



PERU LNG

GESTIÓN DE LA INFORMACIÓN Y SOPORTE EN LA MEJORA DE PROCESOS DE MANTENIMIENTO Y OPERACIONES



TOPICS:

- Presentación de la Empresa
- Alcance del Sistema
- Arquitectura e Integración
- Reportes y Despliegues
- Notificaciones
- Aplicaciones Web
- Beneficios
- Proyectos



- Instalaciones localizadas en Pampa Melchorita, sobre el Km. 169 al Sur de Lima.
- Se tiene un gaseoducto de alta presión desde la región Camisea situado a 500 Km. al este de Lima.
- Planta diseñada para producir aprox. 540,690 kg/hr de LNG





- Monitores de datos de Turbinas.
- Instalado en el 2010. Con un total de 5k tags.
- Brindar información de las operaciones de los equipos.
- Áreas involucradas:
 - Operations: Plant Operations.
 - Maintenance Planning.



- Integración de la información de los sistemas de control: Planta (Emerson) y Ducto (Telvent).
- Registro histórico y centralizado de los datos de diversas fuentes.
- Visualización de datos en tiempo real.
- Soporte en la Gestión de información de las operaciones.
- Incremento de tags a 20k.
- Areas involucradas:

Operations: Plant and Marine Operations.

Maintenance Planning.

Asset Maintenance

Asset Development.

Process Engineering.

Pipeline.

IT Services.



Arquitectura



Hunt LNG Users

Operations
Maintenance
Process Engineering
Pipeline

Reports
Displays
Dashboards
Monitoring

Visualize and Share



PI Process Book / PI DataLink



CORESIGHT

Calculate and Analyze

High Availability
Notifications
Advanced Computing
Analytics
Event Frames



PI AF (1)



PI AF (2)



PI ACE

Real Time Data

High Availability
Platform Scalability
Data Archive
Data Security
System Monitoring



PI SERVER (1)



PI SERVER (2)

Interfaces

PI OPC DA
PI OPC HDA



DCS Delta V



GE NETWORK



GTG DCS



Main RTS 1



Main RTS 2



OMNISSENS-AIM



OSM LNG





General Overview – Plant and Pipeline

PLANT PRODUCTION AND PIPELINE OVERVIEW

Select: Current / Hist. Data

Current

PRODUCTION KPI'S

Plant Utilization = 98.5% | Plant Efficiency = 90.6%

PIPELINE

Linepack = 960.17 MMSCF | Max. Gas to be packed = 219.83 MMSCF

Last Shutdown Started Date: 20-02-14 09:30

Consecutive shutdown time = 1216.1 days

Days remaining in year = 194 days

INLET GAS

FEED GAS

Daily Target Consumption: 660.0 MMSCF

New Daily Target Cons.: 690.0 MMSCF

Gas Rate to Target Cons.: 698.2 MMSCFD

From 06:00 hrs to now

Average Gas Flow: 656.63 MMSCFD

Daily Consumption: 130.40 MMSCF

ACTUAL

Volumetric Flow: 663.5 MMSCFD

Mass Flow: 586,270 kg/h

Feed Gas HHV = 1,066.3 BTU/SCF

GAS TREATMENT

MCHC PROCESS PARAMETERS

DP Warm Bundle: 7.77 bar

DP Cold Bundle: 4.29 bar

DP MCHC: 12.05 bar

Top Diff Temp LNG-MR: 0.49 °C

Bottom Diff Temp NG-MRL: -0.38 °C

Bottom Diff Temp NG-MRV: 0.03 °C

Bottom Diff Temp NG-Shell: 9.25 °C

HMR Flow: 864 ton/h

Warm JT valve: 98.8 %

LMR Flow: 602 ton/h

LMR Cold JT valve: 75.0 %

T upstream cold JT valve: -165.93 °C

P upstream JT valve: 45.11 barg

T downstream cold JT valve: -168.11 °C

MR Bottom Temp: -45.82 °C

MR Bottom Pressure: 2.98 barg

LP MRC Flow: 1,529 ton/h

HP MRC discharge P: 56.34 barg

LIQUEFACTION & REFRIGERATION

LNG RUNDOWN

LNG Vol. Flow = 1,163 m3/h

LNG Mass Flow = 27,920 m3/day

LNG Mass Flow = 532,036 kg/h

LNG HHV = 1,069.02 BTU/SCF

Before Expansion Valve FV114001 A/B: LNG Rundown T = -165.4 °C

After Expansion Valve FV114001 A/B: LNG Rundown T = -162.9 °C

STORAGE & LOADING

LNG STORAGE

Tank 1 Pressure = 122471.4 mbar

Tank 2 Pressure = 121224.4 mbar

Tank 1 BOG T = -162.0 °C

Tank 2 BOG T = -161.7 °C

LNG Vol Tank 1: 57,540 m3

LNG Vol Tank 2: 57,924 m3

Total LNG Volume: 115,463 m3

Deliverable LNG = 92,841 m3

Days for Tank Tops : 5.8 Days

Approx. Tank Tops Date: 26-06-17 07:04

UTILITIES

AIR SUPPLY		SEAWATER SUPPLY	
Tags	Status	Tags	Status
K-6601A	Running	P-6302A	Running
K-6601B	Stopped	P-6302B	Stopped
K-6601C	Stopped		

MAIN EQUIPMENT POWER CONSUMPTION

MR Helper Motor = 4.15 MW

PR Helper Motor = 6.34 MW

MR&PR FIN FANS STATUS

Tags	Running	Stopped
MR E-1410	14	1
MR E-1411	14	1
MR E-1420	18	0
MR E-1442	14	1
PR E-1441	57	18
PR E-1447	0	9

ENVIRONMENTAL DATA

Ambient Temp = 18.25 °C

PLANT POWER CONSUMPTION (%)

GTG'S POWER GENERATION

WATER

T-6305 Service Water: Level (%) 78.67

T-6402 Potable Water: Level (%) 79.21

DIESEL

T-5311 A: Level (%) 48.75

T-5311 B: Level (%) 48.35

T-5311 C: Level (%) 45.99

GASOLINE

T-5313: Level (%) 56.10

V-3101 A: Level (%) 11.47

ETHYLENE

V-3101 B: Level (%) 30.36

PROPANE

V-3102 A: Level (%) 40.91

V-3102 B: Level (%) 40.26

NITROGEN

T-6702: Level (%) 23.64

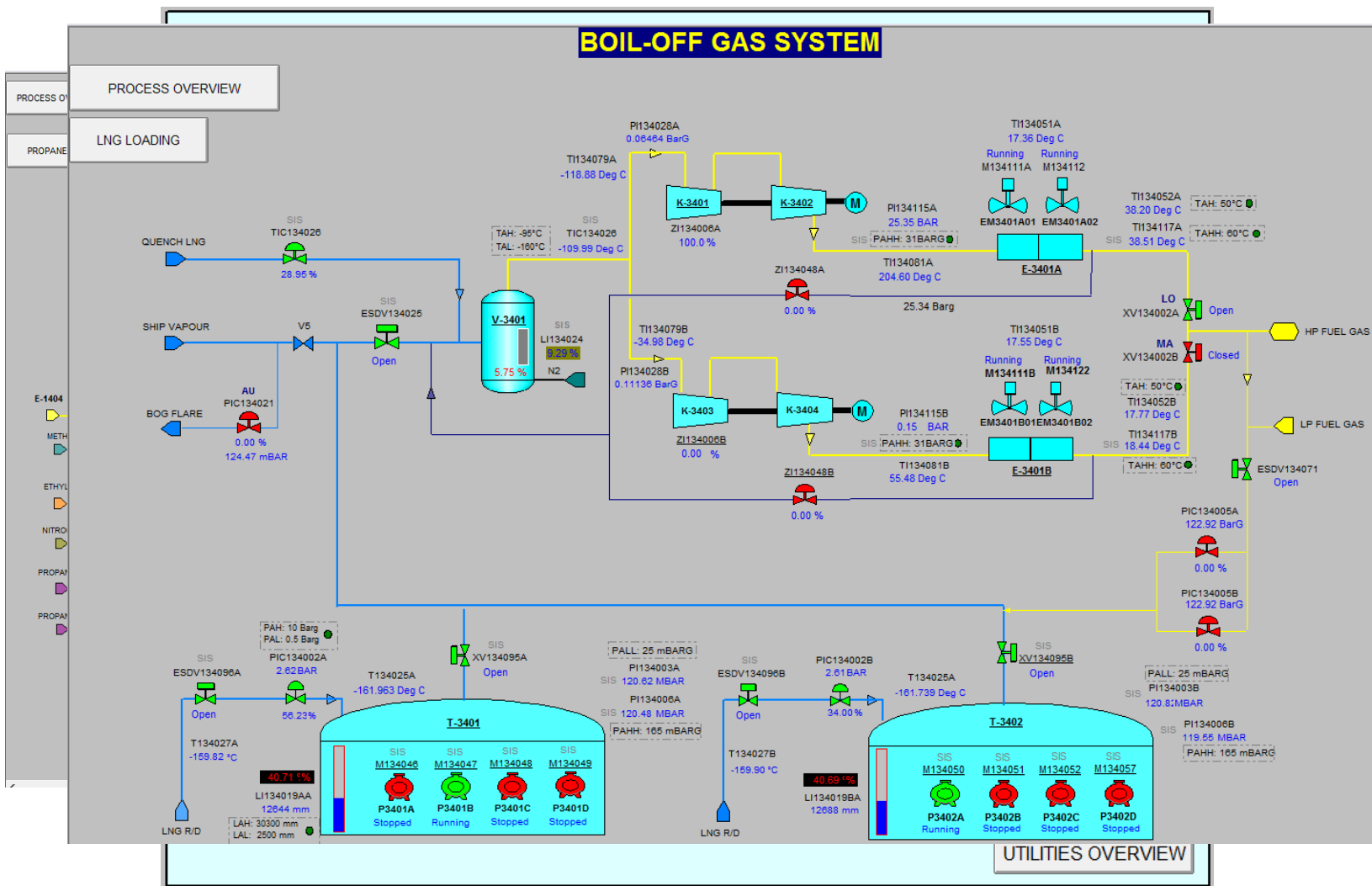
CONSUMABLES

Rev 4 EM



Rotating Equipment - Running Hours Report

RUNNING HOUR REPORT								
REPORT DATE:		Jun-17			Generate			
AREA:		Cold End			*blank space = All areas			
		TECHNICAL SERVICES / ROTATING EQUIPMENT RUNNING HOURS						
					MONTHLY REPORT		TOTAL REPORT	
					From 01-Jun-17 To 20-Jun-		To 20-Jun-17	
Area	Unit	Equipment	Description	Running Hours	Stopped Hours	Total Running Hours	Total Stopped Hours	
Cold End	U-1400	EM-1410 A01	LP-MR COMPRESSOR AFTERCOOLER	450	6	59298	6150	
Cold End	U-1400	EM-1410 A02	LP-MR COMPRESSOR AFTERCOOLER	455	1	59251	6197	
Cold End	U-1400	EM-1410 A03	LP-MR COMPRESSOR AFTERCOOLER	455	1	59878	5570	
Cold End	U-1400	EM-1410 A04	LP-MR COMPRESSOR AFTERCOOLER	455	1	59533	5915	
Cold End	U-1400	EM-1410 A05	LP-MR COMPRESSOR AFTERCOOLER	455	1	60101	5347	
Cold End	U-1400	EM-1410 B01	LP-MR COMPRESSOR AFTERCOOLER	455	1	59534	5914	
Cold End	U-1400	EM-1410 B02	LP-MR COMPRESSOR AFTERCOOLER	455	1	59369	6079	
Cold End	U-1400	EM-1410 B03	LP-MR COMPRESSOR AFTERCOOLER	455	1	60009	5439	
Cold End	U-1400	EM-1410 B04	LP-MR COMPRESSOR AFTERCOOLER	455	1	59927	5521	
Cold End	U-1400	EM-1410 B05	LP-MR COMPRESSOR AFTERCOOLER	455	1	59884	5564	
Cold End	U-1400	EM-1410 C01	LP-MR COMPRESSOR AFTERCOOLER	455	1	59575	5873	
Cold End	U-1400	EM-1410 C02	LP-MR COMPRESSOR AFTERCOOLER	379	77	59337	6111	
Cold End	U-1400	EM-1410 C03	LP-MR COMPRESSOR AFTERCOOLER	455	1	59745	5703	
Cold End	U-1400	EM-1410 C04	LP-MR COMPRESSOR AFTERCOOLER	455	1	59725	5723	
Cold End	U-1400	EM-1410 C05	LP-MR COMPRESSOR AFTERCOOLER	455	1	59622	5826	
Cold End	U-1400	EM-1411 A01	MP-MR COMPRESSOR AFTERCOOLER	430	26	59494	5954	
Cold End	U-1400	EM-1411 A02	MP-MR COMPRESSOR AFTERCOOLER	455	1	59748	5700	
Cold End	U-1400	EM-1411 A03	MP-MR COMPRESSOR AFTERCOOLER	455	1	55253	10195	
Cold End	U-1400	EM-1411 A04	MP-MR COMPRESSOR AFTERCOOLER	379	77	59892	5556	
Cold End	U-1400	EM-1411 A05	MP-MR COMPRESSOR AFTERCOOLER	455	1	59450	5998	
Cold End	U-1400	EM-1411 B01	MP-MR COMPRESSOR AFTERCOOLER	455	1	59542	5906	
Cold End	U-1400	EM-1411 B02	MP-MR COMPRESSOR AFTERCOOLER	441	15	59435	6013	





Mail Notifications

All Unread Search PI Notifications (Ctrl+E) Current Folder

FROM SUBJECT

Date: Today

- pisystem... PI Notifications: (L-3402),(K-3403) - IGV POS GUIDE VANE (LAL) - 20/Jun/201... T 1
PI Notifications Server
Name: (L-3402),(K-3403) - IGV POS GUIDE VANE
- pisystem... PI Notifications: (L-1302),(K-1301) - Pres Seal Flush Gas Flow (LAL) - 20/Jun/2... T 1
PI Notifications Server
Name: (L-1302),(K-1301) - Pres Seal Flush Gas Flow
- pisystem... PI Notifications: (C-1301-B) - Sts C1301B NG TO E1303 - Out of Time Confir... T 1
PI Notifications Server
Name: (C-1301-B) - Sts C1301B NG TO E1303 - Out of Time Confirmation
- pisystem... PI Notifications: (L-3401),(K-3402) - Flow EXL SL GAS NDE HP (HAL) - 20/Jun/... T 1
PI Notifications Server
Name: (L-3401),(K-3402) - Flow EXL SL GAS NDE HP
- pisystem... PI Notifications: (L-6303),(PM-6310A/C) - Pres Outlet First Pass RO Pumps (S... T 1
PI Notifications Server
Name: (L-6303),(PM-6310A/C) - Pres Outlet First Pass RO Pumps
- pisystem... PI Notifications: (L-6303),(P-163153) - Suction First Pass RO Pump A (Outsid... T 1
PI Notifications Server
Name: (L-6303),(P-163153) - Suction First Pass RO Pump A
- pisystem... PI Notifications: (L-6303),(P-163163) - Suction First Pass RO Pump C (Outsid... T 1
PI Notifications Server
Name: (L-6303),(P-163163) - Suction First Pass RO Pump C
- pisystem... PI Notifications: (L-3401),(K-3402) - Flow EXL SL GAS NDE HP (HAL) - 20/Jun/... T 1
PI Notifications Server
Name: (L-3401),(K-3402) - Flow EXL SL GAS NDE HP

Date: Yesterday

- pisystem... PI Notifications: (L-3401),(K-3402) - Flow EXL SL GAS NDE HP (HAL) - 19/Jun/... T 1
PI Notifications Server
Name: (L-3401),(K-3402) - Flow EXL SL GAS NDE HP
- pisystem... PI Notifications: (L-3401),(K-3402) - Flow EXL SL GAS DE HP (HAL) - 19/Jun/20... T 1
PI Notifications Server
Name: (L-3401),(K-3402) - Flow EXL SL GAS DE HP

Reply Reply All Forward IM

Tue 20-Jun-17 06:55 AM

pisystem@huntloc.pe
PI Notifications: (L-3402),(K-3403) - IGV POS GUIDE VANE (LAL) - 20/Jun/2017 06:53:41

To Daniel Morales

This message was sent with High importance.

PI Notifications Server

Name: (L-3402),(K-3403) - IGV POS GUIDE VANE
Condition: .\K-3401\P-134006-AB\ZT-134006-B\IGV (Z1134006B/A11/PV.CV) POS GUIDE VANE <= 2 AND Sts (XL134306/PV.CV) MAIN MTR RUN <> 0

Start Time: 20/Jun/2017 06:53:41
Trigger Time: 20/Jun/2017 06:53:41

Path: P1\P1-T1\TRAIN 1\UNIT 3400\BOG COMPRESSION\L-3401\Notifications[(L-3402),(K-3403) - IGV POS GUIDE VANE]

Target: P1\P1-T1\TRAIN 1\UNIT 3400\BOG COMPRESSION\L-3401

Value: 0.04
State: LAL
Priority: Normal

PI WebPart:

For any issue, contact DL-HuntLNG-ITPlantApplications@huntloc.pe

AFContactNavigator

G



\\PLNGMELAS15\PROCESS - PI System Explorer

File View Go Tools Help

Database Query Date Back Check In Refresh

Management

Choose a filter
Analysis Template

No Template (3)
Calculate Hours Report\DigitalState_Calculated (315)
Calculate Hours Report\Equipment Downtime (315)

Analyses

0 total analyses selected (0 on this page) 1 - 315 of 315

Status	Element	Name	Template
<input type="checkbox"/>	Melchorita\Warm End\U-1100\Pumps\P-1102 A	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\FM-1498-1	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Utilities\U-4000\Engines\FM-4012 A	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1441 C14	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Warm End\U-1100\Pumps\P-1101 B	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\FM-1491-2	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Utilities\U-4000\Engines\FM-4011B	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1441 C13	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Warm End\U-1100\Pumps\P-1101 A	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\FM-1491-1	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Utilities\U-4000\Engines\FM-4011A	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1441 C12	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1447 C03	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Utilities\U-4000\Engines\FM-4010B	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1441 C11	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Warm End\U-1100\Engines\EM-1102B01	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1447 C02	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Utilities\U-4000\Engines\FM-4010A	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1441 C10	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Warm End\U-1100\Engines\EM-1102A01	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1447 C01	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1441 C09	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Warm End\U-1100\Engines\EM-1101B01	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1447 B03	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Cold End\U-1400\Engines\EM-1441 C08	Equipment Downtime	Equipment Downtime
<input type="checkbox"/>	Melchorita\Warm End\U-1100\Engines\EM-1101A01	Equipment Downtime	Equipment Downtime

Operations

[Start 0 selected analyses](#)
[Stop 0 selected analyses](#)
[Backfill/Recalculate 0 selected analyses](#)

Pending Operations
No pending operations

Elements

Event Frames
Library
Unit of Measure
MyPI
Notifications
Contacts
Management

Analysis Details

Overview Errors And Warnings

Equipment Downtime configuration

Analysis type: Event Frame Generation
Description:
Element path: Melchorita\Cold End\U-1400\Engines\FM-1491-2
Template: Equipment Downtime
Schedule: Natural
Categories: EquipmentDowntime

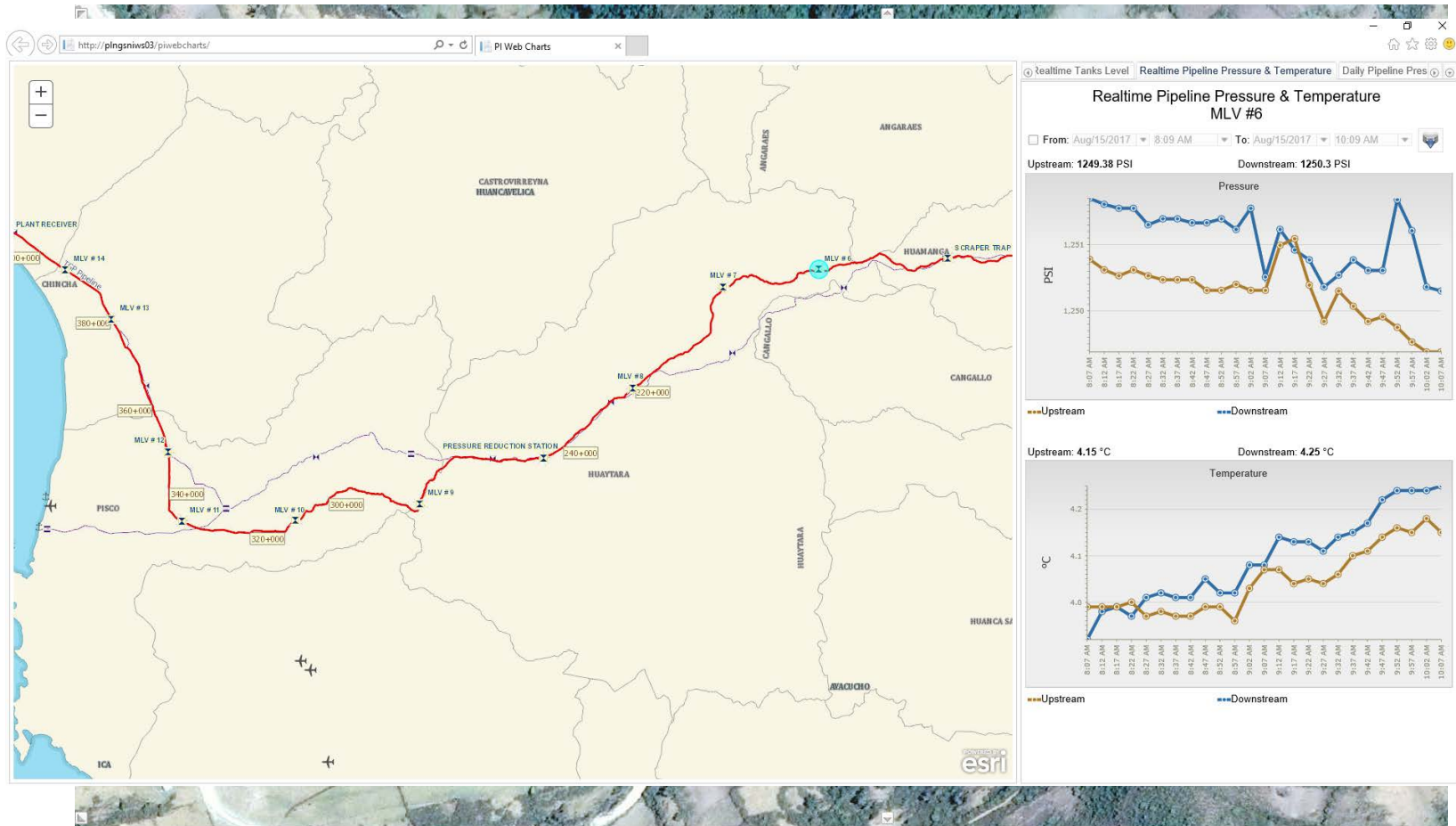
Status

In AF: Enabled
In PI Analysis Service: Running

[Analysis configuration](#)

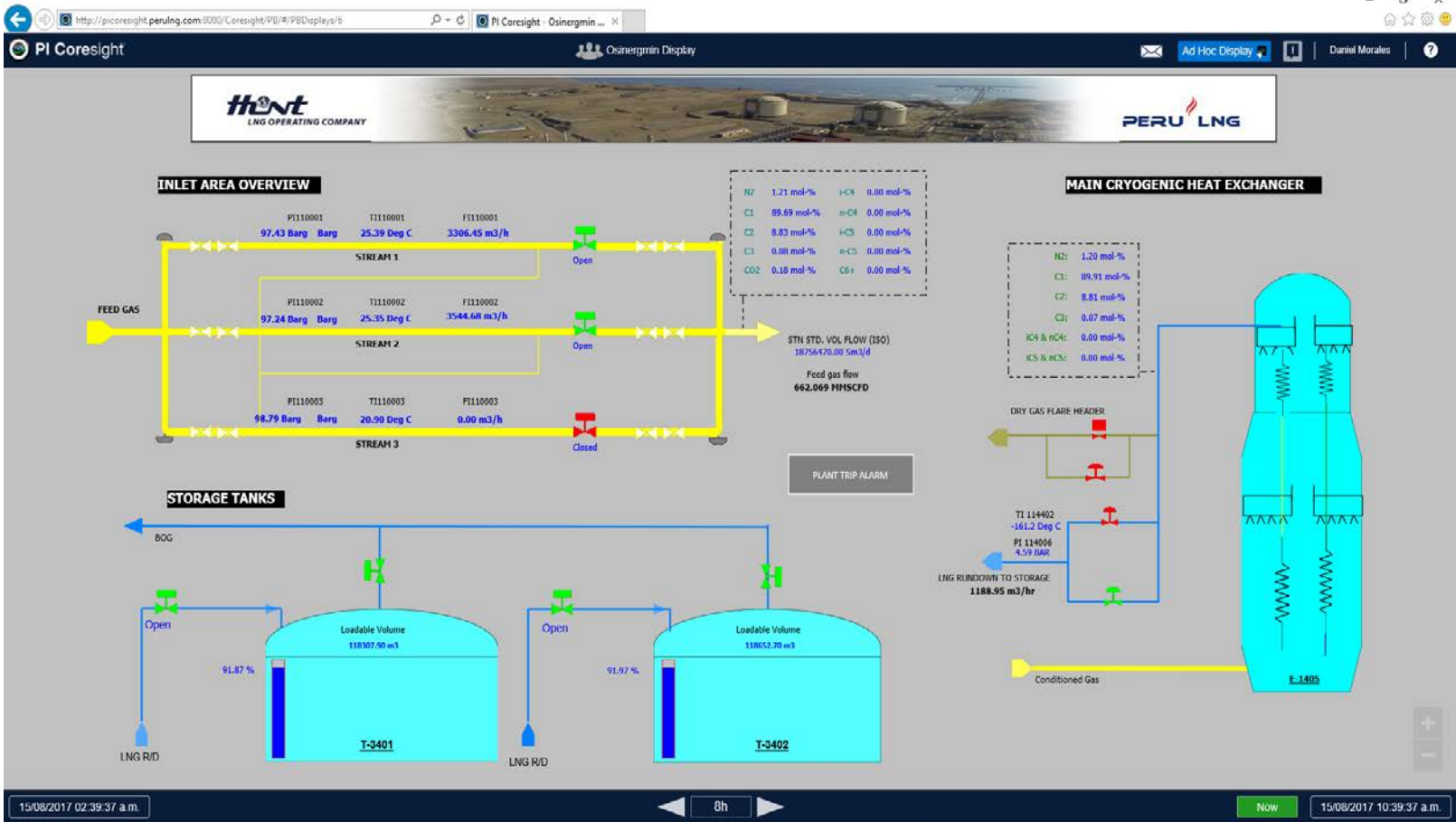


Integración Web PI System





PI Coresight





- Empoderamiento de los usuarios.
- Soporte en el cumplimiento con auditorías internas y externas.
- Llevar un análisis y control de la información.
- Acceder de forma sencilla a la información.
- Desarrollar aplicaciones y/o reportes como ayuda o soporte en la visualización de la información.
- Diseñado y optimizado para series de tiempo, permite almacenar información al segundo.



- Integración con Planeamiento basado en Tiempo.
- Integración Coresight y AF en el análisis de Equipos Críticos.
- Automatización de la generación de Notificaciones para Mantenimiento.



Preguntas

Thank you.

- IT Plant Applications