

Taking PI to the Enterprise

Randy Rhodes
SCHOOL System Business Sponsor

OSIsoft T&D User Group
September 16, 2004

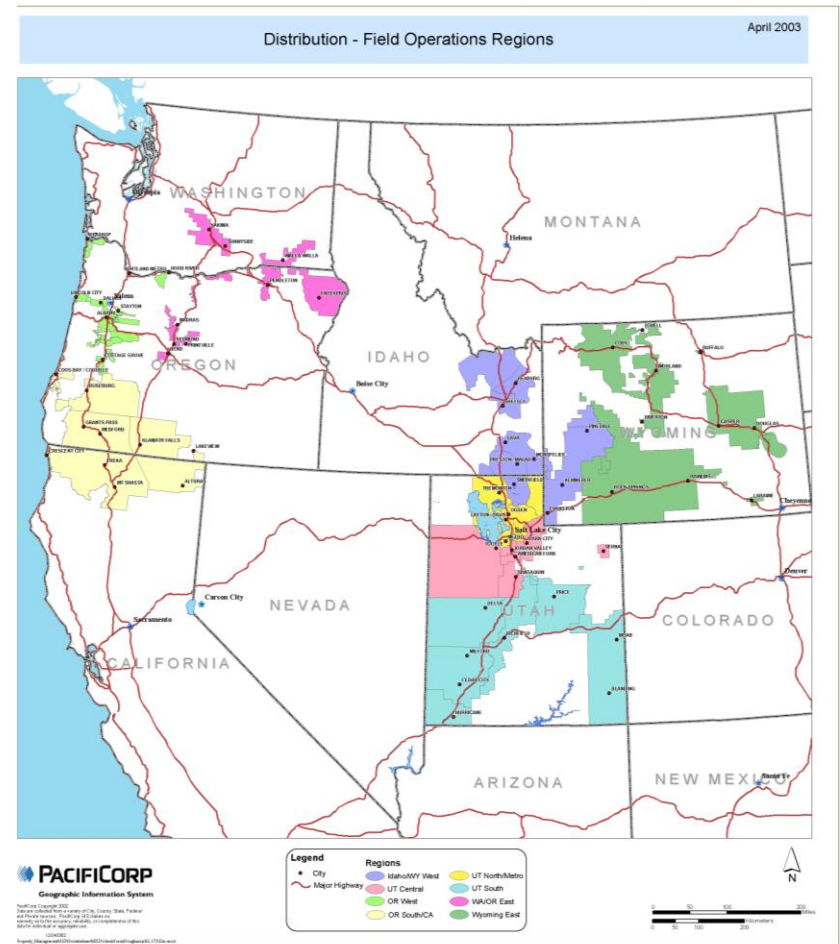


Agenda

- Background
- SCHOOL Grows Up
 - Creating Business Benefits
 - Improving Data Quality
 - Supporting the Users
- New Projects Underway
- Q&A

PacifiCorp Quick Facts

- 1.5 Million Electric Customers In Six Western States
- Doing Business As Pacific Power And Utah Power
- 8300 Megawatts Of Generation Capacity From Coal, Hydro, Gas-fired Combustion Turbines, Geothermal, Co-generation And Renewable Wind Power
- 6,400 Employees In The United States, Headquartered In Portland, Oregon
- President And CEO: Judi Johansen
- Part Of The Scottish Power Group, Which Additionally Provides Energy And Other Utility Services To 5.5 Million Customers In The United Kingdom.



SCHOOL: Profile and Benefits

Substation / Circuit History of Operational Loading

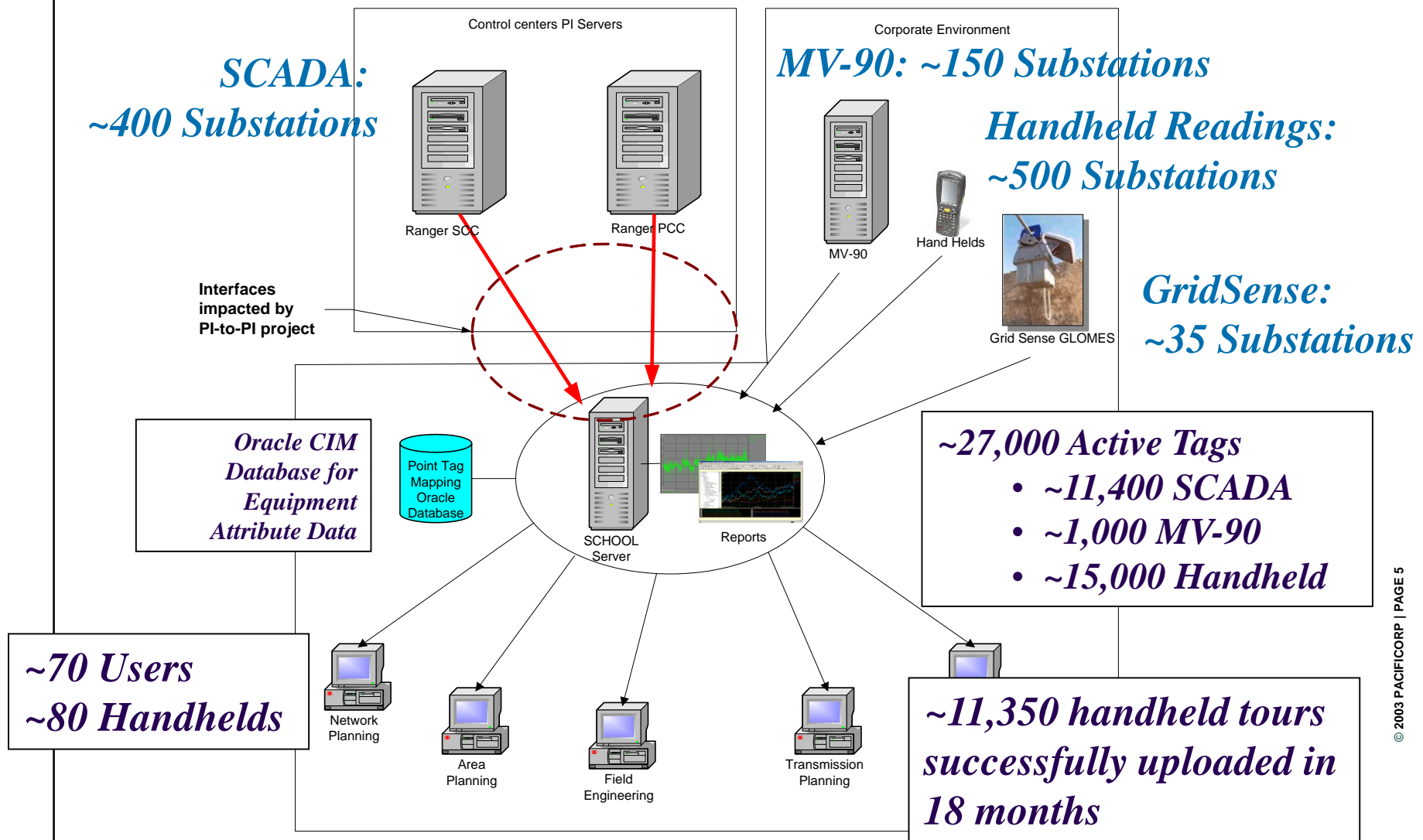
Business Profile

- Sponsored by Asset Management, within Power Delivery
- Load Historian for Engineering and Planning Engineers (Subtransmission and Distribution)
- One of Several PI Applications
 - Scottish Power Asset Management
 - PacifiCorp Generation
 - Thermal Plants
 - Hydro Plants
 - PacifiCorp EMS (Expected Dec 04)

Benefits to Power Delivery

- Consolidates Data from Multiple Sources
- Provides Data Under One Intuitive Tag Naming Convention
- Automates Manual Work Processes
- Makes Business Rules More Transparent
- Helps Business Users Improve Data Quality

The SCHOOL System at a Glance

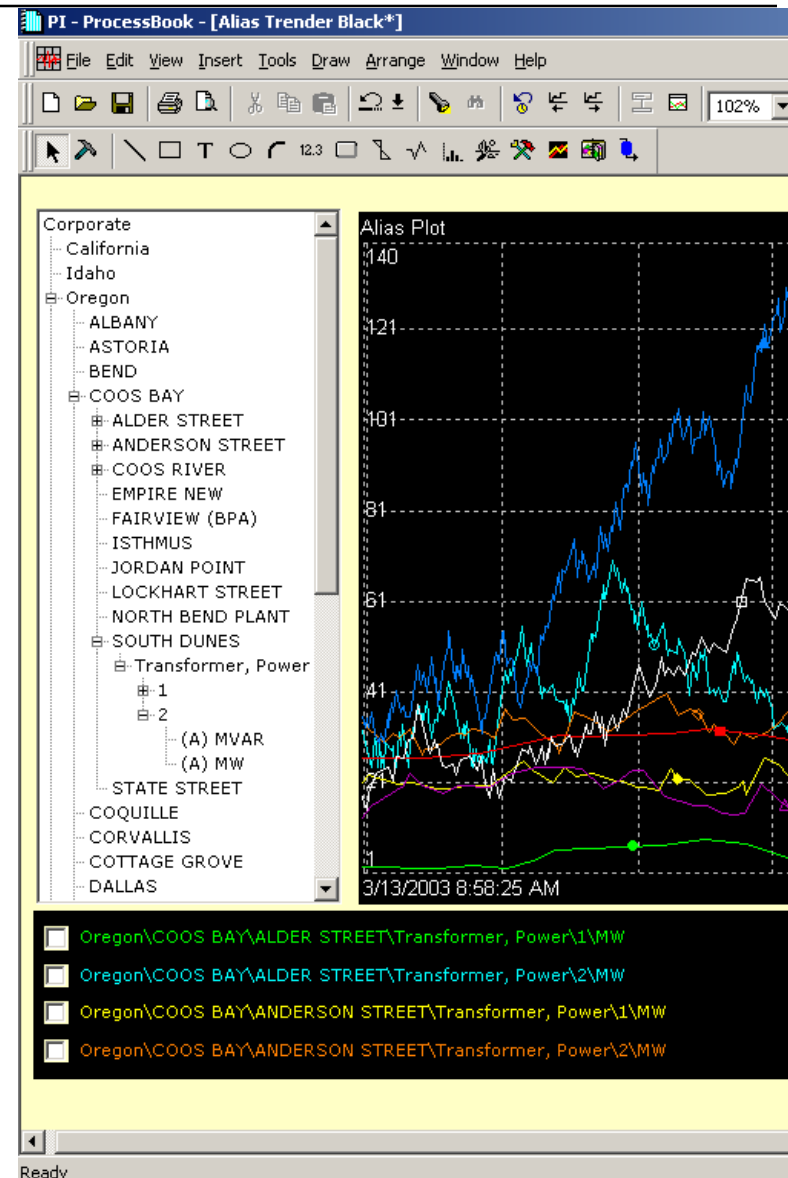


What Do User-Friendly Menus Look Like?

SCHOOL Tag Example:

UT.NIB.TRF.001.ZKW

- Five Part Format:
 - State
 - Substation Code
 - Equipment or Device Type
 - Equipment or Device Unique ID
 - Reading Type
- Allows Menus in PB and DL
 - Equipment Changes Updated in Oracle CIM Database
 - Module DB Updated from Oracle CIM, Based on New Tags
 - ProcessBook and DataLink Depend on MDB



What Does User-Driven Automation Look Like?

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ForecastUpdateProcedure

Reset Forecast Time

Get Actual Loads

Calculate Growth Rate

Validate Data

Aggregate Bus Total

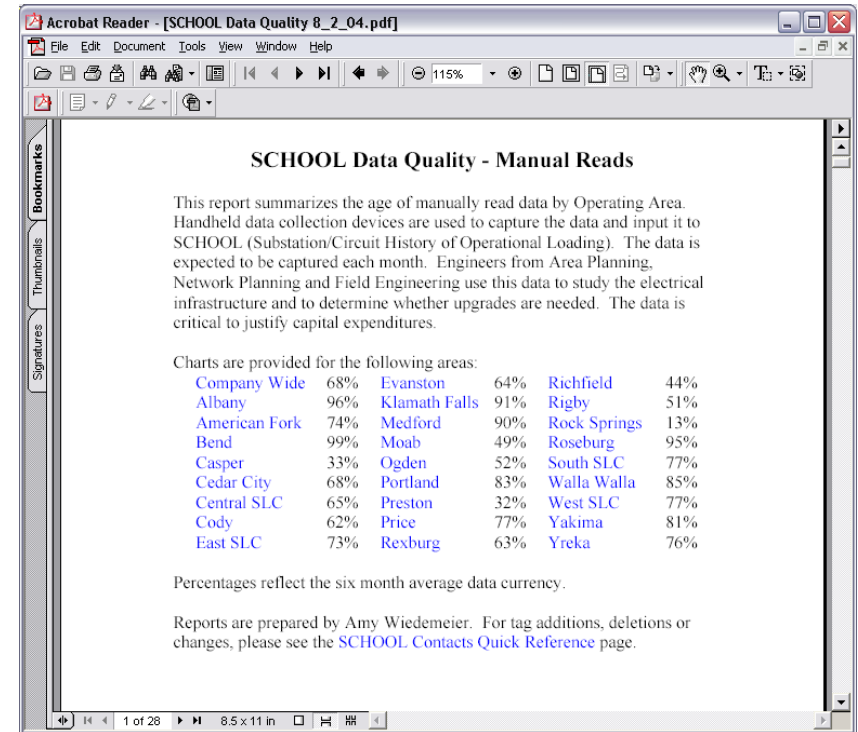
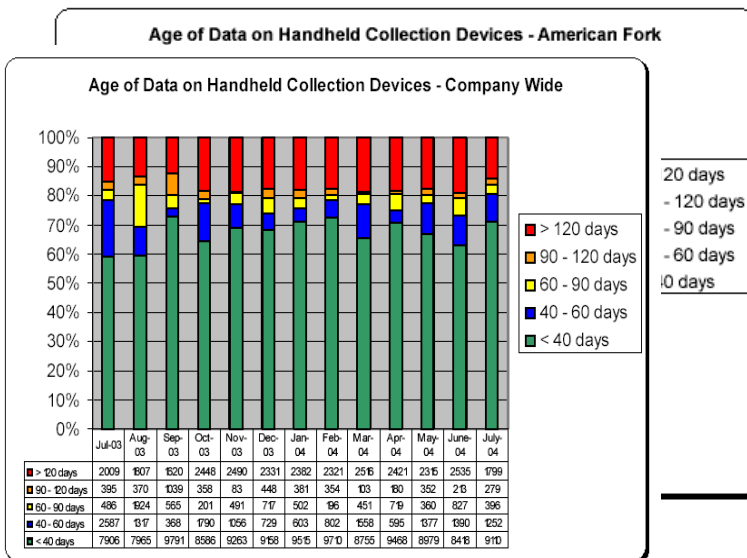
Modify Data

Find Coincidence Factor

Exit

What Does Data Quality Improvement Look Like?

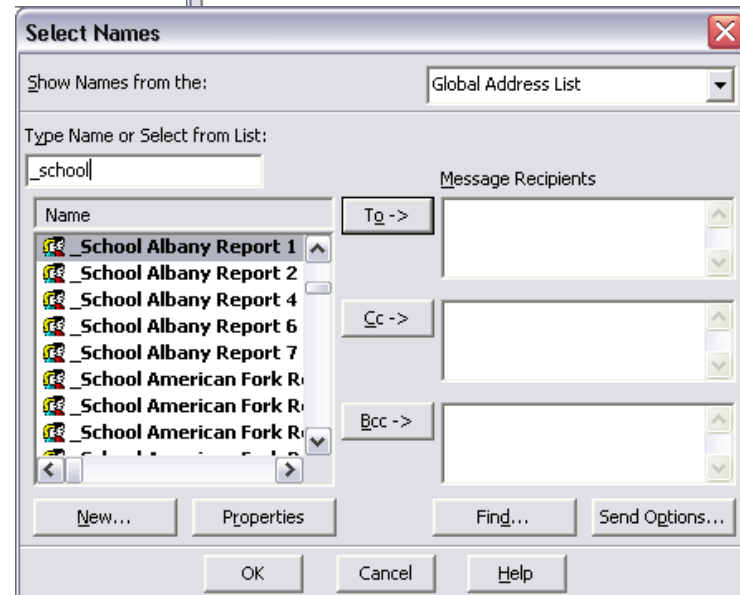
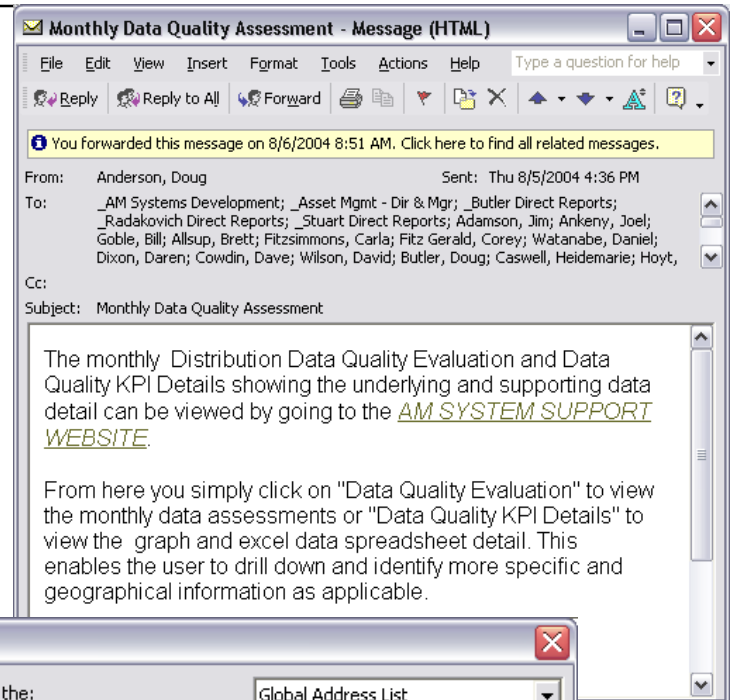
- We Issue Monthly Handheld Data Quality Reports by Area
 - Each Tag has a Time Stamp
 - Results are Grouped by Age Categories
 - % is Calculated Company-Wide and for each Operating Area



Report is posted monthly on the Intranet.

We Give Feedback to Data Producers

- The Monthly Distribution Data Quality Report is Emailed by T&D Systems Support to:
 - ❑ Asset Mgmt – Dir & Mgr
 - ❑ Field Ops Managers
 - ❑ Field Engineering
 - ❑ And others
- The SCHOOL System Sends Automated Reports to Area-Specific Email Groups
 - ❑ Missing data
 - ❑ Comments
 - ❑ Invalid handheld data
 - ❑ Missing monthly reads



Substations With Missing Data Points

Bend
Query Date: 3/4/04

This report flags missing SCADA and MV-90 data issues. It is intended for the SCHOOL administrator.

Every tour has one **comment tag**, for identifying problems with tags or the tour. This report is sent to the SCHOOL administrators, the Operations Manager, and the Field Engineer.

This report is generated when data entry limits are exceeded. (This is not possible with the current version of Manual Logger).

This report flags missing engineering data from handhelds. It should result in discussion between designated east or west-side representatives from Field Engineering and the handheld users.

Substation Comments

RICHFIELD
4/23/03 to 4/24/03

TOUR NAME	TOUR DESCRIPTION	TOUR OPERATOR	TAG NAME	TIMESTAMP	VALUE
MRYO	Marysval	p09203	COMMENT.MRY.MARYSVALE	4/23/2003 14:00	cir 01 mult change to 1000

Invalid Handheld Data

RICHFIELD
4/23/03 to 4/24/03

TOUR NAME	TOUR DESCRIPTION	TOUR OPERATOR	TAG NAME	LOW LIMIT	HIGH LIMIT	DELTA LIMIT	TIMESTAMP	VALUE	ASSIGNED TO	DATE RESOLVED
MRYO	Marysval	p09203	UT.MRY.CKB.MRY01.XITA	10	50	2	4/23/2003 14:00	5		
								No Data		
MRYO	Marysval	p09203	UT.MRY.CKB.MRY01.XITC	15	50	2	4/23/2003 14:00	75		
								No Data		

Missing Monthly Reads

Casper
Report Date: 8/11/04

SUBSTATION	TAG NAME	DESCRIPTOR	LAST DATE READ	VALUE
	WY.AIR.TRF.001.WAMPA	T1837-8-9,12,AIR BASE,TRANSFORMER,RAW DATA FOR AMPS A PHASE	9/19/2003 9:00	20
	WY.AIR.TRF.001.WAMPB	T1837-8-9,12,AIR BASE,TRANSFORMER,RAW DATA FOR AMPS B PHASE	9/19/2003 9:00	20
	WY.AIR.TRF.001.WAMPC	T1837-8-9,12,AIR BASE,TRANSFORMER,RAW DATA FOR AMPS C PHASE	9/19/2003 9:00	58
9 Airbase (AIR0)	WY.ATM.CKB.9H495.WKVRMN	34.5,ANTELOPEMINE,CIRCUIT BREAKER,RAW DATA FOR KVAR LEFT (MINIMUM)	5/28/2003 18:05	Pt Created
10 Antelope Mine (ATM0)	WY.ATM.CKB.9H495.WKVRMX	34.5,ANTELOPEMINE,CIRCUIT BREAKER,RAW DATA FOR KVAR RIGHT (MAXIMUM)	5/28/2003 18:05	Pt Created
11 Antelope Mine (ATM0)	WY.ATM.CKB.9H495.WKVV	34.5,ANTELOPEMINE,CIRCUIT BREAKER,RAW DATA FOR KW	12/4/2003 11:00	8.81
12 Antelope Mine (ATM0)				







Who Delivers Results?

- SCHOOL Business Sponsor Is Accountable for Business Results
 - ▣ Delivers Post-Investment Appraisal One Year after Commissioning
 - ▣ Heads the User Group
 - ▣ Sponsors Improvement Projects
- SCHOOL User Group Drives Benefits
 - ▣ Meets Every 2 Weeks to Prioritize and Resolve All Issues
 - ▣ Representatives from All User Departments
 - ▣ Extensive Intranet Resources
 - ▣ Detailed Business Process Documentation
- Support Provided by Three Business Departments and I/T
- All Desktop Clients Deployed via Novell Application Services, and Self-installed by Users
- Corporate PI User Group is Starting Up

How Do We Support Users?

SCHOOL Handheld Support Contacts

A Quick Reference Chart for Field Users

PROBLEM	CONTACT	PHONE		
<ul style="list-style-type: none"> • Trouble logging in to Manual Logger? • Trouble synching handheld? • Other handheld issues? • Adding new handheld users? <p>AM System Support has responsibility for handheld hardware and software issues.</p>	<u>Asset Management System Support</u> Brent Stevens Kevin Gressel (backup)	503-813-6113 503-813-6110	 	
<ul style="list-style-type: none"> • Responding to a data quality report? • Questions about your area's SCHOOL data? <p>Field Engineering works with Field Operations to determine local data needs and resolve data collection issues.</p>	<u>Field Engineering</u> East Side: Jake Barker West Side: Wyatt Pierce	801-629-4462 541-967-4472	 	
<ul style="list-style-type: none"> • Need a tour changed or updated? • Need to add, rename, or archive tags? • Need to correct a multiplier? <p>Network Planning has administrative responsibility for SCHOOL.</p>	<u>Network Planning</u> Susan Smith Amy Wiedemeier (backup)	801-220-2308 503-813-6218	 	

Concerns not moving fast enough? Not satisfied with the solution? Then please contact the SCHOOL System Business Sponsor:

Randy Rhodes -- 503-813-6925

SCHOOL Intranet Resources

The screenshot shows a web browser window displaying the SCHOOL Intranet Resources page. The browser's address bar shows the URL <http://newweb.pacificorp.com/Article/Article29646.html>. The page features a navigation bar with links to News, Tools, Business Services, About PacifiCorp, HR Center, Safety-Security, and Environment. Below the navigation bar, the page is titled "SCHOOL" and contains a section titled "Substation/Circuit History of Operational Loading". A paragraph explains that the SCHOOL (PI) system provides Substation and Circuit Load Data history and that users can click on links to access useful resources. The page lists several resources, each with a "go" button: SCHOOL Contacts - Quick Reference, SCHOOL User Job Aids (Tips to help you get the most benefit from the SCHOOL System.), School Tools List (Shows all reports and analytical tools created in ProcessBook and DataLink.), SCHOOL User Group Meeting Minutes (Includes attendees and action items for each meeting.), School Issues Database (Record of all known issues, prioritized by the User Group.), and SCHOOL - Related Business Processes (Most current record of how the system is used and supported.).

SCHOOL Contacts...

Job Aids...

SCHOOL Tools List...

Business Processes...

User Group Notes...

Current Issues...

SCHOOL

Substation/Circuit History of Operational Loading

The SCHOOL (PI) system provides Substation and Circuit Load Data history. SCHOOL users can click on the links below to access useful resources.

[SCHOOL Contacts - Quick Reference](#) go

[SCHOOL User Job Aids](#)
Tips to help you get the most benefit from the SCHOOL System.


[School Tools List](#)
Shows all reports and analytical tools created in ProcessBook and DataLink.

[SCHOOL User Group Meeting Minutes](#) go
Includes attendees and action items for each meeting.

[School Issues Database](#)
Record of all known issues, prioritized by the User Group.

[SCHOOL - Related Business Processes](#) go
Most current record of how the system is used and supported.

SCHOOL Job Aids and Workarounds



Welcome Randall Rhodes today is Tuesday, August 24, 2004

[News](#) [Tools](#) [Business Services](#) [About PacifiCorp](#)

SCHOOL Workarounds for Known Issues

Locked Database Error

Temporary File Upload to PIML Database

HHT Comment Tags

School Snap Instructions (Desktop)

ProcessBook Screen Saver

SCHOOL User Job Aids

Hand Held Terminal "Setup" Job Aid
Preparing a new HHT for use.

Hand Held Terminal "General" Job Aid

PI Manual Logger Job Aid

Manual Logger "FAQ"

Instructions for Tour/Tag - Adds/C

PI DataLink Job Aid

PI ProcessBook Job Aid

Address <http://newweb.pacifiCorp.com/Article/Article41620.html>

Connect with Judi | ScottishPower | Internet | Search

Address <http://newweb.pacifiCorp.com/Article/Article37461.html>

SCHOOL User Job Aids

Hand Held Terminal "Setup" Job Aid
Preparing a new HHT for use.

Hand Held Terminal "General" Job Aid

PI Manual Logger Job Aid

Manual Logger "FAQ"


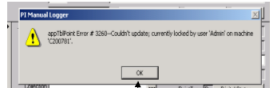
Instructions for Tour/Tag - Adds/C

PI DataLink Job Aid

PI ProcessBook Job Aid

SCHOOL Locked Database Error Interim Solution

If you receive an error similar to these two while uploading or downloading Handheld data, follow steps 1-5 below. **Failure to do this may result in data loss from the handheld!** If you require additional assistance, call the SCHOOL System Support number 503-813-6113 or 503-813-6110.

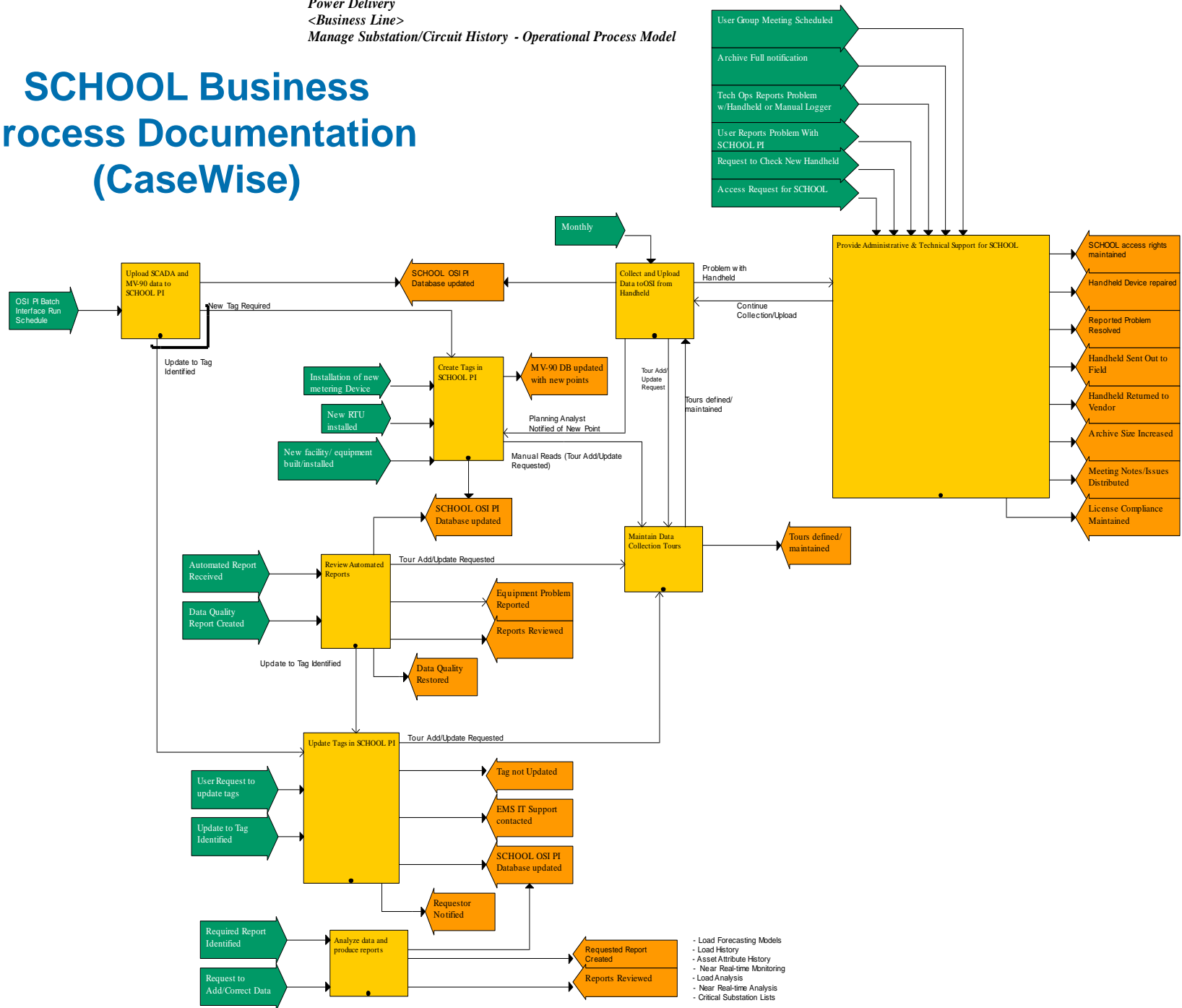


Action to take if you only get voice mail at the System Support number above:

1. Click the error message OK to get rid of the message
2. In PI-Manual Logger click PIML on the top tool bar
3. Choose Hand-held devices/Import Tour-run files
4. Choose Import to send TOURRUNFILE.MDB to SCHOOL. This file contains all the Handheld Tour data

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SCHOOL Business Process Documentation (CaseWise)

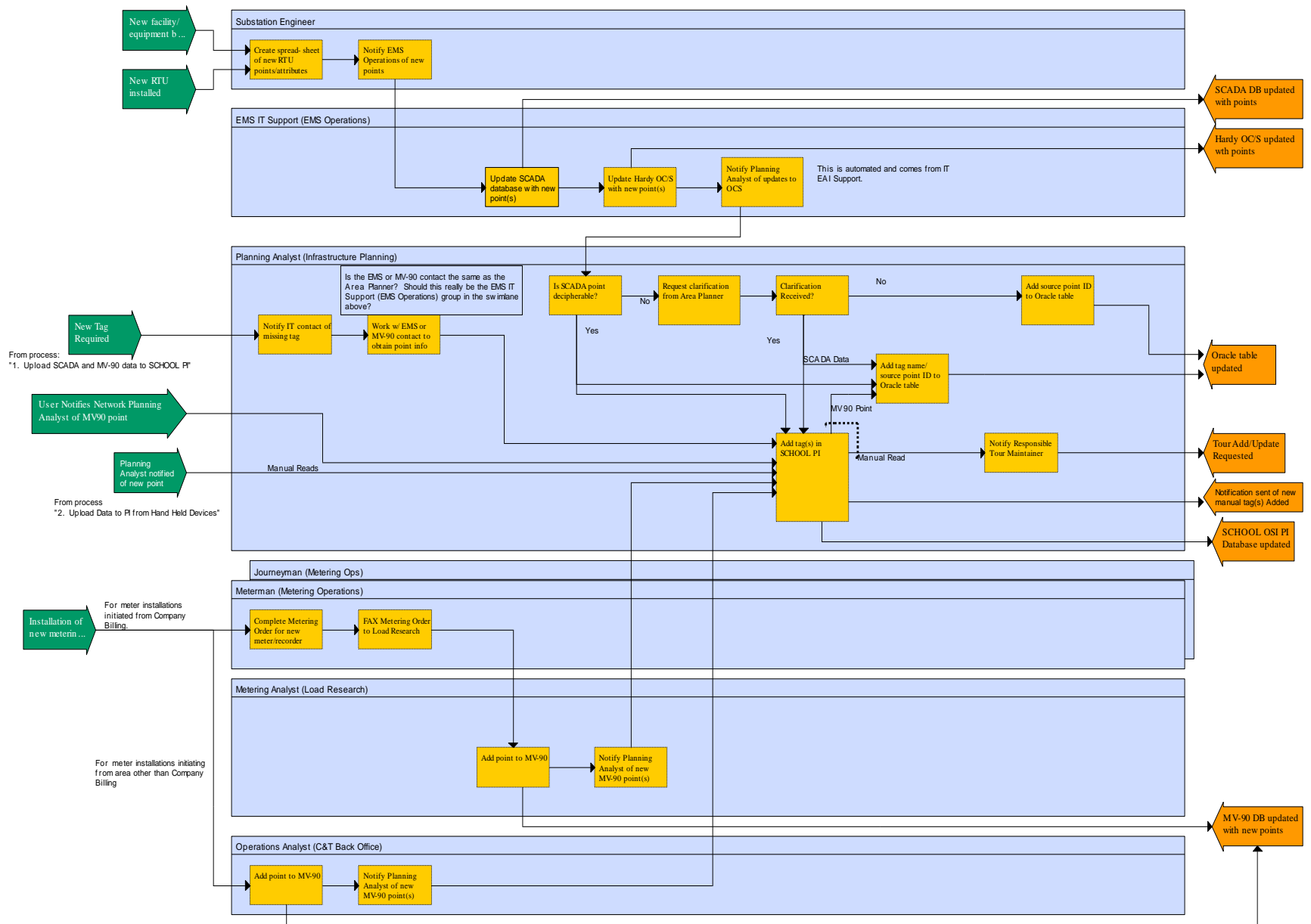


Power Delivery

<Business Line>

Create Tags in SCHOOL PI - Work Procedures Model

Process: Create Tags in SCHOOL PI

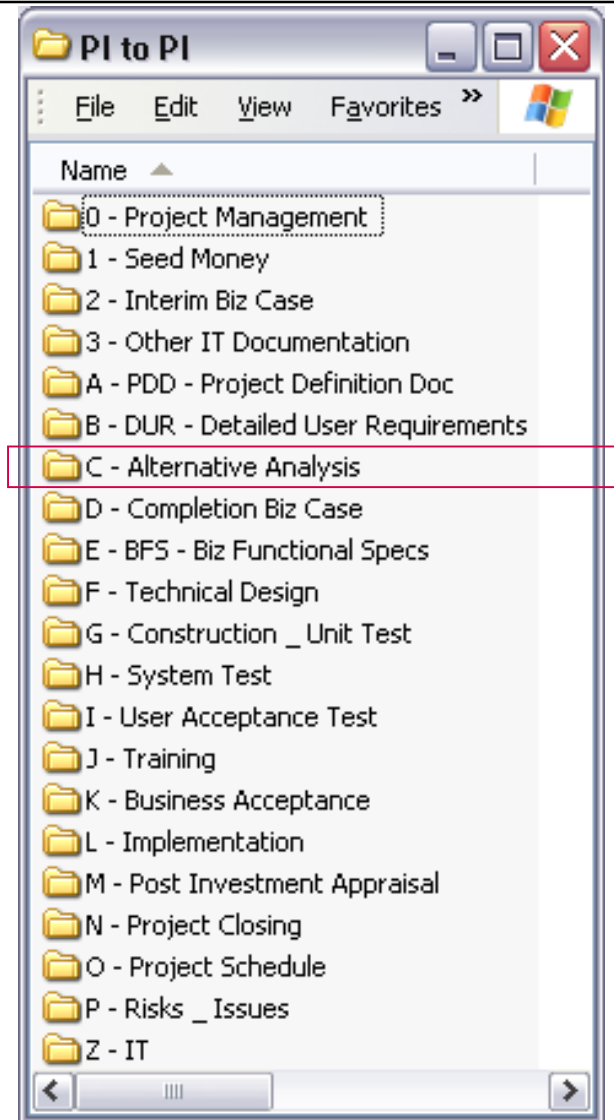


Collect and Upload Data to OSI from Handheld - Work Procedures Model



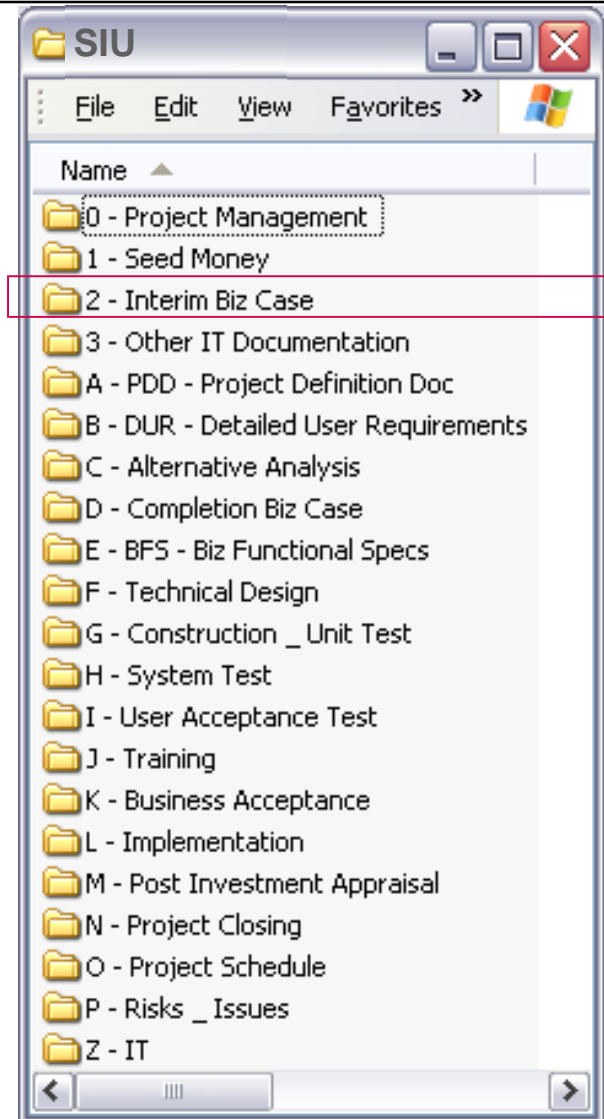
Projects Underway

- PI-to-PI Project
 - Implement an Interface between RANGER-PI Historian and SCHOOL- PI Historian
 - Administrative Utility To Manage And Maintain the Ranger-to-SCHOOL Tag Mapping
 - Automated Notification:
 - Alert Key SCHOOL Users when the Ranger-SCHOOL interface is Down
 - Automate Notification of Changes for MV-90 and Ranger EMS



Projects Underway

- SCHOOL Infrastructure Update (SIU) Project
 - Implement a Complete Testing Environment
 - TestDirector, Scripts
 - Hardware as Needed
 - May Be Corporate Testing Lab for OSIsoft Software
 - Identify Business Processes for Release Management
 - Identify Acceptance Tests for Performance
 - Include Remote Locations
 - Consider Distributed Servers
 - Update SCHOOL to Current Versions of OSIsoft Software



Summary

- Our SCHOOL Grade: Freshman
- Our SCHOOL Report Card: B+
- We Are Growing through Adolescence

Questions?

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