-H^+ B	< 0.10	7.76	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,724	-
Total Suspended Solids	mg/l	2540 D	< 2.5	18	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	11.8	-
COD	mg/l	5220 C	< 15.00	97.81	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0020	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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คุณภาพน้ำทิ้งที่ออกจาก Final Clarifier #2 (SC-11442)

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0034/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:40
SAMPLING DATE	: 08/01/2025	ANALYTICAL DATE	: 09-17/01/2025
RECEIVED DATE	: 09/01/2025	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 17/01/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	FILE CODE	: 225009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H^+ B	< 0.10	7.56	-
Total Dissolved Solids	mg/l	2540 C	< 25	5,364	-
Total Suspended Solids	mg/l	2540 D	< 2.5	67	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	5.8	-
COD	mg/l	5220 C	< 15.00	158	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0029	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0178/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:29
SAMPLING DATE	: 05/02/2025	ANALYTICAL DATE	: 06-18/02/2025
RECEIVED DATE	: 06/02/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 19/02/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	FILE CODE	: 225009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H^+ B	< 0.10	7.49	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,164	-
Total Suspended Solids	mg/l	2540 D	< 2.5	27	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	6.4	-
COD	mg/l	5220 C	< 15.00	120	-
Arsenic (As)	mg/l	3114 C	< 0.0001	ND	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0009	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	**REQUEST SERVICE No.**	: 0393/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 15:08
SAMPLING DATE	: 05/03/2025	**ANALYTICAL DATE**	: 06-14/03/2025
RECEIVED DATE	: 06/03/2025	**SITE OPERATOR**	: Miss Wiraya Patchimboon
REPORT DATE	: 15/03/2025	**SAMPLE CONDITION**	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	**FILE CODE**	: 225009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H^+ B	< 0.10	7.45	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,760	-
Total Suspended Solids	mg/l	2540 D	< 2.5	23	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	12.9	-
COD	mg/l	5220 C	< 15.00	146	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	**REQUEST SERVICE No.**	: 0652/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 10:07
SAMPLING DATE	: 09/04/2025	**ANALYTICAL DATE**	: 10-22/04/2025
RECEIVED DATE	: 10/04/2025	**SITE OPERATOR**	: Mr.Tanachot Changlor
REPORT DATE	: 22/04/2025	**SAMPLE CONDITION**	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	**FILE CODE**	: 225009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H^+ B	< 0.10	7.44	-
Total Dissolved Solids	mg/l	2540 C	< 25	5,808	-
Total Suspended Solids	mg/l	2540 D	< 2.5	21	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	34.3	-
COD	mg/l	5220 C	< 15.00	206	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0017	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0019	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Khemchuda Insorn)
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(Mrs. Araya Tipparuk)
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0924/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 17:09
SAMPLING DATE	: 21/05/2025	ANALYTICAL DATE	: 22-28/05/2025
RECEIVED DATE	: 22/05/2025	SITE OPERATOR	: Mr. Baworn Deechaiya
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	FILE CODE	: 225009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H^+ B	< 0.10	7.78	-
Total Dissolved Solids	mg/l	2540 C	< 25	804	-
Total Suspended Solids	mg/l	2540 D	< 2.5	18	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	4.6	-
COD	mg/l	5220 C	< 15.00	108	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0018	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0008	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.,2017 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 1104/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co.,.Ltd.	SAMPLING TIME	: 15:11
SAMPLING DATE	: 13/06/2025	ANALYTICAL DATE	: 14-23/06/2025
RECEIVED DATE	: 14/06/2025	SITE OPERATOR	: Mr.Thanawut Duansaeng
REPORT DATE	: 23/06/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 6 = น้ำทิ้งที่ออกจาก Final Clarifier (SC-11442)	FILE CODE	: 225009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 6	STANDARD
pH	-	4500-H^+ B	< 0.10	7.73	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,592	-
Total Suspended Solids	mg/l	2540 D	< 2.5	17	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	7.2	-
COD	mg/l	5220 C	< 15.00	136	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0019	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.,2017 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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คุณภาพน้ำทิ้งใน Final Check Basin ก่อนระบายออกนอกโรงงาน

(SC-11390)

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited . Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0034/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:43
SAMPLING DATE	: 08/01/2025	ANALYTICAL DATE	: 09-17/01/2025
RECEIVED DATE	: 09/01/2025	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 17/01/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 225009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H^+ B	< 0.10	7.49	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,160	-
Total Suspended Solids	mg/l	2540 D	< 2.5	36	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B.C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	6.1	-
COD	mg/l	5220 C	< 15.00	98.55	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0009	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited . Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0178/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:12
SAMPLING DATE	: 05/02/2025	ANALYTICAL DATE	: 06-18/02/2025
RECEIVED DATE	: 06/02/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 19/02/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 225009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H^+ B	< 0.10	7.47	-
Total Dissolved Solids	mg/l	2540 C	< 25	2,766	-
Total Suspended Solids	mg/l	2540 D	< 2.5	17	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B.C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	7.0	-
COD	mg/l	5220 C	< 15.00	73.60	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0008	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA, APHA, WEF)

(Miss Khemchuda Insorn)
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REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited . Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0393/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:18
SAMPLING DATE	: 05/03/2025	ANALYTICAL DATE	: 06-14/03/2025
RECEIVED DATE	: 06/03/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 15/03/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 225009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H^+ B	< 0.10	7.32	-
Total Dissolved Solids	mg/l	2540 C	< 25	4,276	-
Total Suspended Solids	mg/l	2540 D	< 2.5	19	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	10.3	-
COD	mg/l	5220 C	< 15.00	116	-
Arsenic (As)	mg/l	3114 C	< 0.0001	< 0.0005	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited . Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0759/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:26
SAMPLING DATE	: 30/04/2025	ANALYTICAL DATE	: 01-08/05/2025
RECEIVED DATE	: 01/05/2025	SITE OPERATOR	: Mr. Aniwat Pimwanna
REPORT DATE	: 08/05/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 225009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H^+ B	< 0.10	7.13	-
Total Dissolved Solids	mg/l	2540 C	< 25	2,484	-
Total Suspended Solids	mg/l	2540 D	< 2.5	10	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B,C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	10.8	-
COD	mg/l	5220 C	< 15.00	80.87	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0013	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited . Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0993/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:30
SAMPLING DATE	: 30/05/2025	ANALYTICAL DATE	: 30/05/2025-06/06/2025
RECEIVED DATE	: 30/05/2025	SITE OPERATOR	: Mr. Jeerawat Khothamhan
REPORT DATE	: 07/06/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 225009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H^+ B	< 0.10	7.56	-
Total Dissolved Solids	mg/l	2540 C	< 25	2,448	-
Total Suspended Solids	mg/l	2540 D	< 2.5	15	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B.C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	3.6	-
COD	mg/l	5220 C	< 15.00	88.61	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0006	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0008	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ก-0004

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited . Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 1104/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:05
SAMPLING DATE	: 13/06/2025	ANALYTICAL DATE	: 14-23/06/2025
RECEIVED DATE	: 14/06/2025	SITE OPERATOR	: Mr.Thanawut Duansaeng
REPORT DATE	: 23/06/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 2 = น้ำทิ้งใน Final Check Basinก่อนระบายออก (SC-11390)	FILE CODE	: 225009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 2	STANDARD
pH	-	4500-H^+ B	< 0.10	7.70	-
Total Dissolved Solids	mg/l	2540 C	< 25	3,684	-
Total Suspended Solids	mg/l	2540 D	< 2.5	12	-
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	-
Phenols	mg/l	5530 B.C	< 0.001	ND	-
BOD_5	mg/l	5210 B	< 1.0	2.5	-
COD	mg/l	5220 C	< 15.00	70.45	-
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0015	-
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ก-0004

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คุณภาพน้ำทิ้งที่จุดปล่อยออกนอกโรงงาน (SC-11411)

บริษัท ซีคอท จำกัด
SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0034/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:56
SAMPLING DATE	: 08/01/2025	ANALYTICAL DATE	: 09-17/01/2025
RECEIVED DATE	: 09/01/2025	SITE OPERATOR	: Miss Thipsuda Wannakran
REPORT DATE	: 19/12/2024	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 225009_WW_January

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	37.0	≤ 40
pH	-	4500-H^+ B	< 0.10	7.50	5.5-9.0
Color	ADMI	2120 F	< 6.0	32.0	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	1,820	36,940[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	12	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	5.1	≤ 20
COD	mg/l	5220 C	< 15.00	50.44	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0025	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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3. [1/] Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
4. [2/] In case of discharing effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on Januaryr 09, 2025 found to be 31,940 mg/l therefore the Standard of TDS found to be 36,940 mg/l).
5. - Not available.

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0178/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:38
SAMPLING DATE	: 05/02/2025	ANALYTICAL DATE	: 06-18/02/2025
RECEIVED DATE	: 06/02/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 19/02/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 225009_WW_February

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	37.0	≤ 40
pH	-	4500-H^+ B	< 0.10	7.14	5.5-9.0
Color	ADMI	2120 F	< 6.0	27.7	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	1,375	36,580[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	9	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	4.5	≤ 20
COD	mg/l	5220 C	< 15.00	43.90	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0026	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA.APHA. WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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3. [1/] Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
4. [2/] In case of discharing effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on February 13, 2025 found to be 31,580 mg/l therefore the Standard of TDS found to be 36,580 mg/l).
5. - Not available.

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0393/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:22
SAMPLING DATE	: 05/03/2025	ANALYTICAL DATE	: 06-14/03/2025
RECEIVED DATE	: 06/03/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 21/03/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 225009_WW_March

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	36.1	≤ 40
pH	-	4500-H^+ B	< 0.10	7.55	5.5-9.0
Color	ADMI	2120 F	< 6.0	39.0	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	2,088	33,120[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	4.0	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	3.3	≤ 20
COD	mg/l	5220 C	< 15.00	63.51	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0020	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.,2017 (AWWA,APHA, WEF)

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Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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3. [1/] Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
4. [2/] In case of discharing effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on March 13, 2025 found to be 28,120 mg/l therefore the Standard of TDS found to be 33,120 mg/l).
5. - Not available.

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0652/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 0.43
SAMPLING DATE	: 09/04/2025	ANALYTICAL DATE	: 10-22/04/2025
RECEIVED DATE	: 10/04/2025	SITE OPERATOR	: Mr.Tanachot Changlor
REPORT DATE	: 21/03/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 225009_WW_April

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	35.6	≤ 40
pH	-	4500-H^+ B	< 0.10	7.33	5.5-9.0
Color	ADMI	2120 F	< 6.0	32.5	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	2,120	15,440[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	14	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	4.2	≤ 20
COD	mg/l	5220 C	< 15.00	72.84	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0033	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	0.0008	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.,2017 (AWWA,APHA, WEF)

(Miss Khemchuda Insorn)
Analyst
REG. NO. ว-239-ค-0005

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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3. [1/] Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
4. [2/] In case of discharing effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on April 10, 2025 found to be 10,440 mg/l therefore the Standard of TDS found to be 15,440 mg/l).
5. - Not available.

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 0924/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 17:29
SAMPLING DATE	: 21/05/2025	ANALYTICAL DATE	: 22-28/05/2025
RECEIVED DATE	: 22/05/2025	SITE OPERATOR	: Mr. Bawom Deechaiya
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 225009_WW_May

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	32.9	≤ 40
pH	-	4500-H^+ B	< 0.10	7.53	5.5-9.0
Color	ADMI	2120 F	< 6.0	34.6	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	328	31,860[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	6.8	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	2.4	≤ 20
COD	mg/l	5220 C	< 15.00	24.34	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0022	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.,2017 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

Remark : 1. Reported analysis refers to submitted sample only.
2. This report shall not be reproduced, except in full, without official approval.
3. [1/] Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
4. [2/] In case of discharing effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on May 08, 2025 found to be 26,860 mg/l therefore the Standard of TDS found to be 31,860 mg/l).
5. - Not available.

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , Branch 3 (Olefins 2)	REQUEST SERVICE No.	: 1104/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:21
SAMPLING DATE	: 13/06/2025	ANALYTICAL DATE	: 14-23/06/2025
RECEIVED DATE	: 14/06/2025	SITE OPERATOR	: Mr.Thanawut Duansaeng
REPORT DATE	: 29/05/2025	SAMPLE CONDITION	: Normal
LOCATION DESCRIPTION	: 4 = น้ำทิ้งในจุดที่ปล่อยออกนอกโรงงาน (SC-11411)	FILE CODE	: 225009_WW_June

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION 4	STANDARD[1/]
Temperature	°C	2550 B	< 0.5	34.4	≤ 40
pH	-	4500-H^+ B	< 0.10	7.54	5.5-9.0
Color	ADMI	2120 F	< 6.0	38.8	≤ 300
Total Dissolved Solids	mg/l	2540 C	< 25	1,052	33,860[2/]
Total Suspended Solids	mg/l	2540 D	< 2.5	8.0	≤ 50
Fat Oil & Grease	mg/l	5520 B	< 2.0	ND	≤ 5
Phenols	mg/l	5530 B,C	< 0.001	ND	≤ 1
BOD_5	mg/l	5210 B	< 1.0	12.3	≤ 20
COD	mg/l	5220 C	< 15.00	59.51	≤ 120
Arsenic (As)	mg/l	3114 C	< 0.0001	0.0022	≤ 0.25
Mercury (Hg)	mg/l	3112 B	< 0.0005	ND	≤ 0.005

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED.,2017 (AWWA,APHA, WEF)

(Miss Pornnapa Budthum)
Analyst
REG. NO. ว-239-จ-0018

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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3. [1/] Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
4. [2/] In case of discharing effluent into water resources containing TDS of more than 3,000 mg/l, TDS in the effluent to be discharged must exceed TDS in the water resources by not more than 5,000 mg/l (Measurement Results of Coastal Water on June 12, 2025 found to be 28,860 mg/l therefore the Standard of TDS found to be 33,860 mg/l).
5. - Not available.

คุณภาพน้ำจาก Wastewater Stripper
ของหน่วยผลิต Butadiene และ Butene-1

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	**REQUEST SERVICE No.**	: 0013/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 15:12
SAMPLING DATE	: 06/01/2025	**ANALYTICAL DATE**	: 07/01/2025
RECEIVED DATE	: 07/01/2025	**SITE OPERATOR**	: Mr.Tanachot Changlor
REPORT DATE	: 08/01/2025	**FILE CODE**	: 225009_WW_January
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	0.0536	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 ,3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	**REQUEST SERVICE No.**	: 0104/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 14:33
SAMPLING DATE	: 17/01/2025	**ANALYTICAL DATE**	: 21/01/2025
RECEIVED DATE	: 18/01/2025	**SITE OPERATOR**	: Mr. Jeerawat Khothumhan
REPORT DATE	: 22/01/2025	**FILE CODE**	: 225009_WW_January
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	7.95	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 ,3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	**REQUEST SERVICE No.**	: 0111/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 10:20
SAMPLING DATE	: 20/01/2025	**ANALYTICAL DATE**	: 21/01/2025
RECEIVED DATE	: 21/01/2025	**SITE OPERATOR**	: Mr. Jeerawat Khothamhan
REPORT DATE	: 22/01/2025	**FILE CODE**	: 225009_WW_January
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	17.49	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	**REQUEST SERVICE No.**	: 0132/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 09:40
SAMPLING DATE	: 27/01/2025	**ANALYTICAL DATE**	: 28/01/2025
RECEIVED DATE	: 28/01/2025	**SITE OPERATOR**	: Mr.Rommadon Lemmad
REPORT DATE	: 30/01/2025	**FILE CODE**	: 225009_WW_January
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	11.05	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	REQUEST SERVICE No.	: 0249/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 09:20
SAMPLING DATE	: 10/02/2025	ANALYTICAL DATE	: 11/02/2025
RECEIVED DATE	: 11/02/2025	SITE OPERATOR	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 13/02/2025	FILE CODE	: 225009_WW_February
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	ND	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	12.28	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	REQUEST SERVICE No.	: 0338/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:12
SAMPLING DATE	: 21/02/2025	ANALYTICAL DATE	: 25/02/2025
RECEIVED DATE	: 22/02/2025	SITE OPERATOR	: Mr.Rommadon Lemmad
REPORT DATE	: 27/02/2025	FILE CODE	: 225009_WW_February
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	10.90	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	146	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	REQUEST SERVICE No.	: 0345/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 10:26
SAMPLING DATE	: 24/02/2025	ANALYTICAL DATE	: 25/02/2025
RECEIVED DATE	: 25/02/2025	SITE OPERATOR	: Mr. Siwanon Kulwong
REPORT DATE	: 27/02/2025	FILE CODE	: 225009_WW_February
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	1.29	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	30.35	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	REQUEST SERVICE No.	: 0377/68
		SAMPLING METHOD	: Grab
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:30
SAMPLING DATE	: 03/02/2025	ANALYTICAL DATE	: 04/03/2025
RECEIVED DATE	: 04/03/2025	SITE OPERATOR	: Miss Wiraya Patchimboon
REPORT DATE	: 06/03/2025	FILE CODE	: 225009_WW_March
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	2.08	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	18.38	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846, 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	**REQUEST SERVICE No.**	: 0441/68
	(Branch 3) Olefins 2	**SAMPLING METHOD**	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 10:22
SAMPLING DATE	: 10/03/2025	**ANALYTICAL DATE**	: 11/03/2025
RECEIVED DATE	: 11/03/2025	**SITE OPERATOR**	: Mr.Chanapon Oakkharaplon
REPORT DATE	: 13/03/2025	**FILE CODE**	: 225009_WW_March
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	25.08	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	972	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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WATER AND WASTEWATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited ,	**REQUEST SERVICE No.**	: 0500/68
	(Branch 3) Olefins 2	**SAMPLING METHOD**	: Grab
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 10:30
SAMPLING DATE	: 17/03/2025	**ANALYTICAL DATE**	: 18/03/2025
RECEIVED DATE	: 18/03/2025	**SITE OPERATOR**	: Miss Thipsuda Wannakran
REPORT DATE	: 19/03/2025	**FILE CODE**	: 225009_WW_March
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บริเวณจุดเก็บตัวอย่างของ Wastewater Stripper	STANDARD
1,3-Butadiene	mg/l	Purge and Trap/ GC-MS	< 0.0005	38.55	-
Vinyl acetylene	mg/l	Purge and Trap/ GC-MS	< 0.0005	433	-

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst

(Mrs. Araya Tipparuk)
Technical Management Team

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ภาคผนวก ง.5

ใบรับรองผลการวิเคราะห์คุณภาพน้ำใต้ดินและดิน

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SECOT CO., LTD.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	**REQUEST SERVICE No.**	: 0701/68
		SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 15:20-15:34
SAMPLING DATE	: 21/04/2025	**ANALYTICAL DATE**	: 21,23-26/04/2025
RECEIVED DATE	: 23/04/2025	**SITE OPERATOR**	: Mr.Natthachai Chaiyakhot
REPORT DATE	: 02/05/2025	**FILE CODE**	: 225009_GW_April
SAMPLE CONDITION	: Normal		
LOCATION DESCRIPTION	: MW-04 = บ่อสังเกตการณ์น้ำใต้ดินต้นน้ำบริเวณทิศเหนือของโรงงาน		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-04	STANDARD[1/]
pH	-	4500-H^+B	< 0.10	7.25	6.5 -9.2
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
1,3-Butadiene*	mg/l	5030 C / 8260 D	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

REFERENCE : UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SW-846 ,3rd EDITION, 2020.

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst
REG. NO. ว-239-จ-0022

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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3. [1/] Notification of the Ministry of Industry, B.E.2559 (2016).
4. * Not registered with the Department of Industrial Works.
5. - Not available.

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SECOT CO., LTD.
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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	**REQUEST SERVICE No.**	: 0701/68
		SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 09:59-10:10
SAMPLING DATE	: 22/04/2025	**ANALYTICAL DATE**	: 22,23-26/04/2025
RECEIVED DATE	: 23/04/2025	**SITE OPERATOR**	: Mr.Natthachai Chaiyakhot
REPORT DATE	: 02/05/2025	**FILE CODE**	: 225009_GW_April
SAMPLE CONDITION	: Normal		
LOCATION DESCRIPTION	: MW-06 = บ่อสังเกตการณ์น้ำใต้ดินต้นน้ำบริเวณทิศตะวันออกของโรงงาน		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-06	STANDARD[1/]
pH	-	4500-H^+B	< 0.10	6.64	6.5 -9.2
Benzene	mg/l	6200 B	< 0.0002	0.0002	≤ 0.2
1,3-Butadiene*	mg/l	5030 C / 8260 D	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA,APHA, WEF)

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Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst
REG. NO. ว-239-จ-0022

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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GROUND WATER ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited , (Branch 3) Olefins 2	**REQUEST SERVICE No.**	: 0701/68
		SAMPLING METHOD	: Pneumatic Bladder Pump
SAMPLING BY	: SECOT Co., Ltd.	**SAMPLING TIME**	: 10:41-10:51
SAMPLING DATE	: 22/04/2025	**ANALYTICAL DATE**	: 22,23-26/04/2025
RECEIVED DATE	: 23/04/2025	**SITE OPERATOR**	: Mr.Natthachai Chaiyakhot
REPORT DATE	: 02/05/2025	**FILE CODE**	: 225009_GW_April
SAMPLE CONDITION	: Normal		
LOCATION DESCRIPTION	: MW-01 = บ่อสังเกตการณ์น้ำใต้ดินท้ายน้ำบริเวณทิศใต้ของโรงงาน (MW-01)		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION MW-01	STANDARD[1/]
pH	-	4500-H^+ B	< 0.10	6.22	6.5 -9.2
Benzene	mg/l	6200 B	< 0.0002	ND	≤ 0.2
1,3-Butadiene*	mg/l	5030 C / 8260 D	< 0.0005	ND	-

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA, WEF)

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Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst
REG. NO. ว-239-จ-0022

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ค-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited, (Branch 3) Olefins 2	REQUEST SERVICE No.	: 1332/67
		SAMPLING METHOD	: Hand Auger
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 14:15-14:40
SAMPLING DATE	: 27/06/2024	ANALYTICAL DATE	: 01-05/07/2024
RECEIVED DATE	: 01/07/2024	SITE OPERATOR	: Mr. Jeerawat Khothamhan
REPORT DATE	: 11/07/2024	FILE CODE	: 224009_Soil_June
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อสังเกตการณ์น้ำใต้ดิน ต้นน้ำบริเวณกิตเนนือของโรงงาน (MW-04)	STANDARD[1]
pH	-	9045 D	<0.10	7.76	-
Benzene	mg/kg	5035A /8260D	<0.00025	ND	≤ 15
1,3-Butadiene	mg/kg	5035A /8260D	<0.001	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst
REG. NO. ว-239-ข-0022

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ท-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited, (Branch 3) Olefins 2	REQUEST SERVICE No.	: 1332/67
		SAMPLING METHOD	: Hand Auger
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 13:30-14:00
SAMPLING DATE	: 27/06/2024	ANALYTICAL DATE	: 01-05/07/2024
RECEIVED DATE	: 01/07/2024	SITE OPERATOR	: Mr. Jeerawat Khothamhan
REPORT DATE	: 11/07/2024	FILE CODE	: 224009_Soil_June
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อสังเกตการณ์น้ำใต้ดิน ต้นน้ำบริเวณกิตเนนือของโรงงาน (MW-06)	STANDARD[1]
pH	-	9045 D	<0.10	8.07	-
Benzene	mg/kg	5035A /8260D	<0.00025	ND	≤ 15
1,3-Butadiene	mg/kg	5035A /8260D	<0.001	ND	-

REFERENCE : US EPA SW 846 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE, 3rd ED., 2020

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst
REG. NO. ว-239-ข-0022

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. ว-239-ท-0004

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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SOIL SAMPLES ANALYSIS REPORT

CLIENT NAME	: PTT Global Chemical Public Company Limited, (Branch 3) Olefins 2	REQUEST SERVICE No.	: 1332/67
		SAMPLING METHOD	: Hand Auger
SAMPLING BY	: SECOT Co., Ltd.	SAMPLING TIME	: 15:00-15:35
SAMPLING DATE	: 27/06/2024	ANALYTICAL DATE	: 01-05/07/2024
RECEIVED DATE	: 01/07/2024	SITE OPERATOR	: Mr. Jeerawat Khuthamban
REPORT DATE	: 11/07/2024	FILE CODE	: 224009_Soil_June
SAMPLE CONDITION	: Normal		

PARAMETER	UNIT	ANALYSIS METHODS	ND (non-detectable)	STATION บ่อสังเกตการณ์น้ำใต้ดิน ท้ายน้ำบริเวณเทิศใต้ ของโรงงาน (MW-01)	STANDARD[1]
pH	-	9045 D	< 0.10	8.15	-
Benzene	mg/kg	5035A /8260D	< 0.00025	ND	≤ 15
1,3-Butadiene	mg/kg	5035A /8260D	< 0.001	ND	-

REFERENCE: US EPA SW 146 TEST METHODS FOR EVALUATING WATER AND SOLID WASTE 1st ED. 2020

Jutarat Jaemruen
(Miss Jutarat Jaemruen)
Analyst
REG. NO. 3-239-8-0022

(Mrs. Araya Tipparuk)
Technical Management Team
REG. NO. 3-239-8-0004

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ภาคผนวก ง.6

ใบรับรองผลการตรวจวัดระดับเสียงในสถานประกอบการ

บริษัท ซีคอท จำกัด
SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 12/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008040	Field Operator (I-4/1)	07.19-19.00	5.6	70.8	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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4. TWA means Time Weighted Average.

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SECOT CO., LTD.
239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 12/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008560	Field Operator (I-4/1)	07.20-19.00	11.9	74.0	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 12/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wirunya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006882	Field Operator (I-4/1)	07.21-19.00	13.4	74.5	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 18/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Salisa Ainree		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26010058	Field Operator (I-4/1)	07.18-19.00	37.4	79.0	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 18/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Salisa Ainree		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26002235	Field Operator (I-4/1)	07.17-19.00	24.5	77.2	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 18/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Salisa Ainree		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26009800	Field Operator (I-4/1)	07.16-19.00	53.8	80.6	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
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CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 12/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26004920	Field Operator (I-4/2)	07.12-19.00	13.2	74.5	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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4. TWA means Time Weighted Average.

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 18/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Salisa Ainree		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26006884	Field Operator (I-4/2)	07.18-19.00	84.0	82.5	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 18/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Salisa Ainree		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008247	Field Operator (I-4/2)	07.18-19.00	29.6	78.0	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

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NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 12/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26008119	Field Operator (I-4/3)	07.14-19.00	59.9	81.0	83.0

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

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009_Cert-Noise Dose/Mar25
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 18/03/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Salisa Ainree		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26009848	Field Operator (I-4/3)	07.13-19.00	14.5	74.9	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

NOISE MEASUREMENT REPORT : NOISE DOSE

CLIENT NAME	: PTT Global Chemical Public Company Limited, Branch 3	**REFERENCE NO.**	: 225009-Noise Dose-2504-0326
		INSTRUMENT	: Noise Dosimeter
MEASUREMENT BY	: SECOT Co., Ltd.	**CALIBRATOR MODEL**	: RC 110A
MEASUREMENT DATE	: 29/04/2025	**SERIAL NO.**	: 95167
MEASUREMENT LOCATION	: Olefins 2	**CALIBRATOR REF.**	: 114 dB @1,000 Hz
SITE OPERATOR	: Miss Wiraya Patchimboon		

USER ID	RESPONSIBILITY/AREA	TIME	% DOSE	SOUND PRESSURE LEVEL (dBA)	
				TWA (12 hr)	STANDARD*
26009727	Field Operator (I-4/2)	07.10-19.00	26.6	77.5	83.0

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

LOCATION : Cracked Gas Compressor (R-300)
MEASUREMENT DATE : Mar 18, 2025
SLM MODEL : SCARLET ST-21D
SERIAL No. : 820725
SITE OPERATOR : Miss Salisa Ainree

CALIBRATOR MODEL : Cirrus CR:515
SERIAL No. : 97097
CALIBRATION REF dBA : 94.0
CERTIFIED DATE : Oct 02, 2024
SLM READING/SLM ADJUST dBA : 93.8/0.0
Expire DATE : Oct 01, 2025
CAL SHEET No. : CR-515-2025-068

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 18, 2025
00:00-01:00	
01.00-02.00	
02.00-03.00	
03.00-04.00	
04.00-05.00	
05.00-06.00	
06.00-07.00	
07.00-08.00	90.3
08.00-09.00	90.1
09.00-10.00	90.2
10.00-11.00	90.3
11.00-12.00	90.3
12.00-13.00	90.3
13.00-14.00	90.3
14.00-15.00	90.3
15.00-16.00	90.6
16.00-17.00	90.5
17.00-18.00	89.8
18.00-19.00	90.3
19.00-20.00	
20.00-21.00	
21.00-22.00	
22.00-23.00	
23.00-24.00	
Leq*	90.3
Lmax**	93.2

Remark : * Average time between 07:00-19:00
** Maximum Sound Pressure Level between 07:00-19:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

LOCATION : Cracked Gas Compressor (R-3301)
MEASUREMENT DATE : Mar 18, 2025
SLM MODEL : Cirrus CR162B
SERIAL No. : G302237
SITE OPERATOR : Miss Salisa Ainree

CALIBRATOR MODEL : Cirrus CR:515
SERIAL No. : 97097
CALIBRATION REF dBA : 94.0
CERTIFIED DATE : Oct 02, 2024
SLM READING/SLM ADJUST dBA : 93.7/0.0
Expire DATE : Oct 01, 2025
CAL SHEET No. : CR-515-2025-067

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 18, 2025
00:00-01:00	
01.00-02.00	
02.00-03.00	
03.00-04.00	
04.00-05.00	
05.00-06.00	
06.00-07.00	
07.00-08.00	
08.00-09.00	89.3
09.00-10.00	89.3
10.00-11.00	89.3
11.00-12.00	89.4
12.00-13.00	89.2
13.00-14.00	88.8
14.00-15.00	88.8
15.00-16.00	88.9
16.00-17.00	89.7
17.00-18.00	90.1
18.00-19.00	89.3
19.00-20.00	89.4
20.00-21.00	
21.00-22.00	
22.00-23.00	
23.00-24.00	
Leq*	89.3
Lmax**	92.6

Remark : * Average time between 08:00-20:00
** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

LOCATION : Hydrogen Compressor (R-401) **MEASUREMENT DATE :** Mar 18, 2025

SLM MODEL : Cirrus CR162B **SERIAL No. :** G302237

SITE OPERATOR : Miss Salisa Ainree

CALIBRATOR MODEL : Cirrus CR:515 **SERIAL No.** : 97097

CALIBRATION REF dBA : 94.0 **CERTIFIED DATE** : Oct 02, 2024

SLM READING/SLM ADJUST dBA : 93.7/0.0 **Expire DATE** : Oct 01, 2025

CAL SHEET No. : CR-515-2025-067

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 18, 2025
00:00-01:00	
01.00-02.00	
02.00-03.00	
03.00-04.00	
04.00-05.00	
05.00-06.00	
06.00-07.00	
07.00-08.00	
08.00-09.00	74.3
09.00-10.00	74.5
10.00-11.00	74.4
11.00-12.00	74.2
12.00-13.00	74.2
13.00-14.00	74.5
14.00-15.00	75.0
15.00-16.00	76.1
16.00-17.00	73.8
17.00-18.00	73.9
18.00-19.00	74.5
19.00-20.00	74.7
20.00-21.00	
21.00-22.00	
22.00-23.00	
23.00-24.00	
Leq*	74.5
Lmax**	93.0

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

SECOT Co.,Ltd.
239 RIMKLONGPRAPA Rd.
BANGSUE, BANGKOK 10800
TEL. : (662) 2959-3600 FAX : (662) 2959-3535

NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

LOCATION : Propylene Compressor (R-650) **MEASUREMENT DATE :** Mar 18, 2025

SLM MODEL : Cirrus CR162B **SERIAL No. :** G302737

SITE OPERATOR : Miss Salisa Ainree

CALIBRATOR MODEL : Cirrus CR:515 **SERIAL No.** : 97097

CALIBRATION REF dBA : 94.0 **CERTIFIED DATE** : Oct 02, 2024

SLM READING/SLM ADJUST dBA : 93.7/0.0 **Expire DATE** : Oct 01, 2025

CAL SHEET No. : CR-515-2025-067

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 18, 2025
00:00-01:00	
01.00-02.00	
02.00-03.00	
03.00-04.00	
04.00-05.00	
05.00-06.00	
06.00-07.00	
07.00-08.00	
08.00-09.00	86.3
09.00-10.00	86.3
10.00-11.00	86.6
11.00-12.00	86.4
12.00-13.00	86.1
13.00-14.00	86.3
14.00-15.00	86.2
15.00-16.00	86.3
16.00-17.00	86.3
17.00-18.00	86.4
18.00-19.00	86.3
19.00-20.00	86.3
20.00-21.00	
21.00-22.00	
22.00-23.00	
23.00-24.00	
Leq*	86.3
Lmax**	93.1

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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BANGSUE, BANGKOK 10800
TEL. : (662) 2959-3600 FAX : (662) 2959-3535

NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

LOCATION : Propylene Compressor (R-3650) **MEASUREMENT DATE :** Mar 18, 2025

SLM MODEL : SCARLET ST-21D **SERIAL No. :** 820726

SITE OPERATOR : Miss Salisa Ainree

CALIBRATOR MODEL : Cirrus CR:515 **SERIAL No. :** 97097

CALIBRATION REF dBA : 94.0 **CERTIFIED DATE :** Oct 02, 2024

SLM READING/SLM ADJUST dBA : 93.8/0.0 **Expire DATE :** Oct 01, 2025

CAL SHEET No. : CR-515-2025-068

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 18, 2025
00:00-01:00	
01.00-02.00	
02.00-03.00	
03.00-04.00	
04.00-05.00	
05.00-06.00	
06.00-07.00	
07.00-08.00	
08.00-09.00	86.5
09.00-10.00	86.8
10.00-11.00	86.9
11.00-12.00	86.7
12.00-13.00	87.0
13.00-14.00	86.7
14.00-15.00	86.8
15.00-16.00	86.8
16.00-17.00	86.2
17.00-18.00	85.1
18.00-19.00	84.9
19.00-20.00	86.0
20.00-21.00	
21.00-22.00	
22.00-23.00	
23.00-24.00	
Leq*	86.4
Lmax**	92.7

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
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239 RIMKLONGPRAPA Rd.
BANGSUE, BANGKOK 10800
TEL. : (662) 2959-3600 FAX : (662) 2959-3535

NOISE MEASUREMENT RESULT : WORKING NOISE

MTR-PTTGC, Branch 3 (Olefins 2)

LOCATION : GHU Recycle Hydrogen Compressor (R-701) **MEASUREMENT DATE :** Mar 18, 2025

SLM MODEL : Cirrus CR162B **SERIAL No. :** 820731

SITE OPERATOR : Miss Salisa Ainree

CALIBRATOR MODEL : Cirrus CR:515 **SERIAL No. :** 97097

CALIBRATION REF dBA : 94.0 **CERTIFIED DATE :** Oct 02, 2024

SLM READING/SLM ADJUST dBA : 93.7/0.0 **Expire DATE :** Oct 01, 2025

CAL SHEET No. : CR-515-2025-067

TIME	EQUIVALENT SOUND PRESSURE LEVEL (dBA)
	Mar 18, 2025
00:00-01:00	
01.00-02.00	
02.00-03.00	
03.00-04.00	
04.00-05.00	
05.00-06.00	
06.00-07.00	
07.00-08.00	
08.00-09.00	79.9
09.00-10.00	79.7
10.00-11.00	79.3
11.00-12.00	79.7
12.00-13.00	79.3
13.00-14.00	79.5
14.00-15.00	79.6
15.00-16.00	79.9
16.00-17.00	79.9
17.00-18.00	80.6
18.00-19.00	81.1
19.00-20.00	80.2
20.00-21.00	
21.00-22.00	
22.00-23.00	
23.00-24.00	
Leq*	79.9
Lmax**	83.7

Remark : * Average time between 08:00-20:00

** Maximum Sound Pressure Level between 08:00-20:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Sununta Sirawuttinanon)
Technical Management Team

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BANGSUE, BANGKOK 10800
TEL. : (662) 2959-3600 FAX : (662) 2959-3535

ภาคผนวก ง.7

ใบรับรองผลการตรวจวิเคราะห์ระดับสารเคมีในพื้นที่ผู้ปฏิบัติงาน

ค่าความเข้มข้นของเบนซีนจากการตรวจวัด
แบบติดตั้งกับพื้นที่

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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 1170/68
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 24/06/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 26/06/2025
		Test Date	: 01/07/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 05/07/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Wastewater Treatment System (WW-01)	24/06/2025 08:40-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Tank Farm (TF-BE-BU-05)	24/06/2025 08:48-19:00	Benzene	OSHA 1005/GC FID	< 0.04	0.09	1
Cracking Furnace (FU-04)	24/06/2025 08:45-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Cold Area (C-BE-BU-01)	24/06/2025 08:43-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Hot Area (H-HY-BE-02)	24/06/2025 08:49-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัทวีนิไทย (VNT-BE-BU-01)	24/06/2025 08:52-19:00	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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2. This report shall not be reproduced, except in full, without official approval.
3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).
4. ND = non-detectable.

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SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0999/68
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 29/05/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 02/06/2025
		Test Date	: 06/06/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 13/06/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
Central Control Building (CO/LB-01)	29/05/2025 08:34-19:12	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 1)	29/05/2025 08:55-19:08	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 2)	29/05/2025 08:53-19:05	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 3)	29/05/2025 08:50-19:03	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
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Technical Management Team

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TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0336/67
For	: PTT Global Chemical Public Co., Ltd. Branch 3 (Olefins 2)	**Sampling Date**	: 18/02/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 21/02/2025
		Test Date	: 27/02/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 28/02/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	**Sampling Date/Time**	**Compound**	**Analytical Method**	**ND** ppm	**RESULT** ppm	**STANDARD** ppm
Wastewater Treatment System (WW-01)	18/02/2025 08:20-19:11	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Tank Farm (TF-BE-BU-05)	18/02/2025 08:35-19:25	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Cracking Furnace (FU-04)	18/02/2025 08:24-19:15	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Cold Area (C-BE-BU-01)	18/02/2025 08:40-19:30	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Hot Area (H-HY-BE-02)	18/02/2025 08:38-19:28	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Central Control Building (CO/LB-01)	18/02/2025 08:52-19:40	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัทวินิไทย (VNT-BE-BU-01)	18/02/2025 08:30-19:20	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0336/67
For	: PTT Global Chemical Public Co., Ltd. Branch 3 (Olefins 2)	**Sampling Date**	: 18/02/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 21/02/2025
		Test Date	: 27/02/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 28/02/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 1)	18/02/2025 08:42-19:33	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 2)	18/02/2025 08:44-19:34	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
แนวรั้วติดบริษัท PTTGC สาขา 8 (PTTGC 8 Point 3)	18/02/2025 08:46-19:35	Benzene	OSHA 1005/GC FID	< 0.04	ND	1

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0335/68
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 18/02/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 21/02/2025
		Test Date	: 26/02/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 28/02/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID. 26004698	18/02/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 1 , Area 2	07:00-19:00					
ID. 26005557	18/02/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 3	07:00-19:00					
ID. 26006180	18/02/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 4	07:00-19:00					
ID. 26001859	18/02/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 5	07:00-19:00					
ID. 26004818	18/02/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 6	07:00-19:00					
ID. 26006884	18/02/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 7	07:00-19:00					
ID. 26010059	18/02/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 8	07:00-19:00					

Analyst By : Sudaporn S.
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239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 1000/68
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 29/05/2025
Address	: 9 , 1-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 02/06/2025
		Test Date	: 06/06/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 13/06/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID. 26009727	29/05/2025	Benzene	OSHA 1005/GC FID	< 0.04	0.26	1
Area : พนักงาน Area 7	08:00-19:00					
ID. 26006738	29/05/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 8	08:15-19:00					

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 1171/68
For	: PTT Global Chemical Public Co., Ltd. Branch 3 (Olefins 2)	**Sampling Date**	: 24/06/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 25/06/2025
		Test Date	: 01/07/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 05/07/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID. 26008040	24/06/2025	Benzene	OSHA 1005/GC FID	< 0.04	0.10	1
Area : พนักงาน Area 1	07:30-19:00					
ID. 26008989	24/06/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 2	07:30-19:00					
ID. 26001857	24/06/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 3	07:30-19:00					
ID. 26001768	24/06/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 4	07:30-19:00					
ID. 26002888	24/06/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 5	07:30-19:00					

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(Miss Sudaporn Soonthorn)

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 1309/68
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 11/07/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut,	**Received Date**	: 15/07/2025
	Mueang Rayong , Rayong Province 21150	**Test Date**	: 18/07/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 18/07/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	**Sampling Date/Time**	**Compound**	**Analytical Method**	**ND** ppm	**RESULT** ppm	**STANDARD** ppm
ID. 26006882	11/07/2025	Benzene	OSHA 1005/GC FID	< 0.04	ND	1
Area : พนักงาน Area 6	07:00-19:00					

Analyst By : Sudaporn S.
(Miss Sudaporn Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0336/67
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 19/02/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 21/02/2025
		Test Date	: 27/02/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 28/02/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
R-4801 A	19/02/2025 08:43-19:48	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
P-4051	19/02/2025 08:38-19:42	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
M-4090 & M-4091	19/02/2025 08:40-19:45	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือของ Process Chemical Drum	19/02/2025 08:28-19:32	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ B1-05	19/02/2025 08:33-19:38	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ BD-01	19/02/2025 08:35-19:40	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือ Cooling Tower ติดกับ HY-1603	19/02/2025 08:30-19:35	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Foam Tank ข้างประตู A	19/02/2025 08:26-19:30	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศเหนือ	19/02/2025 08:50-19:55	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศใต้	19/02/2025 09:04-20:01	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1

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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 1170/68
For	: PTT Global Chemical Public Co., Ltd. Branch 3 (Olefins 2)	**Sampling Date**	: 24/06/2025
Address	: 9 . I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 26/06/2025
		Test Date	: 01/07/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 05/07/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
R-4801 A	24/06/2025 09:07-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
P-4051	24/06/2025 09:14-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
M-4090 & M-4091	24/06/2025 09:12-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือของ Process Chemical Drum	24/06/2025 09:10-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ B1-05	24/06/2025 09:15-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ด้านทิศเหนือ BD-01	24/06/2025 09:18-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ทิศเหนือ Cooling Tower ติดกับ HY-1603	24/06/2025 09:16-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Foam Tank ข้างประตู A	24/06/2025 09:05-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศเหนือ	24/06/2025 08:52-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
ริมรั้วทิศใต้	24/06/2025 09:19-19:00	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1

Analyst By : Sudaporn S.
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ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 0335/68
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 19/02/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 21/02/2025
		Test Date	: 26/02/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 28/02/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID. 26008559	19/02/2025	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : พนักงาน BV Plant	07:00-19:00					
ID. 26006551	19/02/2025	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : พนักงาน BV Plant	07:00-19:00					
ID. 26010314	19/02/2025	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	0.59	1
Area : พนักงาน BV Plant	07:00-19:00					

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(Miss Sudaporn Soonthorn)

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(Miss Narisa Poowasanpetch)
Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. Notification of the Department of Labour Protection and Welfare, B.E.2560 (2017).

4. ND = non-detectable.

บริษัท ซีคอท จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND
TEL. (662) 959-3600 FAX (662) 959-3535 Website : secot.co.th E-mail : envserv@secot.co.th

ANALYSIS/TEST REPORT

Customer	: EED/SECOT Co., Ltd.	**Request Service No.**	: 1171/68
For	: PTT Global Chemical Public Co., Ltd, Branch 3 (Olefins 2)	**Sampling Date**	: 24/06/2025
Address	: 9 , I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong , Rayong Province 21150	**Received Date**	: 25/06/2025
		Test Date	: 01/07/2025
Tel/Fax	: 0-3899-4000 / 0-3899-4111	**Report Date**	: 05/07/2025

SAMPLE DESCRIPTION / SAMPLING INFORMATION

Sample Designated As	: Workplace Air	**Sampling Method**	: Passive Diffusion
Sampling By	: SECOT Co., Ltd.	**Sample Condition**	: Normal

Sampling Location	Sampling Date/Time	Compound	Analytical Method	ND ppm	RESULT ppm	STANDARD ppm
ID: 26004921	24/06/2025	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : พนักงาน BV Plant	07:40-19:00					
ID: 26010315	24/06/2025	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : พนักงาน BV Plant	07:40-19:00					
ID: 26008119	24/06/2025	1,3-Butadiene	ISO 16200-2/GC FID	< 0.06	ND	1
Area : พนักงาน BV Plant	07:40-19:00					

Analyst By : Sudapom S.
(Miss Sudapom Soonthorn)

Approved By : Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)
Technical Management Team

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ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA, LLC
600 Union Landing Road
Cinnaminson, NJ 08077-0000
Airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E04NI99E15AC084	Reference Number:	82-401409170-1
Cylinder Number:	EB0102326	Cylinder Volume:	144.4 CF
Laboratory:	124 - Riverton (SAP) - NJ	Cylinder Pressure:	2015 PSIG
PGVP Number:	B52019	Valve Outlet:	660
Gas Code:	CO,NO,NOX,SO2,BALN	Certification Date:	Feb 05, 2019

Expiration Date: Feb 05, 2027

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	50.00 PPM	51.01 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
NITRIC OXIDE	50.00 PPM	50.86 PPM	G1	+/- 0.9% NIST Traceable	01/28/2019, 02/05/2019
SULFUR DIOXIDE	50.00 PPM	50.87 PPM	G1	+/- 1.0% NIST Traceable	01/28/2019, 02/05/2019
CARBON MONOXIDE	0.5000 %	0.5050 %	G1	+/- 0.7% NIST Traceable	01/31/2019
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060206	CC401947	4950 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Feb 15, 2019
PRM	12367	APEX1099237	9.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
NTRM	12010724	KAL004497	50.03 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Mar 12, 2024
GMIS	1114201601	CC506710	4.971 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Nov 14, 2019
NTRM	14010327	KAL004376	49.08 PPM SULFUR DIOXIDE/NITROGEN	+/- 1.0%	Apr 17, 2024

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Siemens Ultramat 6 J3-599 COHIGH	NDIR	Jan 18, 2019
Nicolet 6700 APW1100391 NO	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 NO2	FTIR	Jan 10, 2019
Nicolet 6700 APW1100391 SO2	FTIR	Jan 10, 2019

Triad Data Available Upon Request

PERMANENT NOTES: PRODUCED IN ACCORDANCE WITH ISO17025 REQUIREMENTS

NOTES:
Gross Weight: 27806.3 grams
Net Weight: 4733.2 grams
This calibration std. has been certified in accordance with the May 2012 EPA Traceability Pr[illegible] Document EPA-600/R-12/531. All testing processes and measurements conform to the req[illegible] ISO/IEC 17025 and to Airgas ISO 9001:2008 and relate only to items identified on this certi[illegible] are certified to be NIST Traceable with total uncertainty as detailed under Analytical Uncerta[illegible] document shall not be reproduced in full without written approval of the issuer.

ACCREDITED
TESTING CERT No. 3082.05

Approved for Release

Sheet No. : CAL-M5007/01/25

CONTROL UNIT CALIBRATION
(Metric units, mm)

Date: 6 Jan 25

	Initial	Final	Average	
Barometric press, Pb	758	758	758	mmHg

Dry Gas Meter Data

Console No.: M50-07
Metering System ID
DGM Number: 90331
DGM Model: MST-C2-1

Reference Dry Gas Meter Data

Serial No.: 358794
Model: S110
Correction factor (Yr): 1.0077
Last Calibration Date: 25 Oct 24

Calibrated by: Montri P.

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V_r Liters	DGM Volume V_m Liters	Temperature (°C) Ref DGM T_r	Dry Gas Meter Inlet T_i	Outlet T_o	Avg T_m	Time Θ min	DGM Correction factor (Y)	ΔH@ mm
12.5	100.1	101.0	25	25	24	24.5	8.67	0.9958	42.5842
25.0	99.9	100.8	25	25	24	24.5	6.23	0.9946	44.2513
50.0	100.0	100.9	25	25	24	24.5	4.62	0.9920	48.4414
76.0	100.1	99.3	25	25	24	24.5	3.63	1.0074	45.4868
100.0	100.2	100.7	25	25	24	24.5	3.63	0.9921	47.7831
150.0	99.9	99.4	25	25	24	24.5	2.62	0.9970	46.7598
							Average	0.9965	45.8844

Approved by :

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662) 9593600 Fax: (662) 9593535
E-Mail: envserv@secot.co.th

Sheet No. : CAL-PI-PS10-01/2025

PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 03-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PS10-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(A)
1	15.0	21.0	0.8367	-0.0034
2	15.0	20.5	0.8468	0.0068
3	15.0	21.0	0.8367	-0.0034

$C_{P(A)}$,avg 0.8401

B Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(B)
1	15.0	21.0	0.8367	-0.0034
2	15.0	20.5	0.8468	0.0068
3	15.0	21.0	0.8367	-0.0034

$C_{P(B)}$,avg 0.8401

| CP(A)-CP(B) | = 0.0000

$C_{P(Avg)}$ = 0.8401

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***

*** | Cp(A)-Cp(B) | must also be < 0.01 if average of Cp(A) and Cp(B) is ot be used ***

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662) 9593600 Fax: (662) 9593535
E-Mail: envserv@secot.th.com

Sheet No. : CAL-M5006/01/25

CONTROL UNIT CALIBRATION
(Metric units, mm)

Date 6 Jan 25

	Initial	Final	Average	
Barometric press, Pb	758	758	758	mmHg

Dry Gas Meter Data

Console No. M50-06

Metering System ID

DGM Number 917415

DGM Model MST-C2-1

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 1.0077

Last Calibration Date 25 Oct 24

Calibrated by : Montri P.

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V_r Liters	DGM Volume V_m Liters	Temperature (°C) Ref DGM T_r	Dry Gas Meter Inlet T_i	Outlet T_o	Avg T_m	Time Θ min	DGM Correction factor (Y)	ΔH@ mm
12.5	100.0	99.8	25	25	24	24.5	8.92	1.0071	45.1453
25.0	100.2	100.4	25	25	24	24.5	6.13	1.0020	42.5581
50.0	100.0	100.9	25	25	24	24.5	4.33	0.9923	42.6407
76.0	100.1	102.5	25	25	24	24.5	3.53	0.9756	43.0400
100.0	100.1	102.2	25	25	24	24.5	3.53	0.9755	43.5926
150.0	100.0	101.5	25	25	24	24.5	2.53	0.9774	43.7294
							Average	0.9883	43.4510

Approved by :

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue. Bangkok, 10800. THAILAND
Tel: (662) 9593600 Fax: (662) 9593535
E-Mail: envserv@secot.co.th

Sheet No. : CAL-M5009/01/25

CONTROL UNIT CALIBRATION
(Metric units, mm)

Date: 9 Jan 25

	Initial	Final	Average	
Barometric press, Pb	758	758	758	mmHg

Dry Gas Meter Data

Console No.: M50-09

Metering System ID

DGM Number: 333249

DGM Model: ES-110

Calibrated by : Montri P.

Reference Dry Gas Meter Data

Serial No.: 358794

Model: S110

Correction factor (Yr): 1.0077

Last Calibration Date: 25 Oct 24

Orifice manometer setting, ΔH mm H2O	Ref. DGM Volume V_r Liters	DGM Volume V_m Liters	Temperature (°C) Ref DGM T_r	Dry Gas Meter Inlet T_i	Outlet T_o	Avg T_m	Time Θ min	DGM Correction factor (Y)	ΔH@ mm
12.5	100.1	101.3	25	25	24	24.5	8.57	0.9926	41.6238
25.0	100.2	100.4	25	25	24	24.5	6.23	1.0012	44.0131
50.0	100.1	100.5	25	25	24	24.5	4.42	0.9965	44.2732
76.0	100.2	99.7	25	25	24	24.5	3.58	1.0037	44.1905
100.0	100.3	99.6	25	25	24	24.5	3.58	1.0034	45.3098
150.0	100.3	99.2	25	25	24	24.5	2.60	1.0029	45.7895
							Average	1.0000	44.2000

Approved by :

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662) 9593600 Fax: (662) 9593535
E-Mail: envserv@secot.co.th

Sheet No. : CAL-PI-PS20-01/2025

PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 03-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : PS20-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(A)
1	15.0	21.0	0.8367	-0.0034
2	15.0	20.5	0.8468	0.0068
3	15.0	21.0	0.8367	-0.0034

$C_{P(A)}$,avg: 0.8401

B Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(B)
1	15.0	21.0	0.8367	0.0065
2	15.0	21.5	0.8269	-0.0033
3	15.0	21.5	0.8269	-0.0033

$C_{P(B)}$,avg: 0.8302

| CP(A)-CP(B) | = 0.0099

$C_{P(Avg)}$ = 0.8351

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***
*** | Cp(A)-Cp(B) | must also be < 0.01 if average of Cp(A) and Cp(B) is ot be used ***

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239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662) 9593600 Fax: (662) 9593535
E-Mail: envserv@secot.co.th

Sheet No. : CAL-PI-LL10-01/2025

PITOT TUBE CALIBRATION REPORT

Calibration Location: SECOT

Calibration Date : 04-01-2025

Calibration Duct No.: CD-0123

Calibration Standard Pitot tube data

Pitot No. : Std-02

Coefficient (Cp) : 0.99

Type S Pitot No. : LL10-01

Calibrated by : Mr. Montri P.

A Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(A)
1	15.0	21.0	0.8367	-0.0068
2	15.0	20.5	0.8468	0.0034
3	15.0	20.5	0.8468	0.0034

$C_{P(A)}$,avg 0.8435

B Side Calibration

Run No.	ΔPstd (mm H_2O)	ΔPs (mm H_2O)	Cp(s)	Deviation,δ Cp(s) -Cp(B)
1	15.0	20.5	0.8468	0.0034
2	15.0	21.0	0.8367	-0.0068
3	15.0	20.5	0.8468	0.0034

$C_{P(B)}$,avg 0.8435

| CP(A)-CP(B) | = 0.0000

$C_{P(Avg)}$ = 0.8435

Approved by :

*** δ must be ≤ 0.01 for the test to be acceptable ***

*** | Cp(A)-Cp(B) | must also be < 0.01 if average of Cp(A) and Cp(B) is ot be used ***

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239 Rimklongprapa Rd, Bangsue, Bangkok, 10800, THAILAND
Tel: (662) 9593600 Fax: (662) 9593535
E-Mail: envserv@secot.th.com

Sheet No. : CR-515-2025-068

SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Mar 18, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94.0	93.8

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
4	SCARLET	ST-21D	820725	93.8	0.0
5	SCARLET	ST-21D	820726	93.8	0.0

Calibrated by :

Approved by :

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662)959-3600 Fax: (662) 959-3535
E-Mail: envserv@secot.co.th

Sheet No. : CR-515-2025-067

SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT **Calibration Date:** Mar 18, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94.0	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
24	Cirrus	CR162C	G300832	93.7	0.0
41	Cirrus	CR162B	G302737	93.7	0.0
48	Cirrus	CR162B	G302237	93.7	0.0
49	Cirrus	CR162B	G302330	93.7	0.0

Calibrated by : **Approved by :**

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662)959-3600 Fax: (662) 959-3535
E-Mail: envserv@secot.co.th

Sheet No. : CR-515-2025-084

SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT **Calibration Date:** Mar 27, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Frequency (Hz)	Ref.Calibrated (dB)	Eff.Calibrated (dB)
Cirrus	CR:515	97097	1000.00	94.0	93.7

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
45	Cirrus	CR161B	G303385	93.7	0.0
58	Cirrus	CR161B	G303833	93.7	0.0

Calibrated by : **Approved by :** Preeda S.

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662)959-3600 Fax: (662) 959-3535
E-Mail: envserv@secot.co.th

Sheet No. : NC-CIRRUS-2025-004

NOISE DOSE METER CALIBRATION

Calibration Location: SECOT **Calibration Date:** Mar 12, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
CIRRUS	RC 110A	95167	114.00	1000

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	Cirrus	CR110A	CB1025	113.7	0.3
2	Cirrus	CR110A	CB1041	113.9	0.1
3	Cirrus	CR110A	CB1042	114.0	0.0
4	Cirrus	CR110A	CB1097	113.9	0.1
5	Cirrus	CR110A	CB1048	114.0	0.0

Calibrated by : **Approved by :**

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662)959-3600 Fax: (662) 959-3535
E-Mail: envserv@secot.co.th

Sheet No. : NC-CIRRUS-2025-008

NOISE DOSE METER CALIBRATION

Calibration Location: SECOT **Calibration Date:** Mar 18, 25

ACOUSTIC CALIBRATOR

Brand	Model	Serial No.	Calibrated (dB)	Frequency (Hz)
CIRRUS	RC 110A	95167	114.00	1000

No.	Brand	Model	Serial No.	Reading (dB)	dB Adjust
1	Cirrus	CR110A	CB1023	114.4	-0.4
2	Cirrus	CR110A	CB1025	114.0	0.0
3	Cirrus	CR110A	CB1026	113.7	0.3
4	Cirrus	CR110A	CB1040	114.0	0.0
5	Cirrus	CR110A	CB1041	114.1	-0.1
6	Cirrus	CR110A	CB1043	112.7	1.3

Calibrated by : **Approved by :**

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangsue, Bangkok, 10800, THAILAND
Tel: (662)959-3600 Fax: (662) 959-3535
E-Mail: envserv@secot.co.th

ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT
975 Moo 4, Bangpoo Industrial Estate, Soi 8, Sukhumvit Road km 37,
Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280
Tel: +66 2709 4860 Fax: +66 2324 0917

NSC-TISI-TIS 17025
CALIBRATION 0119

Certificate No.: CP20240363EA
Operation No.: CP2024090339

Certificate of Calibration

Equipment:	Sound Calibrator
Manufacturer:	Cirrus Research Plc
Model/Type:	CR:515
Serial No.:	97097
ID No.:	-
Customer:	SECOT Co.,Ltd.
Address:	239 Rimklongprapa Rd., Bangsue, Bangkok 10800 Thailand
Received Date:	30 September 2024
Calibrated Date:	2 October 2024
Issued Date:	4 October 2024
Calibrated by:	Ms. Juntaporn Kunhakom

Approved by:
(Mr. Sittichai Swaksuriyawong)
Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor (k) providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.

Certificate No.: CP20240363EA

Calibration Report

Equipment:	Sound Calibrator
Manufacturer:	Cirrus Research Plc
Model/Type:	CR:515
Serial No.:	97097
ID No.:	-
Ambient Temperature:	(23 ± 2) °C
Relative Humidity:	(50 ± 15) %
Pressure:	(101.3 ± 1.5) kPa

Method of Calibration :-
IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

Instrument	Model	Serial No.	Cert. No.	Due Date
1) Standard microphone	4180	2661000	AA-1007-24	6 June 2025
2) Waveform Generator	33511B	MY52302264	CK20240047EA	23 June 2025
3) Audio Analyzing DMM	2015-P	000136E	E1U2303776	7 December 2024
4) Pressure humidity and Temperature Transmitter	PTU301	F0640002	CL1-P240022 CD20240180EA	20 March 2025 7 August 2025

2. This result of calibration was found accurate as shown on date and place of calibration only.
3. This certification is traceable to the international system of unit maintained at :-
   Reference standards instrument for Acoustic function
   - National Institute of Metrology (Thailand)
   Reference standards instrument for Electrical function
   - Electrical and Electronics Institute; NSC Accredited Calibration No.0119
   - NA Caltechnologies Co., Ltd.; ANAB Accredited Calibration No.AC-2658.

Result of Calibration:-

1. Function : Sound pressure level

Norminal Frequency (Hz)	Specified Sound Pressure level (dB)	Measured value (dB)	Deviated value[1] (dB)	Acceptance limit[3] (dB)
1000	94	94.09	0.09	±0.25

2. Function : Frequency

Norminal Sound Pressure level (dB)	Specified Frequency (Hz)	Measured value (Hz)	Deviated value[2] (%)	Acceptance limit[3] (%)
94	1000	1000.31	0.03	±.0.70

ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.:- CP20240363EA

Calibration Report

3. Function : Total distortion + noise

Norminal Sound Pressure level (dB)	Norminal Frequency (Hz)	Measured value[4] (%)	Acceptance limit[5] (%)
94	1000	0.60	2.50

Uncertainty of measurement

Function	Uncertainty	Maximum-permitted uncertainty of measurement
Sound pressure level	0.10 dB	0.15 dB
Frequency	0.10 %	0.20 %
Total distortion + noise	0.40 %	0.50 %

Note: [1] The deviated value is the absolube valule of the difference between the measured value and the corresponding specified sound pressure level.
[2] The deviated value is the absolube valule of the difference in percent between the measured value and the corresponding specified frequency.
[3] The acceptance limit is for the deviated value.
[4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.
[5] The acceptance limit is for the Measured value.

Remarks: 1. Acceptance limit was IEC 60942:2017 Class 1.
2. Maximum-permitted uncertainty of measurement was IEC 60942:2017 Class 1.
3. The coverage factor $k = 2.00$

- - End of Report - -

F-CAL-005 Ed.1

THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-68/0279

MTC.No.23-68/0279-02

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 114069

Model : Defender 520-H

Scale range : 300 ml/min to 30,000 ml/min

Subdivision : (0.0001, 0.001) L/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 13 February 2025 **Condition of measured item :** Normal

Calibration date : 25 February 2025

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 0811/67	3-Jul-26	TISTR
Molbox/PressureTransducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 119216	MW-0035-23	31-May-25	NIMT

Calibrated by : Terasak Pan

(Mr.Terasak Panna)

Approved by

(Ms.Kirana Luanghiran)

Director

Mechanical Engineering Standards Laboratory

Ref. 2013268021300656002

Issued Date 28 February 2025

The results relate only to the items tested/calibrated or value assigned.
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FM.BL.MTC.002 Rev.5

Head Office
35 Mu 3 Tambon Khlong Ha, Amphoe Khlong Luang, Changwat Pathumthani 12120, Thailand
Tel. (66) 0 2577 9036
Fax. (66) 0 2577 9009

Office/Laboratory
668 Mu 2 Tambon Bangpoomai, Amphoe Muang Samutprakan, Changwat Samutprakan 10280, Thailand
Tel. (66) 0 2323 1672-80 ext. 115, 116
(66) 08 3219 9440
E-mail : mtc@tistr.or.th Website : www.tistr.or.th

Office
196 Phahonyothin Road, Ladyao, Chatuchak, Bangkok 10900, Thailand
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217
(66) 08 1889 6827

THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-68/0279 **2/2** MTC.No.23-68/0279-02

Calibration point : (1.5, 5.0, 10, 15, 25) l/min

Ambient condition : Temperature (23 ± 3) °C , Relative humidity (55 ± 15) %

Atmospheric pressure (1010±13) hPa

Calibration method : The flowmeter (UUC) was calibrated by comparison method with standard flowmeter according to CP-370.01.

The reported value is the value that converted to value at reference condition within pressure and temperature of the actual gas entering the UUC

Measurement data :

UUC Value (L/min)	Standard Value (L/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
1.5010	1.4862	24.354	1011.40	+0.99	0.91
5.0202	4.9882	24.364	1013.95	+0.64	0.89
9.9989	9.9228	24.319	1020.22	+0.77	0.89
15.033	14.819	24.342	1030.37	+1.44	0.89
25.136	24.152	24.331	1061.30	+4.08	0.89

The reported expanded uncertainties are based on standard uncertainties multiplied by a coverage factor k=2, which provides a level of confidence of approximately 95%.

The end of calibration certificate.

The results relate only to the items tested/calibrated or value assigned.
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(66) 08 1889 6827

วว.TISTR
NSC-TISI-TIS 17025 CALIBRATION 0060

THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH (TISTR)

Mechanical Engineering Standards Laboratory Soi 1, Bangpoo Industrial Estate, Muang, Samutprakan 10280, Thailand.

Request No.23-68/0279 MTC.No.23-68/0279-01

Number of page(s) 2

CALIBRATION CERTIFICATE

Nomenclature : DRYCAL

Manufacturer : Mesa Labs

Serial No.: 160100

Model : Defender 520-L

Scale range : 5 ml/min to 500 ml/min

Subdivision : (0.001, 0.01) ml/min

Submitted by : SECOT CO.,LTD.

239, Rimklongprapa Road, Bangsue,

Bangkok 10800, Thailand.

Received date : 13 February 2025 **Condition of measured item :** Normal

Calibration date : 24 February 2025

Standard :

Standard	Certificate No.	Date due	Traceability
RTD Thermometer	PSL-T 0811/67	3-Jul-26	TISTR
Molbox/PressureTransducer/UpStream	MP-0076-23	2-Apr-25	NIMT
Primary Flow Calibrator S/N 117982	MW-0034-23	11-Jun-25	NIMT

Calibrated by : Terasak Panna

(Mr.Terasak Panna)

Approved by :

(Ms.Kiranat Wiwanpitakan)

Director

วว.TISTR

Mechanical Engineering Standards Laboratory

Ref. 2013268021300656001

Issued Date 28 February 2025

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FM.BL.MTC.002 Rev.5

Head Office
35 Mu 3 Tambon Khlong Ha, Amphoe Khlong Luang, Changwat Pathumthani 12120, Thailand
Tel. (66) 0 2577 9036
Fax. (66) 0 2577 9009

Office/Laboratory
668 Mu 2 Tambon Bangpoomai, Amphoe Muang Samutprakan, Changwat Samutprakan 10280, Thailand
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Office
196 Phahonyothin Road, Ladyao, Chatuchak, Bangkok 10900, Thailand
Tel. (66) 0 2579 1121-30 ext. 5219, 5225, 5217
(66) 08 1889 6827

Calibration point : (20, 50, 100, 200, 400) ml/min

Ambient condition : Temperature (23 ± 3) °C , Relative humidity (55 ± 15) %

Atmospheric pressure (1010±13) hPa

Calibration method : The flowmeter (UUC) was calibrated by comparison method with standard flowmeter according to CP-370.01.

The reported value is the value that converted to value at reference condition within pressure and temperature of the actual gas entering the UUC

Measurement data :

UUC Value (ml/min)	Standard Value (ml/min)	Temperature (°C)	Pressure (hPa)	Deviation (%)	Uncertainty (%)
20.473*	20.340	24.275	1011.42	+0.65	0.94
49.952	50.732	24.057	1011.52	-1.54	0.95
99.449	99.622	24.102	1011.62	-0.17	0.93
200.34	199.94	24.133	1011.77	+0.20	0.93
401.89	397.98	24.140	1012.07	+0.98	0.93

The reported expanded uncertainties are based on standard uncertainties multiplied by a coverage factor k=2, which provides a level of confidence of approximately 95%.

* : The calibration point is not the scope of accreditation.

The end of calibration certificate.

The results relate only to the items tested/calibrated or value assigned.
Advertising the Report/Certificate and publicity of the results except in full are prohibited unless written permission is obtained from the governor of TISTR.

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(66) 08 1889 6827

THAI CALIBRATION SERVICES CO., LTD.
19/8 Moo 9 Soi Raiking 30 Puttamonton 5 Rd., Sampran, Nakornpatom 73210
Tel. 0-3439-7682-5 Fax: 0-3439-7687
www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com

NSC-TISI-TIS 17025 CALIBRATION 0189

CALIBRATION CERTIFICATE

Certificate No.S2504633S

Customer : SECOT CO., LTD.
239 Rimklongprapa Rd.,
Bangsue, Bangkok 10800

Equipment : Non-automatic weighing instrument (Electronic instrument)

Manufacturer :	Mettler Toledo	**Order No. :**	68S1723-1
Model :	AG245	**Ambient temperature :**	(25.3 ± 5.0) °C
Accuracy class :	-	**Relative humidity :**	(39.9 ± 10.0) %
Capacity :	41 g / 210 g	**Received date :**	23-Apr-2025
Resolution :	0.00001 g / 0.0001 g	**Date of calibration :**	23-Apr-2025
Serial No. :	1117293916	**Date of issue :**	24-Apr-2025
ID No. :	-	**Condition of the balance :**	Good working conditions
Place of calibration :	LAB		

Calibration method

This instrument was calibrated according to the EURAMET Calibration Guide No. 18.

Condition of reference standard weight

Instrument	Nominal value	Serial No.	Certificate No.	Due-date	Density (kg/m³)
1 Standard weight set	1 mg to 2 kg	15885+15849	M2410001S	5-Oct-2025	7950

Traceability of the reference standard weight

This certificate is traceable to SI unit through Mass Calibration Laboratory Thai Calibration Services Co., Ltd., NSC-ONSC accredited no. Calibration 0189.

Calibrated By Teerawat Intanom
Technician

Approved Signatory : Somwang Wongduang

This calibration certificate may not be reproduced other than in full, except with the prior written approval of the head of TCS calibration laboratory.

THAI CALIBRATION SERVICES CO., LTD.
19/8 Moo 9 Soi Raiking 30 Puttamonton 5 Rd., Sampran, Nakornpatom 73210
Tel. 0-3439-7682-5 Fax: 0-3439-7687
www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com

NSC-TISI-TIS 17025 CALIBRATION 0189

CALIBRATION CERTIFICATE

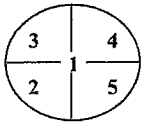
Certificate No.S2504633S

The repeatability of indication

Nominal Value (g)	Standard Deviation of reading (g)	Maximum difference between successive reading (g)	n
40	0.000008	0.00002	5
200	0.00000	0.0000	5

The effect of eccentric application of a load on the indication (test load : 100 g)

Position	Balance Reading (g)
Point 1	100.0000
Point 2	100.0000
Point 3	100.0000
Point 4	100.0000
Point 5	99.9997
Eccentric Value	0.0003



The error of indication

Nominal Value (g)	Value of Reference Standard Weight (g)	Balance Reading (g)	Correction (g)	Uncertainty (±) (g)	k
Unload	0.00000	0.00000	0.00000	0.000024	2.52
0.5	0.50000	0.49997	+0.00003	0.000028	2.13
1	1.00000	1.00000	0.00000	0.000030	2.08
10	9.99999	10.00000	-0.00001	0.000050	2.00
20	19.99999	19.99998	+0.00001	0.000068	2.00
40	39.99994	39.99999	-0.00005	0.00014	2.00
60	60.0000	60.0000	0.0000	0.00017	2.00
80	79.9999	80.0000	-0.0001	0.00023	2.00
100	100.0000	100.0000	0.0000	0.00022	2.00
120	120.0000	120.0000	0.0000	0.00028	2.00
140	140.0000	139.9999	+0.0001	0.00034	2.00
160	160.0000	160.0000	0.0000	0.00036	2.00
180	180.0000	179.9999	+0.0001	0.00043	2.00
200	200.0002	200.0000	+0.0002	0.00041	2.00

Remark : Adjustment, External weight nominal value 200 g, Standard weight of Lab

Uncertainty of measurement

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor (*k*), which for a normal distribution corresponds to a coverage probability of approximately 95% (confidence level).

This report will certify of the calibrated equipment only.

--End--

THAI CALIBRATION SERVICES CO., LTD.
19/8 Moo 9 Soi Raiking 30 Puttamonton 5 Rd., Sampran, Nakornpatom 73210
Tel. 0-3439-7682-5 Fax: 0-3439-7687
www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com

NSC-TISI-TIS 17025 CALIBRATION 0189

CALIBRATION CERTIFICATE

Certificate No.S2504635S

Customer : SECOT CO., LTD.
239 Rimklongprapa Rd.,
Bangsue, Bangkok 10800

Equipment : Non-automatic weighing instrument (Electronic instrument)

Manufacturer :	Sartorius	**Order No. :**	68S1640-1
Model :	ME5	**Ambient temperature :**	(24.2 ± 5.0) °C
Accuracy class :	-	**Relative humidity :**	(40.2 ± 10.0) %
Capacity :	5.1 g	**Received date :**	23-Apr-2025
Resolution :	0.000001 g	**Date of calibration :**	23-Apr-2025
Serial No. :	SWB26602268	**Date of issue :**	24-Apr-2025
ID No. :	-	**Condition of the balance :**	Good working conditions
Place of calibration :	LAB		

Calibration method

This instrument was calibrated according to the EURAMET Calibration Guide No. 18.

Condition of reference standard weight

Instrument	Nominal value	Serial No.	Certificate No.	Due-date	Density (kg/m³)
1 Standard weight set	1 mg to 2 kg	15885+15849	M24100015	5-Oct-2025	7950

Traceability of the reference standard weight

This certificate is traceable to SI unit through Mass Calibration Laboratory Thai Calibration Services Co., Ltd., NSC-ONSC accredited no. Calibration 0189.

Calibrated By : Teerawat Intanom
Technician

Approved Signatory : Somwang Wongduang

This calibration certificate may not be reproduced other than in full, except with the prior written approval of the head of TCS calibration laboratory.

THAI CALIBRATION SERVICES CO., LTD.
19/8 Moo 9 Soi Raiking 30 Puttamonton 5 Rd., Sampran, Nakornpatom 73210
Tel. 0-3439-7682-5 Fax: 0-3439-7687
www.thaical.com E-mail : sale@thaicalibration.com, lab@thaicalibration.com

NSC-TISI-TIS 17025 CALIBRATION 0169

CALIBRATION CERTIFICATE

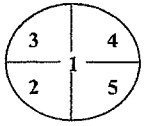
Certificate No.S2504635S

The repeatability of indication

Nominal Value (g)	Standard Deviation of reading (g)	Maximum difference between successive reading (g)	n
5	0.0000007	0.000002	5

The effect of eccentric application of a load on the indication (test load : 2 g)

Position	Balance Reading (g)
Point 1	2.000001
Point 2	2.000006
Point 3	2.000007
Point 4	2.000007
Point 5	2.000004
Eccentric Value	0.000006



The error of indication

Nominal Value (g)	Value of Reference Standard Weight (g)	Balance Reading (g)	Correction (g)	Uncertainty (±) (g)	k
Unload	0.000000	0.000000	0.000000	0.0000020	2.43
0.001	0.001002	0.001004	-0.000002	0.0000046	2.00
0.005	0.004998	0.005004	-0.000006	0.0000046	2.00
0.01	0.010002	0.010006	-0.000004	0.0000056	2.00
0.05	0.049997	0.050000	-0.000003	0.0000086	2.00
0.1	0.100001	0.100004	-0.000003	0.000012	2.00
0.2	0.200004	0.200004	0.000000	0.000014	2.00
0.5	0.499996	0.499995	+0.000001	0.000018	2.00
1	0.999996	1.000006	-0.000010	0.000022	2.00
1.5	1.499992	1.500000	-0.000008	0.000039	2.00
2	2.000011	2.000001	+0.000010	0.000028	2.00
3	3.000007	3.000007	0.000000	0.000049	2.00
5	4.999968	4.999942	+0.000026	0.000036	2.00

Remark : Adjustment. Internal weight

Uncertainty of measurement

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor (*k*), which for a normal distribution corresponds to a coverage probability of approximately 95% (confidence level).

This report will certify of the calibrated equipment only.

--End--

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL.0-2717-3000-29 FAX.0-2719-9484

NSC-TISI-TIS17025 CALIBRATION 0008

Certificate of Calibration

Cert.No.: 24CH1275
Page.: 1 of 3

Equipment : pH Meter
Manufacturer : Mettler Toledo
Model : Seven2Go
Serial No. : C033160713
ID No. : ID.20
Condition As-Received: Used Item
Received Date : 08 October 2024
Calibration Date : 09 October 2024
Reference : 2410-0258DN-3
Submitted by : Secot Co.,Ltd.
239 Rimklongprapa Road,
Bangsue, Bangkok 10800

Ambient Temperature : (25 ± 2.5) °C
Relative Humidity : (50 ± 15) %
Calibration Procedure : In - house method :
- CP-CH5 by direct measurement with DC voltage standard and direct measurement with certified reference material (CRM)
- CP-CH8 by comparison with temperature standard

Calibrated by : Warakorn Lerngagtrakul

Approved by : Saithip
Approved Signatory

( ) Unnopphol Harachai
( ) Ponpan Paipim
(✓) Saithip Meangmai

Issue Date : 10 October 2024

The Uncertainties are for a confidence probability of approximately 95%

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Condition of this calibration result

1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1)Document Process Calibrator	54030049	130RC116	24E2759	25 Aug 2025
2)Ref. Standard Thermometer	4982054	110RC044	24I757	14 July 2025

- This Certification is traceable to SI Throught Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials :The measurement results are traceable to SI through Hach Lenge GmbH Ltd., Deutsche Akkreditierungsstelle, Accredited No.D-RM-15184-01-00
:The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	1034203	27 Sep 2026
pH 6.999	Hach Lenge GmbH	C03145	28 Feb 2026
pH 9.997	CPA chem	970853	25 Apr 2025

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration Results

Function : mV Measurement

Performing standard curve by Document Process Calibrator at pH (4,7,10)

Unit Under Calibration	Nominal Value	Standard Voltage Input	Actual Reading		Uncertainty of Measurement	Coverage factor
	pH	mV	mV	pH	(±mV)	*k*
pH Meter	4.00	177.48	178	4.00	0.58	2.00
S/N.: C033160713	7.00	0.00	0	7.00	0.58	2.00
	10.00	-177.48	-177	10.00	0.58	2.00

Calibration Results

Function : pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4,7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement (±)	Coverage factor *k*
pH Electrode	4.008	4.01	163	0.0079	2.00
S/N.: 3234329	6.999	7.00	-12	0.0085	2.00
	9.997	10.00	-183	0.0095	2.00

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : InLab®Expert Go-ISM
- Serial No. : 3234329

Dimension of probe

- Length : 120 mm.
- Diameter : 12 mm.
- Immersion Depth : 100 mm.

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (± °C)	Coverage factor *k*
25.0	25.003	25.1	0.097	0.13	2.00
30.0	30.002	30.1	0.098	0.13	2.00
35.0	35.002	35.2	0.198	0.13	2.00

Remark - UUC* = Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

-o0o-

ภาคผนวก ฉ

หนังสือขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

จากกรมโรงงานอุตสาหกรรม

ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๐ กรกฎาคม ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอท จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๗ เมษายน ๒๕๖๖

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น
๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๙ แผ่น

ตามหนังสือที่อ้างถึง บริษัท ซีคอท จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙ สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอท จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย ตามสิ่งที่ส่งมาด้วย ๑

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย ตามสิ่งที่ส่งมาด้วย ๒

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย น้ำใต้ดิน อากาศเสีย สิ่งปฏิกูล หรือวัสดุที่ไม่ใช้แล้ว และดิน ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ พฤษภาคม ๒๕๖๙ หากประสงค์จะต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรมภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ซึ่งคำขอต่ออายุดังกล่าวขอรับได้ที่กรมโรงงานอุตสาหกรรม ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายประสม ดำรงพงษ์)
ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

สงท่สงมาด้วย ๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอท จำกัด เลขทะเบียน ว-๒๓๙

ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖ ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

๑) นายขรรชัย เกรียงไกรอุดม	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๒
๒) นางสมฤดี เกรียงไกรอุดม	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๓
๓) นางอารยา ทิพรักษ์	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๔
๔) นางสาวเขมชุดา อินทร์ศร	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๕
๕) นางสาวปรีดา สมใจ	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๖
๖) นางสาวอรัญญา มาตา	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๗
๗) นางสาวลดาวัลย์ วงศ์เจริญ	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๘
๘) นางสาวมณีวรรณ เกตะวันดี	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๐๙
๙) นางสาวนริสา ภูวสรรเพ็ชญ์	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๑๐
๑๐) นางสาวศิริวรรณ ฉิมสง่า	ทะเบียนเลขที่ ว-๒๓๙-ค-๐๐๑๑

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ซีคอท จำกัด เลขทะเบียน ว-๒๓๙
ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖ ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๘ ราย

๑) นางสาวสุดาพร สุนทร	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๑
๒) นางสาวสุธาทิพย์ เทียนเตี้ย	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๓
๓) นางสาวสุนันทา ศิรวุฒินานนท์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๔
๔) นายบวร ดีชัยยะ	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๕
๕) นางสาวเกศรินทร์ วรเดชวิทยา	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๖
๖) นายอนิวัฒน์ พิมวันนา	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๗
๗) นายชิตพล สมประสงค์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๘
๘) นางสาวศศิธร พรหมประเสริฐ	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๐๙
๙) นายศิวะนนท์ กุลวงษ์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๐
๑๐) นางสาวอลิษา คนิวรานนท์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๑
๑๑) นางสาวสิริวรรณ แก้วชิงดวง	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๒
๑๒) นางสาวปัทมวรรณ สุวรรณวิโรจน์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๓
๑๓) นางสาวกนิษฐา เจริญเชื้อ	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๔
๑๔) นายวัชรกานต์ ประมาคะเต	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๕
๑๕) นายซอง เฮงชวัลกุล	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๖
๑๖) นางสาวกฤษณา จันทุม	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๗
๑๗) นางสาวพรนภา บุตรธรรม	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๘
๑๘) นางสาวธารินี อาจปลิว	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๙
๑๙) นายธนโชติ ช่างล้อ	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๐
๒๐) นางสาวพัชรา สมานฉันท์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๑
๒๑) นางสาวจุฑารัตน์ แจ่มเรือน	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๒
๒๒) นางสาวจณิสตา กุ้ยอ่อน	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๓
๒๓) นายกิตติพงศ์ ถะเกิงสุข	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๔
๒๔) นายจีรวัฒน์ โคตรคำหาญ	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๕
๒๕) นายชนะพล อัครผล	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๖
๒๖) นางสาวทิพย์สุดา วรรณการ	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๗
๒๗) นายสิทธิชัย สว่างวงศ์ไชย	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๘
๒๘) นายพิษณุ สีนามเพ็ง	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๙
๒๙) นายรัตนชัย ชอบทำกิจ	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๐
๓๐) นายธนาวุฒิ ด่วนแสง	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๑
๓๑) นายณัฐชัย ไชยโคตร	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๒
๓๒) นายณัฐดนัย กฤษณะโลม	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๓
๓๓) นายศุภชัย สุขใหม่	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๔
๓๔) นายรอมฎอน เหล็มหมาด	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๕
๓๕) นางสาวสุภาวดี บัวแก้ว	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๖
๓๖) นางสาวมารียาณี ฮาแว	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๗
๓๗) นางสาววิระยา ปัจฉิมบูรณ์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๘
๓๘) นางสาวศลิษา อินรีย์	ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๙

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ซีคอท จำกัด เลขทะเบียน ว-๒๓๙
ที่ อก ๐๓๑๐(๑)/ ๑๑๐๑๖ ลงวันที่ ๒๐ กรกฎาคม ๒๕๖๖

ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๕ รายการ

น้ำเสีย จำนวน 45 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
2	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
3	Barium	1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
4	α-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
5	β-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
6	δ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
7	γ-BHC	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
8	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method[4] 2) 5-Day BOD Test, Membrane Electrode Method[4]
9	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]
10	Chemical Oxygen Demand	1) Open Reflux, Titrimetric method[4] 2) Closed Reflux, Colorimetric method[4] 3) Closed Reflux, Titrimetric Method[4]
11	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
12	Chromium	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]
13	Color	ADMI Weighted-Ordinate Spectrophotometric Method[4]
14	Copper	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]
15	Cyanide	Distillation, Colorimetric method[4]
16	4,4′-DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	4,4′-DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
18	4,4′-DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
19	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
20	Endosulfan I	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
21	Endosulfan II	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
22	Endosulfan Sulfate	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
23	Endrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
24	Endrin Aldehyde	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
25	Formaldehyde	Distillation, Colorimetric Method[3]
26	Free Chlorine	1) Iodometric Method[4] 2) DPD Colorimetric Method[4]
27	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
28	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
29	Hexavalent Chromium	1) Colorimetric Method[4] 2) Extraction, Air-Acetylene Flame Method[4]
30	Lead	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]
31	Manganese	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]
32	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[4]
33	Methoxychlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
34	Nickel	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4]

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		3) Digestion, Inductively Coupled Plasma Method[4]
35	Oil & Grease	1) Liquid-Liquid, Partition-Gravimetric Method[4] 2) Soxhlet Extraction Method[4]
36	pH	Electrometric Method[4]
37	Phenols	1) Distillation, Chloroform Extraction Method[4] 2) Distillation, Direct Photometric Method[4]
38	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
39	Sulfide	1) Iodometric method[4] 2) Methylene blue method[4]
40	Temperature	Laboratory and Field Methods[4]
41	Total Dissolved Solids	Dried at 180 °C[4]
42	Total Kjeldahl Nitrogen	1) Macro Kjeldahl Method[4] 2) Semi-Micro Kjeldahl Method[4]
43	Total Suspended Solids	Dried at 103-105 °C[4]
44	Trivalent Chromium	1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation[4] 3) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation[4]
45	Zinc	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Method[4]

น้ำใต้ดิน...

น้ำใต้ดิน จำนวน 125 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
2	Acetone	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
3	Aldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
4	Anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
5	Antimony	Digestion, Inductively Coupled Plasma Spectrometric Method[4]
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
7	Atrazine	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
8	Barium	1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method[4] 2) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
9	Benz(a)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
10	Benzene	Purge and Trap Gas Chromatographic/Mass spectrometric Method[4]
11	Benzo(b)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
12	Benzo(k)fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

13 Benzoic acid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
13	Benzoic acid	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
14	Benzo(a)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
15	Benzo(g,h,i)perylene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
16	Beryllium	Digestion, Inductively Coupled Plasma Spectrometric Method[4]
17	Bis(2-chloroethyl)ether	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
18	Bis(2-ethylhexyl)phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
19	Bromodichloromethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
20	Bromoform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
21	Butanol	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
22	Butyl benzyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
23	Cadmium	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
24	Carbazole	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
25	Carbon disulfide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
26	Carbon tetrachloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]

27 Chlordane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
27	Chlordane	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
28	p-Chloroaniline	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
29	Chlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
30	Chlorodibromomethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
31	Chloroform	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
32	2-Chlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
33	Chromium	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
34	Chromium (III)	1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method; Colorimetric Method; Calculation[4]
35	Chromium (VI)	1) Colorimetric Method[4] 2) Extraction, Air-Acetylene Flame Method[4]
36	Chrysene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
37	Cyanide	1) Distillation, Titrimetric Method[4] 2) Distillation, Colorimetric Method[4]
38	2,4-D	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
39	DDD	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
40	DDE	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
41	DDT	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
42	Dibenz(a,h)anthracene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
43	Di-n-butyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
44	1,2-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
45	1,3-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
46	1,4-Dichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
47	3,3′-Dichlorobenzidine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
48	1,1-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
49	1,2-Dichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
50	1,1-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
51	cis-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
52	trans-1,2-Dichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
53	2,4-Dichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
54	1,2-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
55	1,3-Dichloropropane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
56	1,3-Dichloropropene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
57	Dieldrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
58	Diethyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
59	2,4-Dimethylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
60	2,4-Dinitrophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
61	2,4-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
62	2,6-Dinitrotoluene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
63	Di-n-Octyl phthalate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
64	Endosulfan	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4]

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
65	Endrin	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
66	Ethylbenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
67	Fluoranthene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
68	Fluorene	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
69	Heptachlor	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
70	Heptachlor epoxide	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
71	Hexachlorobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
72	Hexachloro-1,3-butadiene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
73	n-Hexane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
74	α-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
75	β-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4]

2) Liquid-Liquid...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
76	γ-HCH	1) Liquid-Liquid Extraction, Gas Chromatographic Method[4]
		2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
77	Hexachlorocyclopentadiene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
78	Hexachloroethane	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
79	Indeno(1,2,3-cd)pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
80	Isophorone	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
81	Lead	1) Digestion, Direct Air-Acetylene Flame Method[4]
		2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4]
		3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
82	Manganease	1) Digestion, Direct Air-Acetylene Flame Method[4]
		2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4]
		3) Digestion, Inductively Coupled Plasma Spectrometric Method [4]
83	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[4]
84	Methanol	Purge and Trap Gas Chromatographic/ Mass spectrometric Method[4]
85	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
86	Methyl bromide	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]

87 Methylene chloride...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
87	Methylene chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
88	2-Methylphenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
89	2-Methylnaphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
90	Methyl tert-butyl ether	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
91	Naphthalene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
92	Nickel	1) Digestion, Direct Air-Acetylene Flame Method[4]
		2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4]
		3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]
93	Nitrobenzene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
94	N-Nitrosodiphenylamine	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
95	N-Nitrosodi-n-propylamine	Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[4]
96	Polychlorinated Biphenyls	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
	- PCB-1016	
	- PCB-1221	
	- PCB-1232	
	- PCB-1242	
	- PCB-1248	
	- PCB-1254	
	- PCB-1260	
97	Pentachlorophenol	Liquid-Liquid Extraction, Gas Chromatographic Method[4]
98	pH	Electrometric method[4]

99 Phenanthrene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
99	Phenanthrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
100	Phenol	1) Distillation, Chloroform Extraction Method[4] 2) Distillation, Direct Photometric Method[4] 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
101	Pyrene	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
102	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
103	Silver	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Inductively Coupled Plasma Method[4]
104	Styrene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
105	1,1,2,2-Tetrachloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
106	Tetrachloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
107	Toluene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
108	TPH (C_5-C_8)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[12,25]
109	TPH ($C_{>8}$-C_{16})	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[9,21] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method[9,25]
110	TPH ($C_{>16}$-C_{35})	1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[9,21]

2) Separatory...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method[9,25]
111	1,2,4-Trichlorobenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
112	1,1,1-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
113	1,1,2-Trichloroethane	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
114	Trichloroethylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
115	2,4,5-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
116	2,4,6-Trichlorophenol	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[4]
117	1,3,5-Trimethylbenzene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
118	Vanadium	Digestion, Inductively Coupled Plasma Spectrometric Method[4]
119	Vinyl acetate	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
120	Vinyl chloride	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
121	m-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
122	o-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
123	p-Xylene	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]
124	Xylene (Total)	Purge and Trap Gas Chromatographic/Mass Spectrometric Method[4]

125 Zinc ...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
125	Zinc	1) Digestion, Direct Air-Acetylene Flame Method[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method[4]

<u>อากาศเสีย (ปล่องระบาย) จำนวน 27 รายการ</u>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Antimony	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
2	Arsenic	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
3	Beryllium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
4	Cadmium	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
5	Carbon monoxide	Instrumental Analyzer Method[5]
6	Chlorine	1) Absorption Sampling, Ion Chromatographic Method[5] 2) Isokinetic Sampling, Ion Chromatographic Method[5]
7	Chromium	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
8	Cobalt	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
9	Copper	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
10	Cresol	Adsorption Sampling, Gas Chromatographic Method[5]
11	Dioxin/Furans	Isokinetic Sampling[5]
12	Hydrogen chloride	1) Absorption Sampling, Ion Chromatographic Method[5] 2) Isokinetic Sampling, Ion Chromatographic Method[5]
13	Hydrogen Fluoride	1) Absorption Sampling, Ion Chromatographic Method[5] 2) Isokinetic Sampling, Ion Chromatographic Method[5]
14	Hydrogen Sulfide	Absorption Sampling, Iodometric Method[5]
15	Lead	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
16	Manganese	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
17	Mercury	Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[5]
18	Nickel	1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
19	Opacity	Ringelmann's Method[2]
20	Oxides of Nitrogen	1) Absorption Sampling, Phenoldisulfonic acid Method[5] 2) Absorption Sampling, Ion Chromatographic Method[5] 3) Instrumental Analyzer Method[5]
21	Selenium	1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
22	Sulfur dioxide	1) Isokinetic Sampling, Barium-Thorin Titrimetric Method[5] 2) Absorption Sampling, Barium-Thorin Titrimetric Method[5] 3) Instrumental Analyzer Method[5]
23	Sulfuric acid	Isokinetic Sampling, Barium-Thorin Titrimetric Method[5]
24	Tin	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
25	Total Suspended Particulate	1) Isokinetic Sampling, Gravimetric Method[5] 2) Paired Train, Isokinetic Sampling, Gravimetric Method[5]
26	Vanadium	Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method[5]
27	Xylene	1) Adsorption Sampling, Gas Chromatographic Method[5] 2) Adsorption Sampling, Gas Chromatographic/ Mass Spectrometric Method[5]

สิ่งปฏิกูล...

<u>สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ</u>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,6,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,6,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
2	Antimony	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,16] 4) Digestion, Inductively Coupled Plasma Method[7,14]
3	Arsenic	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,16] 4) Digestion, Inductively Coupled Plasma Method[7,14]
4	Barium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[1,6,15]

2) Waste Extraction...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]
5	Beryllium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
6	Cadmium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]
7	Chlordane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
8	Chromium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]
9	Chromium (III)	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation[1,6,15,17] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation[1,6,14,17] 3) Digestion, Flame Atomic Absorption Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation[7,8,15,17] 4) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation[7,8,14,17]
10	Chromium (VI)	1) Waste Extraction, Colorimetric Method[1,17] 2) Alkaline Digestion, Colorimetric Method[8,17]
11	Cobalt	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
12	Copper	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
13	2,4-D	1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method[1,25] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[25]
14	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
15	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
16	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]

17 Dieldrin...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
17	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
18	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
19	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
20	Lead	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14]

3) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]
21	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
22	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[1,18] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[19] 4) Digestion, Inductively Coupled Plasma Method[7,14]
23	Methoxychlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,9,27] 3) Soxhlet Extraction, Gas Chromatographic Method[10,22] 4) Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]

24 Molybdenum...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
24	Molybdenum	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
25	Nickel	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method[7,14]
26	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method[1,9,23] 2) Soxhlet Extraction, Gas Chromatographic Method[10,23]
27	Pentachlorophenol	1) Waste Extraction, Gas Chromatographic/ Mass Spectrometric Method[1,25] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[25]
28	pH	Electrometric Method[31,32]
29	Selenium	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[1,6,20] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,20]

4) Digestion...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		4) Digestion, Inductively Coupled Plasma Method[7,14]
30	Silver	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
31	Thallium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
32	Trichloroethylene	1) Waste Extraction, Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[1,12,26] 2) Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[12,26]
33	Vanadium	1) Waste Extraction, Digestion, Inductively Coupled Plasma Method[1,6,14] 2) Digestion, Inductively Coupled Plasma Method[7,14]
34	Zinc	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method [1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 4) Digestion, Inductively Coupled Plasma Method [7,14]

<u>ดิน จำนวน 124 รายการ</u>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Acenaphthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
2	Acetone	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
3	Aldrin	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
4	Anthracene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
5	Antimony	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,16] 2) Digestion, Inductively Coupled Plasma Method[7,14]
6	Arsenic	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,16] 2) Digestion, Inductively Coupled Plasma Method[7,14]
7	Atrazine	Ultrasonic Extraction, Gas Chromatographic Method[11,24]
8	Barium	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
9	Benz(a)anthracene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
10	Benzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
11	Benzo(b)fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
12	Benzo(k)fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
13	Benzoic acid	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
14	Benzo(a)pyrene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
15	Benzo(g,h,i)perylene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
16	Beryllium	Digestion, Inductively Coupled Plasma Method[7,14]
17	Bis(2-chloroethyl)ether	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
18	Bis(2-ethylhexyl)phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
19	Bromodichloromethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
20	Bromoform	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
21	Butanol	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
22	Butyl benzyl phthalate	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
23	Cadmium	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
24	Carbazole	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
25	Carbon disulfide	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
26	Carbon tetrachloride	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
27	Chlordane	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
28	p-Chloroaniline	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
29	Chlorobenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
30	Chlorodibromomethane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
31	Chloroform	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
32	2-Chlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
33	Chromium	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
34	Chromium (III)	1) Digestion, Flame Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation[7,8,15,17] 2) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation[7,8,14,17]
35	Chromium (VI)	Alkaline Digestion, Colorimetric Method[8,17]
36	Chrysene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
37	Cyanide	1) Extraction, Distillation, Titrimetric Method[28,29,30] 2) Extraction, Distillation, Colorimetric Method[28,29,30]
38	2,4-D	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[24]
39	DDD	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
40	DDE	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
41	DDT	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
42	Dibenz(a,h)anthracene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
43	Di-n-butyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
44	1,2-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
45	1,3-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
46	1,4-Dichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
47	3,3′-Dichlorobenzidine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
48	1,1-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
49	1,2-Dichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
50	1,1-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
51	cis-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
52	trans-1,2-Dichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
53	2,4-Dichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]

54 1,2-Dichloropropane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
54	1,2-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
55	1,3-Dichloropropane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
56	1,3-Dichloropropene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
57	Dieldrin	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
58	Diethyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
59	2,4-Dimethylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
60	2,4-Dinitrophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
61	2,4-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
62	2,6-Dinitrotoluene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
63	Di-n-Octyl phthalate	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
64	Endosulfan	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
65	Endrin	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
66	Ethylbenzene	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]

67 Fluoranthene...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
67	Fluoranthene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
68	Fluorene	Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method[10,27]
69	Heptachlor	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
70	Heptachlor epoxide	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
71	Hexachlorobenzene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
72	Hexachloro-1,3-butadiene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
73	n-Hexane	Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method[13,26]
74	α-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
75	β-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
76	γ-HCH	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
77	Hexachlorocyclopentadiene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]

78 Hexachloroethane...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
78	Hexachloroethane	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
79	Indeno(1,2,3-cd)pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
80	Isophorone	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
81	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
82	Manganease	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
83	Mercury	1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[19] 2) Digestion, Inductively Coupled Plasma Method[7,14]
84	Methanol	Ultrasonic Extraction, Direct Aqueous Injection, Gas Chromatographic Method[11,21]
85	Methoxychlor	1) Ultrasonic Extraction, Gas Chromatographic Method[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
86	Methyl bromide	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
87	Methylene chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
88	2-Methylphenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
89	2-Methylnaphthalene	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]

90 Methyl tert-butyl ether...

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
90	Methyl tert-butyl ether	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
91	Naphthalene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
92	Nickel	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
93	Nitrobenzene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
94	N-Nitrosodiphenylamine	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
95	N-Nitrosodi-n-propylamine	Soxhlet Extration, Gas Chromatographic/Mass Spectrometric Method[10,27]
96	Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260	Soxhlet Extraction, Gas Chromatographic Method[10,23]
97	Pentachlorophenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[24]
98	Phenanthrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
99	Phenol	Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method[11,27]
100	Pyrene	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[10,27]
101	Selenium	1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[7,20]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Digestion, Inductively Coupled Plasma Method[7,14]
102	Silver	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]
103	Styrene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
104	1,1,2,2-Tetrachloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
105	Tetrachloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
106	Toluene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
107	TPH (C_5-C_8)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
108	TPH ($C_{>8}$-C_{16})	1) Soxhlet Extraction, Gas Chromatographic Method[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method[10,26]
109	TPH ($C_{>16}$-C_{35})	1) Soxhlet Extraction, Gas Chromatographic Method[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method[10,26]
110	1,2,4-Trichlorobenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
111	1,1,1-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
112	1,1,2-Trichloroethane	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
113	Trichloroethylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
114	2,4,5-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
115	2,4,6-Trichlorophenol	Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method[11,27]
116	1,3,5-Trimethylbenzene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
117	Vanadium	Digestion, Inductively Coupled Plasma Method[7,14]
118	Vinyl acetate	Purge and Trap, Gas Chromatographic/Mass spectrometric Method[13,26]
119	Vinyl chloride	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
120	m-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
121	o-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
122	p-Xylene	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
123	Xylene (Total)	Purge and Trap, Gas Chromatographic/Mass Spectrometric Method[13,26]
124	Zinc	1) Digestion, Flame Atomic Absorption Spectrometric Method[7,15] 2) Digestion, Inductively Coupled Plasma Method[7,14]

<u>เอกสารอ้างอิง</u>

1. กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2548. เรื่อง การกำจัดสิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว.ราชกิจจานุเบกษา. 25 มกราคม 2549. เล่มที่ 123 ตอนพิเศษ 11ง.

2. กระทรวงอุตสาหกรรม. ประกาศกระทรวงอุตสาหกรรม, พ.ศ. 2549. เรื่อง กำหนดค่าปริมาณเขม่าควันที่เจือปนในอากาศที่ระบายออกจากปล่องของหม้อน้ำโรงสีข้าวที่ใช้แกลบเป็นเชื้อเพลิง. ราชกิจจานุเบกษา. 4 ธันวาคม 2549. เล่มที่ 123 ตอนพิเศษ 125ง.

3. สมาคมวิศวกรรมสิ่งแวดล้อมแห่งประเทศไทย. คู่มือวิเคราะห์น้ำเสีย. พิมพ์ครั้งที่ 4. กรุงเทพฯ: เรือนแก้วการพิมพ์, 2547.

4. APHA, AWWA, WEF. Standard Methods for the Examination of Water and Wastewater. 23rd ed. Washington, DC: APHA, 2017.

5. United States Environmental Protection Agency. Standards of Performance for New Stationary Sources. 40 CFR 60. Appendix A, 2023.

6. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. SW-846, 2020.

7. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Acid Digestion of Sediments, Sludges, and Soils. SW-846 Method 3050B, 1996.

8. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Alkaline Digestion for Hexavalent Chromium. SW-846 Method 3060A, 1996.

9. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Separatory Funnel Liquid-Liquid Extraction. SW-846 Method 3510C, 1996.

10. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Soxhlet Extraction. SW-846 Method 3540C, 1996.

11. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Ultrasonic Extraction. SW-846 Method 3550C, 2007.

12. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Purge-and-Trap for Aqueous Samples. SW-846 Method 5030C, 2003.

13. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples. SW-846 Method 5035, 1996.

14. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Inductively Coupled Plasma-optical Emission Spectrometry. SW-846 Method 6010D, 2018.

15. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Flame Atomic Absorption Spectrophotometry. SW-846 Method 7000B, 2007.

16. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. Antimony and Arsenic (Atomic Absorption, Borohydride Reduction). SW-846 Method 7062, 1994.

17. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Chromium, Hexavalent (Colorimetric), SW-846 Method 7196A**, 1992.

18. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Mercury in Liquid Waste (Manual Cold-Vapor Technique, SW-846 Method 7470A**, 1994.

19. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique, SW-846 Method 7471B**, 2007.

20. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Selenium (Atomic Absorption, Borohydride Reduction), SW-846 Method 7742**, 1994.

21. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Nonhalogenated Organics Using GC/FID. SW-846 Method 8015D**, 2003.

22. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Organochlorine Pesticide by Gas Chromatography. SW-846 Method 8081B**, 2007.

23. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Polychlorinated Biphenyls (PCBs) By Gas Chromatography. SW-846 Method 8082A**, 2007.

24. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Organophosphorus Compounds by Gas Chromotography. SW-846 Method 8141B**, 2007.

25. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Chlorinated Herbicides By GC Using Methylation or Pentafluorobenzylation Derivatization. SW-846 Method 8151A**, 1996.

26. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS). SW-846 Method 8260D**, 2018.

27. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **SemiVolatile Organic Compounds by Gas Chromatography/Mass Spectrometry. SW-846 Method 8270E**, 2018.

28. United States...

28. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Total and Amenable Cyanide: Distillation. SW-846 Method 9010C**, 2004.

29. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Cyanide Extraction Procedure for Solids and Oils. SW-846 Method 9013A**, 2014.

30. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Cyanide in Waters and Extracts Using Titrimetric and Manual Spectrophotometric. SW-846 Method 9014**, 2014.

31. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **pH Electrometric Measurement. SW-846 Method 9040C**, 2004.

32. United States Environmental Protection Agency. Test Methods for Evaluation Solid Waste Physical/Chemical Methods. **Solid and Waste pH. SW-846 Method 9045D**, 2004.

ที่ อก ๐๓๑๐(๑)/ ๕๐๕๔

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๗ พฤษภาคม ๒๕๖๗

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคอท จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๒๑ พฤษภาคม ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท ซีคอท จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙ สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอเปลี่ยนแปลงบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๒ ราย ได้แก่

๑) นายวัชรกานต์ ประมาคะเต ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๑๕
๒) นายรัตนชัย ชอบทำกิจ ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๐

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายพรยศ กลั่นกรอง)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

ที่ อก ๐๓๑๐(๑)/ ๑๑๕๔๗

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๑ พฤศจิกายน ๒๕๖๗

เรื่อง ยกเลิกบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคอท จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๕ พฤศจิกายน ๒๕๖๗

ตามคำขอที่อ้างถึง บริษัท ซีคอท จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๒๓๙ สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอยกเลิกบุคลากร ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓ ราย ได้แก่

๑) นางสาวพัชรา สมานฉันท์ ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๒๑
๒) นางสาวสุภาวดี บัวแก้ว ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๖
๓) นางสาวมารียาณี ฮาแว ทะเบียนเลขที่ ว-๒๓๙-จ-๐๐๓๗

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายธีรทัศน์ อิศรางกูร ณ อยุธยา)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th

ภาคผนวก ช

ใบรับรองความสามารถห้องปฏิบัติการและขอบข่าย
การรับรองห้องปฏิบัติการทดสอบตาม ISO/IEC 17025
จากสำนักงานมาตรฐานอุตสาหกรรม (สมอ.)

แบบ กมช./สมอ.๒
Form NSC/TISI 2

ใบรับรองเลขที่ 24-LB0026
(Certificate No.)

ใบรับรองระบบงาน
(Certificate of Accreditation)

อาศัยอำนาจตามความในพระราชบัญญัติการมาตรฐานแห่งชาติ พ.ศ. ๒๕๕๑
(By Virtue of National Standardization Act B.E. 2551 (2008))

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Secretary-General, Thai Industrial Standards Institute)

ออกใบรับรองฉบับนี้ให้
(Issues this certificate to)

บริษัท ซีคอท จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม
(Secot Company Limited, Environmental Laboratory Division)

ตั้งอยู่เลขที่
(Address)

๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
(239 Rimklongprapa Road, Bangsue, Bangsue, Bangkok)

ได้รับการรับรองความสามารถ
(Certificate of competence)

ตามมาตรฐานเลขที่ มอก. ๑๗๐๒๕ - ๒๕๖๑
(Standard No. TIS 17025-2561 (2018) (ISO/IEC 17025: 2017))

ข้อกำหนดทั่วไปว่าด้วยความสามารถของ ห้องปฏิบัติการทดสอบและห้องปฏิบัติการสอบเทียบ
(General requirements for the competence of testing and calibration laboratories)

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔
(Accreditation No. Testing 0394)

โดยมีรายละเอียดสาขาและขอบข่ายที่ได้ใบรับรอง แสดงไว้ใน QR CODE และ www.tisi.go.th
(Details of the scheme and scope of the certificate are shown in QR CODE and www.tisi.go.th)

ออกให้ ณ วันที่ ๖ ธันวาคม พ.ศ. ๒๕๖๖
(Issue date : 6 December B.E. 2566 (2023))

(นายวีระศักดิ์ เพ็งหล้ง)
ผู้อำนวยการสำนักงานคณะกรรมการการมาตรฐานแห่งชาติ
ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

Signed by สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม (สมอ.)
Thai Industrial Standards Institute (TISI)
Date: 2023-12-06T08:49:04.476+07:00
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กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Ministry of Industry Thailand, Thai Industrial Standards Institute)

รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ
(Scope of Accreditation for Testing)
ใบรับรองเลขที่ 24-LB0026
(Certification No. 24-LB0026)

ชื่อห้องปฏิบัติการ (Laboratory Name): บริษัท ซีคอท จำกัด ฝ่ายห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม (Secot Company Limited, Environmental Laboratory Division)

หมายเลขการรับรองที่ (Accreditation No.): ทดสอบ 0394 (Testing 0394)

ฉบับที่ 02 (Issue No.02) ออกให้ตั้งแต่วันที่ 30 ตุลาคม พ.ศ. 2566 (Valid from) (30 October B.E.2566 (2023)) ถึงวันที่ 8 กันยายน พ.ศ. 2571 (Until) (8 September B.E.2571 (2028))

สถานภาพห้องปฏิบัติการ (Laboratory status): ☑ ถาวร (Permanent) ☐ นอกสถานที่ (Site) ☐ ชั่วคราว (Temporary) ☐ เคลื่อนที่ (Mobile) ☐ หลายสถานที่ (Multisite)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 1. น้ำและน้ำเสีย (water and wastewater)	- โลหะหนัก (heavy metals) • สารหนู (Arsenic, As) 0.000 5 mg/L ถึง 0.090 0 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA , AWWA, WEF, 23rd edition , 2017, Part 3030 F and Part 3114 C
	• สารหนู (Arsenic, As) 0.05 mg/L ถึง 4.50 mg/L • แบเรียม (Barium, Ba) 0.02 mg/L ถึง 4.50 mg/L • แคดเมียม (Cadmium, Cd) 0.01 mg/L ถึง 4.50 mg/L • โครเมียม (Chromium, Cr) 0.01 mg/L ถึง 4.50 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA , AWWA, WEF, 23rd edition , 2017, Part 3030 E and Part 3120 B

กระทรวงอุตสาหกรรมสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
(Ministry of Industry, Thai Industrial Standards Institute)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)	- โลหะหนัก (heavy metals) • ทองแดง (Copper, Cu) 0.02 mg/L ถึง 4.50 mg/L • เหล็ก (Iron, Fe) 0.05 mg/L ถึง 9.00 mg/L • ตะกั่ว (Lead, Pb) 0.03 mg/L ถึง 4.50 mg/L • แมงกานีส (Manganese, Mn) 0.01 mg/L ถึง 9.00 mg/L • นิกเกิล (Nickel, Ni) 0.01 mg/L ถึง 4.50 mg/L • สังกะสี (Zinc, Zn) 0.02 mg/L ถึง 9.00 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA , AWWA, WEF, 23rd edition , 2017, Part 3030 E and Part 3120 B

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.)	- ซีโอดี (Chemical oxygen demand, COD) 100 mg/L ถึง 4 000 mg/L	- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF,23rd edition , 2017, Part 5220 D
2. บริเวณทำงาน (workplace)	- ฝุ่นละอองรวม (Total dust) 0.10 mg/filter ถึง 2.00 mg/filter	- NIOSH Manual of Analytical Methods (NMAM) , method 0500, 4th edition , 15th August 1994 (Exclude Sampling)
	- ฝุ่นละอองขนาดเล็ก (Respirable dust) 0.10 mg/filter ถึง 2.00 mg/filter	- NIOSH Manual of Analytical Methods (NMAM) , method 0600, 4th edition , 15th January 1998 (Exclude Sampling)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 2. บริเวณทำงาน (ต่อ) (workplace) (cont.)	- เบนซีน (Benzene) 1.10 μg/tube ถึง 420 μg/tube - โทลูอีน (Toluene) 1.10 μg/tube ถึง 420 μg/tube - โทโทรไซลีน (Total xylenes) 2.20 μg/tube ถึง 840 μg/tube - เมตา, พารา-ไซลีน (m, p- Xylene) 1.10 μg/tube ถึง 420 μg/tube - ออร์โธ-ไซลีน (o- Xylene) 1.10 μg/tube ถึง 420 μg/tube	- NIOSH Manual of Analytical Methods (NMAM) , method 1501, 4th edition , 15th March 2003 (Exclude Sampling)
3. ปล่องระบายอากาศ (stack)	- ซัลเฟอร์ไดออกไซด์ (Sulfur dioxide) 1.00 mg/L ถึง 16 000 mg/L (solution)	- US.EPA , Code of Federal Regulations , 40 CFR 60 appendix A , method 6 , July 2019 (Exclude Sampling)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 3. ปล่องระบายอากาศ (ต่อ) (stack) (cont.)	- ไฮโดรเจนฟลูออไรด์ (Hydrogen fluoride) 5 μg/sample ถึง 400 μg/sample - ไฮโดรเจนคลอไรด์ (Hydrogen chloride) 5 μg/sample ถึง 400 μg/sample	- WI-7.2-1-22 based on US.EPA , Code of Federal Regulations , 40 CFR 60 appendix A, method 26 , 2019 (Exclude Sampling)

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 4. บรรยากาศทั่วไป (ambient air)	- สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs) • คลอโรอีทีน (Chloroethene) 0.05 $\mu g/m^3$ ถึง 51.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv) • 1,3-บิวทาไดอีน (1,3-butadiene) 0.04 $\mu g/m^3$ ถึง 44.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv) • โบรโมมีเทน (Bromomethane) 0.08 $\mu g/m^3$ ถึง 77.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv) • อะคลอลีน (Acrolein) 0.05 $\mu g/m^3$ ถึง 45.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv)	- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)	- สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs) • อะคริโลไนไตรล์ (Acrylonitrile) 0.04 $\mu g/m^3$ ถึง 43.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv) • ไดคลอโรมีเทน (Dichloromethane) 0.14 $\mu g/m^3$ to 69.00 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv) • คาร์บอนไดซัลไฟด์ (Carbon disulfide) 0.06 $\mu g/m^3$ ถึง 62.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv) • ไตรคลอโรมีเทน (Trichloromethane) 0.20 $\mu g/m^3$ ถึง 97.00 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv) • 1,2-ไดคลอโรอีเทน (1,2-dichloroethane) 0.08 $\mu g/m^3$ ถึง 80.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv)	- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)	- สารอินทรีย์ระเหยง่าย (Volatile organic compounds, VOCs) • เบนซีน (Benzene) 0.06 $\mu g/m^3$ ถึง 63.00 $\mu g/m^3$ (0.02 ppbv ถึง 20.00 ppbv) • คาร์บอนเตตระคลอไรด์ (Carbon tetrachloride) 0.25 $\mu g/m^3$ ถึง 125 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv) • ไตรคลอโรเอทิลีน (Trichloroethylene) 0.21 $\mu g/m^3$ ถึง 107 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv) • 1,2-ไดคลอโรโพเพน (1,2-dichloropropane) 0.18 $\mu g/m^3$ ถึง 92.00 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv) • เตตระคลอโรเอทิลีน (Tetrachloroethylene) 0.27 $\mu g/m^3$ ถึง 135 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv)	- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999

สาขาการทดสอบ (Field of Testing)	รายการทดสอบ (Parameter)	วิธีทดสอบ (Test Method)
สาขาสิ่งแวดล้อม (environmental field) 4. บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.)	- สารอินทรีย์ระเหยง่าย (Volatile organic compounds ,VOCs) • 1,2-ไดโบรโมอีเทน (1,2-dibromoethane) 0.31 $\mu g/m^3$ ถึง 153 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv) • 1,1,2,2-เตตระคลอโรอีเทน (1,1,2,2-tetrachloroethane) 0.69 $\mu g/m^3$ ถึง 137 $\mu g/m^3$ (0.10 ppbv ถึง 20.00 ppbv) • เบนซิลคลอไรด์ (Benzyl chloride) 0.52 $\mu g/m^3$ ถึง 103 $\mu g/m^3$ (0.10 ppbv ถึง 20.00 ppbv) • 1,4-ไดคลอโรเบนซีน (1,4-dichlorobenzene) 0.24 $\mu g/m^3$ ถึง 120 $\mu g/m^3$ (0.04 ppbv ถึง 20.00 ppbv)	- WI-7.2-1-24 based on US EPA , Compendium Method TO-15 , EPA/625/R-96/010b, Second edition, January 1999

ภาคผนวก ซ

ใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์การทำงาน จากกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

ใบอนุญาตเลขที่ ๑๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

อนุญาตให้ บริษัท ซีคอท จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๙๗๖

ตั้งอยู่เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความร้อน แสงสว่าง และเสียง พ.ศ. ๒๕๕๙ ในการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริม ความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๕ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
ข-๑๑-๐๔๐๓-๐๔๘-๐๑-๖๕

(ลงนาม) (นายทะเบียน)
(นายศักดิ์ศิลป์ ตุลาธร)
ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

๑. นางสาวสุนันทา	ศิรวุฒินานนท์
๒. นางสาวกนิษฐา	เจริญเชื้อ
๓. นางสาวปัทมวรรณ	สุวรรณวิโรจน์
๔. นางสาวอลิษา	คนิวรานนท์
๕. นางสาวชนิตา	หลำสาย

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)
แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

๑. นางสาวคลิษา	อินรีย์
๒. นางสาวมารียาณี	ฮาแว
๓. นางสาววิระยา	ปัณฑิมบูรณ์

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มกราคม พ.ศ. ๒๕๖๖ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๓ มกราคม พ.ศ. ๒๕๖๖

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)

แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

ของบริษัท ซีคอท จำกัด

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

๑. นายพงศ์ศิริ จักรแก้ว

ทั้งนี้ ตั้งแต่วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)

ผู้ตรวจราชการกรม ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายการเครื่องมือตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง (เพิ่มเติม)

ของบริษัท ซีคอท จำกัด

ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	เครื่องวัดเสียง และ เครื่องวัดเสียงกระทบหรือเสียงกระแทก	ยี่ห้อ	SCARLET TECH รุ่น ST-21D	๕
		Serial No.	821078 821079 821080 821081 821082	
		มาตรฐาน	IEC 61672	

ทั้งนี้ ตั้งแต่วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)

ผู้ตรวจราชการกรม ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตราย

ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๑๔๙

อนุญาตให้ บริษัท ซีคอท จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๑๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
ข-๑๑-๐๒๐๑-๐๕๙-๐๑-๖๕

(ลงนาม)..... (นายทะเบียน)
(นายศักดิ์ศิลป์ ตุลาธร)
ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๙

๑. นายขิตพล	สมประสงค์
๒. นายอนิวัฒน์	พิมวันนา
๓. นายศิวะนนท์	กุลวงษ์
๔. นายวัชรกานต์	ประมาคะเต
๕. นายธนโชติ	ช่างล้อ
๖. นายกิตติพงศ์	ถะเกิงสุข
๗. นายจีรวัฒน์	โคตรคำหาญ
๘. นายศุภกิจ	ตีะมูถา
๙. นางสาวธัญลักษณ์	โยธา
๑๐.นางสาวทิพย์สุดา	วรรณการ
๑๑.นางสาวสายธาร	ภูเขียว
๑๒.นายภาคภูมิ	แทนไทย
๑๓.นายธนาวุฒิ	ด่วนแสง
๑๔.นายรัตนชัย	ชอบทำกิจ

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๗๔

อนุญาตให้ บริษัท ซีคอท จำกัด
เลขทะเบียนนิติบุคคล ๐๑๐๑๕๕๓๖๐๐๑๗๖
ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๔ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
ข-๑๑-๐๒๐๒-๐๓๔-๐๑-๖๕

(ลงนาม).....(นายทะเบียน)
(นายศักดิ์ศิลป์ ตุลาธร)
ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

๑.	นางสาวนริสา	ภูวสรรเพ็ชญ์
๒.	นางอารยา	ทิพรักษ์
๓.	นางสาวศิริวรรณ	ฉิมสง่า
๔.	นางสาวสุธาทิพย์	เทียนเตี้ย
๕.	นางสาวพรนภา	บุตรธรรม
๖.	นางสาวธาริณี	อาจปลิว
๗.	นางสาวกฤษณา	จันทุม
๘.	นางสาวพัชรา	สมานฉันท์
๙.	นางสาวจณิสตา	กุ้ยอ่อน
๑๐.	นางสาวศศิภา	ใจดี
๑๑.	นางสาวจุฑารัตน์	แจ่มเรือน
๑๒.	นางสาวณัฐศิริ	เลิศธีรพิพัฒน์
๑๓.	นางสาวสัญญลักษณ์	อินทรประสิทธิ์
๑๔.	นางสาวสุดาพร	สุนทร

ทั้งนี้ ตั้งแต่วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๕ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับแสงสว่าง

ใบอนุญาตเลขที่ ๑๔๐๒-๐๑-๒๕๖๕-๐๑๔๙

อนุญาตให้ บริษัท ซีคอท จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๙๗๖

ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความร้อน แสงสว่าง และเสียง พ.ศ. ๒๕๕๙ ในการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับแสงสว่าง ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริม ความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๕ ราย ดังรายชื่อแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
ข-๑๑-๐๔๐๒-๐๔๙-๐๑-๖๕

(ลงนาม).....(นายทะเบียน)
(นายศักดิ์ศิลป์ ตุลาธร)
ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับแสงสว่าง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๒-๐๓-๒๕๖๕-๐๐๔๙

๑. นางสาวสุนันทา	ศิรวุฒินานนท์
๒. นางสาวกนิษฐา	เจรีญเชื้อ
๓. นางสาวปัทมวรรณ	สุวรรณวิโรจน์
๔. นางสาวอลิษา	คนิวรานนท์
๕. นางสาวชนิตา	หล่ำสาย

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๕

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)
แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับแสงสว่าง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๒-๐๓-๒๕๖๕-๐๐๔๙

๑. นางสาวศลิษา	อินรีย์
๒. นางสาวมารียาณี	ฮาแว
๓. นางสาววิระยา	ปัจฉิมบูรณ์

ทั้งนี้ ตั้งแต่วันที่ ๑๙ มกราคม พ.ศ. ๒๕๖๖ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๑๓ มกราคม พ.ศ. ๒๕๖๖

(นายสมพจน์ กวางแก้ว)
รองอธิบดี ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายชื่อบุคลากร (เพิ่มเติม)

แนบท้ายใบอนุญาตเป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับแสงสว่าง

ของบริษัท ซีคอท จำกัด

ใบอนุญาตเลขที่ ๐๔๐๒-๐๓-๒๕๖๕-๐๐๔๙

๑. นายพงศ์ศิริ จักรแก้ว

ทั้งนี้ ตั้งแต่วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๖๘

ให้ไว้ ณ วันที่ ๒๐ มีนาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)

ผู้ตรวจราชการกรม ปฏิบัติราชการแทน

อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน

ใบอนุญาต

เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง

ใบอนุญาตเลขที่ ๑๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

อนุญาตให้ บริษัท ซีดอท จำกัด

เลขทะเบียนนิติบุคคล ๐๑๐๕๕๕๓๖๒๐๐๑๙๗๖

ตั้งอยู่เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับความร้อน แสงสว่าง และเสียง พ.ศ. ๒๕๕๙ ในการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๗ ราย และรายการเครื่องมือตรวจวัด จำนวน ๖๕ เครื่อง ดังรายละเอียดแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
๓-๑๑-๐๔๐๓-๐๕๓-๐๒-๖๘

(ลงนาม).....(นายทะเบียน)
(นางสาวสุวดี ทวีสุข)
ตำแหน่ง ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

๑. นางสาวสุนันทา ศิรวุฒินานนท์
๒. นางสาวกนิษฐา เจริญเชื้อ
๓. นางสาวอลิษา คนิวรานนท์
๔. นางสาวชนิตา หล่ำสาย
๕. นางสาวศลิษา อินรีย์
๖. นางสาววิระยา ปัจฉิมบูรณ์
๗. นายพงศ์ศิริ จักรแก้ว

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายการเครื่องมือตรวจวัดแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดและวิเคราะห์สภาวะการทำงานเกี่ยวกับระดับเสียง
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๔๐๓-๐๓-๒๕๖๕-๐๐๔๘

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	เครื่องวัดเสียง และเครื่องวัดเสียงกระทบหรือเสียงกระแทก	ยี่ห้อ	Cirrus	๑๐
		รุ่น	CR162B	
		Serial No.	G302737 G302738 G302740 G302742 G302743 G301014 G302333 G302330 G302237 G300709	
		มาตรฐาน	IEC 61672-1	
		ยี่ห้อ	Cirrus	๓
		รุ่น	CR162C	
		Serial No.	G300832 G300838 G300841	
		มาตรฐาน	IEC 61672-1	
		ยี่ห้อ	Cirrus	๒
		รุ่น	CR171B	
		Serial No.	G303411 G303415	
		มาตรฐาน	IEC 61672-1	
		ยี่ห้อ	SCARLET TECH	๑๕
		รุ่น	ST-21D	
		Serial No.	820722 820723 820724 820725 820726 820727	

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
			820728	
			820729	
			820730	
			820731	
			821078	
			821079	
			821080	
			821081	
			821082	
		มาตรฐาน	IEC 61672	
๒	เครื่องวัดปริมาณเสียงสะสม	ยี่ห้อ	Cirrus	๒๐
		รุ่น	CR:110A	
		Serial No.	CB1023	
			CB1025	
			CB1026	
			CB1040	
			CB1041	
			CB1042	
			CB1043	
			CB1047	
			CB1048	
			CB1049	
			CB1050	
			CB1052	
			CB1053	
			CB1054	
			CB1055	
			CB1056	
			CB1101	
			CB1102	
			CB1103	
			CB1104	
		มาตรฐาน	IEC 61252	
		ยี่ห้อ	Pulsar	๑๐
		รุ่น	Model 22R	

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
		Serial No.	PB614	
			PB617	
			PB618	
			PB621	
			PB632	
			PB636	
			PB637	
			PB638	
			PB643	
			PB644	
		มาตรฐาน	IEC 61252	
๓	อุปกรณ์ตรวจสอบความถูกต้อง	ยี่ห้อ	Cirrus	๒
		รุ่น	CR:515	
		Serial No.	94296	
			97097	
		มาตรฐาน	IEC 60942	
๔	อุปกรณ์ตรวจสอบความถูกต้อง (เสียงสะสม)	ยี่ห้อ	Cirrus	๒
		รุ่น	RC:110A	
		Serial No.	95167	
			95168	
		มาตรฐาน	IEC 60942	
		ยี่ห้อ	Pulsar	๑
		รุ่น	Model 22R	
		Serial No.	79781	
		มาตรฐาน	IEC 60942	

ทั้งนี้ ตั้งแต่วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๖ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๖ มิถุนายน พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๑๔๙

อนุญาตให้ บริษัท ซีคอท จำกัด
เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๘๗๖
ตั้งอยู่ เลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๕ ราย และรายการเครื่องมือตรวจวัด จำนวน ๕๕ เครื่อง ดังรายละเอียดแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
ต-๑๑-๐๒๐๑-๐๕๐-๐๒-๖๘

(ลงนาม).....(นายทะเบียน)
(นางสาวสุวดี ทวีสุข)
ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๙

๑. นายชิตพล สมประสงค์
๒. นายอนิวัฒน์ พิมวันนา
๓. นายศิวะนนท์ กุดวงษ์
๔. นายธนโชติ ช่างล้อ
๕. นายกิตติพงศ์ ถะเกิงสุข
๖. นายจีรวัฒน์ โคตรคำหาญ
๗. นายศุภกิจ ต้ะมูกา
๘. นางสาวทิพย์สุดา วรรณการ
๙. นายธนาวุฒิ ด่วนแสง
๑๐. นางสาวศลิษา อินรีย์
๑๑. นางสาววิระยา ปัจฉิมบูรณ์
๑๒. นายณัฐดนัย กฤษณะโลม
๑๓. นายณัฐชัย ไชยโคตร
๑๔. นายพงศ์ศิริ จักรแก้ว
๑๕. นายอรรถชัย นวนนิ่ม

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายการเครื่องมือตรวจวัดแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการตรวจวัดระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๑-๐๓-๒๕๖๕-๐๐๔๙

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	เครื่องมือเก็บตัวอย่างอากาศ (Personal Air Sampling Pump)	ยี่ห้อ	Sensidyne Gilian	๔๖
		รุ่น	BDX II	
		Serial No.	20190401002	
			20190401003	
			20190401006	
			20190401007	
			20190401008	
			20190401013	
			20190401014	
			20190401015	
			20190401019	
			20190504021	
			20190504022	
			20190504023	
			20190504025	
			20190504027	
			20190504028	
			20190504029	
			20190504032	
			20190504034	
			20190504039	
			20190504040	
			20190504042	
			20190504044	
			20210602054	
			20210602055	
			20210701039	
			20210701078	
			20210701079	
			20210701081	

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
	เครื่องมือเก็บตัวอย่างอากาศ (ต่อ) (Personal Air Sampling Pump)		20210701082 20210701086 20210701093 20210904100 20211201089 20211201090 20220104039 20220104042 20220104045 20220104086 20220104087 20220104088 20220104089 20220104090 20220104098 20220104099 20220104100 20220104104	
		ยี่ห้อ รุ่น Serial No.	SKC Pocket Pump TOUCH 220-1000TC 221217 221218 221219 221222 221245	๕
๒	เครื่องมือและอุปกรณ์สำหรับปรับความถูกต้อง (Pump calibrator)	ยี่ห้อ รุ่น Serial No.	Mesa Labs Defender 520-L 160100	๑
		ยี่ห้อ รุ่น Serial No.	Mesa Labs Defender 520-H 114069	๑
		ยี่ห้อ รุ่น Serial No.	SKC Chek-mate 375-0550 N 22552891	๑

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
	เครื่องมือและอุปกรณ์สำหรับปรับความถูกต้อง (ต่อ) (Pump calibrator)	ยี่ห้อ รุ่น Serial No.	SKC Chek-mate 375-00205 N 21552177	๑

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

แบบ กภ.บญ
นิติบุคคล

กรมสวัสดิการและคุ้มครองแรงงาน
ใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตราย
ในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย

ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

อนุญาตให้ บริษัท ซีคอท จำกัด
เลขทะเบียนนิติบุคคล ๐๑๐๕๕๓๖๐๐๐๙๗๖
ตั้งอยู่ เลขที่ ๒๓๔ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร
เป็นนิติบุคคลผู้ให้บริการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน ตามกฎกระทรวงกำหนดมาตรฐานในการบริหาร จัดการ และดำเนินการด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงานเกี่ยวกับสารเคมีอันตราย พ.ศ. ๒๕๕๖ ในการเป็นผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงานและสถานที่เก็บรักษาสารเคมีอันตราย ประกอบกับกฎกระทรวงการขึ้นทะเบียนและการอนุญาตให้บริการเพื่อส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๖๔ แห่งพระราชบัญญัติความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๔ โดยมีบุคลากร จำนวน ๑๐ ราย และรายการเครื่องมือวิเคราะห์ จำนวน ๙ เครื่อง ดังรายละเอียดแนบท้ายใบอนุญาตนี้

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

เลขทะเบียนควบคุม
๓-๑๑-๐๒๐๒-๐๓๕-๐๒-๖๘

(ลงนาม).....(นายทะเบียน)
(นางสาวสุวดี ทวีสุข)
ผู้อำนวยการกองความปลอดภัยแรงงาน

รายชื่อบุคลากรแนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

๑. นางสาวนริสา ภูวสรรเพ็ชญ์
๒. นางอารยา ทิพรักษ์
๓. นางสาวศิริวรรณ ฉิมสง่า
๔. นางสาวสุธาทิพย์ เทียนเตี้ย
๕. นางสาวพรนภา บุตรธรรม
๖. นางสาวธาริณี อาจปลิว
๗. นางสาวจณิสตา กุ้ยอ่อน
๘. นางสาวจุฑารัตน์ แจ่มเรือน
๙. นางสาวสุดาพร สุนทร
๑๐. นางสาวปวริศา มากภักดี

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๓ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน

รายการเครื่องมือวิเคราะห์แนบท้ายใบอนุญาต
เป็นนิติบุคคลผู้ให้บริการวิเคราะห์ระดับความเข้มข้นของสารเคมีอันตรายในบรรยากาศของสถานที่ทำงาน
และสถานที่เก็บรักษาสารเคมีอันตราย
ของบริษัท ซีคอท จำกัด
ใบอนุญาตเลขที่ ๐๒๐๒-๐๓-๒๕๖๕-๐๐๓๔

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๑	Atomic Absorption Spectrophotometer (AAS)	ยี่ห้อ รุ่น Serial No.	Perkin Elmer PinAAcle 900T PTDS23051001	๑
๒	Inductively Coupled Plasma (ICP-OES)	ยี่ห้อ รุ่น Serial No.	Agilent 5110 MY16230003	๑
๓	Gas Chromatograph Flame Ionization Detecter (GC-FID)	ยี่ห้อ รุ่น Serial No.	Agilent 7890 B CN 15346147	๑
		ยี่ห้อ รุ่น Serial No.	Agilent 7890 A US10943001	๑
๔	Ion Chromatography	ยี่ห้อ รุ่น Serial No.	Dionex ICS-1000 04090295	๑
๕	Electronic Balance	ยี่ห้อ รุ่น Serial No.	Sartorius ME5, 6 digits SWB26602268	๑
		ยี่ห้อ รุ่น Serial No.	Mettler Toledo AG245, 5 digits 1117293916	๑
		ยี่ห้อ รุ่น Serial No.	Mettler Toledo AB204-S, 4 digits 1123163292	๑

ลำดับที่	รายการเครื่องมือ	รายละเอียด		จำนวน (เครื่อง)
๖	UV/Vis Spectrophotometer	ยี่ห้อ รุ่น Serial No.	Thermo Scientific GENESYS 150 UV-Vis 9A5Y332022	๑

ทั้งนี้ ตั้งแต่วันที่ ๑๔ มิถุนายน พ.ศ. ๒๕๖๘ ถึงวันที่ ๑๓ มิถุนายน พ.ศ. ๒๕๗๑

ให้ไว้ ณ วันที่ ๒๑ พฤษภาคม พ.ศ. ๒๕๖๘

(นายศักดิ์ศิลป์ ตุลาธร)
ผู้ตรวจราชการกรม ปฏิบัติราชการแทน
อธิบดีกรมสวัสดิการและคุ้มครองแรงงาน