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"DIGITALIZING OPERATIONS"

BEST PRACTICES IN GWEL THERMAL POWER PLANT FOR LOGBOOK MANAGEMENT

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7. Key Features of Digital Logbooks
8. Results and Benefits
9. Way Forward

GWEL At a Glance - Group's Vision, Values & Mission

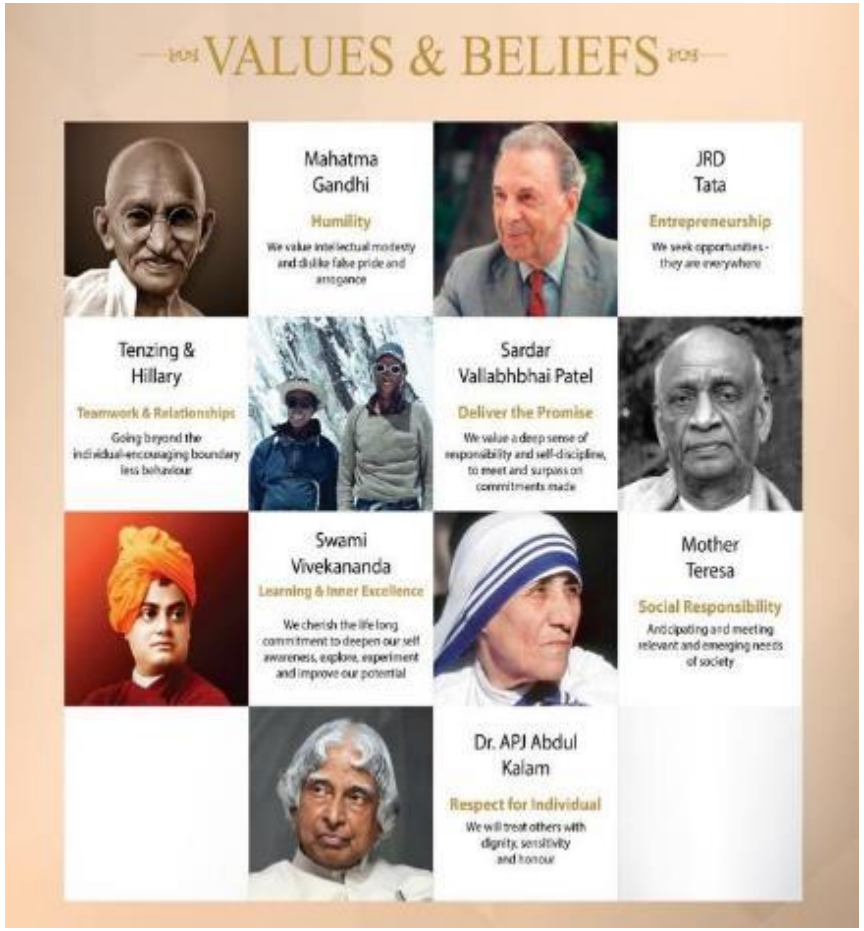
Vision

"GMR Group will be an institution in perpetuity that will build entrepreneurial organization making a difference to society through creation of value."

Mission

GMR Energy wants to be the most profitable and one of the leading Integrated Energy Companies in India and derive value by

- **Diversifying strategically across Energy value chain**
- **Being a preferred employer**
- **Being socially responsible"**



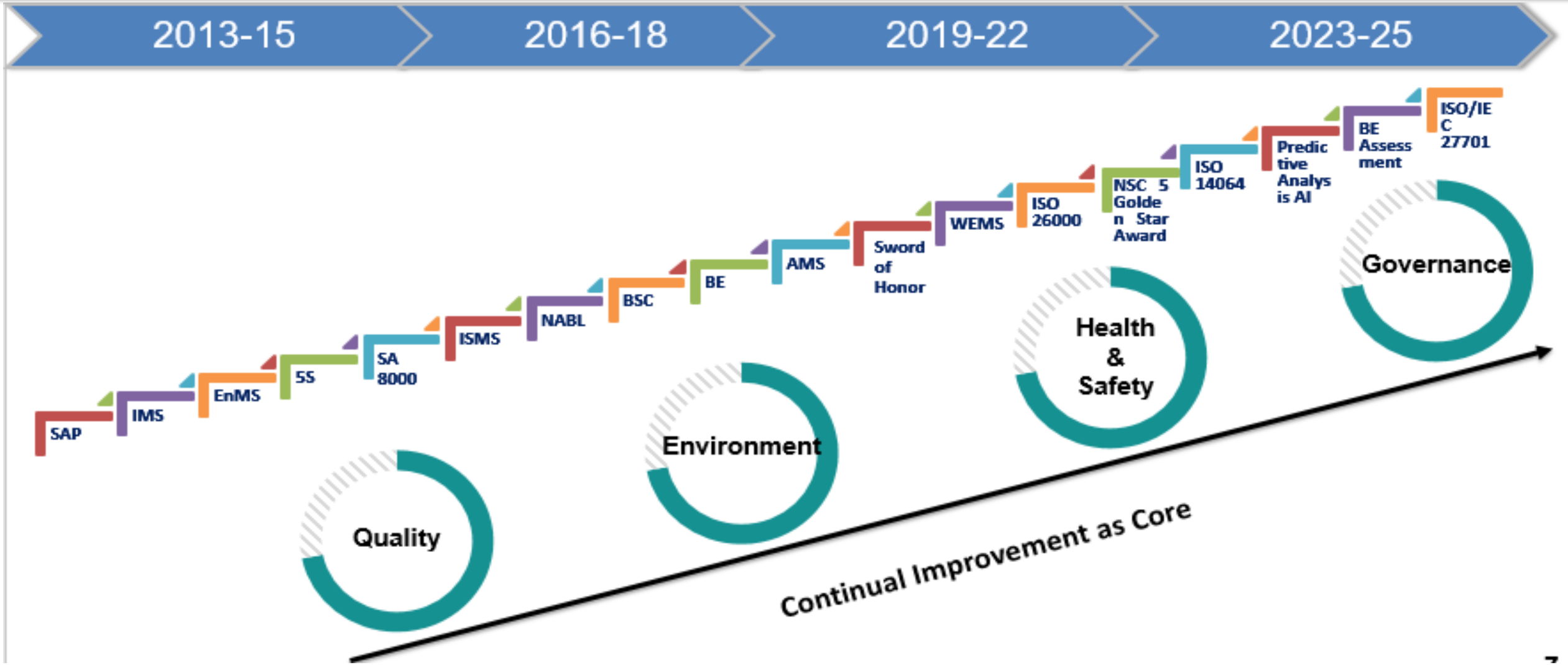
In line with Group's Vision & Mission,

GWEL strives to create a difference to society through creation of Value by Institution Building

Humility | Entrepreneurship | Teamwork & Respect for Individual | Deliver the Promise | Learning & Inner Excellence | Social Responsibility |

1. Institution Building through System Approach- The GWEL Journey Towards Excellence

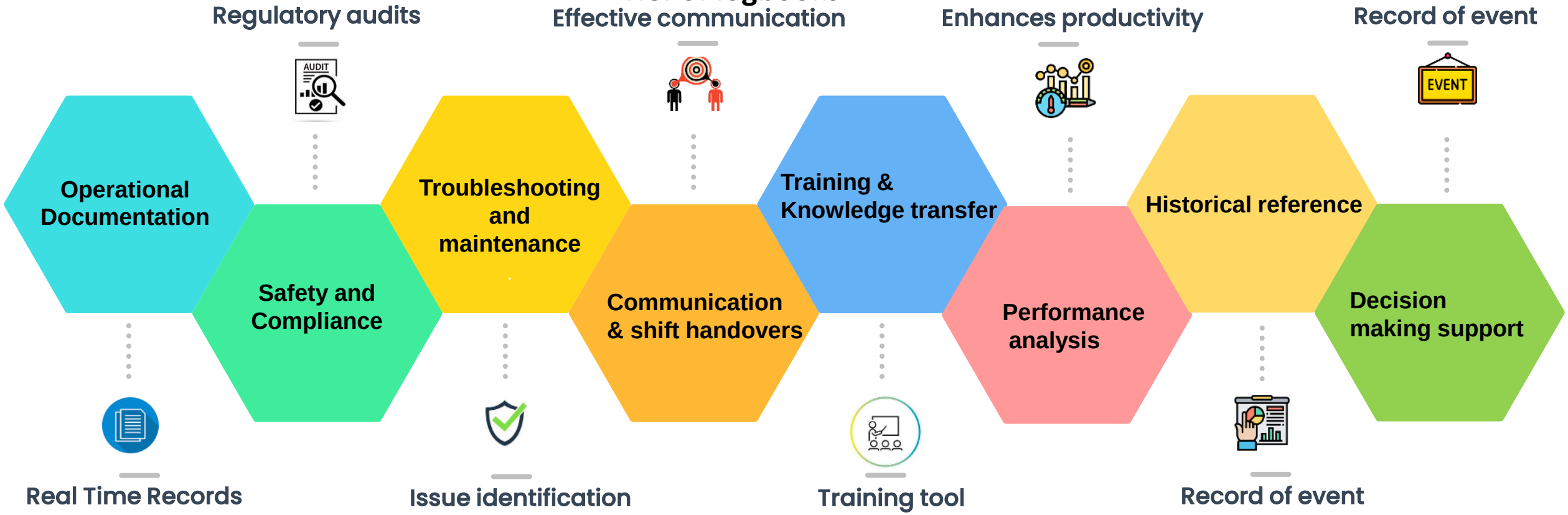
Various Management Systems implemented towards Quality, Environment, Health & Safety and Governance Management



Introduction

GMR Warora Energy ltd (GWEL) is a 2×300MW Coal based Thermal Power Plant at Warora in Maharashtra. GWEL Maintains Logbooks for different functions like Main plant operation, AHP, CHP and BOP area for ensuring the safe, efficient and reliable operation of plant. Here are key aspects highlighting the importance of these logbooks.

Brief of logbooks



Challenges with Traditional Logbooks

Data Accuracy	Traditional logbooks often suffer from poor handwritings, leading to issues with data accuracy, errors in handwritten logs can result in misinterpretation and mistakes in decision – making processes.
Data Retrieval Time	Searching for specific information in a traditional logbook can be time consuming
Limited Accessibility	Traditional logbooks are physical documents, in emergency situations or when quick responses are required, having logbooks only available on-site can impede timely decision –making.
Security & Data Integrity	Handwritten logs are susceptible to physical damage, loss or unauthorized access.
Integration with Other Systems	Challenging to streamline workflows and share relevant data across different platform.
Compliance & Auditing	Ensuring compliance with industry regulations and standards can be challenging with traditional logbooks
environmental Concerns	Paper consumption for logbook was high and storage of logbooks requires high space, Around 48 rims of paper per month was required.

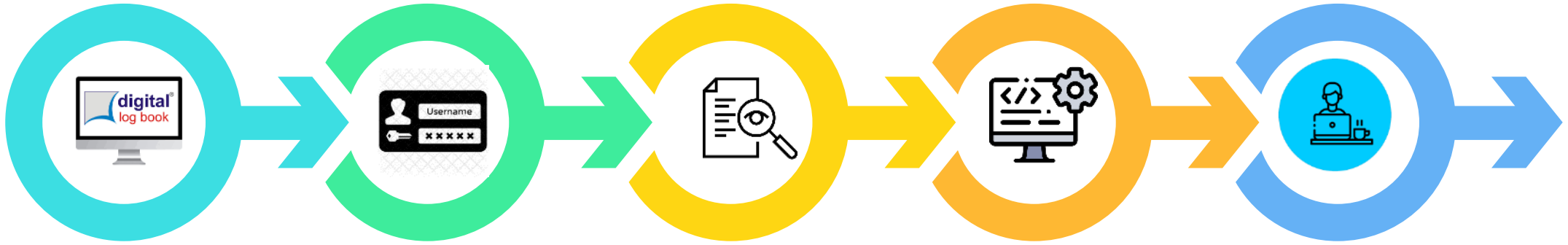
Digitalization Of Control Room Logbooks

To overcome challenges, The GWEL operation team planned to transition from traditional logbooks to digital logbook in 2 phases.

PHASE-1 JOURNEY (Control Room Logbooks)

In the first phase, We focuses on digitalizing the Desk operation logbooks. Brainstorming was done within team for finalization of workflow and requirements for digitizing. we collaborated with IT team to finalize requirements related to software development.

Customized Digital Logbooks → **Assigned Login IDs** → **Logbook Review & communication** → **Improved Accessibility** → **Training and Integration**



In Phase-1 Total 30 Desk operation logbooks are digitalized and individual operator logins are provided

Digitalization Strategy

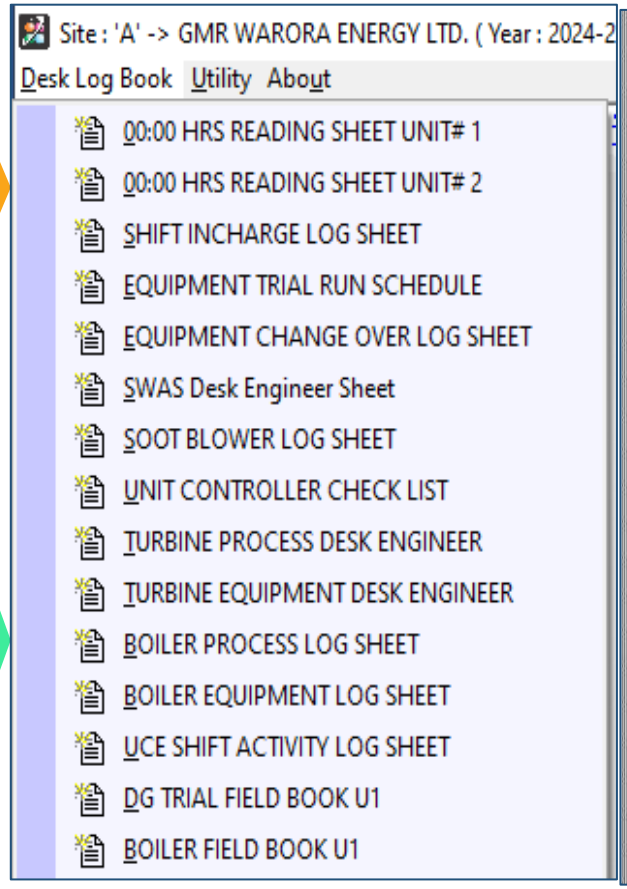
Assessment	Development	Customization	Deployment	monitor progress
❖ List out logbook for digitalization ❖ Assessment of current logbook practice	❖ Finalize UI. ❖ Customization of selected Logbooks	❖ Logbook review mechanism finalization. ❖ Data Analysis and Report finalization	❖ Assignment Login IDs to each user ❖ Logbook filling SOP. ❖ Pilot testing with selected units	❖ Training for all users. ❖ Feedback from user

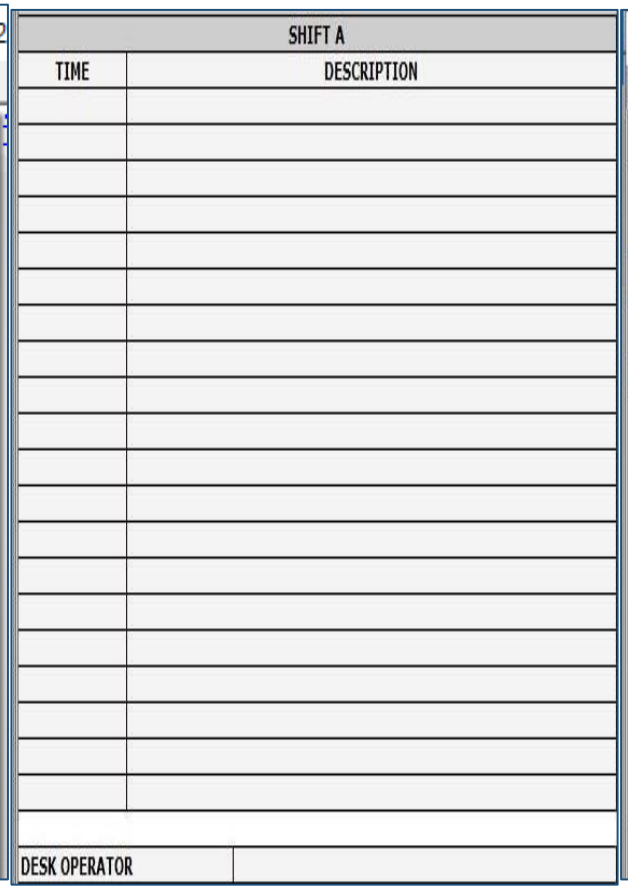
Phase-1 Journey (Control Room Logbooks)

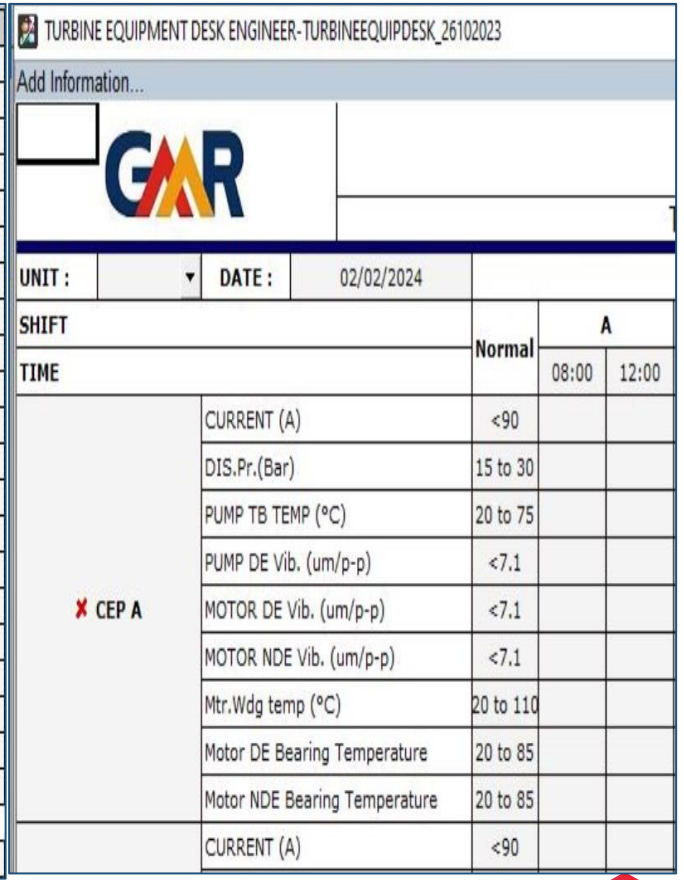
Customized Digital Logbooks

Shift-wise digital logbooks are designed to capture real time data points, ensuring a more efficient and accurate record-keeping process.

- **The shift-wise data entry system created**
- **Information is systematically recorded, reducing the risk of errors and facilitating easier tracking of operational activities.**





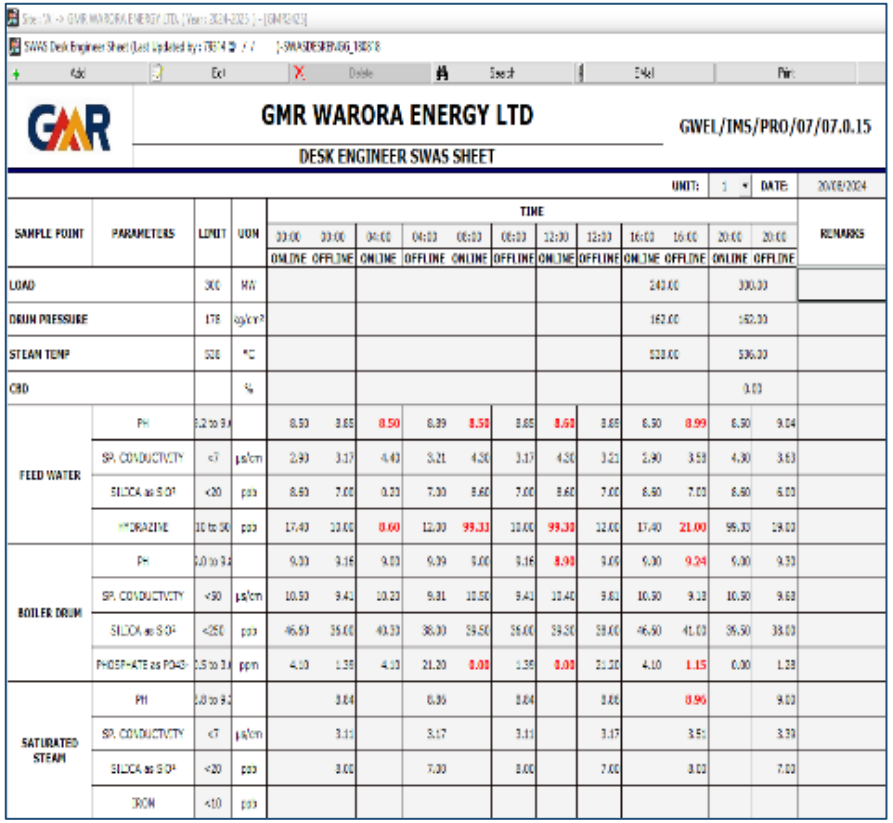


Phase-1 Journey (Control Room Logbooks)

Customized Digital Logbooks

Designed to capture real time data deviation, ensuring a more efficient and accurate record-keeping process. Out of range parameters entered in digital logbook are highlighted, range is customizable by admin login.

- **Out of range parameters highlighted**
- **Parameter range can be customized through administrator login**



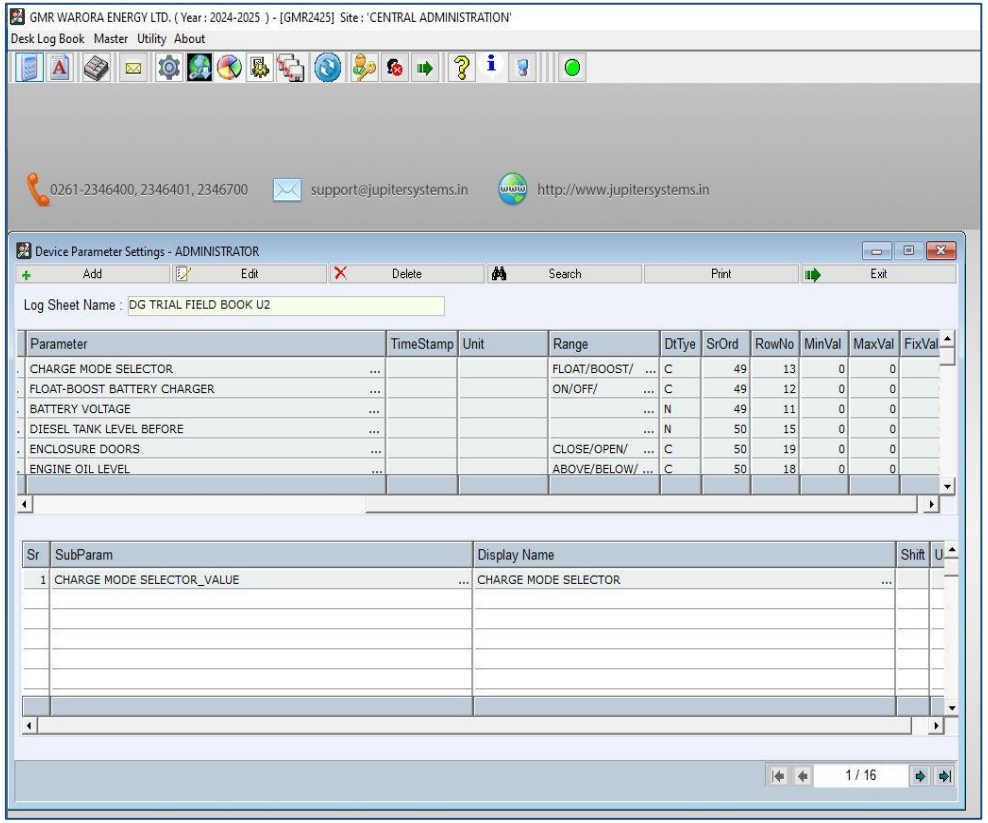
GMR WARORA ENERGY LTD

GWEL/INS/PRO/07/07.0.15

DESK ENGINEER SWAS SHEET

UNIT: 1 DATE: 20/08/2024

SAMPLE POINT	PARAMETERS	LIMIT	UOM	TIME 00:00 ONLINE	00:00 OFFLINE	04:00 ONLINE	04:00 OFFLINE	08:00 ONLINE	08:00 OFFLINE	12:00 ONLINE	12:00 OFFLINE	16:00 ONLINE	16:00 OFFLINE	20:00 ONLINE	20:00 OFFLINE	REMARKS
LOAD		300	MW									240.00		300.00		
DRUM PRESSURE		178	kg/cm²									162.00		162.00		
STEAM TEMP		528	°C									528.00		536.00		
CBD			%											3.00		
FEED WATER	PH	8.2 to 9.4		8.50	8.65	8.50	8.39	8.50	8.65	8.60	8.65	8.50	8.99	8.50	9.04	
	SP. CONDUCTIVITY	<7	µs/cm	2.90	3.17	4.40	3.21	4.30	3.17	4.30	3.21	2.80	3.53	4.30	3.63	
	SILICA as SiO_2	<20	ppb	8.60	7.00	0.20	7.00	8.60	7.00	8.60	7.00	8.60	7.00	8.60	6.00	
	HYDRAZINE	10 to 50	ppb	17.40	10.00	0.60	12.00	99.30	10.00	99.30	12.00	17.40	21.00	99.30	10.00	
BOILER DRUM	PH	9.0 to 9.4		9.00	9.16	9.00	9.39	9.00	9.16	8.90	9.00	9.00	9.24	9.00	9.33	
	SP. CONDUCTIVITY	<90	µs/cm	10.50	9.41	10.20	9.81	10.50	9.41	10.40	9.61	10.50	9.10	10.50	9.69	
	SILICA as SiO_2	<250	ppb	46.50	35.00	40.30	38.00	59.50	35.00	59.50	59.00	46.50	41.00	36.50	38.00	
	PHOSPHATE as PO_4	0.5 to 3.0	ppm	4.00	1.35	4.00	21.20	0.00	1.35	0.00	21.20	4.00	1.15	0.00	1.29	
SATURATED STEAM	PH	8.8 to 9.2			9.04		8.95		9.04		9.00		8.96		9.03	
	SP. CONDUCTIVITY	<7	µs/cm		3.11		3.17		3.11		3.17		3.51		3.39	
	SILICA as SiO_2	<20	ppb		8.00		7.00		8.00		7.00		8.00		7.00	
	IRON	<10	ppb													

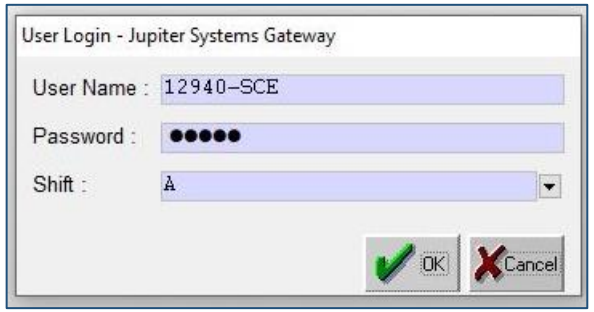


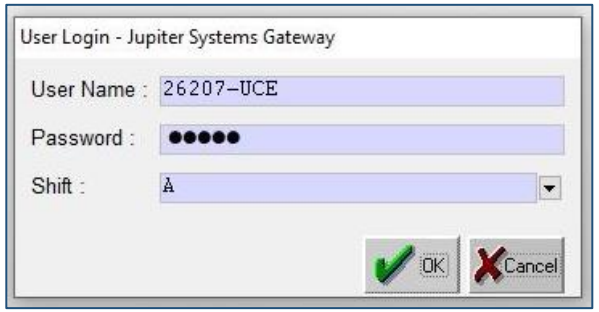
Phase-1 Journey (Control Room Logbooks)

Assigned individual Login IDs

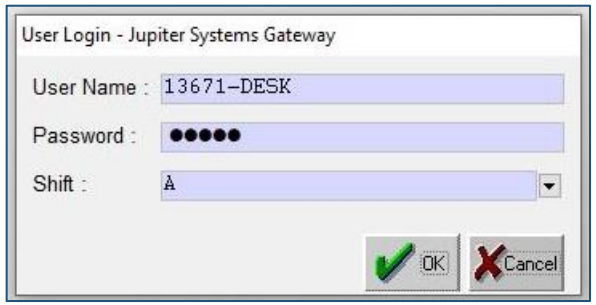
Assigning individual login IDs for Logbook filling offers several advantages like accountability and traceability and data integrity

- **Individual login IDs Provided with specific access levels based on Job roles and responsibilities.**





- **Each team member has a unique identifier, allowing for precise tracking of entries, modifications, and approvals.**

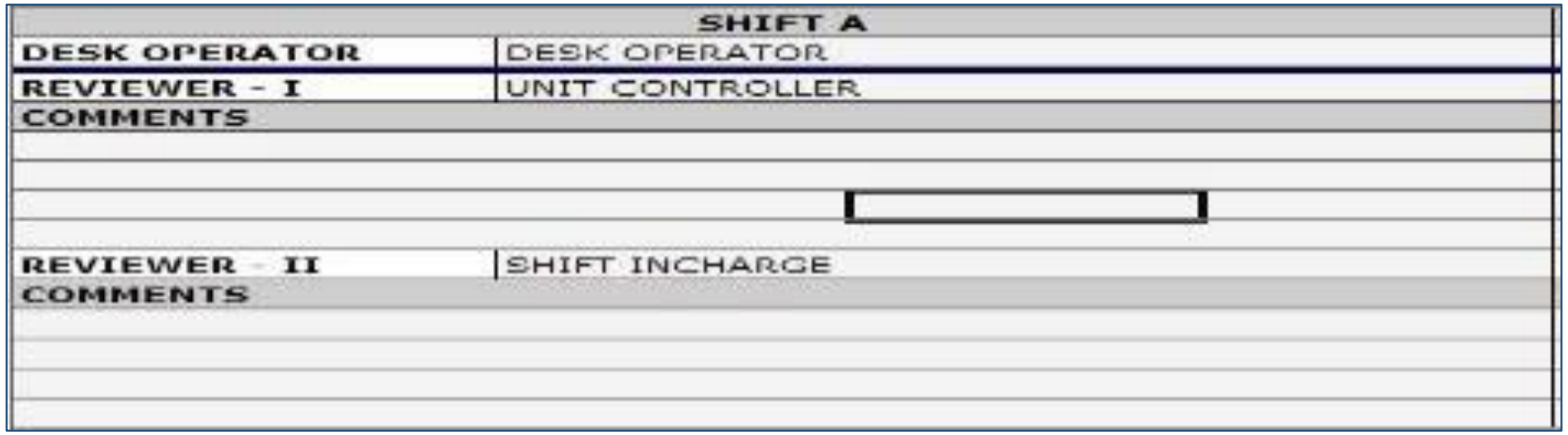


Phase-1 Journey (Control Room Logbooks)

Logbooks Review and Access

Logbooks review system help us hierarchical oversight, enhanced accountability, cross verification and validation moreover reduce risk of errors.

- **Authorized logbook review access is provided in the logbooks for enhance accountability**



SHIFT A	
DESK OPERATOR	DESK OPERATOR
REVIEWER - I	UNIT CONTROLLER
COMMENTS	
REVIEWER - II	SHIFT INCHARGE
COMMENTS	

- **Reviewer name and Comment section also provided for cross verification & validation and send mail communication**

Reply Reply All Forward IM

Fri 2/2/2024 7:08 AM

GWEL OPERATION LOG <GWEL.OPERATIONLOG@gmrgroup.in>

UNIT CONTROLLER CHECK LIST

To Aabhas Chanekar; Nitin Chandrashekhar Hajbe; Vishal Takalkar; Ibrahim Shaikh; Bharat Pinjarkar; Kaushal Dewangan; GWEL Shift Incharge; GWEL-OPERATION-SERVICES; Pravin Rahul Walgotwar; Amardeep Satanker; Santosh Kumar Ramdhani Gupta; Nana K Ughade

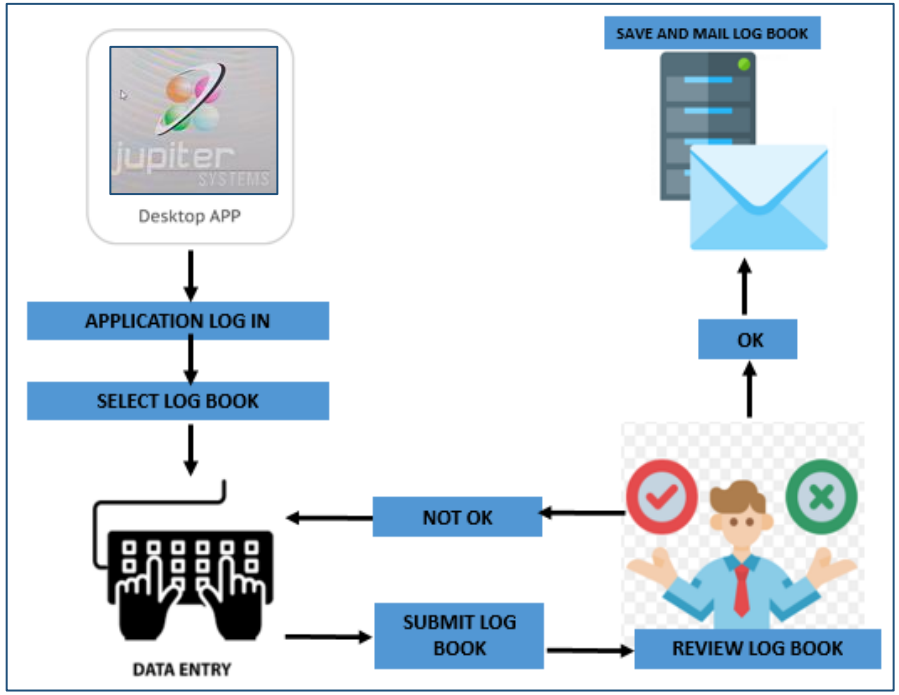
UCCHECKLIST-U2-010224.PDF
52 KB

Phase-1 Journey (Control Room Logbooks)

Improved Accessibility

Laptops with installed software provided at desk consoles for real time data entry and monitoring and efficient shift handovers

- **Laptop provided to turbine and boiler desk operators.**
- **Desktop with installed software provided to unit controller.**

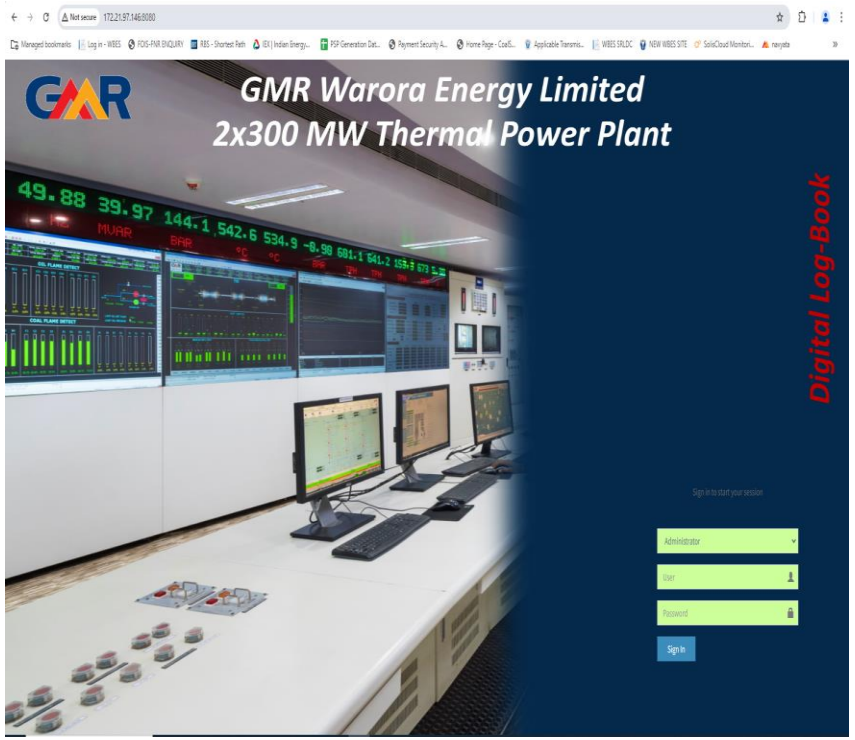


Phase-1 Journey (Control Room Logbooks)

Improved Accessibility

For ease of filling logbooks for departments like CHP, AHP, electrical and chemistry desktop application provided from which logbook can be filled.

- **Desktop application provided for logbook filling**
- **Logbook can be accessed from desktop**



GMR WARORA ENERGY LTD
2x300 MW

GWEL/IMS/PRO/09/09.8.1.1 | **DAILY C&I REPORT** | Date : 20/08/24

S.N.	Shift	Engineer Name	Time(F-T)	AREA	EQUIPMENT NAME	JOB DESCRIPTION	ACTION TAKEN	SPARES USED	STATUS
1	A	Makireddy Mahesh	13:42-13:42	U1	MRHS	MRHS bucket elevator trip on ZSS fault.	After trip operation taken trail but bucket elevator tripled on zss fault. checking under progress.	nil	Under Progress
2	A	Makireddy Mahesh	13:47-13:47	U1	Boiler	1M Plan BC (BC1 to BC4) Layer Instrument	shift. PTW will be issued in night	nil	Pending
3	B	Bora Vamsi Krishna	18:08-18:08	U1	MILL- 1C,D	PA SA DP TX's Values having deviation	Impulse line flushing done ,Now Values Ok	NIL	Completed
4	B	Bora Vamsi Krishna	18:10-18:10	U1	MRHS	MRHS Got trip on BE ZSS	Check and found that Target plate got Damage ,Same Welding done By BMD, Trail taken along with Operation found ok taken in Service ,Repeated issue same informed to Operation as per Operation&BMD Wheel Target Plate alignment will be done in Night Shift ,Please Follow Up.	NIL	Under Progress
5	C	Pradeep Pawar	2:00-6:28	U2	BC1 Flame scanner	BC1 Flame scanner remove	BC1 Flame scanner remove & normalize back after the BMD work completed.	Nil	Completed
6	C	Pradeep Pawar	3:00-6:29	U2	Seal oil DC motor DP switch 20MKW05CP401L	Seal oil DC motor DP switch 20MKW05CP401L False ACTED	Seal oil DC motor DP switch 20MKW05CP401L cable was short condition so same to corrected now switch is in healthy condition.	NIL	Completed

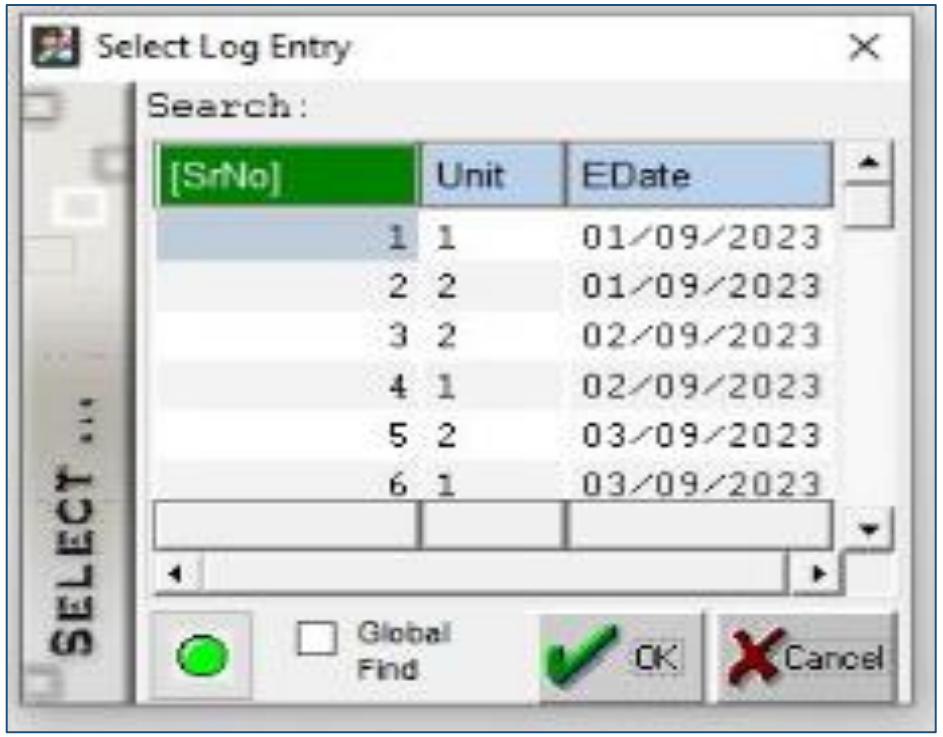
EQUIPMENT HEALTHINESS STATUS

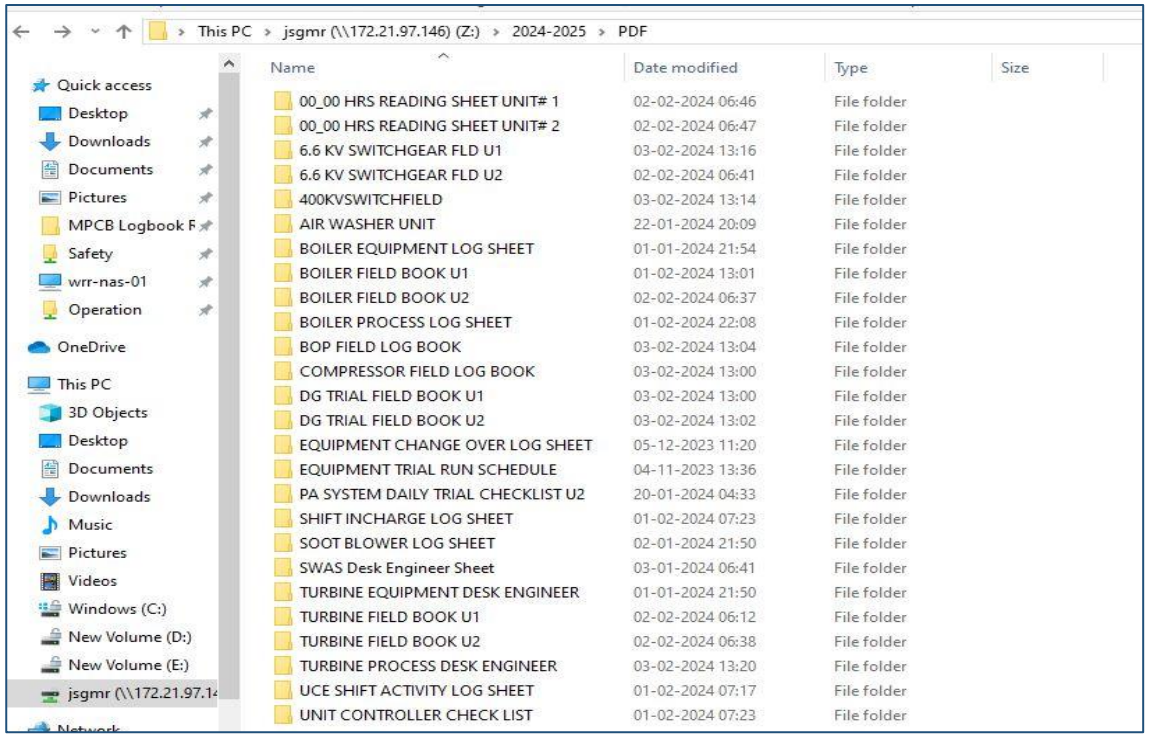
UNIT 1		UNIT 2		COMMON		WTP		AHP		CHP	
DCS - EWS	OK	DCS - EWS	OK	FOPH RIO Comm.	OK	WTP PLC	OK	Magaldi PLC	OK	CHP PLC	OK
DCS - PGP SERVER	OK	DCS - PGP SERVER	OK	CWP RIO Comm.	OK	WTP SCADA	OK	Magaldi SCADA	OK	CHP SCADA	OK
TSI	OK	TSI	OK	Water Balancing SCADA	OK	PT Plant PLC	OK	AHP PLC	OK	WT PLC	OK
DEH	OK	DEH	OK	Chemical Dosing	OK	Chlorination PLC	OK	AHP SCADA	OK	WT SCADA	OK
PDB	OK	PDB	OK	MPCB Data	OK	Fire Fighting PLC	OK			SR PLC	OK
MRHS	OK	MRHS	OK	CPCB Data	OK	HVAC PLC	OK			SR SCADA	OK
VMS SYSTEM	OK	VMS SYSTEM	OK								
ESP PLC	OK	ESP PLC	OK								

REMARKS :

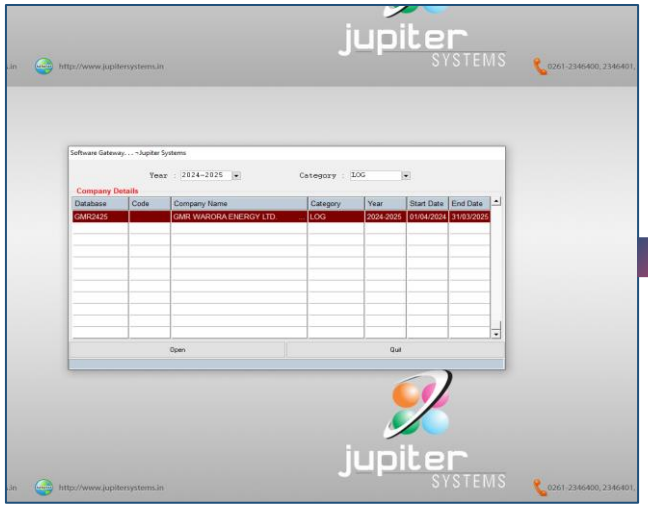
DIGITAL LOGBOOK HISTORY ACCESS

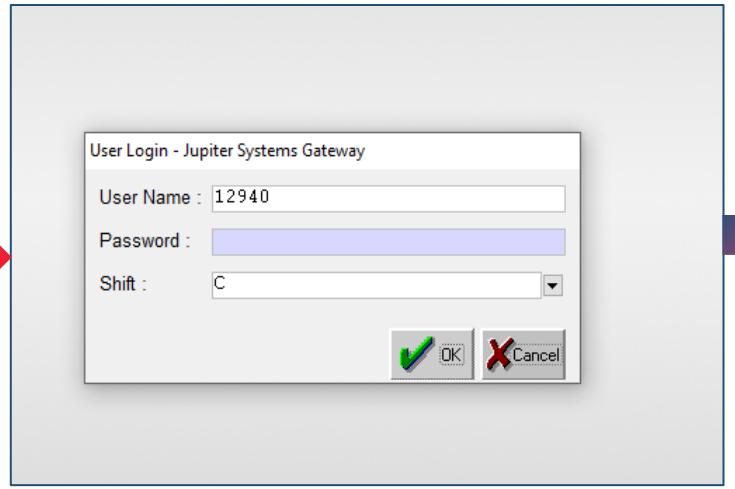
GWEL Digital logbook history access

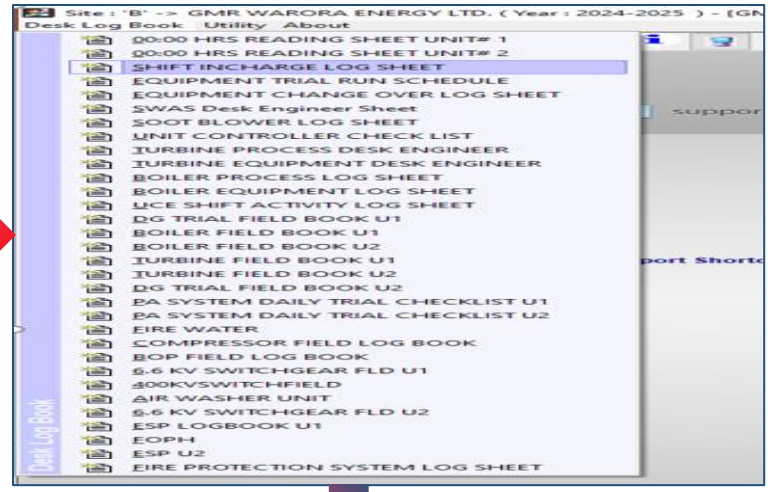


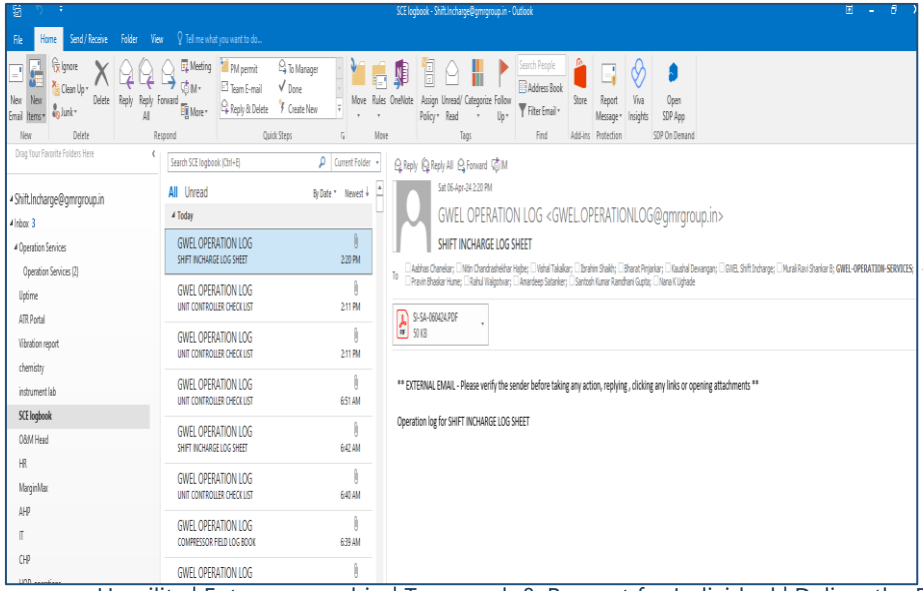


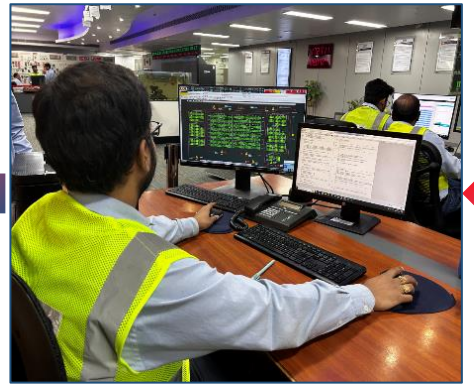
Digitalization of CCR Logbooks

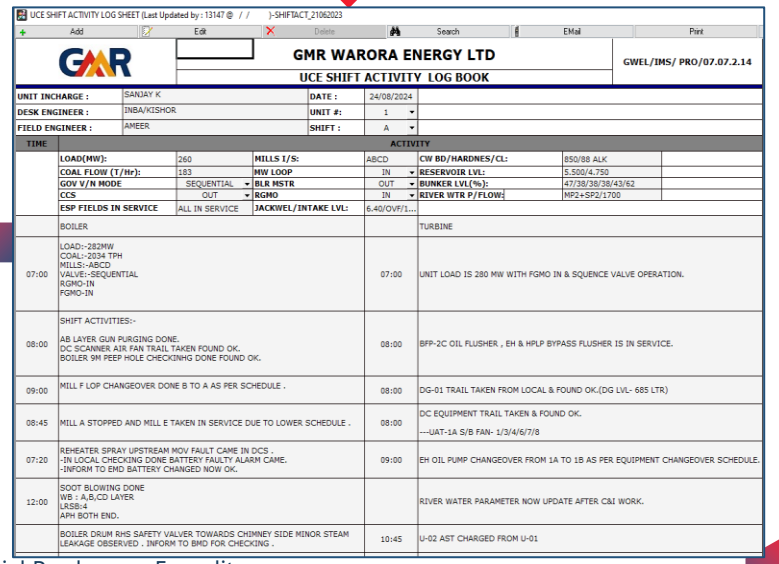






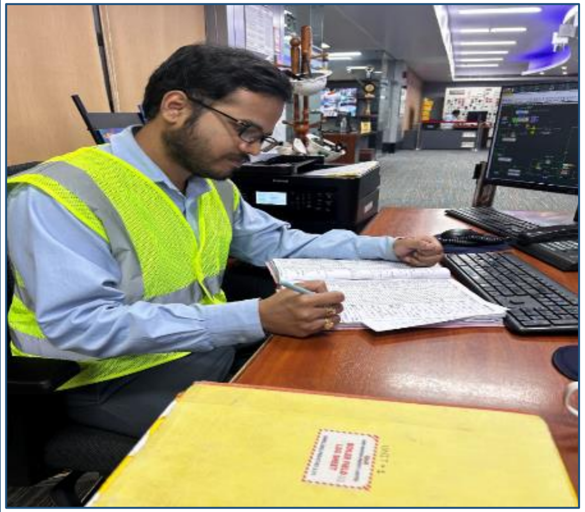


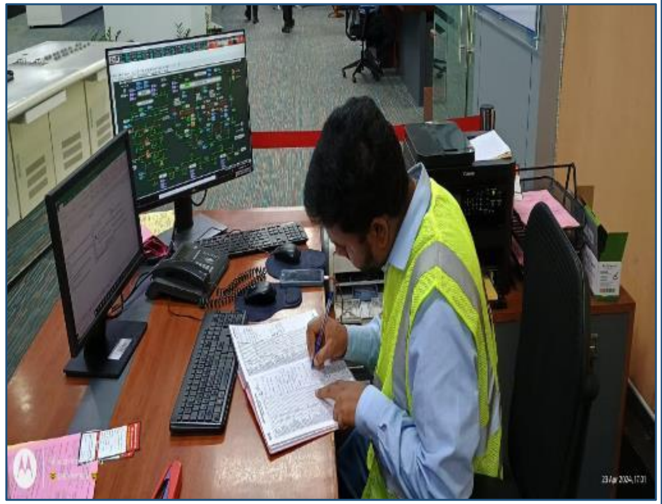


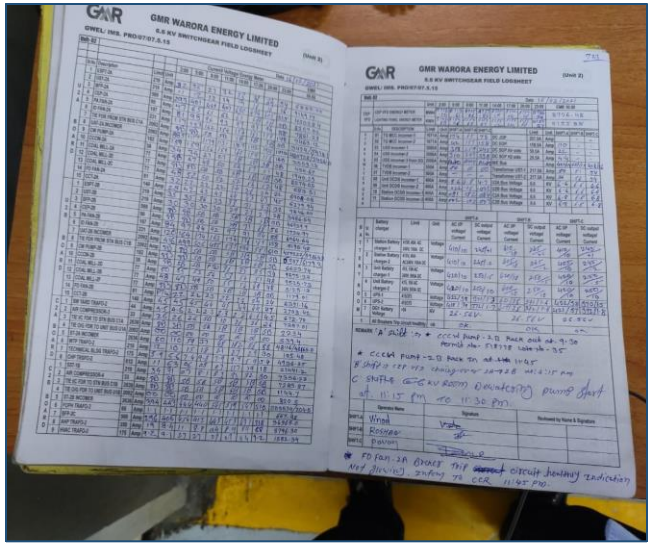


Digitalization of CCR Logbooks

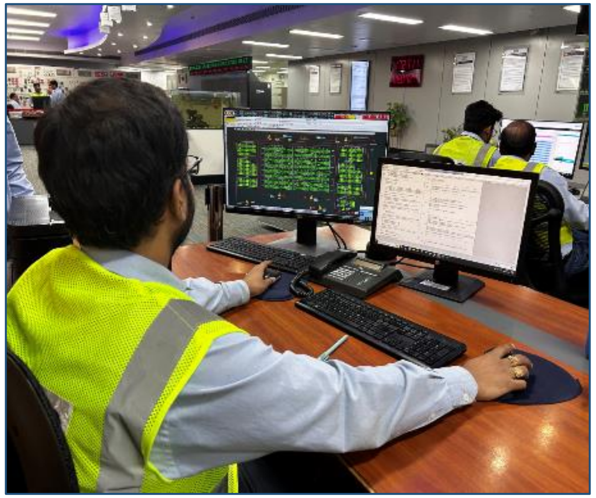
BEFORE

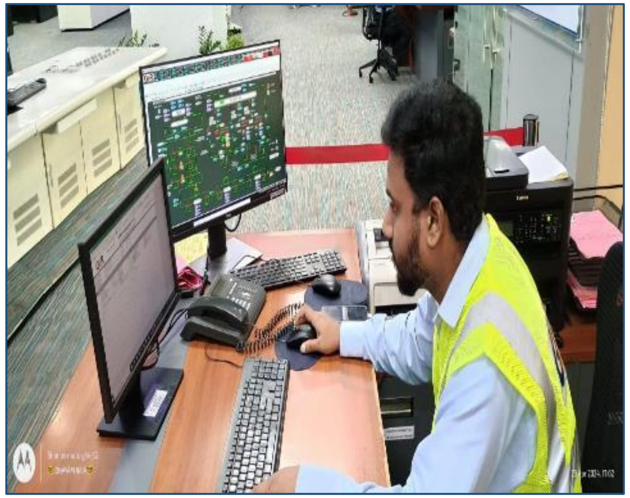


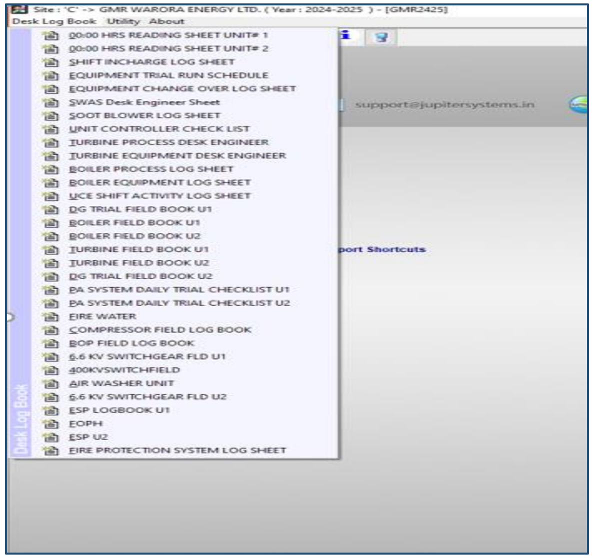


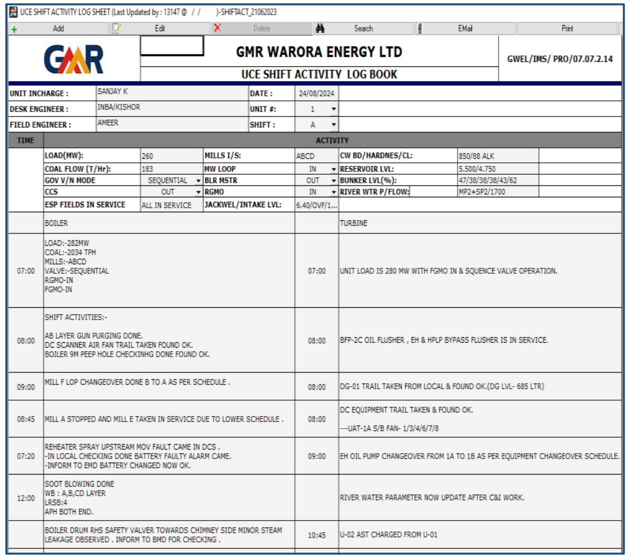


AFTER









Sample DCS Logbook

BOILER PROCESS LOG SHEET-BPDESKENGG_26102023

Add Information...

GMR WARORA ENERGY LTD

DESK ENGINEER BOILER PROCESS LOG BOOK

GWEL/IMS/PRO/07/07.3.11

UNIT : | DATE : 19/08/2024

SHIFT / TIME	UNIT	LIMIT	A 08:00	A 12:00	B 15:00	B 19:00	C 23:00	C 03:00
DRUM PRESS	BAR	100 to 180						
MS FLOW	T/Hr	320 to 950						
FW FLOW	T/Hr	450 to 1100						
TOTAL AIR FLOW	T/Hr	400 to 1300						
TOTAL COAL FLOW	T/Hr	90 to 220						
SUPER HEATER SPARY 1	T/Hr	<40						
SUPER HEATER SPARY 2	T/Hr	<10						
RH SPARY LHS	T/Hr	<20						
RS SPARY RHS	T/Hr	<20						
MAIN STEAM TEMP	°C	530 to 541						
REHEATER TEMP LHS	°C	530 to 541						
REHEATER TEMP RHS	°C	530 to 541						
FGT APH A INLET	°C	<320						
FGT APH B INLET	°C	<320						
FGT APH A OUTLET	°C	120 to 150						
FGT APH B OUTLET	°C	120 to 150						
SPM / DUST	mg/Nm³	<50						
SOX	mg/Nm³	<600						
NOX	mg/Nm³	<450						
FURNACE PRESSURE	Pa	-120 to 20						
WIND BOX DP	mBar	4 to 8						
APH A INLET O2 %	%	2 to 6						
APH A OUTLET O2 %	%	2 to 6						
APH B INLET O2 %	%	2 to 6						
APH B OUTLET O2 %	%	2 to 6						
INSTRUMENT AIR PRESS	Kg/Cm²	4.0 to 7.0						
SERVICE AIR PRESS	Kg/Cm²	3.0 to 7.0						

STATUS OF AUXILIARES

SHIFT	A		B		C	
EQUIPMENT	PASS A	PASS B	PASS A	PASS B	PASS A	PASS B
APH						
APH LOP SB						
APH LOP GB						
ID FAN						
FD FAN						
FD FAN LOP						
PA FAN						
PA FAN LOP						
SEAL AIR FAN						
SCANNER AIR FAN						
MILLS IN SERVICE						
REJECT STATUS						

EQUIPMENT AVAILABLE/NOT AVAILABLE

SHIFT	A	B	C
ESP FIELD			
RAPPING MTR			
SOOT BLOWERS			
IBD PIT PUMP & LEVEL			
LDO FWRD PUMPS			
MRHS SILO LEVEL & TEMP			
BOTTOM ASH SYSTEM			
ESP HEATERS			
BLR TUBE LEAK STATUS			
NH3 STOCK			

FUEL CONSUMPTION

SHIFT	A	B	C	
1) SHIFT COAL CONSUMPTION				TONS
2) SHIFT OIL CONSUMPTION				KL

MAX METAL TEMP °C

SHIFT	LTSH	PSH	FSH	RH
	350 to 440	470 to 500	520 to 541	520 to 541
A				
B				
C				

MILL BUNKER LEVEL %

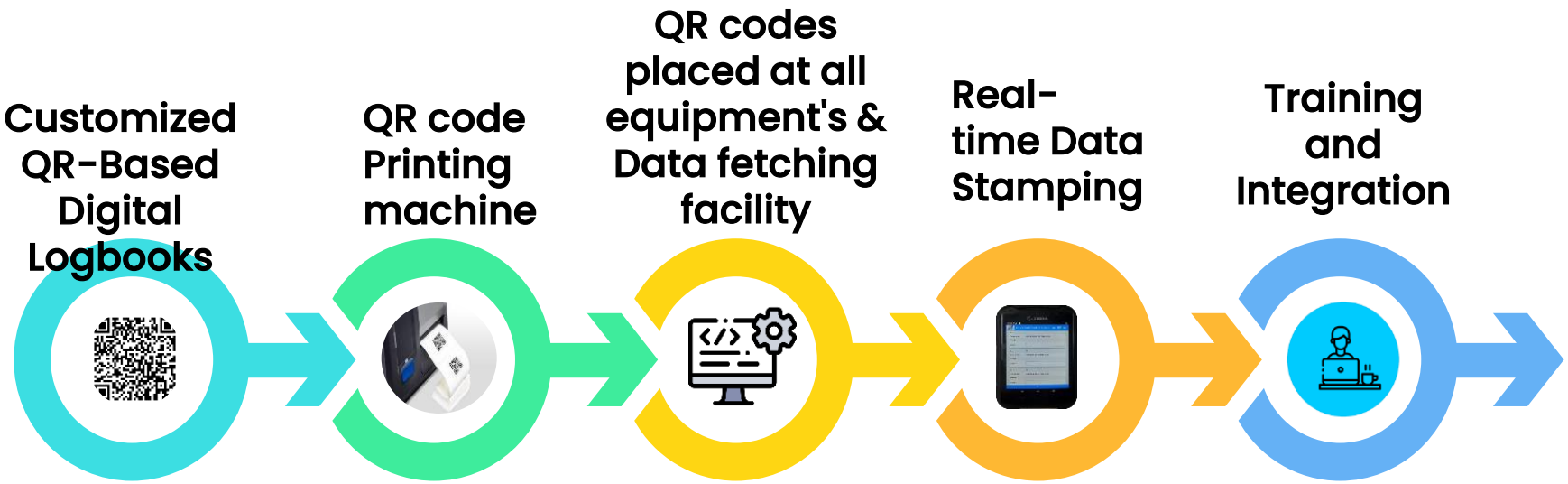
A	B	C	D	E	F

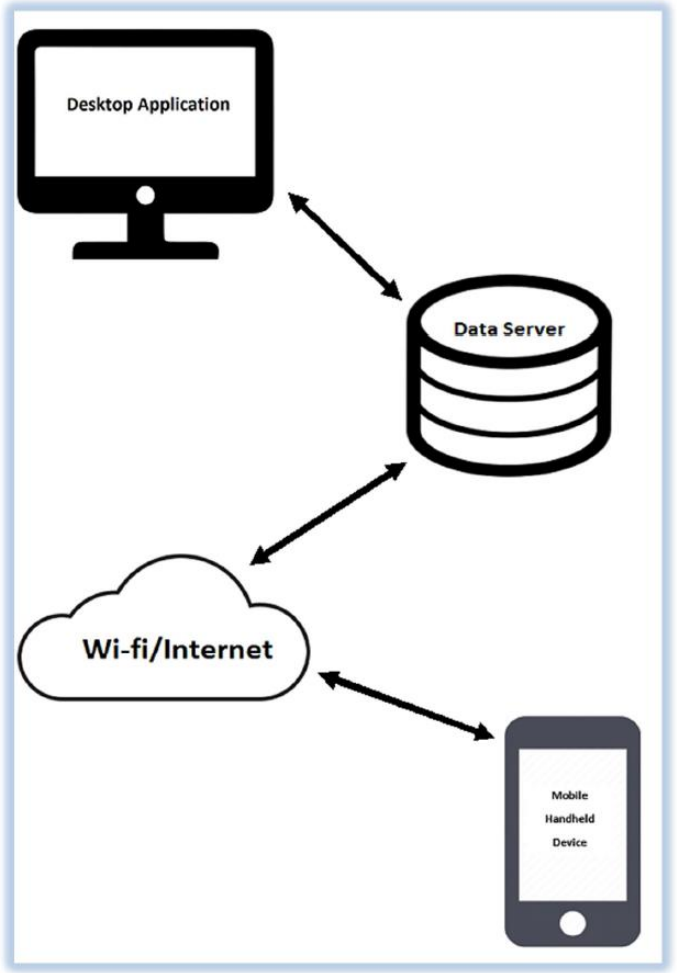
CONTROL	ID FAN		FD FAN		PA FAN		SH SPRAY		RH SPRAY		SADC	APRDS
STATUS	A	B	A	B	A	B	1st	2nd	LHS	RHS		
SHIFT A												

Digitalization Strategy

In Phase-II digitalizing field logbooks is challenging journey for GWEL, In the Second phase, the team focuses on digitalizing the all-field logbooks.

Phase-2 Journey (Field Logbooks)





In phase-II Total 17 field log books are digitalized through QR code scan-based logbook filling

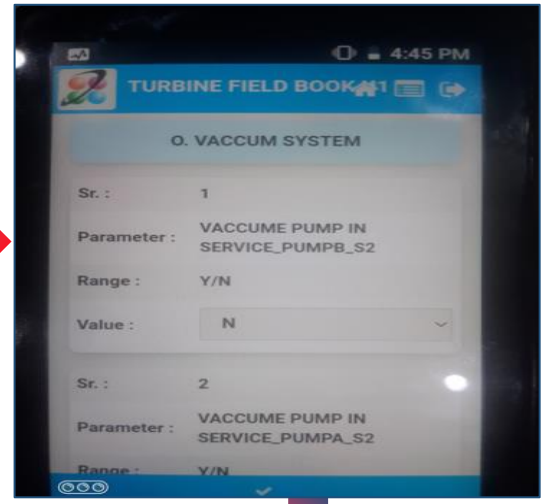
Digitalization Strategy

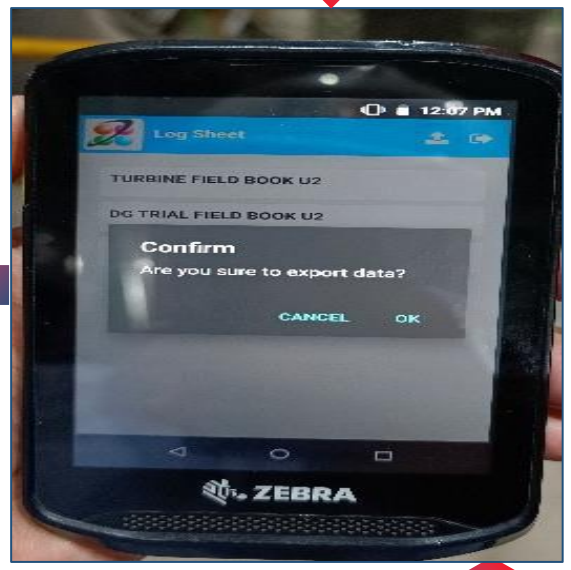
Following are challenges faced during digitalizing field logbooks:

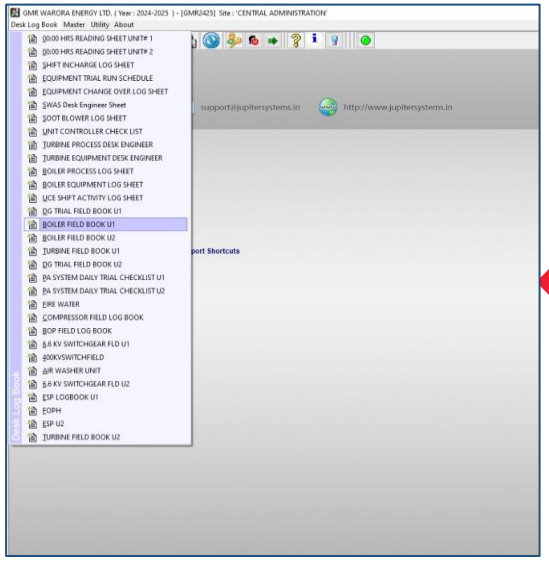
Solution	Challenges Faced
Barcode scanning	• Data authenticity • Log time • Field round
Handheld Mobile device	• Ease of data entry • Logbook filling • Equipment durability
Local area WIFI connection	• Data management • Data communication • Data Security

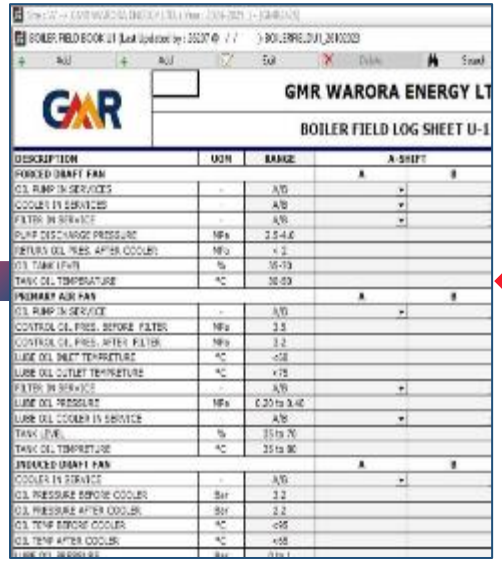
In phase-II Total 17 field logbooks are digitalized through QR code scan-based logbook filling

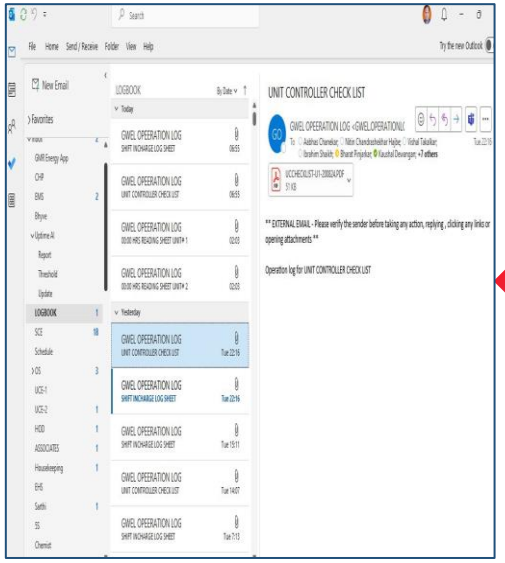
Phase-2 Journey (Field Logbooks)









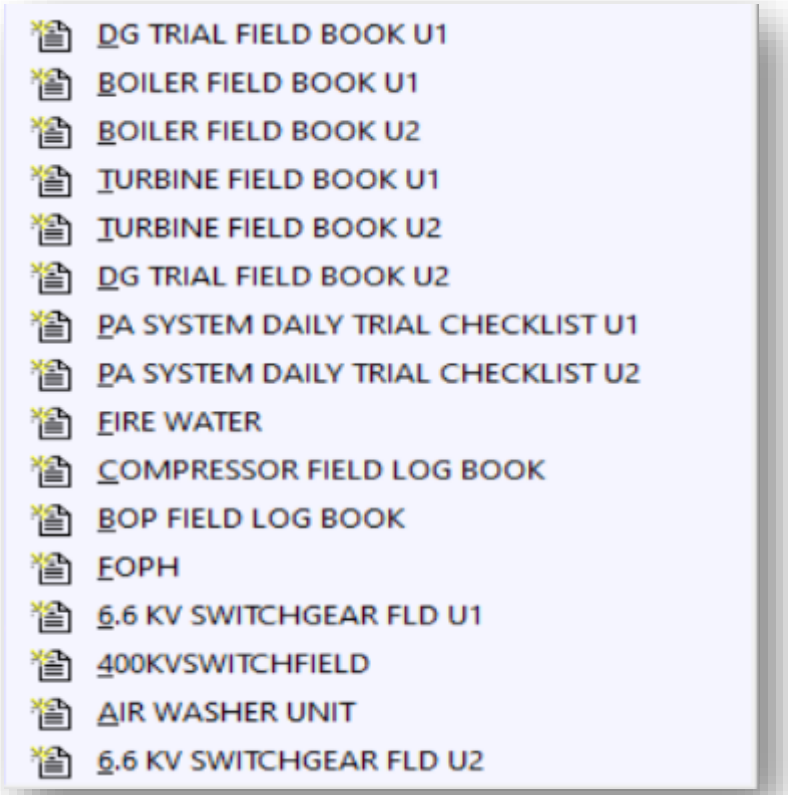


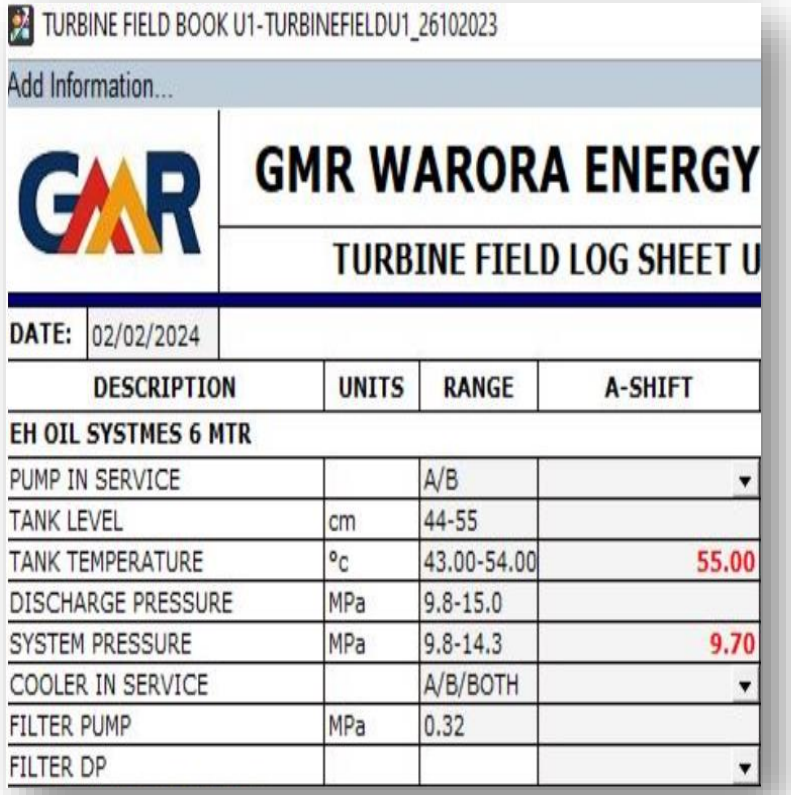
Phase-2 Journey (Field Logbooks)

Customized QR-Based Digital

Introducing a QR code-based solution for field logbook entry in Phase-II of the digitalization journey for (GWEL) operations is a commendable initiative to address the challenges associated with manual data entry and the potential for errors. This innovative solution enhance accuracy, streamline data collection, and improve overall Field operational efficiency.

- **The shift-wise data entry system created**
- **Equipment Parameter Normal Range configured**





DESCRIPTION	UNITS	RANGE	A-SHIFT
EH OIL SYSTMES 6 MTR			
PUMP IN SERVICE		A/B	
TANK LEVEL	cm	44-55	
TANK TEMPERATURE	°c	43.00-54.00	55.00
DISCHARGE PRESSURE	MPa	9.8-15.0	
SYSTEM PRESSURE	MPa	9.8-14.3	9.70
COOLER IN SERVICE		A/B/BOTH	
FILTER PUMP	MPa	0.32	
FILTER DP			

Phase-2 Journey (Field Logbooks)

QR Code Printing machine

Provide flexibility in QR code design and content to accommodate diverse operational needs and ensure high print quality to guarantee the readability and scanning reliability of QR codes in various operational conditions.

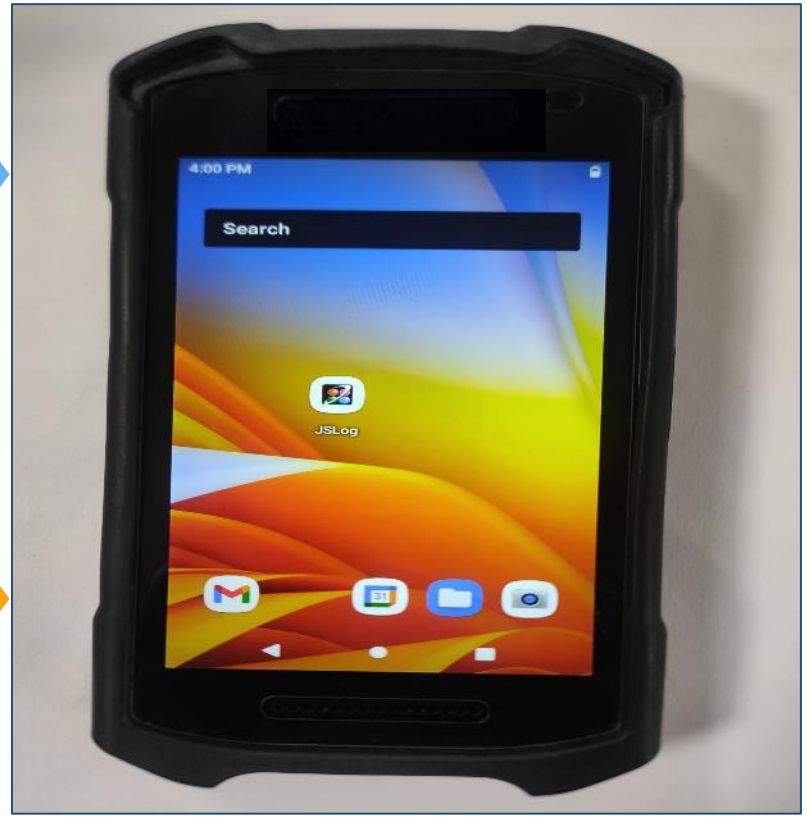
- ❖ **QR codes prepared for individual equipment's**
- ❖ **QR code Printing machine**
- ❖ **QR codes stickers are placed at all equipment's**

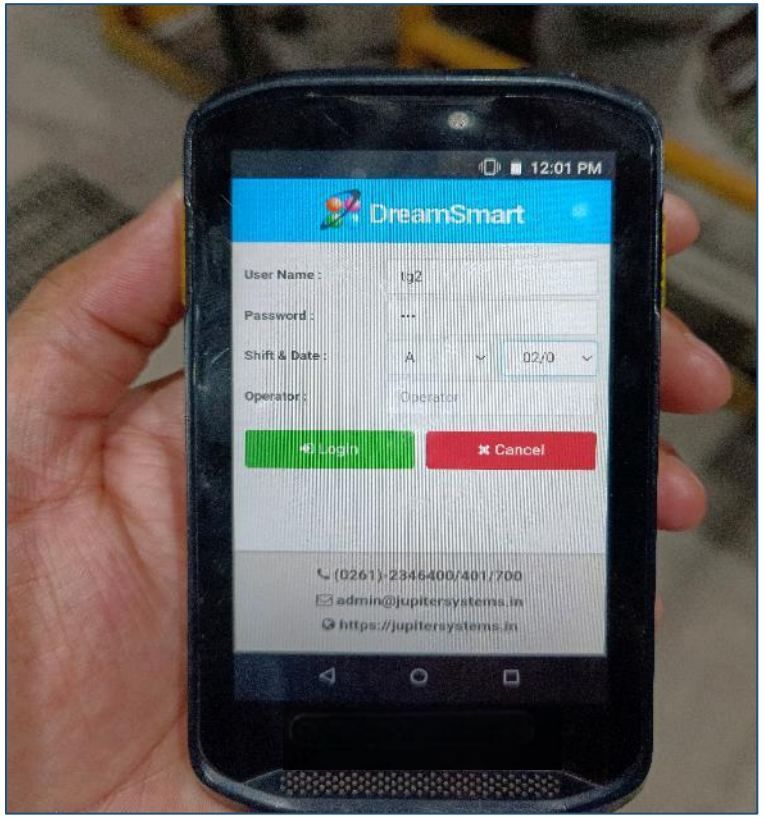
Phase-2 Journey (Field Logbooks)

Real-time Data Stamping Device

The use of QR codes significantly reduces the likelihood of errors during data entry. By scanning the QR codes on individual equipment, field operators can ensure that the parameters recorded are directly associated with the specific equipment, minimizing the risk of discrepancies.

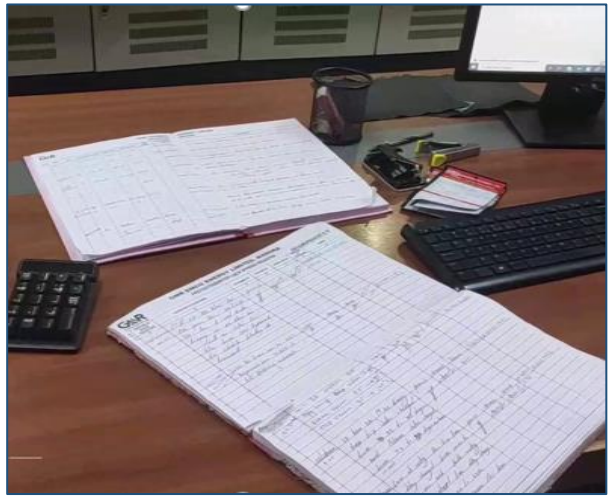
- **The mobile-compatible devices with installed software**
- **Device has an individual field engineer login**



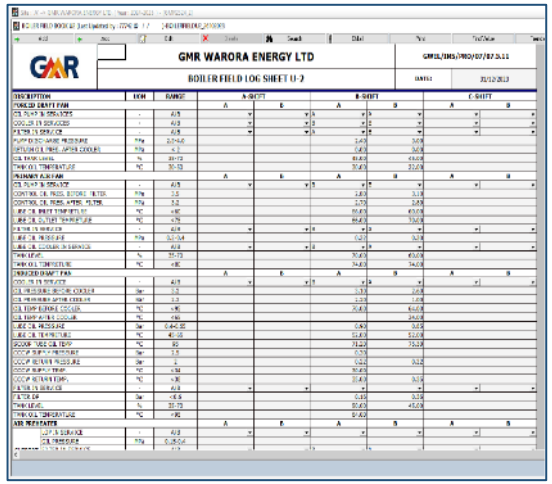


Phase-2 Journey (Field Logbooks)

BEFORE



AFTER



Sample Field Logbook

Site : 'A' -> GMR WARORA ENERGY LTD. [Year : 2024-2025] - [GMR2324_2]

BOILER FIELD BOOK U2 (Last Updated by : 77742 @ / /)-BOILERFIELDU2_26102023

Add | Add | Edit | Delete | Search | EMail | Print | Find Value | Trends

GMR WARORA ENERGY LTD

BOILER FIELD LOG SHEET U-2

GWEL/IMS/PRO/07/07.5.11

DATE: 31/12/2023

DISCRIPTION	UOM	RANGE	A-SHIFT		B-SHIFT		C-SHIFT	
FORCED DRAFT FAN			A	B	A	B	A	B
OIL PUMP IN SERVICES	-	A/B			A	A		
COOLER IN SERVICES	-	A/B			B	B		
FILTER IN SERVICE	-	A/B			A	B		
PUMP DISCHARGE PRESSURE	MPa	2.5-4.0			2.40	3.00		
RETURN OIL PRES. AFTER COOLER	MPa	< 2			0.00	0.00		
OIL TANK LEVEL	%	35-70			45.00	45.00		
TANK OIL TEMPERATURE	°C	30-50			30.00	32.00		
PRIMARY AIR FAN			A	B	A	B	A	B
OIL PUMP IN SERVICE	-	A/B			B	B		
CONTROL OIL PRES. BEFORE FILTER	MPa	3.5			2.80	3.10		
CONTROL OIL PRES. AFTER FILTER	MPa	3.2			2.70	2.80		
LUBE OIL INLET TEMPRETURE	°C	<60			66.00	60.00		
LUBE OIL OUTLET TEMPRETURE	°C	<75			66.00	70.00		
FILTER IN SERVICE	-	A/B			B	A		
LUBE OIL PRESSURE	MPa	0.2-0.4			0.32	0.30		
LUBE OIL COOLER IN SERVICE	-	A/B			B	A		
TANK LEVEL	%	35-70			70.00	60.00		
TANK OIL TEMPRETURE	°C	<80			74.00	74.00		
INDUCED DRAFT FAN			A	B	A	B	A	B
COOLER IN SERVICE	-	A/B			B	A		
OIL PRESSURE BEFORE COOLER	Bar	3.2			3.10	2.60		
OIL PRESSURE AFTER COOLER	Bar	2.2			2.20	1.00		
OIL TEMP BEFORE COOLER	°C	<95			70.00	64.00		
OIL TEMP AFTER COOLER	°C	<65				34.00		
LUBE OIL PRESSURE	Bar	0.4-0.65			0.90	0.85		
LUBE OIL TEMPRETURE	°C	45-65			52.00	52.00		
SCOOP TUBE OIL TEMP	°C	95			71.20	75.30		
CCCW SUPPLY PRESSURE	Bar	2.5			0.30			
CCCW RETURN PRESSURE	Bar	2			0.22	0.22		
CCCW SUPPLY TEMP.	°C	<34			30.00			
CCCW RETURN TEMP.	°C	<38			35.00	0.35		
FILTER IN SERVICE	-	A/B						
FILTER DP	Bar	<0.6			0.16	0.36		
TANK LEVEL	%	35-70			50.00	45.00		
TANK OIL TEMPERATURE	°C	<95			64.00			
AIR PREHEATER			A	B	A	B	A	B
LOP IN SERVICE	-	A/B						
OIL PRESSURE	MPa	0.15-0.4						

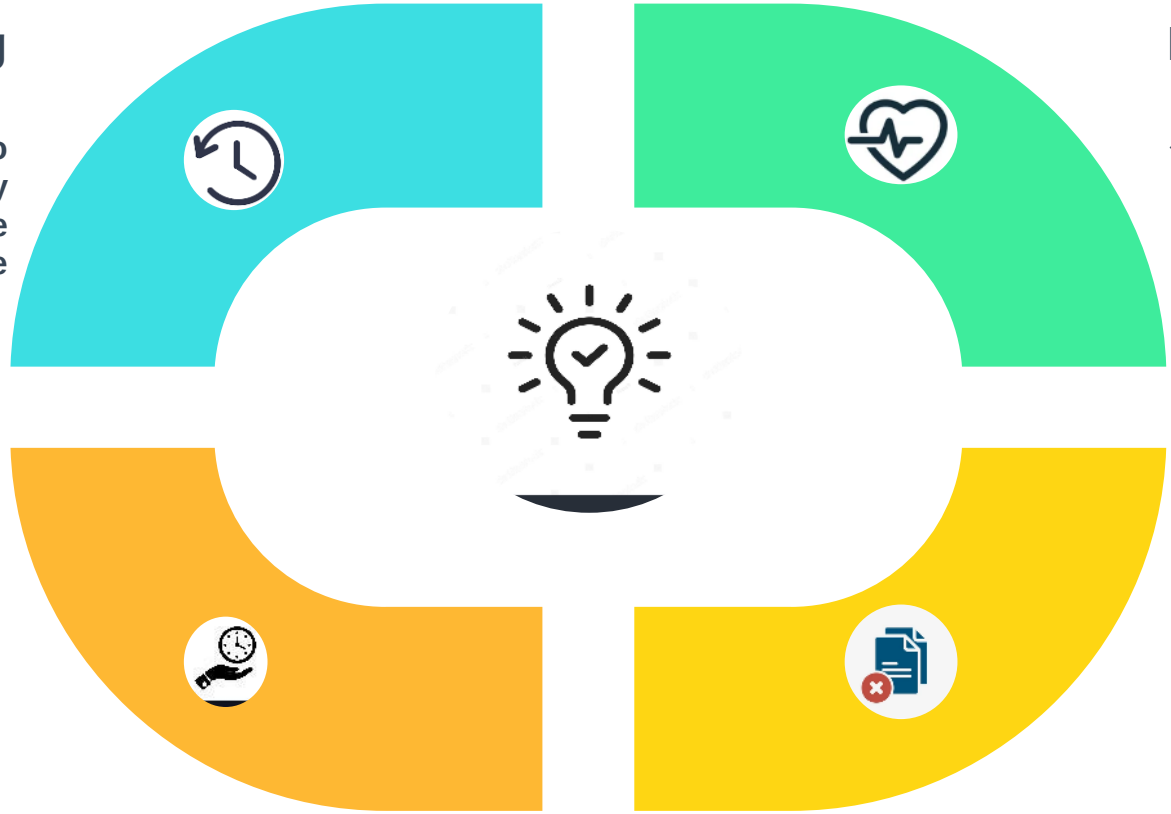
Sample Boiler Field log book

Phase-2 Journey (Field Logbooks)

Efficiency in Field Rounds

Real-time Data Stamping

- Field operators no longer need to memorize parameters or manually write them down before transferring the information to the logbook



Equipment Healthiness

- Ensure Equipment parameters are in the normal operating range

Time saving

- Time saving and utilize in other activities

Prevent from Data duplication

- Errors in handwritten logs can result in misinterpretation and mistakes in decision – making processes

Phase-2 Journey (Field Logbooks)

Training and Integration

We provide training to all main plant control room engineers for well-versed in using the Digital logbooks software and enhances user adoption and minimizes disruptions during the transition.

- **Training Provided to all main plant operation team and associates**
- **Knowledge sharing to sister company GMR Kamlanga energy ltd.**
- **Digital logbook user access SOP prepared and integrated in management system.**

Digital logbook Procedure in GWEL

Field Operator	Desk Operator	Unit controller	Shift Incharge
• Scan QR code and Enters values in zebra device • Transfer the file in computer • Create logbooks data automatically enter into system • Digital Log book Review -1 by: Desk engineer • Digital Log book Review -2 by: Unit controller	• Fill Digital Desk log books (Boiler and turbine) • Review the field logbooks • Digital Log book Review-1 by: Unit controller • Digital Log book Review -2 by: Shift Incharge	• Review the desk operator logbook, enter comments if required • Fill digital UC checklist and logbook • Digital Log book Review by: Shift Incharge • Click on Field and desk logbooks mail option, automatically mail trigger to all assigned team and document saved in assigned folder	• Fill SCE logbook and review Unit control logbooks • Click on UC and SCE logbooks mail option, automatically mail trigger to all assigned team and document saved in assigned folder

Conclusion

Best Practices In GWEL Thermal Power Plant For Logbook Management

- **We achieved Paperless Process**

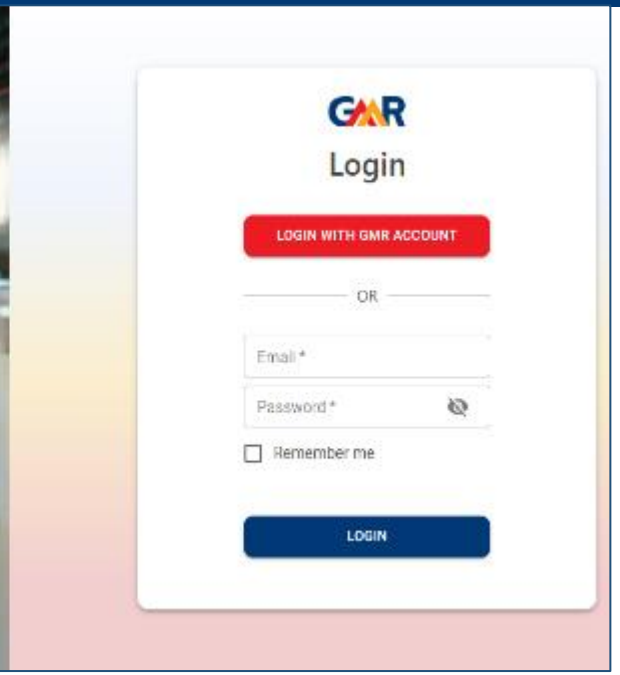
GWEL has established a user-friendly digital platform for the submission of logbook data, eliminating the need for paper-based processes. **As of now GWEL total 47 Main plant and BOP area log books are digitalized and saved more than 1 lakh sheets of papers.**

- **Data Security Measures and Privacy**

Digital log book application is purely TCP-IP network-based desktop application with multi-tasking, multi user (no limitation for application users) support. TCP/IP stands for Transmission Control Protocol/Internet Protocol and is a suite of communication protocols used to interconnect network devices on the internet and it is having firewall setup.

The digitalization of all logbooks through advanced technologies like QR codes and centralized platforms not only enhances operational efficiency but also aligns with industry standards. Implementing these best Practices, GWEL Thermal Power Plants ensures a seamless transition to a paperless and digitally secure environment, promoting sustainable and reliable power generation.

Way Forward for Digitalization



- Integrating equipment's field sop, isolation and normalization checklists.
- Field Parameter history trend access
- Maintenance checklists.
- Expansion to other plants and units

Thank you