

# Applications of PI in EQUATE



**PRESENTED BY :**

**Hasan AL-Mutairi - Senior Engineer, Process Application**

**Fuad Hussain - Senior Engineer , Reliability**

**OSIsoft Regional Seminar- Kuwait**

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**EQUATE Petrochemical Company**

# OSIsoft PI System History in Equate



- OSI PI System is holding EQUATE process data since 1996.
- EQUATE started originally with license for 20,000 tag then moved to 50,000 in year 2003. In 2007 EQUATE increased the licensed tags to reach 80,000 tag. EQUATE expecting to reach the 100,000 tag in 2012 .



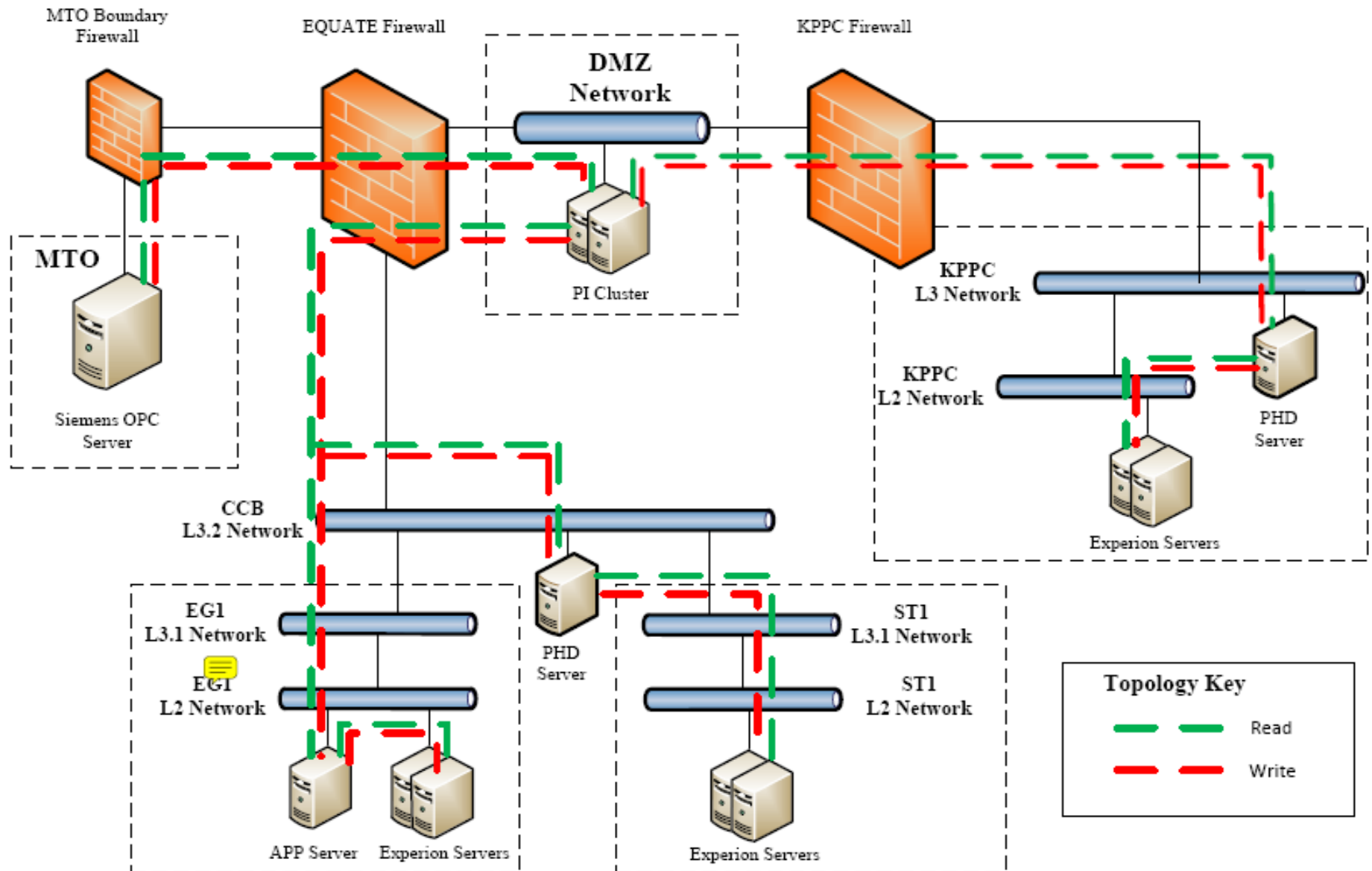
# OSIsoft PI System History in Equate (Cont'd)



- EQUATE started PI System with UNIX OS then moved to Windows Cluster.
- In 2009, EQUATE decided to upgrade to PI HA (High Availability) and the upgrade was successful.
- In October 2009 EQUATE established PI RtWeb part project. Data can be accessed using EQUATE intranet.
- In same year EQUATE bought the AF software (Analysis Frame work) and PI Notification system.



# PI Latest Architecture



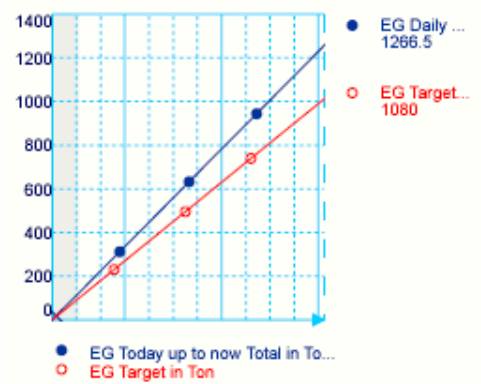
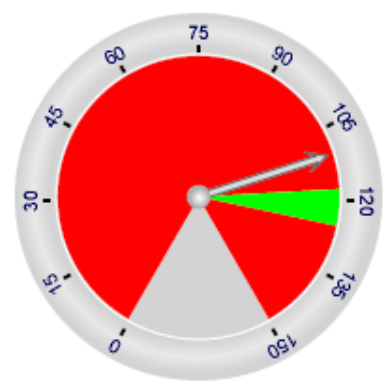
## Today Total Production Compared to Target

Start Time  End Time

### Ethylene Glycol (I & II)

Production Rate (Ton/h)

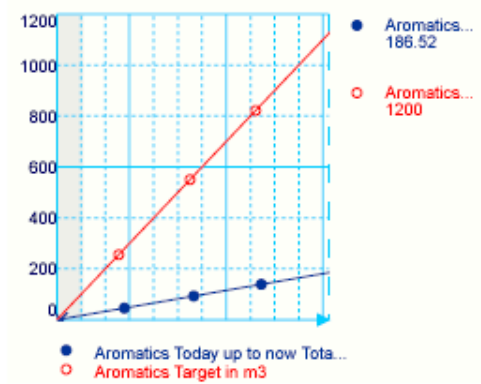
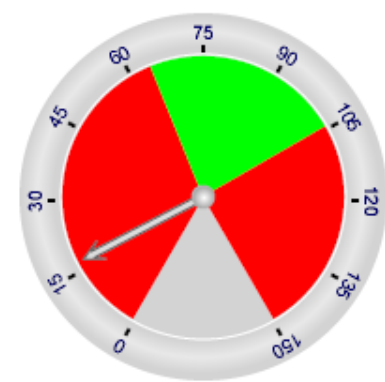
Today Total (Ton)



### Aromatics

Production Rate (m3/h)

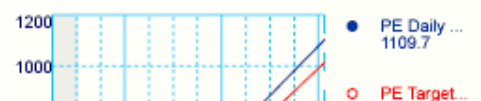
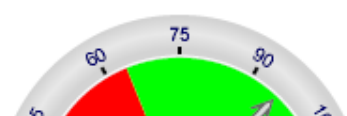
Today Total (m3)



### Polyethylene

Production Rate (Ton/h)

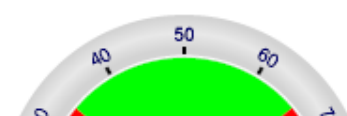
Today Total (Ton)



### Polypropylene

Production Rate (Ton/h)

Today Total (Ton)



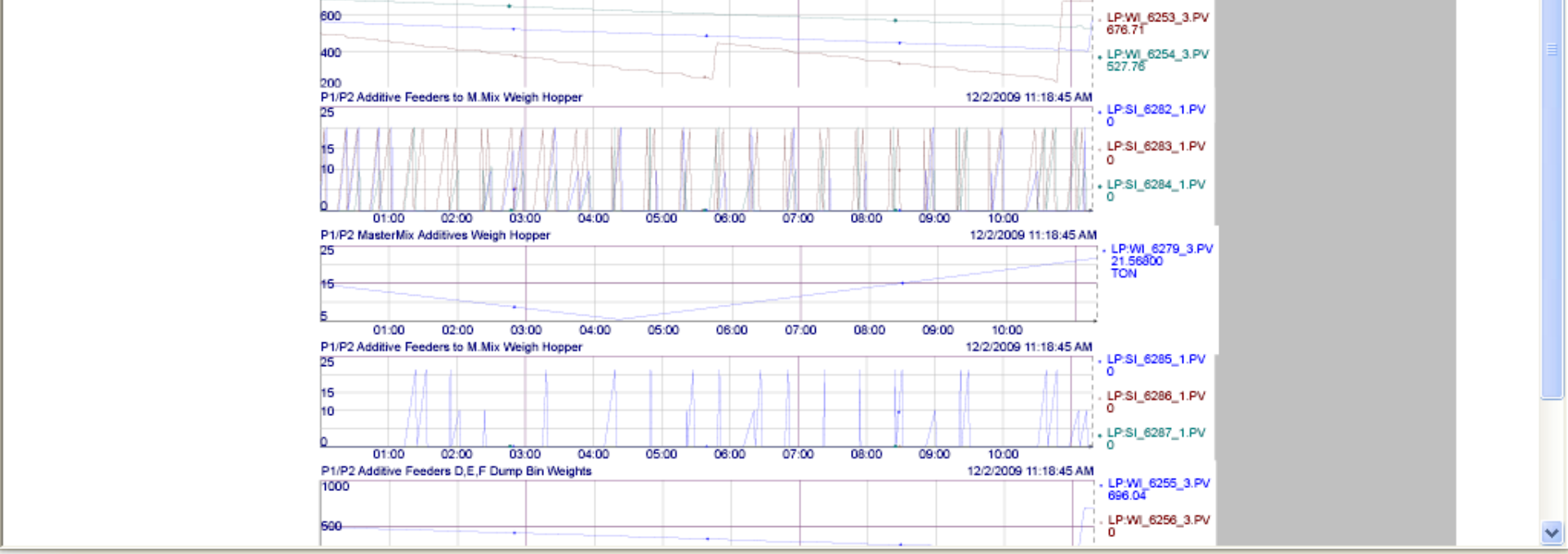
# Equate PI Dashboard

Home Aromatics EBSM Ethylene Ethylene Glycol Polyethylene Polypropylene Utilities Site Actions

Home > Ethylene > Graphics

Start Time t End Time \* Apply

- Ethylene
  - P2 MasterMix - A...
  - P2 Mixer Drive



Address <http://eqshsps1:43851/Ethylene/Pages/ExcelReports.aspx>

Go Links

Google

Search

Bookmarks

Check AutoFill

Sign In



# Equate PI Dashboard

Welcome Al-Mutairi H (Hasan) IT

[Home](#)
[Aromatics](#)
[EBSM](#)
[Ethylene](#)
[Ethylene Glycol](#)
[Polyethylene](#)
[Polypropylene](#)
[Utilities](#)

Site Actions

Home &gt; Ethylene &gt; Excel Reports

- Ethylene
  - Calculation Report
  - PP TAGS

Open   Update   Find						
	A	B	C	D	E	F
2		start time	t			
3		end time	*			
4		Interval	30m			
5		tag	cdt158			
6						
7		Time	Value	Average	Total	Minimum
8		02-Dec-09 00:00:00	86.35112	77.7891	1.620606	68.22758
9		02-Dec-09 00:30:00	68.22758	71.21758	1.4837	66.63181
10		02-Dec-09 01:00:00	79.18009	89.29709	1.860356	79.18009
11		02-Dec-09 01:30:00	92.57782	104.623	2.179646	92.46943
12		02-Dec-09 02:00:00	117.1632	108.7449	2.265518	97.99237
13		02-Dec-09 02:30:00	97.99237	101.4617	2.113786	95.50211
14		02-Dec-09 03:00:00	105.9166	110.3051	2.298024	103.926
15		02-Dec-09 03:30:00	111.796	101.0429	2.10506	95.40991
16		02-Dec-09 04:00:00	95.8316	97.69453	2.035303	93.55509
17		02-Dec-09 04:30:00	103.8818	97.72374	2.035911	94.35107
18		02-Dec-09 05:00:00	102.3015	107.185	2.233021	99.84523
19		02-Dec-09 05:30:00	107.0141	118.203	2.462562	105.7567
20		02-Dec-09 06:00:00	126.2489	113.8432	2.371733	100.4246
21		02-Dec-09 06:30:00	100.4246	92.09924	1.918734	84.30569

## Parameters

The following parameters are used in this workbook:

EndTime

StartTime

### Elements

- Elements
  - Equate
    - Aromatics
    - EBSM
    - Ethylene
      - EU1
      - EU2
    - Ethylene Glycol
      - EG1
      - EG2
    - Polyethylene
      - Reactor 1
      - Reactor 2
      - Reactor 3
    - Polypropylene
    - Utilities
  - OSIsoft
    - PIANO
      - DeliveryChannel
        - 194caabd-7307-4
      - NotificationStateGroup
      - WCFSservice

### Reactor 1

General Child Elements Attributes Ports Version

Search

Name	Value
Production Max	28
Production Min	20
PRODUCTION RATE	19.6891822814941 tons/h

Group by: ☐ Category

Name: Production Max

Description:

Configuration Item: ☐

Categories

UOM: <None>

Value Type: Double

Value: 28

Data Reference: <None>

Settings...





## Message

Reply	Reply to All	Forward	Delete	Move to Folder	Create Rule	Other Actions	Block Sender	Safe Lists	Not Junk	Categorize	Mark as Unread	Find	Related	Select	Send to OneNote
Respond			Actions				Junk E-mail		Options		Find		Find		

From: PIAdministrator@equate.com  
To: Al-Mutairi H (Hasan) IT  
Cc:  
Subject: PI Notification >> EU1 Feed outside acceptable range

Sent: Wed 12/2/2009 11:21 AM

**Name:** EU1 Feed Outside Range  
**Server:** EQSHPIAF  
**Database:** Configuration  
**Start Time:** 12/2/2009 11:18:10 AM Arab Standard Time (GMT+03:00:00)  
**Trigger Time:** 12/2/2009 11:18:10 AM Arab Standard Time (GMT+03:00:00)  
**Target:** EQSHPIAF\Configuration\Equate\Ethylene\EU1  
**Value:** OutsideControl  
**Priority:** Normal

**Trigger Input:**  
[\\EQSHPIAF\Configuration\Equate\Ethylene\EU1\Ethane](#) Feed: 119.334098815918

**Actions:**  
[Acknowledge](#)  
[Acknowledge with comment](#)

# How PI is used as a Decision Support and Asset Performance Management and Reliability Tool



# PI as a Decision Support and Asset Management Tool

## VP, Production Leaders and Planning

- Production Coordinators uses PI in their meetings to Agree and Adjust production rates according to Raw Material ,Available stock, Specific unit condition & Business plans.
- Production coordinators Uses PI to calculate specific Unit Daily Production.
- Supply chain uses PI for Raw Material procurement planning.
- VP, Production Leaders and Inter J.V use PI to Coordinate with Production coordinators, through Greater **Equate Dashboard**.



# PI as a Decision Support and Asset Management Process Engineering Dept.



- Process and Production Staff Use PI for
  - [Online plant monitoring.](#)
  - Online process optimizations.
  - Process Data Collection.
  - History Data mining for bench marking studies.
  - Process Incidents root cause investigations.



# PI as a Decision Support and Asset Management Tool

## Reliability & Maintenance staff



- Equipment Specialists Uses PI for Equipment on line [Condition Monitoring](#).
- Reliability Eng. Uses PI for History and data collection for Equipment failures [RCI](#).



# Questions ?

- Your questions will give more Improvement Ideas.

