



INDIAN OIL CORPORATION LIMITED


MARKETING DIVISION

ENGINEERING DEPARTMENT

Ver 1.0 (2024)

Date:

**ANALYTICS AND VISIBILITY DOCUMENT  
FOR  
TERMINAL AUTOMATION SYSTEM**

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	ANALYTICS AND VISIBILITY DOCUMENT FOR TERMINAL AUTOMATION SYSTEM (VER 1.0)	Ref: HO/ENG/TAS Date:

## OBJECTIVE

The primary objective is implementing an analytics solution and provide capabilities for alert generation to users, report generation and real time dashboards. User will be able to access all information available on the dashboard and can generate relevant summary reports.

It should perform statistical analysis to predict the future probability of any machinery failing, alert generation based on the same. The solution should have predictive analytics and intelligence in-built into it so as to detect any anomaly before it could potentially hit the threshold thereby giving enough lead time to users to resolve the issues before the threshold is breached. The document describes about the preconfigured alerts based on data analysis and relevant associated data. It is possible from the system for risk identification and calculation of an index to rank criticality of assets.

The analytics framework consists of the following:

- i. Dynamic charts and graphs related to all active field devices
- ii. TLF Analytics
- iii. TFMS Analytics
- iv. Fire Engine Analytics
- v. Web Server Analytics
- vi. Utilization of facility
- vii. Availability of facility
- viii. Idling of assets
- ix. Interlock status
- x. Asset performance
- xi. Maintenance required
- xii. To-do list (This shall be static reports that would need to be generated periodically through the system. The frequency in which these reports shall be generated is customized one.)



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## 1 TAS Analytics Functionality

### TAS Analytics

Sr. No.	Area	Category	Type	Analytic Description
1	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs Loading at Lower Flow Rates</a>
2	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs manually completed</a>
3	TAS Analytics	TLF Analytics	Graph & Grid	<a href="#">Loading Pattern in TLF (Utilization of TLF)</a>
4	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs assigned to particular product load</a>
5	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs having frequent failure of interlocks</a>
6	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs loading at particular bays</a>
7	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs reporting late after FAN generation</a>
8	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs going late after Invoice generation</a>
9	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs loading more than configurable time regularly</a>



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Date:

Sr. No.	Area	Category	Type	Analytic Description
10	TAS Analytics	TLF Analytics	Graph & Grid	<a href="#">TTs having higher cycle time</a>
11	TAS Analytics	TLF Analytics	Grid	<a href="#">TTs having mismatch in BC Totalizer vs Preset</a>
12	TAS Analytics	TLF Analytics	Grid	<a href="#">Bay not utilized for Particular Duration</a>
13	TAS Analytics	TLF Analytics	Graph & Grid	<a href="#">TTs having deviation in Loaded Quantity</a>
14	TAS Analytics	Fire Engine Analytics	Graph & Grid	<a href="#">Fire Engine is in Maintenance more than a month</a>
15(a)	TAS Analytics	Fire Engine Analytics	Graph & Grid	<a href="#">Weekly Testing -Fire Engine is not run for two times in a week for 30 minutes continuously</a>
15(b)	TAS Analytics	Fire Engine Analytics	Graph & Grid	<a href="#">Yearly Test – Fire Engine (FIRE ENGINE IS NOT RUN FOR FOUR HOURS IN A YEAR CONTINUOUSLY)</a>
16	TAS Analytics	Fire Engine Analytics	Grid	<a href="#">Hydrant system was not in auto for day</a>
17	TAS Analytics	Fire Engine Analytics	Graph & Grid	<a href="#">Fire Water as per requirement</a>
18	TAS Analytics	Fire Engine Analytics	Graph & Grid	<a href="#">Jockey running frequency in a day</a>

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Sr. No.	Area	Category	Type	Analytic Description
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20	TAS Analytics	TFMS Analytics	Graph & Grid	<a href="#">Optimum Tank Utilization for Loading</a>
21	TAS Analytics	TFMS Analytics	Graph & Grid	<a href="#">AOPS are not tested as per their PTI (Yearly)</a>
22	TAS Analytics	TFMS Analytics	Graph & Grid	<a href="#">ESDs are not tested in a month</a>
23	TAS Analytics	TFMS Analytics	Graph & Grid	<a href="#">List of Tanks AOPS not working</a>
24	TAS Analytics	TFMS Analytics	Grid	<a href="#">List of Tanks Level Difference (+- 4mm) between primary and secondary radar</a>
25	TAS Analytics	TFMS Analytics	Grid	<a href="#">List of MOV/DBBV/ROSOV not communicating to DCS/Safety PLC</a>
26	TAS Analytics	TFMS Analytics	Grid	<a href="#">List of Foam Tank Level is Low</a>
27	TAS Analytics	TFMS Analytics	Grid	<a href="#">List of Tanks Sprinkler not tested</a>
28	TAS Analytics	TFMS Analytics	Grid	<a href="#">List of HCD detectors frequently providing alarm</a>
29	TAS Analytics	TFMS Analytics	Grid	<a href="#">List of foam facility is not tested</a>

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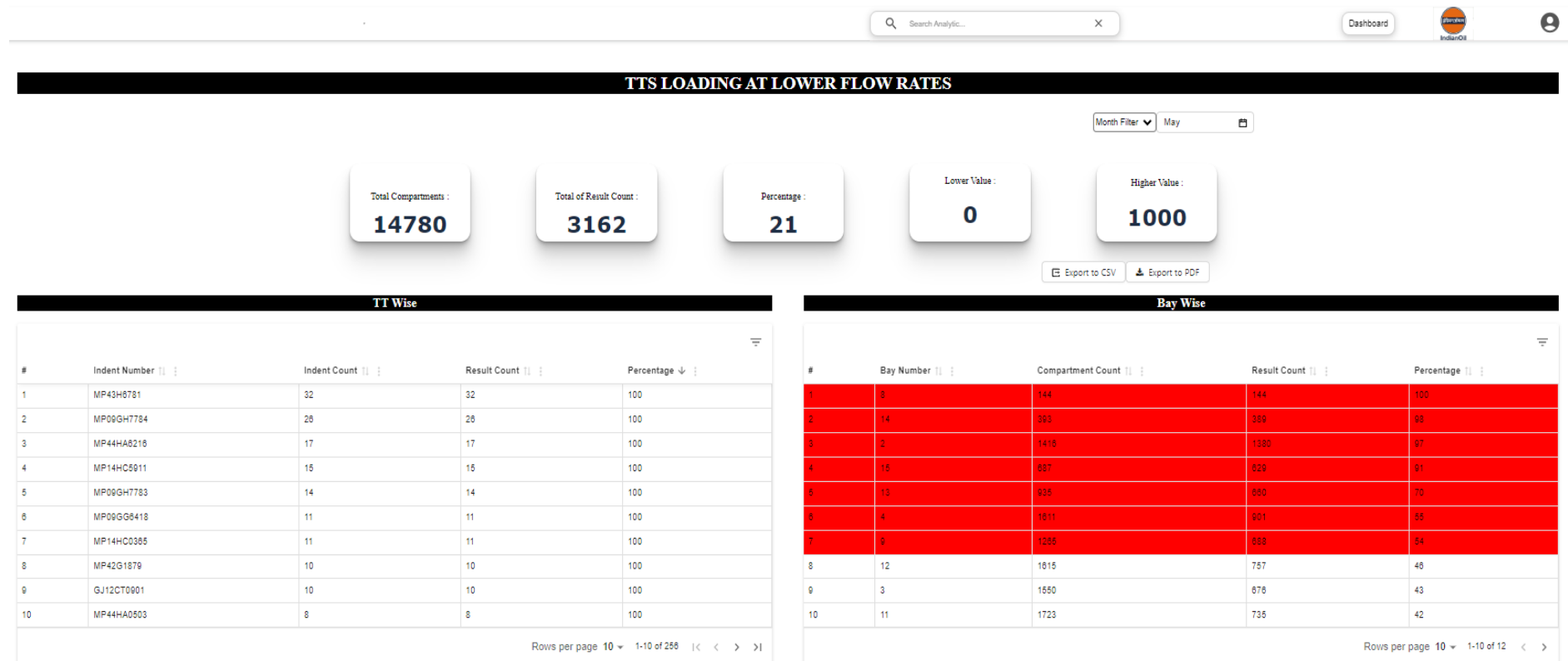
Date:

Sr. No.	Area	Category	Type	Analytic Description
30	TAS Analytics	TFMS Analytics	Grid	<a href="#">List of dyke valve open</a>
31	TAS Analytics	TFMS Analytics	Grid	<a href="#">Optimum tank utilization for receipt</a>
32	TAS Analytics	Web Server Analytics	Page	<a href="#">Plant Critical Alarms</a>
33	TAS Analytics	Web Server Analytics	Page	<a href="#">Fire Engine and Jockey Pumps</a>
34	TAS Analytics	Web Server Analytics	Page	<a href="#">Pump Overview</a>
35	TAS Analytics	Web Server Analytics	Page	<a href="#">Tank Farm Overview</a>
36	TAS Analytics	Web Server Analytics	Page	<a href="#">TLF Parameters</a>
37	TAS Analytics	Analytics Dashboard	Graph	<a href="#">Dashboard</a>



## Reference Screenshots for TAS Analytics Functionality

## TTs Loading at Lower Flow Rates: -







TTs manually completed: -

TTs manually completed

Dashboard

## TTS MANUALLY COMPLETED

Month Filter May

Total Indents :

1932

Total of Result Count :

2

Percentage :

0

Export to CSV

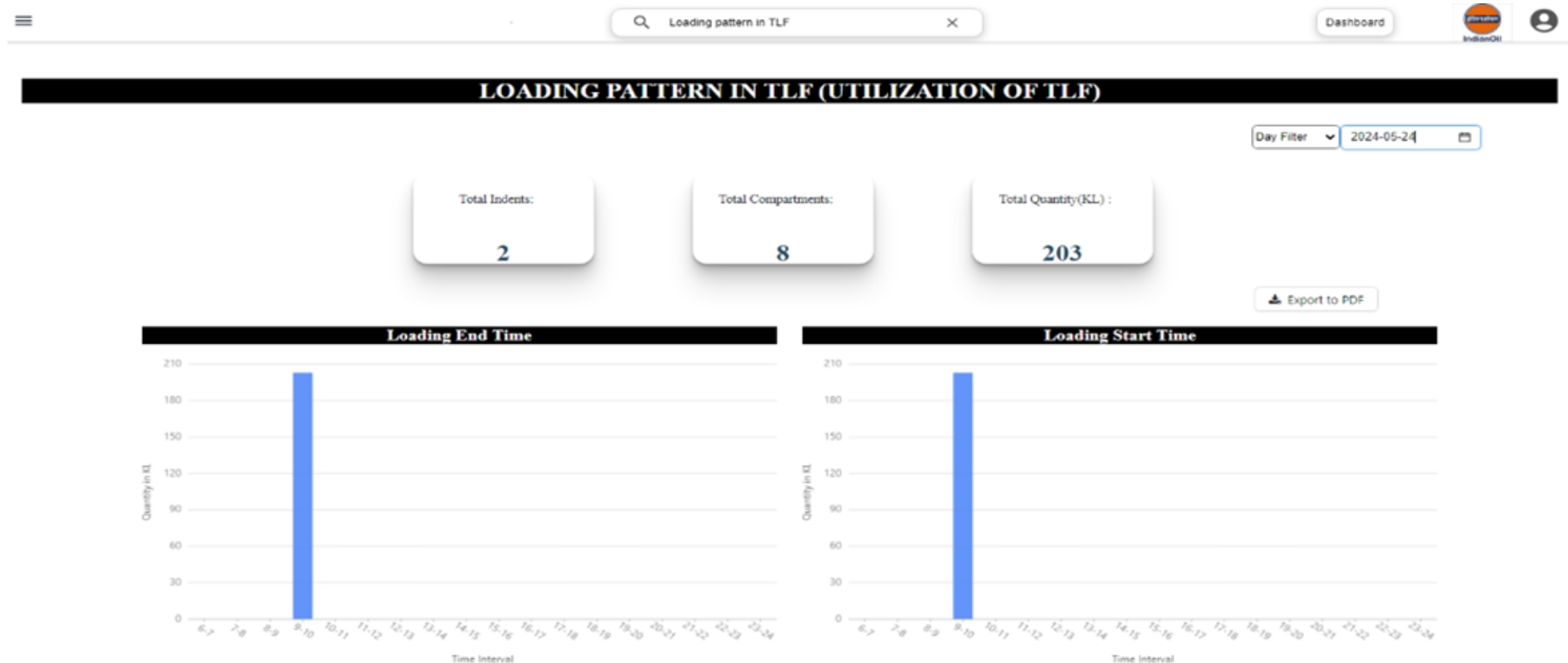
Export to PDF

#	Truck Number	Indent Count	Log Time
1	WB73G3281	1	May 16 2024 10:57AM
2	BR28G6217	1	May 9 2024 1:23PM

[TAS Analytics](#)



Loading Pattern in TLF (Utilization of TLF): -





TTs assigned to particular product load: -

TTs assigned to particular product load

Dashboard

### TTS ASSIGNED TO PARTICULAR PRODUCT LOAD

Day Filter 2024-05-23

Total Indents :  
**107**

Total of Result Count :  
**6**

Percentage :  
**6**

Export to CSV Export to PDF

MS					
#	Indent Number	In...	Re...	TT...	
1	BR01GK6241	3	2	66	
2	BR22GB9595	4	2	50	
3	WB73G3296	5	1	20	
4	BR06GE8709	3	1	33	
5	JH10AS8892	3	1	33	
6	WB73G6119	5	1	20	

Rows per page 10 1-6 of 6

HSD					
#	Indent Number	In...	Re...	TT...	
1	BR06GA5157	6	6	100	
2	BR06GE8175	5	5	100	
3	BR28GA6265	5	5	100	
4	BR05GA1444	5	5	100	
5	BR05GA7854	4	4	100	
6	WB73G3290	4	4	100	
7	BR30G7996	4	4	100	
8	BR22GB8136	4	4	100	
9	WB73G6119	5	4	80	
10	BR05GC3463	4	4	100	

Rows per page 10 1-10 of 93



TTs having frequent failure of interlocks: -

Search Analytics...

×

Dashboard

alarm

INTERLOCK

TTS HAVING FREQUENT FAILURE OF INTERLOCKS

Day Filter2024-10-11

Select an option: Connect Earth

Alarm Wise Pattern

Export to CSVExport to PDF

#	Error	Alarm Occurences
1	Connect Earth	30

Rows per page101-1 of 1

Truck Wise Pattern

Export to CSVExport to PDF

#	TruckNumber	TTcount	TTOccurence	TTPercentage	Alarm Count
1	CG12BE1508	1	3	600	6
2	MP13ZG9903	2	3	300	6
3	MP39H3974	1	2	200	2
4	MP13GA9955	2	2	200	4
5	MP43H0951	1	2	200	2
6	MP14ZB9537	2	3	150	3
7	RJ53GA0492	1	1	100	1
8	MP46ZC0284	1	1	100	1
9	CG04NL7900	1	1	100	1
10	CG18A2433	1	1	100	1

Rows per page101-10 of 13

Bay Wise %

Export to CSVExport to PDF

#	Bay No	Alarm Count	Percentage
1	15	1	3.33
2	9	1	3.33
3	5	2	6.07
4	12	2	6.07
5	1	5	16.67
6	3	5	16.67
7	2	14	46.67

Rows per page101-7 of 7

Description

Export to CSVExport to PDF

#	Bay No	Alarm Count	Truck No	Product	Log Time	Event Description
1	1	2	MP43H0951	HSD	Oct 11 2024 12:42PM	Truck No:MP43H0951-Bay No:1-LP No:2-Comp No:3-Product:HSD-FilledQty:58-Error: Connect Earth
2	1	3	MP14ZB9537	EBMS15	Oct 11 2024 11:45AM	Truck No:MP14ZB9537-Bay No:1-LP No:1-Comp No:1-Product:EBMS15-FilledQty:158-Error: Connect Earth
3	12	1	CG04NL7900	HSD	Oct 11 2024 2:47PM	Truck No:CG04NL7900-Bay No:12-LP No:21-Comp No:3-Product:HSD-FilledQty:0-Error: Connect Earth
4	12	1	MP46ZC0284	HSD	Oct 11 2024 3:44PM	Truck No:MP46ZC0284-Bay No:12-LP No:21-Comp No:3-Product:HSD-FilledQty:115-Error: Connect Earth
5	15	1	RJ19GG1362	HSD	Oct 11 2024 5:04PM	Truck No:RJ19GG1362-Bay No:15-LP No:25-Comp No:1-Product:HSD-FilledQty:161-Error: Connect Earth
6	2	1	CG18A2433	EBMS15	Oct 11 2024 3:21PM	Truck No:CG18A2433-Bay No:2-LP No:3-Comp No:2-Product:EBMS15-FilledQty:2124-Error: Connect Earth
7	2	1	MP14MK0788	HSD	Oct 11 2024 11:45AM	Truck No:MP14MK0788-Bay No:2-LP No:4-Comp No:3-Product:HSD-FilledQty:4951-Error: Connect Earth
8	2	3	CG12BE1508	EBMS15	Oct 11 2024 12:03PM	Truck No:CG12BE1508-Bay No:2-LP No:3-Comp No:1-Product:EBMS15-FilledQty:744-Error: Connect Earth
9	2	3	CG12BE1508	HSD	Oct 11 2024 12:03PM	Truck No:CG12BE1508-Bay No:2-LP No:4-Comp No:2-Product:HSD-FilledQty:14-Error: Connect Earth
10	2	3	MP13ZG9903	EBMS15	Oct 11 2024 10:27AM	Truck No:MP13ZG9903-Bay No:2-LP No:3-Comp No:1-Product:EBMS15-FilledQty:3828-Error: Connect Earth

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TTs loading at particular bays: -

TTs loading at particular bays

Dashboard

TTS LOADING AT PARTICULAR BAYS

Day Filter 2024-05-24

Total Indents :  
**2**

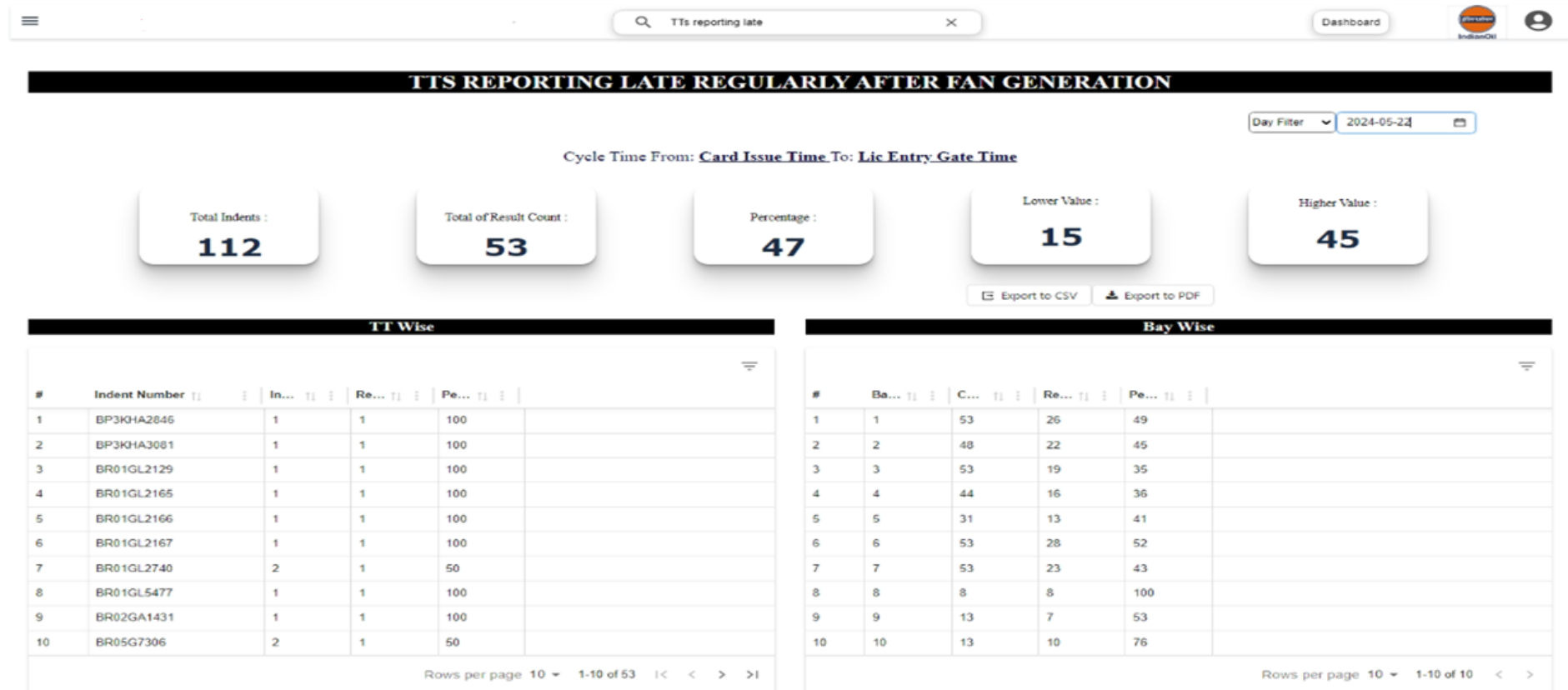
Total of Result Count :  
**8**

Export to CSV Export to PDF

#	Ba...	Truck Number	Sum of Total Indents/Bay	Count of Indents/Bay	Percentage
1	2	BR30GA7963	3	3	100
2	5	BR22GA9360	5	5	100



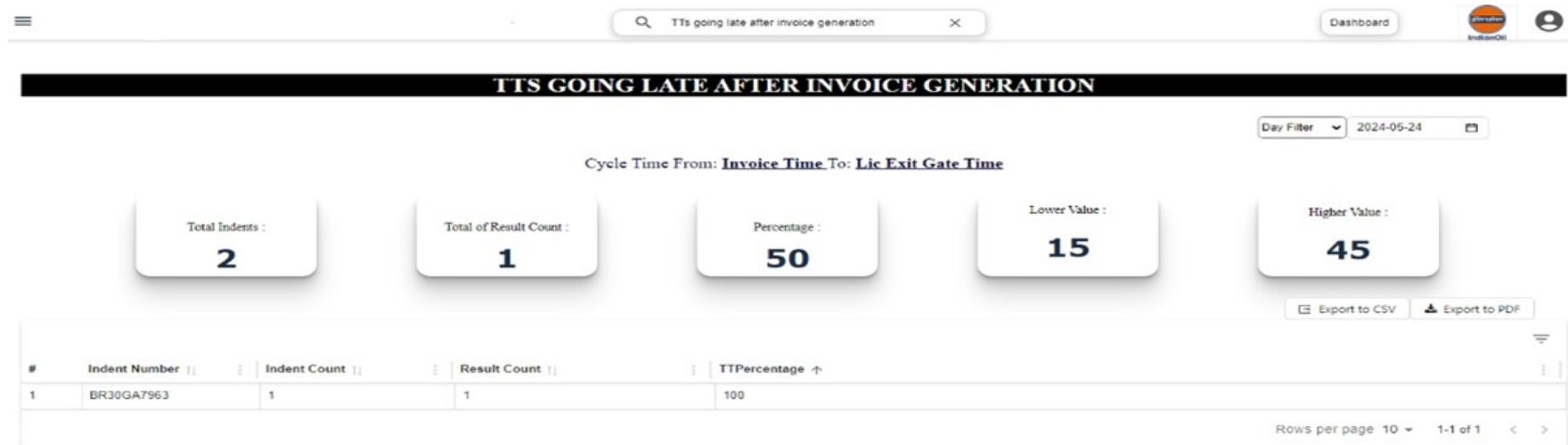
TTs reporting late after FAN generation: -





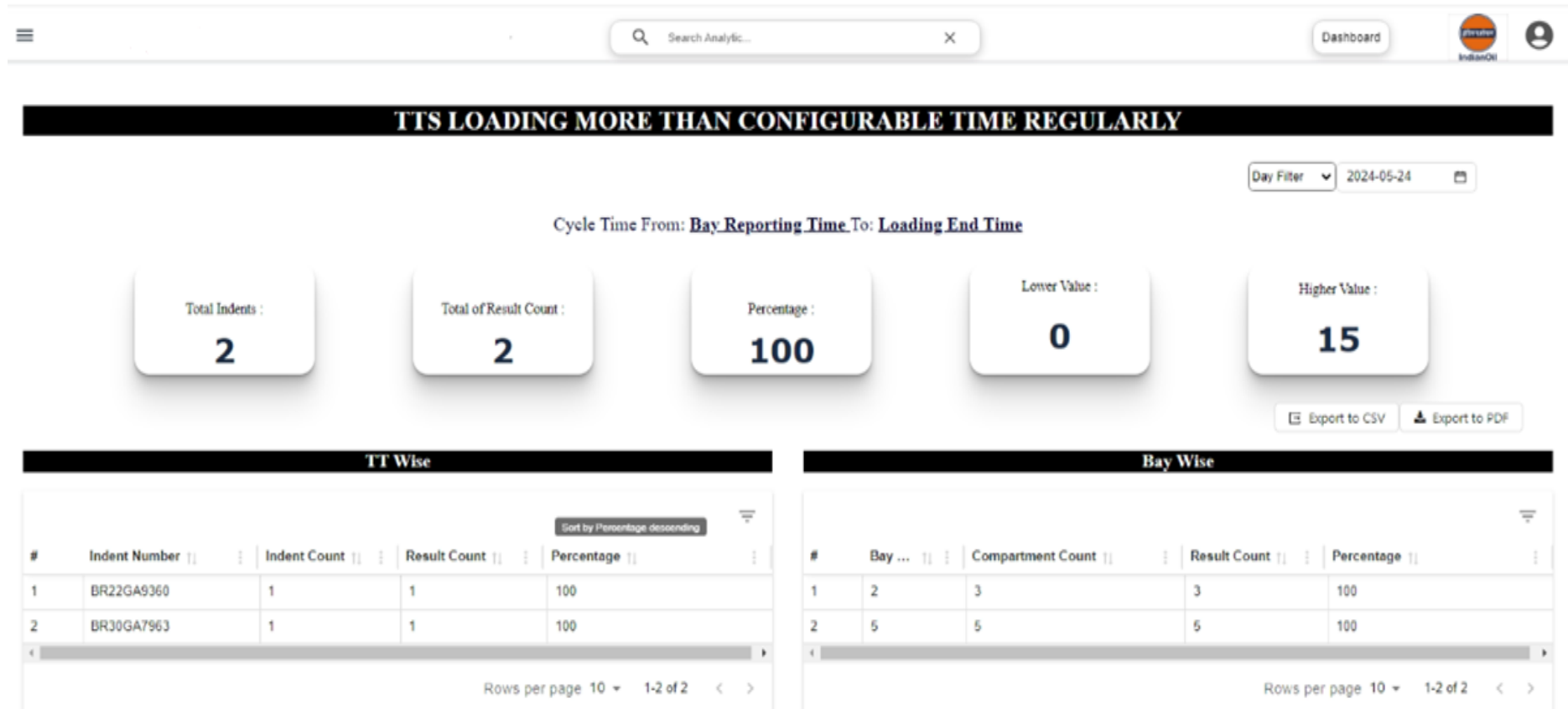
TTs going late after Invoice generation: -

### TANK TRUCK ANALYTICS





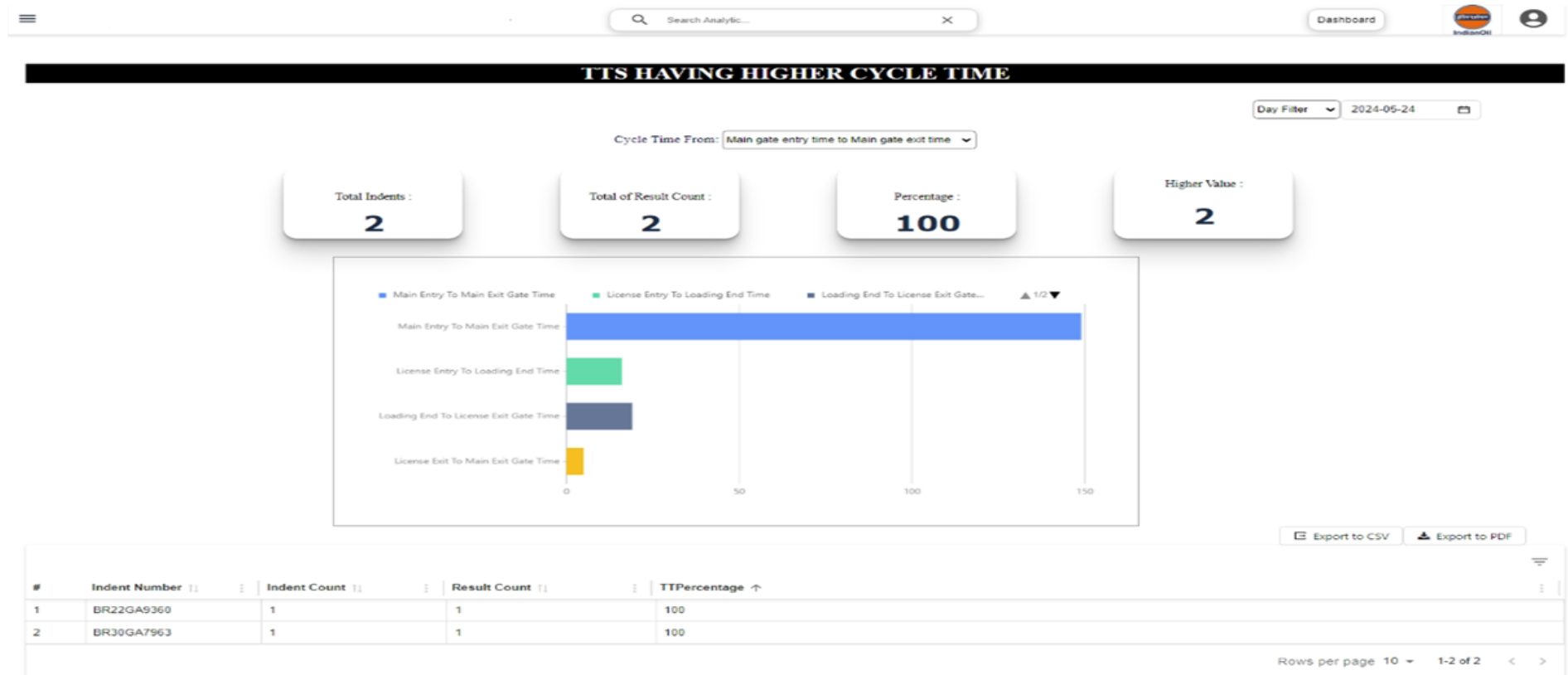
TTs loading more than configurable time regularly: -





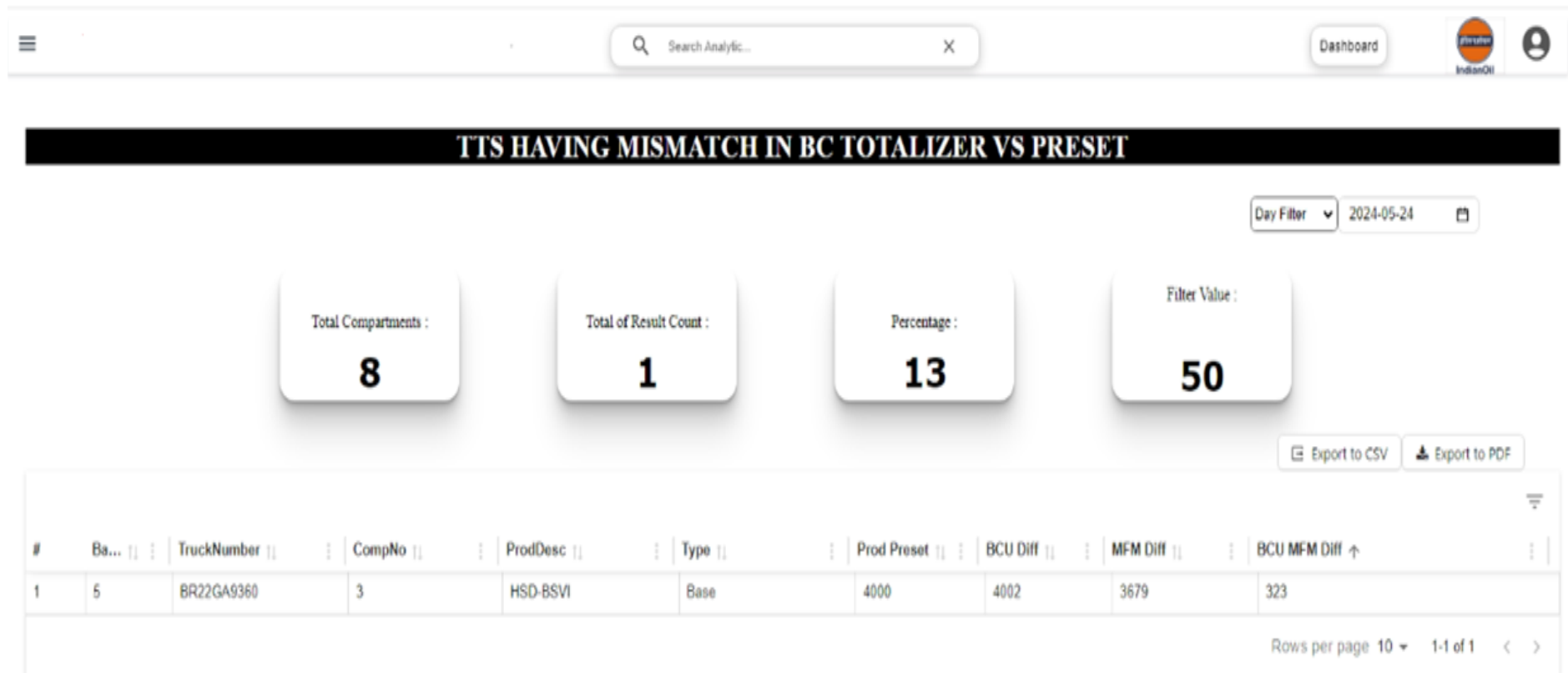


TTs having higher cycle time: -

[TAS Analytics](#)

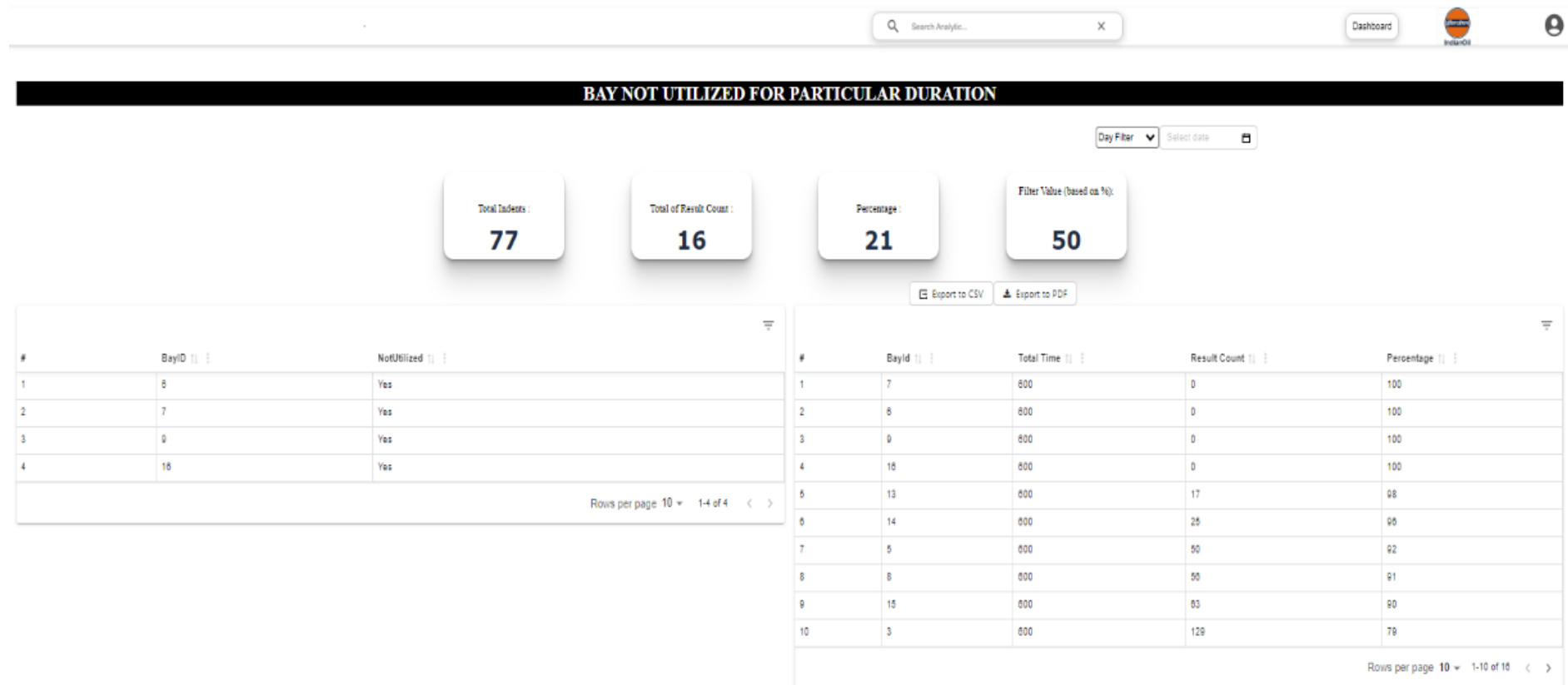


TTs having mismatch in BC Totalizer vs Preset: -

[TAS Analytics](#)



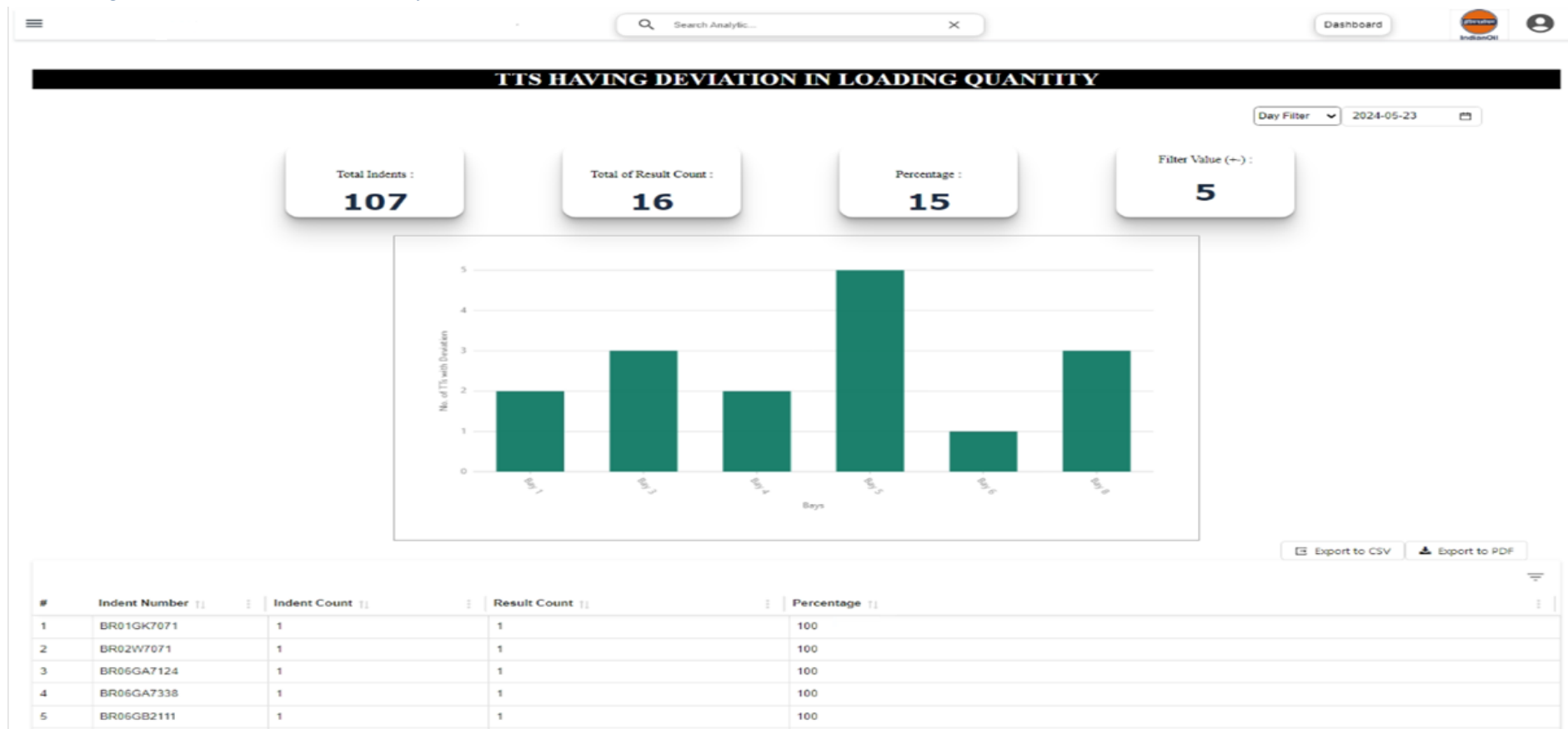
Bay not utilized for Particular Duration: -



[TAS Analytics](#)

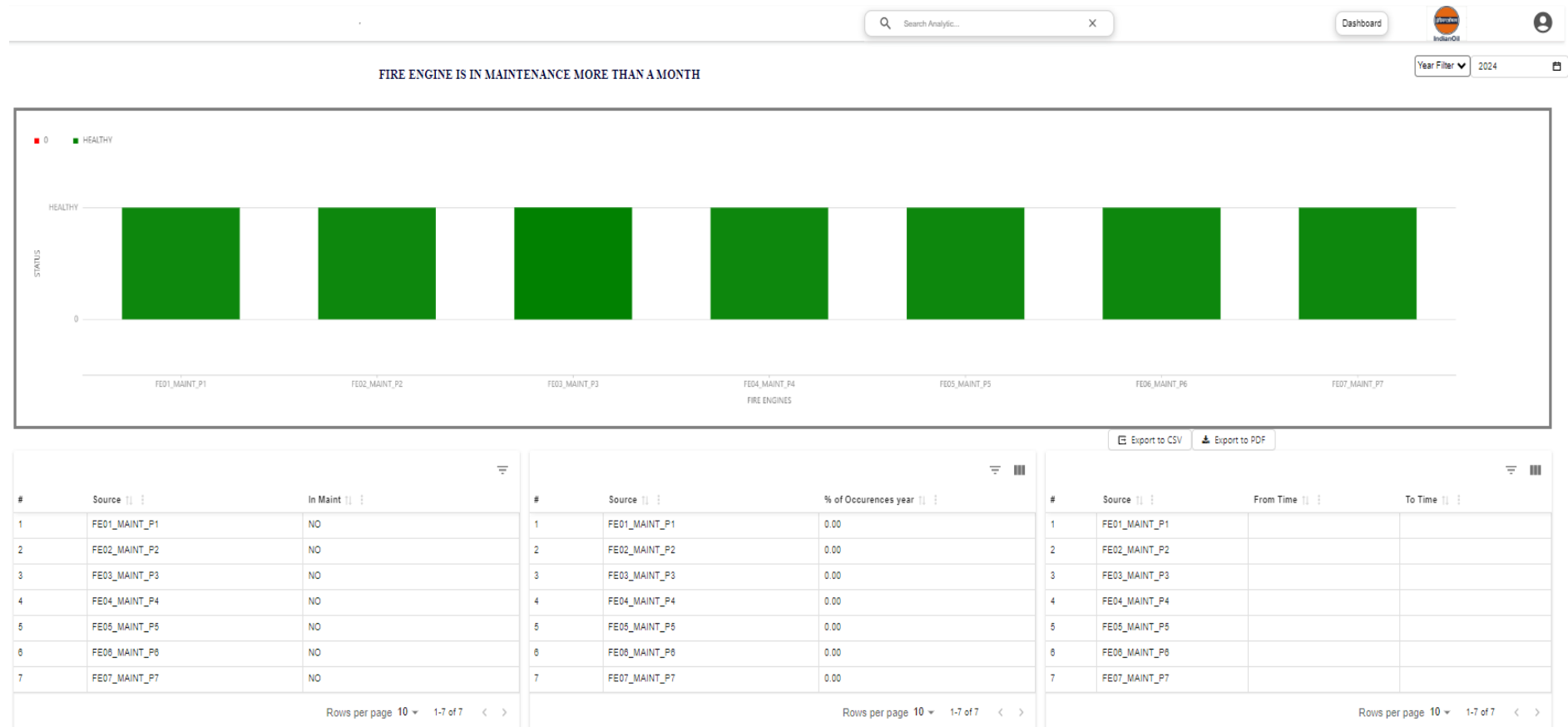


TTs having deviation in Loaded Quantity: -





## Fire Engine is in Maintenance more than a month: -





Weekly Testing -Fire Engine is not run for two times in a week for 30 minutes continuously: -





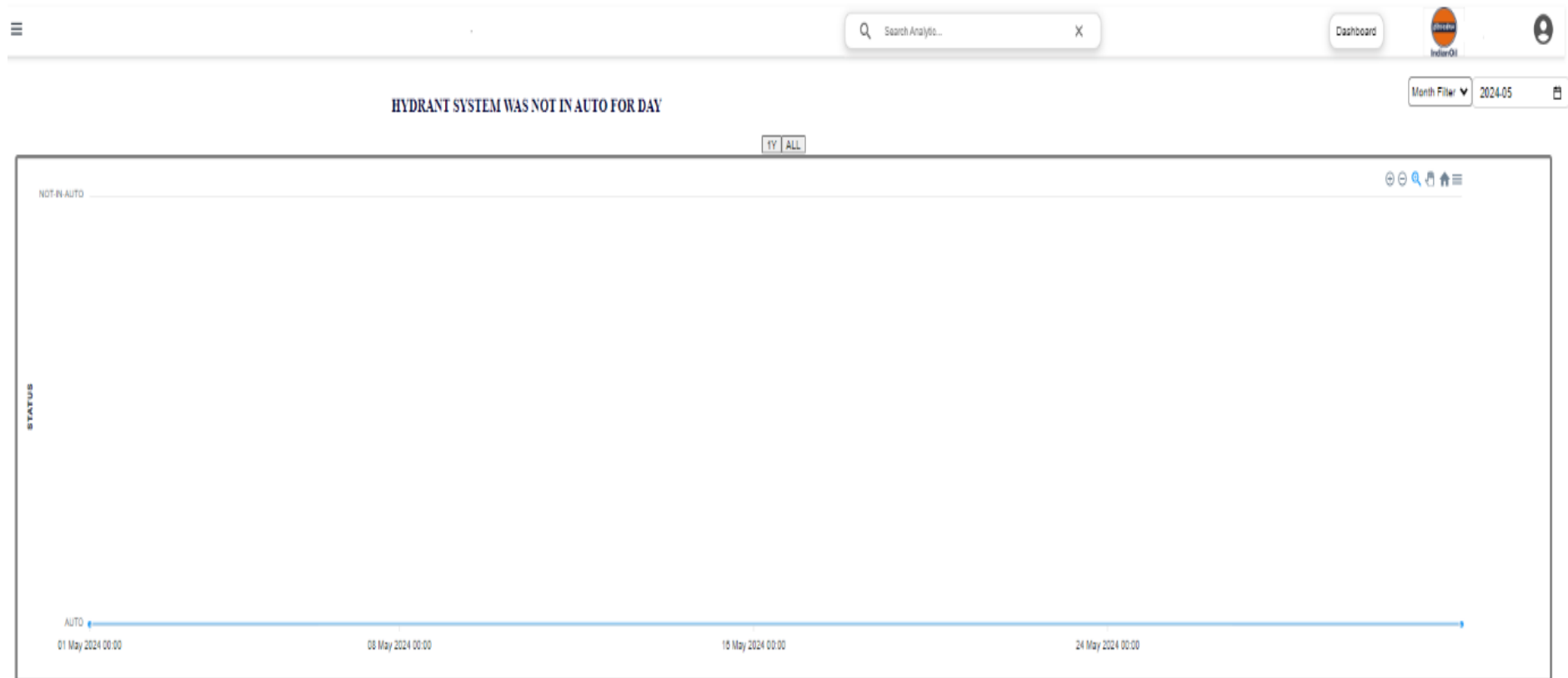
Yearly Test - Fire Engine (FIRE ENGINE IS NOT RUN FOR FOUR HOURS IN A YEAR CONTINUOUSLY): -



[TAS Analytics](#)



Hydrant system was not in auto for day: -

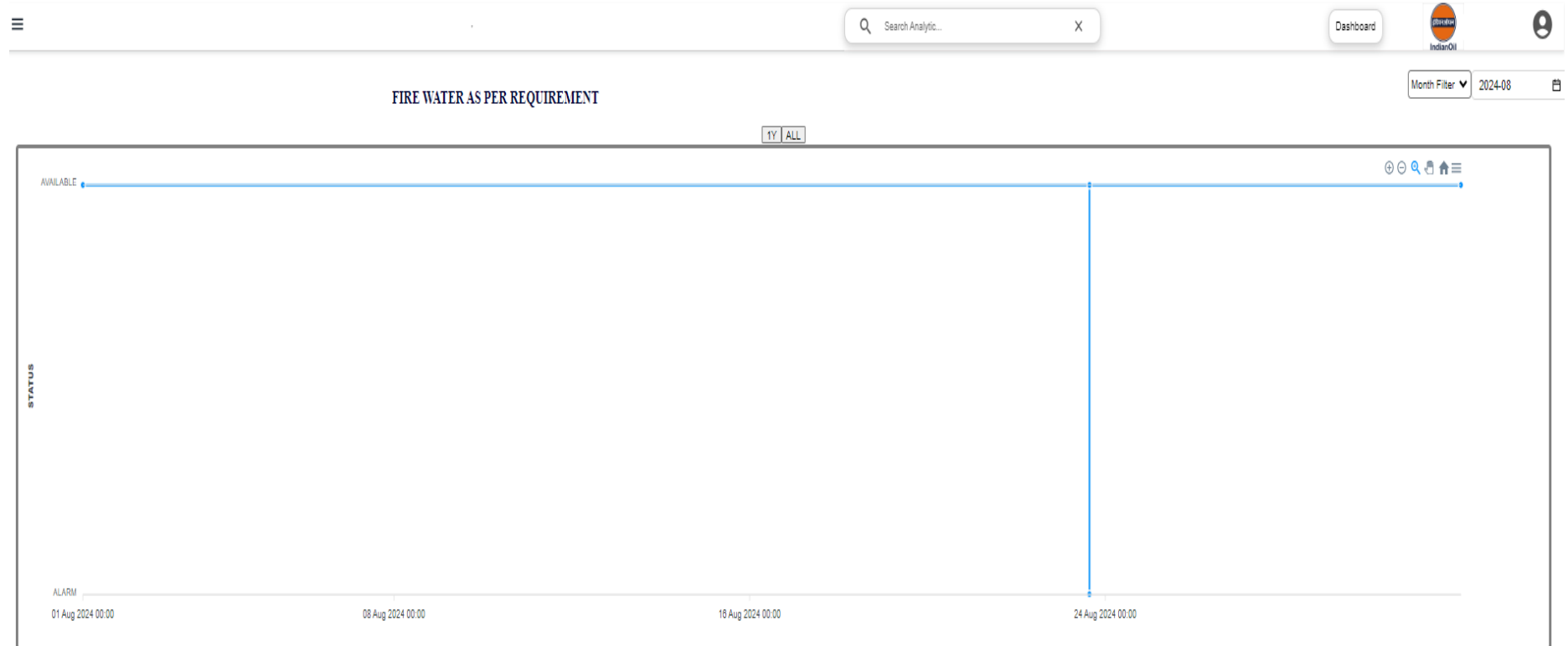


[TAS Analytics](#)





Fire Water as per requirement: -



[TAS Analytics](#)



Jockey running frequency in a day: -



Search Analytics...

Dashboard



JOCKEY RUNNING FREQUENCY

Day Filter 2024-09-20

Export to CSV Export to PDF

#	Source	Count of Occurences	Avg Time(Running Time) In sec
1	JP02	228	3.97
2	JP01	0	0.00

#	Avg Time(Pressure Hold) In min
1	6.26

#	Source	Difference in sec	FromTime	ToTime
1	JP01			
2	JP02	4	Sep 20 2024 12:01AM	Sep 20 2024 12:01AM
3	JP02	4	Sep 20 2024 12:07AM	Sep 20 2024 12:07AM
4	JP02	4	Sep 20 2024 12:13AM	Sep 20 2024 12:13AM
5	JP02	4	Sep 20 2024 12:18AM	Sep 20 2024 12:18AM
6	JP02	4	Sep 20 2024 12:24AM	Sep 20 2024 12:24AM
7	JP02	4	Sep 20 2024 12:30AM	Sep 20 2024 12:30AM
8	JP02	4	Sep 20 2024 12:36AM	Sep 20 2024 12:36AM
9	JP02	4	Sep 20 2024 12:42AM	Sep 20 2024 12:42AM
10	JP02	4	Sep 20 2024 12:48AM	Sep 20 2024 12:48AM

TAS Analytics





### Tank Sequencing Failure: -

Search Analytic...

X

Dashboard



TANK SEQUENCING FAILURE

Day Filter2024-05-24

Export to CSVExport to PDF

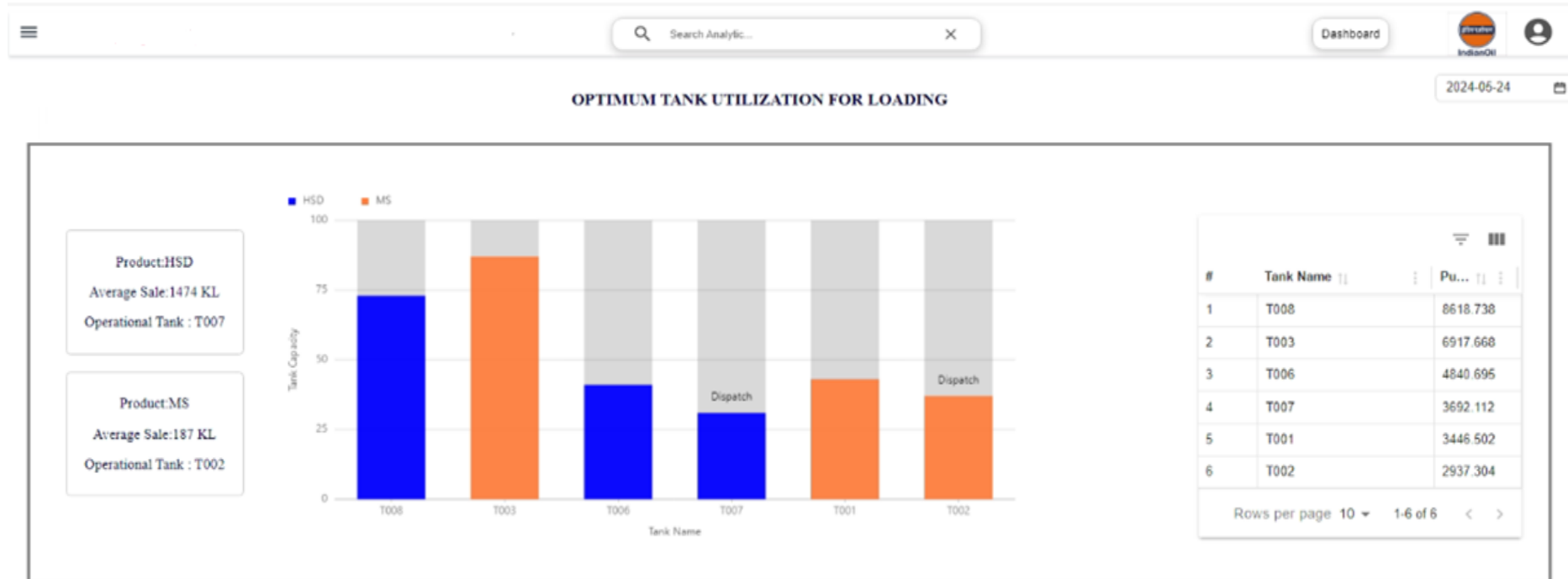
#	Source	Count of Occure...	
1	ETH_MODE_POPUP	0	
2	HSD_MODE_POPUP	0	
3	MS_MODE_POPUP	0	

Rows per page 101-3 of 3

Rows per page 100-0 of 0



## Optimum Tank Utilization for Loading: -



## Notes:

- Average Sale Quantity(KL) = (Average Sale of last 7 days, excluding today) x (Stock for 2 days).
- Only healthy tanks , Not in maintenance are considered for Loading Operation.



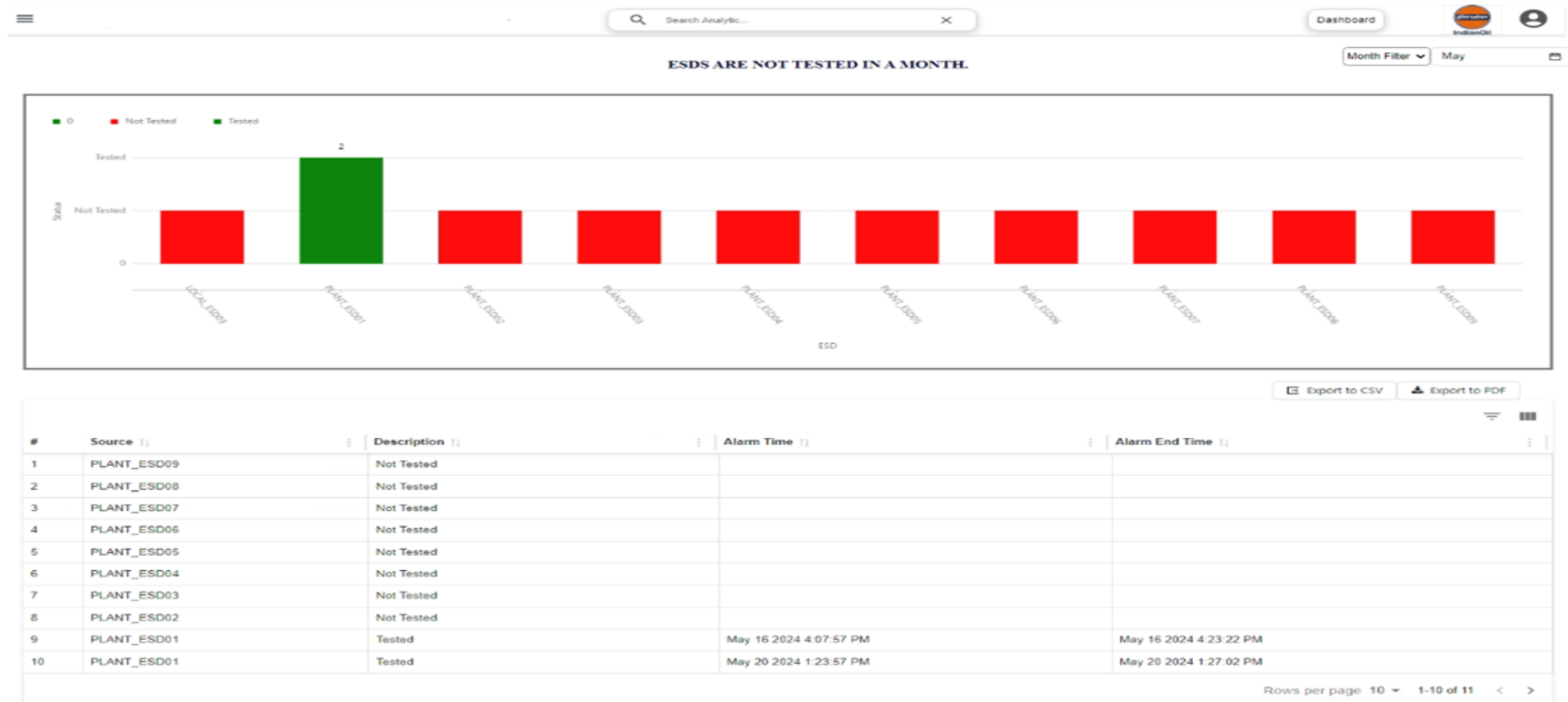
AOPS are not tested as per their PTI (Yearly): -



[TAS Analytics](#)



ESDs are not tested in a month: -



[TAS Analytics](#)



List of Tanks AOPS not working: -



[TAS Analytics](#)



## List of Tanks Level Difference (+/- 4mm) between primary and secondary radar: -

☰

Search Analytics...

×

Dashboard

Day Filter ▼ 2024-05-24 📅

LIST OF TANKS LEVEL DIFFERENCE (±4MM)  
BETWEEN PRIMARY AND SECONDARY RADAR

📄 Export to CSV 📄 Export to PDF

#	Source	Count of Occurrences
1	TK01	5
2	TK04	4
3	TK07	2

Rows per page 10 ▼ 1-3 of 3 < >

#	Source	Current Status	Alarm Time	Alarm End Time
1	TK01	HEALTHY	May 24 2024 8:59AM	May 24 2024 8:59AM
2	TK01	HEALTHY	May 24 2024 9:24AM	May 24 2024 9:24AM
3	TK01	HEALTHY	May 24 2024 9:31AM	May 24 2024 9:31AM
4	TK01	HEALTHY	May 24 2024 9:49AM	May 24 2024 9:49AM
5	TK01	HEALTHY	May 24 2024 9:50AM	May 24 2024 9:50AM
6	TK04	HEALTHY	May 24 2024 7:25AM	May 24 2024 7:33AM
7	TK04	HEALTHY	May 24 2024 8:11AM	May 24 2024 8:11AM
8	TK04	HEALTHY	May 24 2024 8:11AM	May 24 2024 8:14AM
9	TK04	HEALTHY	May 24 2024 8:28AM	May 24 2024 9:19AM
10	TK07	HEALTHY	May 24 2024 9:13AM	May 24 2024 9:13AM

Rows per page 10 ▼ 1-10 of 11 < >





## List of MOV/DBBV/ROSOV not communicating to DCS/Safety PLC: -

Search Analytic...

X

Dashboard

Day Filter 2024-05-24

LIST OF MOV/DBBVS/ROSOV ETC. NOT COMMUNICATING TO DCS/SAFETY PLC

Export to CSV Export to PDF

#	Source	Count of Occurences
1	MOV3002	2
2	DBBV0101	1
3	DBBV0102	1
4	DBBV0103	1
5	DBBV0201	1
6	DBBV0202	1
7	DBBV0203	1
8	DBBV0301	1
9	DBBV0302	1
10	DBBV0401	1

Rows per page 10 1-10 of 144

#	Source	Current Sta...	FromTime	ASToTime	Difference
1	DBBV0101	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9485
2	DBBV0102	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9485
3	DBBV0103	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9485
4	DBBV0201	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9487
5	DBBV0202	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9485
6	DBBV0203	HEALTHY	May 24 2024 4:55AM	May 24 2024 7:34AM	9519
7	DBBV0301	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9485
8	DBBV0302	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9489
9	DBBV0401	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9485
10	DBBV0402	HEALTHY	May 24 2024 4:56AM	May 24 2024 7:34AM	9485

Rows per page 10 1-10 of 145

[TAS Analytics](#)



## List of Foam Tank Level is Low: -

Search Analytic...

X

Dashboard

Month Filter

March

Export to CSV

Export to PDF

LIST OF FOAM TANK LEVEL IS LOW

#	Source	Count of Occurences
1	LI2001_L	18
2	LI2002_L	0
3	LI2003_L	0
4	LI2004_L	0
5	LI2005_L	0
6	LI2006_L	0
7	LI2007_L	0
8	LI2008_L	0
Rows per page 10 1-8 of 8		

#	Source	Current Status	Alarm Time	Alarm End Time
1	LI2001_L	HEALTHY	Mar 2 2024 9:55AM	Mar 2 2024 9:55AM
2	LI2001_L	HEALTHY	Mar 2 2024 9:56AM	Mar 2 2024 9:56AM
3	LI2001_L	HEALTHY	Mar 2 2024 9:56AM	Mar 2 2024 9:57AM
4	LI2001_L	HEALTHY	Mar 2 2024 9:57AM	Mar 2 2024 9:57AM
5	LI2001_L	HEALTHY	Mar 2 2024 9:57AM	Mar 2 2024 9:58AM
6	LI2001_L	HEALTHY	Mar 2 2024 10:25AM	Mar 2 2024 10:45AM
7	LI2001_L	HEALTHY	Mar 4 2024 5:49PM	Mar 4 2024 6:54PM
8	LI2001_L	HEALTHY	Mar 5 2024 6:08PM	Mar 5 2024 6:59PM
9	LI2001_L	HEALTHY	Mar 6 2024 6:07PM	Mar 6 2024 7:01PM
10	LI2001_L	HEALTHY	Mar 7 2024 6:16PM	Mar 7 2024 6:57PM
Rows per page 10 1-10 of 18				



[TAS Analytics](#)



## List of Tanks Sprinkler not tested: -

☰

🔍 List of tanks sprinkler not tested ✕

Dashboard  

Month Filter ▾ May 📅

📄 Export to CSV 📄 Export to PDF

#	Source	Count of Occurrences ↑
1	MOV2004	0
2	MOV2006	0
3	MOV2007	1
4	MOV2008	1
5	MOV2009	1
6	MOV2010	1
7	MOV2011	1
8	MOV2012	1
9	MOV2013	1
10	MOV2014	1

Rows per page 10 ▾ 1-10 of 14 < >

#	Source	Current Status	Alarm Time	Alarm End Time
1	MOV2001	HEALTHY	May 1 2024 9:51AM	May 1 2024 9:53AM
2	MOV2001	HEALTHY	May 15 2024 3:02PM	May 15 2024 3:09PM
3	MOV2002	HEALTHY	May 1 2024 9:51AM	May 1 2024 9:53AM
4	MOV2002	HEALTHY	May 15 2024 3:03PM	May 15 2024 3:09PM
5	MOV2003	HEALTHY	May 1 2024 9:54AM	May 1 2024 9:59AM
6	MOV2003	HEALTHY	May 15 2024 3:03PM	May 15 2024 3:15PM
7	MOV2005	HEALTHY	May 1 2024 9:51AM	May 1 2024 9:54AM
8	MOV2005	HEALTHY	May 15 2024 3:10PM	May 15 2024 3:17PM
9	MOV2007	HEALTHY	May 2 2024 10:04AM	May 2 2024 10:09AM
10	MOV2008	HEALTHY	May 2 2024 10:05AM	May 2 2024 10:07AM

Rows per page 10 ▾ 1-10 of 16 < >



## List of HCD detectors frequently providing alarm: -

Search Analytic...

Dashboard

IndianOil

Day Filter 2024-05-24

LIST OF HCD DETECTORS FREQUENTLY PROVIDING ALARM

Export to CSV Export to PDF

#	Source	Count of Occurences
1	PP_DT_33	10
2	PP_DT_33_HH	3
3	OP_DT_04	0
4	OP_DT_10	0
5	OP_DT_12	0
6	PP_DT_19	0
7	PP_DT_21	0
8	PP_DT_27	0

Rows per page 10 1-8 of 8

#	Source	Description	Current Status	Alarm Time	Alarm End Time
1	PP_DT_33_HH	HH ALARM OF PP HCD 33: N	HEALTHY	May 24 2024 5:41AM	May 24 2024 7:50AM
2	PP_DT_33_HH	HH ALARM OF PP HCD 33: N	HEALTHY	May 24 2024 7:50AM	May 24 2024 7:51AM
3	PP_DT_33_HH	HH ALARM OF PP HCD 33: N	HEALTHY	May 24 2024 7:51AM	May 24 2024 7:51AM
4	PP_DT_33_HI	HIGH ALARM OF PP HCD 33	HEALTHY	May 24 2024 5:41AM	May 24 2024 8:49AM
5	PP_DT_33_HI	HIGH ALARM OF PP HCD 33	HEALTHY	May 24 2024 8:49AM	May 24 2024 8:49AM
6	PP_DT_33_HI	HIGH ALARM OF PP HCD 33	HEALTHY	May 24 2024 8:50AM	May 24 2024 8:50AM
7	PP_DT_33_HI	HIGH ALARM OF PP HCD 33	HEALTHY	May 24 2024 8:51AM	May 24 2024 8:51AM
8	PP_DT_33_HI	HIGH ALARM OF PP HCD 33	HEALTHY	May 24 2024 8:51AM	May 24 2024 8:52AM
9	PP_DT_33_HI	HIGH ALARM OF PP HCD 33	HEALTHY	May 24 2024 8:52AM	May 24 2024 8:52AM
10	PP_DT_33_HI	HIGH ALARM OF PP HCD 33	HEALTHY	May 24 2024 8:52AM	May 24 2024 8:53AM

Rows per page 10 1-10 of 13



[TAS Analytics](#)



List of foam facility is not tested: -

☰

Search List of tanks sprinkler not tested X

Dashboard  

Month Filter May

Export to CSV Export to PDF

#	Source	Count of Occurences
1	MOV2022	3
2	MOV2018	2
3	MOV2017	1
4	MOV2019	1
5	MOV2023	1
6	MOV2024	1

Rows per page 10 1-6 of 6

#	Source	Current Status	Alarm Time	Alarm End Time
1	MOV2017	HEALTHY	May 2 2024 3:03PM	May 2 2024 3:14PM
2	MOV2018	HEALTHY	May 2 2024 2:57PM	May 2 2024 3:12PM
3	MOV2018	HEALTHY	May 15 2024 11:18AM	May 15 2024 11:18AM
4	MOV2019	HEALTHY	May 2 2024 3:03PM	May 2 2024 3:17PM
5	MOV2022	HEALTHY	May 3 2024 3:08PM	May 3 2024 3:30PM
6	MOV2022	HEALTHY	May 15 2024 10:21AM	May 15 2024 10:21AM
7	MOV2022	HEALTHY	May 15 2024 10:21AM	May 15 2024 10:30AM
8	MOV2023	HEALTHY	May 3 2024 3:06PM	May 3 2024 3:32PM
9	MOV2024	HEALTHY	May 3 2024 3:06PM	May 3 2024 3:32PM

Rows per page 10 1-9 of 9

[TAS Analytics](#)



List of dyke valve open: -

☰

Search Analytic...

Dashboard

Day Filter 2024-05-21

LIST OF DYKE VALVE OPEN

Export to CSV Export to PDF

#	Source	Count of Occurences
1	MOV3012	4
2	MOV3001	2
3	MOV3002	2
4	MOV3007	2
5	MOV3008	2
6	MOV3003	0
7	MOV3004	0
8	MOV3005	0
9	MOV3006	0
10	MOV3009	0

Rows per page 10 1-10 of 29

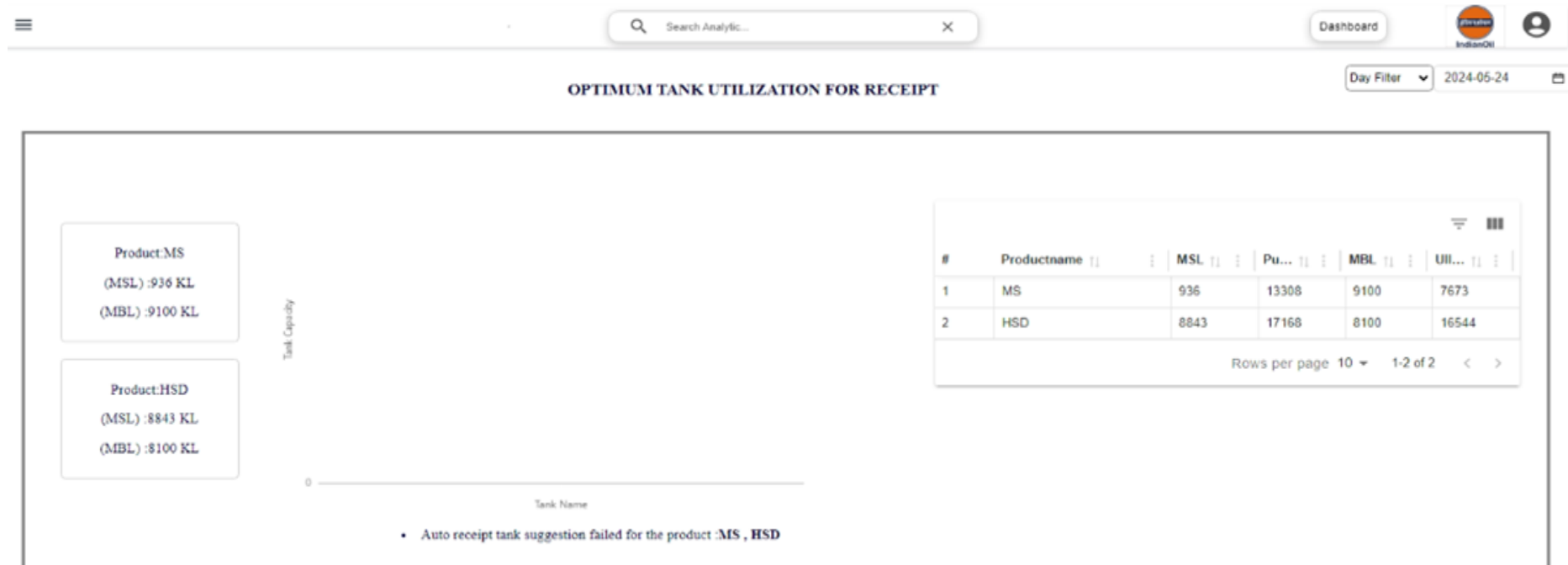
#	Source	Current Status	Alarm Time	Alarm End Time
1	MOV3001	CLOSED	May 21 2024 11:16AM	May 21 2024 11:16AM
2	MOV3001	CLOSED	May 21 2024 11:44AM	May 21 2024 2:33PM
3	MOV3002	CLOSED	May 21 2024 11:15AM	May 21 2024 11:16AM
4	MOV3002	CLOSED	May 21 2024 11:45AM	May 21 2024 2:31PM
5	MOV3007	CLOSED	May 21 2024 11:10AM	May 21 2024 11:11AM
6	MOV3007	CLOSED	May 21 2024 11:12AM	May 21 2024 11:13AM
7	MOV3008	CLOSED	May 21 2024 11:10AM	May 21 2024 11:10AM
8	MOV3008	CLOSED	May 21 2024 11:12AM	May 21 2024 11:13AM
9	MOV3012	CLOSED	May 21 2024 11:30AM	May 21 2024 11:30AM
10	MOV3012	CLOSED	May 21 2024 11:31AM	May 21 2024 11:30AM

Rows per page 10 1-10 of 12

[TAS Analytics](#)

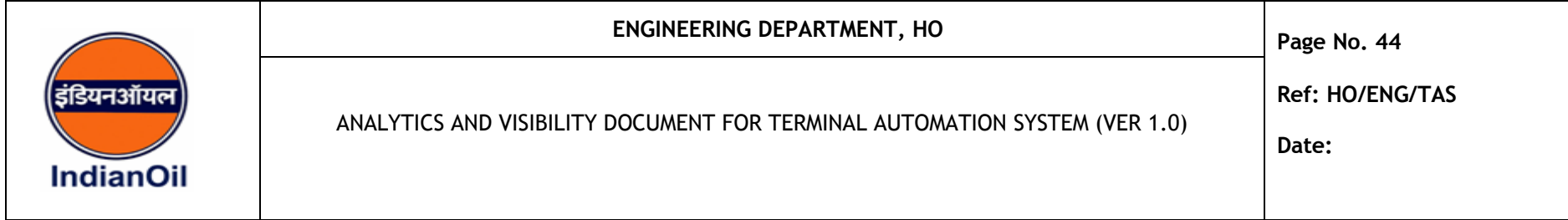


## Optimum tank utilization for receipt: -



## Notes:

- MSL (Minimum Stock Level)(KL):
  - MSL for MS- 10 days stock , MSL for HSD- 12 days stock , MSL for Ethanol - 35 days stock , MSL for Bio diesel - 19 days stock
- MBL (Minimum Batch Length)(KL)



**Date:**

**CRITICAL ALARM**

Total Alarm			Total Ack Alarm			Total UnAck Alarm		
0			0			0		

PLANT ESD ACTIVATED	LOCAL ESD ACTIVATED	DYKE VALVE OPEN	POWER ESD ACTIVATED	POINT PATH HCD ALARM
OPEN PATH HCD ALARM	SMSC-01 CONTROLLER ALARM	ROSOV FAIL TO OPEN/FAIL TO CLOSE ALARM	AOPS ACTIVATED	FIRE ENGINE FAIL TO START
MCP ACTIVATED	FIRE HYDRANT PRESSURE ALARM	FIRE ENGINE ALARMS	SMSC-02 CONTROLLER ALARM	ANY TANK HH ACTIVATED
SMSC-03 CONTROLLER ALARM	FIRE WATER TANK BELOW MSL	ANY AG TANK LEVEL ALARM ACTIVATED	ANY UG TANK LEVEL ALARM ACTIVATED	ANY TLF PRODUCT PUMP FAIL TO START
ANY TWL PRODUCT PUMP FAIL TO START	UPS ALARM ACTIVATED	LRC SERVER OFFLINE	DG ALARM	JOCKY PUMP FAIL TO START
RIMSEAL ALARM ACTIVATED	TLF EARTHING FAILURE	DCS-01 & 02 OFFLINE	DCS-03 TO DCS-06 OFFLINE	DBBV FTO/FTC ALARM ACTIVATED
		CIU FAIL ALARM ACTIVATED	ACKNOWLEDGE	

**LEGENDS**

- ALARM GENERATED, NOT ACKNOWLEDGED
- ALARM GENERATED, ACKNOWLEDGED, SITE CONDITION NOT
- NO ALARM

INDEX   SYSTEM ARCHITECTURE   ESD   MS   ETHANOL   HSD   BIO-DIESEL   ATF   SKO   BAY INDEX   CLUSTER INDEX   BARRIER GATE

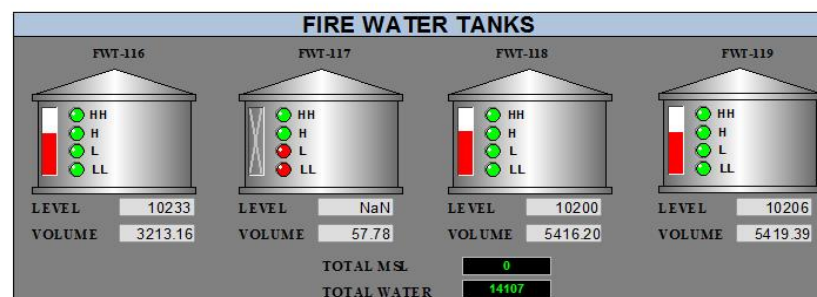
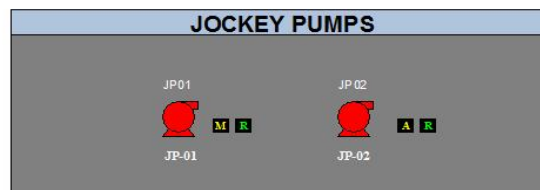
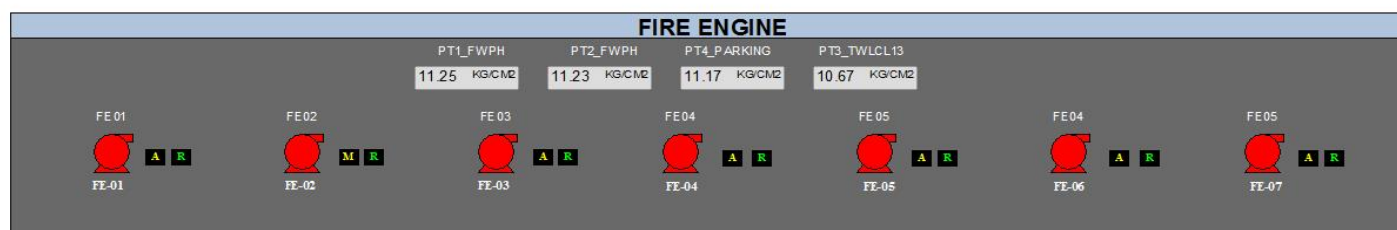




## Fire Engine and Jockey Pumps: -

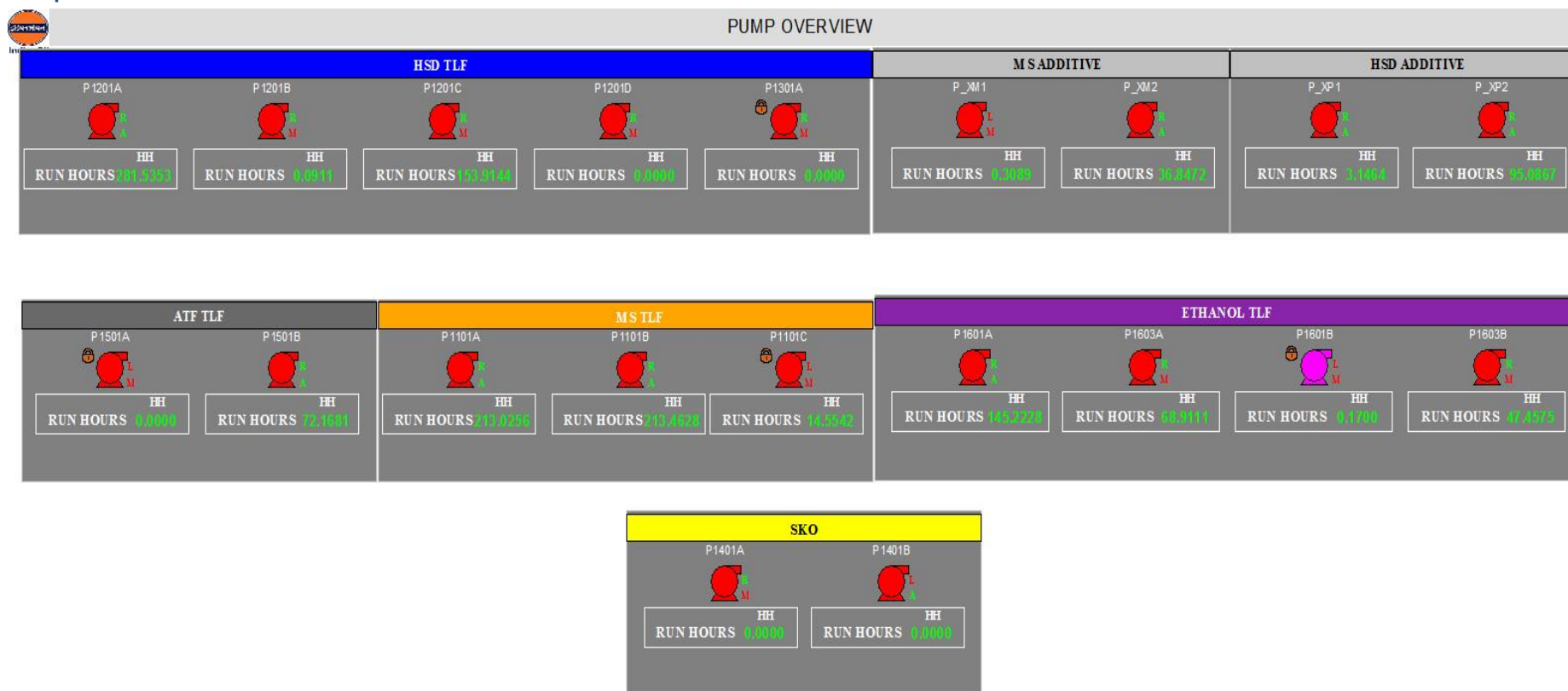


## FIRE ENGINES &amp; JOCKEY PUMPS



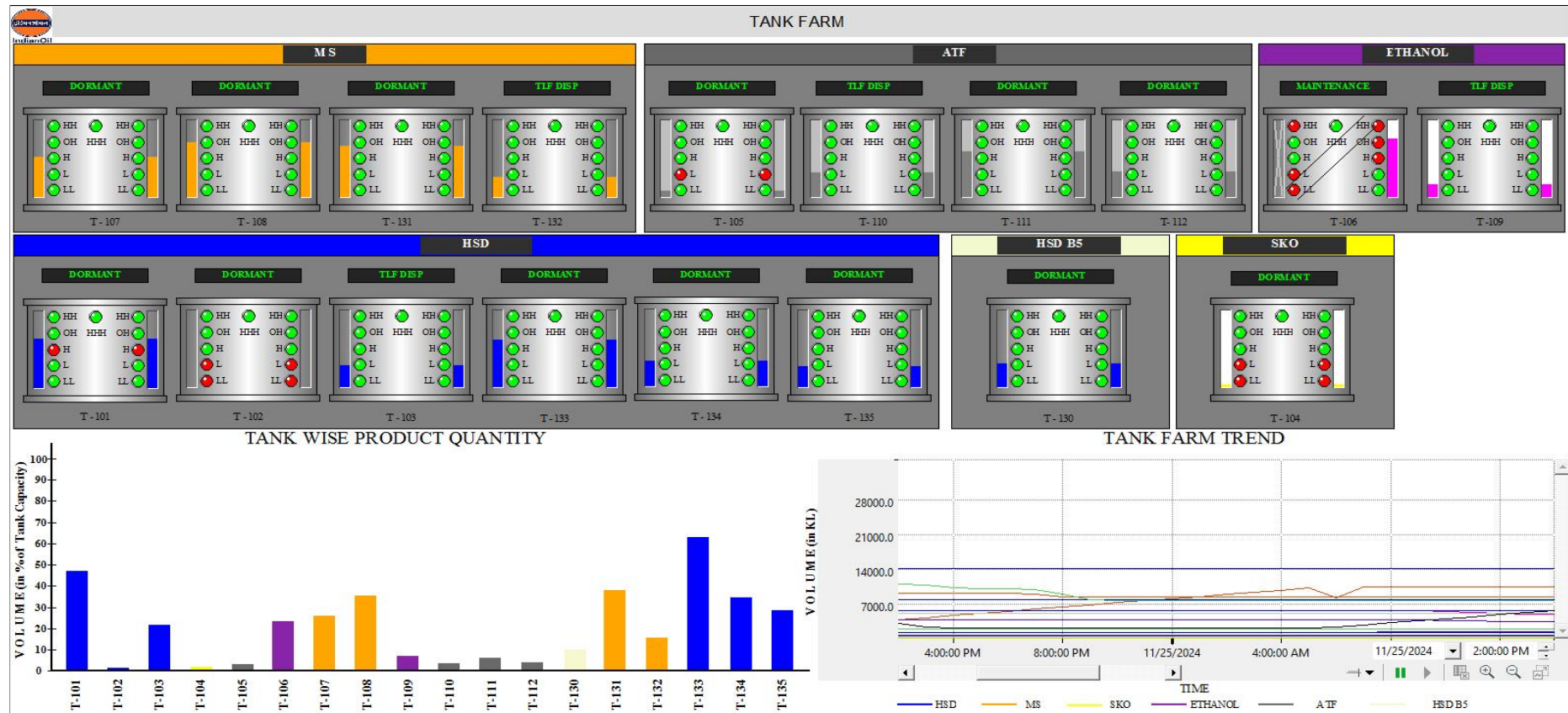


## Pump Overview: -





## Tank Farm Overview: -





## ENGINEERING DEPARTMENT, HO

### ANALYTICS AND VISIBILITY DOCUMENT FOR TERMINAL AUTOMATION SYSTEM (VER 1.0)

Page No. 48

Ref: HO/ENG/TAS

Date:

#### TLF Parameters: -

2024-09-24

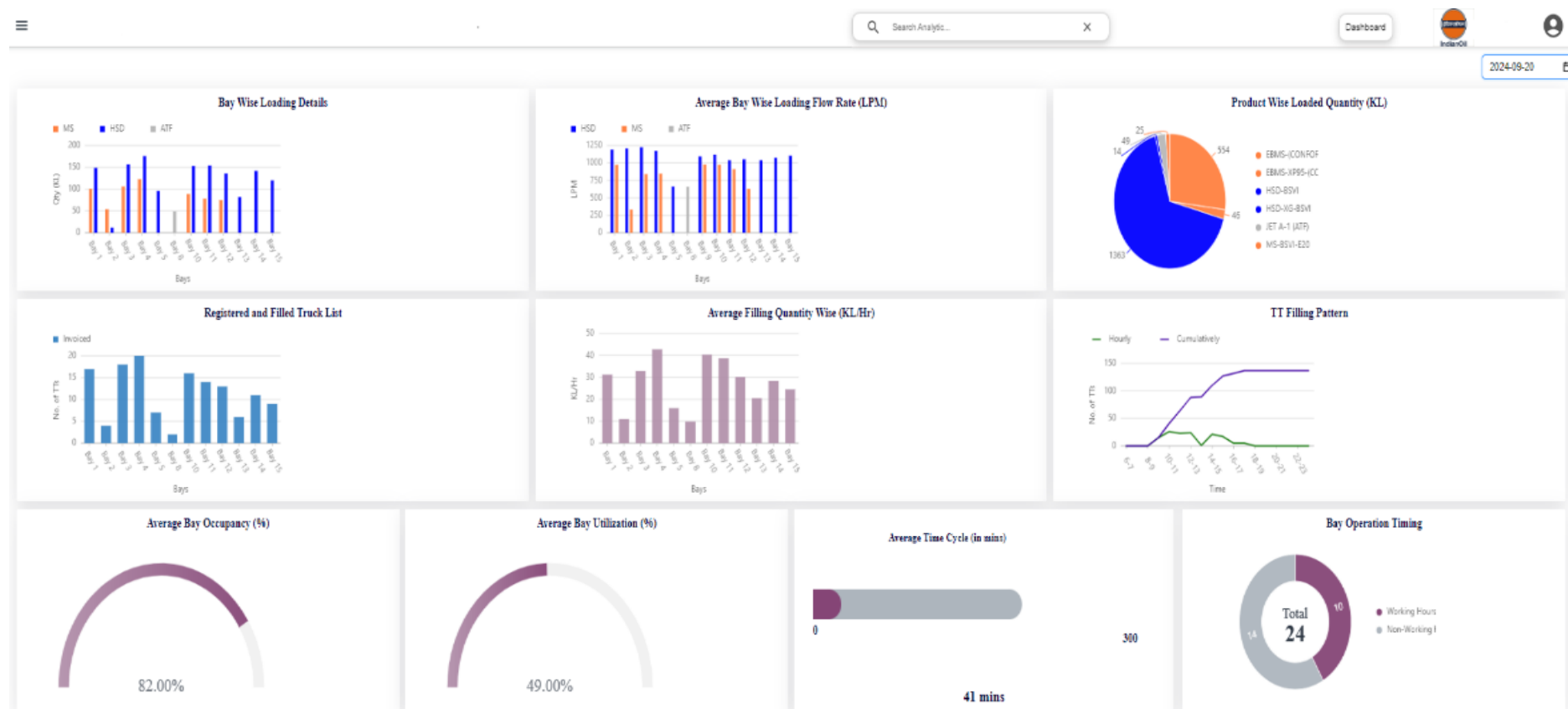
id	Description	Output
1	First TT entrance Time (Parking Gate)	Sep 24 2024 6:24AM
2	First Loading Start Time	Sep 24 2024 8:51AM
3	First TT Invoice Time	Sep 24 2024 9:16AM
4	First TT Exited Time (Main Gate)	Sep 24 2024 9:24AM
5	TTs Reported (Nos) (LIVE)	0
6	TTs in Register Status (Nos) (LIVE)	0
7	TTs in Authorized Status (Nos)	0
8	Number of FAN cancelled (Nos)	7
9	TTs in License Area (Nos)	0
10	TTs Under Loading (Nos)	0
11	TTs waiting for Loading (Nos) (Inside License)	0
12	TTs waiting for Invoice (Nos)	0
13	TTs Exited (Nos)	131
14	TTs Loaded & Outside License (Nos)	0
15	Last TT loaded Time (Loading End)	Sep 24 2024 4:52PM
16	Last TT exited Time (Main Gate)	Sep 24 2024 5:11PM
17	Number of TTs Overfilled (Nos)	1
18	Average FAN Generation to License Area Entry Time (In minute)	25

id	Description	Output
19	Average License Area Entry to Start of Loading (In minute)	18
20	Average Invoice waiting Time (In minute)	2
21	Average TT Cycle Stamp (Reporting to Terminal Exit in minute)	183
22	Average TT Cycle Stamp (License Entry to Terminal Exit in minute)	61
23	Average TT Cycle Stamp (License Entry to License Exit in minute)	49
24	Average TT Cycle Stamp (Loading Start to End in minute)	18
25	Min TT Cycle Stamp (Reporting to Terminal Exit in minute)	149
26	Min TT Cycle Stamp (License Entry to Terminal Exit in minute)	26
27	Max TT Cycle Stamp (License Entry to License Exit in minute)	201
28	Max TT cycle stamp (Loading Start to Loading End in minute)	83
29	Average Bay Utilization (% Time) ( BayReportingTime , LoadingEndTime)	143
30	Bay Utilization Variation (BayReportingTime , LoadingEndTime)	11
31	Bay Performance(Average L/min) (BayReportingTime, LoadingEndTime)	888.35
32	Average Register to FAN Generation Time (In minute)	41
33	Manual Bay Allocation/Reauthorization (No. of TTs)	15
34	Average TT Cycle Stamp (Invoice Time to License Exit in minute)	8
35	Bay Occupancy	45
36	TTs Invoiced & Inside License (Nos)	0

[TAS Analytics](#)



Dashboard: -





## 2 Visibility Functionality

### VISIBILITY – Utilization

Sr. No.	Area	Category	Type	Analytic Description
1	Visibility	Utilization	Graph	<u><a href="#">LP Wise Utilization</a></u>  Example:  TLF Bay 1 Loading Point 1 MS Product Utilization = Bay 1 Loading Point 1 MS Cumulative Totaliser/Sum of all Bay Loading Point MS Cumulative Totaliser
2	Visibility	Utilization	Graph	<u><a href="#">DG, FE, JP, Foam Pump, Foam Filling Pump</a></u>  Example:  DG Set 1 Utilization = DG Set 1 Run Hours /Sum of all DG Set Run Hours
3	Visibility	Utilization	Graph	<u><a href="#">Barrier Gates</a></u>  Example:  TLF Barrier Gate Entry 1 Utilization = TLF Barrier Gate Entry 1 Count (Open Command followed by Open Feedback) /Sum of all TLF Barrier Gate Entry Count (Open Command followed by Open Feedback)

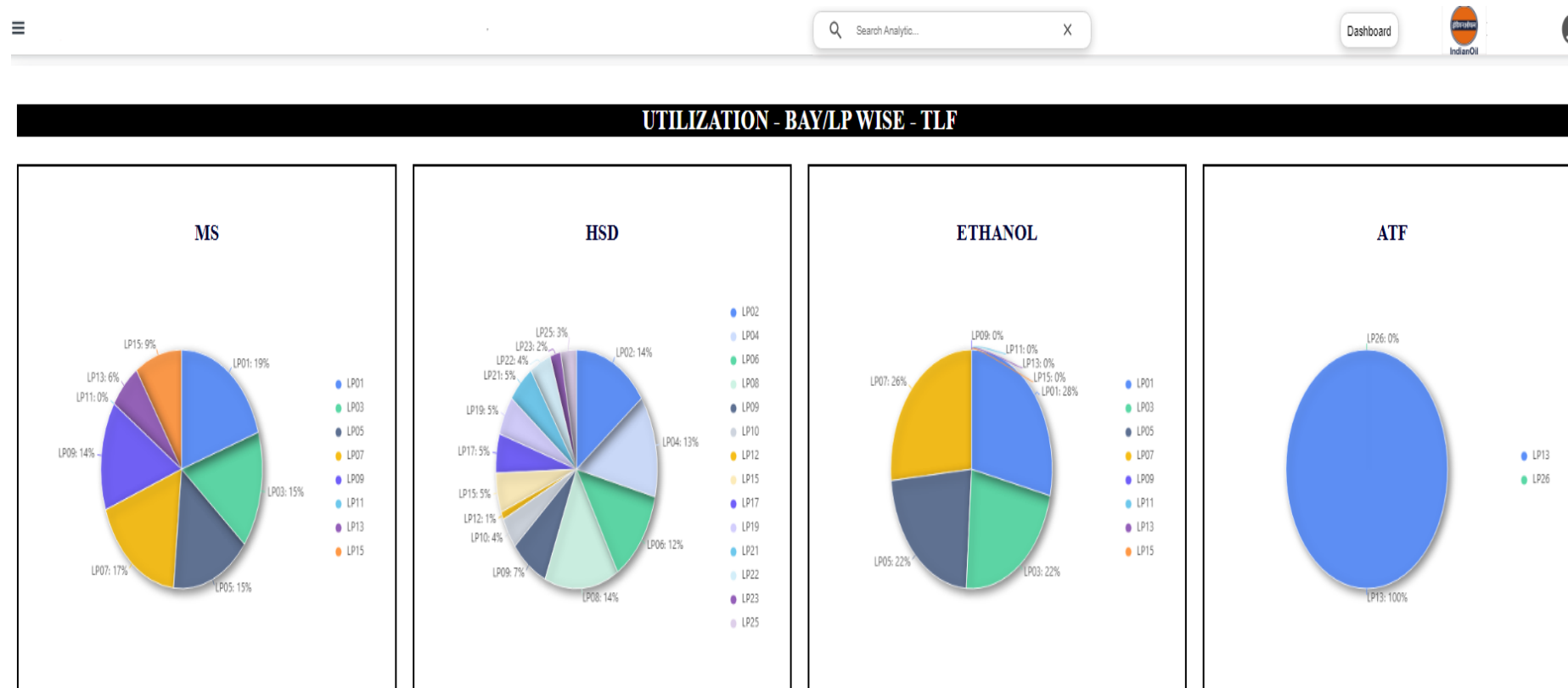


Sr. No.	Area	Category	Type	Analytic Description
4	Visibility	Utilization	Graph	<p><a href="#">Pump Utilization</a></p> <p>(i) TLF Pump Utilization (ii) Wagon Pump Utilization</p> <p>Example:</p> <p>MS Pump 1 Product Utilization = MS Pump 1 Cumulative Run Hours /Sum of all MS Pump Run Hours</p>



## Reference Screenshots for Visibility Functionality - Utilization

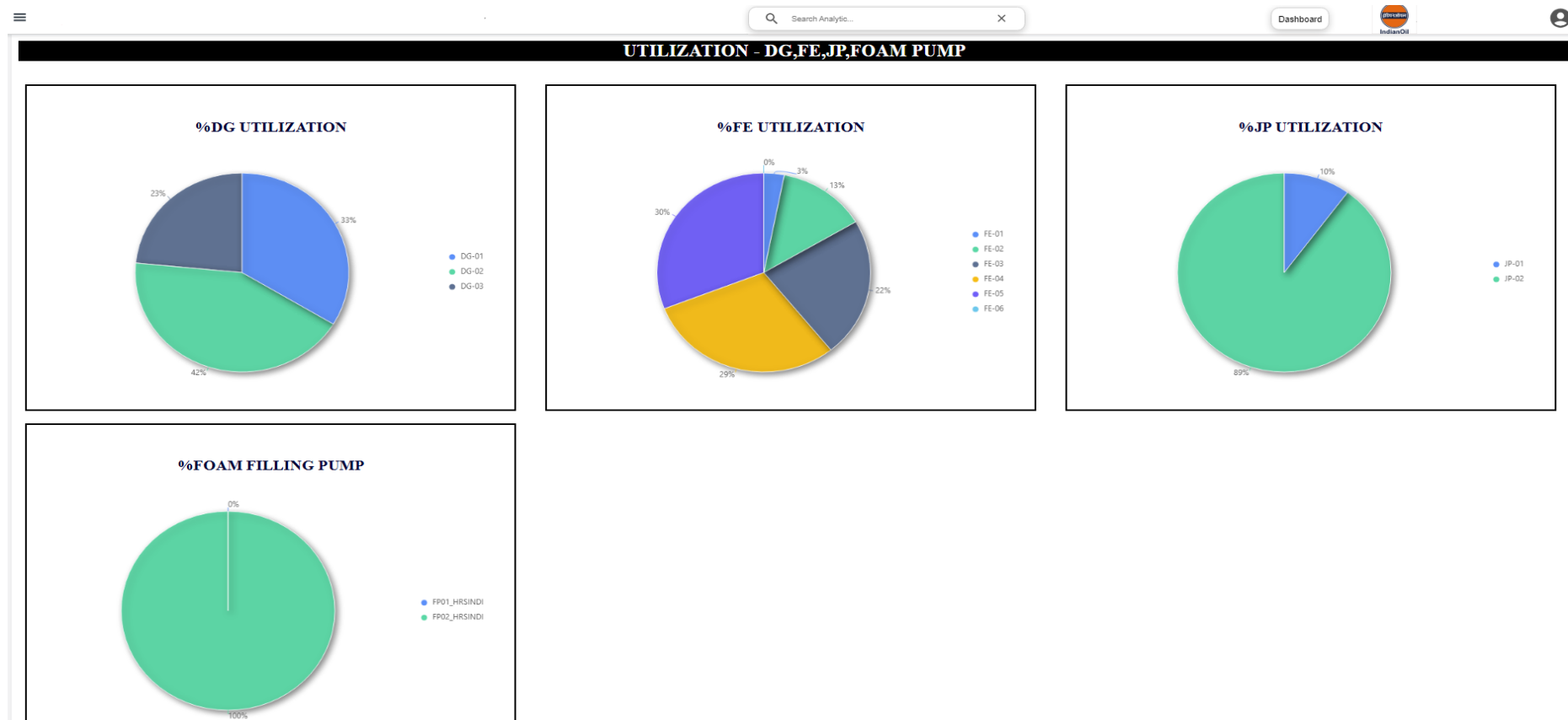
## LP Wise Utilization: -

[Visibility-Utilization](#)





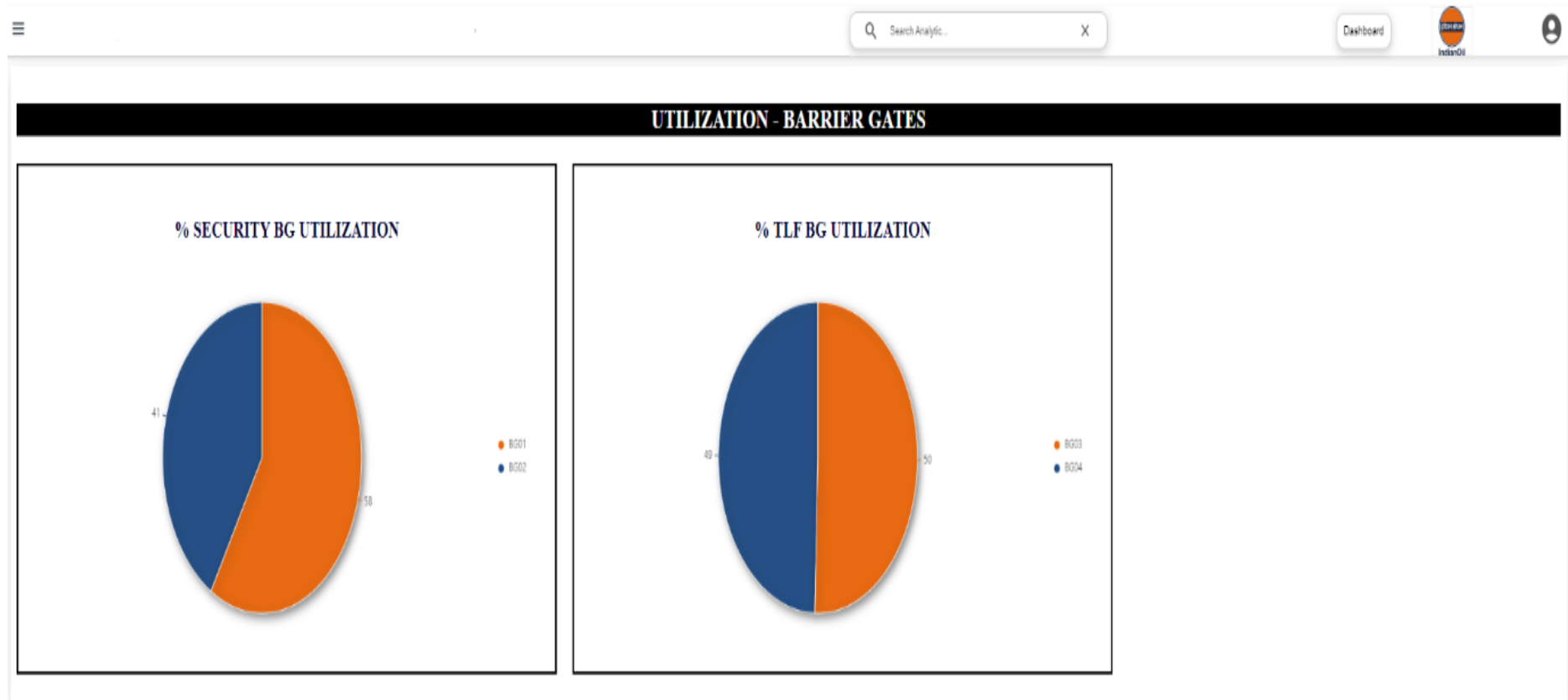
DG, FE, JP, Foam Pump, Foam Filling Pump: -



[Visibility-Utilization](#)



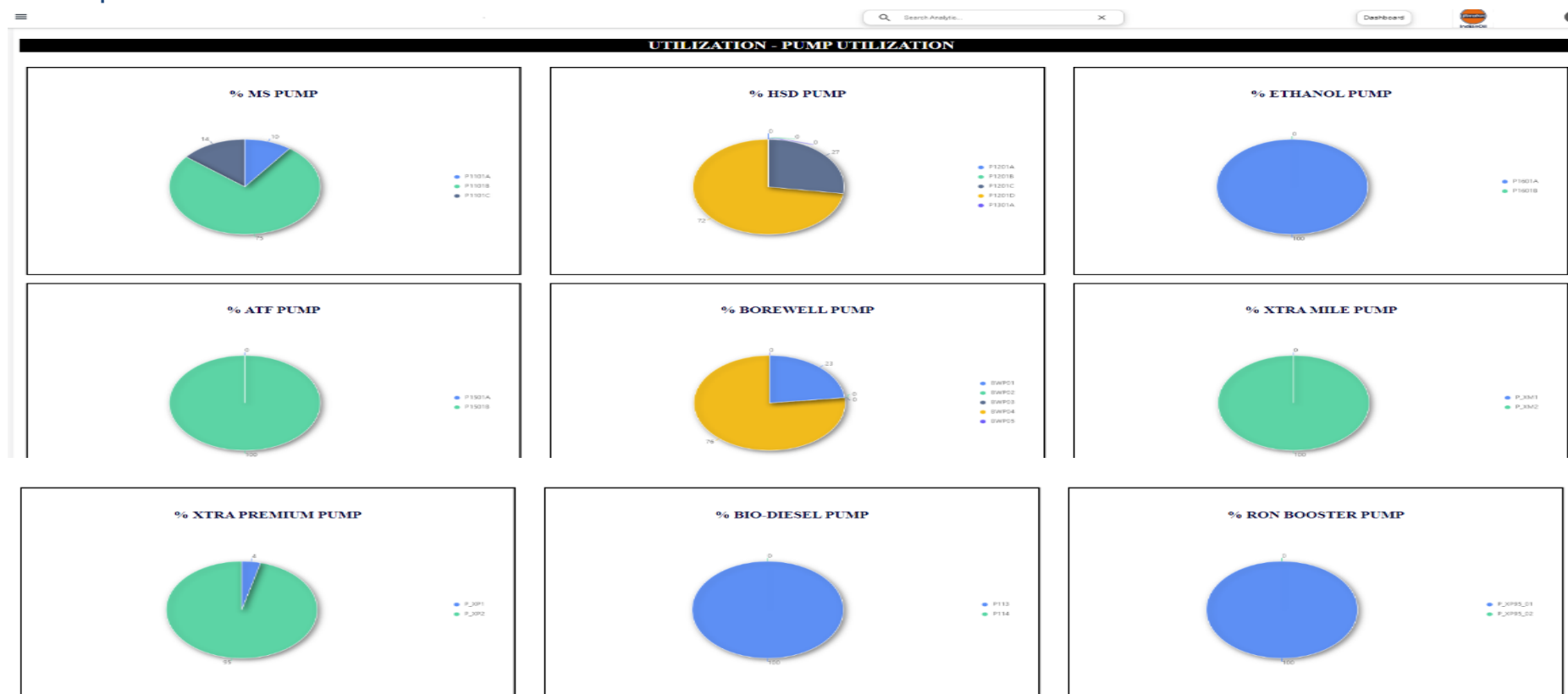
Barrier Gates: -



[Visibility-Utilization](#)

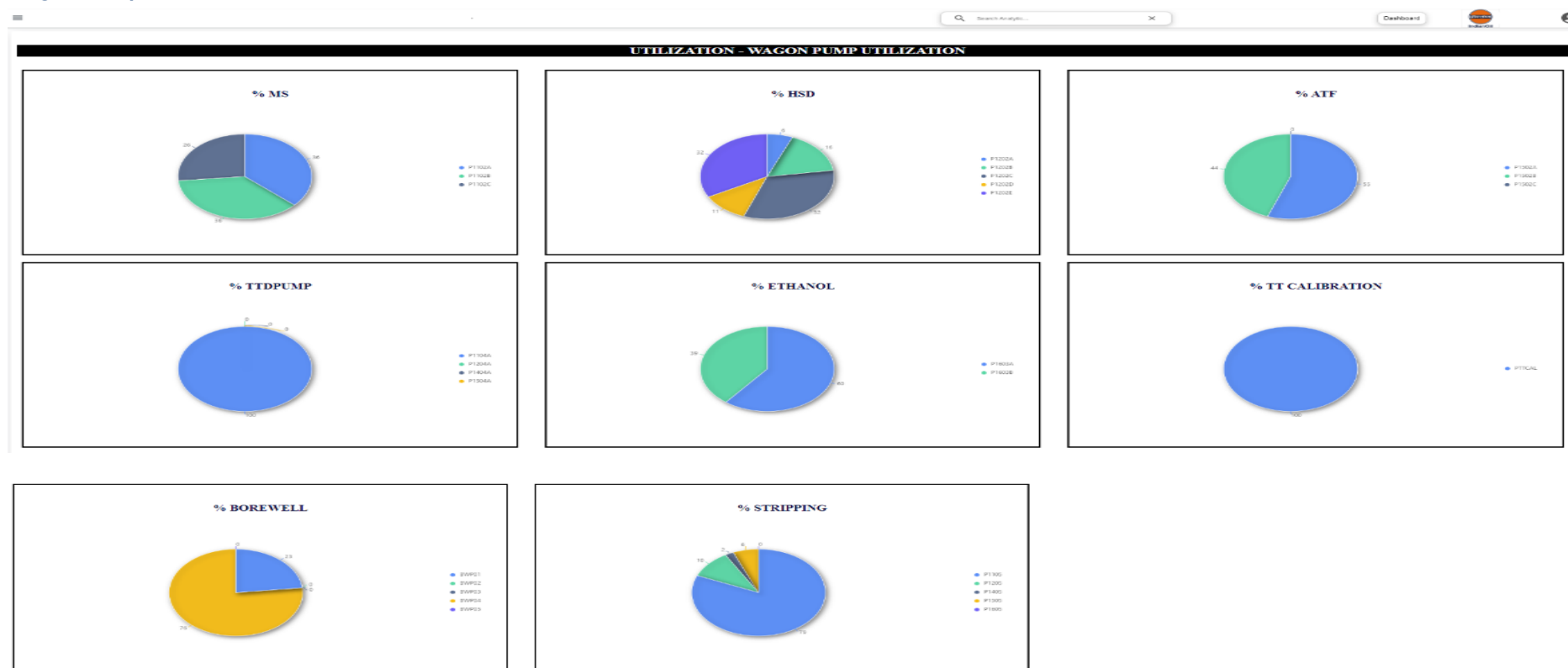


## TLF Pump Utilization: -





### Wagon Pump Utilization: -



[Visibility-Utilization](#)



## VISIBILITY – Interlock

Sr. No.	Area	Category	Type	Analytic Description
1	Visibility	Interlock	Graph	<p><a href="#">TLF Interlock</a></p> <p>Following BCU Wise Status required for TLF Interlock Status display:</p> <ul style="list-style-type: none"><li>i. Earthing Relay</li><li>ii. Overspill/Overrun</li><li>iii. VRU Arm</li><li>iv. Loading Arm Parking Position</li><li>v. Low Flow</li><li>vi. No Flow</li><li>vii. Strainer Choke (50%)</li><li>viii. ESD Healthy</li></ul>
2	Visibility	Interlock	Graph	<p><a href="#">TFMS Interlock – Dispatch Mode</a></p> <p>Following Tank Wise Status required for TFMS Dispatch Mode Interlock Status display:</p> <ul style="list-style-type: none"><li>i. Primary Radar LL Healthy</li><li>ii. Secondary Radar LL Healthy</li></ul>



Sr. No.	Area	Category	Type	Analytic Description
				<ul style="list-style-type: none"> <li>iii. Plant ESD Healthy</li> <li>iv. Outlet ROSOV Open</li> <li>v. Recirculation ROSOV and DBBV Close</li> <li>vi. Inlet ROSOV and DBBV Close</li> <li>vii. All other tanks not in Dispatch Mode</li> <li>viii. Outlet DBBV Remote Auto</li> <li>ix. PUMP Suction MOV REMOTE AUTO</li> <li>x. PUMP Discharge MOV REMOTE AUTO</li> <li>xi. Dispatch Mode Selected</li> <li>xii. Drain Valve closed</li> </ul>
3	Visibility	Interlock	Graph	<p><a href="#">TFMS Interlock – Dispatch Sequence Mode</a></p> <p>Following Tank Wise Status required for TFMS Dispatch Sequence Mode Interlock Status display:</p> <ul style="list-style-type: none"> <li>i. Primary Radar LL Healthy</li> <li>ii. Secondary Radar LL Healthy</li> <li>iii. Plant ESD Healthy</li> <li>iv. Outlet ROSOV Open</li> <li>v. Inlet ROSOV and DBBV Close</li> </ul>



Sr. No.	Area	Category	Type	Analytic Description
				<ul style="list-style-type: none"> <li>vi. Recirculation ROSOV and DBBV Close</li> <li>vii. Dispatch Sequence Mode</li> <li>viii. All other tanks not in Dispatch sequence</li> <li>ix. Outlet DBBV Remote Auto</li> <li>x. Any Tank of same product in Dispatch Mode</li> <li>xi. Drain Valve Closed</li> <li>xii. PUMP Suction MOV REMOTE AUTO</li> <li>xiii. PUMP Discharge MOV REMOTE AUTO</li> </ul>
4	Visibility	Interlock	Graph	<p><a href="#">TFMS Interlock – Receipt Mode</a></p> <p>Following Tank Wise Status required for TFMS Receipt Mode Interlock Status display:</p> <ul style="list-style-type: none"> <li>i. Primary Radar HH Healthy</li> <li>ii. Secondary Radar HH Healthy</li> <li>iii. Plant ESD Healthy</li> <li>iv. Inlet ROSOV Open</li> <li>v. Outlet ROSOV and DBBV Close</li> <li>vi. Recirculation ROSOV and DBBV Close</li> <li>vii. Receipt Mode Selected</li> <li>viii. All other tanks not in receipt mode</li> <li>ix. Receipt DBBV Remote Auto</li> </ul>



Sr. No.	Area	Category	Type	Analytic Description
				<ul style="list-style-type: none"> <li>x. Drain Valve Closed</li> <li>xi. AOPS HHH Healthy</li> <li>xii. Drain valve closed</li> </ul>
5	Visibility	Interlock	Graph	<p><a href="#">TFMS Interlock – Receipt Sequence Mode</a></p> <p>Following Tank Wise Status required for TFMS Receipt Sequence Mode Interlock Status display:</p> <ul style="list-style-type: none"> <li>i. Primary Radar HH Healthy</li> <li>ii. Secondary Radar HH Healthy</li> <li>iii. Plant ESD Healthy</li> <li>iv. Inlet ROSOV Open</li> <li>v. Outlet ROSOV and DBBV Close</li> <li>vi. Recirculation ROSOV and DBBV Close</li> <li>vii. Receipt Sequence Mode Selected</li> <li>viii. All other tanks not in receipt sequence</li> <li>ix. Inlet DBBV Remote Auto</li> <li>x. Any Tank of same product in Receipt Mode</li> <li>xi. AOPS HHH Healthy</li> <li>xii. Drain valve closed</li> </ul>



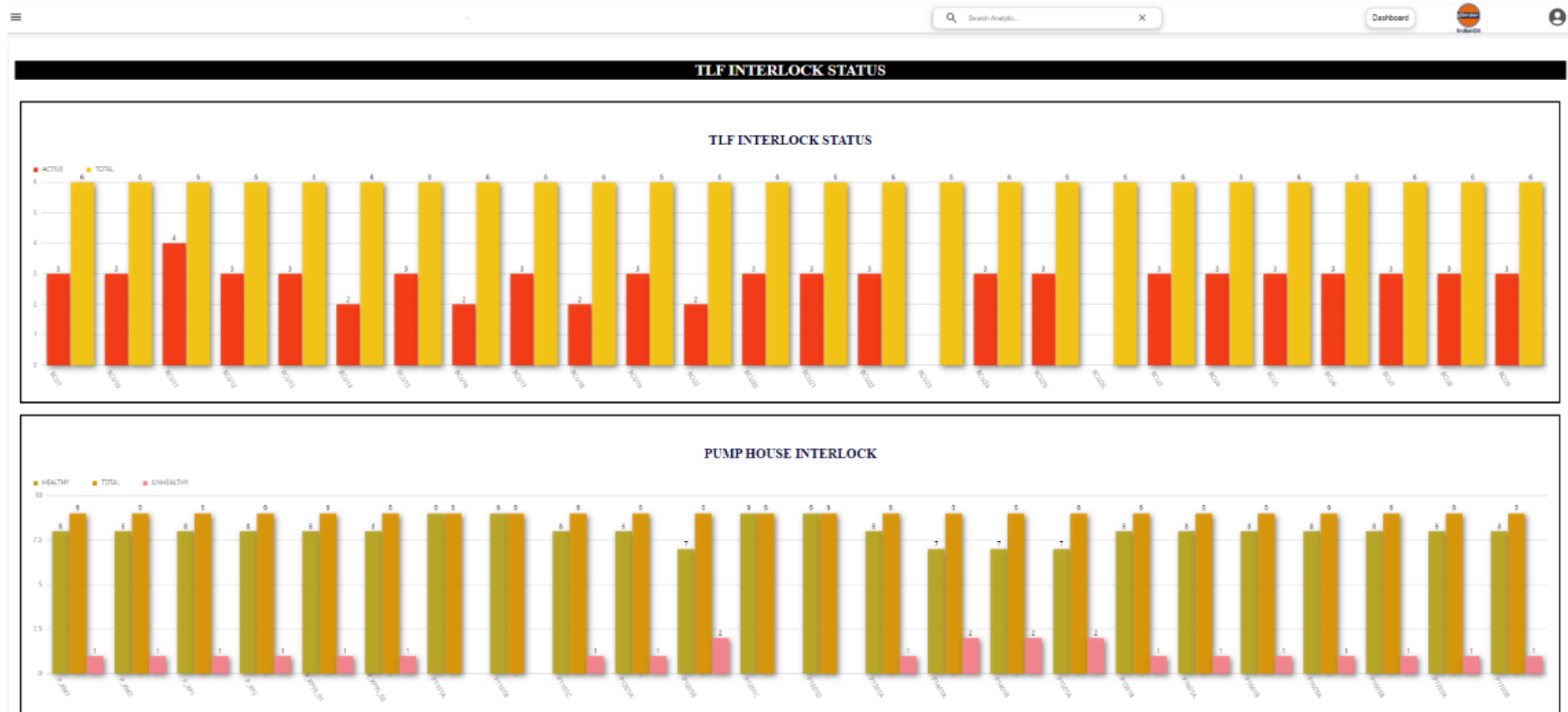


Sr. No.	Area	Category	Type	Analytic Description
6	Visibility	Interlock	Graph	<p><a href="#">Pump House Interlock</a></p> <p>(i)TLF Pump House Interlocks (ii) TWL Pump Interlock Following Pump Wise Status required for Pump House Interlock Status display:</p> <ul style="list-style-type: none"><li>i. Suction Pressure Low</li><li>ii. Discharge Pressure High</li><li>iii. Differential Pressure High</li><li>iv. Pump Trip</li><li>v. Pump Ready</li><li>vi. Sequence Valve Open</li><li>vii. ESD Healthy</li></ul>



## Reference Screenshots for Visibility Functionality – Interlock

TLF Interlock, Pump House Interlock, TWL Pump Interlock: -

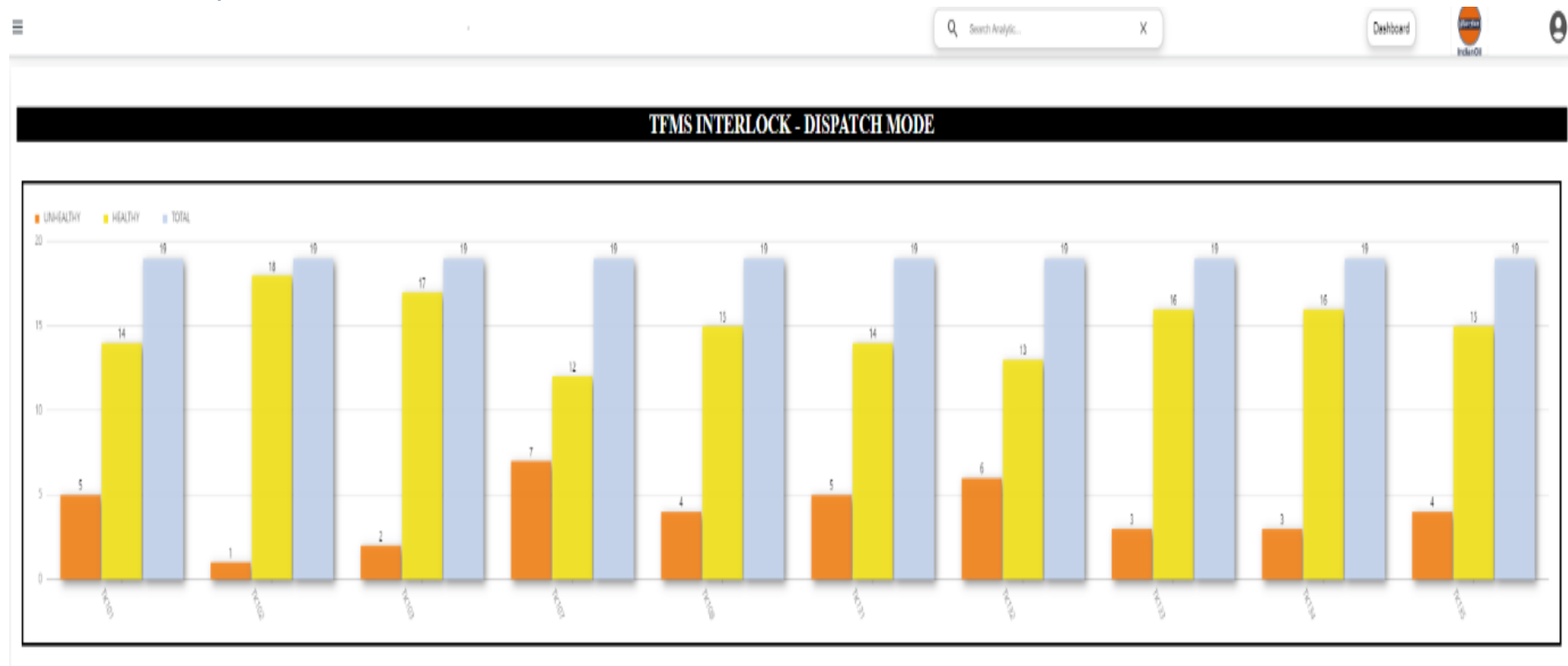




[Visibility- Interlock](#)



TFMS Interlock - Dispatch Mode: -

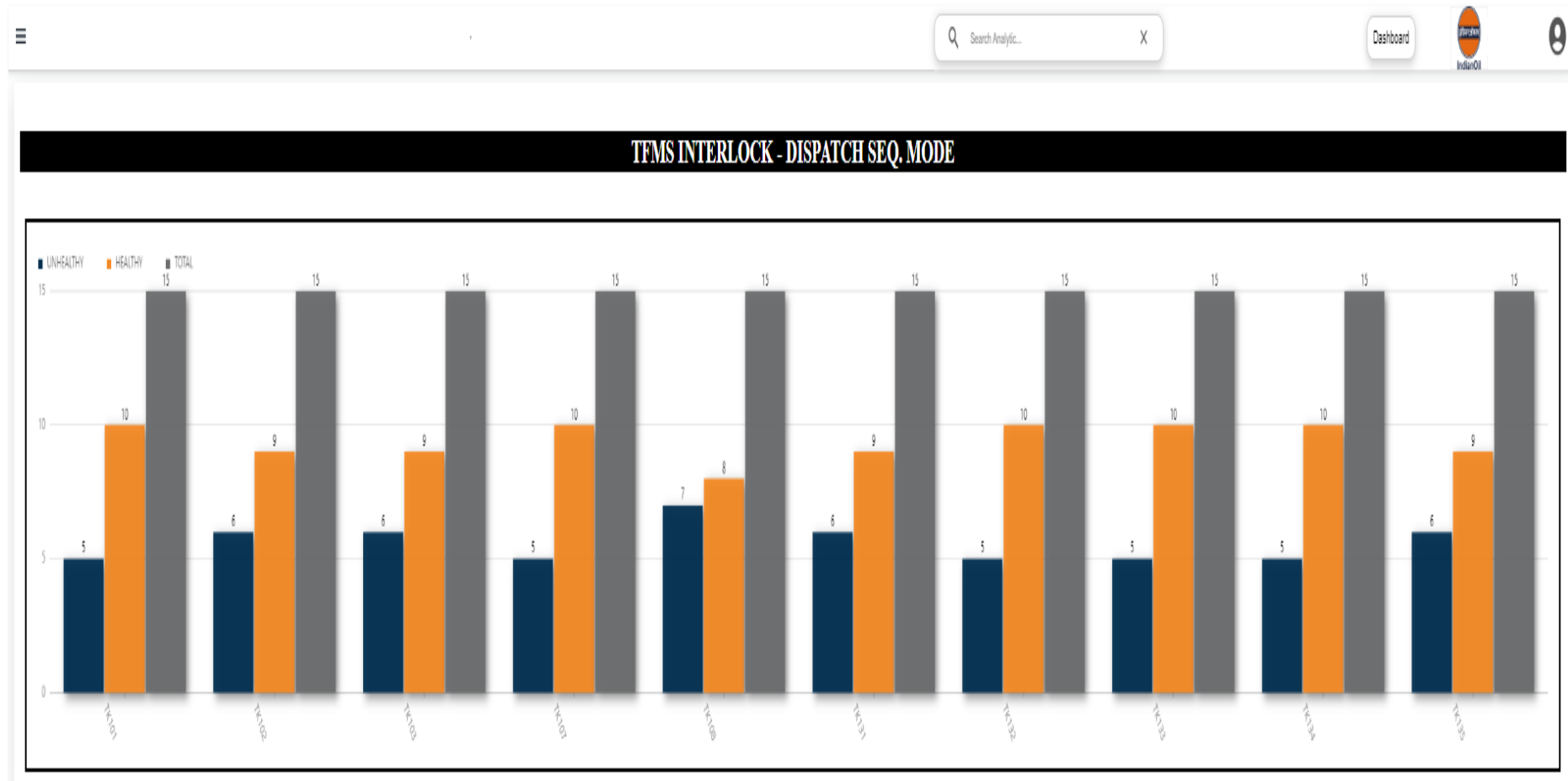


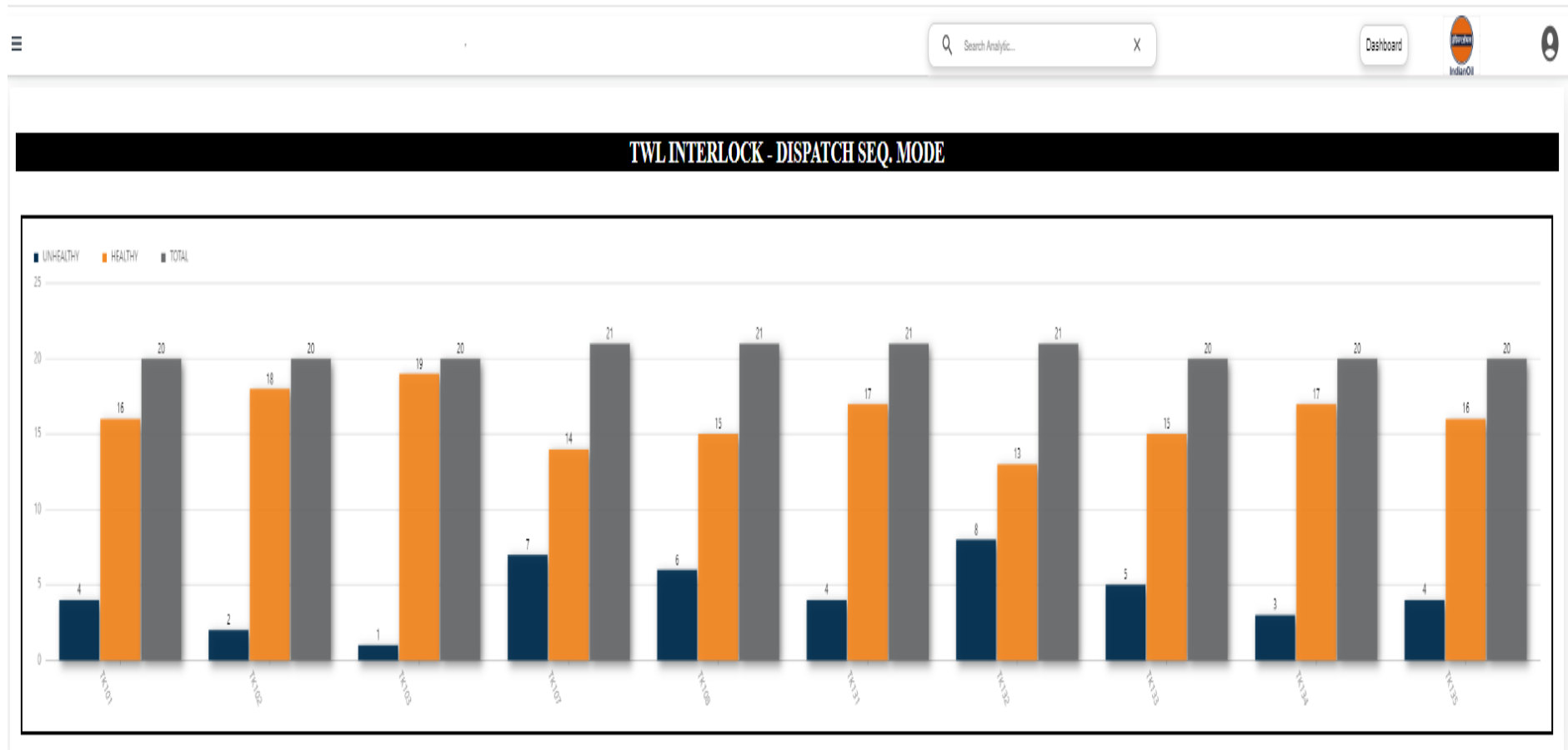


[Visibility- Interlock](#)



TFMS Interlock- Dispatch Seq Mode: -

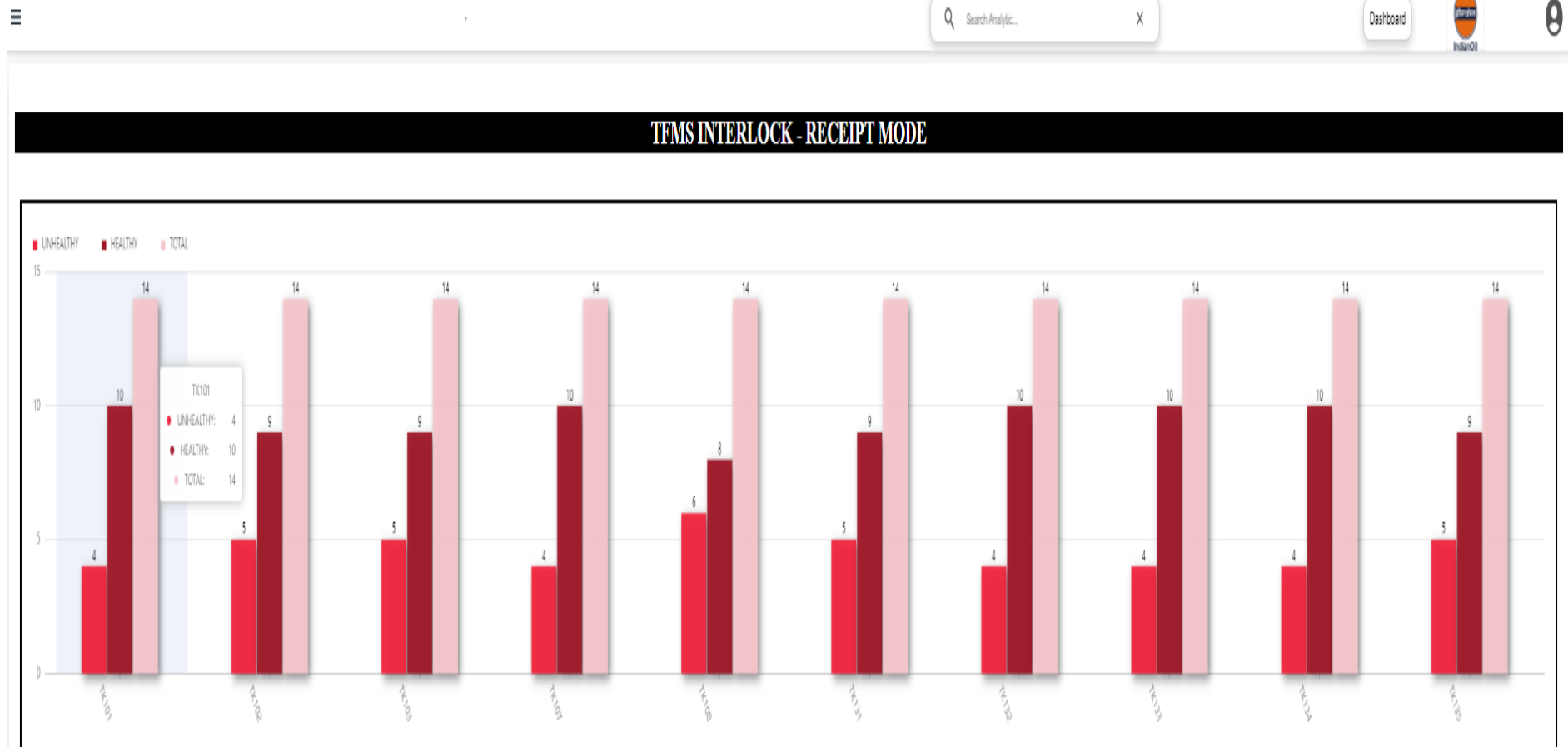




[Visibility- Interlock](#)



TFMS Interlock - Receipt Mode: -





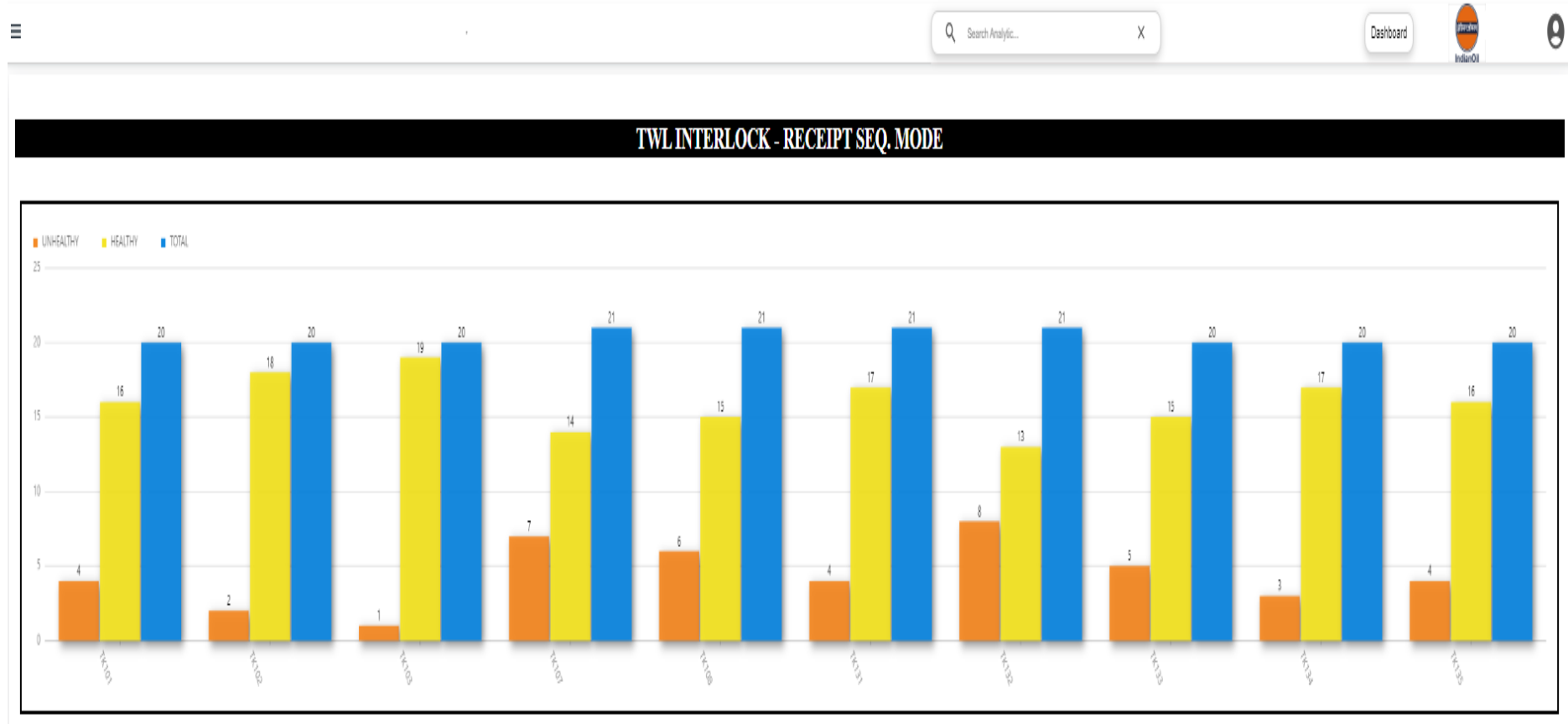


[Visibility- Interlock](#)



TFMS Interlock - Receipt Sequence Mode: -





[Visibility- Interlock](#)



## VISIBILITY - Availability

Sr. No.	Area	Category	Type	Analytic Description
1	Visibility	Availability	Graph	<p><a href="#">MOS Status and Maintenance Mode</a></p> <p>Following MOS Status display:</p> <ul style="list-style-type: none"> <li>i. Maintenance Mode</li> <li>ii. Primary Radar MOS</li> <li>iii. Secondary Radar MOS</li> <li>iv. AOPS MOS</li> <li>v. Local ESD MOS</li> <li>vi. Plant ESD MOS</li> </ul>
2	Visibility	Availability	Graph	<p><a href="#">TFMS Area</a></p> <ul style="list-style-type: none"> <li>i. Tank Gauges</li> <li>ii. MST</li> <li>iii. Density Probe</li> <li>iv. AOPS</li> <li>v. Turnstile</li> <li>vi. PT</li> <li>vii. Biometrics on Turnstile</li> </ul>
3	Visibility	Availability	Graph	<p><a href="#">TLF AREA</a></p> <ul style="list-style-type: none"> <li>i. Bay</li> </ul>



Sr. No.	Area	Category	Type	Analytic Description
				ii. BCU iii. MFM iv. Earthing Relay v. Rack Monitor vi. PT vii. DPT viii. TT ix. Strainer x. Barrier Gate xi. Card Reader xii. 2/3 Line BQD xiii. Turnstile xiv. Biometrics on Turnstile xv. ANPR Camera
4	Visibility	Availability	Graph	<a href="#">Main/Security Gate</a> i. Barrier Gate ii. Card Reader iii. 2/3 Line BQD iv. ANPR Camera v. Turnstiles
5	Visibility	Availability	Graph	<a href="#">TT Parking Area</a> i. Card Reader



Sr. No.	Area	Category	Type	Analytic Description
				ii. ANPR Camera iii. 2/3 Line BQD
6	Visibility	Availability	Graph	<a href="#">Tank Farm Valves</a> i. Actuator ii. ROSOV iii. DBBV iv. MOV
7	Visibility	Availability	Graph	<a href="#">Fire Fighting System</a> i. Fire Engine ii. Jockey Pumps iii. Foam Pump iv. Makeup water Pump
8	Visibility	Availability	Graph	<a href="#">HCD</a> i. Point Type ii. Open Path iii. Flame Detector iv. Hydrogen Detector v. FLP Hooters
9	Visibility	Availability	Graph	<a href="#">FAS</a> i. Main Panel ii. Repeater Panel



Sr. No.	Area	Category	Type	Analytic Description
				iii. Heat Detector iv. WP MCP v. FLP MCP vi. Hooters vii. CMD
10	Visibility	Availability	Graph	<a href="#">Pump House</a> i. Pumps ii. PT iii. DPT iv. Strainer
11	Visibility	Availability	Graph	<a href="#">Admin Building</a> i. Flap Barrier ii. OIC iii. CCTV WS iv. Video Wall
12	Visibility	Availability	Graph	<a href="#">Security Building</a> i. PPMS ii. ACS WS (Rack Type) iii. CCTV WS (Rack Type) iv. Video Wall v. Photopass Printer cum Scanner



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Date:

Sr. No.	Area	Category	Type	Analytic Description
				vi. Monochrome Laser Printers vii. Visitor Pass Printer
13	Visibility	Availability	Graph	<a href="#">Invoice Room</a> i. TTES ii. Heavy Duty Printers iii. 55" Display iv. Driver Rest Room
14	Visibility	Availability	Graph	<a href="#">Control Room</a> <b>i. Servers</b> ii. TAS-MS Server iii. ACS Server iv. TFMS Server v. Web Server vi. TERMINAL SERVER <b>vii. Workstations</b> viii. TFMS WS ix. EWS x. TTES xi. OICs xii. Alarm OIC xiii. Fire Fighting OIC xiv. DCS xv. Safety PLC



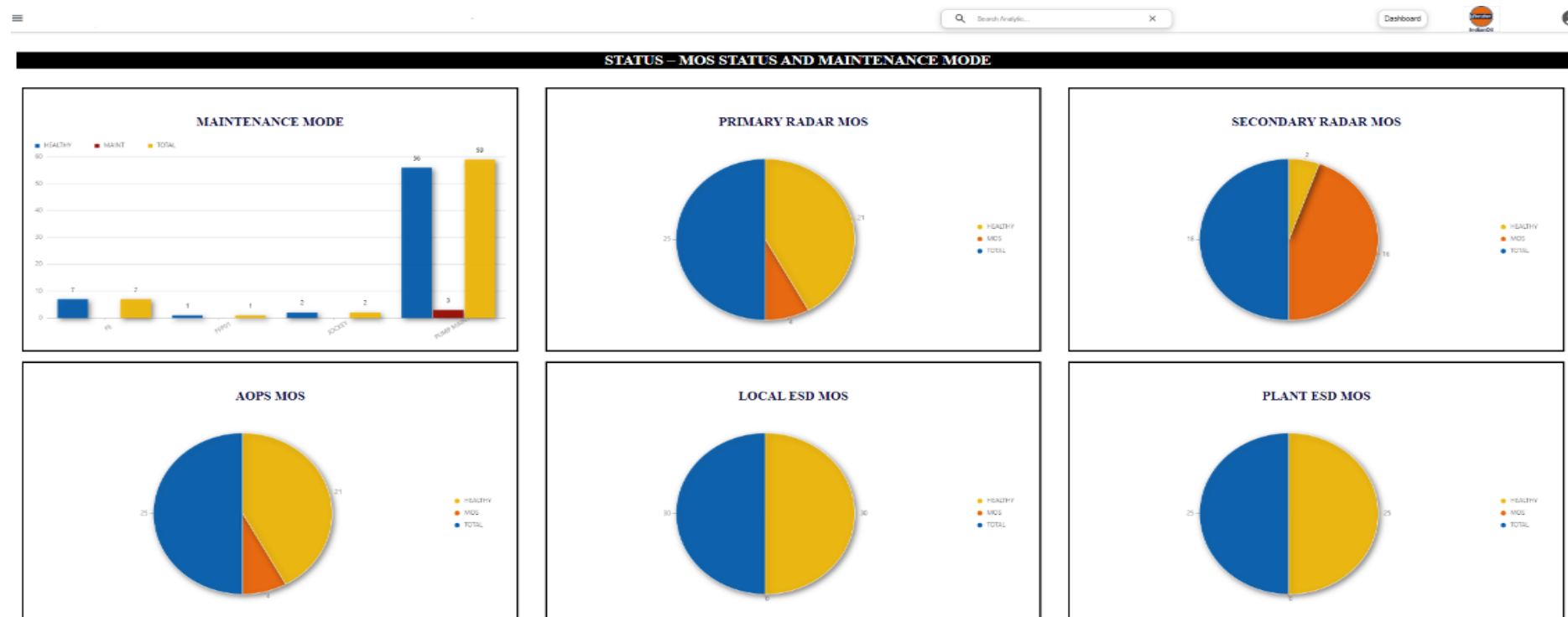
**ENGINEERING DEPARTMENT, HO****Page No. 77****ANALYTICS AND VISIBILITY DOCUMENT FOR TERMINAL AUTOMATION SYSTEM (VER 1.0)****Ref: HO/ENG/TAS****Date:**

Sr. No.	Area	Category	Type	Analytic Description
				xvi. UPS xvii. MCS xviii. Monochrome Laser Printers xix. Bio-Metrics
15	Visibility	Availability	Graph	<a href="#">CCTV SYSTEM</a> i. CAMERA ii. SWITCH
16	Visibility	Availability	Graph	<a href="#">Alarm Status</a> Top 10 Critical Alarm to be displayed.



## Reference Screenshots for Visibility Functionality – Availability

## MOS Status and Maintenance Mode: -

[Visibility- Availability](#)



TFMS Area, TLF Area, Main/Security Gate, TT Parking: -

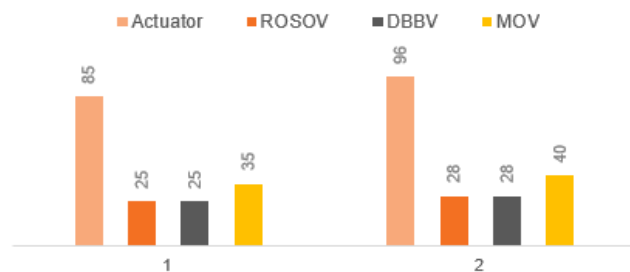


[Visibility- Availability](#)

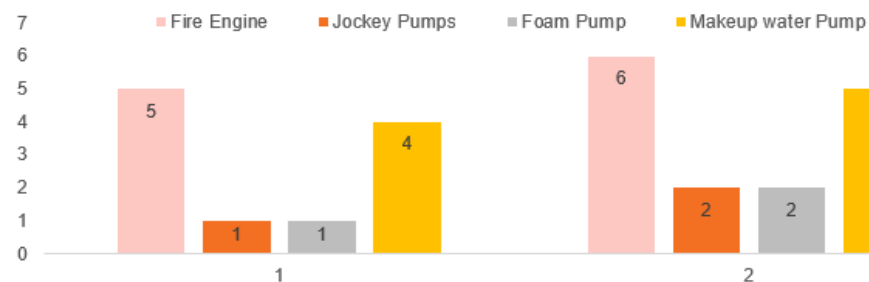


Tank Farm Valves, Fire Fighting System, HCD and FAS: -

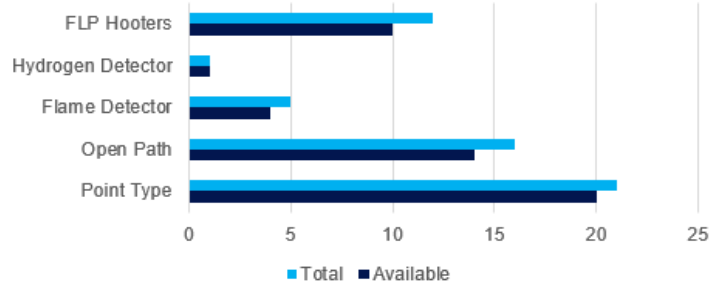
### TANK FARM VALVES



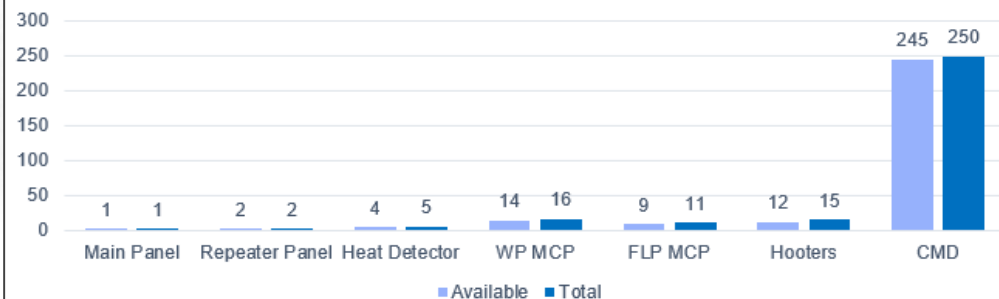
### FIRE FIGHTING SYSTEM



### HCD



### FAS



[Visibility- Availability](#)

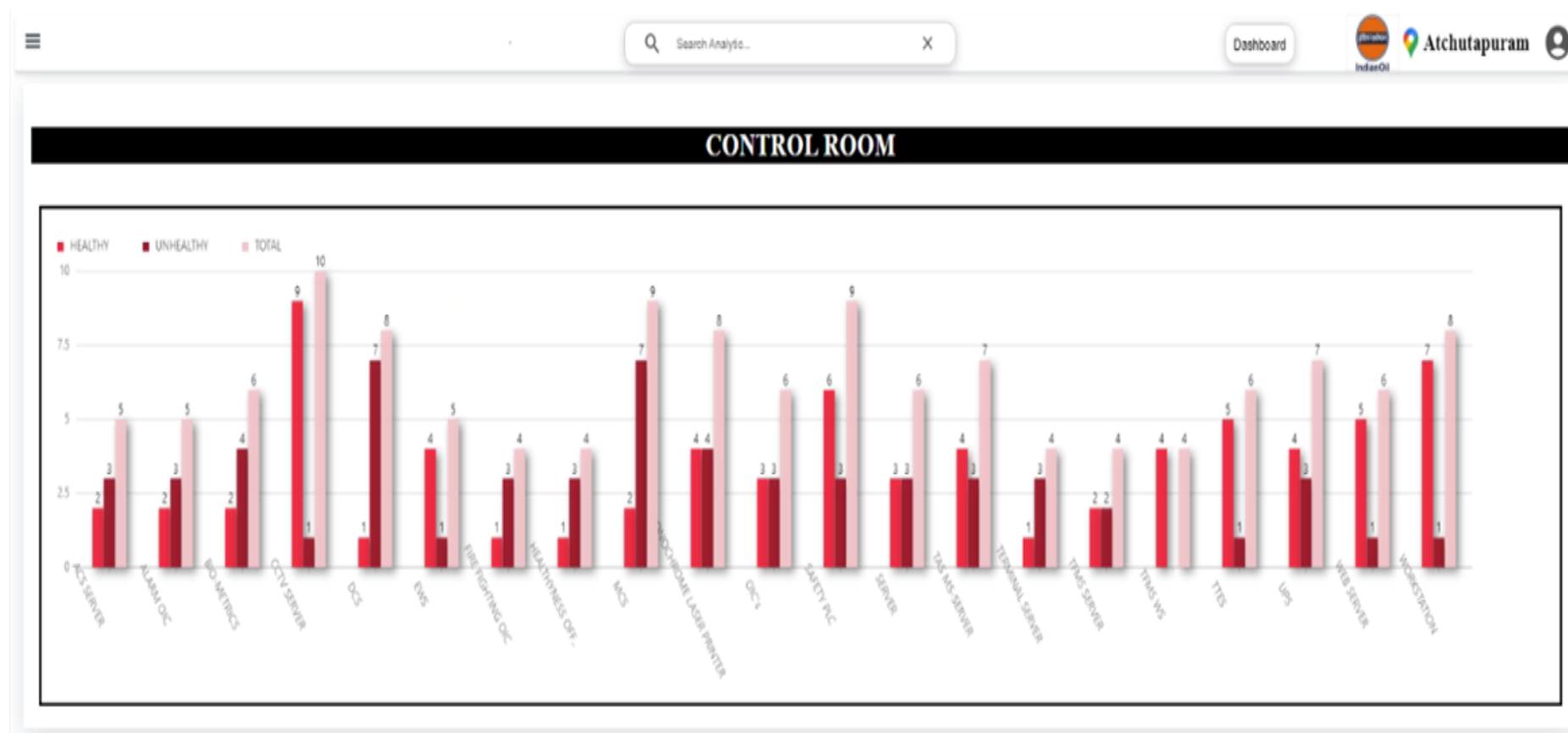


## Pump House, Security Building, Admin Building and Invoice Room: -

[Visibility- Availability](#)



## Control Room: -

[Visibility- Availability](#)



CCTV System: -



[Visibility- Availability](#)



Alarm Status: -

Search Analytics...

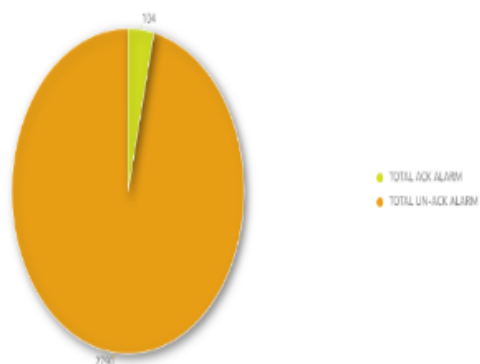
X

Dashboard



## AVAILABILITY – ALARM STATUS

## TOTAL ACTIVE ALARM



## TODAY'S TOP 10 CRITICAL ALARMS

#	AlarmDescription	AlarmCount
1	Exop_lockeyPump-02 RUN AND STOP INDICATION	80
2	LEVEL DIFFERENCE BETWEEN PRIMARY AND SECONDARY RADAR IS MORE THAN +/-4 MM	75
3	DG-01 CONTROL SWITCH STATUS	37
4	DG-01 CONTROL SWITCH STATUS	23
5	BAY01 EARTHING RELAY STATUS	20
6	BAY01 EARTHING RELAY STATUS	20
7	BAY02 EARTHING RELAY STATUS	18
8	BAY02 EARTHING RELAY STATUS	18
9	BAY10 EARTHING RELAY STATUS	17
10	BAY10 EARTHING RELAY STATUS	17

Rows per page: 10 1-10 of 10

[Visibility- Availability](#)





### 3. To Do List:

The “To Do List” is basically a list which comprises of devices in which the user will be prompted to perform certain set of actions for that device. The list will be sent to the user through mail as per predefined periodicity which states what action to be performed for that device. A separate list will also be sent through mail to the user for exceptions generated for that device as per their periodicity. The exception states that the device has not functioned or performed in the respective periodicity.

- The list of devices should be system configurable.
- The Periodicity/ Frequency and the time of intimation should also be system configurable.
- “To do List” basically provides what action to be performed.
- “Exception List” basically provide which devices has not performed their requisite testing.
- The list of the users to whom the “To do list” and “Exception List” will be sent should be configurable with a provision of escalation in case requisite action is not performed.

Sl. No.	Periodicity/ Frequency	Devices	Time of intimation of To do list (through Mail)	“To do list” (Action to be performed)	Time of intimation of Exception List (through Mail)	“Exception List”
1.	Weekly	Fire Engine	Start of the week (Every Monday @ 7:55 AM)	Every Fire Engine to be operated at least two times for 30 mins continuously in a week.	End of the week (Every Sunday @ 11:55 PM)	List of Fire Engine to be generated that have not run for two times in a week for 30 minutes continuously.
		Bay	Start of the week (Every Monday @ 7:55 AM)	Every Bay should be operational/functional		List of Bays to be generated that are not utilized for a particular week.



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Date:

Sl. No.	Periodicity/ Frequency	Devices	Time of intimation of To do list (through Mail)	"To do list" (Action to be performed)	Time of intimation of Exception List (through Mail)	"Exception List"
					End of the week (Every Sunday @ 11:55 PM)	
2.	Fortnightly	PST	Start of every Fortnight (1st day of the month and 16th day of month @ 7:55 AM)	Issuing Partial Stroke Test for all the MOVs/DBBVs/ROSOVs that are in open condition for continuous period of 2 weeks.	End of every Fortnight (15 <sup>th</sup> and 30 <sup>th</sup> day of every month @ 11:55 PM)	List of all the MOVs/DBBVs/ROSOVs which are in open conditions for a continuous period of 2 weeks and are due for partial stroke test.
		PST	Start of every Fortnight (1st day of the month and 16th day of month @ 7:55 AM)	Issuing Partial Stroke Test for all the MOVs/DBBVs/ROSOVs that are in close condition for continuous period of 2 weeks.	End of every Fortnight (15 <sup>th</sup> and 30 <sup>th</sup> day of every month @ 11:55 PM)	List of all the MOVs/DBBVs/ROSOVs which are in close conditions for a continuous period of 2 weeks are due for partial stroke test.



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Date:

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Sl. No.	Periodicity/ Frequency	Devices	Time of intimation of To do list (through Mail)	"To do list" (Action to be performed)	Time of intimation of Exception List (through Mail)	"Exception List"
3.	Monthly	Fire Engine	Start of every Month (1 <sup>st</sup> day of every month @ 7:55 AM)	To be ensured that no fire engine to be in maintenance mode for more than a month.	End of every Month (30 <sup>th</sup> day of every month @ 11:55 PM)	List of Fire Engine is in maintenance more than a month.
		ESD	Start of every Month (1 <sup>st</sup> day of every month @ 7:55 AM)	All the ESDs to be tested.	End of every Month (30 <sup>th</sup> day of every month @ 11:55 PM)	List of ESDs that are not tested
		Sprinkler	Start of every Month (1 <sup>st</sup> day of every month @ 7:55 AM)	Sprinklers for all the tanks to be tested.	End of every Month (30 <sup>th</sup> day of every month @ 11:55 PM)	List of all the tanks sprinkler not tested.
		HCDs	Start of every Month (1 <sup>st</sup> day of every month @ 7:55 AM)	Proper investigation to be done to ascertain the frequent alarm and then take appropriate action.	End of every Month (30 <sup>th</sup> day of every month @ 11:55 PM)	List of HCDs providing frequent alarm
		Backup	Start of every Month (1 <sup>st</sup> day of every month @ 7:55 AM)	Backup for entire disk system, program files and system files for all operator workstations, engineering workstation.	End of every Month (30 <sup>th</sup> day of every month @ 11:55 PM)	List of all OICs and workstation wherein files are not backed up.



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Ref: HO/ENG/TAS

Date:

Sl. No.	Periodicity/ Frequency	Devices	Time of intimation of To do list (through Mail)	"To do list" (Action to be performed)	Time of intimation of Exception List (through Mail)	"Exception List"
4.	Quarterly	Calibration	Start of every Quarter (1 <sup>st</sup> day of April, July, October, January @ 7:55 AM)	Calibration to be done for the bays which are due for the same.	End of every Quarter (30 <sup>th</sup> day of June, September, December, March@ 11:55 PM)	List of loading points which are due for calibration.
5.	Half Yearly	Foam System	Start of every six months (1 <sup>st</sup> day of July, January @ 7:55 AM)	All the tanks Foam system to be tested.	End of every six months (30 <sup>th</sup> day of December, June @ 11:55 PM)	List of tanks foam system not tested.
		AOPS	Start of every six months (1 <sup>st</sup> day of July, January @ 7:55 AM)	All the AOPS are to be tested.	End of every six months (30 <sup>th</sup> day of December, June @ 11:55 PM)	List of AOPS that are not tested.
		HH	Start of every six months (1 <sup>st</sup> day of July, January @ 7:55 AM)	All the tanks HH to be tested.	End of every six months (30 <sup>th</sup> day of December, June @ 11:55 PM)	List of HH that are not tested.



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Date:

Sl. No.	Periodicity/ Frequency	Devices	Time of intimation of To do list (through Mail)	"To do list" (Action to be performed)	Time of intimation of Exception List (through Mail)	"Exception List"
		Firewall, Switches, Routers	Start of every six months (1 <sup>st</sup> day of July, January @ 7:55 AM)	Backup of configuration of FIREWALL, SWITCHES, ROUTERS to be done.	End of every six months (30 <sup>th</sup> day of December, June @ 11:55 PM)	List of firewalls, switches, routers where configuration are not backed up.
		HCDs	Start of every six months (1 <sup>st</sup> day of July, January @ 7:55 AM)	Calibration of all the HCDs to be done.	End of every six months (30 <sup>th</sup> day of December, June @ 11:55 PM)	List of all the detectors (Open path, point type & portable Hydrocarbon Vapour detectors) that are due for calibration.
6.	Yearly	Fire Engine	Start of the year (1 <sup>st</sup> day of January @ 7:55 AM)	Every Fire Engine to be operated at least for four hours continuously in a year	End of the year (30 <sup>th</sup> day of December @ 11:55 PM)	List of Fire engine that have not run for four hours continuously in a year.



#### 4. ELECTRICAL ANALYTICS:

Sr. No.	Area	Category	Type	Analytic Description
1	Electrical Analytics	Incomer	V (all phases)	<p>(i) Voltage imbalance % = <math>(V_{max} - V_{avg}) / V_{avg} \times 100</math>.</p> <p>(ii) Record instances of V(imb)% greater than 2% sustained for more than 5 mins</p> <p>(iii) Capture V(imb) instances cross 100 in a month</p> <p>(iv) <a href="#">Graph</a> – Count of V(imb)% greater than 2% in a month</p> <p>(v) <b>Result</b> – If count of V(imb)% instances cross 100 in a month, then contact electricity department for rectifying incoming voltage imbalance</p>
2	Electrical Analytics	Incomer	I (all phases)	<p>(i) Current imbalance % = <math>(I_{max} - I_{avg}) / I_{avg} \times 100</math>.</p> <p>(ii) Record instances of I(imb)% greater than 10% sustained for more than 5 mins</p> <p>(iii) Capture I(imb) instances cross 100 in a month</p> <p>(iv) <a href="#">Graph</a> – Count of I(imb)% greater than 10% in a month</p> <p>(v) <b>Result</b> – If count of I(imb)% instances cross 100 in a month, then intervention required to balance the connected loads</p>
3	Electrical Analytics	Incomer	Power Factor	<p>(i) Record instances when PF goes below 0.95 for more than 5 mins.</p> <p>(ii) Capture instances of PF goes below 0.95 for more than 5 mins crosses 100 in a month</p> <p>(iii) <a href="#">Graph</a> – Plot Power Factor graph</p> <p>(iv) <b>Result</b> – If number of such instances in a month crosses 100 in a month, suggest APFC maintenance required</p>



Sr. No.	Area	Category	Type	Analytic Description
4	Electrical Analytics	Incomer	Power (Monthly Peak Demand)	(i) Monthly Peak Demand <50% of contracted load and > 90% contracted load (ii) <a href="#">Graph</a> – Plot Monthly Peak Demand graph (iii) <b>Result</b> – If Monthly Peak Demand < 50% of contracted load, take action to decrease contracted load If Monthly Peak Demand > 90% of contracted load, take action to increase contracted load
5	Electrical Analytics	Incomer	Trips	(i) Read trip parameters (voltage, current, ground currents) (ii) Capture instances of same type of trip occurrence more than 5 times in a month (iii) <a href="#">Graph</a> – Plot trip parameters (voltage, current, ground currents) graph (iv) <b>Result</b> - If same type of trip occurs more than 5 times in a month, Voltage Trips – Contact Electricity board for rectification of under voltage/over voltage  Current – Check Relay Current settings or Transformer Health or Overload  Ground Current – Check for Healthiness of Earthing, Cable Damage or Transformer Health
6	Electrical Analytics	Transformer	OLTC Count	(i) Capture number of tap changes (ii) <a href="#">Graph</a> – Plot OLTC count graph



Sr. No.	Area	Category	Type	Analytic Description
				(iii) <b>Result</b> - If number of tap changes is more than 20 per day, check OLTC controller settings
7	Electrical Analytics	Transformer	Winding Temperature	(i) Record daily peak WT. (ii) Display - Avg. of past 30 days Peak WT (iii) Display - Avg. of past 365 days Peak WT (iv) <a href="#">Graph</a> – Plot Daily Peak WT graph (v) <b>Result</b> – If diff of Avg. of past 30 days WT and Avg. of past 365 days WT more than 5%, contact OEM for transformer maintenance
8	Electrical Analytics	Transformer	Oil Temperature	(i) Record daily peak OT. (ii) Display - Avg. of past 30 days Peak OT (iii) Display - Avg. of past 365 days Peak OT (iv) <a href="#">Graph</a> – Plot Daily Peak OT graph (v) <b>Result</b> – If diff of Avg. of past 30 days OT and Avg. of past 365 days OT more than 5%, contact OEM for transformer maintenance
9	Electrical Analytics	PCC Panel	I (all phases)	(i) Current imbalance % = $(I_{max} - I_{avg}) / I_{avg} \times 100$ . (ii) Record instances of I(imb)% greater than 10% sustained for more than 5 mins (iii) Capture I(imb) instances cross 100 in a month (iv) <a href="#">Graph</a> - Count of I(imb)% greater than 10% in a month (v) <b>Result</b> – If count of I(imb)% instances cross 100 in a month, then intervention required to balance the connected loads
10	Electrical Analytics	PCC Panel	Power Factor	(i) Record instances when PF goes below 0.95 for more than 5 mins. (ii) Capture instances of PF goes below 0.95 for more than 5 mins crosses 100 in a month





Sr. No.	Area	Category	Type	Analytic Description
				(iii) <a href="#">Graph</a> – Plot Power Factor graph (iv) <b>Result</b> – If number of such instances in a month crosses 100 in a month, suggest APFC maintenance required
11	Electrical Analytics	PCC Panel	Trips	(i) Read trip parameters (voltage, current, ground currents) (ii) Capture instances of same type of trip occurrence more than 5 times in a month (iii) <a href="#">Graph</a> – Plot trip parameters (voltage, current, ground currents) graph (iv) <b>Result</b> - If same type of trip occurs more than 5 times in a month, Voltage Trips – Contact Electricity board for rectification of under voltage/over voltage  Current – Check Relay Current settings or Transformer Health or Overload  Ground Current – Check for Healthiness of Earthing, Cable Damage or Transformer Health
12	Electrical Analytics	UPS (Electrical)	Output Power	(i) Capture if average output power in a day is more than 80% of rated UPS capacity (ii) <a href="#">Graph</a> – Plot Average Output Power graph



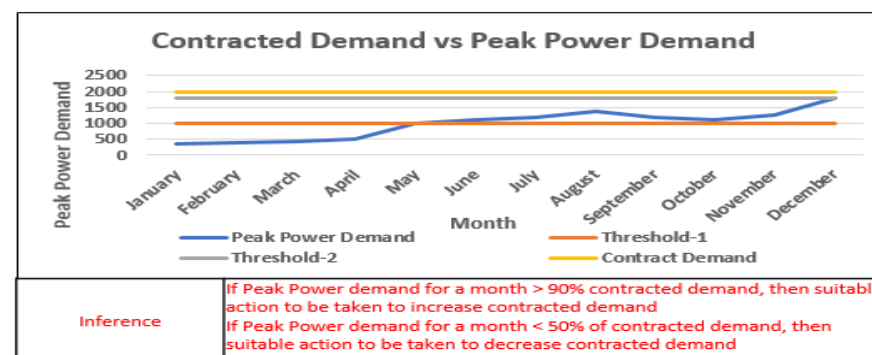
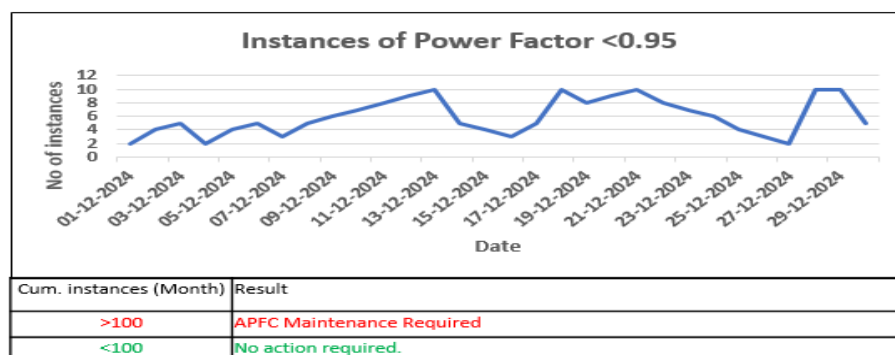
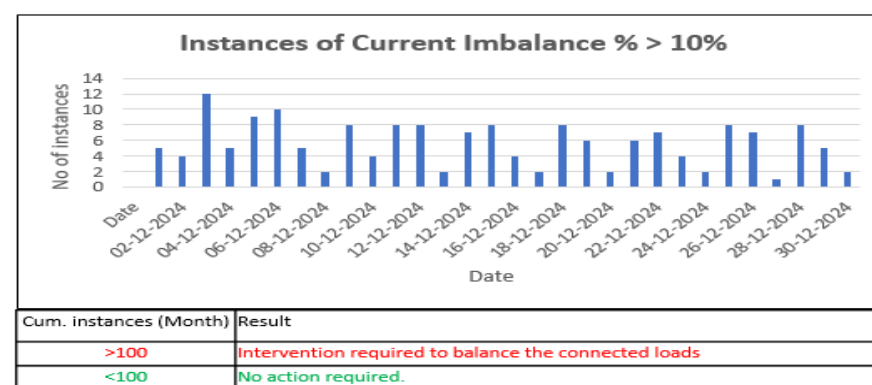
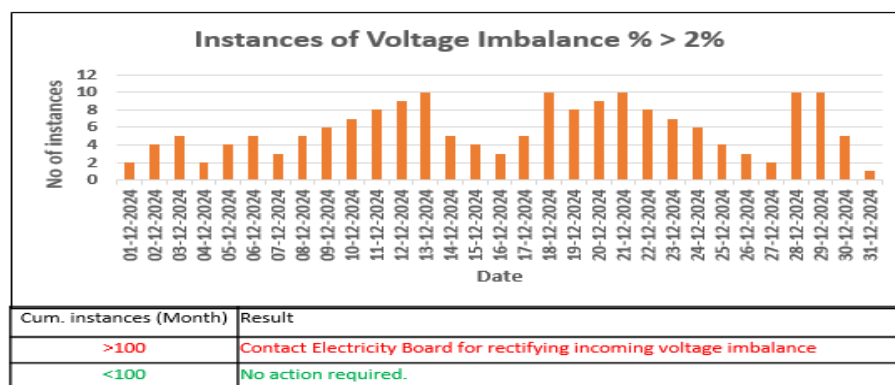
Sr. No.	Area	Category	Type	Analytic Description
				(iii) <b>Result</b> - if average power in a day is more than 80% of rated UPS capacity then UPS is running at Maximum Capacity. Consider Capacity Expansion to avoid overload.
13	Electrical Analytics	UPS (Electrical)	UPS Efficiency	(i) Capture Efficiency if goes below 95% for more than 10 times per day (ii) <a href="#">Graph</a> – Plot UPS Efficiency when discharging graph (iii) <b>Result</b> - if Efficiency goes below 95% for more than 10 times per day then UPS Efficiency LOW. Suggest UPS maintenance.
14	Electrical Analytics	UPS (TAS)	Output Power	(i) Capture if average output power in a day is more than 80% of rated UPS capacity (ii) <a href="#">Graph</a> – Plot Average Output Power graph (iii) <b>Result</b> - if average power in a day is more than 80% of rated UPS capacity then UPS is running at Maximum Capacity. Consider Capacity Expansion to avoid overload.
15	Electrical Analytics	UPS (TAS)	UPS Efficiency	(i) Capture Efficiency if goes below 95% for more than 10 times per day (ii) <a href="#">Graph</a> – Plot UPS Efficiency when discharging graph (iii) <b>Result</b> - if Efficiency goes below 95% for more than 10 times per day then UPS Efficiency LOW. Suggest UPS maintenance.
16	Electrical Analytics	Electrical Equipment	Parameters	<a href="#">Electrical Dashboard</a>



## Reference Screenshots for Electrical Analytics

Incomer: -

## INCOMER

Year  Month [Electrical Analytics- Incomer](#)

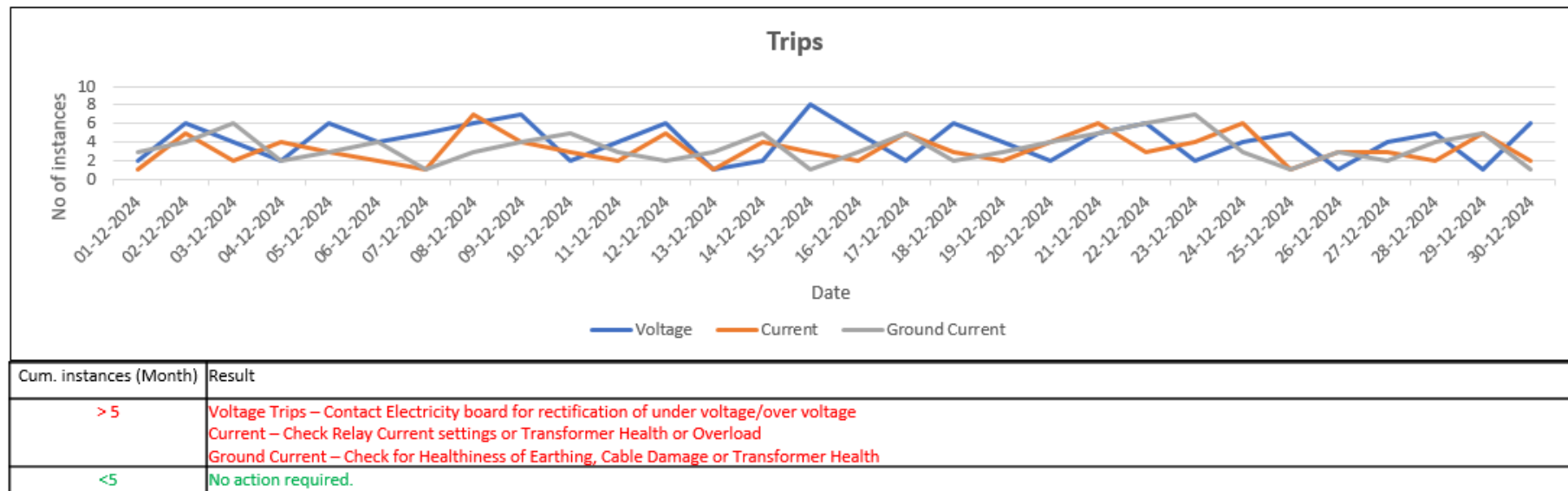


Incomer (Trips): -

## INCOMER

Year

Month

[Electrical Analytics- Incomer](#)



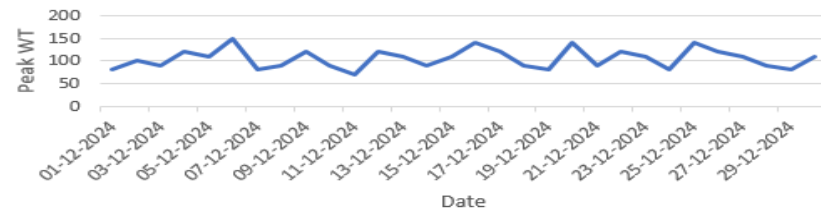
Transformer: -

## TRANSFORMER

Year

Month

Peak Winding Temperature

Avg of Past 30 days WT and  
Avg. of Past 365 days WT

Result

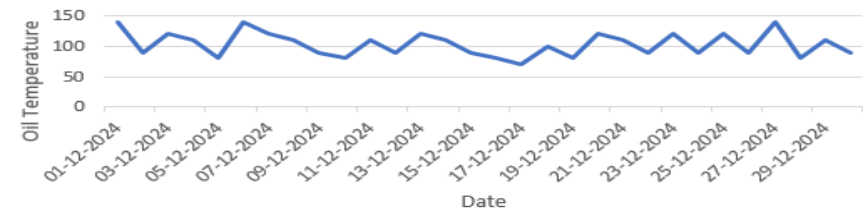
&gt; 5%

Contact OEM for transformer maintenance

&lt; 5%

No action required.

Oil Temperature

Avg of Past 30 days OT and  
Avg. of Past 365 days OT

Result

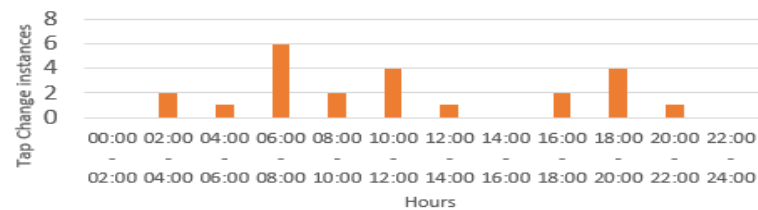
&gt; 5%

Contact OEM for transformer maintenance

&lt; 5%

No action required.

OLTC Count for a Day &gt; 20



Cum. instances (Day)

Result

&gt; 20

Check OLTC Controller settings

&lt; 20

No action required.

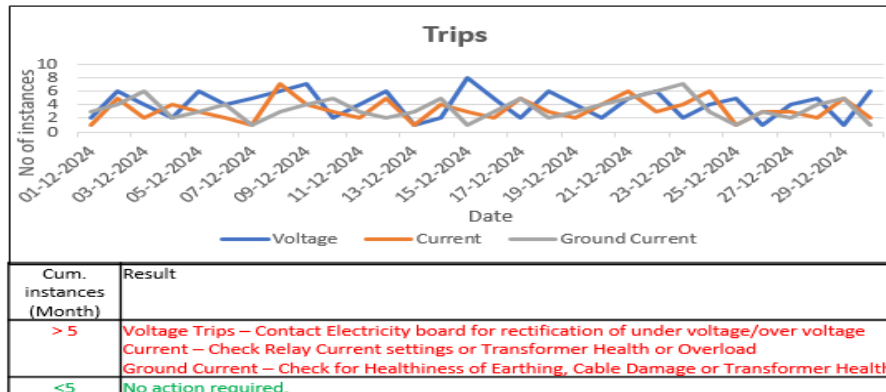
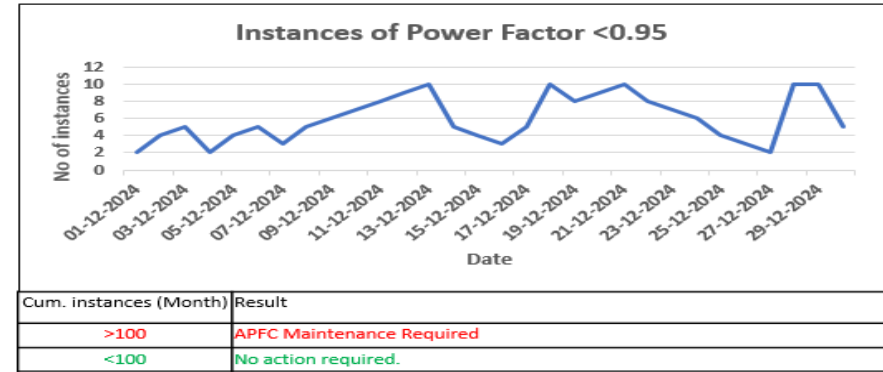
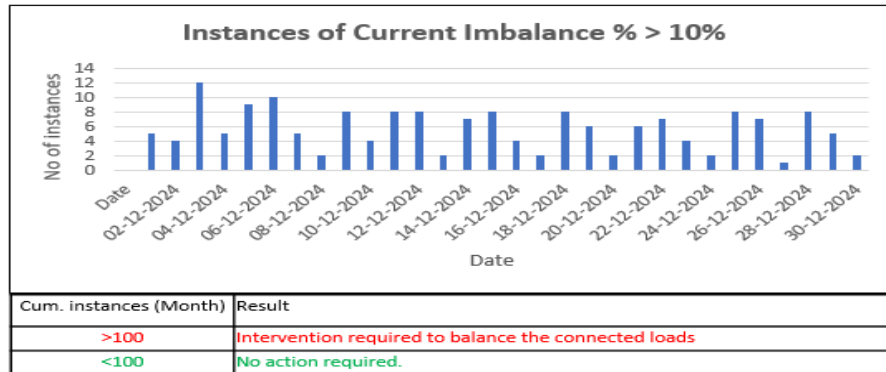
[Electrical Analytics- Transformer](#)



PCC Panel: -

PCC PANEL

Year  Month



[Electrical Analytics- PCC Panel](#)



## UPS: -

## UPS

Year

Month

