SmartPlant Instrumentation Technical User Forum P2C2 (Houston SPI TUF) Meeting					**November 17, 2015 8:00 am Mangan Inc.**	
Attendees	42 Members in attendance 17 Online Connections		**Copied To**	Houston SPI LTUF Website http://www.spi-ltuf.org		
Called By	John Dressel	**Prepared By**	Betty Alexander, Andrew Kunev & John Dressel			

Item	Topic	Notes	Action/Due
1	Welcome	**Welcome & Safety Moment** Mangan • Speaker problems on the WebEx, but ample seating in Mangan's new Conference room • Marvin Walton from Mangan welcomed all; SPI is a big part of their business. • Quick fix in last minute tethered new speaker/phone scenario enabled room to hear telecom speakers	
2	Chairman's Notes	**John Dressel, Fluor** • Alex Koifman is back at Intergraph as SPI product owner (to work alongside Guy in Intergraph transition) • Alex will try to be in Houston soon, and is very interested in hearing from Users upon his return • This is last meeting of 2015 and elections for officers will be at the first meeting next year, with John Dressel expecting to return as Chair (with room chuckles in support.) **Introductions** • Fluor, Cooley Core, Bechtel, BASF, OSI, CB&I, WP, Content, Mangan, Jacobs, Mustang, ExxonMobil, Bechtel, Intergraph, Honeywell, • Phone attendees not identified in call for brevity • Reminder for folk attending to RSVP (both in-person for seating) & remote - please remember to contact John Dressel when invitations goes out. • Minutes are approved (with some changes from Mangan)	
3	Presentation	**SPI 2016 Issues and Answers Nezar Faitouri, Mangan** • Presentation material same as October 30th Intergraph meeting in Houston, BUT with some new sharing of Issues and Answers today • Introduction o The purpose of this presentation is to share the major enhancements in SPI V2016 o How these major enhancements help overcome previous SPI version challenges ▪ Reports, Customization, and SQL ▪ Project Management (prev. Owner Operator) activities o The major enhancements are around: ▪ User Defined Fields/Tables "UDF/UDT" Editor ▪ Engineering Data Editor "EDE" Module ▪ Project Management (Owner Operator "OO"	

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		mode) • UDF / UDT Editor o The new UDF/UDT Editor allows for: ▪ Consistency between plant UDF / UDT headers ▪ Development of drop-down select lists “Pre-defined or user defined” ▪ Utilization of the same select list with different UDF types “Tags, Loops, Panels, etc” ▪ UDF select lists are utilized in the EDE module ▪ UDF / UDT headers appear in EDE fields and ESL macro lists o Simple and friendly view of types and fields o Development of drop-down Select Lists (Ex: Location Plan Drawing No) o Associating the same Select List to different UDF fields (Ex: Tags and Panels) o UDF / UDT custom field name (Header) definitions appear in EDE and ESL • UDF / UDT Editor – Future Enhancements o Ability to transfer UDF / UDT data for domains with multiple plants where headers are not matching o Ability to print reports for the custom select lists o Ability to print reports for UDF headers and their field types “string, numeric, select list, etc” o Ability to show UDF select lists as part of the Tag Property window • Admin defined drop-down, but Nezar found a TRICK that may or may not be fixed before release of SPI2016. UDF as dropdown in EDE … will not be available in Tag Properties … only available in EDE. Communication of problem thru emails not SR/CR. • User addition of items other than drop down list may be out of sync with pull-down. • Customers with multiple domains must have UDF Headers in Sync as well across domains/projects. • Intergraph aware of this but not yet divulged if will be fixed or need workaround • Select Lists differentiating UDFs, and Custom Field Name (Headers) will be part of drop down. • Question for room is Keep UDTs or solely use the new drop-down-able UDFs. • Big Challenge: Existing Clients have Customized Browser Views with possibly different drop downs. • Note from John Dressel: Next SPI (after 2016) will be phasing out current spec module methods so many changes will be needed by Customized customers. • EDE Module o The new EDE module replaces the old browser module with the exception of “Specification	

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		browsers and Document Binder browser" o The new EDE modules allow for: ▪ Creation of "editable and non-editable" customized reports • The user does not need the knowledge of SPI table structure nor SQL to create custom reports • The look and the feel of the reports are excel based "Copy, Paste, Filters, Sorts, etc" ▪ Creation of Expressions "i.e. Comparison between fields data" ▪ Creation of reference templates (Queries) that can be used for project reports • Reports from EDE example showing multi-import device connections, Assignments etc. • Report No.1: o The report consists of the following fields: ▪ Tag Number ▪ Field Device Name ▪ Junction Box Name ▪ Tag Location Plan Dwg No ▪ Field Device Location Plan Dwg No ▪ Junction Box Location Plan Dwg No ▪ Expression to identify match or mismatch between • Tag Location Plan Dwg No and Junction Box Location Plan Dwg No • Expressions can define Functions. Location plan dwg numbers from Tag & Panel can be compared and give True/False result … BUT is a Virtual field. • Can dump out the virtual field results in Reports, but the result of functions is not a 'saved' field. • Report No.2: o The report consists of the following fields: ▪ Fieldbus Tag Number ▪ Fieldbus Tag Function Block ▪ Fieldbus VFD Tag Number ▪ Two "2" Expressions to identify match or mismatch between • Fieldbus Tag number segments and Fieldbus VFD Tag number segments • Fieldbus Tag Function Block and Fieldbus VFD Tag number Function Block • Report No.3: • The report consists of the following fields: o Multi-Input Device Fieldbus Tag Number ▪ 848T ▪ 848L ▪ SMAR FI302	

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		▪ Etc o Instruments assigned and connected to Multi-Input Device ▪ Analog, Discrete, and Temperature signals that are converted to Fieldbus signals • EDE Module - Tips o Always think about the SPI item hierarchy when building EDE views for best data results o Explore the different relations provided in EDE between SPI items o Use “suppress repeated values” when EDE shows duplicate rows o Some EDE reports may require thinking about the relations starting with the child items o Use the overall Clear Filter command when too many filters are used the EDE view columns o Inconsistency message between EDE module views and template “Reference” EDE views • EDE Module - Future Enhancements o Less PC memory usage o Ability to combine two “2” or more EDE reports into one o Ability to show wiring reports document names and their relation with panel names, strip names, etc o Ability to allow users to define relations between SPI items o Ability to introduce some ESL tables especially the ESL_SMARTTEXT table o Ability to have a relation when a device panel is connected to another device panel • Project Management Module o The Project Module is designed for claiming and merging SPI items “Check-out and Check-in of data” o The new reconstructed module allows for: ▪ Claim and Merge “Copy” within SPI “No admin module” ▪ Copy / Merge while users are connected to the database ▪ Copy between two projects (not just sourced from As-Built) ▪ Visualization of copied items (List, Tree, and Connections) ▪ Visualization of items such as (panels, cables, documents, revisions, Cross wiring, Jumpers, etc) ▪ Database does not commit the data unless the process is successful o The copy is designed based on a set of pre-defined definitions ▪ This is to eliminate preferences ▪ This is to retain database integrity o No more copy revision options “Revisions are copied automatically as-is” o Copy “Merge” with the options of	

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		▪ Keep data as In-Active “View Only / Dummy” ▪ Keep data as Active “Fully Functional” o Fieldbus Segment, Lines, and Equipment are copied automatically when copying a Fieldbus instruments o IO Cards assigned to IO terminations are copied Automatically • Project Management - View o Project To-Do List: Data List View o Project To-Do List: Data Tree View o Project To-Do List: Connection View • Project Management – Parent Item o Project Module automatically copies the panels that are considered as parent items for device panels • Project Management - Jumpers o Project Module automatically copies jumpers and all of the its related items “Ex: Jumpers wired in series for power distribution” • Project Management Module o Shows the task types as: Update, Created, New, Deleted, Not for Update, etc o Shows the item type names along with filtering items list for review, changing from In-Active to Active and vice-versa o Project Management tracks Copy items history • Project Management - Tips o Owner Operator Tips ▪ Always review the buffer copied items and consider changes “In-Active to Active, etc” ▪ To expedite review process, copy and paste items in excel if necessary ▪ Buffer copied items cannot be removed ▪ Changing the parent item from In-Active to Active will change all child items to Active and will Copy all necessary child items “additional items that may not be necessary” ▪ When Project To-Do list is open, copying items will be copied to the open Project To-Do list ▪ Therefore, if the copy needs to be to another project, make sure the other project To-Do list is open and selected ▪ The item type list does not display the word “Jumper”, it shows Wire ▪ Review process can also be conducted by right clicking items to see connection windows, reports, properties, etc ▪ The default copy “claim process” is lowest level items are Active and upper level items are In-Active	

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		• Project Management - Future Enhancements
		  o Ability to NOT Merge project revisions
		  o View General Signal and their associated items as an item in the list and tree view
		  o Ability to apply revisions on In-Active wiring items especially panel strips and IO assignment reports
		  o Ability to allow adjacent connection command with In-Active items
		  o Ability to have failure copy message to be specific to the failure reason and item associated with the failure
		
		• Challenges in SPI 2016 presentation slides will be shared online in the SPI-LTUF website
		
		• Discussion Comments:
		• EDE is a memory hog, but might be under control soon via Intergraph pagination etc.
		• Combining reports might be tricky
		• Showing smart text on ESL drawings are not part of the EDE and may not be tracked
		• Doc numbers may not be part of EDE.
		• Flow Indicator wired in series with Flow Transmitter (Device to Device) data might not be reportable from EDE
		• Intergraph is aware of above items.
		• Room Question: FFB issues of Field Indicators … must be fixed by Conventional>FFB workaround to show TI's before TTs (but not recommended by Mangan.
		• Room discussion: EDE will not report drawing numbers. Bechtel & Fluor use different custom reports to track doc numbers.
		• Room Question: QB cannot be used for some EDE reports (like doc #s), but Custom SQL work can be done (if known) & SQL editing may need to be part of future training for Spi2016 upgrade.
		• Room Question: Watcom was used instead of SQL/Oracle in Mangan testing of Spi2016
		• No Data Dictionary is available yet for Spi2016
		• Development of EDE Views and relations are possibly tied to tables – SQL statement not saved or stored via Guy answer.
		• O/O Claim & Merge has been upgraded and reworked.
		• Claim & Merge can be done with users in the database in Spi2016
		• To-Do List Tree view now available to help users.
		• Spi2016 Project Module automatically copies Jumpers
		• Spi2016 Project Module Item Types and tracking of History shown.
		• O/O no longer has DUMMY items … Item is either Active or Inactive
		• Spi2016 O/O To-Do list can be exported to Excel
		• Revision Management has been revised so Merging of multiple revisions is possible, but could be tricky if parent and child project users separately use example Rev1 at different time with no correlation.	

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		• Room would like option of selecting portion of revision data within To-Do List, especially with multiple projects. • Spi2016 O/O done based on set of rules (not purely Data Dictionary) but as of now not documented how the claim & merge is failing or at what step of the unwritten rules. • Spi2016 Checkdb and custom checking of db Tables may be needed with Spi2016 Project Mode (especially around flags, and other misc changes of child data) • Mangan's Spi2016 was latest at time of testing, but Intergraph curious about if Mangan testing is on the most recent version of fixes. • Guy will present comparison of what has been resolved especially with regard to many of these topics. • Mangan asking if Intergraph will have a UDF – data – synchronization tool or ability. • Guy answers that an Icon in the utility will reveal Inconsistencies within the UDF Headers … will not affect the data, only the Headers. • Alex suggesting this will be a session for next LTUF presented by Intergraph – to show recent changes. • Room Question: Default PAU still in use in Spi2016	
4	Presentation	**SPI 2016 update** **Guy Masin, Intergraph** Humor of his following Nezar interjected. Agenda • SPI Release dates and plans • Integration • Query Builder / EDE • Project / As Build (PAB) • UDF / UDT Editor • SPI v2016 R1 • SPI v2018 SPI Release dates and plans • SPI 2016 still scheduled for Q1 2016 • Future plans of Spi2016 R1 and SPI V.20?? later mentioned. • Spi2013 released in April 2013, with moderate customer use. • Spi2016 Scheduled Jan 2016 in planning • Spi2016 Revision1 tentative Q1 2016, with Infrastructure work and detailed scope planning • Spi20?? Next version not yet scheduled with final data. Integration • Enhanced To-Do List (E-TDL), business drives and benefits • Improve the readability of retrieved information • Enhanced Functionality and user experience • Graphics on Slides presented as powerful new design, with enhanced navigation, etc. • Much time spent on E-TDL examples, can be seen in online presentation soon.	

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		SPI – S3D Cable integration • Auto-route Instrumentation and Control (I&C) cables in S3D. • Improve the design accuracy by retrieve the routed cable length and path from the S3D model. • Harmonization - similar to SPEL – S3D integration but for I&C cables (Only updated info in properties will be shown, but will be Visible but Un-editable in the EDE.) Inter Company Collaboration (ICC) – Phase II • Extension to current supported ICC1 – supporting Publish / Retrieve capabilities of As Build information by. • The functionality extension consists of: o Enable Projects to be integrated with SPF o Publish and Compare is supported (not able to retrieve data) on project level • Inter Company Collaboration (ICC) Phase II – to be discussed further. • Room Qusetion - Does the SPI 2016 tool have ability to publish from SPI to SPF (like into As-Built section of the plant). - Answer: SPI 2016 Project publishing into SPF. Query Builder & Engineering Data Editor (EDE) • Query Builder, business drives and benefits o Allows users to create instantly flexible queries within SPI ▪ Knowledge of SPI is required but not data model ▪ Simple to use and provides engineering and design context ▪ Remove need for 3rd party tools like InfoMaker etc… ▪ Sorting of data (example of Index shown) to be much more flexible ▪ Data can be previewed to Validate query builds. ▪ Colorful highlights will show discrepancies, • Engineering Data Editor, business drives and benefits o Improve usability o Ease of use o Intuitive, no need for training (like MS Excel) o Enhanced Functionality • SQL editor will allow customization of QB … delivers a View-Only EDE (which may possibly be converted to full bidirectional EDE … if item types can be coupled.) • • Spi2016 View-Only EDE has filtering/sorting capability without changing data. • Out-Of-The-Box (OOTB) Queries: • Old Browsers have been converted to EDE, and Users can do so with some of their • QB SQL has it's own Access Rights to relegate separate from users as customers need. • Spi2016 EDE displayed in presentation slides. • Marketing level promotion of the EDE ease of use. • Recent addition of Cross-Column Filters in EDE (SQL *and* operator as well as *or*)	

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		• Caller Question: Drawing ID Reference shown in EDE Answer: Yes. • Asterisk & Percent symbols can be used in Searches • EDE Layout Control mentioned, with group editing etc. • EDE has no linkage to Reference Query … so changes to EDE will not modify the originating Query • EDE Comparison declares change management between Revisions via reports. • Comparison can also be done with different EDEs (for variety of data Delta Reports.) • Room Question: are the Delta Reports publishable to SPF. Answer: Yes. • Intergraph very proud of Spi2016 EDE Default View capabilities. • Spi2016 EDE Expressions shown with examples (similar to Nezar's presentation from Mangan) Projects/ As Build • Project / As Build, Business drives and benefits • Improve visibility of the scoped when claiming or merging • Part of SPI (not Admin) to get most of SPI tasks benefits as reports like ESL etc… • Improve the robustness of supported workflows • Harmonize the process with the below operations o Claim o Merge • Remove the constraint of multi users operations when data is claimed or merged • Predictability • Projects/As-Build goals itemized as Development Drives & User Benefits.(Owner/Operator mode Claim & Merge) UDF/UDT Editor • UDF / UDT Editor, Business drives and benefits • Harmonize the definitions of UDF* / UDT captions across the domain • Allow to build custom select lists • Expose the use of select list for UDF fields for EDE use *Caution – not yet supporting Spec's UDF ▪ Caller Question: Can't merge in SPI 2009 with Users in the database (but caller reports Customers are now doing so). Guy answers that data consistency needs to be checked with possible failures & locked records with current SPI versions. But SPI 2016 will allow merge with confidence of data consistency. SPI 2016 comments ▪ SPI-Fisher Interface was updated, as E+H was done previously, and other Vendors will also be updated asap. New Spec form will be used for Fisher in SPI 2016. Currently still file based, but future will be via API with no 'files'. ▪ SPI 2016 Tutorials HAVE been updated for Trainings ▪ SPI 2016 Delta Training will be longer in Duration than previously attended (might be 4-5 days.)	

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		▪ No Mention was made for Instrument Component ID availability OOTB as multiple customers have requested in this new EDE over the past 2 years. SPI v2016 R1 • Tentatively scheduled for 4Q2016 / 1Q2017 o Master Tag Registry (MTR) - phase I support o ESL fully converted to Dot.net o Disconnected Workshare (overhaul- previous 'Import Project') o Expose Web Services to support vendor integration as well as SmartPlant Enterprise Portal (SPEP) – SmartPlant Explorer's (SPEx) Replacement SPI v2018 Next Major Release • Introduce replacement technology to Infomaker forms for:- • Flexible Process Data module functionality • Control Logic Diagram • Engineering dashboard • Business drivers: o Quality, Upgrade Support, New ESL (.Net), Disconnected Work share (IMPORT projects), Infrastructure Integration, Vendor Integration with file-less processes., Replace Infomaker in Specs etc.	
5	Presentation	**Engineering Integrity SPI Upgrade Joe McDonald, Hazid** About Hazid Technologies ▪ UK based team of process engineers, computer scientists ▪ Founders: a history of innovation o PDMS Specification, 1st 3D modelling software o Zyqad/Aspen Basic Engineering, 1st commercial FEED system o 1st commercial computer assisted Hazops software ▪ Intergraph resells SmartPlant Engineering Integrity and SmartPlant Process Safety o Re-worded: Intergraph re-markets Engineering Integrity as a SmartPlant related tool, not sold individually to customers. ▪ SPI Engineering Integrity spoken in call as different software than PAS Integrity and other Integrity – named software(s). ▪ Slide showing digital asset data management (with Safety management system management as well.) ▪ New Service - Aurelia: Legacy Document Conversion software that correlates text from documents and databases into one searchable engine. o Example of Aurelia with discussion on Legacy Document Conversion … aiding data automation possibly. Engineering Integrity SPI Upgrade ▪ SP Engineering Integrity – Data Import Upgrades compaires	

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		SPI, SPEL, SPPID, S3D and Data sheets for correct, complete and consistent content before integration. ▪ SP Engineering Integrity – Data Validation Upgrade looks for conflict between key fields and validation rules in SPI, SPEL, SPPID, S3D and Data sheets ▪ SP Engineering Integrity – SAFE charts upgrade creates Cause & Effects charts from SPI or SPPID for DCS configuration ▪ SP Engineering Integrity – Reporting Upgrades can create reports on SPI loops or wiring content ▪ SP Engineering Integrity – SPI Analysis o Analyses complete plant including reference data in one click o Speed is 0.0126 sec per tag (2 million complete tags in 7 hours) o Can create validation lists (Approved Manufacturer etc.) o Links through full Loop to Instrument to panel etc. o Displays enhanced Loop drawings with results o Compare SPI data against individual properties o Checks consistency across SPI,SPID,SPEL and S3D Engineering Integrity for SPI – Example checks ▪ Index o Validation of tag naming convention o Check instrument types o Check tags and CS Tags ▪ Specs o Specs have forms o Check on UOM's o Check on all required fields ▪ Wiring o Check spare terminals in cabinets o Check wiring types o Check manufacturer and models o Check min fields required o Drawing have correct info o All signals have a complete connected loop Engineering Integrity – Rule Building ▪ Designed for Engineers ▪ No programming involved ▪ Fast to develop ▪ Easy to check Engineering Integrity – Next release… ▪ More complete delivered rule library ▪ Automatic fix and push back of issues detected ▪ Better property visualization ▪ Reduce Table sizes ▪ Import of only selected Areas/Units ▪ Automatic generation of Enhance reports	

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		▪ Real world improvements Data validation proposed across upgrades of multiple Smart Plant tools.	
6	Presentation	**Beaconsuite innovative solutions Dennis Cooley, Cooley Core** • Data Validation Software • LTUF Chair in Canada • API layer for SPI – Intergraph APP Store/Intergraph will validate • Intergraph new web-site – 90% complete/end of year completion. • Smartstore.cooleycore.com – Ranking websites for the TUF communities • Software is their specialty - not engineering • Two applications that are Intergraph enabled – Access Control – EPC and Project – OO • Project – Merge/Claim Analysis – Projects that needs to be identified if they are active • Lots of concurrent data – Close-out projects – Greenfield can be closed out quickly o Inactive Projects o Projects Sharing Data o Projects that are working with operational assets o Projects that are deleting operational asset information o Renaming – Avoid to create confusion • Access Control – allows all active connections including TOAD, ACCESS, Infomaker, IDEAL (SPF) and include any locks • Also, gives full Username through Citrix • Tracks users that log in for how long • Can make exemptions based on Applications and Users • Works on all Oracle Database – SQL server doesn't work because Microsoft is stricter on permissions • Question: Is licenses based on user – • Answer: Currently one per user • Question: Connected to Oracle background – What kind of level of access in Oracle – • Answer: System account in SPI (Full access, in_dbamn); 32 and 64-bit • Question: Do you need to have internet access once you load app? • Answer: Only access to the database • Question: Licenses based on licenses and user – • Answer: Can contact Cooley directly	

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		(Minutes will be revised following receipt of presentation)	
7	Presentation	**SPI Data Validation** **John Dressel, Fluor** Verifying the Quality of SPI Data • Difference between Document Centric and Data Centric Engineering o Work Processes for Checking Documents o Make Check Prints o Check and Mark Up o Correct Errors on Documents o Repeat the Process • The First Rule of Databases o **Garbage In – Garbage Out** • Work Processes for Checking Data o Visual Inspection of Data o Rule Based Data Entry o Rule Based Validation o Data Comparison • Types of Bad Data o Missing Data o Incorrect Data o Unnecessary Data SPI Data Validation Methods • SmartPlant Instrumentation Database Integrity o The health and integrity of the SPI database itself is essential for maintaining good quality data in SmartPlant Instrumentation o System Administrator Functions that need to be performed: ▪ Periodically running Check_DB to validate the Database Structure ▪ Periodically Rebuild Stored Procedures and Triggers ▪ Periodically Rebuild Catalog Tables ▪ Periodically Tuning Optimize Indexes • SmartPlant Instrumentation Data Integrity Functions o SmartPlant Instrumentation has several Internal Data Integrity functions ▪ Instrument Type profiles invoke automated data population as tags are loaded ▪ Use of Pick Lists and Drop Down data windows reduces Data Inconsistencies	

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		▪ Spec Module use of Form Templates for consistent spec sheet population ▪ Process Data chemical validation when loading Operating Conditions ▪ Duplicate Tag restrictions enforced for Instruments and wiring objects ▪ Reference Explorer objects for consistent wiring and cable entry • SmartPlant Instrumentation Manual Data Validation Methods o Visually checking the data using Browser Views and correct errors as you go o Create Reports and markup errors or yellow off data to build checking documents o Export Data to Excel then Check and Correct manually then Import corrected Data o Spec Sheets – Print out specs and verify all required fields are complete o Loop Wiring – Print out Point to Point diagrams to verify Loop completeness • Manual Data Checking is the most common type of data Validation Internal SPI Data Validation • SmartPlant Instrumentation Supporting Tables o Index Supporting Tables (Instrument Types, I/O Types, Etc…) o Reference Tables (Equipment Table, Line Number Table, Etc…) o Properties Tables (Manufacture, Model Number, Criticality, Etc…) o Loop Tables (Loop Measured Variables, Loop Types, Loop Functions) o Custom Tables (User Defined lookup tables) • Data Consistency by using tables is essential for Data Integrity • SmartPlant Instrumentation Rule manager o Copy of Data between two fields (e.g. Spec Drawing to Component UDF) o Consistency of Data (e.g. Consistency between the Tag I/O and the I/O Card). o Rejection of data and items (e.g. Reject data input if rule not met) o Disabling Properties (e.g. Disable fields based on pick list selection) • The Rule manager will dynamically validate data as it is entered into SPI • SmartPlant Instrumentation User Preferences Data	

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		Validation o Instrument Index preference govern automation Profile usage o Specifications preferences control data copying and report generation o Wiring preferences include uniqueness settings and element naming o Process preferences control options for unit conversion and Tag creation o Loop preferences govern the use of macros and file locations • The User Preferences add data consistency to the SPI Interface External SPI Data Validation • SPI has several External Validation Software choices o SmartPlant Engineering Integrity Rule based auditor for P&ID, SPI and SPEL o Beaconsuite Data Control for SPI monitors and reports all nonconforming deliverables o PAS Integrity/DOC4000 for SPI offers a consolidated view the control infrastructure o SPInspector examines the SPI database for specific data attribute discrepancies o CAXperts Report Adapter for SPI exports Data for data attribute analysis o WiseTools INAudit interrogates SPI and generates reports highlighting discrepancies • SmartPlant Engineering Integrity o Validates SmartPlant Instrumentation, SmartPlant Electrical and SmartPlant P&ID o Ensure the quality and dependability of data for Integration to other Applications o Comes delivered with over 3000 rules based on accepted standards o Rules can examine both Graphics and Data components o Allows custom rules for companies best practices o User friendly interface and dashboard • Beaconsuite Data Control o Data Control is fully integrated with SmartPlant Instrumentation o Provides a complete understanding of used names, and reserved names in real time o Real time knowledge of each deliverable and the associated revision sequence o Forecasted project milestones are tracked inside of this module	

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		o Monitors and reports all nonconforming names, and revisions o Enabling users to take prompt corrective action • PAS Integrity/DOC4000 o Automatically identifies mismatches between the SPI and DCS databases o Ensures accurate interfaces between disparate control systems o Can be extended to validate other connected systems o DCS to SIS, APC, Historian, PLC's etc o SPI upgrades and SPI to SPI database versions o Provides a consolidated view of the control infrastructure • Mangan's SPInspector o Quickly and easily conducts a full SPI database inspection with over 270 queries o Interrogates the SPI database directly, and provides continuous project status o Control the scope of your database validation by grouping the selection criteria o Customize the software by adding your own custom queries into the tool o An independent application that does not require an active SPI License o Report results of individual inspections files in .CSV or .XLS formats • CAXperts Report Adapter and Universal Reporter o Fast and simple ad-hoc creation of complex SPI Reports and Exports o Comparisons of data differences between two dates o Composite reports across multiple SmartPlant applications can be generated o Validation of data consistency across multiple SmartPlant applications o Report templates can be created without detailed knowledge of the SPI data structure o Data consistency can be validated within the SmartPlant Instrumentation tables • WiseTools INAudit o Interrogates your SPI database and generates reports highlighting discrepancies o A web-based tool that does not require a user ID or a password o INAConfig is the INAudit administrator tool, is used to configure auditing rules and exceptions to the rules to audit your data specifically for your requirements.	

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		o Offers comprehensive both Summary and Detailed non-compliance reports that easily export to Microsoft Excel o Compatible with SPI v2007 v2009, v2013, v2016 and Oracle, SQL and Watcom SPI Integration Data Validation • Cross Application Data Validation for Integration • To Eliminate Passing Bad Data between Applications • Integration Data Validation Methods: o Data correlation for Like Tags between the applications o Data comparison to look for inconsistencies o Data Buffer in neutral file format to study impact of integration • Cross Application Data Validation Software and Functions • Integration Data Validation Software Methods: o SmartPlant Foundation To-Do-Lists allow comparison before accepting Integrated data between databases o Some Report Generation Software allows comparison reports between databases prior to Integration The Importance of SPI Data Integrity • In a Data Centric Engineering Environment the SmartPlant Instrumentation Database is the deliverable in place of documents • To the EPC the SmartPlant Instrumentation is the source of all Control Systems Procurement and Construction Data • To the Owner Operator the SmartPlant Instrumentation is the source of all Control Systems Maintenance and Field Operation Data SMARTPLANT INSTRUMENTATION DATA IS FOREVER “Data is a precious thing and will last longer than the systems themselves.” ~ Tim Berners-Lee Comments: • Database needs to be cleaned up before sent to Client – EPC and OO needs to maintain the database • SPI Integration Data Validation valuable to insure data garbage doesn’t contaminate other software (s) • SPF To-Do lists are sophisticated and getting updated well to test data before going into SPF. • Question: With over 3000 possible Instrument Types -	

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		Intergraph should create sub-profile to have more granularity • Question: DCS vendors requesting component_id for normal queries in EDE – Needed to maintain to write back to SPI • Answer: Alex Koifman said "Intergraph will look into it and try to add component_id trom EDE rather than by the SQL statements"	
8	Forum Topics	• Question: Are we getting an API for data export – import? • Answer: Vendor (Endress+Hauser API) in next release • Question: Will new API be two way unlike IDEAL API which is export only? • Answer: Unknown • SPI 2016 Expectations o Discussed during meeting • SPI Data Validation o Will invite CAXperts to come for future meeting • SPI CR Ranking Website o Covered by Dennis Cooley during presentation	
9	Close	• Next meeting will be February 09, 2016 at Intergraph • John Dressel closed meeting and thanked everyone for attendance	