

## Main Stack 1

Monitoring Location No: 1  
 Monitoring Type: Continuous  
 Sample Type: Air  
 Description: Exit point from Stack 1 to atmosphere

Opacity						
Period: 6 Minutes		Limit: 20.00 %				
Start Time	End Time	Cause	Operational State	Explanation	Corrective Action	Max Reading
02/11/23 07:42	02/11/23 07:54	Recovery Boiler A ESP2	Equipment Issue/Failure	ESP 2 Field 2 tripped causing the exceedance.	Field 2 reset and started, we are having some issues with the ESP performance caused by the ESP ID fan which have the incorrect impeller fitted during the MSD, and this will be corrected on December 12th PSD.	89.46
03/11/23 06:42	03/11/23 07:00	Recovery Boiler A	RB A Un Scheduled Start-up/Shut-down	RBA tripped on main Interlock, after investigation we found that the Primary air fan tripped on a contactor fault.	Contactor replaced and then we had another fault on one of the auxiliaries of the contactor (earth fault) this was repaired, then the boiler was restarted and stabilized.	53.49
03/11/23 08:12	03/11/23 08:24	Recovery Boiler A	RB A Un Scheduled Start-up/Shut-down	RBA tripped on main Interlock, after investigation we found that the Primary air fan tripped on a contactor fault.	Contactor replaced and then we had another fault on one of the auxiliaries of the contactor (earth fault) this was repaired, then the boiler was restarted and stabilized.	31.21
07/11/23 12:54	07/11/23 13:00	Lime Kiln B ESP	Equipment Issue/Failure	ESP Tripped due to high CO	Plant stabilized and ESP restarted	21.58
14/11/23 00:42	14/11/23 00:48	Lime Kiln A	Equipment Issue/Failure	Kiln A ESP tripped while flushing the Lime mud feed pump.	Plant stabilized and ESP restarted.	52.04
14/11/23 04:12	14/11/23 04:18	Recovery Boiler A ESP2	Equipment Issue/Failure	ID fan stopped for Maintenance to replace the rotor of the fan	Shut duration is 24hrs then equipment will be restarted.	21.35

14/11/23 15:00	14/11/23 15:06	Lime Kiln A	Lime Kiln A Scheduled Start-up/Shut-down	Kiln A PSD Shut and Start	Plant restarted after planned shut down and stabilized.	20.33
17/11/23 06:06	17/11/23 06:18	Lime Kiln A	Normal (Steady State)	Kiln had a big ring formed that was shot out while on low fire, this caused excessive dust which caused the exceedance while ramping up.	Plant ramped up and stabilized.	21.85
21/11/23 00:12	21/11/23 00:24	Lime Kiln A ESP	Equipment Issue/Failure	Low level on the lime mud storage tank caused the feed pump to stop on interlock and tripped the ESP.	Lime level restored and equipment restarted.	52.98
21/11/23 05:42	21/11/23 05:48	Power Boiler EP	Equipment Issue/Failure	Power boiler EP field 2 tripped out causing the opacity exceedance	Electrical support called to reset Field 2, same started and opacity back in spec.	23.36
21/11/23 18:12	21/11/23 18:24	Lime Kiln B	Equipment Issue/Failure	Kiln stopped to replace the CD Filter Level Transmitter, at the same time the smoke box was blown out causing the exceedance.	Level Transmitter replaced after some difficulty with clearing a blockage to the transmitter, and also after start up when the transmitter failed to work.	38.69
21/11/23 22:00	21/11/23 22:06	Lime Kiln A ESP	Equipment Issue/Failure	While cleaning the feed chute the O2 dropped, and Kiln A ESP tripped on high CO.	Plant Stabilized and ESP restarted.	39.04
22/11/23 00:30	22/11/23 00:42	Lime Kiln B	Lime Kiln B Un Scheduled Start-up/Shut-down	Kiln starting up and had numerous issues with purging of the kiln causing multiple start attempts and exceedances.	Gas generator and flame scanner changed but still had some logic issues that was attended by the DCS Engineer and plant got away at 05:20am	20.04
22/11/23 01:30	22/11/23 01:36	Lime Kiln B	Lime Kiln B Un Scheduled Start-up/Shut-down	Kiln starting up and had numerous issues with purging of the kiln causing multiple start attempts and exceedances.	Gas generator and flame scanner changed but still had some logic issues that was attended by the DCS Engineer and plant got away at 05:20am	20.58
22/11/23 01:42	22/11/23 01:54	Lime Kiln B	Lime Kiln B Un Scheduled Start-up/Shut-down	Kiln starting up and had numerous issues with purging of the kiln causing multiple start attempts and exceedances.	Gas generator and flame scanner changed but still had some logic issues that was attended by the DCS Engineer and plant got away at 05:20am	22.09
22/11/23 02:06	22/11/23 02:18	Lime Kiln B	Lime Kiln B Un Scheduled Start-up/Shut-down	Kiln starting up and had numerous issues with purging of the kiln causing multiple start attempts and exceedances.	Gas generator and flame scanner changed but still had some logic issues that was attended by the DCS Engineer and plant got away at 05:20am	21.41

22/11/23 05:30	22/11/23 05:36	Lime Kiln B	Lime Kiln B Un Scheduled Start-up/Shut-down	Kiln starting up and had numerous issues with purging of the kiln causing multiple start attempts and exceedances.	Gas generator and flame scanner changed but still had some logic issues that was attended by the DCS Engineer and plant got away at 05:20am	20.84
24/11/23 17:36	24/11/23 17:42	Lime Kiln A ESP	Equipment Issue/Failure	Kiln ESP tripped due low O2 and high CO.	Plant stabilized and ESP restarted.	49.07
25/11/23 04:30	25/11/23 04:36	Lime Kiln A	Lime Kiln A Un Scheduled Start-up/Shut-down	Kiln was stopped due to Digester issues and high inventory.	Plant restarted again in the early hours of the 26th causing the exceedance.	20.96
25/11/23 12:18	25/11/23 12:42	Recovery Boiler A	Equipment Issue/Failure	Main infeed cable to ESP flashed and burned ESP 1 first field cabinet also tripping the recovery boiler, Maintenance called out to repair.	ESP 1 separated from the busbar for maintenance and Recovery boiler was started with one ESP (2), Repairs was carried out and later ESP 1 was repaired and the liquor to the boiler was removed to reconnect the ESP back onto the busbar, afterward the Recovery boiler was restarted and stabilized.	77.43
25/11/23 13:00	25/11/23 13:36	Recovery Boiler A	Equipment Issue/Failure	Main infeed cable to ESP flashed and burned ESP 1 first field cabinet also tripping the recovery boiler, Maintenance called out to repair.	ESP 1 separated from the busbar for maintenance and Recovery boiler was started with one ESP (2), Repairs was carried out and later ESP 1 was repaired and the liquor to the boiler was removed to reconnect the ESP back onto the busbar, afterward the Recovery boiler was restarted and stabilized.	30.66
25/11/23 17:24	25/11/23 17:36	Recovery Boiler A	Equipment Issue/Failure	Main infeed cable to ESP flashed and burned ESP 1 first field cabinet also tripping the recovery boiler, Maintenance called out to repair.	ESP 1 separated from the busbar for maintenance and Recovery boiler was started with one ESP (2), Repairs was carried out and later ESP 1 was repaired and the liquor to the boiler was removed to reconnect the ESP back onto the busbar, afterward the Recovery boiler was restarted and stabilized.	31.80

25/11/23 17:42	25/11/23 18:12	Recovery Boiler A	Equipment Issue/Failure	Main infeed cable to ESP flashed and burned ESP 1 first field cabinet also tripping the recovery boiler, Maintenance called out to repair.	ESP 1 separated from the busbar for maintenance and Recovery boiler was started with one ESP (2), Repairs was carried out and later ESP 1 was repaired and the liquor to the boiler was removed to reconnect the ESP back onto the busbar, afterward the Recovery boiler was restarted and stabilized.	35.64
25/11/23 21:42	25/11/23 22:12	Recovery Boiler A	Equipment Issue/Failure	Main infeed cable to ESP flashed and burned ESP 1 first field cabinet also tripping the recovery boiler, Maintenance called out to repair.	ESP 1 separated from the busbar for maintenance and Recovery boiler was started with one ESP (2), Repairs was carried out and later ESP 1 was repaired and the liquor to the boiler was removed to reconnect the ESP back onto the busbar, afterward the Recovery boiler was restarted and stabilized.	44.05
29/11/23 02:18	29/11/23 02:42	Lime Kiln B	Equipment Issue/Failure	Lost Kiln Main flame when gas generator tripped causing the exceedance.	Gas generator reset, plant restarted and stabilized.	36.66
29/11/23 10:54	29/11/23 11:00	Power Boiler EP	Equipment Issue/Failure	Power boiler fuel rotary tripped started both load burners and the increase of combustion air to the boiler caused the exceedance.	Blockage cleared in the rotary and it was started again, load burners removed from boiler.	34.59
30/11/23 10:36	30/11/23 10:42	Lime Kiln A ESP	Equipment Issue/Failure	Kiln ESP Tripped due to a high CO Spike - process upset.	Plant stabilized and ESP restarted.	29.73

## Power Boiler

**Monitoring Location No:** 3  
**Monitoring Type:** Continuous  
**Sample Type:** Air  
**Description:** Discharge duct downstream of Power Boiler prior to junction with Stack 1

Carbon Monoxide (CO)      Period: 60 Minutes      Limit: 140.00 mg/Nm3						
Start Time	End Time	Cause	Operational State	Explanation	Corrective Action	Max Reading

05/11/23 14:00	05/11/23 17:00	Power Boiler	Normal (Steady State)	CO Increased from 13:56on the 5th of November, definitely process related.	Found bed height reduced from 70 to 60% and incorrect settings of the secondary air dampers.	250.00
05/11/23 17:00	06/11/23 05:00	Power Boiler	Normal (Steady State)	CO Increased from 13:56on the 5th of November, definitely process related.	Found bed height reduced from 70 to 60% and incorrect settings of the secondary air dampers.	250.00
06/11/23 05:00	06/11/23 17:00	Power Boiler	Normal (Steady State)	We are still working on the set up of the boiler, increasing sand bed height to 70%	Need to set up the boiler air system and sand bed height.	249.89
06/11/23 17:00	07/11/23 05:00	Power Boiler	Normal (Steady State)	We are still working on the set up of the boiler, increasing sand bed height to 70%	Need to set up the boiler air system and sand bed height.	249.81
07/11/23 05:00	07/11/23 17:00	Power Boiler	Normal (Steady State)	Boiler conditions with dry fuel required some set up changes which took some time to get it right.	Set up of boiler was achieved on the 8th and CO came down to normal.	249.81
07/11/23 17:00	08/11/23 05:00	Power Boiler	Normal (Steady State)	Boiler conditions with dry fuel required some set up changes which took some time to get it right.	Set up of boiler was achieved on the 8th and CO came down to normal.	250.00
08/11/23 05:00	08/11/23 16:00	Power Boiler	Normal (Steady State)	Boiler conditions with dry fuel required some set up changes which took some time to get it right.	Set up of boiler was achieved on the 8th and CO came down to normal.	249.89

## Main Stack 2

Monitoring Location No: 22  
Monitoring Type: Continuous  
Sample Type: Air  
Description: Exit point from Stack 2 to atmosphere

Opacity						
Period: 6 Minutes		Limit: 20.00 %				
Start Time	End Time	Cause	Operational State	Explanation	Corrective Action	Max Reading
01/11/23 07:00	01/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	20.71
02/11/23 07:00	02/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	23.35
03/11/23 07:00	03/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	22.36
04/11/23 07:00	04/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	23.18
05/11/23 07:00	05/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	21.88

06/11/23 07:00	06/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	22.24
07/11/23 07:00	07/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	25.31
08/11/23 07:00	08/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	24.00
09/11/23 07:00	09/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	25.99
09/11/23 07:48	09/11/23 08:00	Recovery Boiler B	Equipment Issue/Failure	Main Stack Opacity influenced by heavy rain, ongoing issue for some time now.	Monitored, E&I department informed but still no solution.	23.52
10/11/23 07:00	10/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	23.84
11/11/23 07:00	11/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	25.29
12/11/23 07:00	12/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	27.11
13/11/23 07:00	13/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	27.66
14/11/23 07:00	14/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	25.15
15/11/23 07:00	15/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	28.49
16/11/23 07:00	16/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	28.94
17/11/23 07:00	17/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	26.35
18/11/23 07:00	18/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	22.24
19/11/23 07:00	19/11/23 07:06	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	21.55
22/11/23 06:54	22/11/23 07:00	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	21.88
23/11/23 06:54	23/11/23 07:00	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	22.84
24/11/23 06:54	24/11/23 07:00	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	20.88
25/11/23 06:54	25/11/23 07:00	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	22.50
26/11/23 06:54	26/11/23 07:00	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	21.56
27/11/23 06:54	27/11/23 07:00	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	24.41
30/11/23 12:30	30/11/23 12:36	Auto Zero Span Verification	Normal (Steady State)	Auto Calibration	n/a	21.42

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