CK BIRLA GROUP

ORIENT CEMENT

BIRLA.A1 PREMIUM CEMENT

Great Place To Work. Certified APR 2021-MAR 2022 INDIA

ORIENT CEMENT LIMITED
Chittapur, Karnataka

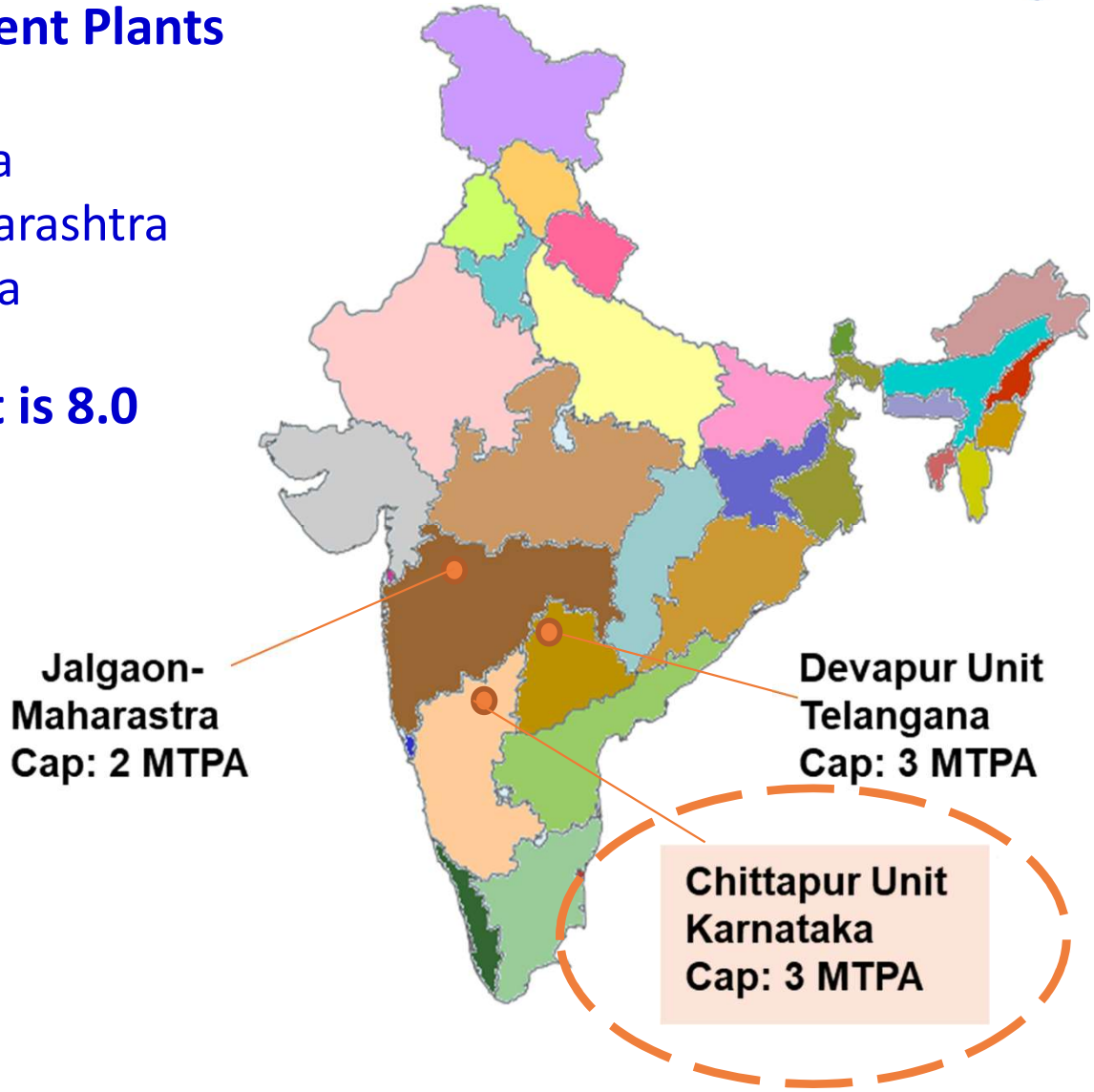
Team Member:

- Santosh Kumar Sharma- AVP- Operations
- P Murali Mohan Raju- AGM – Process

COMPANY PROFILE

- **Orient Cement is operating 3 Cement Plants in India:**
  - Integrated Plant - Devapur, Telangana
  - Cement Grinding Unit - Jalgaon, Maharashtra
  - Integrated Plant - Chittapur, Karnataka

- **Overall Capacity of Orient Cement is 8.0 MTPA.**



Plant is certified with IMS:

- QMS 9001 : 2015
- EMS 14001 : 2015
- OHSAS 18001 : 2007
- EnMS 50001 : 2018
- FMS 41001 : 2018
- **Member of CSI (WBCSD)**
- **Green Pro Certified by CII**
- **Member of GCCA**

(Global cement & concrete association)

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CEMENT PROCESS & PROCUCT DETAILS

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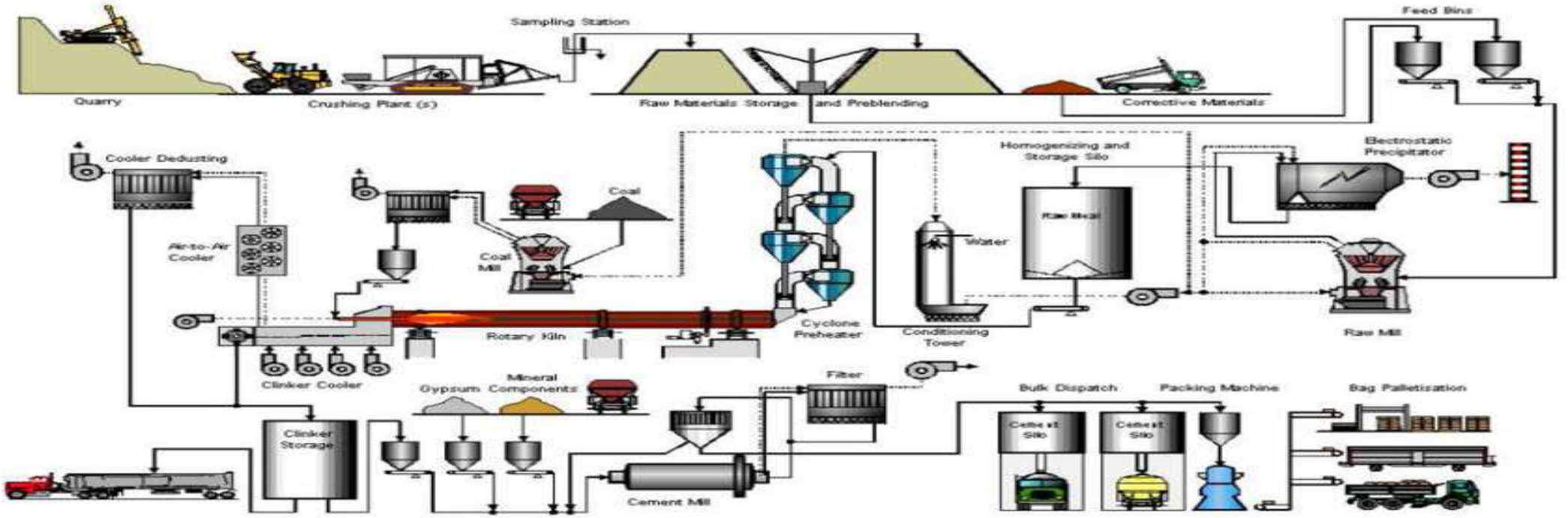
Process



Products

Birla.A1 StrongCrete

Birla.A1 Premium Cement (PPC)

Birla.A1 Premium Cement 53 Grade(OPC)

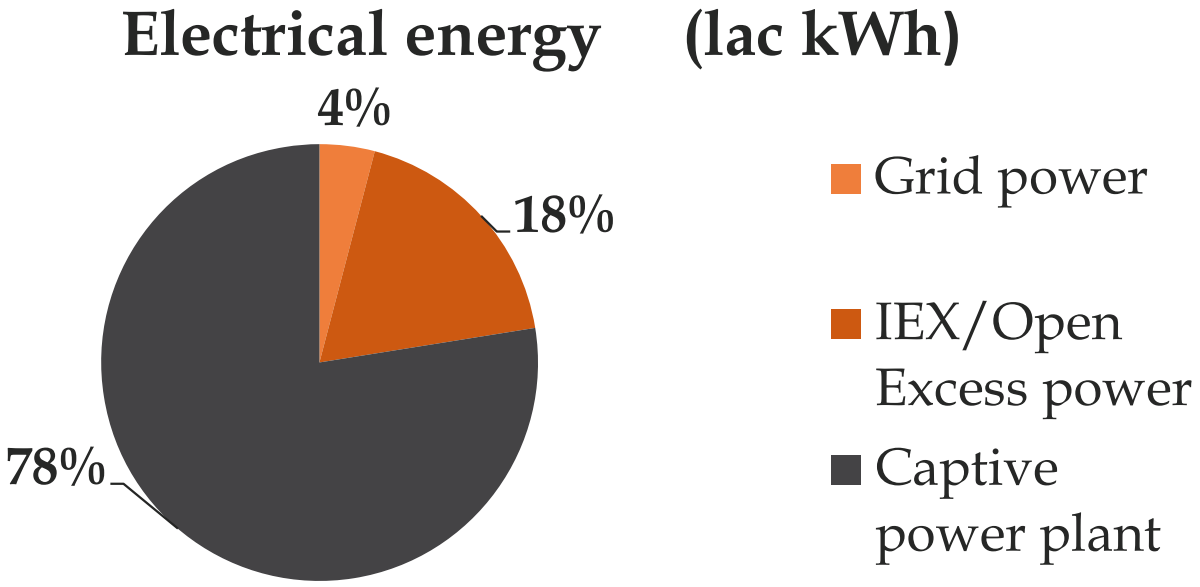
Birla.A1 Premium Cement 43 Grade(OPC)

PLANT FEATURES

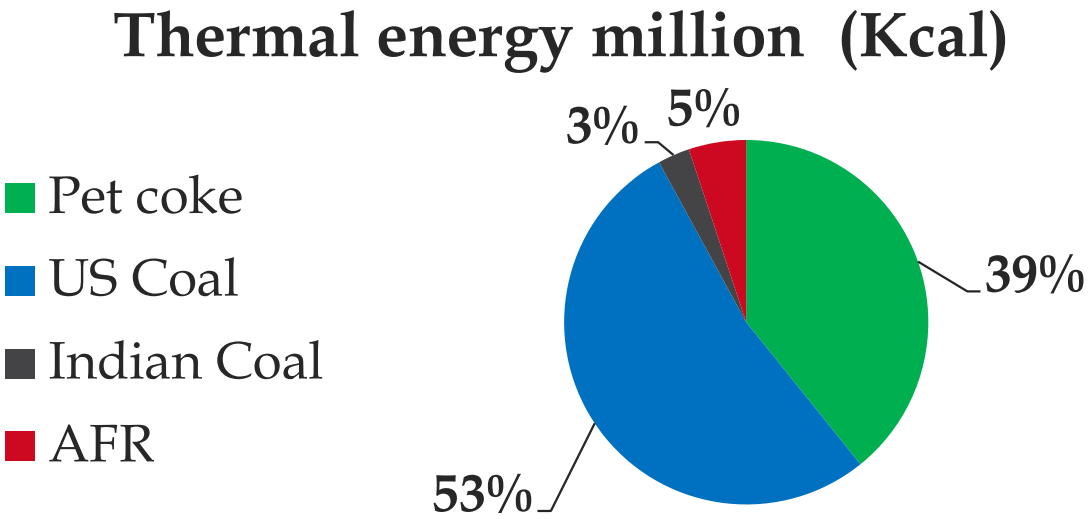
- ✓ Plant Location : Itga (V), Chittapur (Tq) ,Gulbarga (Dist.) Karnataka.
- ✓ Commercial Production : Sep 2015
- ✓ Clinker : 2MTPA
- ✓ Cement : 3MTPA
- ✓ CPP : 45MW
- ✓ Plant & Colony : 266 Ha
- ✓ Mines : 519 Ha
- ✓ Green Belt : 273749 Saplings (Till 31st March 2022)

Energy Consumption Overview

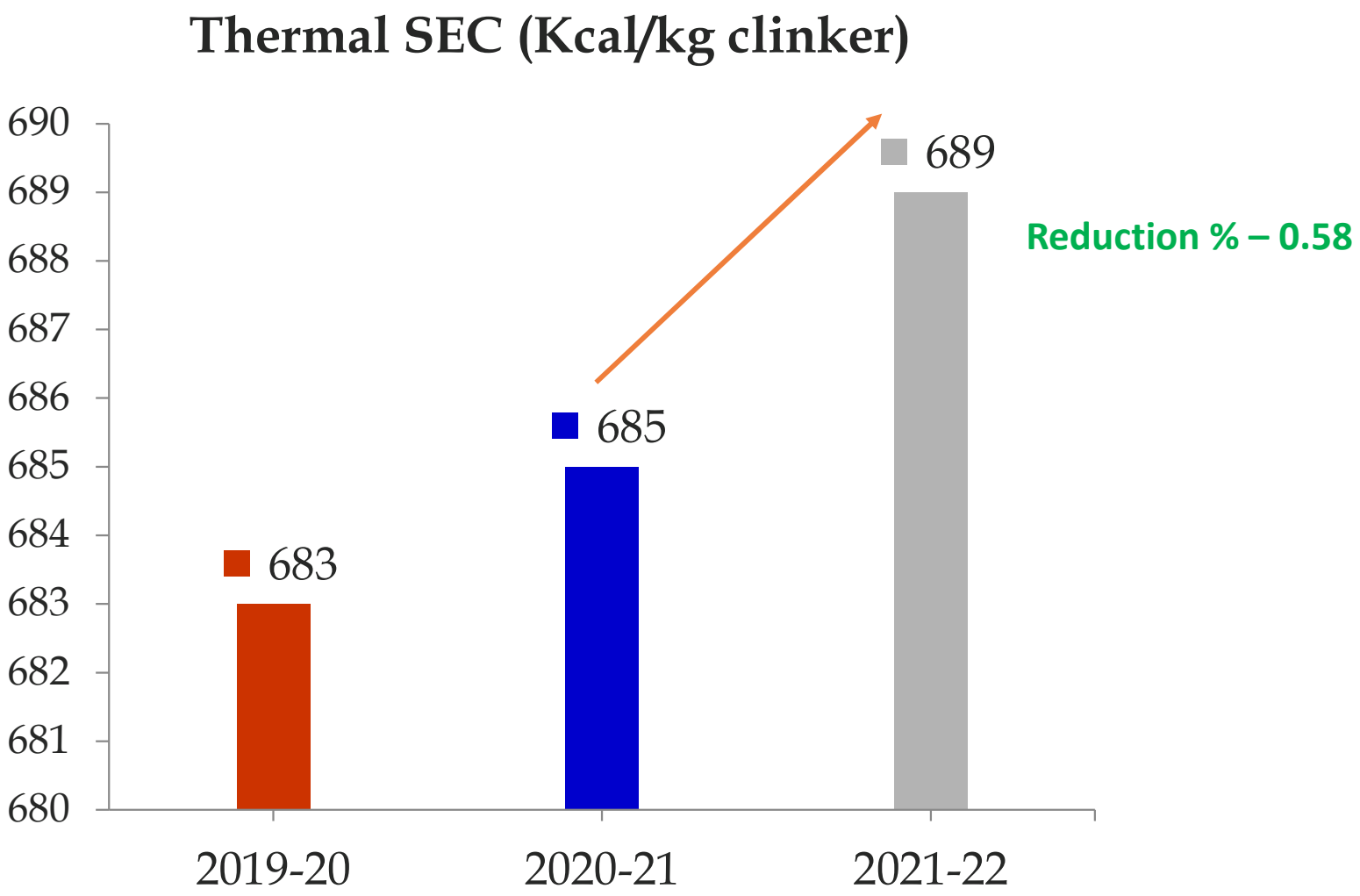
- Electrical Energy consumption – kWh FY 2021-2022



- Thermal energy consumption Kcal FY 2021-2022



Sp. Energy consumption in last 3 years (FY 2019-22)

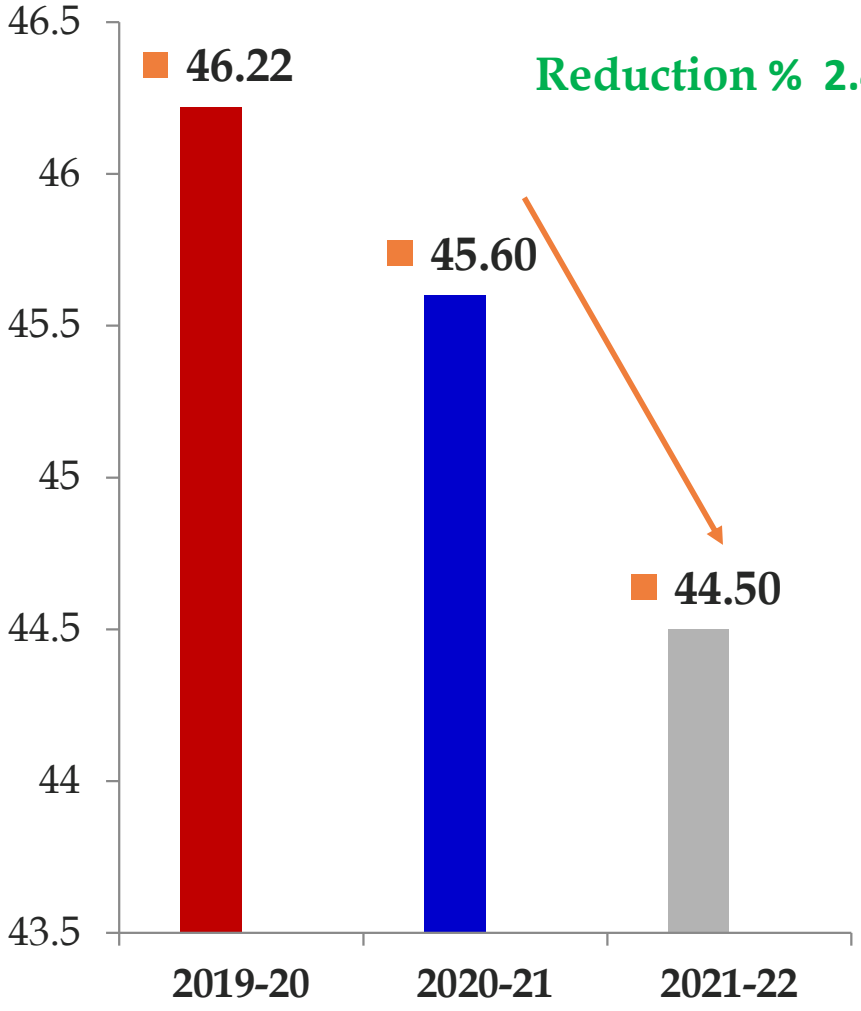


* Number of starts/stops as per market demand due to Covid 19

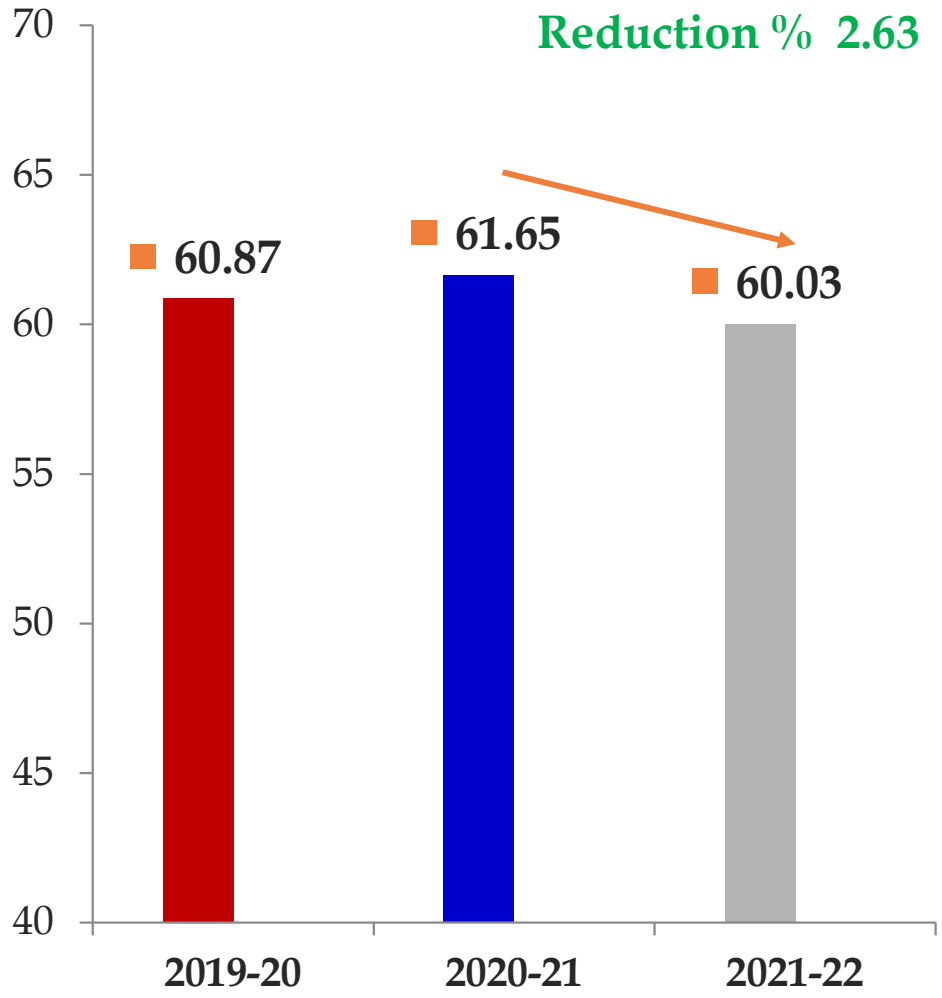
Sp. Energy consumption in last 3 years (FY 2019-22)

Electrical SEC

Up to Clinker (KW/MT of Clinker)



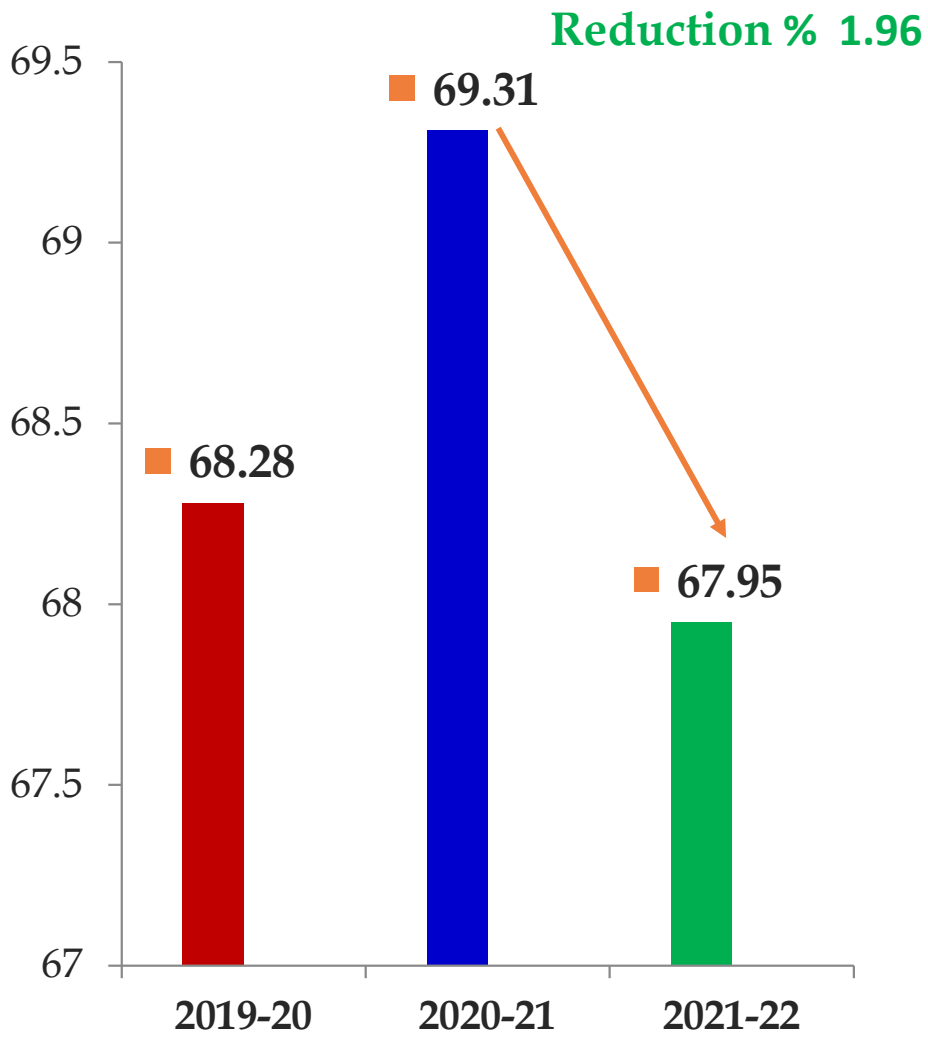
Overall Cement (KW/MT of Cement)



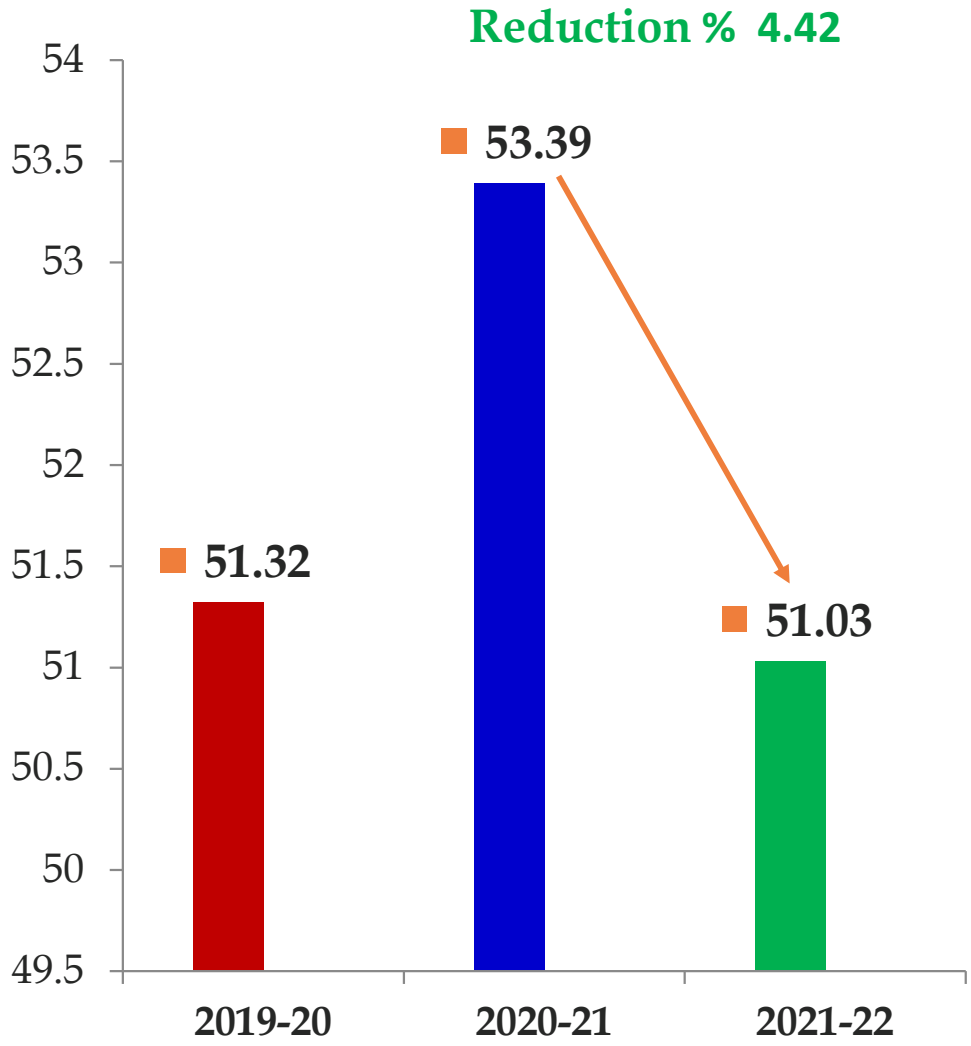
Sp. Energy consumption in last 3 years (FY 2018-21)

Electrical SEC

OPC
(KW/MT of Cement)



PPC
(KW/MT of Cement)



Comparison with National Benchmark

Specific Energy Consumption	National Benchmark	Yearly Best Figures of OCL, Chittapur	SEC on 2021-22
Thermal - Kcal/Kg Clinker	676	683 (FY 2019-20)	689
Electrical-kWh/T of Clinker	42.59	44.50 (FY 2021-22)	44.50
Electrical-kWh/T of Cement	56.10	60.03 (FY 2021-22)	60.03

❖ **The power achieved based on 50-50% of OPC & PPC products**

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Road map to Achieve National/Global Benchmark

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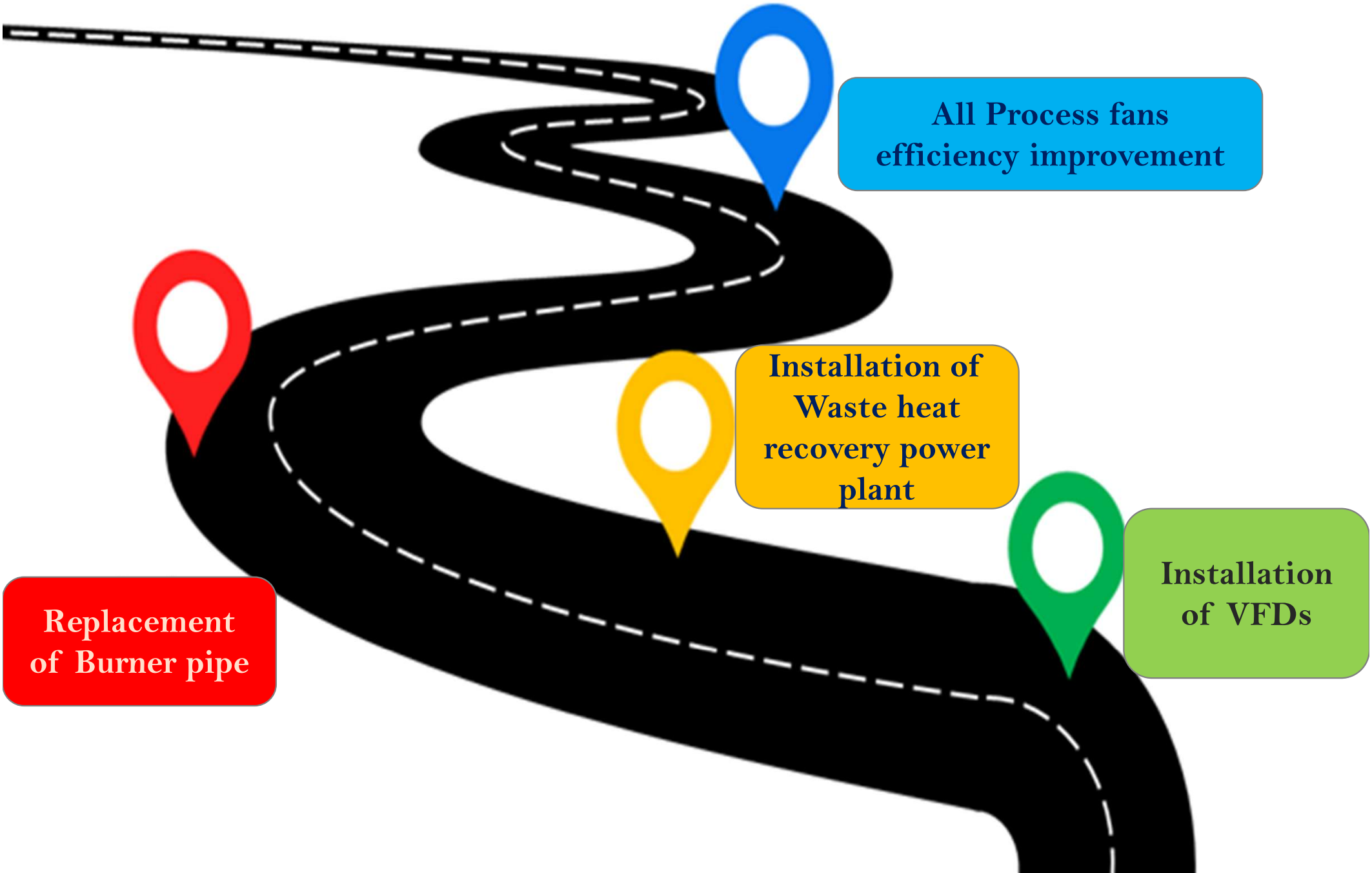

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Major Energy Conservation Projects Planned 2022-23

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Sl. No.	Energy Conservation Projects	Electrical energy savings (In Lakhs kWh)	Thermal savings (Million kCal)	Investments (Rs in Million)	Annual Savings (Rs in Million)
1	Optimization of Kiln Coal transportation phase density	1.92		0.10	1.57
2	Cement Mill 1 Fan Efficiency improvement from 76.3 % to 85.4 %	6.45	NIL	0.10	4.87
3	Cement Mill 2 Fan Efficiency improvement from 75.6 % to 85.4 %	5.10	NIL	0.10	3.85

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Major Energy Conservation Projects Planned 2022-23

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Sl. No.	Energy Conservation Projects	Electrical energy savings (In Lakhs kWh)	Thermal savings (Million kCal)	Investments (Rs in Million)	Annual Savings (Rs in Million)
4	Improve cooler ESP fan efficiency from 40.5% to 86.15% by replacing with new impeller	9.40	NIL	0.50	7.10
5	Replacement of all old and inefficient lighting system by Energy efficient Lighting system i.e. LED	4.51	NIL	4.35	3.41

Energy Saving Projects Implemented last three years

Year	No of Projects	Investments (INR Million)	Savings (INR Million)
FY 2019-20	07	9.2	34.90
FY 2020-21	09	1.18	25.50
FY 2021-22	09	3.05	17.02

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Energy Saving Projects Implemented FY 2019-20

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Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/yr	Rs in Million	Rs in Million	
Heat resistance paint on preheater and cyclone area	-	1337	10	4.2	5.04
Optimize lighting voltage in line	0.1	-	0.7	-	Immediate
Reduction in the generating pressure of Post clinker section compressors from 7.2 bar to 6 bar	3	-	1.8	-	Immediate

Cont……

Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/year	Rs in Million	Rs in Million	
Optimization of packing plant operation	10		7	1	1.71
Compressor air leakages in Pre clinker	3	21	2.4	1	5
Optimisation of Raw mill fans	4		2.4	1	5
Optimization of coal firing blowers	12	500	10.6	2	2.6

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Energy Saving Projects Implemented FY 2020-21

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Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/year	Rs in Million	Rs in Million	
Compressor's discharge pressure reduced from 6.0 to 5.8 bar	2.31	-	1.88	-	Immediate
Idle running of material handling section reduced	0.12	-	0.1	-	Immediate
Applied heat resistance paint in kiln hood	-		1.50	0.236	1.89
Changed HPSV lamps to LED lamps	0.52	-	0.42	0.80	22.86

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Cont……

Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/year	Rs in Million	Rs in Million	
Raw mill product residue optimized from 3.3 to 3.6% on 212 micron	3.70	-	3.02	-	Immediate
Cement mill bag house heaters idle running hours reduced	0.47	-	0.38	-	Immediate
Idle running of cooler ESP transport reduced	0.11	-	0.09	-	Immediate
Raw mill bag house idle running reduced	0.55	-	0.45	-	Immediate
HRB discharge Bag filter fan changed to VFD	0.86	-	0.70	1.186	2.57

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Energy Saving Projects Implemented FY 2021-22

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Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Kcal/kg Cli	Rs in Million	Rs in Million	
Heat resistant paint applied in Kiln shell	-	5.36	12.1	2.05	2.03
Cooler exit duct coating avoided by water spray line modification	1.15	-	0.95	0.525	6.63
Idle running for coal unloading circuit by reducing the wagon unloading time	2.592	-	2.02	-	Immediate
VFD installed for crusher bag filter fan 111 FN303	1.05	-	0.861	0.45	0.52

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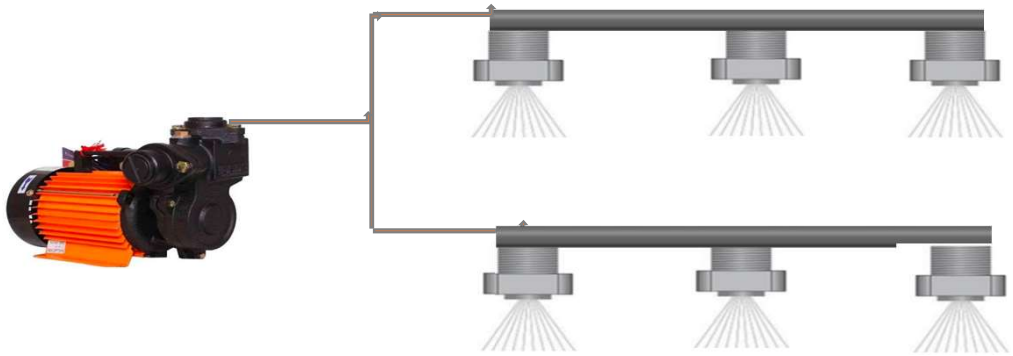
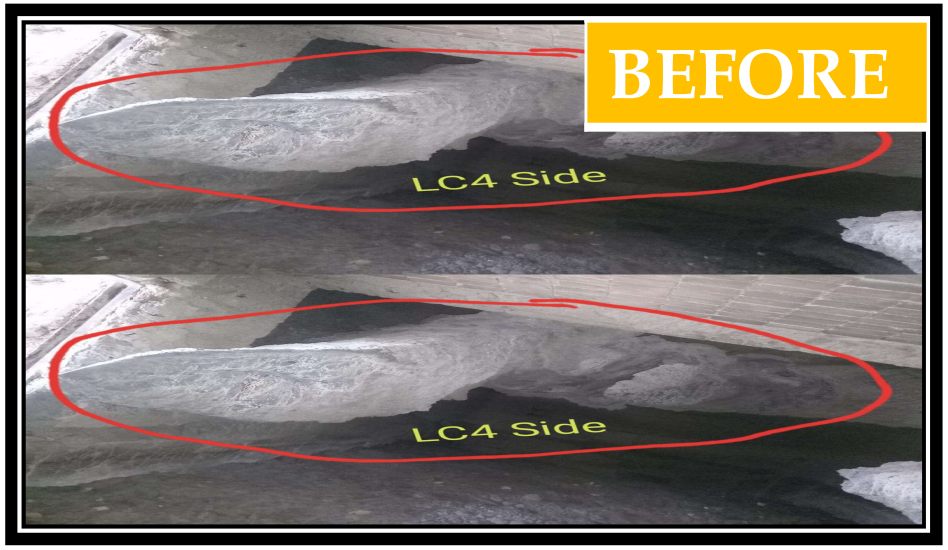
Cont……

Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Kcal/kg Cli	Rs in Million	Rs in Million	
Bag filter fan interlock with packer operation	0.51	-	0.367	-	Immediate
Dispersion plate installed in fly ash entry in both Cement mill	0.20	-	0.145	0.25	1.72
Changed HPSV lamps to LED lamps in Raw mill section	0.146	-	0.104	0.67	8.12
Raw mill circuit bag filters stopping in monsoon	4.14	-	0.29	-	Immediate
Compressor pressure reduced 5.8-5.3	0.05		0.20	-	Immediate

1. Cooler Water Spray Modification



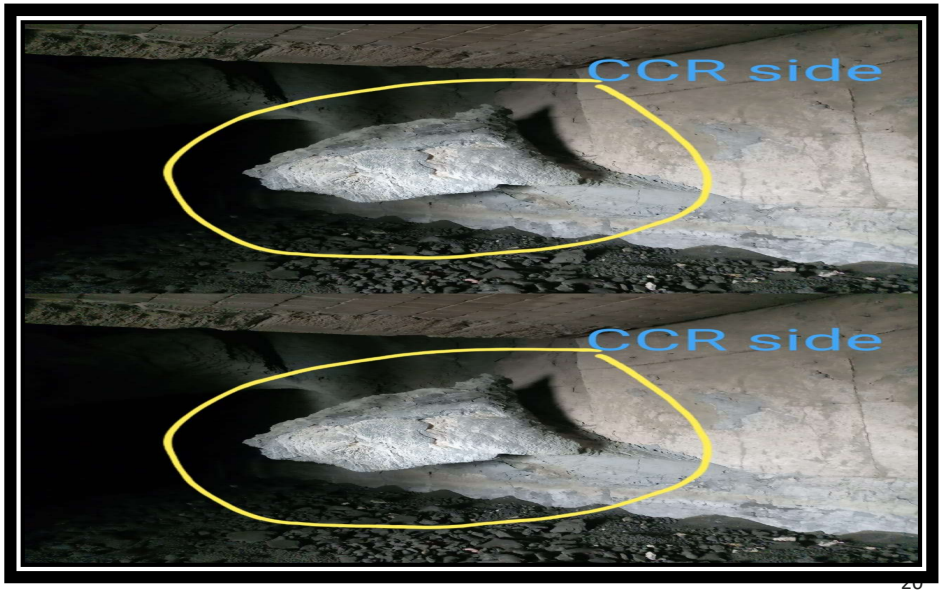


Observation

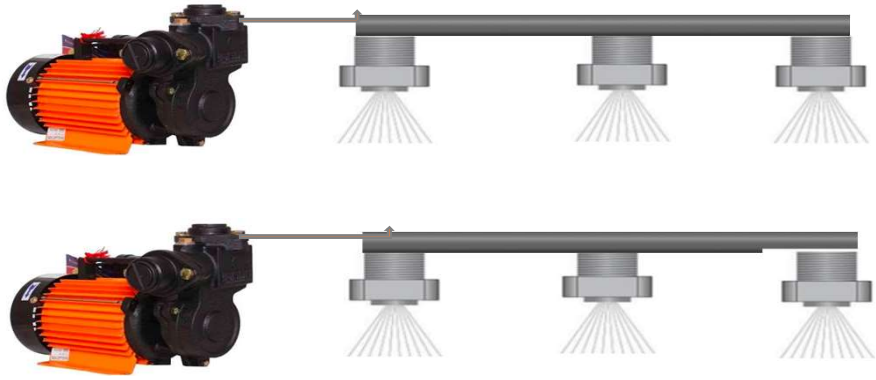
Huge Coating build ups at both sides of cooler exit duct

Problem

- ✓ Cooler water spray both side nozzles operation with common temperature
- ✓ No proper gas distribution to both ducts due to temperature difference
- ✓ If coating collapse its lead to Kiln stoppage
- ✓ Increase in cooler vent fan speed due to less area of both exit ducts
- ✓ Improper water spray in both line with one water spray pump



Innovation Project- 1



Modification

- Installed individual water lines for both side
- Separate pump installed in place of single pump for both lines

Benefits & Results

- ✓ Optimum water spray in both side
- ✓ No much temperature difference between both side and equal flow in both cooler exit ducts
- ✓ Cooler vent fan speed reduced from 98% to 85%
- ✓ ESP efficiency improved due to exit ducts velocity reduced
- ✓ Cooler vent fan power reduced from 259 kWh to 239 kWh

Saving Achieved

Cost saving due to Power – 11.52 lacs/Annum

2. Mitigated Clinker silo top dust spillage

Observation

Clinker silo top bag filter fan inefficient at the time clinker silo empty position

Problem

- ✓ Huge clinker dust spillage on clinker silo top
- ✓ Task force (12 numbers of manpower) engaging for 7 to 8 days in every stoppage of kiln
- ✓ Unbale to perform any maintenance job on clinker silo top due to due to heavy dust spillage on top of clinker silo

Modification

There are two lines in clinker silo top bag filter fan, one is from silo and another one from clinker DPC discharge hood. The draft from silo was 90 to 100 mmWg and only 20 to 30 mmWg draft was from clinker DPC discharge hood and the clinker dust also generating from their only. So we closed the clinker silo venting line damper and after that we got 130 mmWg draft from DPC hood side. After this modification, clinker dust spillage from DPC discharge hood totally mitigated

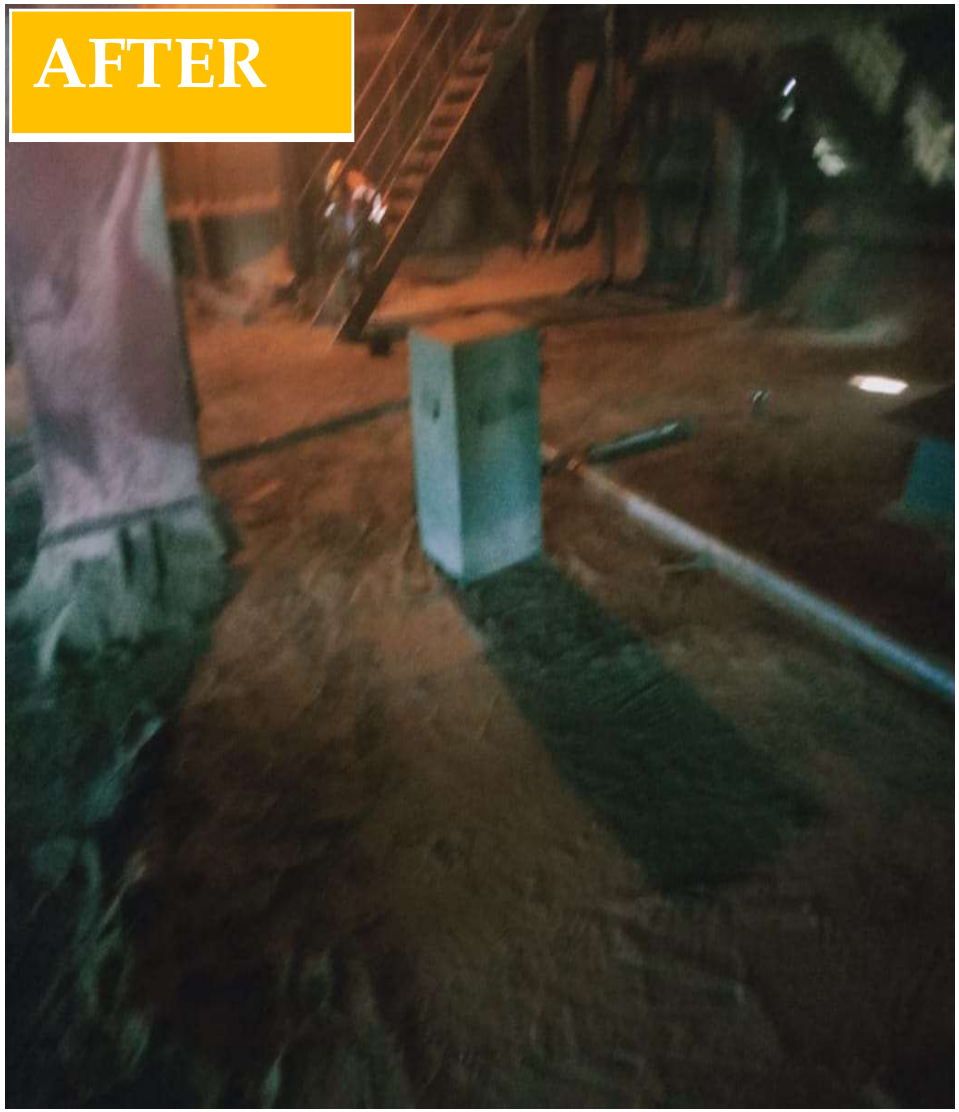
Mitigated Clinker silo top dust spillage

Benefits & Results

- ✓ No dust spillage through clinker silo top DPC discharge hood
- ✓ Saved 12 numbers of manpower saved in every shutdown
- ✓ Clutter free atmosphere on clinker silo top
- ✓ Easy maintenance on clinker silo top if any

Saving Achieved

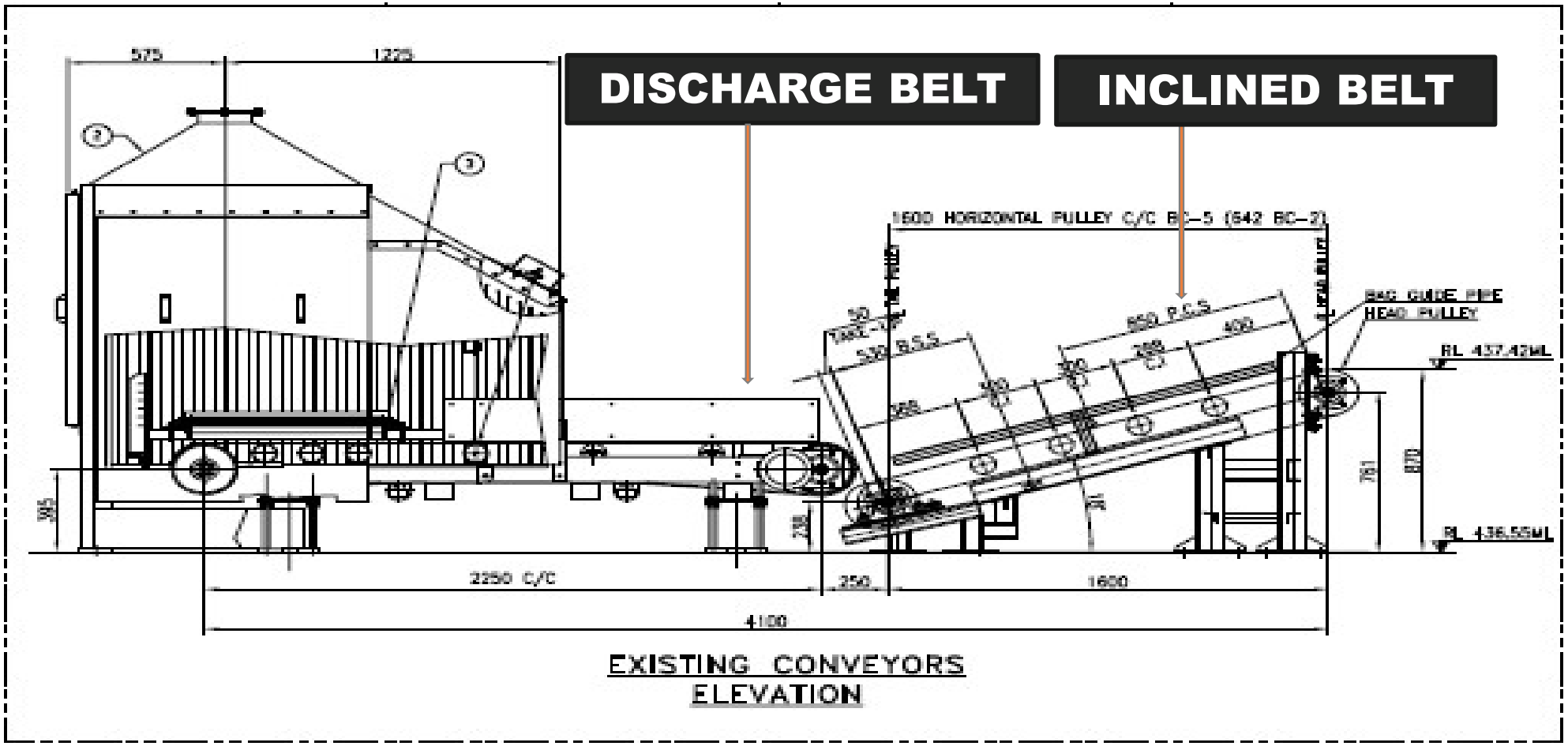
Cost saving due to manpower (Taken 8 numbers of stoppages) – 3.47 lacs/Annum



Innovative Project- 3

3. Removal of inclined belt and extension of tangential discharge delt of rotary packer

Previous Conditions:



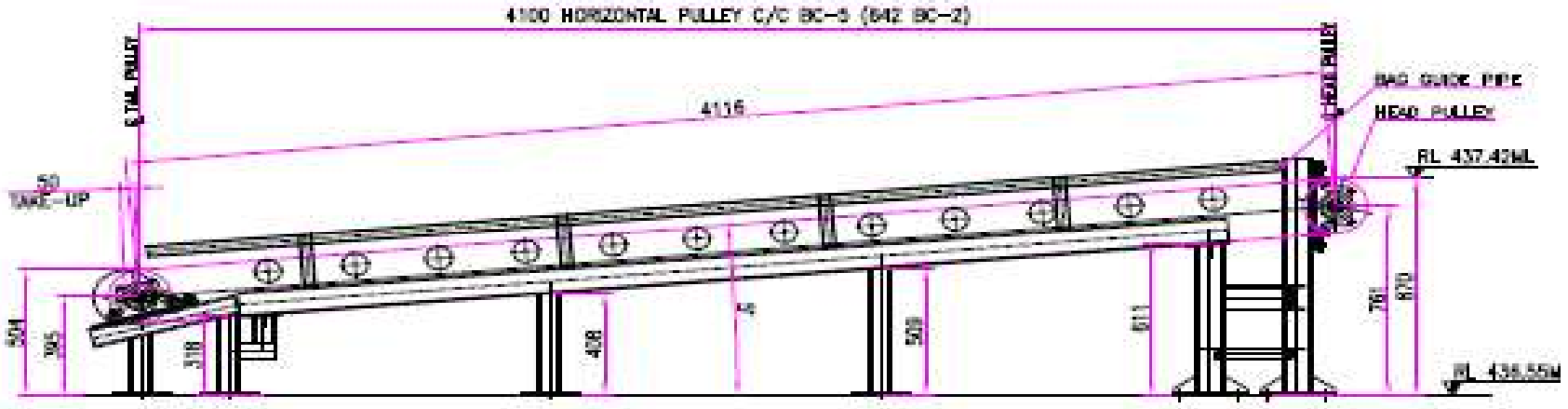
The tangential side of the packer were having two belts as indicated above.

Innovative Project- 3

Modification of tangential discharge belt- Rotary Packer

Modification Proposed:

- Removal of Inclined belt completely.
- Extending the discharge belt up to Roller conveyor and make it a single belt.
- Replacement of Rough Top belt with the plain belt, there by reducing the yearly average maintenance cost of Rough Top belt.



Innovative Project- 3

Modification of tangential discharge belt- Rotary Packer

Current Condition:

Modification is completed in all the Five Packers and are running successfully.

All modification works done by in-house manpower.

Innovative Project- 3

Modification of tangential discharge belt- Rotary Packer

Direct/ Indirect Benefit:

1. Removed 1.1 Kw Geared Motor from each Packer;

Power Savings: 1.1 Kwh X 5 (packer) = 5.5 Kwh.
Cost Saving : 1.1 Kwh X 5 (packer) X 6 (Rupees) X 15 (Avg running/day) X 365 X 0.7 (Efficiency) = **1.25 Lacs/ Year Saved**

2. Rough Top belt cost savings;

Average life of the rough top belt is 1 year & cost of each belt is Rs 16,000.00. So it would cost 0.80 Lacs/ year. This is a direct saving as we are using a plain belt after this modification.

Total Saving : 2 Lacs/ Year + Stores & Spares for maintenance

4. Installed flap type sensor to avoid bags jamming problem

Current Practices/ Conditions:

- Frequently Bag jamming on belt conveyor. due to manual monitoring system, Its causes to increasing Bag bursting.

Expected Practices/ Conditions:

- Bag flow monitoring has gone a long way towards achieving this. Through the use of ever changing and advancing technologies it has become possible to more effectively achieve bag flow monitoring. Finally result is more reliable system and control.
- We installed flap type sensor near divertor to reduce bag jamming.
- The flap type sensor sense continuously each and every bag flow on the belt. if sensor continue ON indication, It pop up on DCS screen in packing plant CCR.
- The sensor continue ON condition, there is bag jamming on the belt and it leads to bag bursting. If sensor continuously ON for 6 seconds, then belt stopped due to interlock

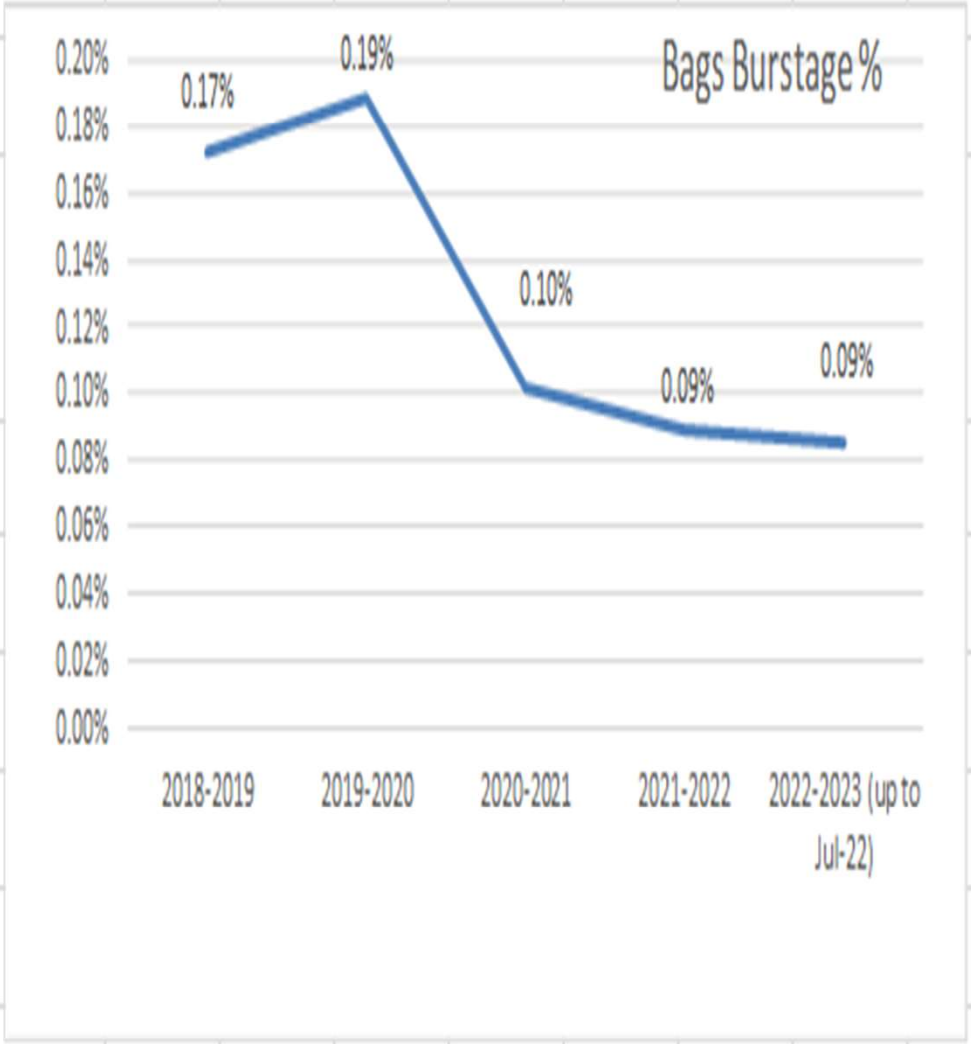
Innovative Project- 4

- After clearing the bag jam, informing CCR will start the belt by acknowledge the alarm.

- The most commonly used system is the so-called sensor loop system. There are many different types of this kind of systems, but the basic principle is the same.

Summary of Bags Burstage year wise

YEAR	Total Burst Qty.	Total Bags Consumption	Bags Burstage %
2018-2019	63148	36701632	0.17%
2019-2020	64837	34328659	0.19%
2020-2021	30008	29337198	0.10%
2021-2022	26803	30020999	0.09%
2022-2023 (up to Jul-22)	7529	8810096	0.09%



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Utilisation of Renewable Sources

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Electrical Renewable Sources

Year	Technology (electrical)	Type of Energy	Onsite/ Offsite	Installed Capacity (MW)	Generation 2019-2020 (million kWh)	% of overall electrical energy
FY 2019-20	Wind turbines	Wind energy	Offsite	-	12.7	8.8
	Photo voltaic	Solar	Offsite	-	4.4	3.05
	Hydro electric power	Small Hydro Plant	Offsite	-	3.9	2.7
FY 2020-21	Wind turbines	Wind Energy	Offsite	-	9.2	7.24
	Photo voltaic	Solar	Offsite	-	7.42	5.84
FY 2021-22	Wind turbines	Wind Energy	Offsite	-	12.47	9.70
	Photo voltaic	Solar	Offsite	-	11.20	8.70

Utilisation of Renewable Sources

Thermal Renewable Sources

Year	Technology (thermal)	Type of Energy	Installed Capacity (million kCal)	Usage (million kCal)	% of overall thermal energy
FY 2019-20	Combustion	Alternative Fuel	-	44152	3.41
FY 2020-21	Combustion	Alternative Fuel	-	18905	1.71
FY 2021-22	Combustion	Alternative Fuel	-	56296	4.94

Waste Utilisation as Fuel in last three years

AFR Usage for the FY 2019-20

Sl No	Waste Details	Quantity (MT/year)	GCV (kCal/kg)	Heat value (million kcal/year)	Waste as percentage of total fuel
1	Agro waste	917	3342	3065	0.23
2	Dolachar	1502	2298	3452	0.26
3	Carbon black	3879	5596	21707	1.67
4	Pharma waste	2287	2528	5782	0.44
5	Liquid AFR	3818	2656	10141	0.78

Waste Utilisation as Fuel in last three years

AFR Usage for the FY 2020-21

Sl No	Waste Details	Quantity (MT/year)	GCV (kCal/kg)	Heat value (million kcal/year)	Waste as percentage of total fuel
1	Agro waste	1978	2752	5443	0.48
2	Carbon black	36	5621	202	0.02
3	Pharma waste	1208	2413	2915	0.26
4	Liquid AFR	3134	2770	8681	0.78
5	Plastic Waste	42	7566	318	0.03

Waste Utilisation as Fuel in last three years

AFR Usage for the FY 2021-22

Sl No	Waste Details	Quantity (MT/year)	GCV (kCal/kg)	Heat value (million kcal/year)	Waste as percentage of total fuel
1	Agro waste	11593	2753	30706	2.37
2	Carbon black	889	5943	5286	0.41
3	Pharma waste	2490	2369	5898	0.45
4	Liquid AFR	3495	2428	8487	0.65
5	Plastic Waste	1040	3704	3851	0.30
6	RDF & M Waste	1128	1799	2030	0.16
7	Dolachar	15.5	2489	38.63	0.003

Waste as Alternative Raw Materials in last three years

Year	Name of Alternative raw material	Name of material gets replaced	Quantity used (MT/ Year)
2019-20	Red mud	laterite	49090
2020-21	Red mud	laterite	36808
2021-22	Red mud	laterite	20435

GHG Inventorisation

❑ Information on GHG Inventorisation and public disclosure

Direct CO_2 emissions	UOM	Values
Total CO_2 from raw materials	[t CO2/yr]	8,82,131
Total CO2 from fossil-based kiln fuels	[t CO2/yr]	3,74,611
Total CO2 from non-kiln fuels	[t CO2/yr]	2,06,360
Total direct CO2: all sources	**[t CO2/yr]**	**14,63,102**

❑ Scopes for reduction of CO_2

- Maximum usage of AFR.
- Reduction of clinker to cement ratio.
- Optimization of specific power and heat consumption.
- Installation of Waste heat recovery plant
- Supply chain
- Maximize the usage of PI and other additives

GHG Inventorisation

❑ *Action taken for CO2 emission reduction*

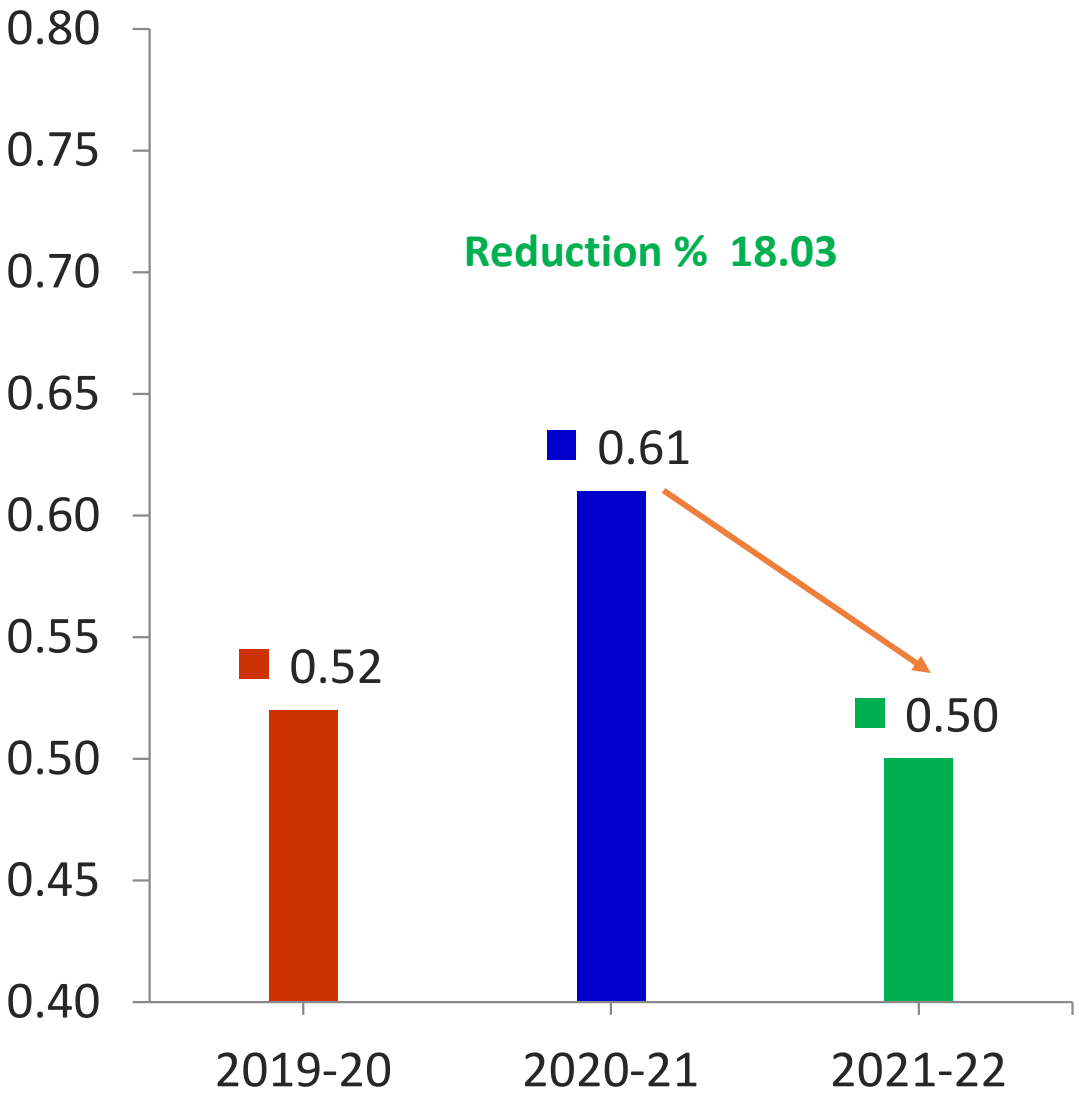
- Installation of waste heat recovery power plant is under progress
- PPC dispatch increased from 50% to 51%
- 34.5% fly using in PPC and 18.01 in SC
- TAT decreased by unmanned weigh bridge and RFID in weigh bridge.
- Replaced HSD with SPD (Super Poly Diesel) for Kiln light ups

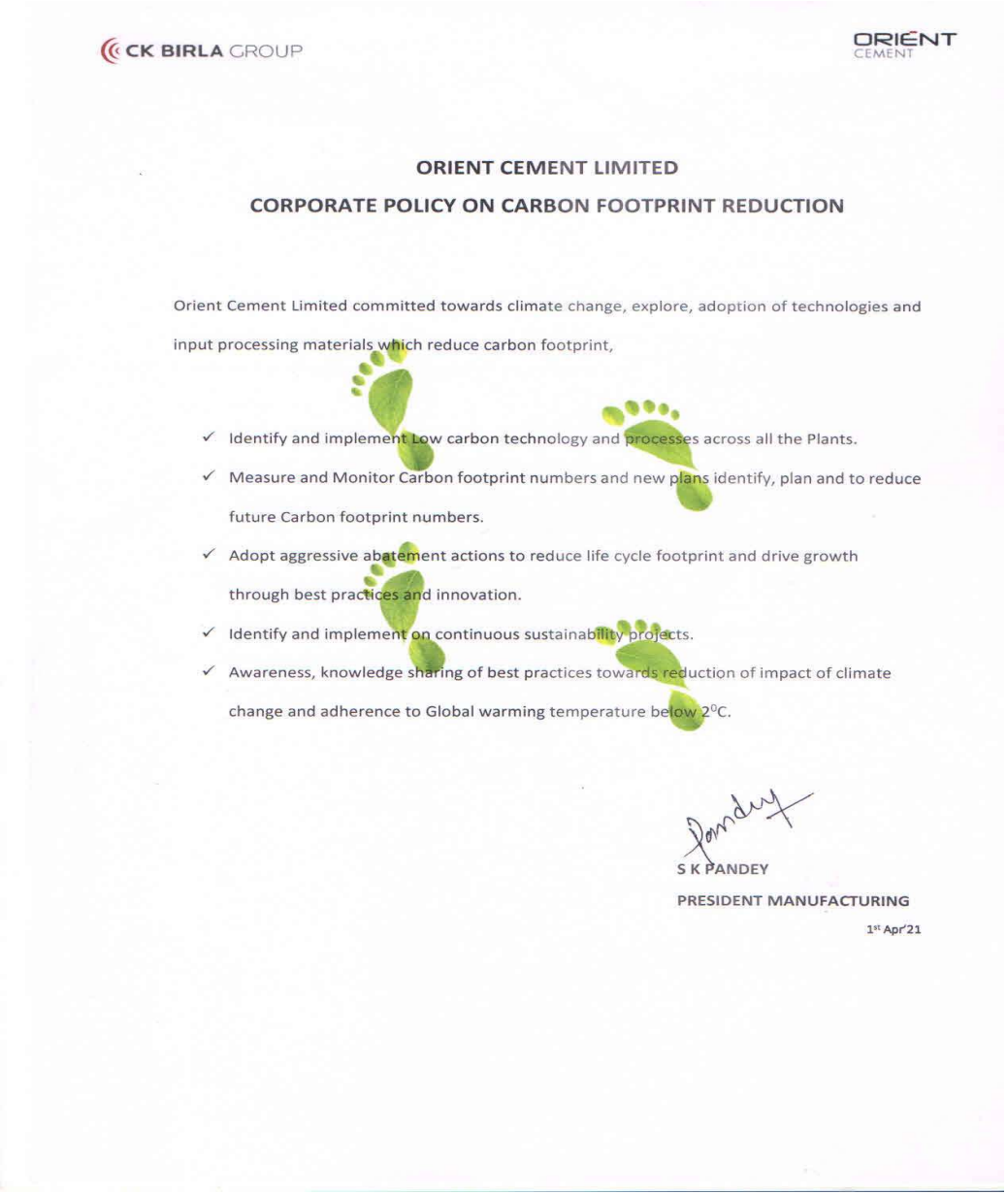
❑ *Absolute Emissions*

Year	UOM	2018-19	2019-20	2020-21
Suspended Particulate Matter (SPM)	mg/Nm^3	19.45	22.36	21.63
Oxides of Nitrogen (NO_x)	mg/Nm^3	298.08	394.63	203.22
Oxides of Sulphur(SO_x)	mg/Nm^3	33.72	9.13	20.02

Carbon Footprint

Carbon footprint ton of CO_2/ MT of Cement





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CORPORATE POLICY ON CARBON FOOTPRINT REDUCTION

Orient Cement Limited committed towards climate change, explore, adoption of technologies and input processing materials which reduce carbon footprint,

- ✓ Identify and implement Low carbon technology and processes across all the Plants.
- ✓ Measure and Monitor Carbon footprint numbers and new plans identify, plan and to reduce future Carbon footprint numbers.
- ✓ Adopt aggressive abatement actions to reduce life cycle footprint and drive growth through best practices and innovation.
- ✓ Identify and implement on continuous sustainability projects.
- ✓ Awareness, knowledge sharing of best practices towards reduction of impact of climate change and adherence to Global warming temperature below 2°C.

S K PANDEY

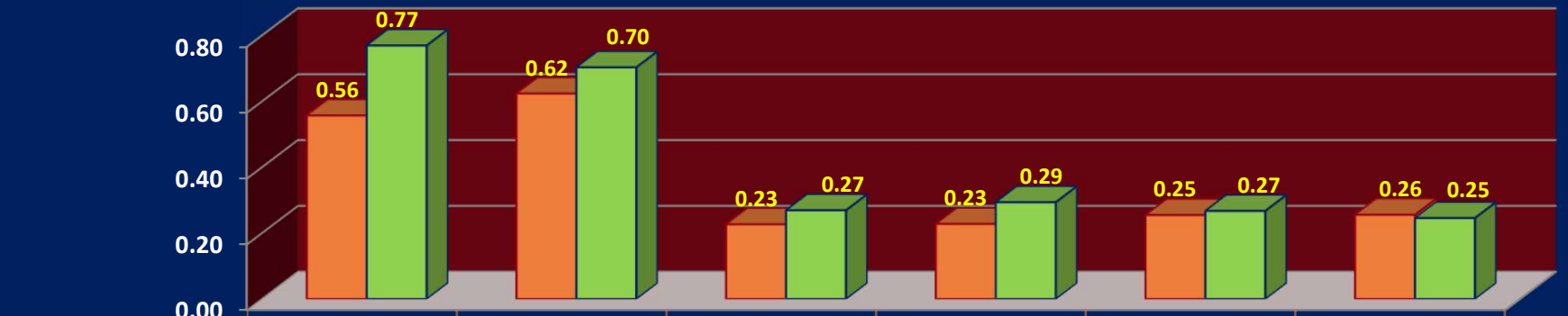
PRESIDENT MANUFACTURING

1st Apr'21

*Direct equivalent CO_2 emission for MT of cement

CO_2 emission /MT of product

CO_2 emission in MT/tonne of cement

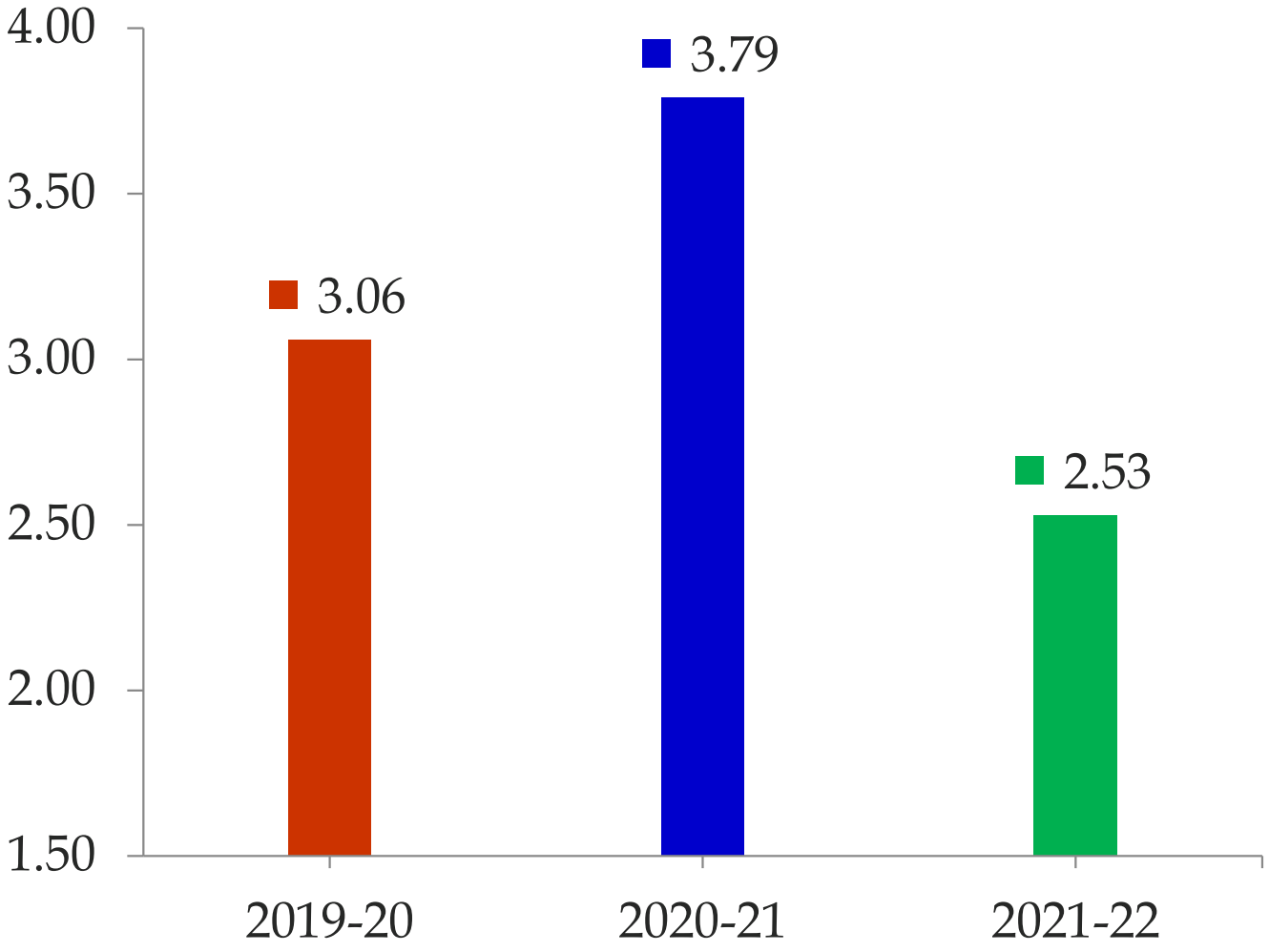


	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
CO2 Emission PPC	0.56	0.62	0.23	0.23	0.25	0.26
CO2 Emission OPC	0.77	0.70	0.27	0.29	0.27	0.25

MT of CO_2/MT of Clinker

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Clinker Production	1468303	1509882	1774089	1896324	1632345	1644667
MT of CO2/MT of Clinker	1.60	1.09	0.64	0.64	0.64	0.64

Water Footprint/ Accounting



Consistently Water positive during last 3 years

CK BIRLA GROUP ORIENT CEMENT

ORIENT CEMENT LIMITED

GREEN PROCUREMENT POLICY

Orient Cement Limited ensures & practice while purchasing Products & Services, we will assess potential environment impacts and associated impacts While procuring our products & services, we always ensure that less impact on Environment and manufactured with less harmful materials. While sourcing of Raw materials, ensure to from nearby sources to reduce travel distance of vehicles which minimise the carbon footprint. Ensure and follow procurement of Energy efficiency Electrical appliances.

We committed to:

- Continuous creation of awareness on Environment and its impacts.
- Measures towards reduction of foot print by Energy efficiency appliances, less harmful materials and lower water consumption.
- Procurement and sourcing of Raw materials from nearby sources to reduce vehicle movement/diesel consumption and encourage local stake holders.
- Procurement of Energy efficiency equipment's.
- Green supply chain with transporters on Raw materials and increase the bulk cement sale.
- Procure products which are Recyclable, Compostable, Reusable or biodegradable packaging.
- Purchase & replacement of lamps that have low energy usage and use lighting controls to reduce electrical consumption.

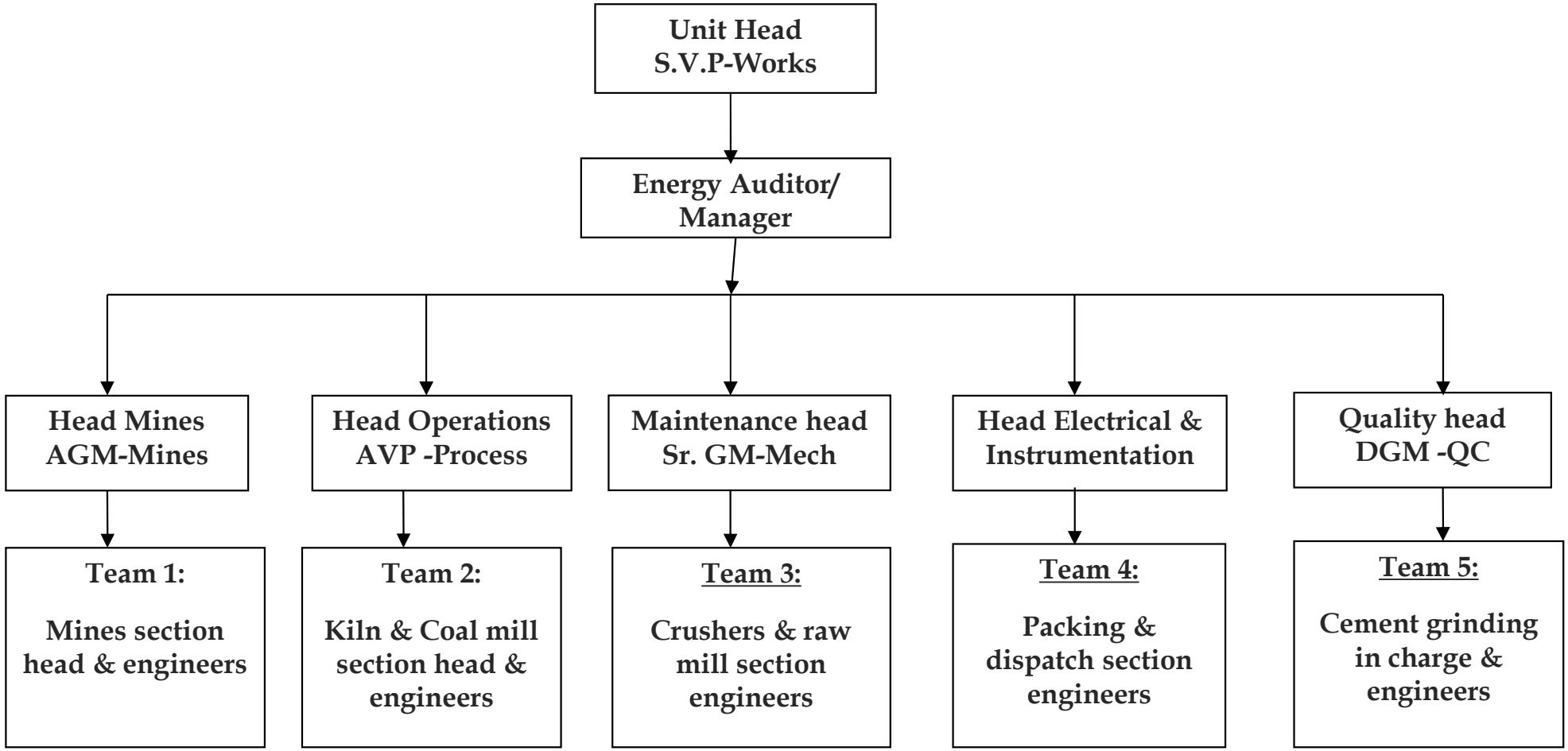
SATYABRATA SHARMA

PLANT HEAD
CHITTAPUR

Initiatives taken in Green Supply Chain

- Engage local vendors for sourcing of raw materials.
- Procurement of energy efficiency & star rated electrical appliances.
- Procurement of recyclable, re-usable and biodegradable materials.
- Consume recycled water for internal gardening and dust suppression.
- Usage of Rain harvesting water rather outsource.
- Installation of LED lights.
- Installation of RFID at mines and packing weigh bridge area.
- Transportation of coal and clinker via wagon.
- Adoption of automation technologies.
- Hiring vehicles which are efficient and less diesel consumption

ENERGY MANAGEMENT COMMITTEE



Daily Monitoring System, Use of IoT

ORIENT CEMENT

1. Mobile App Solution for Plant Real Time Data Monitoring

Great Place To Work. Certified APR 2021-MAR 2022 INDIA

Before

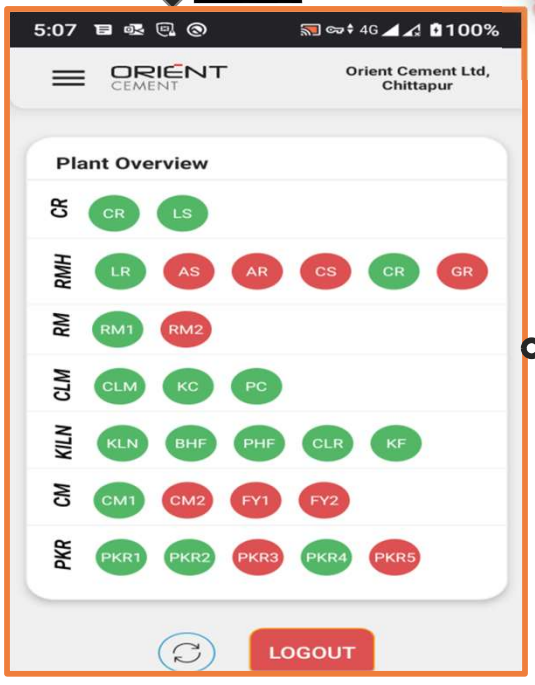
Ins → Section Incharge ↔ Engineer

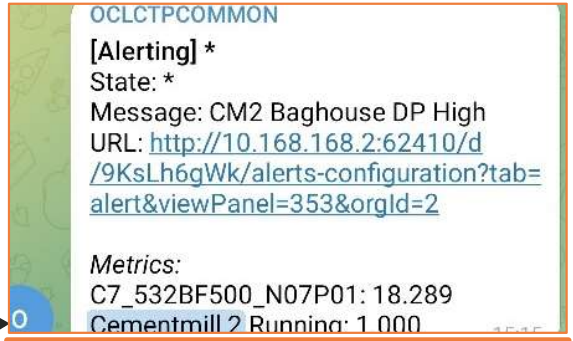
Ele → Section Incharge ↔ Engineer

Mec → Section Incharge ↔ Engineer

Pro → Section Incharge ↔ Engineer

After

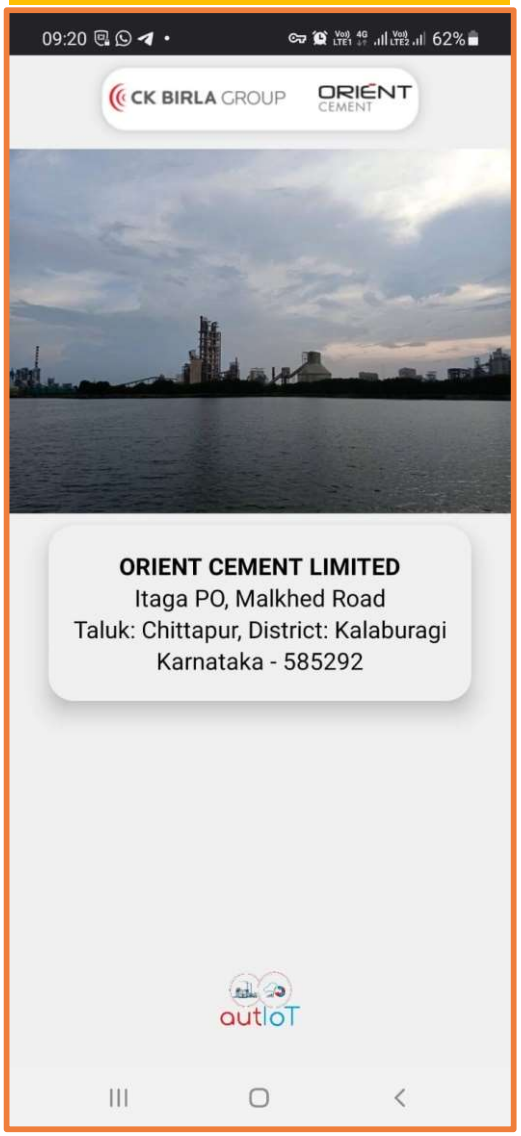




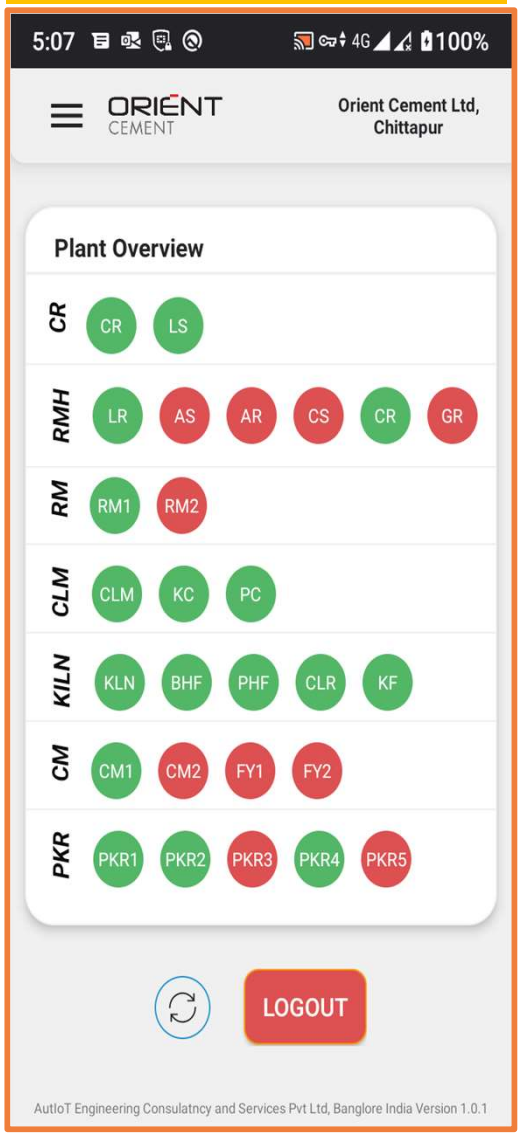
1. Mobile App Solution for Plant Real Time Data Monitoring

- An overview startup page gives a quick real-time glance of all equipment's. Further section-wise dashboards provides real-time updates of process and equipment's parameters.

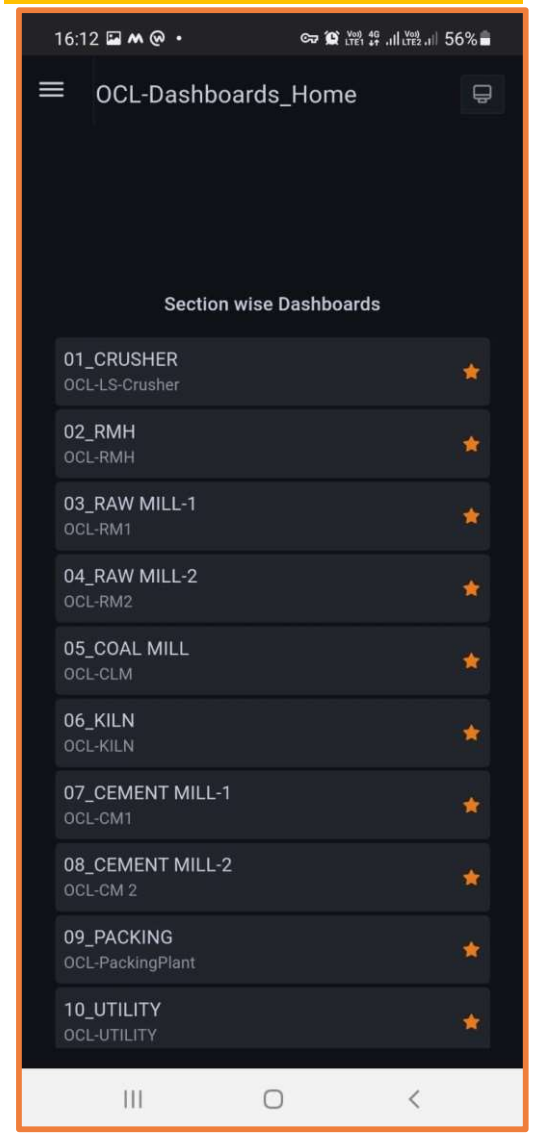
Main Page



Plant Overview

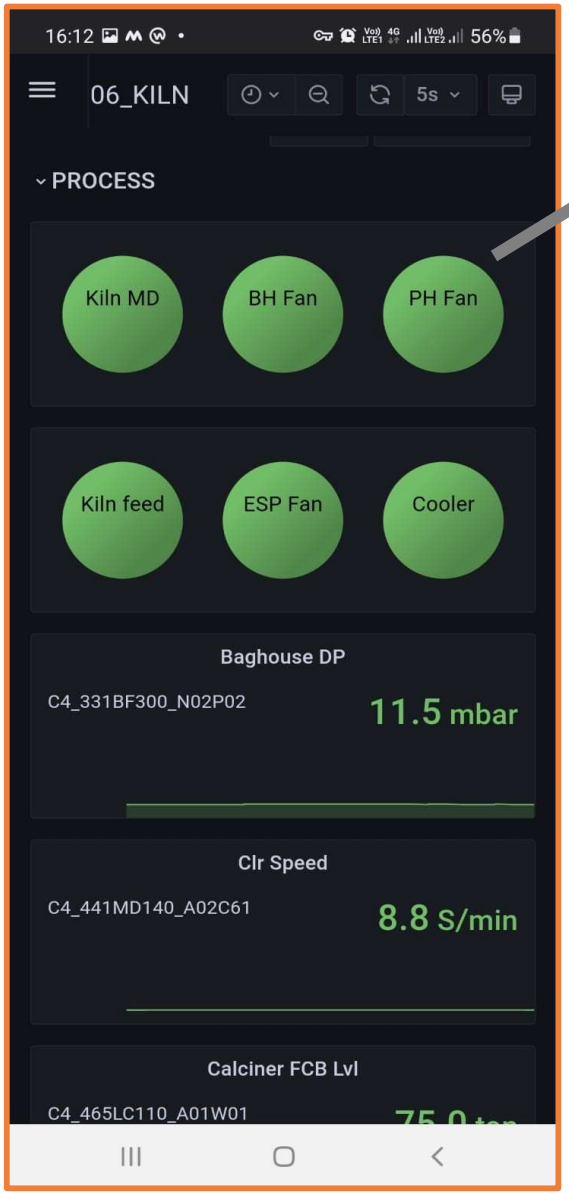


Section-wise Link



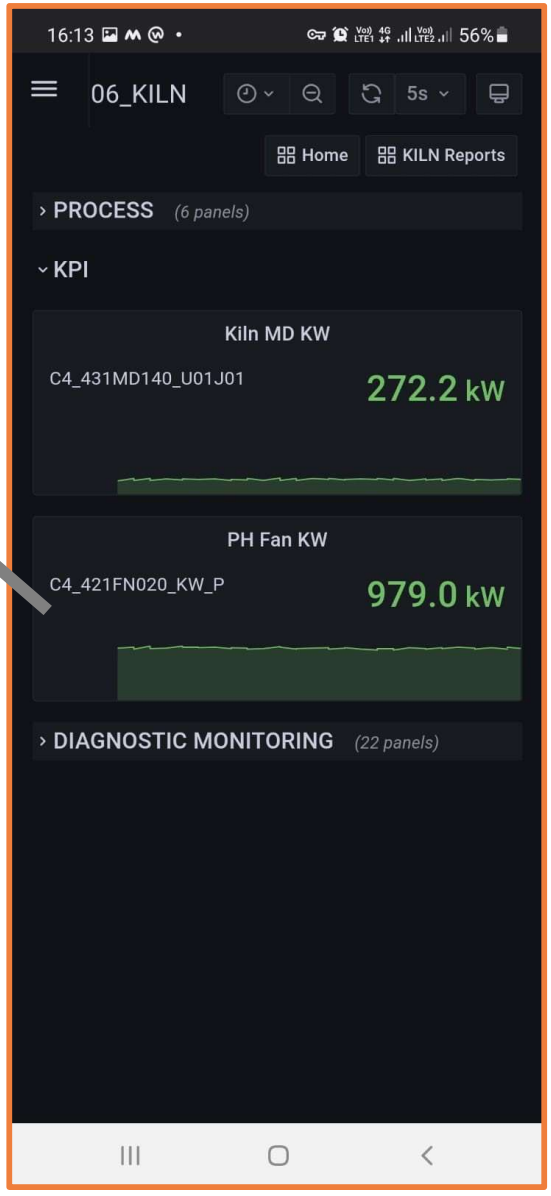
1. Mobile App Solution for Plant Real Time Data Monitoring

- Main Equipment Status monitoring through Color animation
- Live signal value of Key Performance Indicators



Equipment Status Check

KPI Value Check



1. Mobile App Solution for Plant Real Time Data Monitoring

- Detailed Analysis Tools

Trends

Diagnostics Data

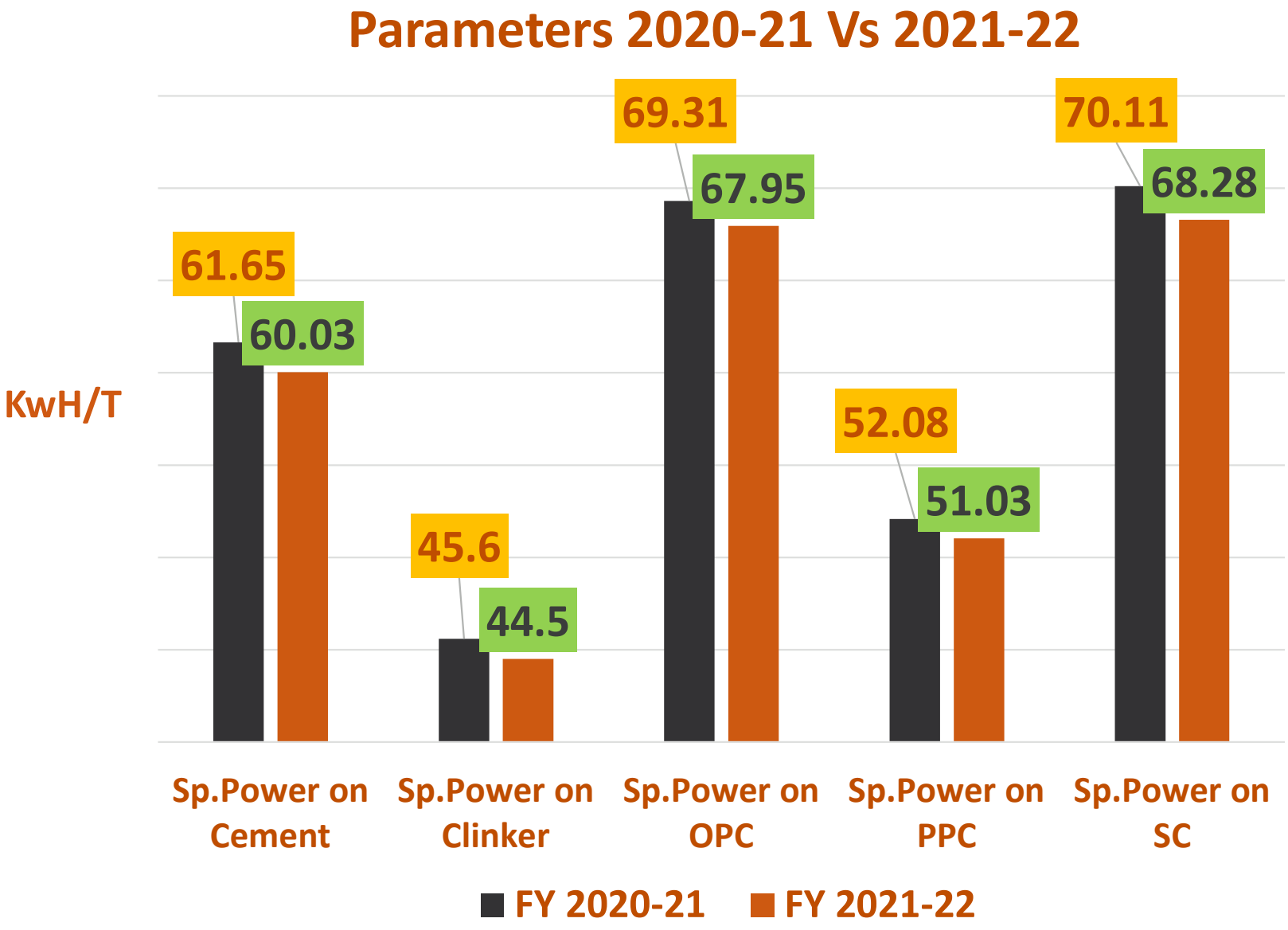
2. Plant Optimization through Digital Technologies

We have used Artificial Intelligence tool **OptiMakx** to analyse the disturbance affecting the performance of the system and able to conclude parameters need to be altered to improve the performance. After performing the optimisation we were able to reduce the error fluctuation in the system. Below table summarizes the ERROR % reduction to optimise.

S No	PID Controller Name	Before Optimisation Error %	After Optimisation Error %
1	Crusher Secondary Power	10	9.1
2	Precalciner Temperature	1.2	0.23
3	Kiln Hood Draught	21	18
4	Coalmill Main Drive Power	1.70	0.85
5	Cementmill Load	4.0	2.8
6	Cementmill Baghouse Inlet Draught	15.0	0.87

2. Plant Optimization through Digital Technologies

Adaptation of digitization technologies was one of the major contributor towards achieving the best specific power figures during 2021-22.



Project Takeaways:

1. Increase in the Alternate fuel consumption through stabilised plant process parameters allowing to push more Alternate Fuel. Reduction in Carbon Footprint by reducing Coal consumption.

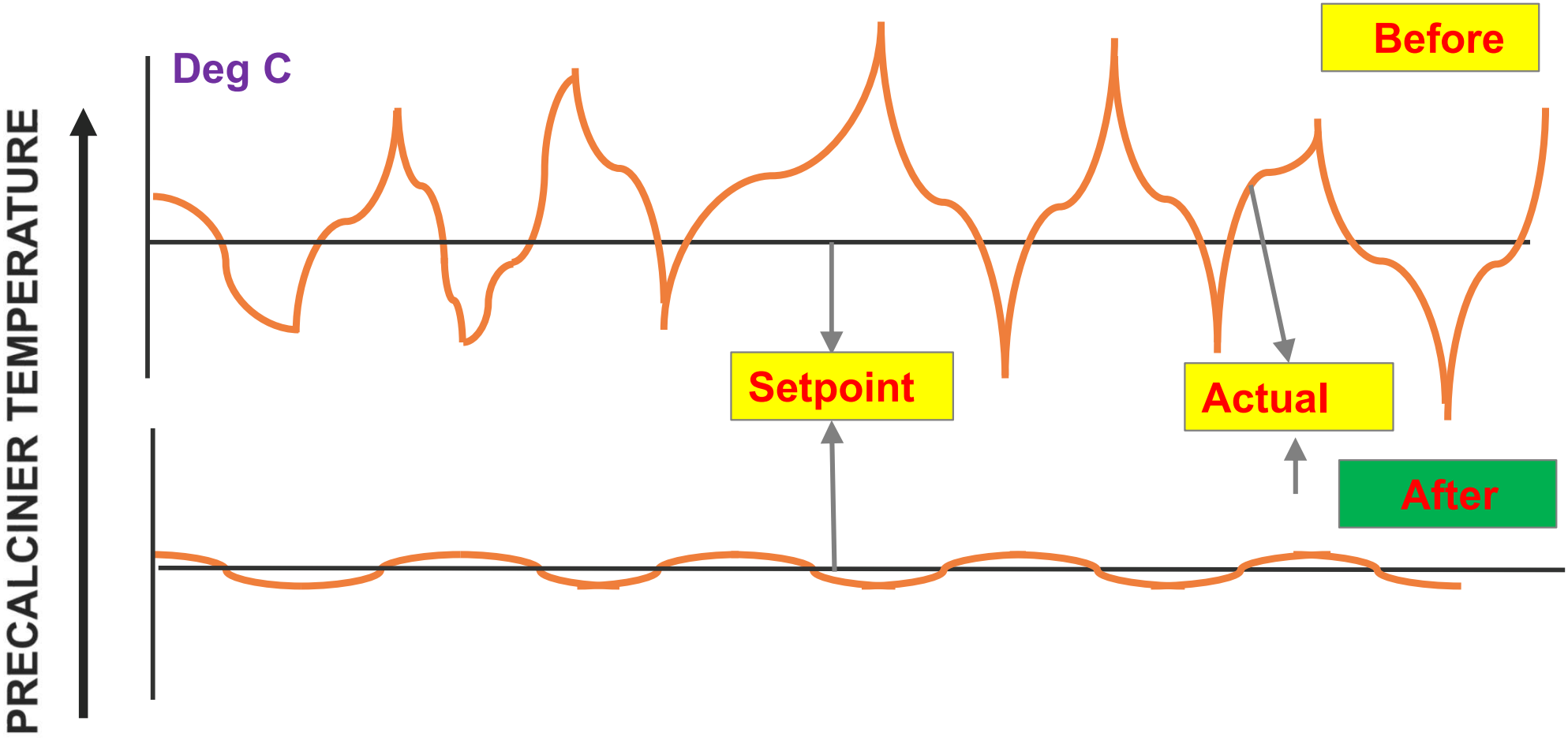
2. Improvement in Plant Specific Power consumption by calculating and taking action to run equipment at optimum speed as per corresponding parameter condition.

2. Improvement in milling operations by maintaining an optimum load by controlling through Closed loop controls. Enforces immediate but smooth action without affecting other parameters.

3. Helps in increase the equipment efficiency by avoiding Overload or Underloading of the Equipments.

4. Enabling better control to process engineers by direct physical signal control instead of equipment control like setting proper Differential Pressure setpoints helps automatic control of Weigh feeders based on real time value reaching limits.

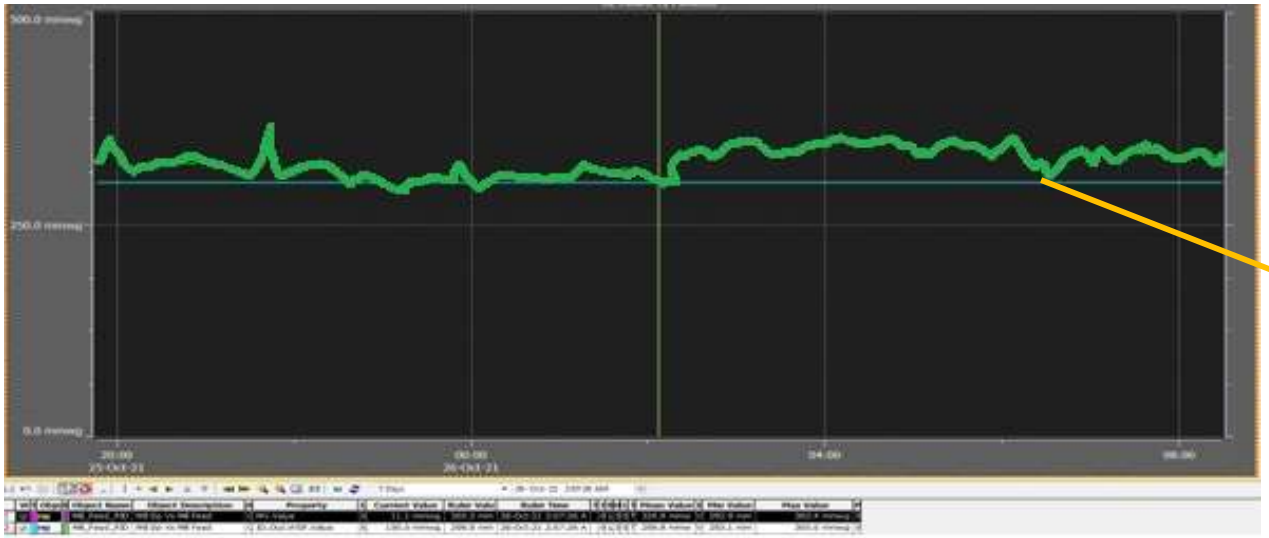
- **Optimization of PC temperature signal:** Developed Feed Forward logic for maintaining stable Precalciner Temperature while feeding Alternate Fuel Resource(AFR). The stabilized parameters where generated using OPTIMakx Artificial Intelligence (AI) tool.



PC Temperature PID Values_ Before and After

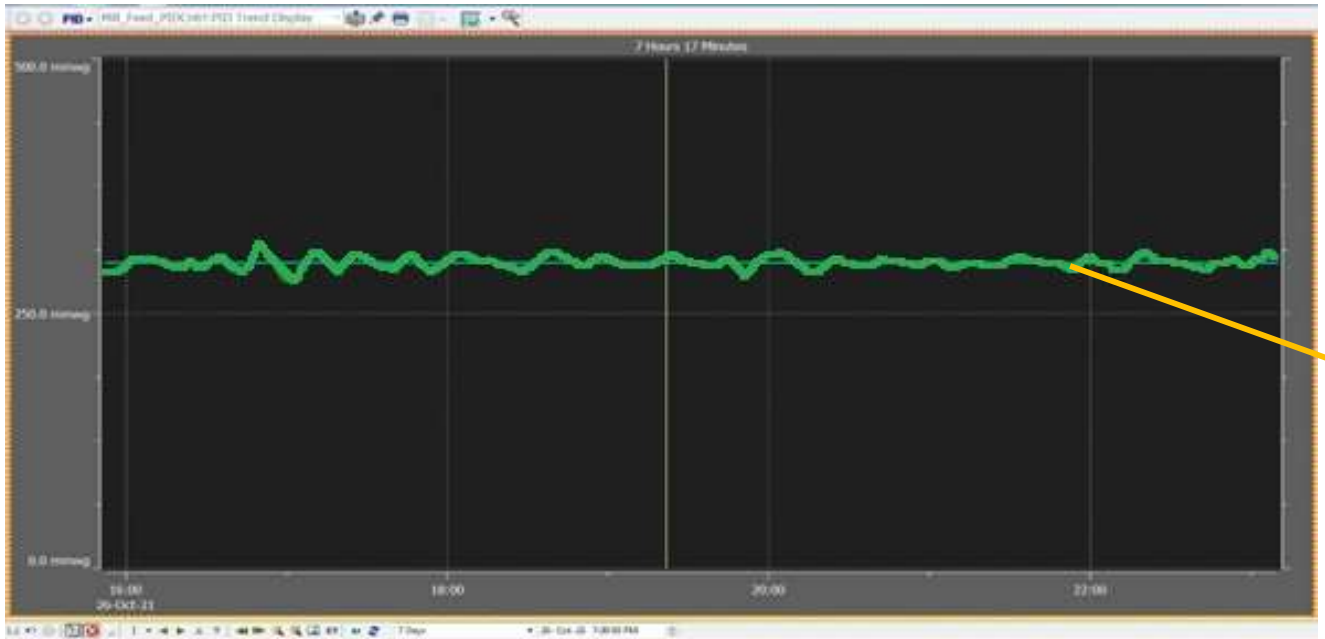
2. Plant Optimization through Digital Technologies

Cement Mill Loading fluctuation error reduced from 4% to 2.8 % and Mill Inlet Draught reduced from 15% to 0.87 %



Case-1 : Cement Mill 1 Loading

Before Optimisation – More Fluctuation in Load



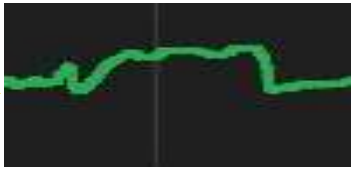
After Optimisation – Stabilisation in Load

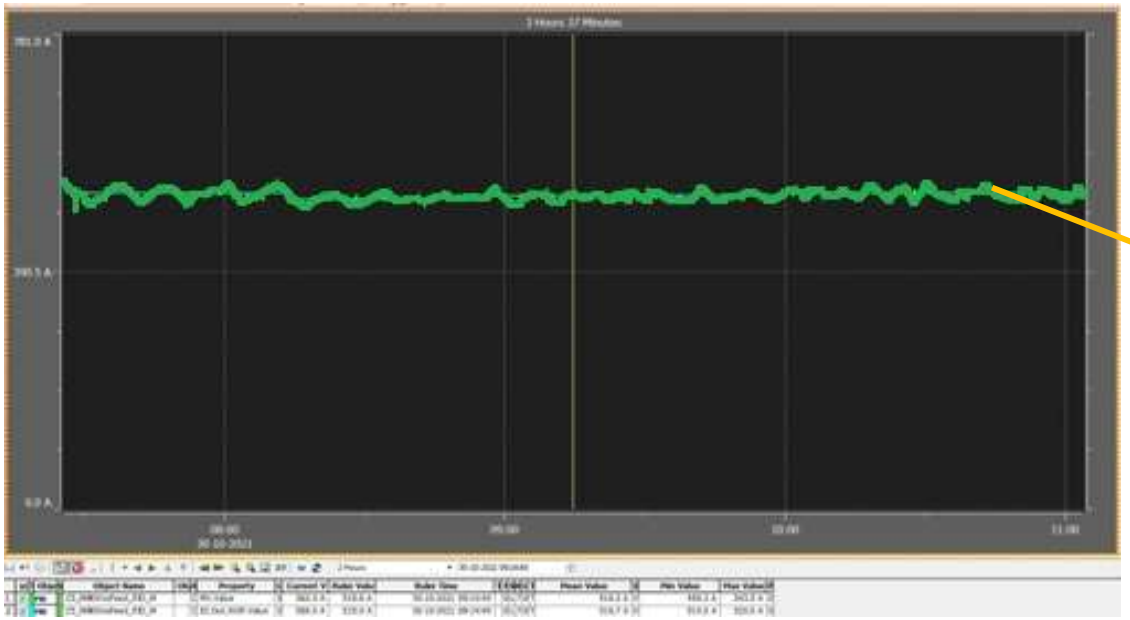
2. Plant Optimization through Digital Technologies

Stabilization of Coal Mill Main Drive Current, variation reduced from 1.70% to 0.85% after tuning.

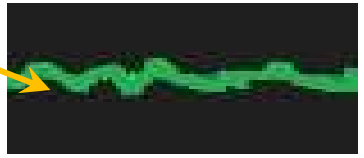
Case-2 : Coal Mill Main Drive Current

Before Optimisation - Variation in Mill Motor Current



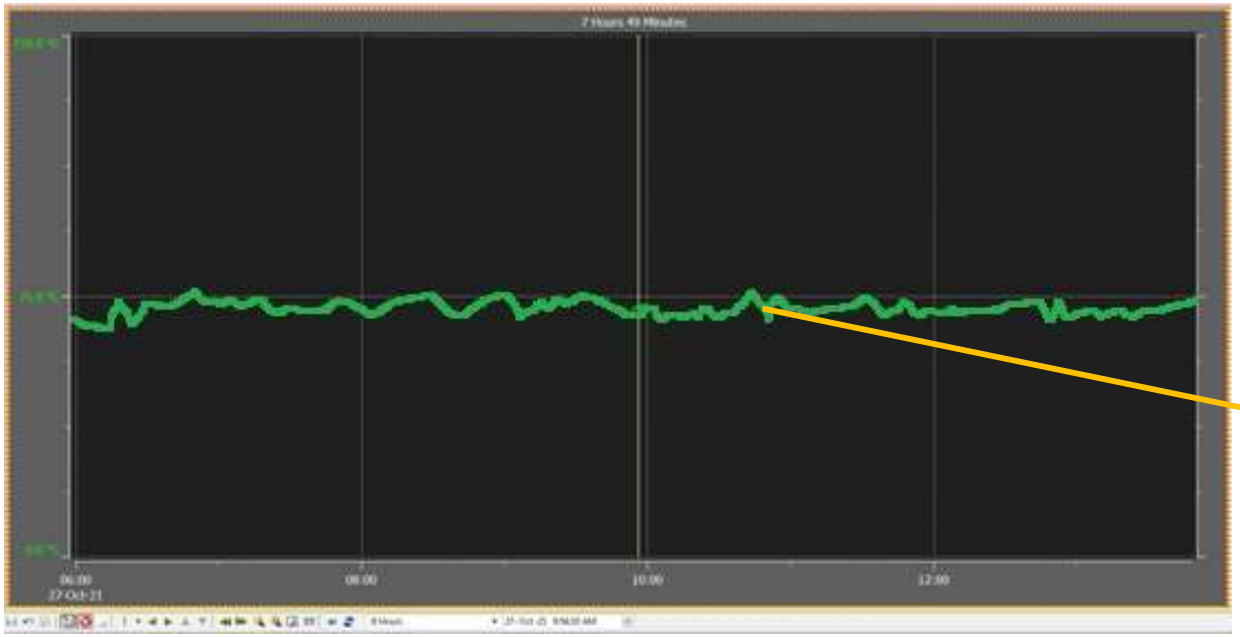


After Optimisation - Stabilised Mill Motor Current



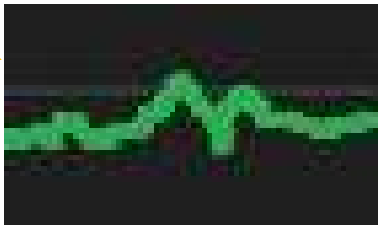
2. Plant Optimization through digital Technologies

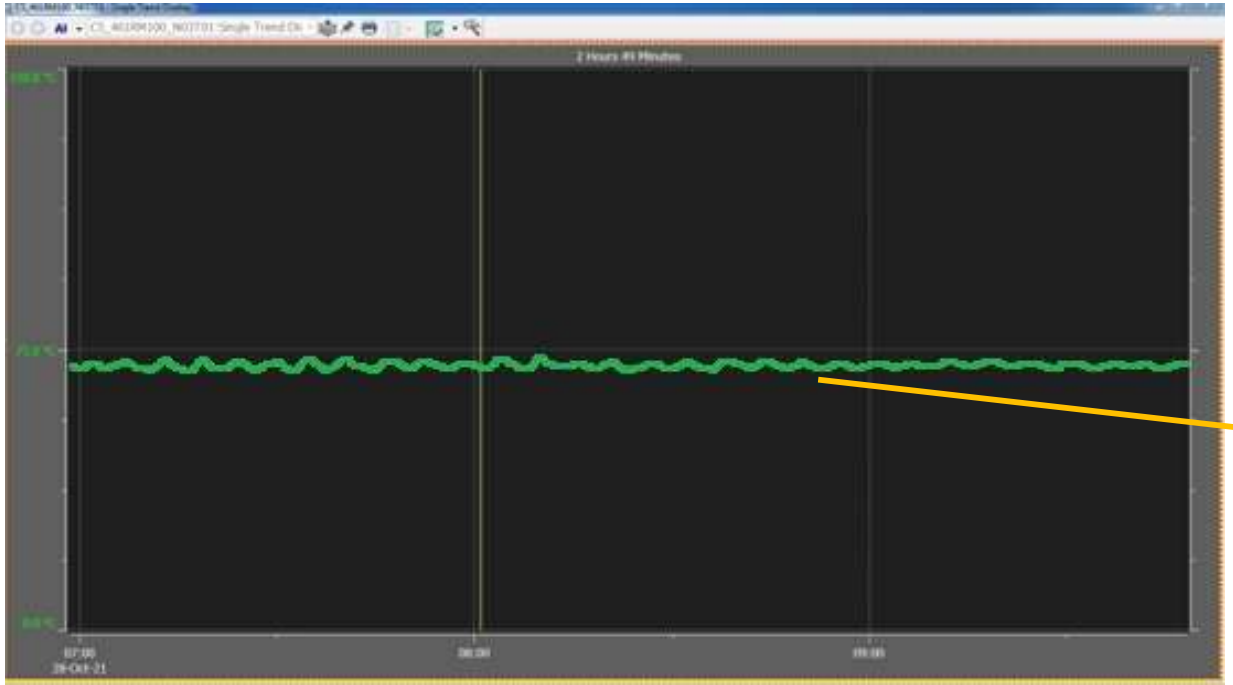
Coalmill Outlet Temp variation reduced from 2.2% to 0.8% providing mill stability.



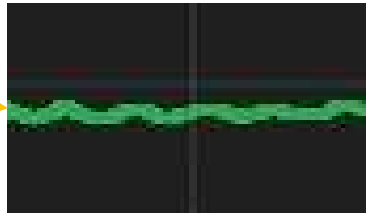
Case-3 : Coal Mill Outlet Temperature

Before Optimisation - Variations in Temperature



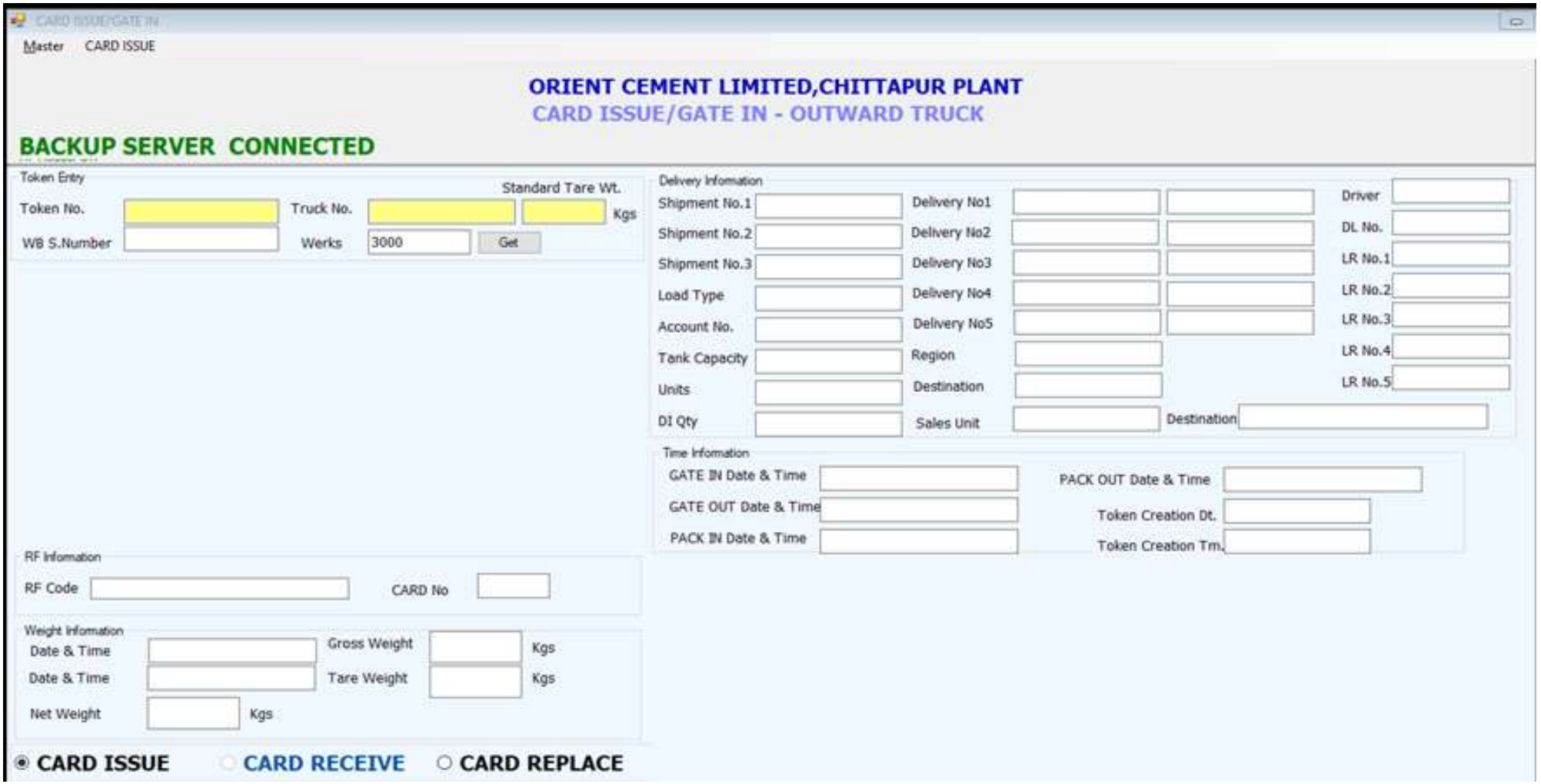


After Optimisation - Stablized Temperature and operation



3. Additional Data in Unmanned Weigh Bridge Software

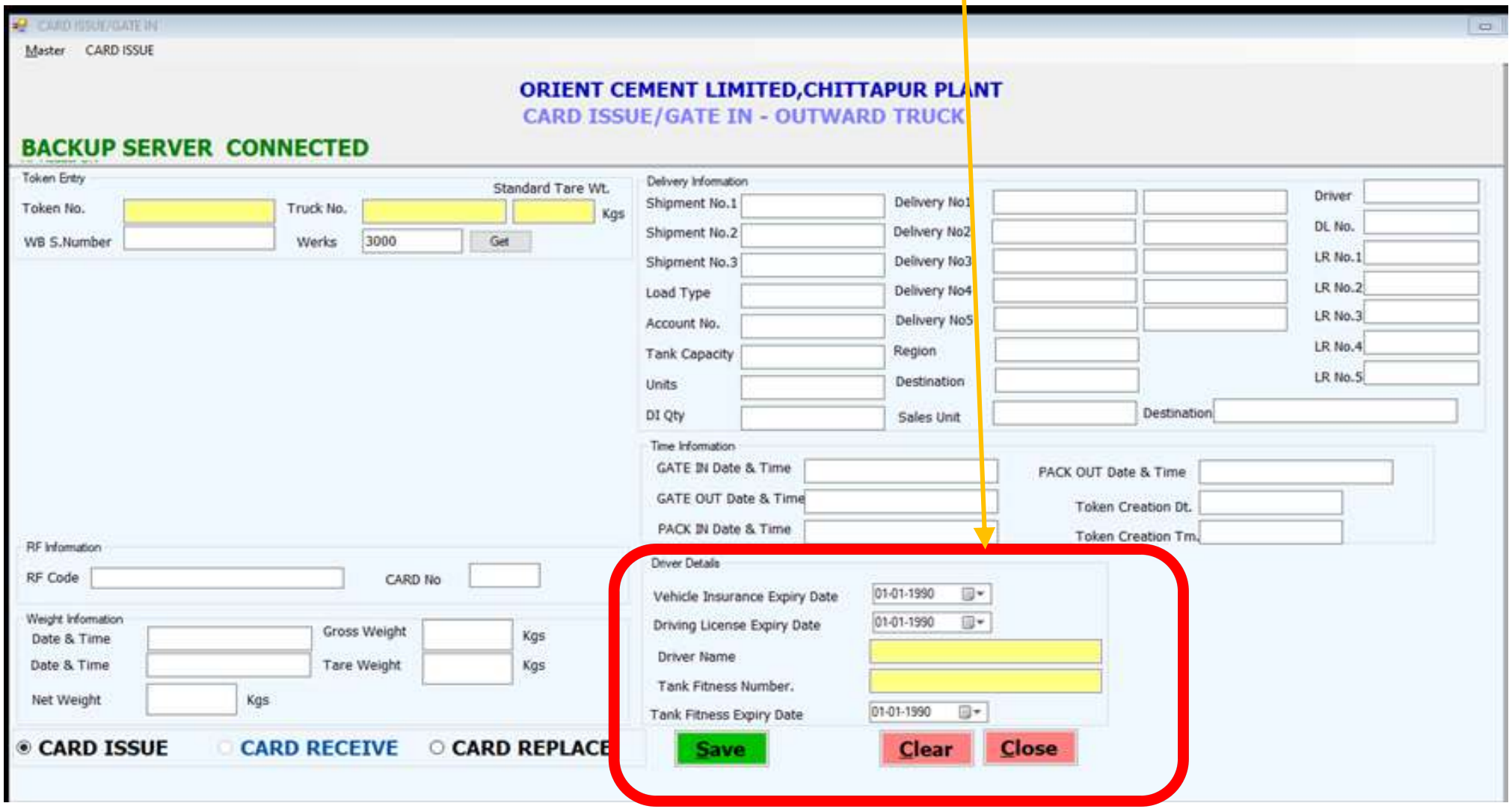
Unmanned Weighbridge software during Gate In had only below details but no entry point for License / Insurance which were statutory



Before – No Fields

4. Additional Data in Unmanned Weigh Bridge Software

Provision of fields for validity of **driver's license, vehicle insurance and tank fitment certificate status** in unmanned weigh bridge software during Gate-in:



After – Fields for details

❑ Review meeting chaired by :

- Daily production and power report meeting is reviewed by Unit head .
- Breakdown analysis presentation by Cross functional team
- Planning of operation and maintenance.
- Environment and safety points are reviewed .

ORIENT CEMENT LIMITED : CHITTAPUR

Daily Production Report on 31-03-2022

Production & Dispatch

Product	Opening Stock (MT)	Production/Receipt			Despatch/Cons.			Closing Stock (MT)
		On Date	MTD	YTD	On Date	MTD	YTD	
Clinker	42,958	6,908	2,21,444	16,67,483	7,116	2,08,365	16,66,449	56,037
Cement (OPC - 53 Gr.)	4,472	4,725	93,046	7,69,202	4,581	94,356	7,68,325	3,161
Cement (OPC - 43 Gr.)	3,187	-	31,754	2,59,678	1,736	33,537	2,60,784	1,404
Cement (HS PPC) Strongcrete	3,241	2,015	21,875	1,11,272	1,124	22,457	1,11,403	2,659
Cement (PPC)	2,246	1,815	1,22,372	9,52,604	6,188	1,24,319	9,54,472	299
Total Cement	13,146	8,555	2,69,047	20,92,756	13,629	2,74,668	20,94,984	7,524

Equipment Performance

Equipment Description	Running Hours			Tonnage Per Hour			Remark
	Today	MTD	YTD	Today	MTD	YTD	
LS Crusher	10.33	273	2,091	1,015	1,140	1,120	
RM 1	24.00	559	4,064	323	320	321	
RM 2	-	484	3,678	0	315	318	
Coal Mill	23.33	702	4,827	29	32	34	
KILN	24.00	744	5,542	288	298	297	
CM 1(OPC 43 Gr)	-	57	558	0	227	224	
CM 1(OPC 53 Gr)	-	177	1,513	0	226	226	
CM 1 (HS PPC) Strongcrete	11.00	86	291	183	183	181	
CM 1(PPC)	6.00	224	1,450	303	303	294	
CM 2(OPC 43 Gr)	-	84	600	0	226	225	
CM 2(OPC 53 Gr)	21.08	233	1,886	224	228	226	
CM 2 (HS PPC) Strongcrete	-	34	322	0	180	181	
CM 2(PPC)	-	182	1,827	0	300	288	

Stock Position (Approx)	MT
Clinker	56,037
Cement (OPC - 53 Gr.)	3,161
Cement (OPC - 43 Gr.)	1,404
Cement (HS PPC) Strongcrete	2,659
Cement (PPC)	299
Total Cement	7,524
Limestone	36,226.55
Raw Meal	10,638.93
Fly Ash (Cement+CPP)	4,243
Fly Ash (Strongcrete)	

	On Date	MTD	YTD
Rain fall (mm)	0.0	0.0	1414.1

Downtime Report

Particular	Duration	Reason
Rawmill 1		
		Running continously
Rawmill 2		
1	24.00	Sufficient Silo
Coal Mill		
1	0.67	FCB full
Kiln		
		Running continously
Cement Mill 1		
1	7.00	Mill Table liner outer bolt damaged
Cement Mill 2		
1	2.42	Sufficient Silo
2	0.50	Bag House fan motor bearing Drive End temperature signal error

ORIENT CEMENT

Specific Power and heat Consumption report

Great Place To Work. Certified APR 2021-MAR 2022 INDIA

ORIENT CEMENT LIMITED ,Chittapur
SPECIFIC POWER AND HEAT CONSUMPTION REPORT Mar-2022

Sr. No.	Section Description / Date	Best MTD	Targets	1-Mar-22	2-Mar-22	3-Mar-22	4-Mar-22	5-Mar-22	6-Mar-22	7-Mar-22	8-Mar-22	9-Mar-22	10-Mar-22	11-Mar-22	12-Mar-22	13-Mar-22	14-Mar-22	15-Mar-22	16-Mar-22
1	LS CRUSHER																		
	Production (MT)	323012		6828	14932	11596		15215	15171	3969	15536	14230	5308		13747	15287	5645	15461	14758
	Running hours			5.67	12.50	10.58		12.83	13.25	4.00	13.25	12.08	4.58		11.83	13.00	5.50	13.08	12.83
	Power Consumed ,KWh (Act+Losses)			8584	19100	15157		19820	20705	5830	21026	20336	7434		18269	21371	8287	21629	20611
	Production Rate (ton/hr)	1173		1204.23	1194.56	1096.03		1185.89	1144.98	992.25	1172.53	1176.32	1158.95		1162.05	1175.92	1026.36	1182.03	1151.05
	Specific Power (kWh/ton)	1.32	1.6	1.26	1.28	1.31		1.30	1.36	1.47	1.35	1.43	1.40		1.38	1.40	1.47	1.40	1.40
2	RAW MILL-1																		
	Production (MT)	183073		7803	7514	7805	7692	6735		3416	6661		4487	7401	7791	7516	7426	7765	7456
	Running hour			24.00	23.25	24.00	24.00	21.00		10.83	21.67		14.00	23.75	24.00	24.00	23.67	24.00	23.67
	Power Consumed (KWh)			97648	94655	100308	97030	83309		44247	88174		55778	95668	100986	97317	96294	100432	98970
	Production Rate (ton/hr)	324.28		325.13	323.19	325.21	320.51	320.72		315.40	307.38		320.48	311.64	324.62	313.15	313.71	323.54	315.00
	Specific Power (kWh/ton)	12.27	13.25	12.51	12.60	12.85	12.61	12.87		12.95	13.24		12.43	12.93	12.96	12.95	12.97	12.93	13.27
3	RAW MILL-2																		
	Production (MT)	192620			7489		4445	7638	7529	7128	5813	7580	3785	6594		6741	4719		6084
	Running hour				23.75		14.00	24.00	24.00	22.75	19.00	24.00	12.00	21.00		21.67	15.17		19.67
	Power Consumed (KWh)				93807		57122	94731	95844	90603	76790	100115	46515	83495		87997	61537		82470
	Production Rate (ton/hr)	324			315.31		317.50	318.25	313.70	313.31	305.95	315.85	315.42	313.99		311.07	311.06		307.78
	Specific Power (kWh/ton)	12.44	13.25		12.53		12.86	12.40	12.73	12.71	13.21	13.21	12.29	12.66		13.05	13.04		13.42
	Specific Power Raw mills (kWh/MT)	12.86		12.51	12.56	12.85	12.70	12.89	12.73	12.79	13.21	13.21	12.47	12.80	12.96	13.00	13.00	12.83	13.43
4	COAL MILL																		
	Production (MT)	24922		810	768	803	779	792	774	808	745	757	788	780	779	743	749	693	691
	Running hour			24.00	24.00	24.00	23.75	24.00	24.00	23.67	22.58	22.67	23.50	23.00	21.67	24.00	21.83	22.00	22.25
	Power Consumed (KWh)			30125	29038	29938	29371	29371	30232	29418	28140	30009	29939	29584	28337	28809	27281	29689	26568
	Production Rate (ton/hr)	61		33.75	32.00	33.46	32.80	33.00	32.25	34.15	32.99	33.39	33.53	33.91	35.93	30.96	34.31	31.50	31.06
	Specific Power (kWh/ton)	12.43		37.19	37.81	37.28	37.70	37.08	38.06	36.39	37.77	39.64	37.99	37.94	36.40	38.75	36.42	37.50	38.45
5	KILN & COOLER																		
	Production (MT)	224161		7265	7216	7265	7233	7200	7102	7100	6350	6874	7200	7226	7290	7291	7241	7290	7291
	Running hour			24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
	Power Consumed (KWh)			109795	108880	110046	110027	106774	107668	107997	95681	108578	110196	109392	111545	109853	110989	110662	110132
	Production Rate (ton/hr)	305		302.71	300.67	302.71	301.38	300.00	295.92	295.83	264.58	286.42	300.00	301.08	303.75	303.79	301.71	303.75	303.79
	Specific Power (kWh/ton)	14.56	21.4	15.11	15.09	15.15	15.21	14.83	15.16	15.21	15.07	15.80	15.31	15.14	15.30	15.07	15.33	15.18	15.11
	Specific Power Combustion (kWh/ton clk)	42.22	47.23	42.47	42.38	41.67	41.89	41.78	41.50	41.63	44.31	41.06	41.68	41.09	41.56	41.66	41.32	41.56	41.49
	Specific Heat Consumption(Kcal/Kg Clinker)	677	682	686	688	680	678	678	678	678	692	690	690	678	678	677	678	677	678
6	CEMENT MILL-1_OPC																		
	Production (MT)	97800		3065	800	2000	2070	1670		3260	5015	1980	1100	4105		4950	5515	2600	
	Running hour			9.17	3.58	9.00	9.00	7.42		14.50	22.67	9.00	5.00	18.17		22.00	24.00	11.00	
	Power Consumed (KWh)			51447	19162	49281	49515	37764		79777	127833	52752	27023	106677		118696	127010	57791	
	Production Rate (ton/hr)	247		225.33	223.46	222.22	230.00	225.07		224.83	221.32	220.00	220.00	225.92		225.00	229.79	236.36	
	Specific Power (kWh/ton)	22.32	24	24.91	23.95	24.64	23.92	22.61		24.47	25.49	26.64	24.57	25.99		23.96	23.03	22.23	
7	CEMENT MILL-1_PPC																		
	Production (MT)	80900		3288	5900	580	1150		1845	2870		3620	5077						3224
	Running hour			10.92	20.00	2.00	3.83		6.08	9.50		12.17	16.83						10.42
	Power Consumed (KWh)			65454	112544	15922	23412		33639	54796		76606	103153						66072
	Production Rate (ton/hr)	310		301.10	295.00	290.00	300.26		303.45	302.11		297.45	301.66						306.40
	Specific Power (kWh/ton)	18.28	19.5	19.91	19.04	27.45	20.36		18.23	20.48		21.16	20.32						20.49
8	CEMENT MILL-1_ STRONGCRETE																		
	Production (MT)	6910						255	3260									1575	
	Running hour							1.42	17.92									8.42	
	Power Consumed (KWh)							7063	91683									42889	
	Production Rate (ton/hr)	218						179.58	181.92									187.05	
	Specific Power (kWh/ton)	25.37	26.5					27.70	28.12									27.23	
	Specific Power CEMENT MILL-1 (kWh/MT)	21.58		21.84	21.63	25.27	22.45	23.29	24.55	22.60	25.49	23.10	21.67	21.99		23.98	23.03	24.12	26.49
9	CEMENT MILL-2_OPC																		
	Production (MT)	88970		2530	2886	1751			3185		625		435	2060	1905		3195	490	4885
	Running hour			11.00	12.67	7.83			14.08		2.83		2.00	9.33	8.50		14.00	2.17	21.50
	Power Consumed (KWh)			56760	69655	43942			74774		15164		9839	50016	45896		74173	11835	112362
	Production Rate (ton/hr)	252		230.00	227.78	223.63			226.21		220.85		217.50	220.79	224.12		226.21	225.81	227.21
	Specific Power (kWh/ton)	21.77	24	22.43	24.14	25.10			23.48		24.26		22.62	24.28	24.09		23.22	24.13	23.00
10	CEMENT MILL-2_PPC																		
	Production (MT)	99742					1875	6565	1060		6140	3108		3700	4885	6670	3040	5565	
	Running hour						6.25	22.17	3.50		21.17	10.50		12.75	15.50	23.00	10.00	18.00	
	Power Consumed (KWh)						40024	126007	19351		113555	58162		71490	93484	131661	59153	104500	
	Production Rate (ton/hr)	304					300.00	296.12	302.86		290.03	296.00		302.04	313.16	290.00	304.00	309.17	
	Specific Power (kWh/ton)	18.00	19.5				21.35	19.19	18.26		18.49	18.71		19.32	19.14	19.74	19.46	18.78	
11	CEMENT MILL-2_ STRONGCRETE																		
	Production (MT)	14017										2430	935						
	Running hour											13.50	5.17						
	Power Consumed (KWh)											71448	25562						
	Production Rate (ton/hr)	220										180.00	180.85						
	Specific Power (kWh/ton)	25.03	26.5									29.40	27.34						

Energy efficiency/awareness trainings

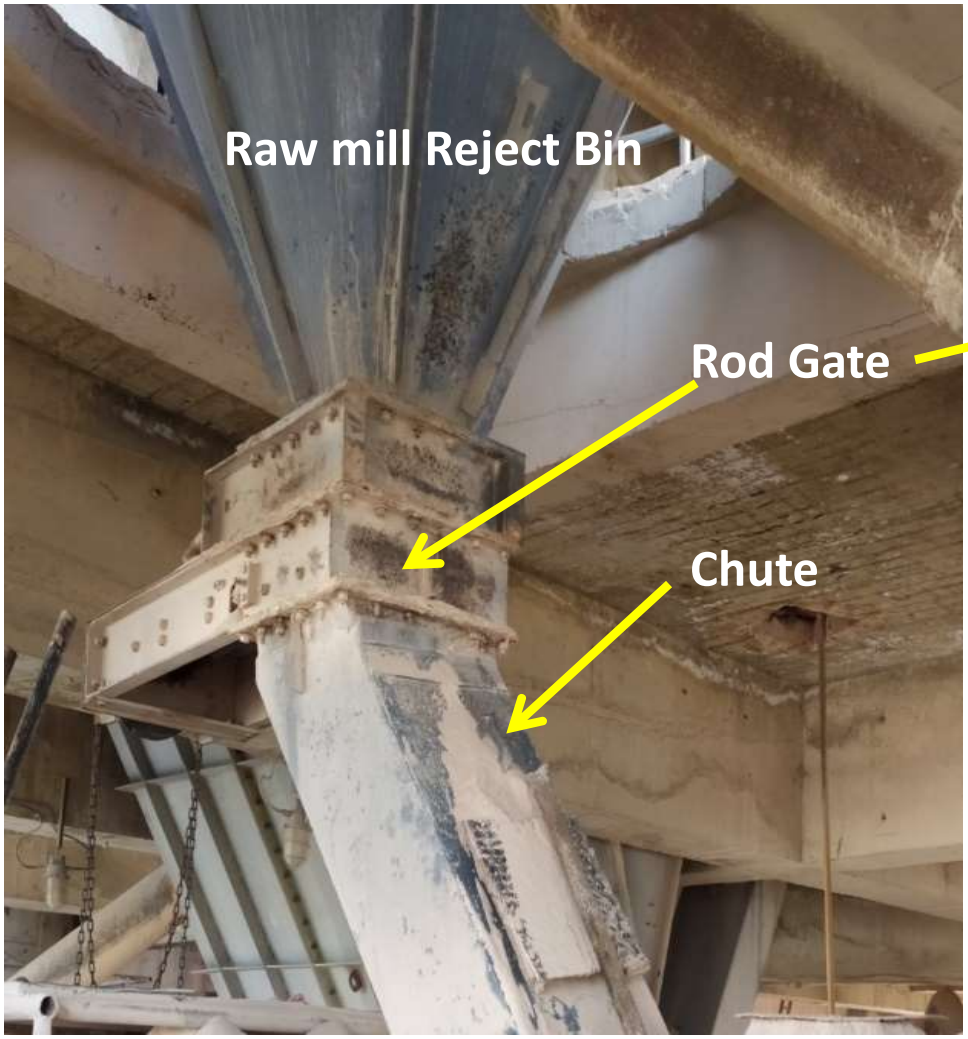
- Online Training Programme on "Advanced Pyro-processing Techniques for Improved Productivity and Clinker Quality“
- Raw Mix Design and Product Quality
- CII - Online Course on Certified Professional in Energy Efficiency
- Online Training Programme on “Energy Efficiency in Grinding Systems”
- Advanced Training Programme on Pre-processing & Co-processing for Alternate Fuels
- Online Training program on "Basic Concepts of Cement/Concrete Technology“
- FLSmidth- Process Measurement and Calculations
- Unleashing Potential Workshop
- Pyro Trouble Shooting
- Workshop on Competitiveness and Profit Enhancement
- Common Learning Program on Efficiency improvement in grinding

Major Projects implemented through Kaizens

- ✓ Installation of sector gate below reject bin of raw Mill-1
- ✓ Modification of blending silo feed bucket elevator discharge air slide
- ✓ Spillage control at wagon tippler material handling section
- ✓ Effective dust suppression at Limestone stacker
- ✓ Aeration pad modification in Cement bulker loading circuit

1. Installation of sector gate below reject bin of raw Mill-1

BEFORE:



AFTER:

1. Installation of sector gate below reject bin of raw Mill-1

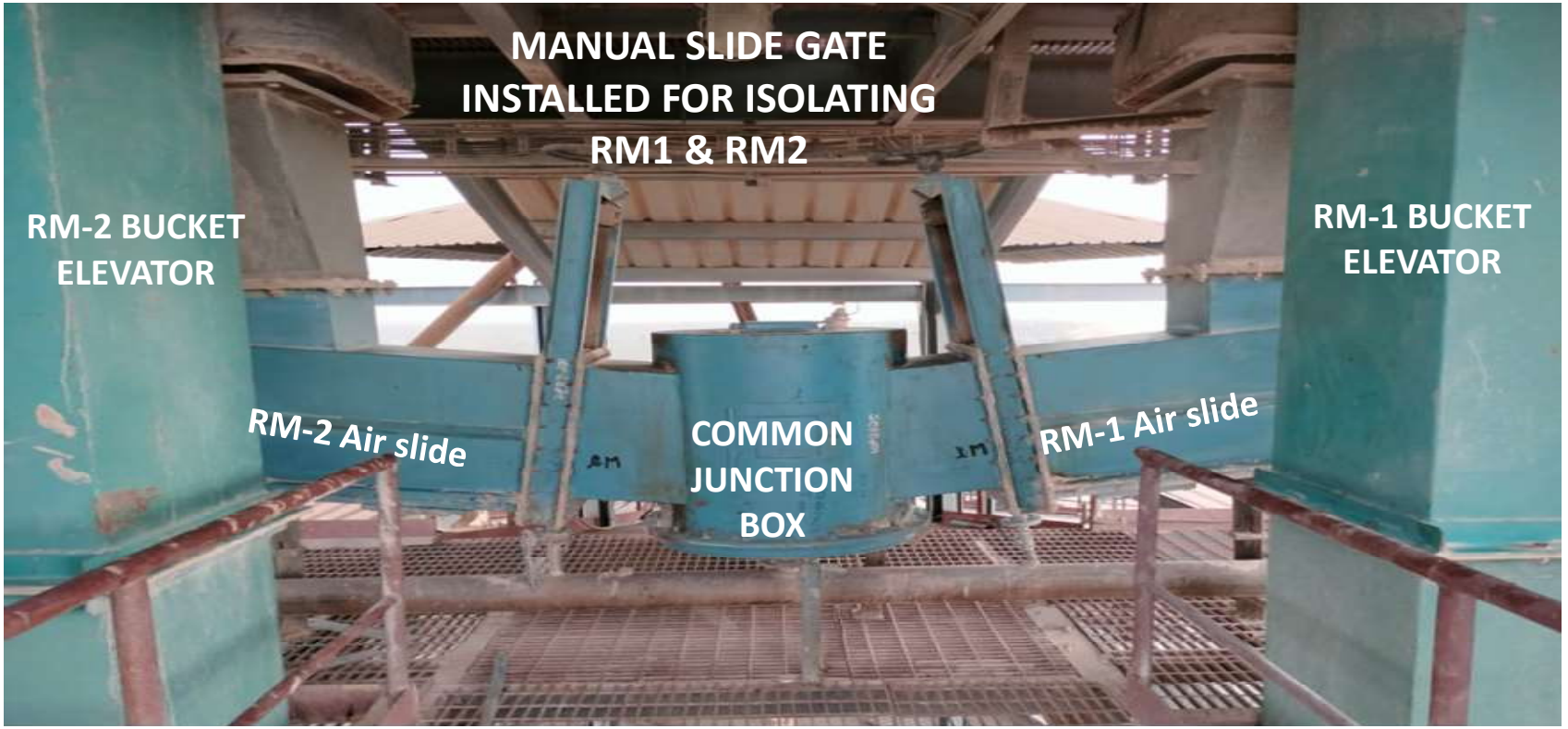
BEFORE INSTALLATION:

1) Frequent overloading and thereby tripping of Roller press feed bucket elevator due to uncontrolled extraction of material from reject bin.

AFTER INSTALLATION:

1) Reduced overloading and tripping of Roller press feed bucket elevator by controlled extraction from reject bin and resulted in cost saving of rupees Rs.2500/Stoppage.

2. Modification of blending silo feed bucket elevator discharge air slide



➢ **BEFORE:**

- No isolation system between raw mill 1 & 2 silo bucket elevators discharge air slides.
- Need to stop both the raw mills for any maintenance activity of air slides.

➢ **AFTER:**

- Installed manual slide gates for isolating raw mill 1 & 2 and resulted in ease of maintenance.

3. Spillage control at wagon tippler material handling section

Background

After commissioning of wagon tippler, it was the major concern that heavy spillage from ground hopper to the tippler drive floor during tippling operation. Whenever the ground hopper grizzle arrangement is filled, the excess coal tends to spill to the bottom drive pit area.

Thought

As the grizzle arrangement of the hopper was at ground level, it was very difficult to control the spillage into the near by bottom pit. So we have planned to lower the hopper grizzle arrangement by 450mm from the current level

Remedy Action

The level of entire grizzle arrangement of both hopers lowered by 450mm and additional strengthening also made by providing sufficient stiffeners

Result

During the operation of wagon tippler with next coal rake, it is being observed that ,heavy spillage in the tippler drive pit was reduced by 90%. The innovative modification work of grizzle arrangement has got its result and helped to get a spillage free operation.

Benefits

- Reduction in cost of cleaning manpower
- Elimination of damage of equipment parts due to spillage
- Reduction in total rake unloading time
- Safer and pollution free workplace

No of workmen engaged for cleaning	**10 Person, One shift, Rs.471/Head**
Labor cost for cleaning after unloading of a coal rake	RS. 4710/-
No of rakes unloaded. (June-2021 to May-2022)	46 Nos.
Total Early Saving	**2.16 Lakh**

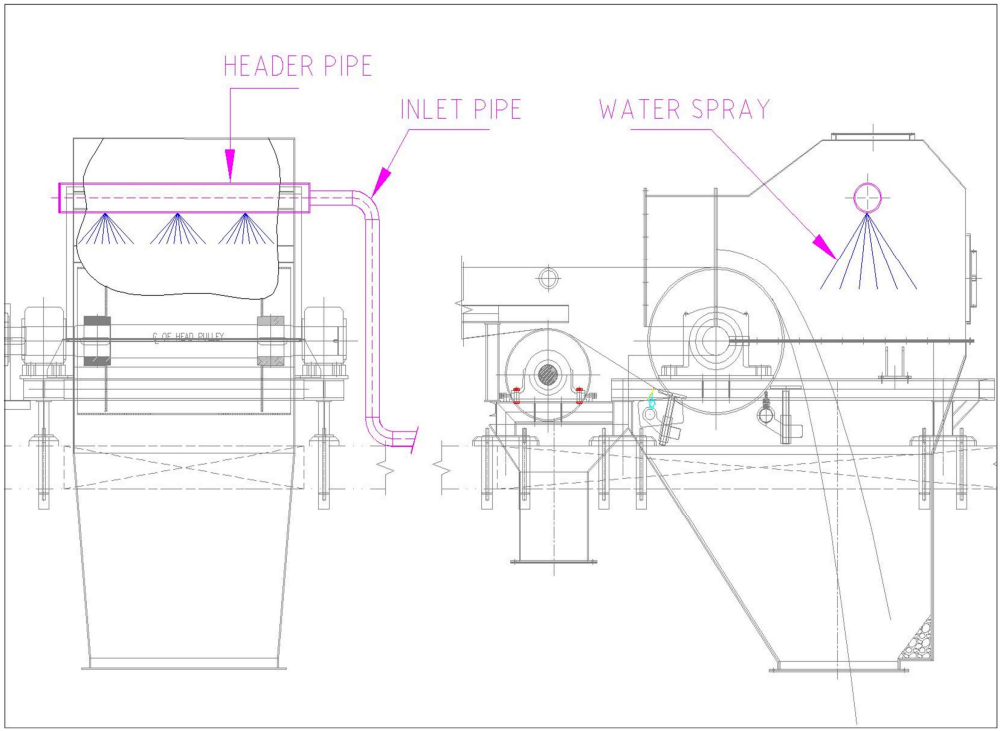
4. Effective dust suppression at Limestone stacker

Background

Despite of an active water spray at incoming belt conveyor of limestone stacker, effective dust suppression at limestone stacker discharge area couldn't achieved due to huge dust emission from crushed limestone at stacker discharge areas.

Thought

When we apply water spray only on the top of a belt conveyor, dust particles on the top layer of carrying material are only getting suppressed. So we have planned to install a header type water spray at the discharge chute itself so that the entire cross section area of crushed limestone will got moisturized and there by effective dust suppression can be achieved.



Remedy Action

Header pipe with spray holes is installed across the discharge chute of conveyor. And an inlet waterline connection is provided at one end of the header. Spray system is automated with an interlock with incoming belt conveyor in such a way that, water spray will be stopped when the conveyor is got emptied/stopped.

4. Effective dust suppression at Limestone stacker

Result

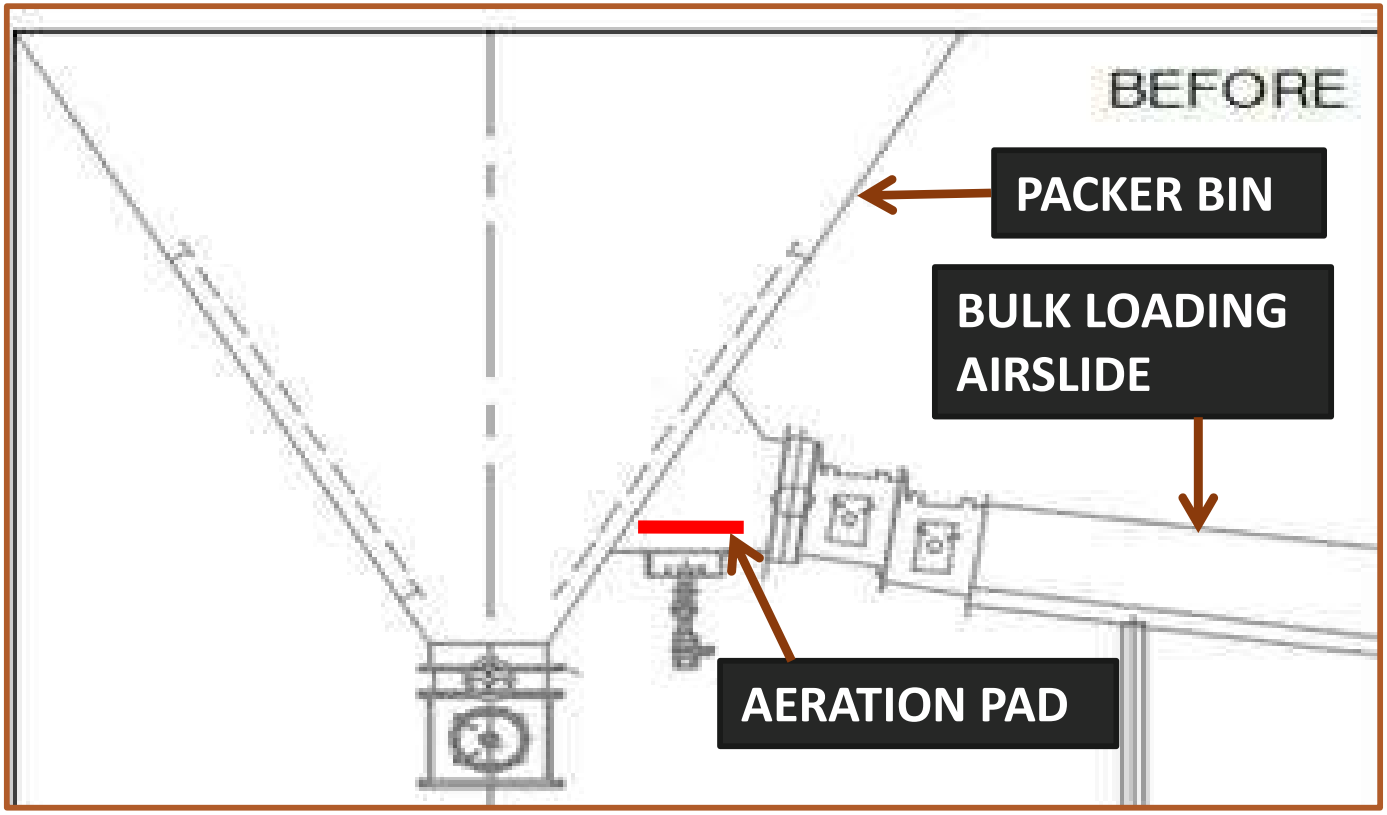
After the installation of new water spray system, fugitive dust emission at Limestone stacker discharge areas are drastically reduced. And hence the workplace becomes more dust free and safer.

After

Before

5. Aeration pad modification in Cement bulker loading circuit

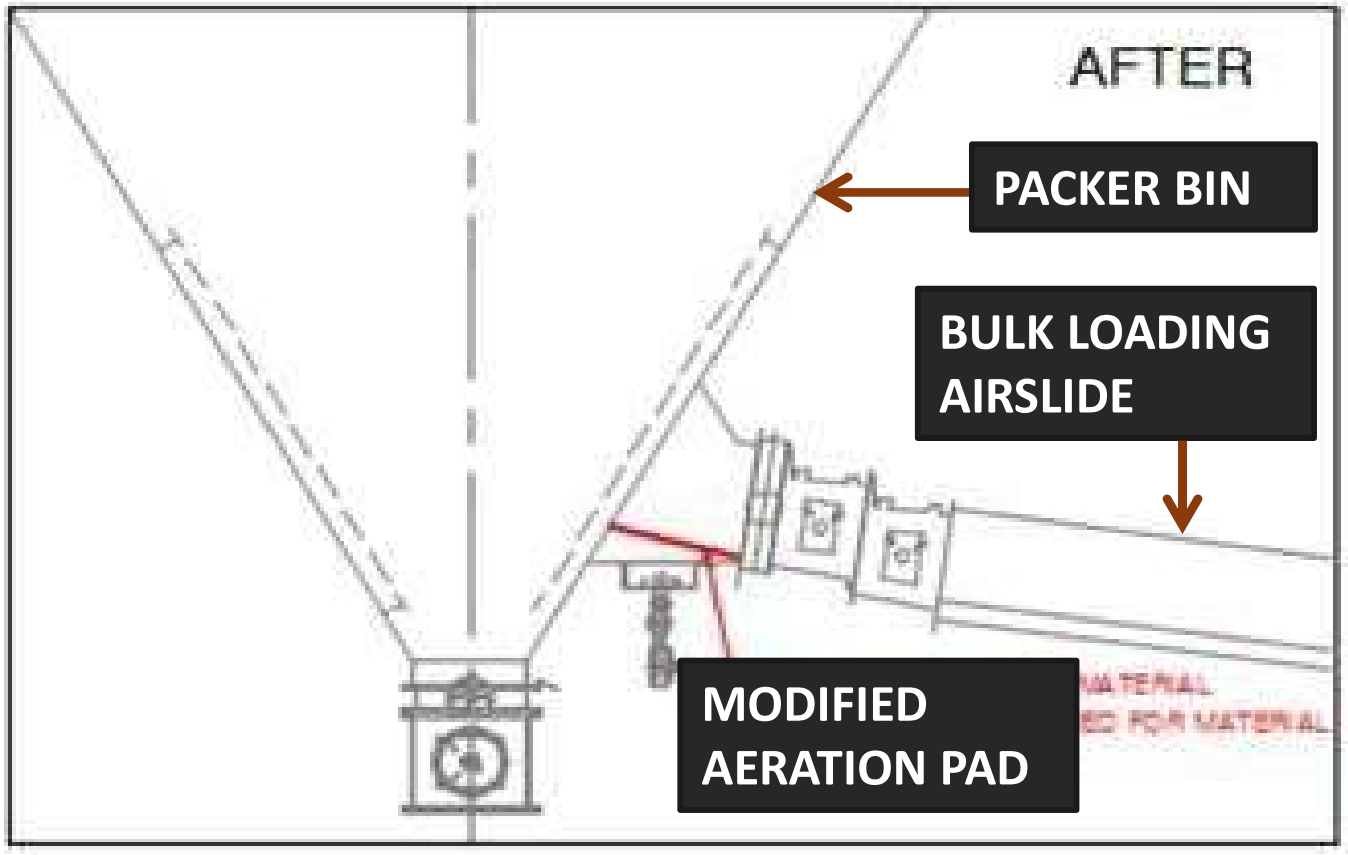
Before Modification:



- Earlier the bin aeration pad was in horizontal position .
- Due to this we have faced frequent jamming at the gates, nearly 4-5 times in a day.

5. Aeration pad modification in Cement bulker loading circuit

After Modification:



- Removed the old aeration pad and fabricated new aeration pad in larger dimension - 80 mm longer than the pervious one.
- Installed the new pad inside the bin at an inclination of about 9 deg.
- Now the jamming at the gates have been reduced drastically and happens once in a while.

bsi.

Certificate of Registration

FACILITIES MANAGEMENT SYSTEM - ISO 41001:2018

This is to certify that:

Orient Cement Ltd.
Chittapur
PO Itaga
Malked Road
Chittapur - Taluk
Kalaburagi Dist 585 292
Karnataka
India

Holds Certificate No: **FMMS 738634**

and operates a Facilities Management System which complies with the requirements of ISO 41001:2018 for the following scope:

Facility Management for the Manufacture, Packing and Supply of Clinker & Cement, and Generation & Export of Power.

For and on behalf of BSI:

Theuns Kotze, Managing Director - IMETA Assurance

Original Registration Date: 2021-06-07
Latest Revision Date: 2021-06-07

Effective Date: 2021-06-07
Expiry Date: 2024-06-06

Page: 1 of 1

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Printed copies can be validated at www.bsi-global.com/ClientDirectory or telephone +91 11 2692 9000.
Further clarifications regarding the scope of this certificate and the applicability of ISO 41001:2018 requirements may be obtained by consulting the organization.
This certificate is valid only if provided original copies are in complete set.

BSI, The MIRA Corporate Suites (A-2), Plot 1 and 2, Ishwar Nagar, Mathura Road, New Delhi 110 065.
A Member of the BSI Group of Companies.

bsi.

By Royal Charter

Certificate of Registration

ENERGY MANAGEMENT SYSTEM - ISO 50001:2018

This is to certify that:

Orient Cement Ltd.
Chittapur
PO Itaga
Malked Road
Chittapur - Taluk
Kalaburagi Dist 585 292
Karnataka
India

Holds Certificate No: **ENMS 715352**

and operates an Energy Management System which complies with the requirements of ISO 50001:2018 for the following scope:

Mining of Limestone, Crushing, Clinkerization, Cement Grinding, Packaging & Dispatch of Cement & Clinker, utilizing Electricity, Coal & Diesel; Generation & Export of Power.

For and on behalf of BSI:

Chris Cheung, Head of Compliance & Risk - Asia Pacific

Original Registration Date: 2019-11-08
Latest Revision Date: 2019-11-08

Effective Date: 2019-11-08
Expiry Date: 2022-11-07

Page: 1 of 1

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Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: + 44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A Member of the BSI Group of Companies.

Dispersion plate installed in fly ash entry in both Cement mill

Background:

- Mismatch of PSD with Blain value
- Classifier load fluctuation.
- Mill stability.

Results:

- Mill stability improved.
- PSD improved in lower blain.
- Smooth operation of classifier
- Main motor and fan power reduced

Awards & Accolades 2021-22

- Received WINNER position in "Greentech Energy Conservation" Award 2021.
- Received "Unnatha Suraksha Puraskara" award from Director of Factories and Boiler", Govt of Karnataka.
- Received BEST ZERO LIQUID DISCHARGE PLANT award for 2021 from Mission Energy Foundation.
- Chittapur CPP received WINNER award for Sox-NOx control for 2021 from Mission Energy Foundation.
- Received 22nd National Award for Excellence in Energy Management 2021 from CII (Confederation of Indian Industry).
- Received FIRST PRIZE in "Reclamation and Rehabilitation" category during "Mine Environment and Mineral Conservation" function of Govt of Karnataka.
- Received PLATINUM AWARD FOR ENVIRONMENT EXCELLENCE FROM APEX INDIA.
- Winner for "21st Annual Greentech Environment & Sustainability Award 2021" in the Environment protection category
- Winner for "20th Annual Greentech Safety Award 2021"

"Greentech Energy Conservation" Award 2021.

"Unnatha Suraksha Puraskara 2021" – National Safety Council, Karnataka Chapter

Award presented by Shri. K Srinivas (Director of Factories, Boilers, Industrial Safety & Health, Govt. Of Karnataka) &
Shri. Lalit R Gabane (Director General of National Safety Council, India)

"Greentech Environment Protection" Award 2021.

"Greentech Safety Excellence" Award 2021.

"Platinum award for Environment Excellence from Apex India.

APEX INDIA FOUNDATION
RECOGNISING EXCELLENCE* SPREADING AWARENESS

CERTIFICATE

APEX INDIA GREEN LEAF AWARD 2020 FOR ENVIRONMENT EXCELLENCE

PLATINUM AWARD

Orient Cement Limited
Chittapur, Karnataka
Cement Sector

Apex India Green Leaf Awards 2020

ISSUED ON
25th September 2021

PRESIDENT
APEX INDIA FOUNDATION

MINES ENVIRONMENT AND MINERAL CONSERVATION ASSOCIATION WEEK 2021-22

UNDER AGIES OF INDIAN BUREAU OF MINES, BANGALORE REGION

FIRST PRIZE
Best Practices Adopted
(Special Award)
(GROUP -1)

FIRST PRIZE
Environmental Monitoring
(GROUP – 1)

SECOND PRIZE
Waste Dump Management
(GROUP -1)

SECOND PRIZE
Reclamation and Rehabilitation
(GROUP -1)

MINES SAFETY WEEK CELEBRATION 2021 – MSAK, ZONE - IV

UNDER AGIES OF DIRECTOR GENERAL MINE SAFETY

FIRST PRIZE – OVERALL PERFORMANCE (STATE LEVEL)

MINES SAFETY WEEK CELEBRATION 2021 – MSAK, ZONE - IV

UNDER AGIES OF DIRECTOR GENERAL MINE SAFETY

FIRST PRIZE – OVERALL PERFORMANCE (ZONAL LEVEL)

FIRST PRIZE
Loading &Transportation
(GROUP -B1)

FIRST PRIZE
Mine Workings
(GROUP -B1)

FIRST PRIZE
Safety Management System
(GROUP -B1)

SECOND PRIZE
Maintenance of mining Machinery & Crusher
(GROUP -B1)

SECOND PRIZE
Drilling & Blasting
(GROUP -B1)

THIRD PRIZE
Publicity, Propaganda & Innovation
(GROUP -B1)

THIRD PRIZE
Electrical Installation
(GROUP -B1)

THIRD PRIZE
Swachh Bharath Abhiyan
(GROUP -B1)

22nd National Award for Excellence in Energy Management 2021

Confederation of Indian Industry

22nd National Award for Excellence in Energy Management 2021

This is to certify that

Orient Cement Limited, Chittapur

has been recognized as

"Excellent Energy Efficient Unit"

This acknowledgement is based on the evaluation by the panel of judges at the "National Award for Excellence in Energy Management" held during 24 - 27 August 2021.

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

ORIENT CEMENT

Major Achievements

Great Place To Work. Certified APR 2021–MAR 2022 INDIA

- ✓ One of the lowest energy consumption plant for both electrical and thermal
- ✓ Preheater fan specific power achieved 3.3 units/MT of clinker
- ✓ Preheater fan inlet temp is 226^{0}C
- ✓ We are happy to share our Chittapur QC Lab Achieved NABL Accreditation certification effective from 28.01.2022

ORIENT CEMENT

Great Place To Work.

: muralimohanraju.p@orientcement.com
: 7829992123