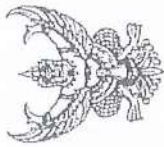


เอกสารแนบ

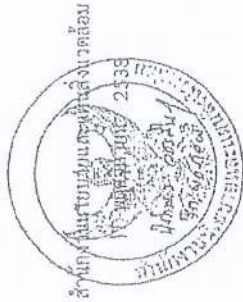
เอกสารแนบที่ 1
หนังสือเห็นชอบจาก สผ.



ที่ วว 0804/ 16329

ถึง บริษัท นครไทยสตีลมีนิจ จำกัด

สำนักงานนโยบายและแผนสิ่งแวดล้อม ขอส่งคำแนะหนังสือ ที่ วว 0804/16307 ลงวันที่ 16 พฤศจิกายน 2538 เรื่อง ผลการพิจารณารายงานการวิเคราะห์ผลกระทบสิ่งแวดล้อมของโครงการสร้างเหล็กแผ่นรีดร้อน ของบริษัท นครไทยสตีลมีนิจ จำกัด เพื่อยกเลิกอุตสาหกรรมเหล็ก (บ่อวัน) ตำบลบ่อวัน อำเภอศรีราชา จังหวัดชลบุรี มาเพื่อปรับปรุง



กองวิเคราะห์ผลกระทบสิ่งแวดล้อม
โทร. 2792792, 2799703
โทรสาร 2785469



ที่ วว 0804/16304

สำนักงานนโยบายและแผนสิ่งแวดล้อม
ขอเชิญผู้พัฒนา 7 ถนนพระรามที่ 6
กรุงเทพฯ 10400

16 พฤศจิกายน 2538

เรื่อง ผลการพิจารณารายงานการวิเคราะห์ผลกระทบสิ่งแวดล้อมของโครงการสร้างเหล็กแผ่นรีดร้อน ของบริษัท นครไทยสตีลมีนิจ จำกัด

เรียน ผู้ว่าการการนิคมอุตสาหกรรมแห่งประเทศไทย

- สิ่งที่ส่งมาด้วย
1. คำแนะหนังสือบริษัท นครไทยสตีลมีนิจ จำกัด ที่ EIA 95387/40808 B ลงวันที่ 5 กรกฎาคม 2538
 2. คำแนะหนังสือบริษัท นครไทยสตีลมีนิจ จำกัด ที่ EIA 95482/40808 B ลงวันที่ 11 สิงหาคม 2538
 3. มาตรการลดผลกระทบสิ่งแวดล้อม และมาตรการติดตามตรวจสอบคุณภาพสิ่งแวดล้อม ของบริษัท นครไทยสตีลมีนิจ จำกัด ต้องปฏิบัติตามโครงการสร้างเหล็กแผ่นรีดร้อน

ตามที่ บริษัท นครไทยสตีลมีนิจ จำกัด ขอเสนออำนาจให้บริษัท นครไทยสตีลมีนิจ จำกัด เป็นผู้เสนอรายงานการวิเคราะห์ผลกระทบสิ่งแวดล้อมของโครงการสร้างเหล็กแผ่นรีดร้อน ตั้งอยู่ภายในหมู่สุสานห้วยทราย (บ่อวัน) ตำบลบ่อวัน อำเภอศรีราชา จังหวัดชลบุรี ให้สำนักงานนโยบายและแผนสิ่งแวดล้อมพิจารณา ดังรายละเอียดสิ่งที่ส่งมาด้วย 1 และ 2

สำนักงานนโยบายและแผนสิ่งแวดล้อมได้พิจารณาตามการวิเคราะห์ผลกระทบสิ่งแวดล้อมโครงการสร้างเหล็กแผ่นรีดร้อน ของบริษัท นครไทยสตีลมีนิจ จำกัด จนพอใจแล้ว และเห็นว่าสามารถปฏิบัติตามโครงการสร้างเหล็กแผ่นรีดร้อน

5. บริษัท นคราปนังสงนิมิต จำกัด ต้องเสนอรายงานผลการปฏิบัติงานมาตามตารางแสดงภาระงาน
สิ้นปีแล้วก่อน และมาตรการกวดขันตรวจสอบผู้ขายแล้วจึงค่อยส่งรายงานต่อสำนักงานกรมวังวัด
ชลบุรี การยื่นเอกสารกรมหนึ่งประเภทนี้ และถ้าหากงานเรียบร้อยและแนบหนังสือ
ทราบทุก 6 เดือน

เอกสารแนบที่ 2
ใบอนุญาตประกอบกิจการโรงงาน



Under the Industrial Authority of Thailand Act B.E. 2522 (1979)

hereto (if any).

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งานก็ทำได้ทำนิติกรรมกับ กนอ. แล้ว

10-203

... การได้ยอดสหภาพกรรมที่ กผอ. บริหารจัดการสาขารณภูมิภาค ให้หนังสืออนุญาตให้มีไลโซบังคับเมื่อประกอบกิจการได้ทำนิติกรรมกับ กผอ. แล้ว

16. ให้ใช้วิธีการตรวจวัดคุณภาพอากาศในบรรยากาศ และวิธีการวิเคราะห์ผล ตามวิธีของทางราชการ หรือเทียบเท่า พร้อมทั้งให้ตรวจวัดความเร็วลม และทิศทางลมในแนวหน้าการจราจรจุดคุณภาพอากาศในบริเวณที่ควบคุม และการตรวจวัดจุดเพื่อตัดออกได้โดยไม่ต้องให้วิธีของ US EPA Method 6 หรือ US EPA Method 8 และการตรวจวัดจะแบ่งให้อยู่ใต้วิธีการของ US EPA Method 5
17. ต้องดำเนินการกำกับดูแลกระบวนการบำบัดน้ำเสีย และภาคอุตสาหกรรมจากกระบวนการผลิต และวัสดุที่ไม่ใช่ แล้ว และสิ่งปนเปื้อน หรือขยะมูลฝอย ให้ถูก (รอง) ตามหลักวิชาการ มีให้เป็นต้นเลื่อยหรือชิ้นส่วนต่างๆ หรือมีอันตรายต่อสุขภาพและ สิ่งมีชีวิต ความเข้มข้นของ กทม. และกรมโรงงานอุตสาหกรรม กำหนด) และให้จัดลง รายงานผลการกำจัดขยะ หรือวัสดุที่ไม่ใช่ แล้ว และสิ่งปนเปื้อน หรือ ขยะมูลฝอย ทุกประเภทประจำปีผ่านภายในวันที่ 1 มีนาคม ของทุกปี
18. ต้องจัดให้มีบุคลากร สำหรับเจ้าหน้าที่วิชาชีพด้านความปลอดภัย และเจ้าหน้าที่วิชาชีพด้านสิ่งแวดล้อม ประจำโรงงาน ตามที่ กฎหมายกำหนดของการประกอบกิจการ
19. ต้องปฏิบัติตาม ประกาศกระทรวงสาธารณสุข เรื่อง นโยบายเก็บรักษาเคมี และวัตถุอันตราย พ.ศ.2550 และปฏิบัติ ตามพระราชบัญญัติวัตถุอันตราย พ.ศ.2535 และกฎกระทรวง และประกาศกระทรวงสาธารณสุข ที่เกี่ยวข้องในการผลิต จัดเก็บ การใช้ และครอบครอง สารเคมี และวัตถุอันตราย ตลอดจนการปฏิบัติงาน
20. ต้องจัดให้มีการฝึกอบรมเชิงปฏิบัติการแก่ผู้ปฏิบัติงาน รวมถึง ต้องดำเนินการให้เป็นไป ตามประกาศกระทรวงสาธารณสุข เรื่อง การป้องกัน และระงับอุบัติเหตุร้ายแรงในโรงงาน พ.ศ.2552
21. ห้ามมีการพักอาศัย ในพื้นที่ที่ไม่ใช่ แล้ว หรือขยะทุกประเภท หรือสิ่งปนเปื้อนภายในบริเวณพื้นที่ดิน และอาคาร โข่ง ท่อประปา
22. ห้ามมีการพักอาศัย ในพื้นที่ดิน และพื้นที่การประกอบกิจการ ในเขตนิคมอุตสาหกรรม
23. หากมีการปล่อยมลพิษจากกรรมแห่งประเทศไทย (กทม.) ตรวจปล่อยตามปกติ ตามเงื่อนไขการประกอบกิจการในนิคมอุตสาหกรรม และพบว่าผู้ประกอบการไม่ปฏิบัติตามกฎหมาย ได้ข้อเท็จจริงแล้ว จะต้องนำขึ้นสู่ศาล กทม. จะระงับไม่ให้ที่ดิน เพื่อประกอบอุตสาหกรรม
24. ให้ปฏิบัติตาม ตาม รายงานการตรวจประเมินผลกระทบสิ่งแวดล้อมโครงการโรงกลั่นแก๊สธรรมชาติ และโครงการผลิตเส้นใยแก้วเสริมพลาสติก และเหล็กเสริมเสาเข็มฐานแท่น และถังเก็บแก๊สธรรมชาติ และถังเก็บแก๊สธรรมชาติ ของบริษัทฯ (EIA) ที่ได้บันทึกไว้ตามหนังสือ รายงานจาก สำนักงานนโยบาย และแผนทรัพยากรธรรมชาติและสิ่งแวดล้อม (สน.) ที่ วา 0804/6307 ลงวันที่ 16 พฤศจิกายน 2538 และ พท 1009/5935 ลงวันที่ 12 กรกฎาคม 2549 และ รายงานการเปลี่ยนแปลงรายละเอียดโครงการใน รายงานการประเมินผลกระทบสิ่งแวดล้อม โครงการโรงงานผลิตเหล็กแผ่นรีดร้อน บริษัทฯ และเหล็กแผ่นรีดร้อนตามสนธิสัญญาน้ำมัน และเหล็กแผ่นรีดร้อนโครงการนี้ (ครั้งที่ 1) ของบริษัทฯ ที่จัดพิมพ์อยู่ใน รายงานจาก กทม. ที่ สก 5103.3/1581 ลงวันที่ 3 มีนาคม 2565 และมีมาตรการที่กำหนดเพิ่มเติม ดังนี้
25. บริษัทฯ ต้องส่งรายละเอียดโครงการซึ่งผ่านการอนุมัติแล้ว เข้าสู่ระบบบันทึกประวัติความเสี่ยงของเมืองมา เพื่อต่อไป
2.ให้บริษัทฯ ใช้กิจกรรมตามมติเดิมซึ่งเดิมถึงในตาราง SLAB เท่านั้น เพื่อเป็นการลดผลกระทบต่อขนาดคุณภาพอากาศ หากบริษัทฯ มีการปรับปรุงโครงสร้างใดซึ่งเดิมยื่นเกินกว่าอัตราบรรทัด บริษัทฯ ต้องเสนอรายละเอียดการเปลี่ยนแปลงดังกล่าว ให้ สผ.พิจารณาเพื่อประกอบการพิจารณาการดำเนินการอย่างยั่งยืนของหน่วยงาน 3 เดือน 3.การจัดเตรียมแบบแปลน และรายการออกแบบระบบท่อใต้ดินทั้งหมด กำหนดให้เป็นไปตามมาตรฐาน NEPA (National Fire Protection Agency)
26. หากผู้ประกอบการประสงค์จะหยุดขนหรือโดยเปลี่ยนที่ตั้ง ให้ยื่นอุทธรณ์หรือโต้แย้งคำสั่งกล่าว ต่อเจ้าหน้าที่ผู้กำลังเข้าไปสืบหาหมิ่นแค้นหรือที่พบคำสั่งนี้ ตามพระราชบัญญัติวิธีปฏิบัติราชการทางปกครอง พ.ศ. 2539

เอกสารแนบที่ 3
เอกสารการตรวจสอบประสิทธิภาพการทำงาน
ของระบบดูแลผู้

| | | | | | |
|--------------------------|--|--|--|--|--|
| | | การตรวจสอบประสิทธิภาพของระบบดูดฝุ่น 1.ระดับอุดมศึกษาภาคใต้-จังหวัดภูเก็ต 2565 | | จัดทำโดย : ชุตติศักดิ์ พงษ์วัฒน์ วันที่ : 25 พฤศจิกายน 2565 | |
| Department : PUS | | Job name : 1.ทดสอบประสิทธิภาพของระบบดูดฝุ่น | | | |
| Section : UT2 | | 2.ตรวจสอบการทำงานของระบบที่ติดตั้งภายนอกอาคาร | | | |
| Plant : Bag House System | | | | | |

| Item | Description | ผลการตรวจสอบ | | หมายเหตุ |
|------|---|--------------|---------|-------------------------------|
| | | ปกติ | ผิดปกติ | |
| 1 | ตรวจสอบที่หัวลมดูดฝุ่นในถัง(Main Air Fan) | ✓ | | ในตรวจเช็ค F-PUS BH00-001 |
| 2 | ตรวจสอบที่หัวลมดูดฝุ่นร้อนจากเตา(Hot Gas Fan) | ✓ | | ในตรวจเช็ค F-PUS BH00-002 |
| 3 | ตรวจสอบที่หัวลมดูดฝุ่นในถัง(Reverse Air Fan) | ✓ | | ในตรวจเช็ค F-PUS BH00-003 |
| 4 | ตรวจสอบการระบบในถังฝุ่นในทาง(Green Bag house) | ✓ | | ในตรวจเช็ค F-PUS BH00-004 |
| 5 | ตรวจสอบที่หัวลมดูดฝุ่นในถัง(Green Bag house) | ✓ | | ในตรวจเช็ค F-PUS BH00-008 |
| 6 | ตรวจสอบที่หัวลมดูดฝุ่น | ✓ | | ในตรวจเช็ค F-PUS BH-EMPO1-009 |

| | | |
|---|---|------------------------------|
| Inspection By : <u>Paulad</u> ตรวจสอบโดย | Approved By : <u>Boonwattan</u> อนุมัติโดย | Attached File : เอกสารแนบ |
| Date : 25 / 11 / 22 | Date : | 1. บันทึกการตรวจเช็ค 6 หน้า |

| | | | | | | | | | | | | | |
|-------------------------------|--|---------------------------|--|--|--|--|--|--|--|--|--|---------------------------------|--|
| | | CHECK LIST | | | | | | | | | | Prepared By : Maneedorn Nilpong | |
| Plant Utility Services | | Check Main Air Fan | | | | | | | | | | Interval Time : Daily | |

| Item | DESCRIPTION | MAIN AIR FAN NO.1 | | | | | | | | MAIN AIR FAN NO.2 | | | | | | | | MAIN AIR FAN NO.3 | | | | | | | |
|------|--|-------------------|----------|-----|-----------|--------|-----------|--------|-----------------|-------------------|-------|-----------|------|-----------|-----|-----------------|----------|-------------------|-----------|-----|-----------|--------|-----|--------|--------|
| | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | | | |
| | | | Front | End | High | Medium | Low | Normal | | Abnorm | Front | End | High | Medium | Low | | Normal | Abnorm | Front | End | High | Medium | Low | Normal | Abnorm |
| 1 | Check temperature of Motor (35-55°C) | 89 | 44 | 36 | | | | | 89 | 41 | 40 | | | | | 89 | 46 | 32 | | | | | | | |
| 2 | Check current of Motor (70-110 Amp.) | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of Main air fan | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Check electric system of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Check level oil of Rotork Actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Check temperature of Pillow block (40-60°C) | | 41 | 39 | | | | | | 41 | 40 | | | | | | 44 | 40 | | | | | | | |
| 8 | Check level oil of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Check water leaked of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Check condition water hose of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Check water temp. IN (≤35°C) & Out (≤60°C) of Pillow block | | 30 | 33 | | | | | | 30 | 33 | | | | | | 30 | 33 | | | | | | | |
| 12 | Check noise of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Check external condition bearing of Damper | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Check condition chain of Exit Damper | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Check status blower of Exit Damper | | | | | | | | | | | | | | | | | | | | | | | | |

| Item | DESCRIPTION | MAIN AIR FAN NO.4 | | | | | | | | MAIN AIR FAN NO.5 | | | | | | | | REMARK | | | | | | |
|------|--|-------------------|----------|-----|-----------|--------|-----------|--------|-----------------|-------------------|-------|-----------|------|-----------|-----|--------|--------|--------|--|--|--|--|--|--|
| | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | | | | | | | | | |
| | | | Front | End | High | Medium | Low | Normal | | Abnorm | Front | End | High | Medium | Low | Normal | Abnorm | | | | | | | |
| 1 | Check temperature of Motor (35-55°C) | | 42 | 34 | | | | | | 82 | 42 | 36 | | | | | | | | | | | | |
| 2 | Check current of Motor (70-110 Amp.) | 94 | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of Main air fan | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Check electric system of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Check level oil of Rotork Actuator | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Check temperature of Pillow block (40-60°C) | | 39 | 40 | | | | | | | 40 | 41 | | | | | | | | | | | | |
| 8 | Check level oil of Pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Check water leaked of Pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Check condition water hose of Pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Check water temp. IN (≤35°C) & Out (≤60°C) of Pillow block | | 30 | 33 | | | | | | | 30 | 33 | | | | | | | | | | | | |
| 12 | Check noise of Pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Check external condition bearing of Damper | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Check condition chain of Exit Damper | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Check status blower of Exit Damper | | | | | | | | | | | | | | | | | | | | | | | |

| | | |
|--|--|-----------------------------------|
| Checked By : <u>Samet</u> Date : 26-07-2022 | Verified By : <u>Paulad</u> Date : 27/07/22 | Working Hour : 243 24.00-09.00 |
|--|--|-----------------------------------|

| | | | | | |
|--|--|-------------------|--|---------------------------------|--|
| <i>Quality Steel by Quality People</i> | | CHECK LIST | | Prepared By : Maneedorn Nilpong | |
| Plant Utility Services | | Check Hot Gas Fan | | Interval Time : Daily | |

| Item | DESCRIPTION | HOT GAS FAN NO.1 | | | | | | | HOT GAS FAN NO.2 | | | | | | | HOT GAS FAN NO.3 | | | | | | | | | |
|------|--|------------------|----------|-----|-----------|--------|------|-----------|------------------|----------|----------|-----------|-----|------|-----------|------------------|----------|------|-----------|----------|-------|-----------|-----|------|--------|
| | | Current Amp. | Temp. °C | | Oil Level | | | Condition | Current Amp. | Temp. °C | | Oil Level | | | Condition | Current Amp. | Temp. °C | | Oil Level | | | Condition | | | |
| | | | Front | End | High | Medium | *Low | | | Normal | Abnormal | Front | End | High | | | Medium | *Low | Normal | Abnormal | Front | | End | High | Medium |
| 1 | Check temperature of motor (35-55°C) | | 40 | 33 | | | | | | | | | | | | | | | | | | | | | |
| 2 | Check current of motor (17-30 Amp.) | 19 | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of hot gas fan | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Check electric system of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Check level oil of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Check temperature of pillow block (40-60°C) | | 41 | 43 | | | | | | | | | | | | | | | | | | | | | |
| 8 | Check level oil of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Check water leakaged of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Check condition water hose of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Check water temp. IN (<35°C) & Out (<60°C) of Pillow block | | 30 | 33 | | | | | | | | | | | | | | | | | | | | | |
| 12 | Check noise of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Check external condition bearing of damper | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Check level oil of turning gear | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Check condition of back stop | | | | | | | | | | | | | | | | | | | | | | | | |

Remark

Checked By : *Somete*
 Date : 26-07-2022

Verified By : *Poolsak*
 Date : 27/07/22

Working Hour 2x3
 24.00-08.00

F-PUS.BH00-002_2014-10-01

| | | | | | |
|--|--|-----------------------|--|--------------------------|--|
| <i>Quality Steel by Quality People</i> | | CHECK LIST | | Prepared By : Poolsak P. | |
| Plant Utility Services | | Check Reverse Air Fan | | Interval Time : Daily | |

| Item | DESCRIPTION | Reverse Air Fan No. 1 | | | | | Reverse Air Fan No. 2 | | | | |
|------|--|-----------------------|---------|-----|-----------|----------|-----------------------|---------|-----|-----------|----------|
| | | Current Amp. | Temp °C | | Condition | | Current Amp. | Temp °C | | Condition | |
| | | | Front | End | Normal | Abnormal | | Front | End | Normal | Abnormal |
| 1 | Check temperature of motor (35-55°C) | | 44 | 39 | | | | 47 | 38 | | |
| 2 | Check current of motor (50-190 Amp.) | 100 | | | | | | 100 | | | |
| 3 | Check condition of pulley | | | | | | | | | | |
| 4 | Check noise of reverse air fan | | | | | | | | | | |
| 5 | Check condition of Belt 5vx2000 | | | | | | | | | | |
| 6 | Check temperature of housing (40-60°C) | | 43 | 46 | | | | 46 | 52 | | |
| 7 | Check noise of housing | | | | | | | | | | |
| 8 | Check external condition bearing of damper | | | | | | | | | | |
| 9 | Check mark point of shaft | | | | | | | | | | |

Remark

Checked By : *Somete*
 Date : 26-07-2022

Verified By : *Poolsak*
 Date : 27/07/22

Working Hour 2x3
 24.00-08.00

CHECK LIST

| Plant Utility Services | | Check Green baghouse | | | | Interval Time : Daily | | | | | | |
|------------------------|---|-----------------------|-----------------|---------|-----|-----------------------|----------|-----------------------|---------|-----|-----------|----------|
| Item | DESCRIPTION | Green Bag House No. 1 | | | | | | Green Bag House No. 2 | | | | |
| | | press bar | Current Amp. | Temp 'C | | Condition | | Current Amp. | Temp 'C | | Condition | |
| | | | | Front | End | Normal | Abnormal | | Front | End | Normal | Abnormal |
| 1 | Check temperature of motor (35-55°C) | | | | | | | | | | | |
| 2 | Check current of motor (50-190 Amp.) | | | | | | | 180 | 13 | 32 | | |
| 3 | Check condition of pulley | | | | | | | | | | / | |
| 4 | Check noise of motor green bag house | | | | | | | | | | / | |
| 5 | Check condition of Belt 5vx1500 | | | | | | | | | | / | |
| 6 | Check temperature of housing (40-60°C) | | | | | | | | 12 | 13 | | |
| 7 | Check noise of housing | | | | | | | | | | / | |
| 8 | Check condition of bearing screw | | | | | | | | | | / | |
| 9 | Check condition of rotary air lock | | | | | | | | | | / | |
| 10 | Check condition of diaphragm valve | | | | | | | | | | / | |
| 11 | Check condition of solenoid | | | | | | | | | | / | |
| 12 | Check condition air hose to clean bag | | | | | | | | | | / | |
| 13 | Check air pressure to clean bag (> 6 bar) | 6.1 | | | | | | | | | | |
| 14 | Check Differential Pressure (3- 6 bar) | 5 | | | | | | | | | | |
| 15 | Check Leak (Visual Check) | | | | | | | | | | | / |

Remark

Differential Pressure > 6 = Bad Condition = Want to Clean Filter Bag < 3 = Want to Check

Checked By : Sumit Verified By : Pooja Working Hour 2x8
 Date : 26-07-2022 Date : 27/07/22 24.00 - 08.00

F-PUS.BH00-004_2021-01-12

| GJS Quality Steel by Quality People | | Check List | | | | Interval Time : Daily | |
|--|------|-----------------------------|-------|-----------|-------|-----------------------|------|
| Plant Utility Services | | Check Differential Pressure | | | | | |
| Equipment | Time | Morning | | Afternoon | | Night | |
| | | 9:00 | 13:00 | 17:00 | 21:00 | 1:00 | 5:00 |
| HOPPER 1 | | | | | | 4 | 4 |
| HOPPER 2 | | | | | | 3.2 | 3.3 |
| HOPPER 3 | | | | | | 4 | 4 |
| HOPPER 4 | | | | | | 5 | 5 |
| HOPPER 5 | | | | | | 4.1 | 4.1 |
| HOPPER 6 | | | | | | 4 | 4 |
| HOPPER 7 | | | | | | 6 | 6 |
| HOPPER 8 | | | | | | 3 | 3 |
| HOPPER 9 | | | | | | 5 | 5 |
| HOPPER 10 | | | | | | 5 | 5 |
| HOPPER 11 | | | | | | 5 | 5 |
| HOPPER 12 | | | | | | 3.5 | 3.5 |
| HOPPER 13 | | | | | | 4.5 | 4.5 |
| HOPPER 14 | | | | | | 4 | 5 |
| HOPPER 15 | | | | | | 5 | 4.5 |
| HOPPER 16 | | | | | | 1.5 | 4 |
| HOPPER 17 | | | | | | 4.3 | 4.3 |
| HOPPER 18 | | | | | | 3 | 3 |
| HOPPER 19 | | | | | | 4 | 4 |
| HOPPER 20 | | | | | | 3.5 | 3.5 |
| HOPPER 21 | | | | | | 4.1 | 4.1 |
| HOPPER 22 | | | | | | 3 | 3 |
| HOPPER 23 | | | | | | 4 | 4 |
| HOPPER 24 | | | | | | 4 | 4 |

Remark :


Differential Pressure = 3 - 6 Bar > 6 = Bad Condition = Want to Clean Filter Bag < 3 = Want to check

Checked By : (Morning Shift) _____ (Afternoon Shift) Sumit (Night Shift) _____
 Date : 26-07-2022


Verified By : Pooja
 Date : 27/07/22

Working Hour (Man*Hr) 2x8
24.00 - 08.00

F-PUS.BH00-008_2021-01-12

|  <i>Quality Steel by Quality People</i> | | CHECK LIST | | | | | | | | | | | | | | | | Interval Time : Monthly | | | | | | | |
|--|---|------------|---|---|---|---|------------------|---|---|----|----|----|----|----|----|----|----|-------------------------|----|----|----|----|----|----|--|
| Plant Utility Services | | | | | | | Check Bag Filter | | | | | | | | | | | | | | | | | | |
| Compartment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
| Tear (ขาด) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Tension (ตึง) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Loose (หลวม) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Remark : ✓ = OK, X = NOT OK Note : | | | | | | | | | | | | | | | | | | | | | | | | | |
| Check By : <i>นิพนธ์</i> Date : 27/07/2022 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verified By : <i>นิพนธ์</i> Date : 29/07/2022 | | | | | | | | | | | | | | | | | | | | | | | | | |

F-PUS.BH-EMPO1-009_2019-01-11

|  <i>Quality Steel by Quality People</i> | | การตรวจสอบประสิทธิภาพของระบบดูดฝุ่น ประจำเดือนกันยายน-ตุลาคม 2565 | | จัดทำโดย : <i>นิพนธ์</i> วันที่ : 25 พฤศจิกายน 2565 | |
|---|---|--|-------------------------------|--|--|
| Department : PUS | Job name : 1.ทดสอบประสิทธิภาพของระบบดูดฝุ่น | | | | |
| Section : UT2 | 2.ตรวจสอบการทำงานของระบบที่ลมดูดอากาศ | | | | |
| Plant : Bag House System | | | | | |
| ข้อมูลงาน | | | | | |
| Item Description | ผลการตรวจสอบ | หมายเหตุ | | | |
| ลำดับ รายละเอียดงาน | ปกติ | ไม่ปกติ | | | |
| 1 ตรวจสอบระดับลมดูดฝุ่นที่พัดลมดูดอากาศ (Main Air Fan) | ✓ | | ในตรวจเช็ค F-PUS.BH00-001 | | |
| 2 ตรวจสอบระดับลมดูดฝุ่นที่พัดลมดูดอากาศ (For Gas Fan) | ✓ | | ในตรวจเช็ค F-PUS.BH00-002 | | |
| 3 ตรวจสอบการระบายน้ำที่ฝุ่นในภาชนะ (Green Bag house) | ✓ | | ในตรวจเช็ค F-PUS.BH00-004 | | |
| 4 ตรวจสอบระดับความดันของถุงดูดฝุ่น | ✓ | | ในตรวจเช็ค F-PUS.BH00-008 | | |
| 5 ตรวจสอบระดับความดัน | ✓ | | ในตรวจเช็ค F-PUS.BH-EMPO1-009 | | |
| Inspection By : <i>นิพนธ์</i> Date : 25/11/22 | | | | | |
| Approved By : <i>นิพนธ์</i> Date : 25/11/22 | | | | | |
| Attached File : <i>ใบบันทึกการตรวจเช็ค 5 เตา</i> | | | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|--|--|--|--|--|--|--|--|--|--|--|---------------------------------|--|--|--|--|--|--|--|--|--|
| | | <h2 style="margin: 0;">CHECK LIST</h2> | | | | | | | | | | Prepared By : Maneedorn Nilpong | | | | | | | | | |
| Plant Utility Services | | Check Main Air Fan | | | | | | | | | | Interval Time : Daily | | | | | | | | | |

| Item | DESCRIPTION | MAIN AIR FAN NO.1 | | | | | | | | MAIN AIR FAN NO.2 | | | | | | | | MAIN AIR FAN NO.3 | | | | | | | |
|------|--|-------------------|----------|-----|-----------|--------|-----------|--------|-----------------|-------------------|-------|-----------|------|-----------|------|-----------------|----------|-------------------|-----------|-----|-----------|--------|------|--------|--------|
| | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | | | |
| | | | Front | End | High | Medium | *Low | Normal | | Abnorm | Front | End | High | Medium | *Low | | Normal | Abnorm | Front | End | High | Medium | *Low | Normal | Abnorm |
| 1 | Check temperature of Motor (35-55°C) | | 43 | 43 | | | | | | 43 | 43 | | | | | | 45 | 43 | | | | | | | |
| 2 | Check current of Motor (70-110 Amp.) | 85 | | | | | | | | 83 | | | | | | | 85 | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of Main air fan | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Check electric system of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Check level oil of Rotork Actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Check temperature of Pillow block (40-60°C) | | 45 | 40 | | | | | | 44 | 41 | | | | | | 42 | 40 | | | | | | | |
| 8 | Check level oil of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Check water leaked of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Check condition water hose of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Check water temp. IN (≤35°C) & Out (≤60°C) of Pillow block | | 32 | 34 | | | | | | 32 | 34 | | | | | | 33 | 35 | | | | | | | |
| 12 | Check noise of Pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Check external condition bearing of Damper | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Check condition chain of Exit Damper | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Check status blower of Exit Damper | | | | | | | | | | | | | | | | | | | | | | | | |

| Item | DESCRIPTION | MAIN AIR FAN NO.4 | | | | | | | | MAIN AIR FAN NO.5 | | | | | | | | REMARK | | | | | |
|------|--|-------------------|----------|-----|-----------|--------|-----------|--------|-----------------|-------------------|-------|-----------|------|-----------|------|--------|--------|--------|--|--|--|--|--|
| | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | | | | | | | | |
| | | | Front | End | High | Medium | *Low | Normal | | Abnorm | Front | End | High | Medium | *Low | Normal | Abnorm | | | | | | |
| 1 | Check temperature of Motor (35-55°C) | | 46 | 44 | | | | | | 43 | 44 | | | | | | | | | | | | |
| 2 | Check current of Motor (70-110 Amp.) | 75 | | | | | | | | 83 | | | | | | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of Main air fan | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Check electric system of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Check level oil of Rotork Actuator | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Check temperature of Pillow block (40-60°C) | | 45 | 41 | | | | | | 46 | 42 | | | | | | | | | | | | |
| 8 | Check level oil of Pillow block | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Check water leaked of Pillow block | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Check condition water hose of Pillow block | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Check water temp. IN (≤35°C) & Out (≤60°C) of Pillow block | | 32 | 34 | | | | | | 32 | 35 | | | | | | | | | | | | |
| 12 | Check noise of Pillow block | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Check external condition bearing of Damper | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Check condition chain of Exit Damper | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Check status blower of Exit Damper | | | | | | | | | | | | | | | | | | | | | | |

Checked By : *Mane*
 Date : 26/09/2022

Verified By : *Poolsd*
 Date : 27/09/22

Working Hour 00.00 - 08.00

F-PUS.BH00-001_2014-10-01

| | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|--|--|--|--|--|--|--|--|--|--|--|---------------------------------|--|--|--|--|--|--|--|--|--|
| | | <h2 style="margin: 0;">CHECK LIST</h2> | | | | | | | | | | Prepared By : Maneedorn Nilpong | | | | | | | | | |
| Plant Utility Services | | Check Hot Gas Fan | | | | | | | | | | Interval Time : Daily | | | | | | | | | |

| Item | DESCRIPTION | HOT GAS FAN NO.1 | | | | | | | | HOT GAS FAN NO.2 | | | | | | | | HOT GAS FAN NO.3 | | | | | | | |
|------|--|------------------|----------|-----|-----------|--------|-----------|--------|-----------------|------------------|-------|-----------|------|-----------|------|-----------------|----------|------------------|-----------|-----|-----------|--------|------|--------|----------|
| | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | Current Amp. | Temp. °C | | Oil Level | | Condition | | | | |
| | | | Front | End | High | Medium | *Low | Normal | | Abnormal | Front | End | High | Medium | *Low | | Normal | Abnormal | Front | End | High | Medium | *Low | Normal | Abnormal |
| 1 | Check temperature of motor (35-55°C) | | 47 | 45 | | | | | | | | | | | | | 60 | 46 | | | | | | | |
| 2 | Check current of motor (17-30 Amp.) | 19 | | | | | | | | | | | | | | | 19 | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of hot gas fan | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Check electric system of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Check level oil of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Check temperature of pillow block (40-60°C) | | 45 | 43 | | | | | | | | | | | | | 47 | 42 | | | | | | | |
| 8 | Check level oil of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Check water leaked of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Check condition water hose of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Check water temp. IN (<35°C) & Out (<60°C) of Pillow block | | 32 | 35 | | | | | | | | | | | | | 33 | 35 | | | | | | | |
| 12 | Check noise of pillow block | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Check external condition bearing of damper | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Check level oil of turning gear | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Check condition of back stop | | | | | | | | | | | | | | | | | | | | | | | | |

Remark :

Checked By : *Mane*
 Date : 26/09/2022

Verified By : *Poolsd*
 Date : 27/09/22

Working Hour 00.00 - 08.00

F-PUS.BH00-002_2014-10-01

CHECK LIST

Prepared By : Poolsak P.

Date : 24 - April -2019

Plant Utility Services

Check Reverse Air Fan

Interval Time : Daily

| Item | DESCRIPTION | Reverse Air Fan No. 1 | | | | Reverse Air Fan No. 2 | | | | | |
|------|--|-----------------------|---------|-------|-----------|-----------------------|---------|----------|------|-----------|-----|
| | | Current | Temp 'C | | Condition | | Current | Temp 'C | | Condition | |
| | | | Amp. | Front | End | Normal | | Abnormal | Amp. | Front | End |
| 1 | Check temperature of motor (35-55°C) | | | | | | | | | | |
| 2 | Check current of motor (50-190 Amp.) | | | | | | | | | | |
| 3 | Check condition of pulley | | | | | | | | | | |
| 4 | Check noise of reverse air fan | | | | | | | | | | |
| 5 | Check condition of Belt 5vx2000 | | | | | | | | | | |
| 6 | Check temperature of housing (40-80°C) | | | | | | | | | | |
| 7 | Check noise of housing | | | | | | | | | | |
| 8 | Check external condition bearing of damper | | | | | | | | | | |
| 9 | Check mark point of shaft | | | | | | | | | | |

Remark: 25/09/2022 15:15 Main air fan clean 4mm

Checked By : *Nimit*

Date : 26/09/2022

Verified By : *Poolsak*

Date : 27/09/22

Working Hour 00.00 - 08.00 น.

CHECK LIST

Plant Utility Services

Check Green baghouse

Interval Time : Daily

| Item | DESCRIPTION | Green Bag House No. 1 | | | | | | Green Bag House No. 2 | | | | |
|------|---|-----------------------|-----------------|---------|-----|-----------|----------|-----------------------|---------|-----|-----------|----------|
| | | press bar | Current Amp. | Temp 'C | | Condition | | Current Amp. | Temp 'C | | Condition | |
| | | | | Front | End | Normal | Abnormal | | Front | End | Normal | Abnormal |
| 1 | Check temperature of motor (35-55°C) | | | | | | | | | | | |
| 2 | Check current of motor (50-190 Amp.) | | | | | | | | | | | |
| 3 | Check condition of pulley | | | | | | | | | | | |
| 4 | Check noise of motor green bag house | | | | | | | | | | | |
| 5 | Check condition of Belt 5vx1500 | | | | | | | | | | | |
| 6 | Check temperature of housing (40-80°C) | | | | | | | | | | | |
| 7 | Check noise of housing | | | | | | | | | | | |
| 8 | Check condition of bearing screw | | | | | | | | | | | |
| 9 | Check condition of rotary air lock | | | | | | | | | | | |
| 10 | Check condition of diaphragm valve | | | | | | | | | | | |
| 11 | Check condition of solenoid | | | | | | | | | | | |
| 12 | Check condition air hose to clean bag | | | | | | | | | | | |
| 13 | Check air pressure to clean bag (> 6 bar) | | 6.2 | | | | | | 40 | 38 | | |
| 14 | Check Differential Pressure (3- 6 bar) | | 5 | | | | | | | | | |
| 15 | Check Leak (Visual Check) | | | | | | | | | | | |

Remark:

Differential Pressure

> 6 = Bad Condition = Want to Clean Filter Bag

< 3 = Want to Check

Checked By : *Nimit*

Date : 26/09/2022

Verified By : *Poolsak*

Date : 27/09/22

Working Hour 00.00 - 08.00 น.

Check List

Check Differential Pressure

Interval Time : Daily

Plant Utility Services

| Equipment | Time | Morning | | Afternoon | | Night | |
|-----------|------|---------|-------|-----------|-------|-------|------|
| | | 9:00 | 13:00 | 17:00 | 21:00 | 1:00 | 5:00 |
| HOPPER 1 | | | | | | 5 | 5 |
| HOPPER 2 | | | | | | 6 | 5 |
| HOPPER 3 | | | | | | 6 | 5 |
| HOPPER 4 | | | | | | 5 | 6 |
| HOPPER 5 | | | | | | 6 | 5 |
| HOPPER 6 | | | | | | 6 | 5 |
| HOPPER 7 | | | | | | 6 | 6 |
| HOPPER 8 | | | | | | 5 | 6 |
| HOPPER 9 | | | | | | 5 | 5 |
| HOPPER 10 | | | | | | 6 | 5 |
| HOPPER 11 | | | | | | 5 | 6 |
| HOPPER 12 | | | | | | 6 | 5 |
| HOPPER 13 | | | | | | 5 | 5 |
| HOPPER 14 | | | | | | 6 | 5 |
| HOPPER 15 | | | | | | 6 | 6 |
| HOPPER 16 | | | | | | 5 | 5 |
| HOPPER 17 | | | | | | 5 | 6 |
| HOPPER 18 | | | | | | 6 | 5 |
| HOPPER 19 | | | | | | 5 | 5 |
| HOPPER 20 | | | | | | 6 | 5 |
| HOPPER 21 | | | | | | 6 | 6 |
| HOPPER 22 | | | | | | 5 | 6 |
| HOPPER 23 | | | | | | 5 | 5 |
| HOPPER 24 | | | | | | 5 | 5 |

Remark :

Differential Pressure = 3 - 6 Bar > 6 = Bad Condition = Want to Clean Filter Bag < 3 = Want to check


Checked By : (Morning Shift) _____
 (Afternoon Shift) _____
 (Night Shift) _____

Date : 26/09/2022

Verified By : Dedid
 Date : 27/09/22

Working Hour (Man'Hr) 00.00 - 03.00h

F-PUS.BH00-008_2021-01-12

|  Quality Steel by Quality People | | <h1>CHECK LIST</h1> | | | | | | | | | | | | | | | | Interval Time : Monthly | | | | | | | | | |
|--|---|---------------------|---|---|---|---|---|---|---|------------------|----|----|----|----|----|----|----|-------------------------|----|----|----|----|----|----|--|--|--|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Plant Utility Services | | | | | | | | | | Check Bag Filter | | | | | | | | | | | | | | | | | |
| Compartment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | | |
| Tear (ขาด) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Tension (ตึง) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Loose (หลวม) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |

Remark ✓ = OK, X = NOT OK

Note :

Check By : wongant
 Date : 29/09/2565

Verified By : NIN II
 Date : 30-09-2022

F-PUS.BH-EMPO1-009_2019-01-11

GAS
GAS ENGINEERING & SERVICE

CHECK LIST

Prepared By : **Maneetorn Nilpong**

Plant Utility Services

Check Main Air Fan

Interval Time : Daily

| Item | DESCRIPTION | MAIN AIR FAN NO.1 | | | | | | | MAIN AIR FAN NO.2 | | | | | | | MAIN AIR FAN NO.3 | | | | | | | |
|------|--|-------------------|----------|-----|-----------|--------|-----------|--------|-------------------|----------|-----|-----------|--------|-----------|--------|-------------------|----------|-----|-----------|--------|-----------|--------|--------|
| | | Current | Temp. °C | | Oil Level | | Condition | | Current | Temp. °C | | Oil Level | | Condition | | Current | Temp. °C | | Oil Level | | Condition | | |
| | | | Front | End | High | Medium | *Low | Normal | | Front | End | High | Medium | *Low | Normal | | Front | End | High | Medium | *Low | Normal | Abnorm |
| 1 | Check temperature of Motor (35-55°C) | | 45 | 49 | | | | | | 47 | 44 | | | | | | 44 | 36 | | | | | |
| 2 | Check current of Motor (70-110 Amp.) | 83 | | | | | | | 84 | | | | | | | 86 | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of Main air fan | | | | | | | / | | | | | | / | | | | | | | / | | |
| 5 | Check electric system of Rotork actuator | | | | | | | / | | | | | | / | | | | | | | / | | |
| 6 | Check level oil of Rotork Actuator | | | | | | | / | | | | | | / | | | | | | | / | | |
| 7 | Check temperature of Pillow block (40-60°C) | | 43 | 39 | | | | | 45 | 42 | | | | | | | 43 | 40 | | | | | |
| 8 | Check level oil of Pillow block | | | | | | | / | | | | | | / | | | | | | | / | | |
| 9 | Check water leakaged of Pillow block | | | | | | | / | | | | | | / | | | | | | | / | | |
| 10 | Check condition water hose of Pillow block | | | | | | | / | | | | | | / | | | | | | | / | | |
| 11 | Check water temp. IN (≤35°C) & Out (≤60°C) of Pillow block | | 30 | 32 | | | | | 30 | 32 | | | | | | | 30 | 32 | | | | | |
| 12 | Check noise of Pillow block | | | | | | | / | | | | | | / | | | | | | | / | | |
| 13 | Check external condition bearing of Damper | | | | | | | / | | | | | | / | | | | | | | / | | |
| 14 | Check condition chain of Exit Damper | | | | | | | / | | | | | | / | | | | | | | / | | |
| 15 | Check status blower of Exit Damper | | | | | | | / | | | | | | / | | | | | | | / | | |

| Item | DESCRIPTION | MAIN AIR FAN NO.4 | | | | | | | MAIN AIR FAN NO.5 | | | | | | | REMARK | | | | | | | |
|------|--|-------------------|----------|-----|-----------|--------|-----------|--------|-------------------|----------|-----|-----------|--------|-----------|--------|---------|----------|-----|-----------|--------|-----------|--------|--------|
| | | Current | Temp. °C | | Oil Level | | Condition | | Current | Temp. °C | | Oil Level | | Condition | | Current | Temp. °C | | Oil Level | | Condition | | |
| | | | Front | End | High | Medium | *Low | Normal | | Front | End | High | Medium | *Low | Normal | | Front | End | High | Medium | *Low | Normal | Abnorm |
| 1 | Check temperature of Motor (35-55°C) | | 48 | 40 | | | | | | 44 | 33 | | | | | | | | | | | | |
| 2 | Check current of Motor (70-110 Amp.) | 73 | | | | | | | 86 | | | | | | | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | / | | | | | | / | | | | | | | / | | |
| 4 | Check noise of Main air fan | | | | | | | / | | | | | | / | | | | | | | / | | |
| 5 | Check electric system of Rotork actuator | | | | | | | / | | | | | | | | | | | | | | | |

| | | | | | |
|--|--|-------------------|--|---------------------------------|--|
| <i>Quality Steel by Quality People</i> | | CHECK LIST | | Prepared By : Maneedorn Nilpong | |
| Plant Utility Services | | Check Hot Gas Fan | | Interval Time : Daily | |

| Item | DESCRIPTION | HOT GAS FAN NO.1 | | | | | | | HOT GAS FAN NO.2 | | | | | | | HOT GAS FAN NO.3 | | | | | | | | |
|------|--|------------------|----------|-----|-----------|--------|------|-----------|------------------|----------|----------|-----------|-----|------|-----------|------------------|----------|------|-----------|----------|-------|-----------|-----|------|
| | | Current Amp. | Temp. °C | | Oil Level | | | Condition | Current Amp. | Temp. °C | | Oil Level | | | Condition | Current Amp. | Temp. °C | | Oil Level | | | Condition | | |
| | | | Front | End | High | Medium | *Low | | | Normal | Abnormal | Front | End | High | | | Medium | *Low | Normal | Abnormal | Front | | End | High |
| 1 | Check temperature of motor (35-55°C) | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Check current of motor (17-30 Amp.) | 20 | 47 | 36 | | | | | | | | | | | | | | | | | | | | |
| 3 | Check condition of coupling | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Check noise of hot gas fan | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Check electric system of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Check level oil of Rotork actuator | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Check temperature of pillow block (40-60°C) | | 43 | 44 | | | | | | | | | | | | | | | | | | | | |
| 8 | Check level oil of pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Check water leakaged of pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Check condition water hose of pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Check water temp. IN (<35°C) & Out (<60°C) of Pillow block | | 30 | 33 | | | | | | | | | | | | | | | | | | | | |
| 12 | Check noise of pillow block | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Check external condition bearing of damper | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Check level oil of turning gear | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Check condition of back stop | | | | | | | | | | | | | | | | | | | | | | | |

Remark

Checked By : *[Signature]*
 Date : 21-11-2022

Verified By : *[Signature]*
 Date : 22/11/22

Working Hour 2x8
 24.00 - 08.00

F-PUS.BH00-002_2014-10-01

| | | | | | |
|--|--|----------------------|--|-----------------------|--|
| <i>Quality Steel by Quality People</i> | | CHECK LIST | | | |
| Plant Utility Services | | Check Green baghouse | | Interval Time : Daily | |

| Item | DESCRIPTION | Green Bag House No. 1 | | | | | | Green Bag House No. 2 | | | | |
|------|---|-----------------------|-----------------|---------|-----|-----------|----------|-----------------------|---------|-----|-----------|--------|
| | | press bar | Current Amp. | Temp °C | | Condition | | Current Amp. | Temp °C | | Condition | |
| | | | | Front | End | Normal | Abnormal | | Front | End | | Normal |
| 1 | Check temperature of motor (35-55°C) | | | | | | | | | | | |
| 2 | Check current of motor (50-190 Amp.) | | | | | | | | | | | |
| 3 | Check condition of pulley | | | | | | | | | | | |
| 4 | Check noise of motor green bag house | | | | | | | | | | | |
| 5 | Check condition of Belt 5vx1500 | | | | | | | | | | | |
| 6 | Check temperature of housing (40-60°C) | | | | | | | | | | | |
| 7 | Check noise of housing | | | | | | | | | | | |
| 8 | Check condition of bearing screw | | | | | | | | | | | |
| 9 | Check condition of rotary air lock | | | | | | | | | | | |
| 10 | Check condition of diaphragm valve | | | | | | | | | | | |
| 11 | Check condition of solenoid | | | | | | | | | | | |
| 12 | Check condition air hose to clean bag | | | | | | | | | | | |
| 13 | Check air pressure to clean bag (> 6 bar) | 6.1 | | | | | | | | | | |
| 14 | Check Differential Pressure (3- 6 bar) | 0 | | | | | | | | | | |
| 15 | Check Leak (Visual Check) | | | | | | | | | | | |

Remark

Checked By : *[Signature]*
 Date : 21-11-2022

Verified By : *[Signature]*
 Date : 22/11/22

Working Hour 2x8
 24.00 - 08.00

F-PUS.BH00-004_2021-01-12

| GJS Quality Steel by Quality People Plant Utility Services | | Check List Check Differential Pressure | | | | Interval Time : Daily | |
|--|------|---|-------|-----------|-------|-----------------------|------|
| Equipment | Time | Morning | | Afternoon | | Night | |
| | | 9:00 | 13:00 | 17:00 | 21:00 | 1:00 | 5:00 |
| HOPPER 1 | | | | | | 4.8 | 4.8 |
| HOPPER 2 | | | | | | 5.1 | 5.1 |
| HOPPER 3 | | | | | | 5.0 | 5.0 |
| HOPPER 4 | | | | | | 4.2 | 4.2 |
| HOPPER 5 | | | | | | 5.1 | 5.1 |
| HOPPER 6 | | | | | | 4.9 | 4.9 |
| HOPPER 7 | | | | | | 5.3 | 5.3 |
| HOPPER 8 | | | | | | 5 | 5 |
| HOPPER 9 | | | | | | 5.2 | 5.2 |
| HOPPER 10 | | | | | | 4.9 | 4.9 |
| HOPPER 11 | | | | | | 4.9 | 4.9 |
| HOPPER 12 | | | | | | 4.9 | 4.8 |
| HOPPER 13 | | | | | | 4.7 | 4.9 |
| HOPPER 14 | | | | | | 5.0 | 5.0 |
| HOPPER 15 | | | | | | 4.8 | 4.8 |
| HOPPER 16 | | | | | | 4.9 | 4.9 |
| HOPPER 17 | | | | | | 5.1 | 5.1 |
| HOPPER 18 | | | | | | 5.0 | 5.0 |
| HOPPER 19 | | | | | | 4.8 | 4.8 |
| HOPPER 20 | | | | | | 4.9 | 4.9 |
| HOPPER 21 | | | | | | 4 | 4 |
| HOPPER 22 | | | | | | 4 | 4 |
| HOPPER 23 | | | | | | 4.1 | 4.1 |
| HOPPER 24 | | | | | | 4 | 4 |

Remark :

Differential Pressure = 3 - 6 Bar > 6 = Bad Condition = Want to Clean Filter Bag < 3 = Want to check

Checked By : (Morning Shift) _____
 (Afternoon Shift) _____
 (Night Shift) _____
 Date : 21/11/2022

Verified By : Pakad
 Date : 22/11/22

Working Hour (Man*Hr) _____

F-PUS.BH00-008_2021-01-12

| GJS Quality Steel by Quality People Plant Utility Services | | CHECK LIST Check Bag Filter | | Interval Time : Monthly | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------------------|---|-------------------------|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Compartment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Tear (ขาด) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Tension (ตึง) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Loose (หลวม) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Remark : ✓ = OK, X = NOT OK

Note : _____

Check By : Worant
 Date : 28/11/2565

Verified By : Man N
 Date : 30/11/2021

F-PUS.BH-EMPO1-009_2019-01-11

เอกสารแนบที่ 4

Process Design and System Overview

Process Design and System Overview

- Executive Summary
- Introduction
- Sources
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- Estimated Utility Requirements
- Process Flow Diagram
- Overall Arrangement of the System
- Baghouse Sequence of Operation
- Synopsis
- Sources
- EAF Ventilation Characteristics
- Hot Gas System
- Main Duct System
- Auxiliary Systems
- Fabric Filter (Baghouse Proper)
- System Controls
- Fans

MELT SHOP
EMISSION CONTROL SYSTEM
PROCESS DESIGN

FOR

NAKORNTHAI STRIP MILL
BANGKOK, THAILAND
AND
ICON CONSTRUCTION CO.
DAYTON, OHIO

BY
ADAMS TECHNOLOGY, INC.
KANSAS CITY, MISSOURI

RECEIVED

APR 25 1996

DATTEL ENGINEERING

APRIL 1996

INDEX

I. EXECUTIVE SUMMARY

II. INTRODUCTION

III. SOURCES

IV. EQUIPMENT SPECIFICATIONS

V. APPENDIX

-I-

EXECUTIVE SUMMARY

Adams Technology, Inc. has been retained by ICON Construction Company of Dayton, Ohio to design the fume control system for the melt shop being constructed by Nakornthai Strip Mill Public Company, Ltd. of Bangkok, Thailand. This report contains the basis of design of the melt shop fume control system.

The fume control system will ventilate primary furnace emissions through the Consteel system and fugitive furnace emissions by use of a canopy hood located above the crane area. In addition the system will control emissions from the ladle furnaces, the caster, the ladle dump and ladle tearout, the deslagging machines and the slag pit.

A separate system will be supplied to control emissions from the tundish deskull area. The ladle preheaters will be vented outside of the building without fume control.

The system volume will be 2,277,000 M³/Hr. to be supplied by five (4 operating - 1 spare) main fans and filtered in a twenty four compartment, open pressure, reverse air type fabric filter. The hot gas loop will use three (2 operating - 1 spare) hot gas booster fans.

The collected dust, which is classified as hazardous waste, will be conveyed to a single storage silo for further processing by others.

The estimated utility requirements are contained in the Appendix section of this report.

INTRODUCTION

Makorathai Strip Mill Public Company, Ltd. (NSM) of Bangkok, Thailand is building a new strip mill south of Bangkok. Adams Technology, Inc. has been retained to design the fume control system for the Melt Shop and Caster areas as well as the DRI facility. This report addresses only the Melt Shop and Caster areas. A separate report will be issued for the DRI facility.

The melt shop consists of a single furnace with a projected production rate of 180 Metric Tons in 47 minutes. The scrap will be continuously fed to the furnace using the Consteel Process. The first heat during each melt cycle will be Bucket charged. The furnace fume generated during melting will be vented through the Consteel Process to the fume control system. A canopy hood will be provided to control tapping fume and fume generated by the initial charge and any other bucket charges.

The molten steel will be further refined in two 180 Ton ladle furnaces which will also be ventilated by the fume control system. A canopy hood will be provided over the caster for control in that area. The slag pit will be enclosed as much as possible and ventilated to the system.

Finally, there will be several miscellaneous sources such as the deslag machines which will be controlled.

The system is to be designed to meet current United States standards for air pollution control for melt shops of this type. This requires a fabric filter with an efficiency such that the discharge does not exceed 12 mg/m³.

A separate hot gas fan system will be supplied to minimize overall power usage and reduce the static pressure requirements for the main fans.

The fabric filter will be an open, pressure type reverse air unit operating at 1210C and equipped with polyester filter bags. The discharge will be through a monitor at the top of each filter section.

ELECTRIC ARC FURNACE

The electric arc furnace exhaust gases enter the fume control system by way of the Consteel Process. Adams Technology's, Inc. proprietary calculations predict a ventilation volume of 123,400 NM³/Hr. Consteel predicts a volume of 135,000 NM³/Hr. at a temperature of 1083°C. We consider this to be in close agreement and thus the fume control system design will be based on the slightly more conservative Consteel values.

The fume control system is to provide a minimum of 2 seconds of combustion time before entering the water cooled duct to lower the gas temperature. This combustion time will be provided by a refractory lined chamber immediately after the Consteel take-off duct and followed by a section of refractory lined duct. Water cooled duct is to be provided from the exit of the refractory lined duct to the spark arrester.

ELECTRIC ARC FURNACE CANOPY HOOD

A canopy hood is to be provided above the crane to handle the fume generated during tapping and during any charging not done through Consteel. The design of this hood is a function of the furnace diameter, the height of the hood face above the furnace and ladle and any anticipated cross drafts. We project a hood face of 26,000 mm by 19,237 mm based on the present melt shop configuration.

The above hood located above the crane will require a ventilation volume of 1,614,000 m³/h at a temperature of 60°C during either charging or tapping. For the rest of the time 973,500 m³/h will be available to continuously purge the melt shop above the furnace. Some of this volume may be used to purge the building in the area of the ladle furnaces, as required.

LADLE FURNACES

There will be two ladle furnaces (LFF) supplied by MDH complete with a self contained roof hood. MDH projects a ventilation volume of 74,000 m³/h at a temperature of 280°C for each of these furnaces. These gases will be joined with the Consteel discharge gases prior to the spark arrester. We project some leakage at the flange between the hood and the duct and thus we have used a ventilation volume of 151,000 m³/h at a temperature of 271°C for the two furnaces.

A building purge system will be located in the roof area above the ladle furnaces to assist in the collection of fugitive emissions from the furnaces. This system will not operate when the arc furnaces are charging or tapping.

LADLE PREHEAT

The ladle preheat stations are the source of substantial heat in the melt shop. Since this operation does not generate any quantity of fume it may be ventilated directly to atmosphere outside of the melt shop. Therefore, only duct and a ventilation fan are necessary for this source and it need not be tied into the fume control system.

TUNDISH DESKULL AREA

Since the tundish deskull area is located a substantial distance from the remaining fume sources we recommend that it be ventilated into a separate pulse jet baghouse adjacent to the building in this area. This approach will eliminate substantial duct and the need for additional static pressure on the main fans.

LADLE TAPROUT AND LADLE PUMP

These areas require intermittent ventilation whenever work is being performed. System design allows 85,000 m³/h for each station. These areas will be controlled by dampers equipped with a timer to close 30 minutes after opening to prevent loss of ventilation in the rest of the system when the stations are not in use.

CASTER CANOPY

A canopy hood is provided above the crane to ventilate the caster area even though fume generation is generally light in this area. We project a ventilation volume of 272,000 m³/h for this area. This volume will not be available when the arc furnace canopy hood is operating for charging or tapping in order to provide maximum volume at the arc furnace which is the major source of fume generation.

DESLAG MACHINES

The ventilation volume for each of these machines as supplied by MDH is 144,500 m³/h at 130°C. Only one machine is to be in operation at any given time. The dampers controlling this area will be equipped with timers to close them 20 minutes after opening to maximize ventilation in other areas of the shop.

SLAG PIT

The slag pit area is not well defined at present. Therefore, we have allowed a volume of 114,500 m³/h at a temperature of 93°C for this area based on experience from other projects. This area must be enclosed as much as possible consistent with the need for the removal of the slag pots.

GENERAL

The above sources result in a total system ventilation volume of 2,277,000 m³/h at a temperature of 121°C during maximum melting and a volume of 2,192,000 m³/h at 73°C during canopy hood operation for charging or tapping.

The complete system is shown on Process Flow Diagram 95-450 - P01 Rev. B which is contained in the Appendix.

EQUIPMENT SPECIFICATIONS

REFRACTORY CHAMBER AND DUCT

A refractory lined combustion/dropout chamber will be supplied at the discharge of the Constee process. This chamber and duct are to provide two (2) seconds for completion of combustion prior to entering the water cooled duct where the temperature will be reduced. The chamber also operates at low velocity to drop out large material which may be entrained from Constee.

WATER COOLED DUCT

The water cooled duct shall be fabricated from a minimum of 2-1/2" schedule 80 pipe. This duct shall reduce the temperature of the gases to 568°C prior to mixing with the gases from the two LHF's. The duct size will be 2591 mm. Water requirements are estimated to be 26,000 l/min based on a temperature rise of 19.5°C for the cooling water.

A high temperature modulating damper is to be provided at the exit of the water cooled duct to control the Constee exit pressure and thus the furnace ventilation. Constee has requested a pressure of -40 mm H₂O at the exit of their process.

HOT GAS FANS

Three hot gas fans are required. Two will be operational at all times that the furnace or LHF's are operating and one will be an in place spare. Each fan will be equipped with inlet box dampers for isolation and control and outlet isolation dampers. The fans

shall be equipped with motor driven turning gear for rotation of the inactive fan. Fan performance shall be 305,000 m³/h at 76.2mm H₂O at 454°C.

MAIN FANS

Five main fans are required, four operational and one an in place spare. Fans shall be equipped with inlet box dampers for isolation and control and discharge isolation dampers. Fan performance shall be 570,000 m³/h at 381mm H₂O and 121°C. All fans are to be arranged #3 with center hung wheels. No overhung wheels are permitted. The main fans must be DiDW and the hot gas fans are to be SiSW.

FABRIC FILTER

The fabric filter is to be an open pressure type with reverse air cleaning. It shall be designed for a maximum filtration velocity of 0.915 m/min with one compartment off line for cleaning and one compartment off line for maintenance. The design air volume is not to include the volume required for the reverse air system.

The filter bags will have a nominal diameter of 305mm and a length of 9754mm. No more than three bags shall be reached from any internal walkway. Each compartment shall contain 216 bags. Design conditions are as follows:

| NO COMP'TS | CLOTH AREA Sq. M | VOLUME M ³ /h | FIL VELOCITY M/min. |
|------------|---------------------|-----------------------------|------------------------|
| 24 | 46,233 | 2,277,000 | 0.82 |
| 23 | 44,307 | 2,277,000 | 0.86 |
| 22 | 42,380 | 2,277,000 | 0.90 |

Filter hoppers shall be trough type with a minimum side slope of 60 degrees. Hoppers and inlet plenum shall be a minimum of 5mm plate suitably stiffened for 381mm H₂O. The area between the tube sheet and the partition walls shall be open bar grating.

FILTER BAGS

The filter bags are to be nominal 305mm diameter and 9754mm long. They shall be fabricated from knitted, seamless polyester fabric with a minimum weight of 356 gm/m². Each bag shall have a minimum of six (6) anti-collapse rings. Bags are to be furnished complete with a disposable cap.

The filter bags will be suspended from a grating floor by the use of a chain and compression spring.

The tube sheet floor shall be completely seal welded with bag thimbles, which are 300mm long, and welded, located 200mm below the tube sheet and 100mm above the tube sheet. Bags are to be attached to the thimbles by use of stainless steel, quick opening hose clamps.

INLET AND REVERSE AIR VALVES

The inlet and reverse air valves are to be poppet type with the shaft in a vertical position. Poppet seal rings are to be a machined surface and the poppet cylinders are to have a safety factor of at least 50x. Velocity through the valves shall not exceed 18 m/sec.

INLET PLENUM

The inlet plenum is to be tapered to maintain velocity. Discharge from the plenum to the individual hoppers is to be from the bottom of the plenum to minimize buildup.

FILTER OUTLET

The outlet of the filter is to be a weather proof continuous monitor with birdscreen and sized to prevent backpressure on the filter during normal operation.

FILTER HOUSING

The filter housing is to be of 22 ga. sides and 20 ga. roof of formed material to match the building siding in the rest of the mill. Galvanized siding is not permitted.

REVERSE AIR FANS

Two reverse air fans are to be furnished, one as an in place spare. Each fan shall be rated at 71,366 M³/hr at a minimum of 305 mm H₂O at 121°C.

DUST HANDLING EQUIPMENT

Each trough hopper shall be equipped with a 9" screw conveyor and a 10" X 10" rotary air lock. A gathering conveyor system shall convey the collected material to a single discharge point. A dust storage silo shall be furnished with a 72 hour capacity.

DUCT

All duct that is not water cooled or refractory lined shall be designed in accordance with the latest SMACOA design standards. Structural design of ducts shall be based on a minimum buildup of 600mm of 1600 kgs/m².

-V-
APPENDIX

ESTIMATED
UTILITY

REQUIREMENTS

| | | |
|--|-------|-----------------------|
| Cooling Water (Temp. Rise 19.5°C) | ----- | 26,000 l/min |
| Electric Motors (High Voltage - 6600) | | |
| Four Operational and One Spare | ----- | 1,500 HP ea. |
| Two Operational and One Spare | ----- | 800 HP ea |
| Electric Motors (Medium Voltage - 400) | | |
| Reverse Air Fan and One Spare | ----- | 200 HP ea |
| Small Motors Total | ----- | 150 HP |
| Compressed Air (700 Kg/Sq.M) | ----- | 1 m ³ /min |

Synopsis

- Sources
- EAF Ventilation Characteristics
- Hot Gas System
- Main Duct System
- Auxiliary Systems
- Fabric Filter (Baghouse Proper)
- System Controls
- Fans

MELT SHOP EMISSION CONTROL SYSTEM

SOURCES

Electric Arc Furnace - Consteel
Electric Arc Furnace - Canopy Hood
Electric Arc Furnace - Slag Pit
Ladle Furnace Hoods
Ladle Furnace - Building Purge
Caster Canopy
Deslag Machines
Vacuum Degasser
Ladle Tearout
Ladle Preheat
Tundish Deslull Area

MELT SHOP
EMISSION CONTROL SYSTEM

Electric Arc Furnace - Consteel

Items that affect furnace
ventilation

Power Input
Charge Make-up
Carbon Addition
Oxygen Flow Rate
Furnace Openings

Electric Arc Furnace - Canopy Hood

Not 100% effective
Cross Drafts
Lack of rise due to inversion
Improvement due to Consteel
Tapping

MELT SHOP
EMISSION CONTROL SYSTEM

HOT GAS SYSTEM

Electric Arc Furnace

Consteel
Combustion Chamber
Water Cooled Duct

Ladle Furnaces

Two stations simultaneously

Air Bleed

Spark Arrestor

Hot Gas Fans

MELT SHOP
EMISSION CONTROL SYSTEM

MAIN DUCT SYSTEM

Electric Arc Furnace Canopy Hood
Electric Arc Furnace Slag Pit
Ladle Furnaces Building Purge
Caster Canopy
Deslag Machines
Vacuum Degasser
Ladle Tearout

AUXILIARY SYSTEMS

Ladle Preheat
Tundish Desulf Area

MELT SHOP
EMISSION CONTROL SYSTEM

FABRIC FILTER

TYPE - REVERSE AIR

DESIGN - OPEN PRESSURE

FABRIC - SEAMLESS POLYESTER

NUMBER OF COMPARTMENTS - 24

BAGS PER COMPARTMENT - 216

CLOTH AREA PER COMPARTMENT - 1926 m²

DESIGN VOLUME - 2,277,000 m³/Hr

*1,342,000 cfm
80*

FILTRATION VELOCITY

24 Compartments - 0.82 M/Min.
23 Compartments - 0.86 M/Min.
22 Compartments - 0.90 M/Min.

MELT SHOP
EMISSION CONTROL SYSTEM

SYSTEM CONTROLS

Fan Current Controls

Main Duct Pressure Control

Furnace Pressure Control

Furnace Canopy Hood

Fabric Filter Cleaning Control

MELT SHOP
EMISSION CONTROL SYSTEM

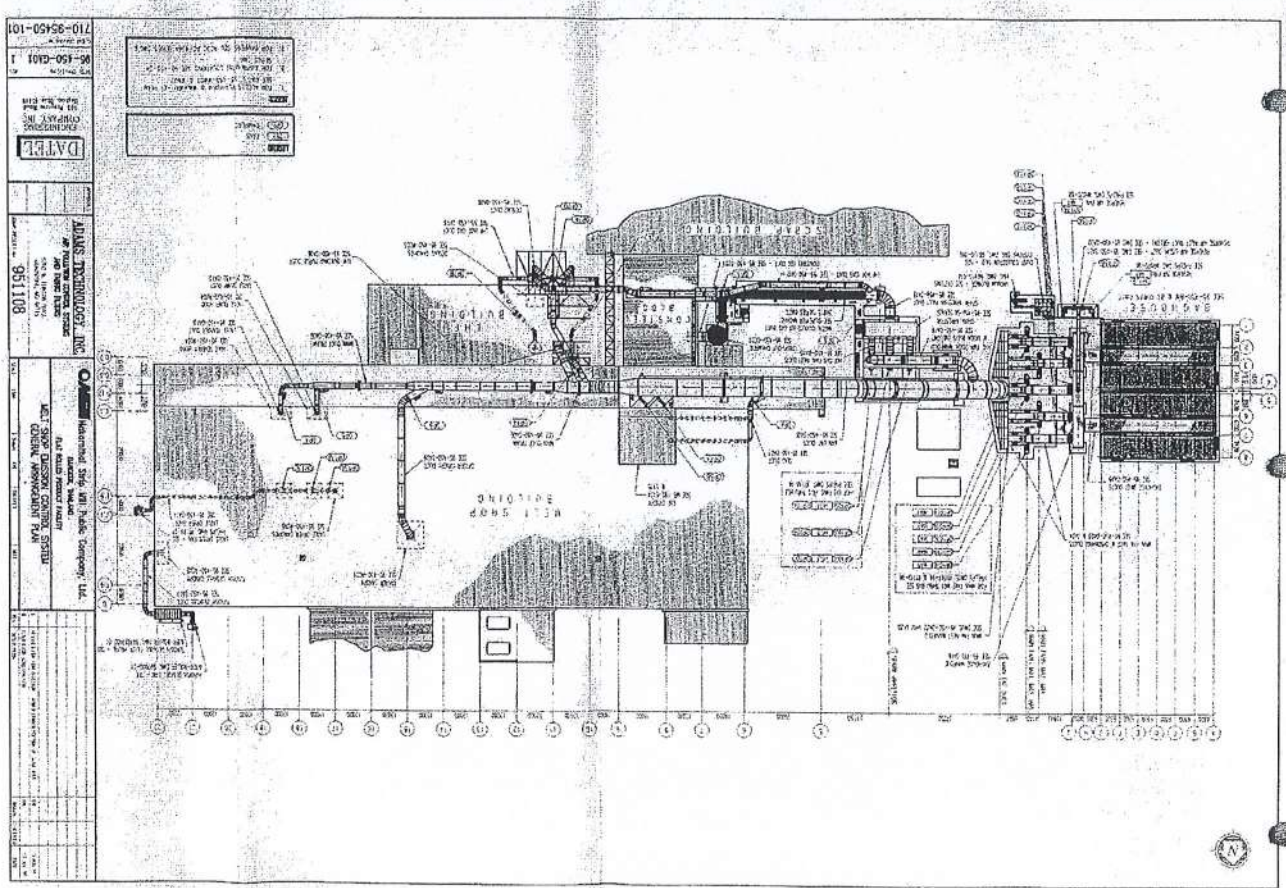
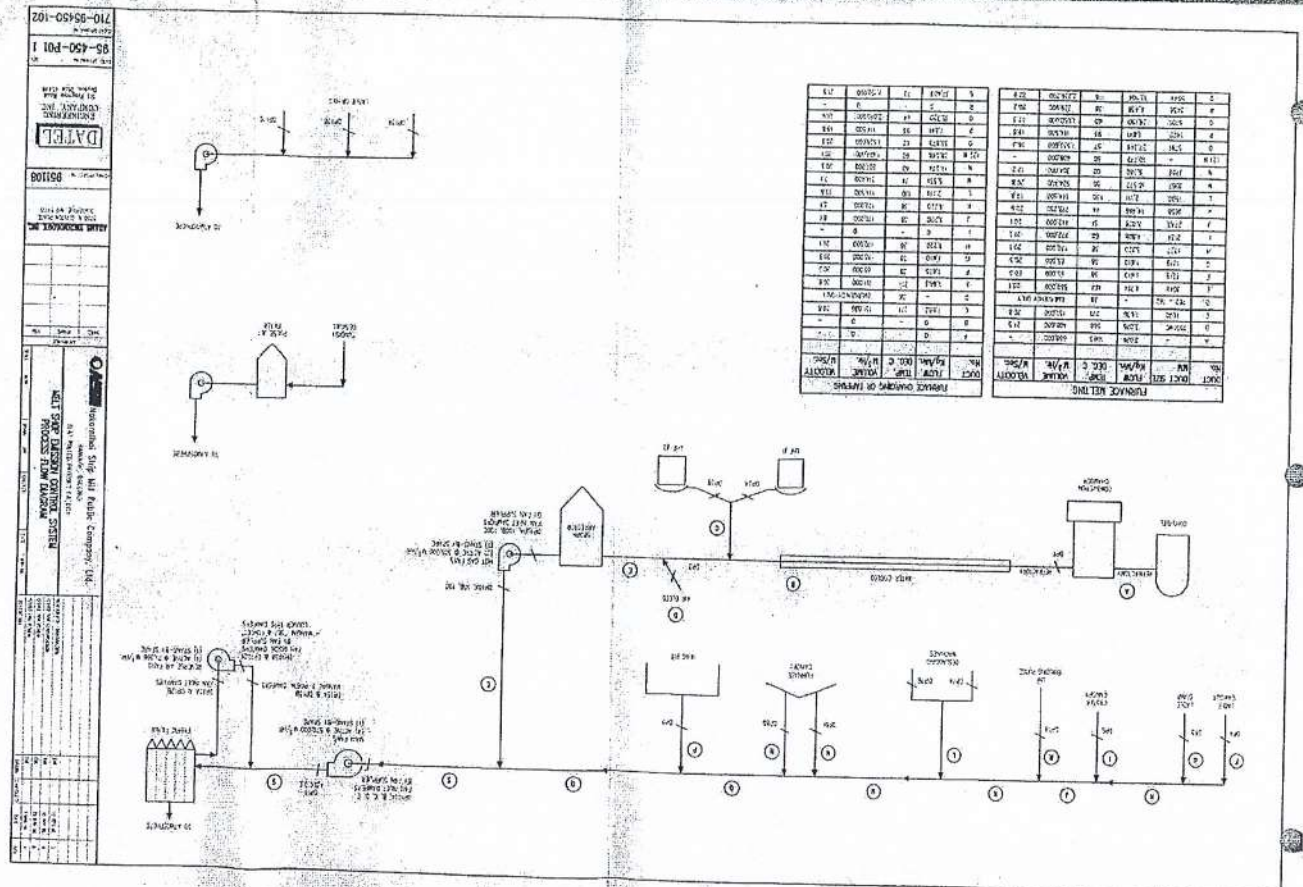
FANS

MAIN FANS

Four Operational-One Spare
570,000 M³/Hr. each
381 mm H₂O at 121°C

HOT GAS FANS

Two Operational-One Spare
305,000 M³/Hr. each
76.2 mm H₂O at 454°C



เอกสารแนบที่ 5

การนำน้ำจากกระบวนการผลิตกลับมาใช้ประโยชน์ใหม่
(Water Treatment System)

