



# What is RtReports and how is it used in Pharma?

Presented by **Brent Punt**

# Agenda

- What we did before PI Server and RtReports
- Focus on RtReport Compliance Edition
  - Create a RtReport: RtReports Editor
  - Using RtReports: RtReport Generator
- RtReports Examples

# Before we implemented PI Server / RtReports

- Operators Monitor Equipment
  - Manual Data Gathering
  - Record data every hour in some cases
- Local Skid based vendor reports
  - Often with poor report design
- Reports with lengthy data dumps
  - Long data review times

# RtReports General Introduction

Template-Based Enterprise Reporting System that:

- Produces configurable and repeatable reports without programming
- Stores the templates centrally in PI Server
- Uses a web-based interface (Generator)
- Provides reports for real-time and historical data
- Provides reports for batches, time ranges or PI AF cases
- Provides access to PI System data (and external data)
- Meets eSign and auditing requirements for 21 CFR Part 11 electronic records and e-Signatures

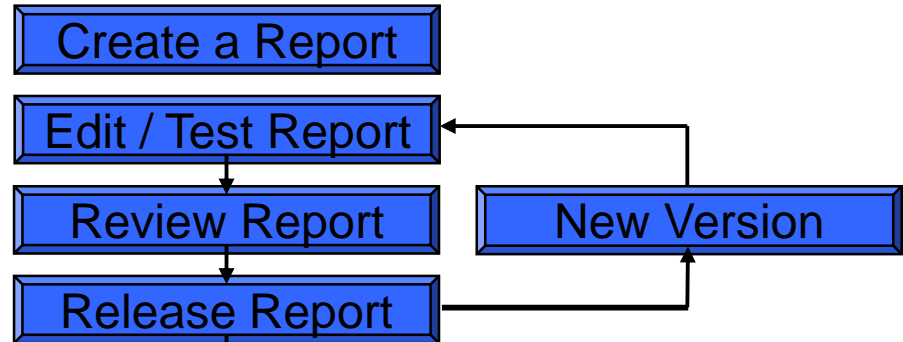
# RtReports – Two Tools

- Editor
  - Client / server based tool for RtReport Development
- Generator
  - Web Based User Interface

# RtReport Compliance Workflow

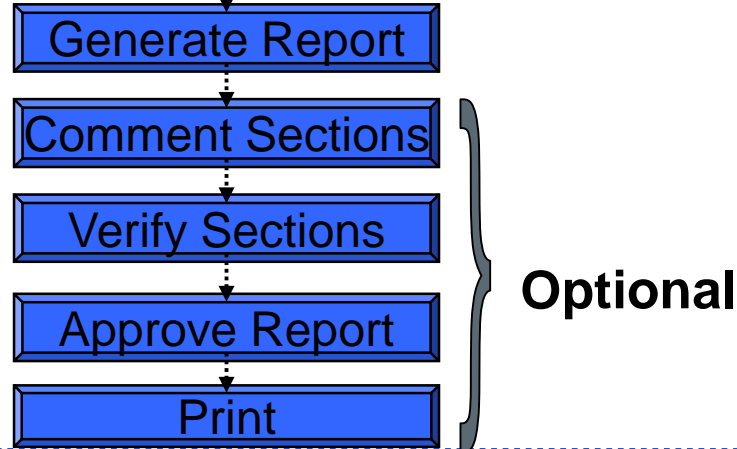
## RtReports Editor

The Administrator creates a report template

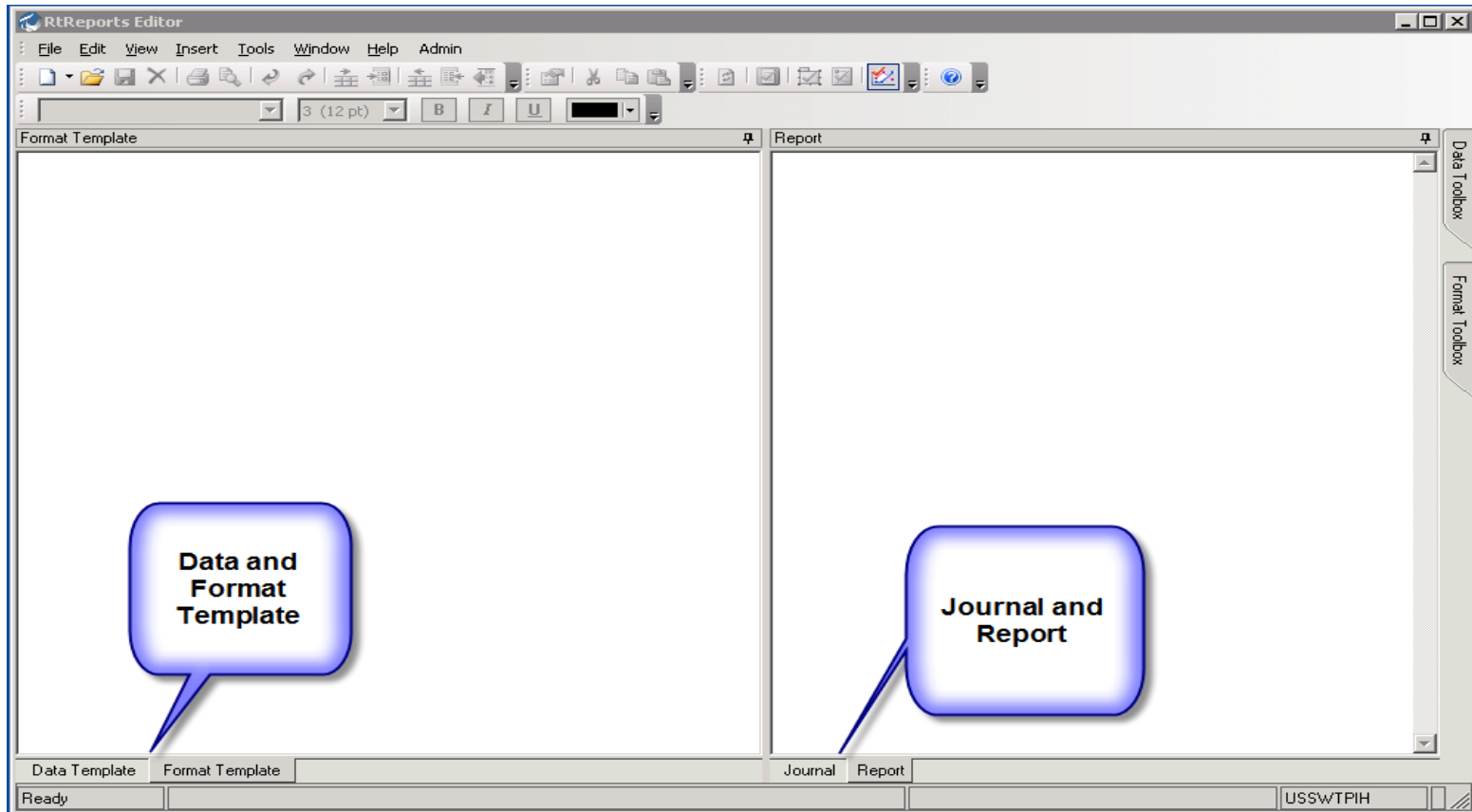


## RtReports Generator

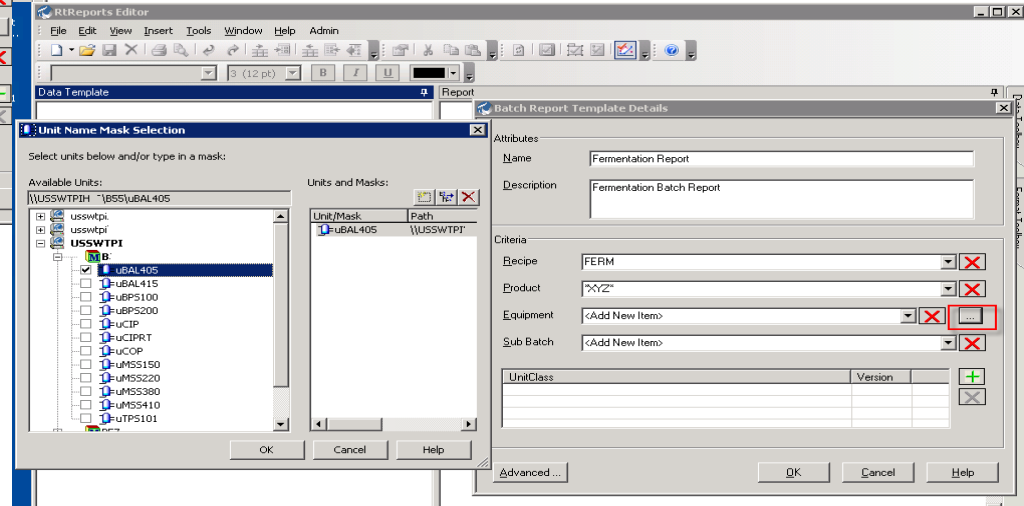
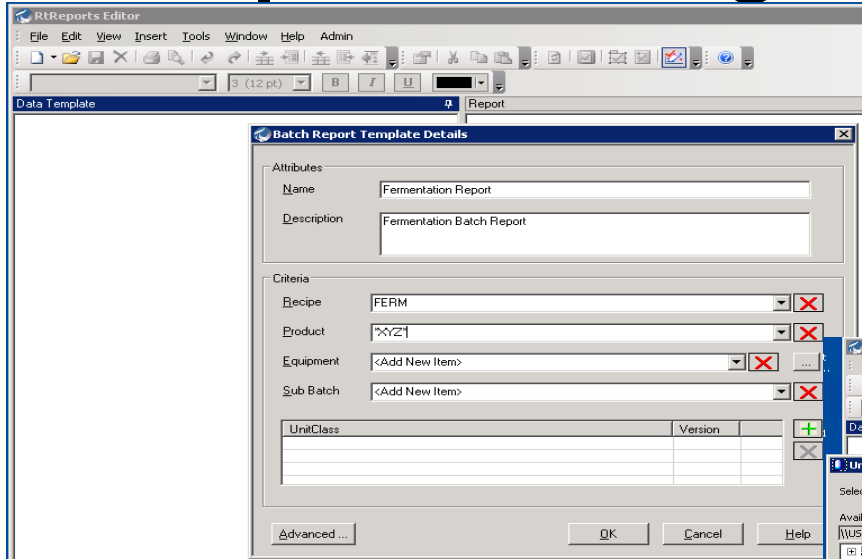
The user generates the template based on a batch or other context: PI Batch, Time, PI Asset Framework (PI AF) Case



# RtReports Editor: Four Windows



# Template Linking to Module Database

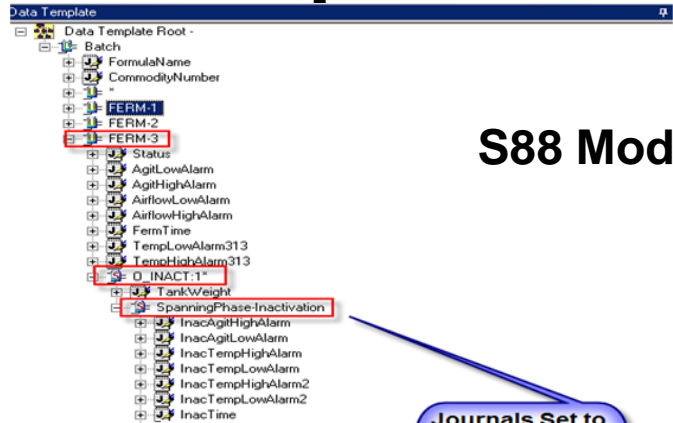


**Link Reports to Module Database –  
PI Event Frames not supported now\***

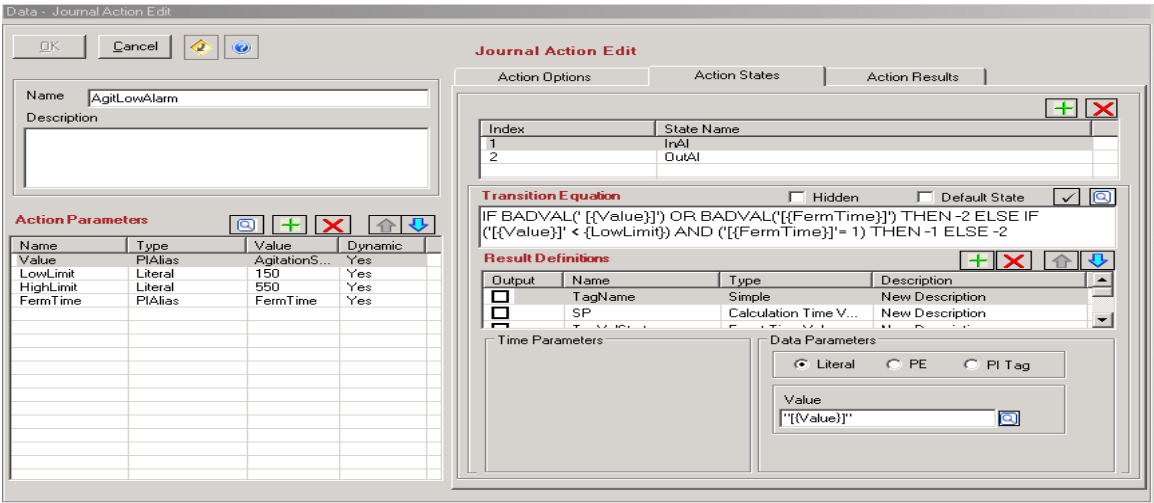
**\*Future version on roadmap**



# Link Report to PI System Data using Journals



## S88 Model for Batch Structure



**Link Reports to PI System Data Directly or through MDB Aliases (preferred method)**

# Format the Data

The screenshot displays the OSIsoft Report Designer interface. On the left, the 'Format Template' pane shows a hierarchical tree of report components. The 'Process Parameter Summary' item is selected and highlighted with a red box. On the right, the 'Report' preview pane shows the rendered report. The report has a title 'Fermentation Batch Report' and a 'Batch Summary' section. The 'Process Parameter Summary' section is also highlighted with a red box. The report content includes fields for Report Name, Generation Date, Batch Start/End, Status, Recipe, Unit, Start/End Time, Cycle Time, and various process parameters with ranges and exceptions.

**Format Template**

- Fermentation
  - CoverSheet
  - ReportHeader
    - Batch Summary
    - PageHeader
    - Page Header
    - Process Parameter Summary
    - SectionHeader
      - Title
      - Process Parameter Summary**
    - Status - 1
    - Status - 2
    - Status - 3
    - Batch Summary
    - Inactivation
    - SectionFooter
    - Exception Detail
    - PageFooter
    - ReportFooter

**Report**

Page Header Begin

Report Name: - Fermentation  
Version: 1.0  
Batch ID: [BatchID]

Generation Date: dd-MMM-yy  
hh:mm:ss AP

Batch Start: 27-Feb-14 04:59:55 PM  
Batch End: 27-Feb-14 04:59:55 PM

Page Header Begin

ReportHeader Begin

**Fermentation Batch Report**

**Batch Summary**

Batch ID: [BatchID]  
Recipe: ---  
Unit: \*  
Start Time: 27-Feb-14 04:59:55 PM  
End Time: 27-Feb-14 04:59:55 PM  
Cycle Time: 0seconds

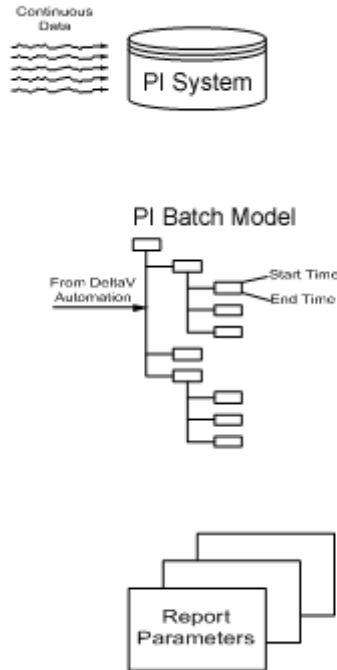
ReportHeader End

Section Begin

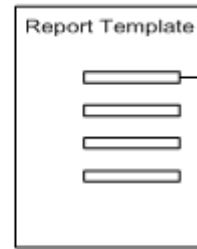
**Process Parameter Summary**

Fermentation Time: Range 1 - 6 Hours Actual: 0.0 Hours Exceptions: 0  
Temperature: Range 35 - 37 °C Exceptions: 2  
pH: Range 6.0 - 7.0 Exceptions: 2

# RtReport Validation Methodology



A robust validation strategy is critical for using exception based reporting.



## Report Testing Methodology:

Continuous Data

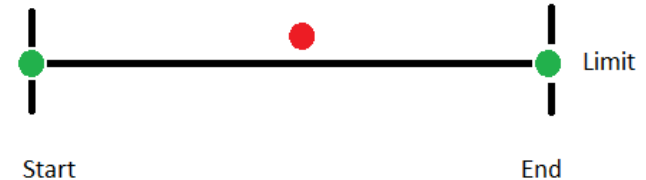
during

Specified Time

compared against

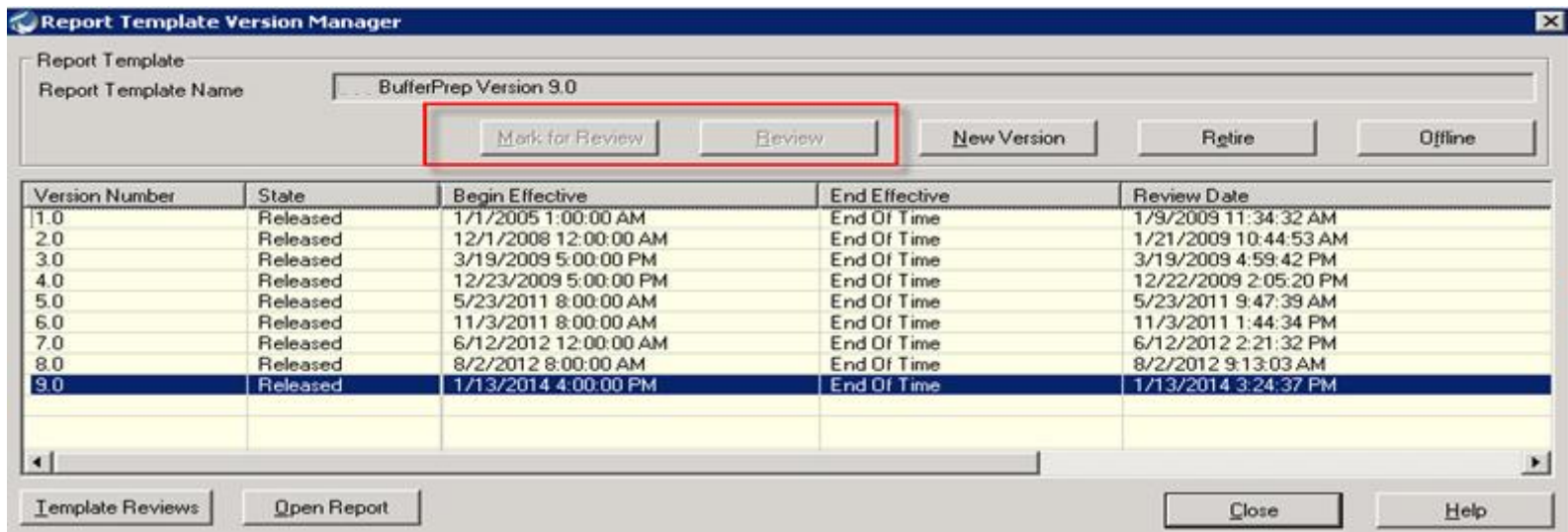
Report Parameters

100 % Parameter Verification



Edit / Test Report

# Review / Release Reports



Version Number	State	Begin Effective	End Effective	Review Date
1.0	Released	1/1/2005 1:00:00 AM	End Of Time	1/9/2009 11:34:32 AM
2.0	Released	12/1/2008 12:00:00 AM	End Of Time	1/21/2009 10:44:53 AM
3.0	Released	3/19/2009 5:00:00 PM	End Of Time	3/19/2009 4:59:42 PM
4.0	Released	12/23/2009 5:00:00 PM	End Of Time	12/22/2009 2:05:20 PM
5.0	Released	5/23/2011 8:00:00 AM	End Of Time	5/23/2011 9:47:39 AM
6.0	Released	11/3/2011 8:00:00 AM	End Of Time	11/3/2011 1:44:34 PM
7.0	Released	6/12/2012 12:00:00 AM	End Of Time	6/12/2012 2:21:32 PM
8.0	Released	8/2/2012 8:00:00 AM	End Of Time	8/2/2012 9:13:03 AM
9.0	Released	1/13/2014 4:00:00 PM	End Of Time	1/13/2014 3:24:37 PM

Review Report

Release Report

Strong Version Control

# RtReports Generator

 **RtReports**

[Help](#) | [Support](#)

**Domain Based Security Model**

**Sign in to RtReports**

User Id

Password

Domain

**Sign In**

Generate Report

# Default Batch Search Page

**RtReports** View Configure [Help](#) | [Support](#) | [Sign Off](#)  
Welcome Punt, Brent (sanofi pasteur)

Batch Search Page

Search

Time Range

State: Active

Start Time: 3/2/2014

End Time: 3/5/2014

Search Condition

Server: USSWTPIH

Product:

Batch: pt14cip0077\*

Equipment:

Operation:

Phase:

Report Condition

Batches Reports

Select Reports tab to generate the report

Your search found 1 batches that met your criteria

Batch View

	BatchID	Product	Recipe	Start Time	End Time
+	PT14CIP0077-4T	CIP250L	PortTank CIP	3/3/2014 9:43:11 AM	3/4/2014 12:06:52 PM

Search for the batch you want to generate using:

- Timeframe and / or
- Multiple Search Conditions

# Report Template Selection

**RtReports** View Configure Help | Support | Sign Off

-Quick Links- -Search Attribute- Go Welcome Punt, Brent (sanofi pasteur)

Batch Search Page Search

**Time Range**

State: Active

Start Time: \*-8h

End Time: \*

**Search Condition**

Server: USSWTPI

Product:

Batch:

Equipment:

Operation:

Phase:

**Report Condition**

**Batches Reports**

BatchID=PT14CIP0077-4T10\_ , Product=CIP250L Recipe=PortTank CIP Start Time=3/3/2014 9:43:11 AM, End Time=3/4/2014 12:06:52 PM

Report Name	Version	Description	Status	RunTime
CIP	2.0	Building CIP Batch Report	Not Yet Appro	3.73

**Best Practice: Return only one template. Templates can be configured to only generate based on specific batch properties: recipe product, ect.)**

1

# Generation Screen

BufferPrep



Running time is approximately 8.41 seconds....



# RtReport Review Screen

The screenshot shows the 'RtReports' interface. At the top, there's a navigation bar with 'Configure' and 'Printers' tabs. Below this, a sub-bar contains 'Print', 'Approve', 'Verifications', and 'Refresh' buttons. The 'Approve' button is highlighted with a red box and a callout bubble that says 'Approve and Print report'. The main content area displays report details for 'CIP Batch Report'. It includes fields for 'Report Name', 'Version: 2.0', 'PI Batch ID', 'Printed By', 'Last Official Print: 31-Dec-69 07:00:00 PM', 'PI Batch Start: 03-Mar-14 09:43:11 AM', and 'PI Batch End: 04-Mar-14 12:06:53 PM'. Below this, the 'CIP Cycle Number' is '14CIP0077'. A section titled 'Report Not Printed' has a callout bubble that says 'Tracks who and when printed'. At the bottom, there's a section for 'Recipe ID: CIP2-250L', 'Recipe Name: CIP250L', 'Recipe Version: 1', 'Docking Station: CIP2', 'CIP Cycle Start Date and Time: 03-Mar-14 09:43:11 AM', and 'CIP Cycle End Date and Time: 04-Mar-14 12:06:53 PM'.

**RtReports** Configure Printers Help Support

Print Approve Verifications Refresh

Report Name: . Version: 2.0 Printed By: PI Batch Start: 03-Mar-14 09:43:11 AM  
PI Batch ID: Last Official Print: 31-Dec-69 07:00:00 PM PI Batch End: 04-Mar-14 12:06:53 PM

**CIP Batch Report**

CIP Cycle Number: 14CIP0077

*Report Not Printed*

**Tracks who and when printed**

Recipe ID: CIP2-250L  
Recipe Name: CIP250L  
Recipe Version: 1  
Docking Station: CIP2  
CIP Cycle Start Date and Time: 03-Mar-14 09:43:11 AM  
CIP Cycle End Date and Time: 04-Mar-14 12:06:53 PM

# Adding Comments / Section Verification

Verification Comment - Microsoft Internet Explorer

Page Report

Section

Comment

User Id

User Name

Password

Page 1

Report BatchDemo2

Section Batch Structure Section:1.0

Comment This is where I can enter my Verification Comment.

User Id ecardinal

User Name Eric Cardinal

Password .....

OK Cancel

Comment Sections

Verify Sections

Username and password are always needed to enter comments

- Security Groups Set who can perform actions

# Report Example with Comments

Report - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print PageRank 75 blocked AutoFill Options

Google Search Web

OSIsoft Configure Print Approve Showing Page 1 of 1 Prev Next PI RtReports Help Web Site Support

Batch ID : OSI10039 NeverBeSick Bio Production Summary Version : 4

**Report Not Printed**

**Report Summary**

Report Name:	NeverBeSick Bio Production Summary	Report Generation Date	14-May-04 05:17:10 PM
Report Version	4	Release Date	
Report Author	OSTCNelson	Creation Date	16-Apr-03 11:38:49 AM

Unit Name	Start Time	End Time	Duration
TRA100L	14-May-04 03:07:32 PM	14-May-04 03:13:32 PM	6 mins

Temperature Limit Check High Limit 55 Low Limit 19

NO CPP EXCEPTIONS

[Comment](#) [Verify](#)

☒ Show Comment

No of Comment : 1

Verified			
ecardinal	Eric Cardinal	2/19/2006 3:00:31 PM	This is where I can enter my Verification Comment.

2/18/2006 4:40:21 PM 19.32 MINUTE(S) 2/18/2006 4:59:40 PM

**Comments**

ecardinal	Eric Cardinal	2/19/2006 2:53:44 PM	This is where I can enter my comments for this section. Notice that I need my Domain Username and Password!
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Print Approve Showing Page 1 of 1 Prev

# Approving a RtReport

Company Guidelines require meaning of signature.  
Not available in RtReports. A Procedural Control must  
be used.  
Users must add meaning to the comment field.

Report: BatchDemo2

Comment: This report met all the requirements.

User Id: ecardinal

User Name: Eric Cardinal

Password: [masked]

Buttons: OK, Cancel

Username  
and password  
Required

Approve Report

RtReports Report Viewer - Microsoft Internet Explorer

Address: http://yul-ecardinal/RtReports/WebPages/ReportTemplate.aspx?ReportName=BatchDemo2&ReportVer=1.0&UniqueID=2092ffcf-de00-4285-a0b4-Sac202b89127&Server=localhost&Flag=1&PageNo=1&Cont

Google Search

RtReports Configure Printers

Report Not Printed

Report Name: BatchDemo2  
Report Version: 1.0  
Start Time: 18-Feb-06 03:13:00 PM  
End Time: 18-Feb-06 04:59:40 PM  
Duration: 1 hour 46 minutes 40 seconds

Approvals					
ecardinal	Eric Cardinal	2/19/2006 3:05:16 PM	This report met all the requirements.	1	yul-ecardinal@rtreportsadmin

Batch ID:	Start Time:	End Time:	Product	Recipe
BIDRUS11	18-Feb-06 03:13:00 PM	18-Feb-06 04:59:40 PM	PrRTS81	RCDEK58

Unit:		Unit Start Time:		Unit End Time:	
R-2401		18-Feb-06 03:13:00 PM		18-Feb-06 04:19:34 PM	
Parameter	Average	Maximum	Minimum	Start Value	End Value
Temperature	128.68	208.30	53.50	53.50	65.19
pH	6.71	9.11	1.00	1.00	6.84
Level	55.07	74.35	0.00	0.00	9.85

Trend Control

# Printing

- Draft Print
  - Using a list of printers
  - No watermark – not tracked
- Official Print
  - One and Only One Printer
  - Official Watermark
  - Tracked in system



Print

# How we use RtReports

- RtReports used for Real Time Batch Release of CIP, SIP, Media and Buffer
  - Zero Downtime is Expected
- Process RtReports printed and attached to paper batch record packet
  - CIP/ SIP not printed – verified on glass
- The following slides shows examples of RtReports used in production:

# Exception based report example

Report Name: B50-BufferPrep Version: 9.0 Batch ID:	Generation Date: 03-Mar-14 01:40:26 PM Last Official Print: 03-Mar-14 01:41:07 PM	Batch Start: 03-Mar-14 03:40:53 AM Batch End: 03-Mar-14 05:04:03 AM
Report printed 1 time by carol on 3/3/2014 1:41:07 PM		
<b>Buffer Prep Batch Report</b>		
<b>Batch Summary</b>		
Batch ID: U05		
Recipe: BUF_PREP		
Unit: BUFR-364		
Start Time: 03-Mar-14 03:40:53 AM		
End Time: 03-Mar-14 05:04:03 AM		
Cycle Time: 1 hour 23 minutes 10 seconds		
<b>Process Parameter Summary</b>		
<u>Batch Summary</u>		
Unit 364 Prep Tank Expected Status: Clean or Sanitized Actual: Clean		
Formula and Batch Size Setpoint: BUFR- 450L		
Batch Size Actual: 440.6 Kg		
<u>Amount Manually Added:</u> 1.8 Kg		
<u>WFI</u>		
Temperature Setpoint: 30 °C Range 20-40 °C		
Exceptions: 0		
<u>Mix</u>		
Agitation Rate Setpoint: 300 RPM Range 280-320 RPM		
Exceptions: 0		
Mix Time: >= 30 min		
Exceptions: 0		
<u>Parameter Check</u>		
Final Conductivity Range 18.40-24.80 Actual: 22.04 mS/cm		
Exceptions: 0		
<b>--- Exception Detail ---</b>		
Temperature Limit		
-No Exceptions Found-		

# Batch Summary Report example

Batch Number:

Recipe Name: 3mL Vial

Recipe Number: 1

Product Name:

Product ID: 301

Time Begin: 01-MAR-2014 12:05:51

Time End: 02-MAR-2014 01:04:52

Elapsed Time: 12:59:01

Dispensing Report

Initial Tank Mixing

	Mixing Speed ST1940-200 (rpm)			Mixing Time		
Specification (Recipe Value)	High Limit	Low Limit	Setpoint			Setpoint
	150	0	100			00:00:00
Actual Value	Max. Speed	Min. Speed	Average Speed	Start Time	End Time	Duration
	0	0	0	12:07:32	12:07:32	00:00:00

Tank During Dispense

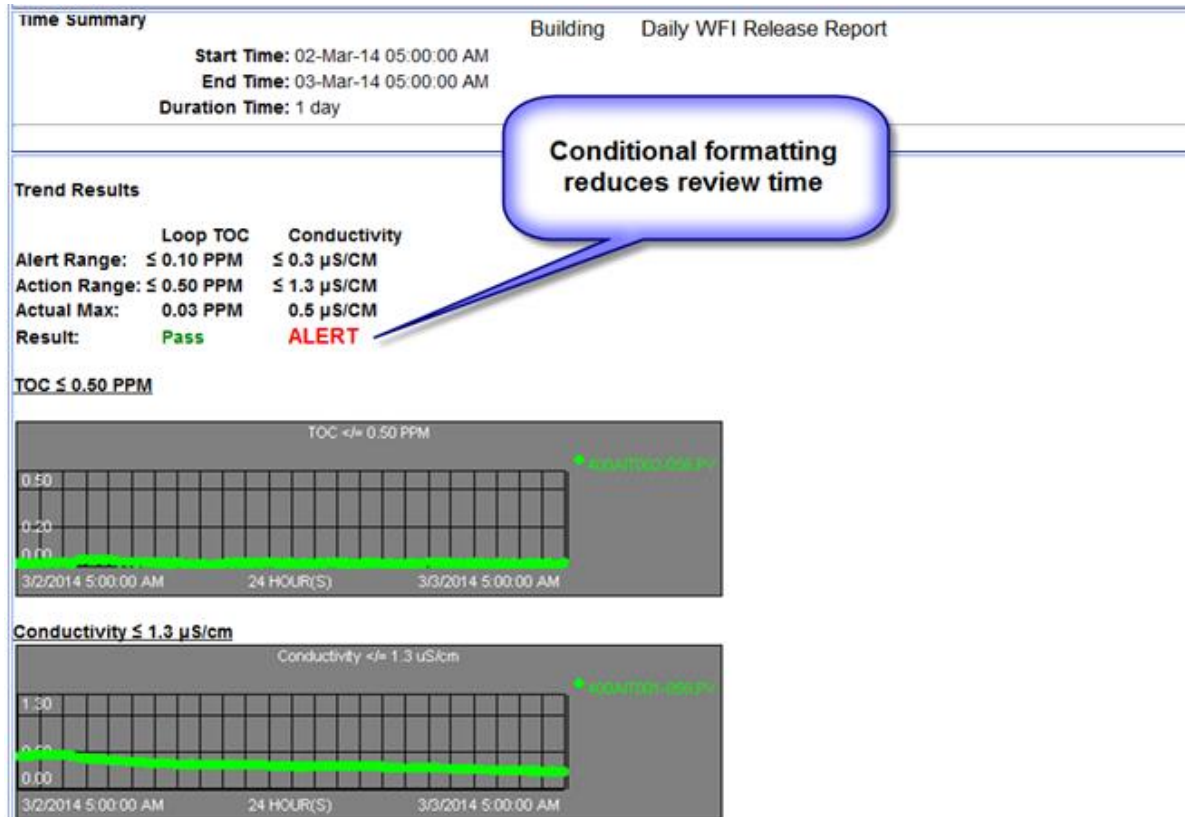
	Mixing Speed ST1940-200 (rpm)		
Specification (Recipe Value)	High Limit	Low Limit	Setpoint
	150	0	0
Actual Value	Max. Speed	Min. Speed	Average Speed
	0	0	0

	Tank Temperature TIT1940-201 (°C)		
Specification (Recipe Value)	High Limit	Low Limit	Setpoint
	25.0	0.0	6.0
Actual Value	Max. Temp.	Min. Temp.	Average Temp.
	19.3	4.3	11.4

	Tank Supply Pressure PIT1940-12 (psig)		
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# Daily Utility Release Report example



# PI Server and RtReports Value Added

- Reduction in operator time: no manual data recorded
- Real Time Reporting reduces overall
  - Batch Cycle Time
  - Batch Release Time
- Exception based reporting
  - Largest reduction of Batch Release Time
- Utility reports reduces physical water samples req'd

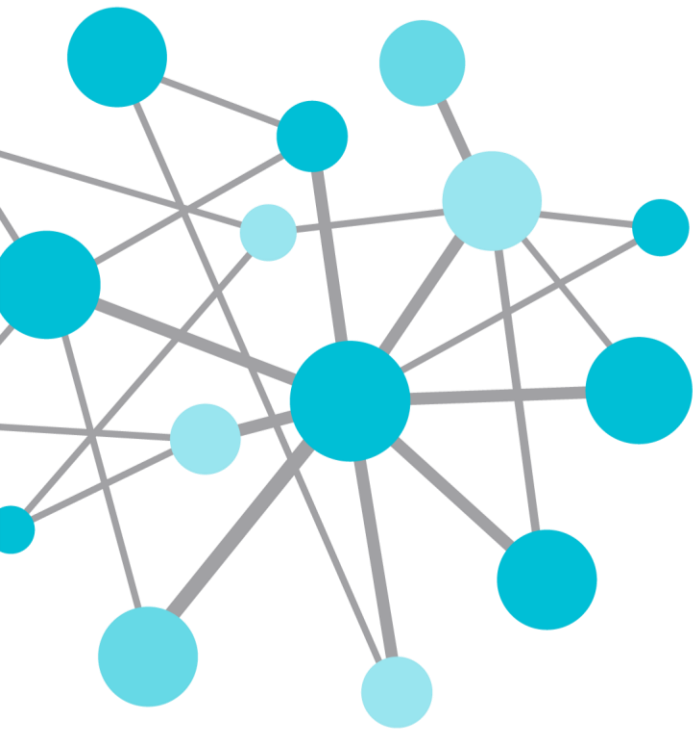
# How Important is RtReports to our Business?

- RtReports in use since December 2008
- Using current Version 3.3.0.6
- 84 versions on 24 Templates
- ~11,000 PI Batches generated in 2013
  - > 70% Batches require RtReports
- Used to release > \$1 Billion in revenue

PI Server and RtReports are Integral and Essential to our Business

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