

Peru LNG's PM Optimization Journey

A Look Behind the Scenes

*Hever Garcia & David Diaz of Hunt LNG Operating Company, the operator of PERU LNG
Katherine Sanchez of MaxGrip*

- What does it *really* take to optimize preventive maintenance at a complex LNG facility? In this joint session, we reveal how a structured approach grounded in industry best practices helped improve preventive maintenance at PERU LNG, the first LNG export facility in South America. With rare transparency, we share key lessons learned, challenges overcome, and practical strategies for maintenance leaders looking to boost efficiency, safety, and performance.

Presenters



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Introductions

Project Overview

Project Motivation

Phase 1 Project Plan & Deliverables

Lessons Learned

Phase 2 Project Plan & Deliverables

Value Added

MaxGrip Helps Your Plant Run Better

Independent consultancy firm in Asset Performance Management since 1997

We connect people and tech in FMCG, Oil & Gas, Chemical, Power & Utilities and manufacturing

Domain expertise with experience in organizational change



Peru LNG

- PERU LNG is the owner of the first natural gas liquefaction plant in South America with a nominal capacity of 4.4 million tons of LNG per year.
- PERU LNG's Plant is operated by Hunt LNG Operating Company.
- Opportunity discovered during Hunt LNG's effectiveness benchmark study
- PMO Project objective is to review and optimize your maintenance strategies to increase maintenance efficiency
- Two phased approach



Project Motivation

- Streamline the process
- Centralized data
- Optimize maintenance, continuous improvement
- Safety and Compliance control

Benefit:

Enhance transparency and improve data-driven decisions across operations. Identify inefficiencies and optimize performance, leading to cost savings



PMO Program Objectives Phase 1



PMO Phase 1 Deliverables

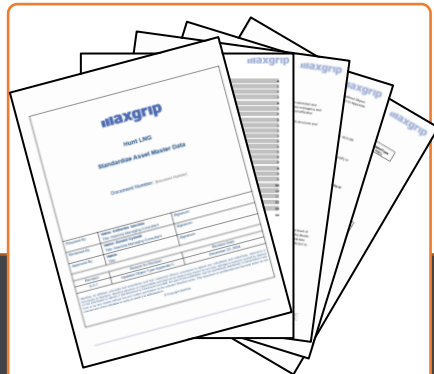
Step 1
Asset data quality review

Step 2
Maintenance strategy updates

Step 3
Performance standards updates

Step 4
RCM - reliability centered maintenance

Step 5
SAP PM alignment and optimization



Hunt LNG Standardize Asset Mater Data Policy

SAP Deployed FLOCs

MaxGrid Reliability Strategy Library

Plan de Trabajo Eléctrico para Motores Eléctricos de 3 Fases de 3411 y 3421 A/B

4.4 Aplica para los Rodamientos Motores EM-3411 A/B y EM-3421 A/B

CP	Descripción de la tarea	Frecuencia	1A	6A
4.4.1	Realizar la discriminación del cableado de fuerza, control, protección y alimentación eléctrica, retirar el acople y desmontar el motor para el servicio de taller.			X
4.4.2	Reemplazar los rodamientos y sellas mecánicas, limpiar internamente el motor.		X	
4.4.3	Realizar las pruebas de resistencia y resistencia de aislamiento de los devanados (100kVrms) con 500 Vrms por 1 minuto, ensamblar el motor y realizar una prueba en vacío en el taller.		X	
4.4.4	Medir el motor y realizar las conexiones de fuerza, control, protección y alimentación eléctrica de acuerdo a lo especificado.		X	

4.5 Aplica para los Motores DC

CP	Asesoramiento y limpieza	Frecuencia	1A	6A
4.5.1	Inspeccionar y limpiar las escobillas. Hay que asegurar de que las escobillas realicen un contacto adecuado con el grafito. Verificar el funcionamiento y las observaciones de la escobilla en estos dispositivos.		X	

Hunt PM Workplans

MaxGrid Reliability Strategy Library

Plan de trabajo para válvulas en forma de anillo HAFER-A/B de alta capacidad 10.100

3.3 Aplica para válvulas de la tabla de 2.2

CP	Descripción de la tarea	Frecuencia	1A	6A
3.3.1	Desmontar el motor de la válvula para la inspección.		X	
3.3.2	Revisar el estado de los componentes eléctricos.		X	
3.3.3	Revisar el estado de los componentes mecánicos.		X	

Hunt SCE Workplans

MaxGrid Reliability Strategy Library

Plan de trabajo para válvulas en forma de anillo de las Válvulas de Control de procesos.

Hunt RCMs

SAP Task list Import templates

Hunt's Optimized Maintenance Task Library

Task	Frequency	Category	Duration	Manpower	Priority	Condition
Measure the grounding resistance	MB	ELEC	0.5	1	Temperature	In operation
Thermographic inspection	MB	ELEC	0.5	1	Temperature	In operation
Perform monitoring with a gas leak detection camera (UL GAS FINDER)	MB	INSTR	0.5	1	Electrical	In operation
Monitoring of parameters in the control room contrasted with a local instrument (deviation of parameters)	MB	INSTR	0.5	1	Electrical	In operation
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What it really takes to execute PM optimization at a live LNG facility

Key Realities Faced:

- **Live Operations Pressure:** Optimization had to occur without disrupting critical LNG operations.
- **Team Misalignment:** Initial disconnect between MaxGrip and Hunt team.
- **Phase 1 vs. Phase 2:** Phase 1 lacked full engagement; Phase 2 saw a dedicated team emerge to support the initiative.

Execution Essentials:

- **Cross-functional Collaboration:** Required deep involvement from both client and consultant sides.
- **Effort Visibility:** Teams needed to understand the scope and depth of work—not just the deliverables.
- **Operational Integration:** Optimization had to be embedded into daily routines, not treated as a side project.

“Planning was easy—getting everyone to move in sync was the real challenge.”

Lessons Learned – Culture, Data & Communication

Cultural & Organizational Challenges:

- Resistance to change and legacy practices.
- Need for a shared language and clear definitions of technical terms and PMO structure.
- Building trust across Hunt and MaxGrip teams.

Data & Change Management Hurdles:

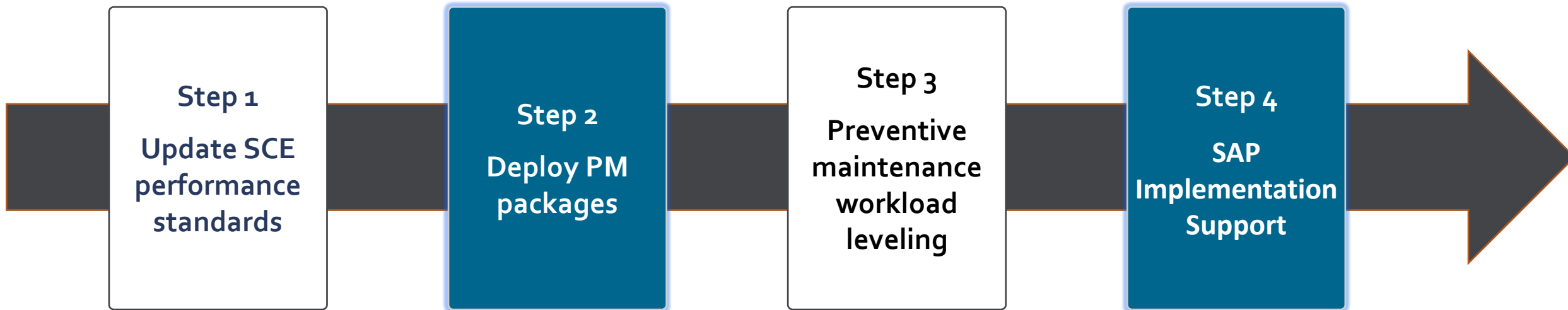
- Change fatigue—teams overwhelmed by simultaneous initiatives.
- Importance of phased implementation and visible wins.

Resource & Communication Alignment:

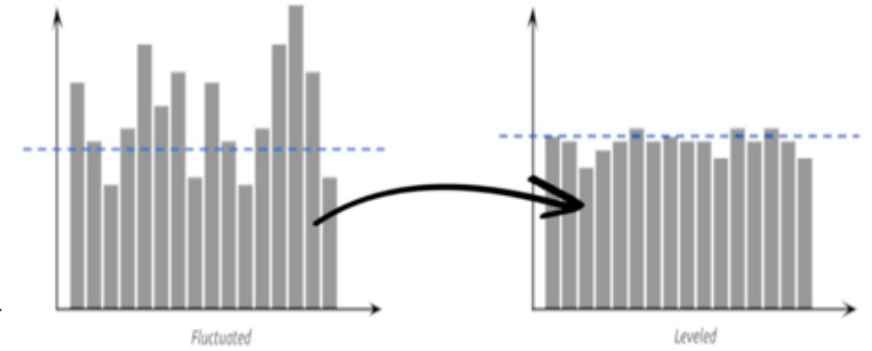
- Competing priorities across departments.
- Limited availability of SMEs and planners.
- Solution: Structured governance, weekly syncs, and role clarity.



PMO Program Objectives Phase 2



Goal of Phase 2 Implementation



Display General Task List: Header General View

Group: BTBK-E02 1M,EL,MAINTENANCE FREE UPS BATTERY BANKS

Group Counter: 1 1M,EL,MAINTENANCE FREE UPS BATTERY BANKS

Planning plant: 0550

Assignments to Header:

Work Center: ELEC-SUP / 0550 Electrical Supervisor

Usage: 4 Plant maintenance

Planner group: ELE Electrical Planner

Status: 4 Released (general)

System Condition: 5 Equipment Running

Maintenance strategy: TIME PLUG Time Based

QM Data:

Inspection points: []

Ext. numbering: []

Display Task Lists: List of Task Lists

S	Group	Task list description
A	BRDT-M01 2	1Y,ME,DELTA BARRIER (MAIN GATE)
A	BTBK-E01 1	1M,EL,MAINTENANCE FREE BC BATTERY BANKS
A	BTBK-E01 2	1Y,EL,MAINTENANCE FREE BC BATTERY BANKS
A	BTBK-E01 3	2Y,EL,MAINTENANCE FREE BC BATTERY BANKS
A	BTBK-E01 4	1Y,EL,MAINTENANCE FREE BC BATTERY BANKS
A	BTBK-E01 5	1Y,EL,MAINTENANCE FREE BC BATTERY BANKS
A	BTBK-E01 6	1Y,EL,MAINTENANCE FREE BC BATTERY BANKS
A	BTBK-E01 7	1Y,EL,MAINTENANCE FREE BC BATTERY BANKS
A	BTBK-E02 1	1M,EL,MAINTENANCE FREE UPS BATTERY BANKS
A	BTBK-E02 2	1Y,EL,MAINTENANCE FREE UPS BATTERY BANKS
A	BTBK-E02 3	2Y,EL,MAINTENANCE FREE UPS BATTERY BANKS
A	BTBK-E03 1	1M,EL,WET CELLS BC BATTERY BANKS
A	BTBK-E03 2	6M,EL,WET CELLS BC BATTERY BANKS
A	BTBK-E03 3	1Y,EL,WET CELLS BC BATTERY BANKS
A	BTBK-E03 4	20Y,EL,WET CELLS BC BATTERY BANKS
A	BTBK-E04 3	10Y,EL, BATTERY BANKS LEAD ACID TYPE
A	BTBK-E04 4	1Y,EL, BATTERY BANKS LEAD ACID TYPE
A	BTBK-E04 5	6M,EL, BATTERY BANKS LEAD ACID TYPE
A	BTOH-E01 1	1M,EL,BATTERY CHARGERS
A	BTOH-E01 2	2Y,EL,BATTERY CHARGERS
A	BTOH-E01 3	2Y,EL,BATTERY CHARGERS
A	BTOH-E01 4	2Y,EL,BATTERY CHARGERS
A	BTTB-E01 1	6M,EL,F&G BPS Battery Chargers
A	BTTB-E01 2	1Y,EL,F&G BPS Battery Chargers
A	BTTB-E01 3	10Y,ELE,F&G BPS BATTERY CHARGERS
A	BTTB-E02 1	6M,ELE, Battery charges
A	BTTB-E02 2	1Y,ELE, Battery charges
A	BTTB-E02 3	10Y,ELE, Battery charges

SAP Task list

Deploy Task lists to FLOC in SAP

PMO Phase 2 Improvements

- Leveraged Phase 1 Task List Library to further optimize with equipment-specific details aligned with actual plant practices
- Developed custom SAP solutions to support massive PM upload or flexible scheduling (Z-transaction)
- Introduced intelligent scheduling logic — triggering PMs based on last Work Order execution for more realistic maintenance cycles.
- Standardized PM structure and naming across the plant, ensuring clarity, consistency, and easier SAP data interpretation.



Standardization of Task Lists, PMs, and M-Items

Problem:

Task List Groups, PMs, and M-Items were not standardized across the plant, making SAP data difficult to interpret.

Solution:

Established a unified structure for all maintenance plans, creating a clearer and more consistent framework that reflected the plant's real configuration and operational nuances.

Element	Example	Logic
PM #	T040TXFT1001	T = Train • 040 = Unit 4000 • TXFT = Flow Transmitter • 1001 = Sequential count
M-Item (Work Order)	3A,MEC,INSP TX FT-113025	3A = Frequency • MEC = Discipline • INSP TX FT = Activity + Equipment Tag

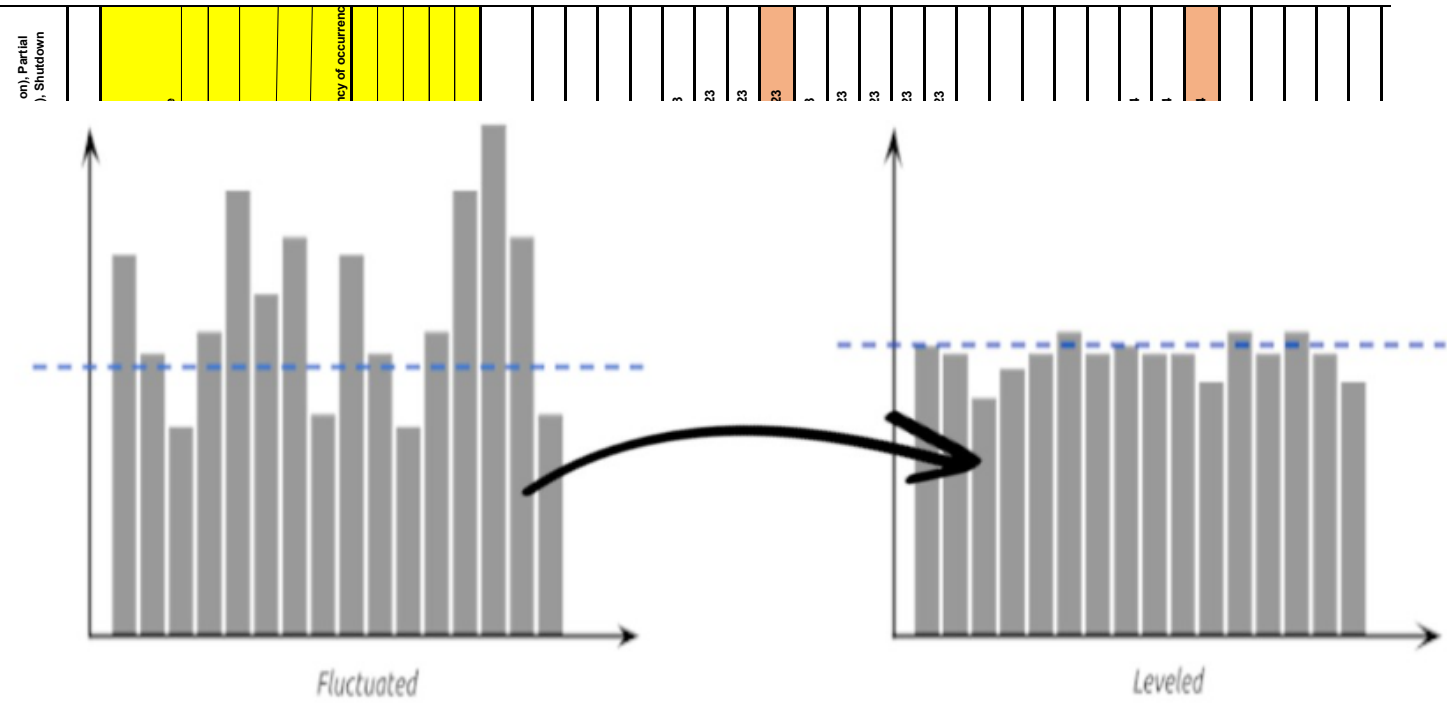
Result:

Consistent structure across SAP, easier search and reporting, and improved traceability.

Workload leveling

Job Plan Number	Route Number (Future Use)	PM Description	Equipment Type	Equipment tags assigned per WO	Criticality Classification
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Pusher Kline					
LINE WASTE SHUTDOWN HOURS					
SHUTDOWN HOURS					
ELECTRICAL HOURS					
CONTRACTOR HOURS					
TOTAL MANHOURS					
PT-000001		Monthly Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12300	C - Manageable
PT-000001		Monthly Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12301	C - Manageable
PT-000001		Monthly Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12004	B - Undesirable
PT-000001		Monthly Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12329	C - Manageable
PT-000001		Monthly Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PH-12005 (SHOULD BE	B - Undesirable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12002	C - Manageable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12003	C - Manageable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12008	C - Manageable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12009	C - Manageable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12004	B - Undesirable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PH-12005 (SHOULD BE	B - Undesirable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12300	C - Manageable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12301	C - Manageable
PT-000003		Semi-Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12329	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12002	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12003	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12008	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12009	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12004	B - Undesirable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PH-12005 (SHOULD BE	B - Undesirable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12204	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12300	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12301	C - Manageable
PT-000002		Annual Pressure transmitter Preventive Maintenance (PM)	Transmitter	12-PT-12329	C - Manageable
AE-000005		Daily Gas analyzer Operator rounds	Gas Analyzer	12-AE-76173	A - Unacceptable
AE-000004		Semi-Annual Gas analyzer Calibration	Gas Analyzer	12-AE-76173	A - Unacceptable
AE-000004		Semi-Annual Gas analyzer Calibration	Gas Analyzer	12-AE-76136	A - Unacceptable
AE-000004		Semi-Annual Gas analyzer Calibration	Gas Analyzer	12-AE-76137	A - Unacceptable
AE-000004		Semi-Annual Gas analyzer Calibration	Gas Analyzer	12-AE-76172	A - Unacceptable
AE-000004		Semi-Annual Gas analyzer Calibration	Gas Analyzer	12-AE-76174	A - Unacceptable
AE-000004		Semi-Annual Gas analyzer Calibration	Gas Analyzer	12-AE-76175	A - Unacceptable
AE-000006		Annual Gas analyzer Bump Test and Visual Inspection (CBM)	Gas Analyzer	12-AE-76173	A - Unacceptable
AE-000006		Annual Gas analyzer Bump Test and Visual Inspection (CBM)	Gas Analyzer	12-AE-76136	A - Unacceptable
AE-000006		Annual Gas analyzer Bump Test and Visual Inspection (CBM)	Gas Analyzer	12-AE-76137	A - Unacceptable
AE-000006		Annual Gas analyzer Bump Test and Visual Inspection (CBM)	Gas Analyzer	12-AE-76172	A - Unacceptable
AE-000006		Annual Gas analyzer Bump Test and Visual Inspection (CBM)	Gas Analyzer	12-AE-76174	A - Unacceptable
AE-000006		Annual Gas analyzer Bump Test and Visual Inspection (CBM)	Gas Analyzer	12-AE-76175	A - Unacceptable
AE-000007		2yrs Gas analyzer Sensor replacement (PM)	Gas Analyzer	12-AE-76173	A - Unacceptable
AE-000007		2yrs Gas analyzer Sensor replacement (PM)	Gas Analyzer	12-AE-76136	A - Unacceptable
AE-000007		2yrs Gas analyzer Sensor replacement (PM)	Gas Analyzer	12-AE-76137	A - Unacceptable
AE-000007		2yrs Gas analyzer Sensor replacement (PM)	Gas Analyzer	12-AE-76172	A - Unacceptable
AE-000007		2yrs Gas analyzer Sensor replacement (PM)	Gas Analyzer	12-AE-76174	A - Unacceptable
AE-000007		2yrs Gas analyzer Sensor replacement (PM)	Gas Analyzer	12-AE-76175	A - Unacceptable
MTR-000048		Daily Motor Operator Round	Motor	12-MTR-12511	C - Manageable
MTR-000047		Quarterly Motor Condition-based maintenance (CBM)	Motor	12-MTR-12511	C - Manageable
MTR-000049		1yr Motor Preventive Maintenance (PM)	Motor	12-MTR-12511	C - Manageable
EQP-000052		Daily Push Arm Operator Rounds	Pusher Arm	12-EQP-12511	C - Manageable



- FLOC
- PM Activity
- Maintenance Frequency of occurrence
- Total Manhours per Discipline
- Resource availability per Discipline

Key Results – Potential Value Added

ELECTRIC MOTORS Task Modification

Keep 39

Add 7

Modify 2

Remove 7

**Annual Labor
reduction = -19**

HVAC UNITS Task Modification

Keep 10

Add 2

**Annual Labor
increase = 3**

FAN Task Modification

Keep 17

Add 2

Modify 2

Remove 1

Labor Reduction = -37

Power Transformers Task Modification

Keep 7

Add 1

Modify 1

Remove 6

**Annual Labor
reduction = -2**

Upon approval in Phase 2 at the FLOC level calculating applicable FLOC based on the modify and remove potential savings is

Annual Labor reduction of 15k hours

Key Benefits Achieved

- Standardized naming conventions, processes and structures
- Optimize maintenance and drive continuous improvement
- Improved Data Integrity by enhanced SAP as the repository, this increased traceability of maintenance data increasing efficiency and reporting
- Simplified Operations by streamlined workload planning, scheduling, and reporting.



“True transformation doesn’t happen in the planning room—it happens in the field, with people committed to making change real.”

- This journey showed us that **collaboration, clarity, and commitment** are more powerful than any tool or framework.
- We’ve built more than a PMO—we’ve built a **shared understanding**, a **stronger team**, and a **foundation for continuous improvement**.
- The challenges were real, but so were the breakthroughs.
- With the right mindset and aligned teams, **optimization is not just possible—it’s sustainable**.



TALK TO THE MAXGRIP TEAM
Booth 317