PI Event Frames for Corrosion Coupon Data

Presented by **Randy Esposito**

Sr. Industry Development Manager

Energy Services – Automation Center of Excellence

NALCO An Ecolab Company

Agenda

- Who is Nalco, what do we do?
- What are we trying to accomplish?
- What are the data challenges we faced?
- How did we solve those challenges?
- What benefit do we get from the solution?
- Summary and Conclusions

Nalco, an Ecolab Company

With 2011 pro forma sales of $11 billion and more than 40,000 employees, Ecolab Inc. is the global leader in water, hygiene and energy technologies and services that provide and protect clean water, safe food, abundant energy and healthy environments.

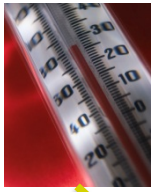
Nalco, an Ecolab company, specializes in industrial water, energy and air applications, helping customers reduce natural resource consumption, enhance air quality, minimize environmental releases and improve productivity.

Ecolab delivers comprehensive programs and services to the food, energy, healthcare, industrial and hospitality markets in more than 160 countries.

Cooling Tower Monitoring

Wet Chemistry

Weather Data



Design Data

Process Data

Corrosion Data

- Corrosion
- Scale
- Biological

What is a Corrosion Coupon?

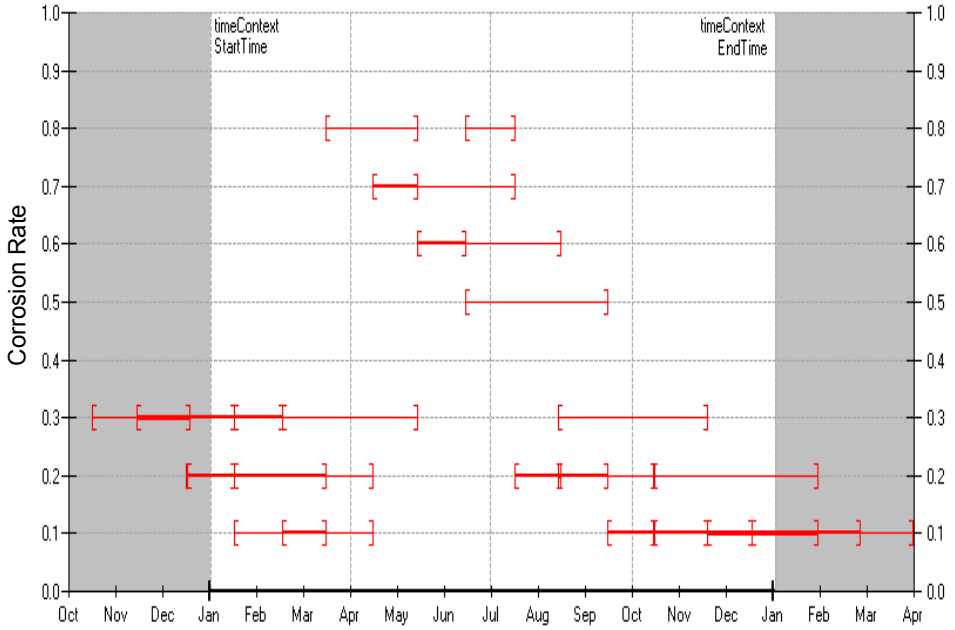
- Representative Metal sample sitting in the process stream for a given time (days to months)
- “Experiences” all of the process variations over it’s time in the system
- Most direct way to measure corrosion in a cooling water system

What data do we collect?

- "Static" Information about the coupon
  - Serial Number, Size, Metal Type, Physical Location
- "Process" Information
  - Date Inserted, Date Removed, Initial Weight, Final Weight, Calculated Corrosion Rate, Corrosion Type, Pit Depth

Challenges with the data

- Data exists in a LIMS system not easily accessible
- Need to be able to plot results with other process measurements.
- Results apply over a time range not at a point in time
- Staggered and overlapping coupon measurements



Methods of Handling the data

PI Tags	• Point In time data • Not an accurate representation
Relational Tables (SQL or AF)	• Time context difficult to establish
PI Batch	• Outside the intendant use • Doesn't integrate well with PI AF
PI Event Frames	

Using PI Event Frames

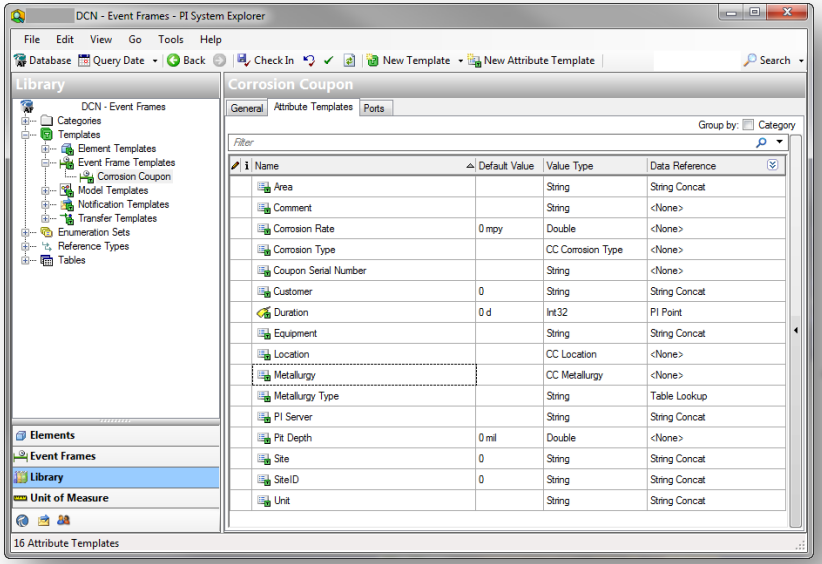
Benefits

- Allows all data to exist in one location (PI AF)
- Implicitly handles the time context
- Easy to link to other pieces of process data
- Aligns with OSIsoft's future development

Drawbacks→ Challenges

- Creation of event frames needs to be done in code
- Visualization or export of data is not yet native in any client application

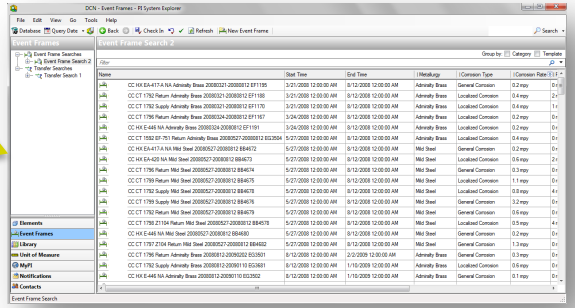
PI Event Frames Description



PI Event Frames Template

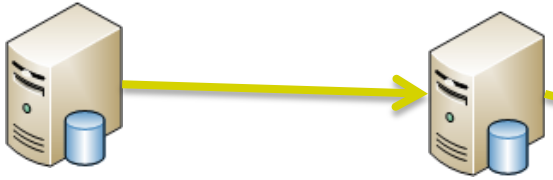
- Can be created either stand alone or from a template
- Holds static, dynamic and referenced data
- Behaves like elements in PI AF

Creation Routine



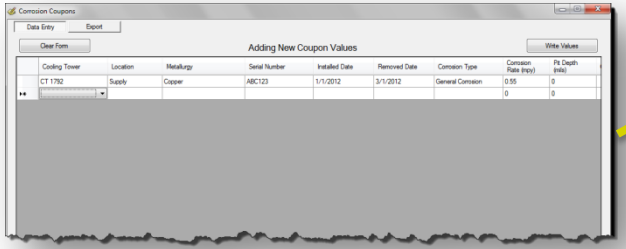
PI Event Frames

Creation of PI Event Frames

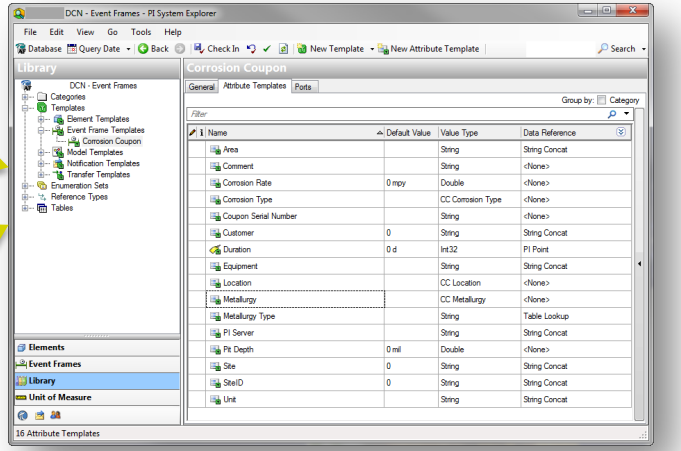


LIMS

PI ACE



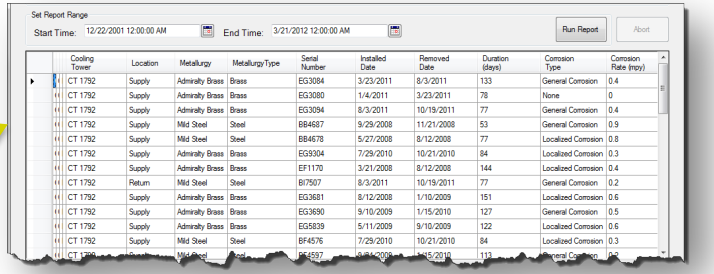
.Net App

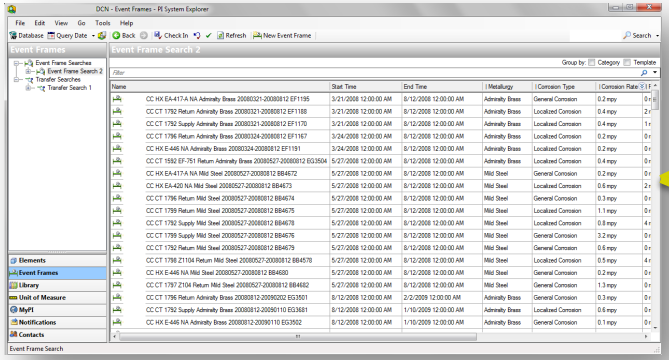


PI Event Frames Template

Visualization of PI Event Frames

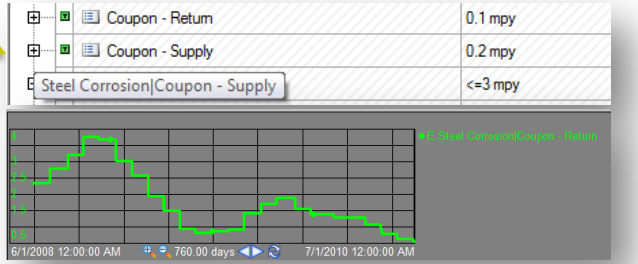
.Net App



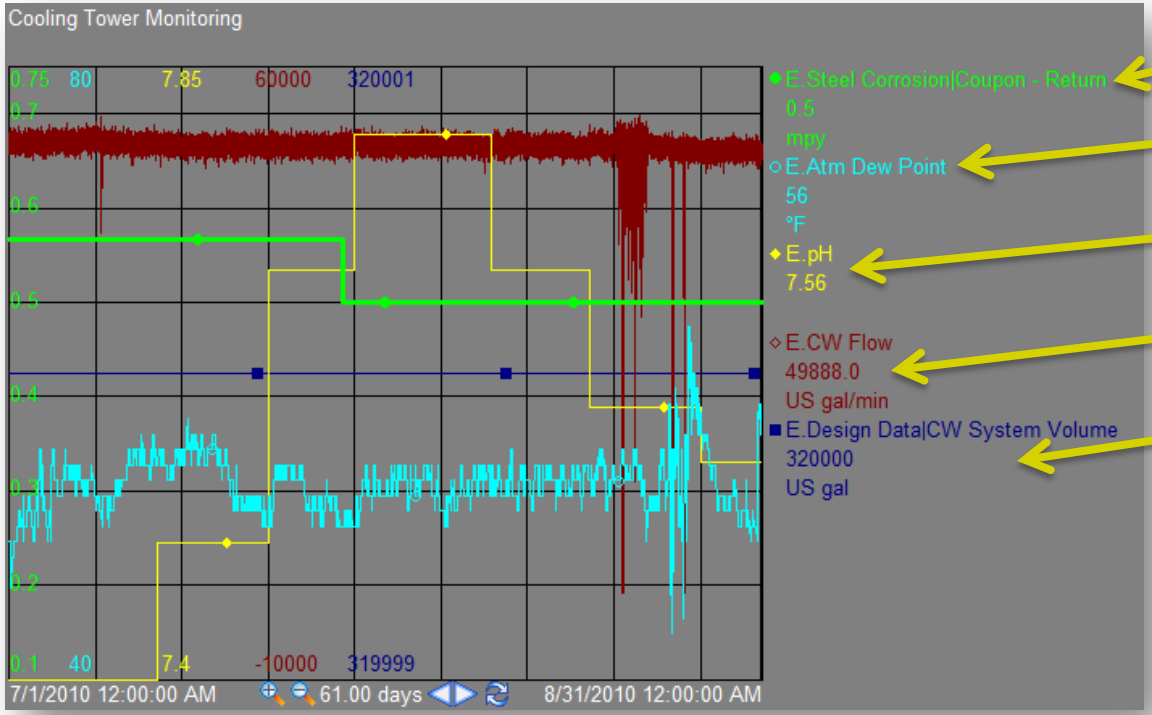


PI System Explorer
Event Frame Search

Custom PI AF Data Reference



Putting the picture together



Corrosion Data

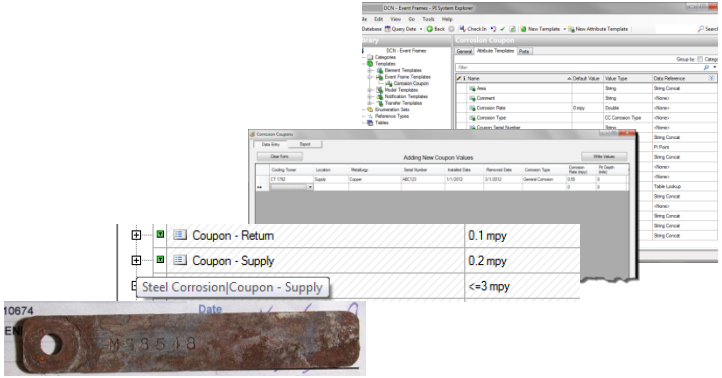
Weather Data

Wet Chemistry

Process Data

Design Data

Summary



NALCO
An Ecolab Company

Business Challenge

- Create a full picture of the performance of a cooling tower system
- Integrate corrosion coupon data with all other available data in the system

Solution

- Use PI Event Frames to model the corrosion coupons
- Write custom apps to populate PI Event Frames and a custom data reference to integrate it with the rest of the data in client apps

Results

- Now able to directly integrate corrosion coupon data with all other data in client applications.
- Able to draw the full picture of cooling system performance

Conclusion

- Showed what a corrosion coupon is and how it creates the full picture of cooling tower performance
- Showed how corrosion coupon data can be modeled with PI Event Frames
- Showed how we can populate the event frame data
- Showed how we can visualize the event frame data and integrate it with other information for the full picture of cooling tower performance

THANK YOU

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