



# Establishing Digital Collaboration in the Utility Sector

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# About

- Located in Burlington, Ontario, Canada
- March, 2019 – Present: Director, Global ProjectWise Services
- March, 2015 – February, 2019: ProjectWise Senior Manager, America's
- August, 2006 – February, 2015: Senior Consultant
  - 240+ Engagements
  - 87 Unique Accounts
    - 15+ Utilities
  - 66 Different Cities
  - 6 Different Countries



# Agenda

- What is ProjectWise?
- Focus on 3 Utilities using ProjectWise
  - US East
  - US West
  - CA South
- Some overlapping needs, yet with different business process

Bentley's mission is to provide ***innovative software and services*** for the enterprises and professionals who ***design, build, and operate*** the world's infrastructure – sustaining the global economy and environment for ***improved quality of life.***



# Does one size fit all??



# What is ProjectWise?



- Suite of engineering project collaboration software
- Used to manage, share, distribute and review content in one platform
  - Single source of truth
- Users can be co-located or disparate; internal or external
- Sweet spot is CAD and BIM project data
  - Managed References
- Implementation can be Bentley-hosted or On-Premise
- Can be used to manage most content
- Integrates with several applications including Autodesk and Microsoft Office
- Allows for a single repository for centralized storage
- Access based on multiple levels of security and permissions
- Configurable Project and Document Metadata
- Extensive Search functionality

# US East Utility

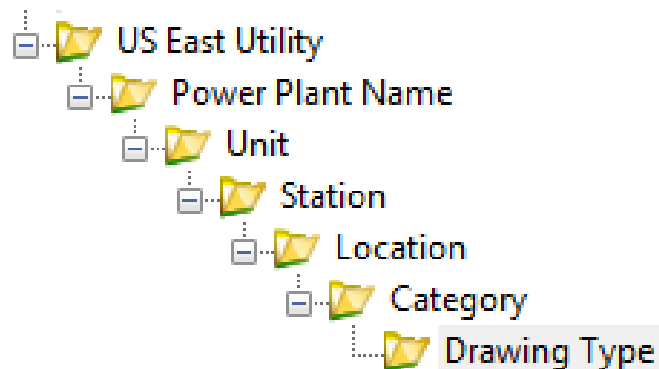
# US East Utility - Overview

- Initial implementation included their Power Generation and Nuclear groups
- Critical Need
  - Common environment for WIP projects
  - Replace their home-grown Document Management Solution
    - Antiquated
    - Limited knowledgebase
  - Data Migration
  - Unique Reference File handling
  - Interface with Documentum
  - Plotting Automation
- Begins with a design workshop



# US East Utility - Implementation

- Currently on the ProjectWise Design Integration CONNECT Edition
  - Approximately 150 total CAD users in both Power Generation and Nuclear
- Use ProjectWise to track Locations (Stations and Power Plants, mainly)
- MicroStation only User
- Datasource structure:
  - “KISS” approach
  - Primary high level structure starts with a ‘Design’ folder



# US East Utility - Implementation

- Drawing Process
  - Work with hybrid drawings
  - Master has extension of .HYB, which represents MSTN
  - TIF attached as a raster reference
    - Utilizing Descartes
  - Raster reference automatically checked out with master
  - Use Local Document Organizer to manage the Check Out
    - Users also coached on the Update Server Copy command from MSTN

# US East Utility - Customizations

- Customized Plotting tool
  - Installed on top of ProjectWise Explorer
  - Works directly with InterPlot Organizer Settings files
  - Opens a dialog box that recognizes a printer based on a 'Plot Code'

The screenshot shows a software dialog box with the following fields and values:

Station:	ID:	Unit:	Category:	Drawing Type:
MP	MP	25212	PROJECT	30000

Drawing Number:	Sheet Number:	Rev:
1801097-E-25212-34302	00000000	000

Misc.:  Functional Location:

Vendor Drawing Number:  Vendor Code:  Controlled: Y  Project Number: 18-01097

Plot Code: **FME**  FileType: HYBRID

Cdate: 9/19/2017 12:00:00 PM Cfor:

Cfrom: 3\FMSDATA2\DGN\MP\25212\PROJECT\30000\P34302.HYB

# US East Utility - Customizations

- Customized Documentum Interface
  - Uses Bentley iModel Composition Server for PDF (iCS) to create renditions
  - PDFs are automatically stored in an Image folder within each location
  - Custom application written by the user
    - Server customization that grabs the PDF from its DMS folder
    - Moves the PDF to a network share drive
    - Creates a text file with the appropriate attributes (date, filename, etc.)
    - Network folder is integrated with Documentum

# US West Utility

# US West Utility - Overview

- Initial implementation included their Gas group
- Extended to their Substation, Electric and Real Estate divisions
- Critical Need
  - Common environment for WIP projects
  - Concurrent Engineering
    - Two separate methods required for Gas and Real Estate
    - Check out drawings/model to a Project from a standard library
    - Customization vs. Configuration
- Begins with a design workshop

# US West Utility - Implementation

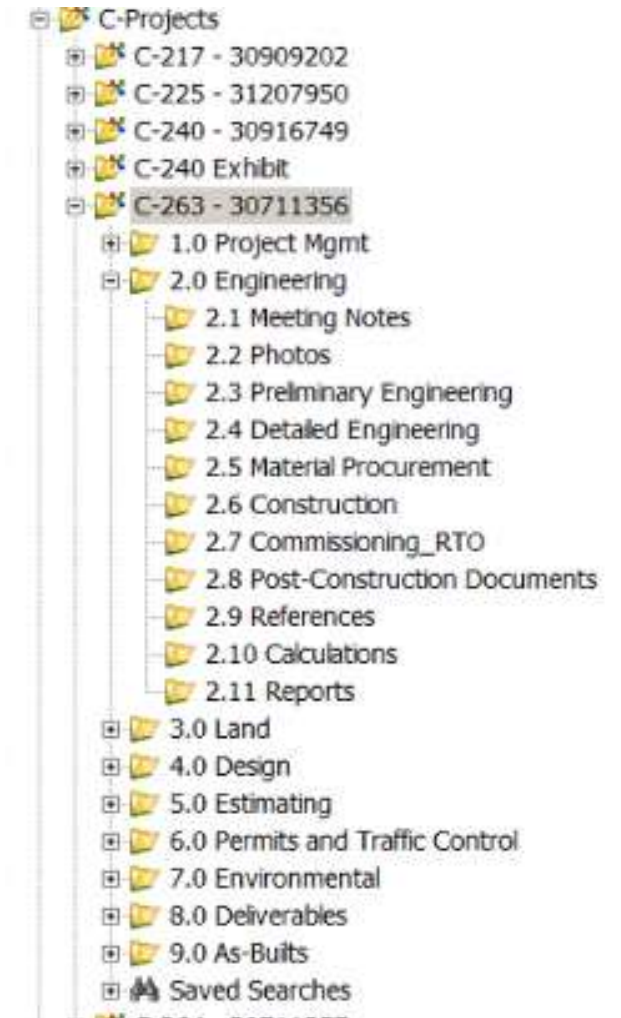
- Currently have multiple datasources for each LOB
- Focusing on Gas Transmission
- Use PowerShell to create projects
  - Get weekly list from scheduling and planning group

The screenshot shows the 'Project Properties' dialog box with the following data:

Property	Value
PMO_ID	C-263
Bundle Number	
Project Number - Capital	30711356
Project Number - Expense	
Workstream	Corrosion
Work Type	Coupon Test Stations
Project Number	30711356
Legacy Order Numbers	
Related Order Number	
Project Description	C-263 L-301G MP 2.9 -22.67 Install CTS (10 Sites)
FCC2 Number	
Project Location	HOLLISTER, CA
PSRS Number	20535
Working Project Status	
Working Project Date	
Project Supervisor	KSP4
Project Engineer	Thomas II, S
Project Estimator	KDBL
Project Estimating ADE	RAMA
Line Type	L-
Line Number	301G
Job Type	CATHODIC PROTECTION
Project Manager	Ahumada, A

# US West Utility - Implementation

- Currently have multiple datasources for each LOB
- Focusing on Gas Transmission
- Get weekly list from scheduling and planning group
  - Work Areas (projects) broken down by type
    - C-xxx (Corrosion)
    - S-xxx (Stations)
    - Trying to align with other LOB
- External contractors have restricted access
- Work on new drawings received from Land Survey



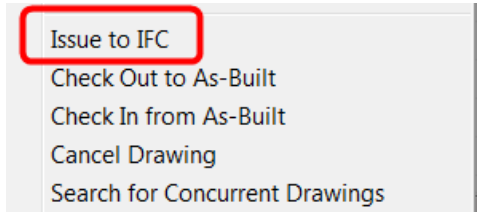


# US West Utility – Customization - CE

- Concurrent Engineering (CE) used for Station drawings
- CE is an add-in feature of ProjectWise installed on the workstation
- Commands are operated from the ProjectWise document menu
- Drawings are copied from a Record Drawing folder
  - All controlled records are stored here
  - Maintained by the ProjectWise Administrator
- Users start by initiating a Document Revision Number
  - Overwrites any blank or non-integer version number

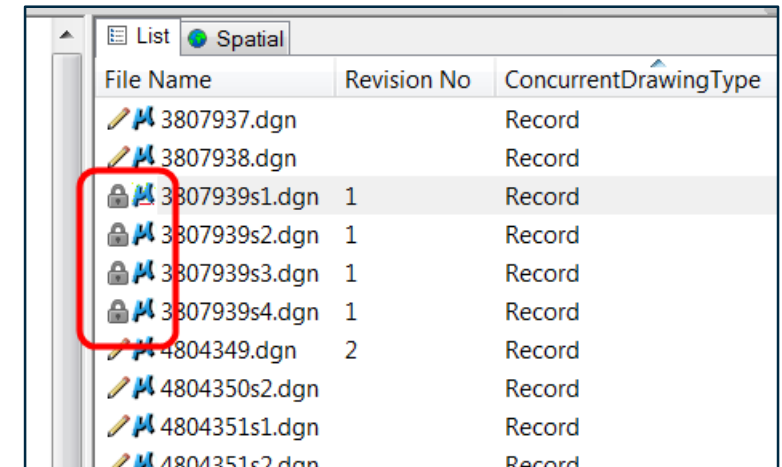
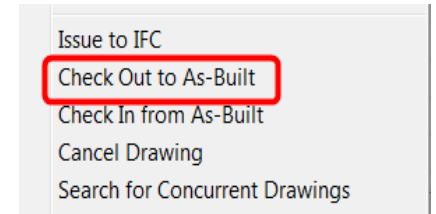
# US West Utility – Customization - CE

- Issue to IFC
  - Used to issue one or more documents to the IFC working directory
  - Can be issued to multiple projects (User selects the projects)
  - “CE” attribute is set to Yes until versioned
- Automated email is initiated
  - Addressed to previous issuers
  - Subject line is the Project path
  - Message not sent silently



# US West Utility – Customization - CE

- Check out to As-Built
  - Used to issue one or more documents to the Project As-Built working directory
  - Unlike IFC, must be worked in series
- Each source document checked out is locked
  - If documents had previously been issued for IFC
    - Precomposed email is generated
    - Addressed to all previous issuers
    - Message not sent silently

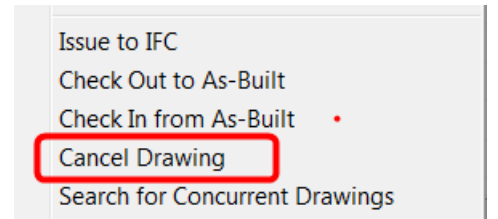
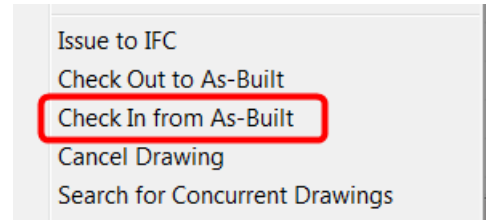


A screenshot of a file list window titled 'List Spatial'. The window displays a table of drawing files with columns for File Name, Revision No, and ConcurrentDrawingType. A red box highlights the rows for files 3807939s1.dgn through 3807939s4.dgn.

File Name	Revision No	ConcurrentDrawingType
3807937.dgn		Record
3807938.dgn		Record
3807939s1.dgn	1	Record
3807939s2.dgn	1	Record
3807939s3.dgn	1	Record
3807939s4.dgn	1	Record
4804349.dgn	2	Record
4804350s2.dgn		Record
4804351s1.dgn		Record
4804351s2.dgn		Record

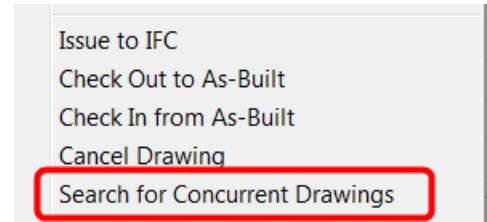
# US West Utility – Customization - CE

























- Check In to As-Built
  - Places issued documents back to the Record Drawing folder
  - Documents are checked in and unlocked
  - Revision number is incremented
- Cancel Drawing
  - Used to cancel any document issued to IFC or Check Out to As-Built
    - Removes selected documents from the respective working folders
    - Source document unlocked



# US West Utility – Customization - CE

- Search for Concurrent Documents
  - Search for all documents currently out to IFC and Check Out to As-Built
  - Documents are checked in and unlocked
  - Revision number is incremented



File Name	Revision No	ConcurrentDrawingType	CE
  3807939s2.dgn	3	As-Built	Ye
  3807939s1.dgn	3	As-Built	Ye
  3807939s3.dgn	3	As-Built	Ye
  3807939s4.dgn	3	As-Built	Ye
  3807939s3.dgn	2.1	IFC	No
  3807939s4.dgn	2.1	IFC	No
  3807939s2.dgn	2.1	IFC	No
  3807939s1.dgn	2.1	IFC	No
  3807939s3.dgn	2	Record	Ye
  3807939s4.dgn	2	Record	Ye
  3807939s1.dgn	2	Record	Ye
  3807939s2.dgn	2	Record	Ye

# US West Utility – Configuration - CE

- Concurrent Engineering (CE) used for Real Estate division
- Configuration using out-of-the-box ProjectWise tools
- Process
  - All documents (DGNs) are stored in a Standards repository
  - Required a document check out to a project, not a user
  - Were not interested in multiple user edits
  - Requirement was to move DGN to a Project XXX
  - Leave a 'bread crumb' noting that the DGN was in use in Project XXX
  - Using iCS and standard ProjectWise workflows to create a PDF
  - PDF stored in the Standards repository

# CA South Utility

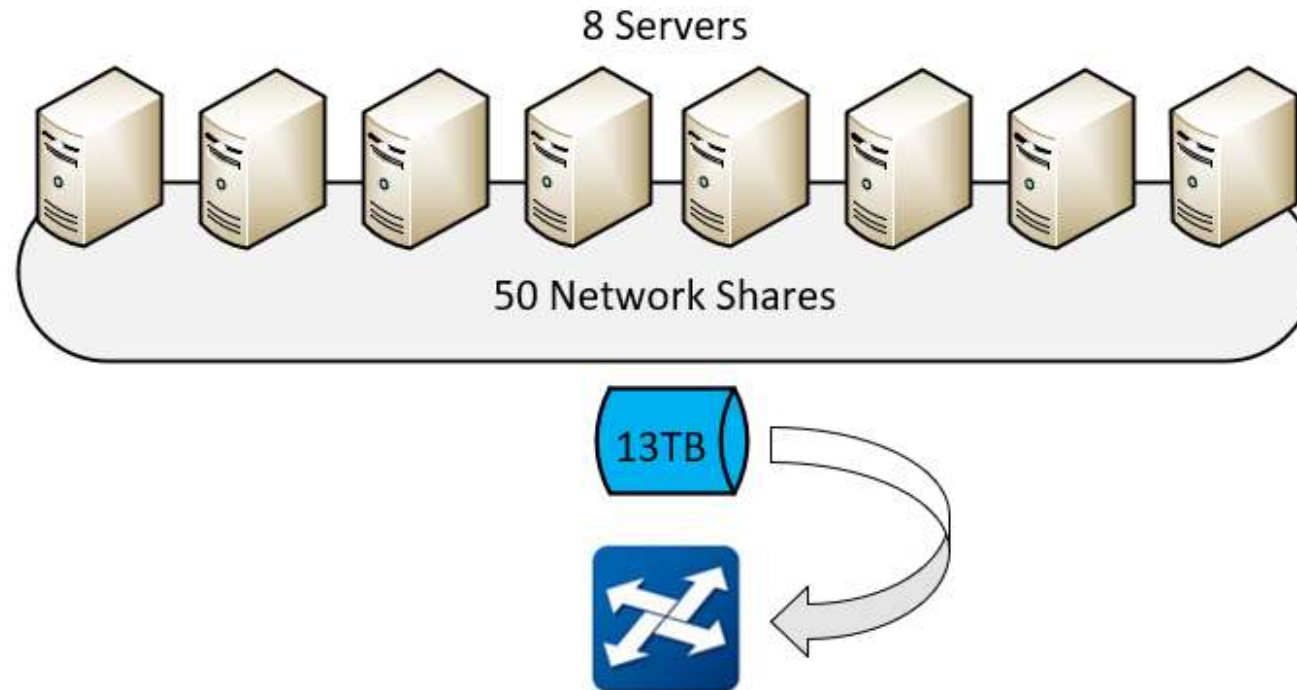
# CA South Utility - Overview

- Initial implementation for their Technical Records group
- Focus on safety, compliance and risk management
- Following ISO 15489, but not complying to it
- Need to manage all MAOP test records
- Critical Need
  - Support GIS systems, house source BOM data, ENGR stamped documents
  - Review content from decades ago or track new projects by assets
  - Need to build in record retention rules
    - Using out of the box tools only
    - Based on several document factors
- Begins with a design workshop



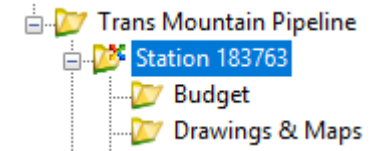
# CA South Utility - Implementation

- Coming from a “spiderweb” Windows environment



# CA South Utility - Implementation

- Heavily dependent on metadata (Do more with less)



General Security **Attributes** More Attributes File Properties Audit Trail

**Pipeline Name** Trans Mountain Pipeline

**Document Properties**

Folder: Drawings & Maps

Document Category: Not Applicable

Document Type: Correspondence

\* Not all fields will be populated depending on folder properties

Retention Rule: Working Record

General Security **Attributes** More Attributes File Properties Audit Trail

**Pipeline Name** Trans Mountain Pipeline

**Document Properties**

Folder: Drawings & Maps

Document Category: Civil

Document Type: Drawing

\* Not all fields will be populated depending on folder properties

Retention Rule: 630943 - Life of facility/plant or abandonment of pipeline + 2

Questions?

# Thank You!

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