

# Continuous Monitoring System (CMS) To Comply With Environmental Monitoring Requirements at SoCalGas Transmission Facilities

Presented by **Zach Muepo Southern California Gas Company**

# Continuous Monitoring System (CMS) To Comply With Environmental Monitoring Requirements at SoCal Gas Transmission Facilities

Aligning with SoCalGas corporate goals of doing “more with less” and environmental stewardship

“Glad to be of Service”



## Business Challenge

- Comply with increasingly complex environmental monitoring requirements in manned and unmanned stations located hundreds of miles away.

## Solution

- Utilize PI System as official environmental monitoring system.
- Leverage third party PI System add-ons to address calculation and alarming requirements

## Results and Benefits

- Consistent and accurate data across all stations
- Meets the new monitoring requirements.

# Southern California Gas Company (SoCalGas)

- SoCalGas is the nation's largest natural gas distribution utility, providing safe and reliable energy to 20.9 million consumers through 5.8 million meters in more than 500 communities. The company's service territory encompasses approximately 20,000 square miles in diverse terrain throughout Central and Southern California, from Visalia to the Mexican border.
- SoCalGas is a regulated subsidiary of [Sempra Energy](#)\* (NYSE: SRE). Sempra Energy, based in San Diego, is a Fortune 500 energy services holding company.

# The Challenge

- SoCalGas compressor stations have rules, regulations, and standards which require continuous environmental monitoring. Examples include:
  - MDAQMD Rule 1160
  - SJVAPCD Rule 1080
  - RICE NESHAPS Subpart ZZZZ
  - Title V Compliance Assurance
  - Green House Gas (GHG)

# What is Environmental Monitoring?

- **Monitoring**
  - Two types of monitoring
  - Continuous Emission Monitoring System (CEMS)
  - Continuous Parameter Monitoring System (CPMS)
- **Recordkeeping**
  - Granularity of the data points
  - Retention of the data points
- **Reporting**
  - Submission of the results of monitoring to the local, state and federal agencies. These include but are not limited to:
    - Certifications
    - Excess emissions
    - Deviations
    - Periods of downtime

# List of Applicable Rules

- MDAQMD Rule 1203 (D)(1)(f)(ii)
- MDAQMD Rule 1201 (I)(2)
- MDAQMD Rule 1203(D)(1)(g)(v)
- MDAQMD Rule 204,
- MDAQMD Rule 1203(D)(1)(d)(ii)]
- SJVAPCD Rule 1080
- SJVAPCD Rule 4703
- SJVAPCD Rule 2530
- VCAPCD Rule 74.9
- VCAPCD Rule 33
- VCAPCD Rule 10
- 40 CFR 52.220(c)(39)(ii)(B)
- 40 CFR 70.6 (a)(3)(B)
- 40 CFR 70.6(a)(3)(ii)(B)
- 40 CFR 66.6625
- 40 CFR 66.6340
- 40 CFR 66.6655
- 40 CFR 98.232 (g)
- 40 CFR 98.236 (a)
- 40 CFR 98.236 (c)
- 40 CFR 98.237
- 40 CFR 98.237 (e)
- 40 CFR 98.3 (a)
- 40 CFR 98.3 b(3)
- 40 CFR 98.3 c(8)
- 40 CFR 98.3 c(9)
- 40 CFR 98.3 d(1)
- 40 CFR 98.3 (f)
- 40 CFR 98.3 (g)
- 40 CFR 98.3 (g)(5)
- 40 CFR 98.4 (a)
- 40 CFR 98.4 (e)
- 40 CFR 98.8
- 40 CFR Subpart GG

# Key Provisions in the Rules

## Requirements

- The CPMS must collect data at least once every 15 minutes
- “I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this compliance certification are true, accurate, and complete.”

## Violations

- Rule violations or violations from the standards are:
  - Deviations from the rules, regulations, or standards occurs.
  - Fines up to \$10,000 per day per count per facility.

# The Name of Our PI System

TEMS stands for:

**T**ransmission

**E**nvironmental

**M**onitoring

**S**ystem

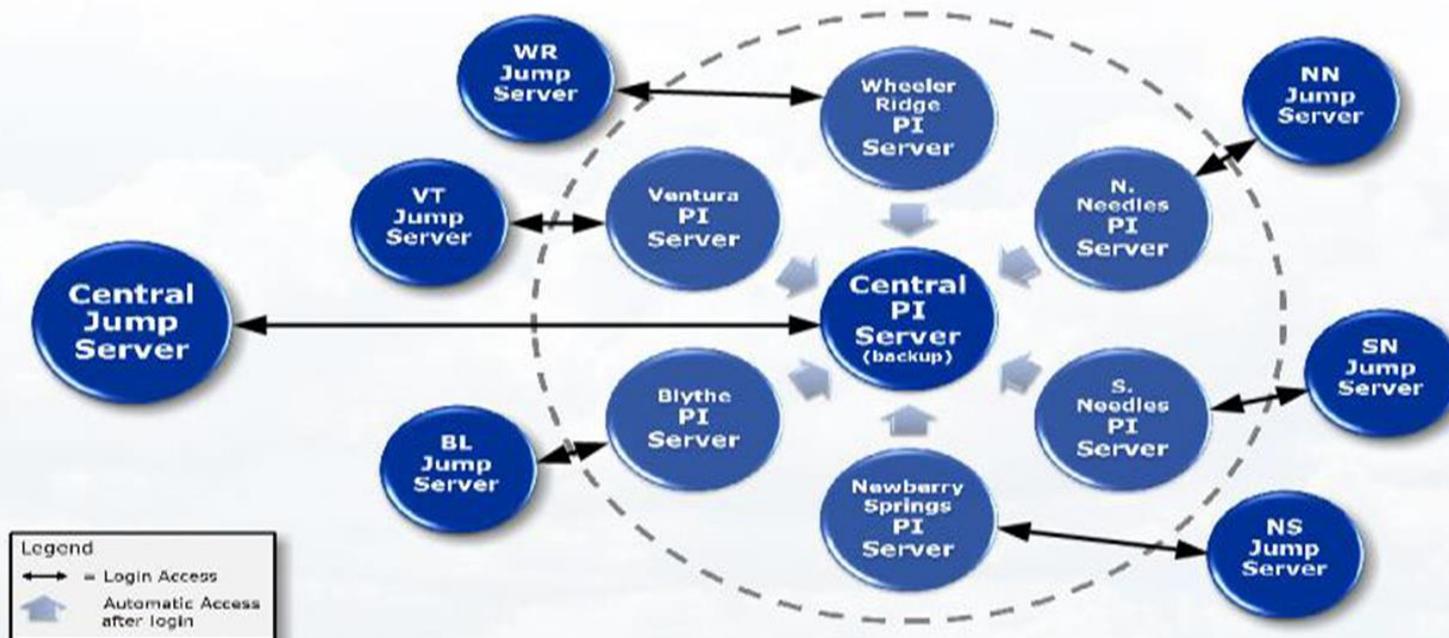
- TEMS addresses all three of the requirements for an environmental monitoring system. TEMS has three parts essentially:
  - PI System data recording
  - Calculations
  - Top View Alarming

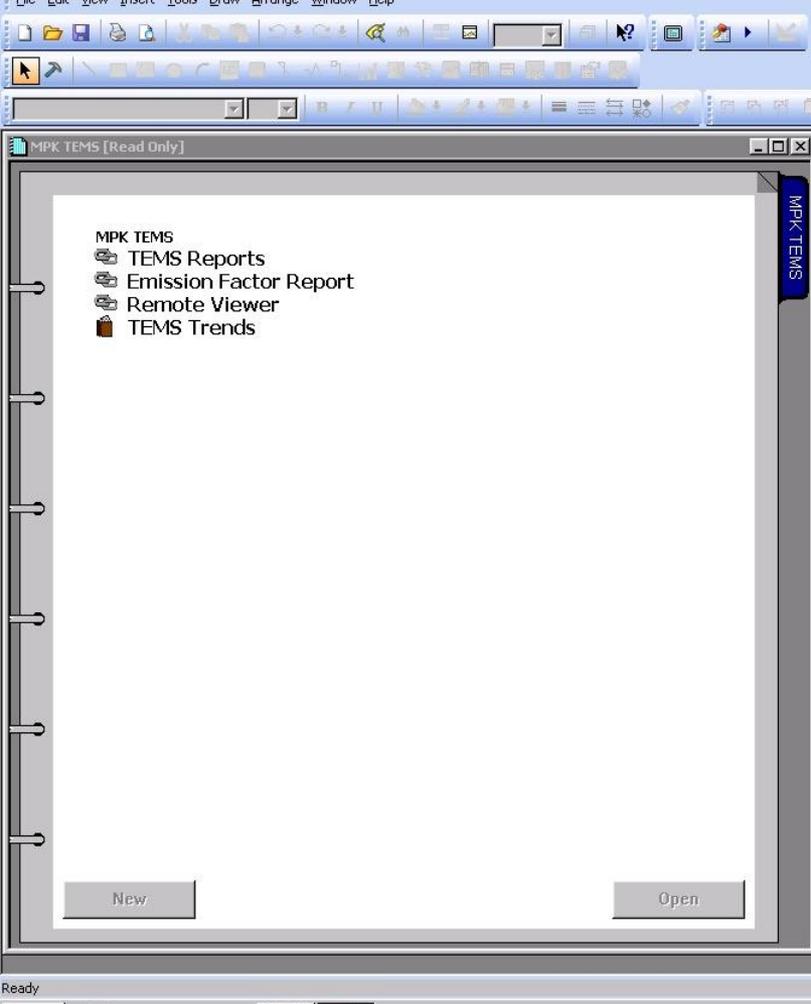
# Products Used in TEMS

- PI Products
  - PI DataLink
  - PI ProcessBook
  - PI Backup
  - PI SMT
  - PI to PI Interface
  - PI SDK
- Exele Products
  - TopView
  - EDICT
  - Exele PI-DAS
  - Manual Input
  - Incident Annotation App
  - PI Data Replicator

# The Setup

## TEMS Network Diagram





### TopView Remote Viewer

LOCK-DOWN MODE IS ACTIVE

Help About... EXELE

#### TopView Engines

Disconnect

- Backup Check (0)
- Network Check (0)

#### Displaying: Backup Check, Current values and alarms

Current values and alarms Alarm history and analytics

Acknowledge Acknowledge Comment Show alarm history Audible Disable

Values View Alarms View Filter: No filter Max Priority: 10

Alarms View Selected Tag Group: All

Time in alarm	Alarm Message
---------------	---------------

#### Window Contents

Row summary

- Displayed: 0 / 8
- In Alarm: 0 / 0
- Unack'd: 0 / 0
- Disabled: 0 / 0
- Hidden: 0 / 0

Actions

Permissions

Options

Sounds: (none)

Lock-down

Since last timed update: 8 seconds Update every 10 sec Refresh now

Latest Msg: 3/18/2014 7:47:27 AM: Connection accepted: from (Host=ap-ism-p01.sempra.com, IP=17

LOCK-DOWN MODE

Session & Current User Info

# Benefits of using PI System

- System Reliability
- Flexible Data Handling
- Tunable Security Parameters
- Scalable

# Exele Information Systems

- Assisted in design of PI System architecture
- Configuration of PI Systems
- Design and implementation of TEMS applications and reports

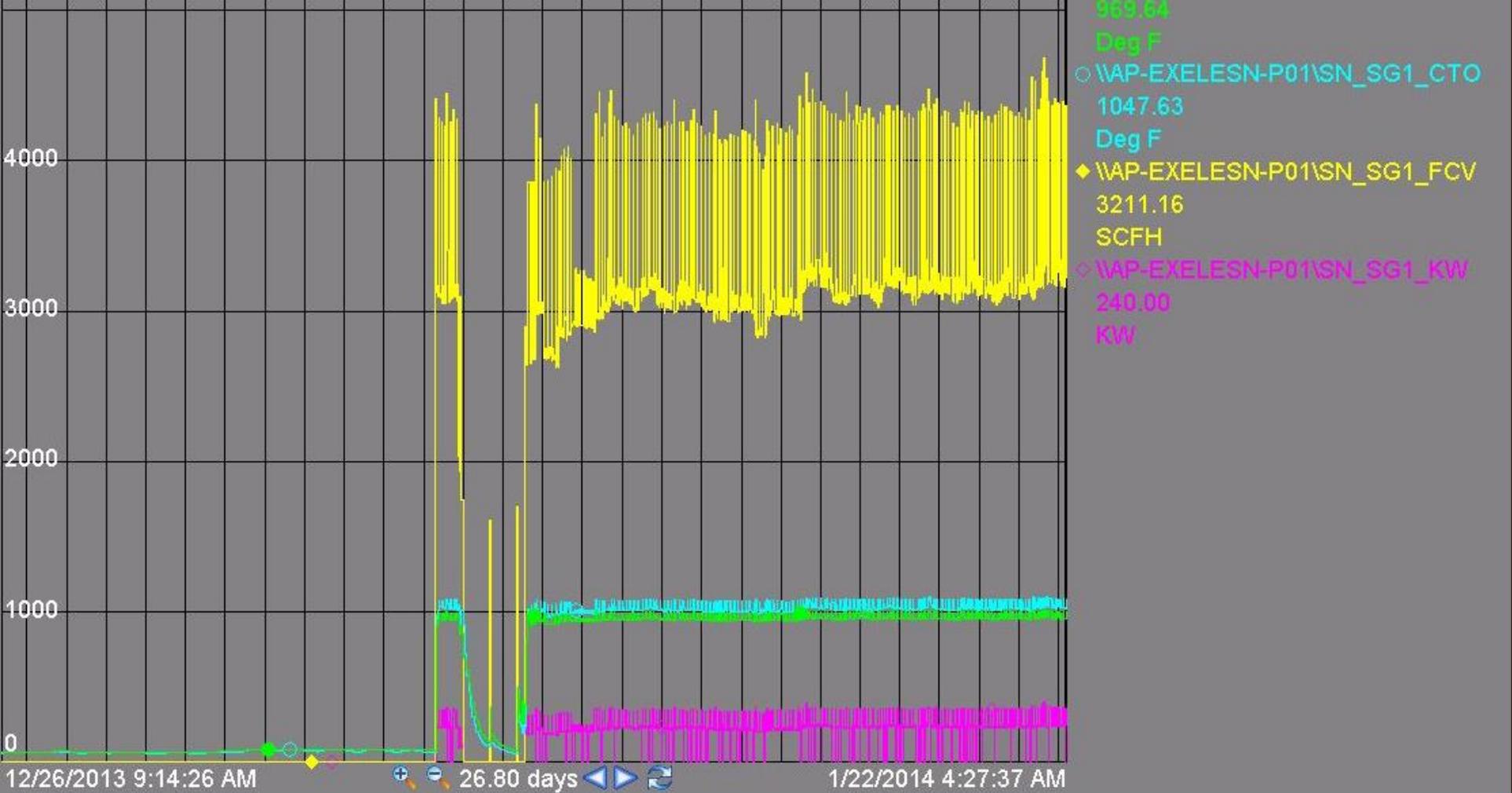
# What TEMS Eliminates

- Before TEMS the stations had :
- Inconsistent data
- Manual Methods for data recording

# Old MACT/NESHAPS Report

Time	Temp	4HrAvg									
0:00	840	800	0:15	835	805	0:30	830	803	0:45	820	799
1:00	795	797	1:15	815	800	1:30	820	805	1:45	799	800
2:00	800	801	2:15	780	785	2:30	775	780	2:45	780	775

It would take two employees approximately 1 ½ hours to review 6 months of records. 8 reads for each hour X 24 hours X 183 days yields over 35,000 reads per unit. One location had 2 units another had 3 units.



# What TEMS Has Taught Us

## Station 1 Unit Status Codes

- 0 = Unavailable
- 1 = Available
- 2 = Starting
- 3 = Running Unloaded
- 4 = Running Loaded
- 5 = Stopping

## Station 2 Unit Status Codes

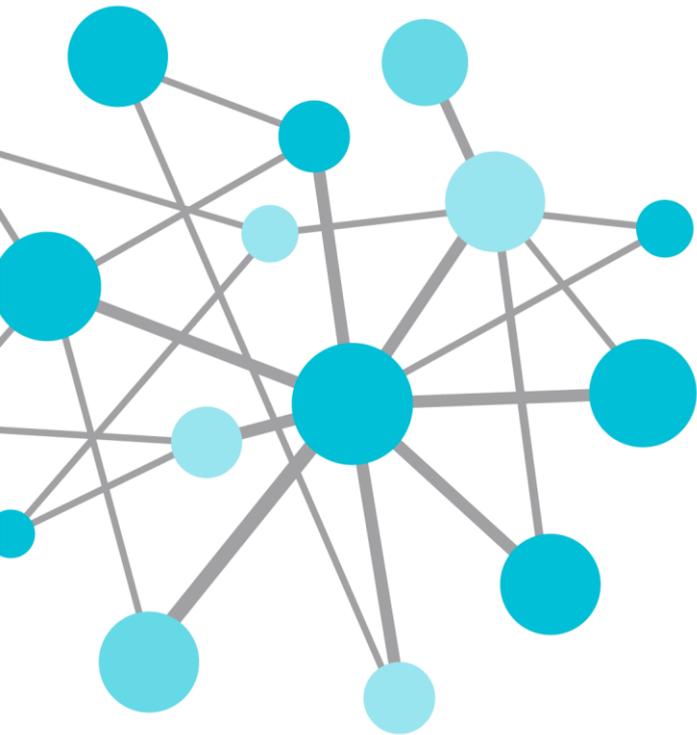
- 0 = Shutdown
- 1 = Ready to Purge
- 2 = Available
- 3 = Purging
- 4 = Starting
- 5 = Running Unloaded
- 6 = Loading
- 7 = Running Loaded
- 8 = Unloading to Idle
- 9 = Stopping

# Next Steps

- Connectivity
- Security
- Data Analytics

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YOU

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