

SmartPlant Instrumentation Technical User Forum P2C2 (Houston SPI TUF) Meeting	May 15, 2018 8:00 am Jacobs Tower II
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Attendees	25 Members in attendance 16 Online Connections	Copied To	Houston SPI LTUF Website http://www.spi-ltuf.org
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Called By	John Dressel	Prepared By	John Dressel
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Item	Topic	Notes	Action/Due
1	Welcome 8:00	Welcome & Safety Moment <ul style="list-style-type: none"> • Welcome & Introduction John Bolmanski, Jacobs • Safety Moment John Bolmanski, Jacobs 	
2	Chairman's Notes 8:10	Announcements and Introductions John Dressel, Fluor <ul style="list-style-type: none"> • Introductions – All attendees • Hexagon 2018 to be June 12-15 with the GTUF on June 11 at the Venetian Las Vegas, NV. 	
3	Presentation 8:20	Hexagon PPM Smart Report Generator Frank Joop, Hexagon Smart Forms Objectives <ul style="list-style-type: none"> • Offer a single solution to create specifications and forms for all Smart Solutions • Make it a web-based solution • Allow read and write (will be in phase 2) • Allow flexibility to create forms including graphics meet project/customer needs • Will be able to connect the existing application data sources • Follow the single user experience Examples: <ul style="list-style-type: none"> • One User Experience across applications with Common Wire frame • Web API's to Connect the Solution Components • Intergraph Live View and Smart 3D with web service Read Write • Smart Forms Home Screen and Source Connection • SPI Query Preview from within Smart Forms • Form Information Panel with Title, Description, Page Size, etc. • Form Title Block with Revision Fields • Form Body with Data Groups, Headers and data Fields • Form Graphics from external files • Form Graphics from internal drawing tools • Data source using Web API's Demonstrated: <ul style="list-style-type: none"> • Instrument Data Sheets (SPI) • Electrical Data Sheets (SPEL) • Process Equipment Data Sheet (SPE) • Equipment Dimensional Data Sheet (S3D) 	

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4	Presentation 8:50	<p>SPI Vendor Supply Chain John Dressel, Fluor</p> <p>SPI Vendor Supply Chain Introduction</p> <ul style="list-style-type: none"> ▪ The SPI Vendor Supply Chain is the processes required to define and deliver the Instrumentation Systems to a Client <ol style="list-style-type: none"> 1. Engineering & Design 2. Sizing & Selection 3. Quoting and Purchasing 4. Vendor Data Integration 5. Assembly, Construction and Fabrication <p>SPI Vendor Supply Chain Functions</p> <ul style="list-style-type: none"> ▪ In Practice, Perhaps, Supply NETWORK or Supply WEB would be a more appropriate term than Supply CHAIN! <p style="text-align: center;">INDEX – SPECIFY – SIZE – SELECT – SYSTEM</p> <p style="text-align: center;">VALVES INSTRUMENTS BPCS & SIS</p> <p style="text-align: center;">DELIVER – DDP – VENDOR DATA – FAT – PROCURE</p> <p>SPI Vendor Supply Chain Segments</p> <ul style="list-style-type: none"> ▪ The SPI Supply Chain can be viewed as having three integrated segments or Phases <ul style="list-style-type: none"> ▪ UPSTREAM - Define the Instrument System with Indexes, Spec Sheets, Process and Material Requirements ▪ MIDSTREAM - Sizing, Selection, Quoting, Procurement and Delivery of Valves, Instruments and Systems ▪ DOWNSTREAM - Fabrication, Construction, Checkout and Turnover of the Instrument Systems to the Client <p>SPI Vendor Supply Chain Planning</p> <ul style="list-style-type: none"> • Planning the Three Phases of SPI Vendor Supply Chain <ul style="list-style-type: none"> • UPSTREAM Strategic Planning <ul style="list-style-type: none"> ▪ Implementation - Modular or Site Fabricate ▪ Alliances - MIC, MAC or MIV ▪ Interfaces - None, Vendor or 3rd Party • MIDSTREAM Tactical Planning <ul style="list-style-type: none"> ▪ Data Integration - Export/Import or APIs ▪ Work Sharing - Vendor Access to SPI ▪ Administration - EPC or Client SPI Hosting • DOWNSTREAM Operational Planning <ul style="list-style-type: none"> ▪ Deliverables - Vendor and DDP Data ▪ Work Packaging - AWP, TOS or PO Based ▪ Execution - Document or Data Centric <p>SPI Supply Chain Indexes</p> <ul style="list-style-type: none"> • SPI Instrument Indexes <ul style="list-style-type: none"> • Instrument Tagging and System ID • Instrument Type Technology • Procurement Packaging <ul style="list-style-type: none"> ▪ Construction, PO and Turn Over • Recommended Vendors Lists <ul style="list-style-type: none"> ▪ Client, Price or Alliance Driven 	

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		<ul style="list-style-type: none"> • Material Management Data <ul style="list-style-type: none"> ▪ Engineered Items and Bulks • Vendor Focused Indexes <ul style="list-style-type: none"> • Mfg. Model and Catalog Numbers • Testing and Certification Requirements <p>SPI Supply Chain Spec Sheets</p> <ul style="list-style-type: none"> • SPI Engineered Item Specs <ul style="list-style-type: none"> • Process Conditions Data • Sizing Data Requirement • Instrument Selection Data • Optional Accessories • Related Components • Vendor Specific Specifications • Vendor Focused Specifications <ul style="list-style-type: none"> • Standardized Across Vendors • Simplified for Minimal Data • Data Mapping to Vendor Application <p>SPI Supply Chain Sizing and Selection</p> <ul style="list-style-type: none"> • SPI Calculation Module <ul style="list-style-type: none"> • Control Valve Sizing • Relief Valve Sizing • Flow Meter Sizing • Thermowell Wake Frequency <ul style="list-style-type: none"> ▪ Uses standard formulas ▪ Documents Calculation Basis ▪ Direct Access to Process Data ▪ Generates Calculation Reports • Vendor Sizing and Selection <ul style="list-style-type: none"> • Requires SPI Data Export /Import • Data Mapping if Data Centric • Some Vendors provide DDP Data <p>SPI Supply Chain Vendor Interfaces</p> <ul style="list-style-type: none"> • SPI has more Vendor interfaces to than any other Process Controls Engineering Automation application <p>Vendor Interface Workflows</p> <ul style="list-style-type: none"> • Build Instrument Tags, Specs, Sizing and Wiring Data in SPI • Create Control Valve Datasheets <ul style="list-style-type: none"> • Export to Sizing and Selection software • Use Vendor software for valve sizing calculations and selection • Create Field Instrument Datasheets <ul style="list-style-type: none"> • Export to Instrument Selection software • Use Vendor software for sizing and selection • Create DCS Wiring Network with I/O <ul style="list-style-type: none"> • Import SPI I/O Card Library for DCS • Export SPI DCS I/O data to DCS software • Use DCS Configuration tools and SPI to Configure and Maintain Control Systems <p>SPI Control Valve Vendor Interfaces</p> <ul style="list-style-type: none"> • Steps for SPI Control Valve Interfaces: 	

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		<ul style="list-style-type: none"> • Build Control Valve Instrument Tags and input process sizing and selection data in SPI using automation functions • Create Control Valve Datasheets in SPI • Export to Vendor Sizing and Selection Software • Vendor Sizing and Selection of Control Valves • Import Manufacturer and Model Numbers into SPI From Vendor Selection Software • Issue Purchase Orders and Construction Hookup Documents from SPI • Export Inline Instrument Dimensional Data to S3D for model <p>SPI Instrument Vendor Interfaces</p> <ul style="list-style-type: none"> • Steps for Instrument Interfaces: <ul style="list-style-type: none"> • Build Instrument Tags and input process sizing and selection data in SPI using automation functions • Create Instrument Datasheets in SPI • Export to Vendor Sizing and Selection Software • Use Instrument Vendor Selection software • Import Manufacturer and Model Numbers into SPI From Vendor Selection Software • Issue Purchase Orders and Construction Hookup documents from SPI • Export Inline Dimensional Data to S3D for model <p>SPI Supply Chain Dimensional Data</p> <ul style="list-style-type: none"> • Sources for Dimensional Data <ul style="list-style-type: none"> • Certified Vendor Drawings • DDP Data manually input • Import from Vendor Software • Spreadsheet From Vendor • 3rd Party (e.g. Thomas.net) • SPI Interface (e.g. Fisher First 2) • Importance of DDP <ul style="list-style-type: none"> • Time savings for Piping in S3D • Early model work for FEED • Placement as Preferred Vendor with Dimensional Data and Data Centric Vendor Interface <p>SPI DCS & PLC Vendor Interfaces</p> <ul style="list-style-type: none"> • Steps for DCS & PLC Configuration: <ul style="list-style-type: none"> • Download SPI I/O Card Library for DCS • Create Field Wiring Network with I/O Cabinets in SPI Wiring Modules by EPC • Interface SPI DCS I/O Data to DCS Vendor Configuration Programs • Use DCS Configuration software and SPI Wiring data to Configure and Maintain Process Control System • Perform Owner Operator Functions for Calibration and Loop Maintenance <p>SPI Operations Vendor Interfaces</p> <ul style="list-style-type: none"> • Calibration Module Interface 	

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		<ul style="list-style-type: none"> • Maintenance personnel can upload or download calibration data to and from the SPI, including as-found, as-left, and other key instrument information for Fluke 740 Series Calibrators • Asset Management Interfaces <ul style="list-style-type: none"> • The SPI interface with SAP NetWeaver is commonly used for Plant Service and Asset Management Systems <p>SPI Supply Chain Bulk Material</p> <ul style="list-style-type: none"> • SPI Bulk Vendor Material <ul style="list-style-type: none"> • Hookup Module Assignments • Assemblies Assigned to UDFs • SPI Cable Schedule • SPI Junction Boxes Takeoff • SPI Generated Hookup Drawings • SPI Material Catalog • SPI Generated Bill of Material • Material Managers <ul style="list-style-type: none"> • SmartPlant Materials • EPC Material Managers • Create BOMs, POs and CWP's for Hookup or Assembly Bulk Material <p>Supply Chain Commissioning</p> <ul style="list-style-type: none"> • SPI Commissioning Functions <ul style="list-style-type: none"> • CWP Management • TOS Management • Cable Spool Management • Construction Documents • Factory Acceptance Tests • Loop Diagram Checkout • Commissioning Documents • SPI Vendor Documents <ul style="list-style-type: none"> • Instrument Pre-calibration • Associate Vendor Documents • As-built Spec Sheet Management <p>SPI Supply Chain Owner Operations</p> <ul style="list-style-type: none"> • SPI Operations Functions <ul style="list-style-type: none"> • SPI Calibration Module • SPI Maintenance Module • SPI Projects Management • SPI Document Management <ul style="list-style-type: none"> • Associate Documents to Tags • Generate Documents as Needed • SPI DCS Vendor Interface <ul style="list-style-type: none"> • Bi-Directional Data Flow • I/O Addressing Maintained • SPI Field Wiring Management • Range and Set Point Data <p>Improving the SPI Supply Chain</p> <ul style="list-style-type: none"> • Supply Chain Vendor Data Centricity to allow applications to Integrate Data as needed 	

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		<ul style="list-style-type: none"> • Hexagon adopting an aggressive WEB based API interface that will allow supplier data to be better integrated with SPI • The use of third party data integration tools, WEB based APIs and cloud-based vendor catalogs to standardize vendor data resources for the SPI Supply Chain • Vendor Interfaces should be based on one or more international standards to facilitate Global Implementation across multiple business sectors <p>SPI Supply Chain Interface Standards</p> <ul style="list-style-type: none"> • The Control Systems communities need to further coordinate efforts in areas of Vendor Life Cycle Interface and Integration standardization • Hexagon PPM Intergraph Partnering Companies like Emerson, Endress+Hauser and Fluor are working together to utilize international data interface standards for interoperability • Standards currently being adopted or supported by Hexagon <ul style="list-style-type: none"> • ISO 15926 - Integration of life-cycle data for process plants including oil and gas production facilities • PIP DMDIM001 - Instrumentation Metadata Requirements Specification - Instrument Design Tool Configuration (IDTC) • CFIHOS - Capital Facilities Information Hand-Over Specification for process industries proposed as ISO 15926-10X standard • ODATA APIs - Open Data Protocol (OData) for building WEB based interoperable RESTful APIs <p>SPI Vendor Supply Chain Conclusion</p> <ul style="list-style-type: none"> • SmartPlant Instrumentations Data Centricity plays a significant roll in the Vendors Supply Chain • Hexagon PPM, Vendors and SPE Users can improve the Data Centric nature of the Supply Chain • Implementation of Data Integration Standards and API's will improve the Vendor Supply Chains <p style="text-align: center;">The SmartPlant Instrumentation is changing the way we interface with the Vendor Supply Chain</p>	
5	SIG Update 9:20	<p>SIG Progress Report Gene Haney, McDermott</p> <p>PIP DMDIM001 Instrumentation Metadata Requirements</p> <p>PIP DMDIM001 Houston SPI LTUF SIG</p> <p>Instrument Design Tool Configuration (IDTC) SIG Data Field Identification Progress:</p> <ul style="list-style-type: none"> • 816 total fields identified In the DMDIM001 Data Map • Process Data Fields <ul style="list-style-type: none"> • 110 Total Process Data Fields Required • 17 New Fields (Possible new SPI Process UDF Fields) 	

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		<ul style="list-style-type: none"> • Flow Data Fields <ul style="list-style-type: none"> • 366 Total Flow Data Fields (-65 Process Data Fields) • 170 Unique to Flow (Possible new SPI Spec UDF Fields) • 50 New Fields Identified by SIG • Level Data Fields <ul style="list-style-type: none"> • 274 Total Level Data Fields (-50 Process Data Fields) • 111 Unique to Level (Possible new SPI Spec UDF Fields) • 38 New Fields Identified by SIG • Pressure Data Fields <ul style="list-style-type: none"> • 180 Total Pressure Data Fields (-42 Process Data Fields) • 11 Unique to Pressure (Possible SPI Spec UDF Fields) • 25 New Fields Identified by SIG • Temperature <ul style="list-style-type: none"> • 208 Total Temperature Fields (-41 Process Data Fields) • 156 Unique to Temperature (Possible new SPI Spec UDF Fields) • 20 New Fields Identified by SIG • Control Valve <ul style="list-style-type: none"> • 238 Total Control Valve Fields (-61 Process Data Fields) • 132 Unique Control Valves (Possible new SPI Spec UDF Fields) • 119 New Fields Identified by SIG • Relief Devices <ul style="list-style-type: none"> • 178 Total Relief Device Fields (-36 Process Data Fields) • 23 Unique to Relief Device (Possible new SPI Spec UDF Fields) • 134 New Fields Identified by SIG <p>PIP DMDIM001 Instrument Metadata Requirements</p> <ul style="list-style-type: none"> • Houston SPI LTUF IDTC SIG Completed Action Items: <ol style="list-style-type: none"> 1. Identify data elements from list that exist in SPI 2. Review, consolidate, expand list of data elements not in SPI 3. Develop the New Control Valve data elements to the IDTC 4. Develop the New Relief Devices data elements to the IDTC • Houston SPI LTUF IDTC SIG Possible Future Action Items: <ol style="list-style-type: none"> 1. Develop New Analyzer data elements for the IDTC 2. Provide SIG Recommendations to the PIP DMDIM001 IDTC committee 3. Provide recommended SPI schema changes to Hexagon PPM <ul style="list-style-type: none"> • Normalized Spec_UDF Mapping - or - • Provide Recommended Add_Spec Tables 4. Correlate IDTC Data Table with ISA SPI Data Map 	

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		<p>5. Review and Recommendation of Standards for PIP DMDIM001 Inclusion:</p> <ul style="list-style-type: none"> • ISO 15926 Parts 3-6 Reference, Implementation and Publishing • Namur Prolist NE100 Minimum Data Correlation • CFIHOS Handover Specification Correlation <p>Current Houston SPI LTUF SIG Members:</p> <ul style="list-style-type: none"> • Gene Haney, McDermott (SIG Chair) • Bob Zerda, PIP • Alex Koifman, ProLytX • Betty Alexander, JGC • Chris Cordes, Covestro • Guillermo Vigna, Endress+Hauser • John Dressel, Fluor • Kory Johnson, Marathon • Nezar Faitouri, Mangan, Inc. • Brian Shefler, Flowserve • Daryl Konen, WorleyParsons • Dee Dee Honea, Eichleay • Eric Rangel, Shell • Ahmed Esaklul, McDermott • Jose Farach, Oxy • Lawrence Addison, Shell • Maria Cunningham, Chevron • Oliver Nava, Chevron • Phillip Rumler, Endress+Hauser • Scott Gallagher, Phillips 66 • Sharon Wildey, Bechtel <ul style="list-style-type: none"> • The efforts of this SIG are ongoing and intended to bring more consistency to the SPI Spec Data Dictionary and PIP DMDIM001 • Houston SPI LTUF PIP DMDIM001 IDTC SIG is seeking more members and participation in the SIG – Contact Gene Haney gene.haney@mcdermott.com 	
6	Presentation 9:25	<p>New Houston SPI LTUF Website John Dressel, Fluor</p> <p>Website URL: http://spi-ltuf.org/ New Look and Feel – Cleaner, Faster & Touch Sensitive Responsive Design – View on any Browser on any Device</p> <ul style="list-style-type: none"> • Main Page – All the content from the previous website Links from the main Page to Hexagon PPM, 2017 PPM GTUF , and 2017 SPI GTUF and Link to Ranking Website • Archive – All the content from the previous Archive with Find • About Page – Describes the Function and Purpose of the LTUF • Join Page – Form page for Users to request Membership • Charter – Page representing the LTUF Organizational Charter 	

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7	Presentation 10:30	<p>SPI Ranking Website Dennis Cooley, CooleyCore</p> <p>SMARTPLANT IDEAS DELIVER INNOVATION</p> <p>PRESENTATION SUMMARY</p> <ul style="list-style-type: none"> • How to Find The Ranking • Register How To Register • Submit Your Ideas By May 25th • Ranking Today Provides a Better Tomorrow <p>REGISTRATION IS SIMPLE</p> <ul style="list-style-type: none"> • Provide answers to a few basic questions and then you are ready to go. -Simply click on Create Account button • Note: If you do not receive a confirmation email with a link to complete the registration process, please contact Dennis.Cooley@CooleyCore.com for assistance. Registration is sometimes easier when registering from home <p>SUBMIT YOUR IDEAS</p> <ul style="list-style-type: none"> • If you get your ideas submitted by May 25th, 2018 they will be included in a presentation at the Hexagon International Conference on Monday June 11th. • See the Global Technical User Forum (GTUF) meeting link below: http://images.response.intergraph.com/Web/Intergraph/%7Bdb81a20a-2601-4fa6-8fa5-d6542cf28104%7D_HxGNLive2018_TUF_Agenda.pdf <p>RANKING TODAY PROVIDES A BETTER TOMORROW</p> <ul style="list-style-type: none"> • Action: Rank the ideas on the website by May 30th. Highly ranked ideas will be mentioned at the GTUF meeting. The goal is to get Hexagon to understand the importance of your idea. • Action: A reminder email will be sent out to all those that have registered on the website to rank on May 28th. ✓ YOUR ACTION: Please make sure your registered email address is still valid. Thanks! • Action: Dennis will follow - up with Hexagon to ensure their latest comments are incorporated into the highly ranked ideas <p>RANKING WEBSITES DELIVER INNOVATION</p> <p>Shaping Change</p> <ul style="list-style-type: none"> • Great ideas result in job satisfaction • Great ideas deliver efficiencies • Great ideas enable you & your company to compete • Great ideas are implemented by Hexagon® • Your ideas and rankings make a difference <p>How can we get even more participation in this process?</p> <p>Email your ideas to: Dennis.Cooley@cooleycore.com</p>	

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8	Presentation 10:30	<p>SPInspector Version 1.7 Nezar Faitouri, Mangan</p> <p>An Automated SPI Database Validation Tool LTUF May 15, 0218</p> <p>Mangan, Inc</p> <ul style="list-style-type: none"> • 17+ Years • 3 Office Locations • International Footprint <p>ENGINEERING</p> <ul style="list-style-type: none"> • Core Focus: Engineering Services • Development: Outsourced/Small Group of Product Managers • Experts: Internal/ Sales/Service Projects • Implementation Capabilities: Limited to Application support <p>MSS</p> <ul style="list-style-type: none"> • Core Focus: Software & Implementation Services • Development: In House • Experts: Design Software • Implementation Capabilities: Internal capabilities. World-wide experience deploying ProSys SLM <p>SOFTWARE</p> <ul style="list-style-type: none"> • Core Focus: Software Sales • Development: In House • Experts: Sales/Marketing • Implementation Capabilities: Internal Capabilities & experience deploying software or Outsourced <p>SUCCESSFUL PARTNERSHIPS</p> <ul style="list-style-type: none"> • Celebrating 17 Years of Strong Relationships <p>World Class Architecture</p> <p>SPInspector</p> <ul style="list-style-type: none"> • A software empowerment tool designed to provide a full, real-time assessment of the SPI database; allowing for an efficient approach to validate your data. <p>A New Software Approach</p> <ul style="list-style-type: none"> • Automated Interface <ul style="list-style-type: none"> • Improved efficiency with instant audit • Consistent protocol for inspection • Comprehensive coverage of entire database • Continuous, real-time access • Pre-Packaged <ul style="list-style-type: none"> • Designed by SPI subject matter experts • Leveraged growing user base feedback • Adaptable to complex environments • Audit Scope <ul style="list-style-type: none"> • Minimum Data • Duplicate Items 	

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		<ul style="list-style-type: none"> • Instrument Index • Reports • ESL Tables • Wiring • Claim and Flags • A Clear Path to Action <ul style="list-style-type: none"> • SPInspector Deliverables <ul style="list-style-type: none"> ▪ Analysis on potential impact ▪ Concise .CSV/.XLS reports ▪ Plan for remediation • Operating in Dynamic Environments • New Features <ul style="list-style-type: none"> • New Queries • Automated Audits • Project Level Inspection • Increased Customization • Counts Report • Export & Import Queries <p>Mangan Software Services</p> <ul style="list-style-type: none"> • Big Consulting • Data Integration • Data Acquisition • SLM-Cloud Services • SLM v2 Enhancements • Data Visualization <p>For More Information Contact: Joseph O'Dell Mangan Software Solutions Office (281) 402-2562 Jodell@manganinc.com www.SPInspector.com</p>	
9	Presentation 11:00	<p>SPI Spec Sheets and APIs John Dressel, Fluor</p> <p>SmartPlant Instrumentation Spec Sheets and APIs Introduction</p> <ul style="list-style-type: none"> ▪ Smart Report Generator (SRG) and APIs ▪ SPI Spec Sheet Functions ▪ SPI Spec Sheet Types ▪ SPI Spec Sheet Mechanics ▪ SPI Spec Sheet Process Data ▪ Spec Browser Data Dictionary ▪ Introduction to Web APIs ▪ Issues with SPI Specs and Web APIs ▪ Recommendations for SPI Specs and Web APIs <p>SPI Smart Form Generator (SFG) and APIs</p> <ul style="list-style-type: none"> ▪ Will be introduced at HxGN 2018 ▪ Designed to replace Infomaker Spec Forms ▪ Will be used as the form tool in all PPM applications ▪ SFG is the first major Hexagon PPM Developed Web API <p>Hexagon PPM – Web API – Software as a Service 5 Phase Plan</p> <p>SPI Spec Sheets Functions</p> <ul style="list-style-type: none"> ▪ SPI Spec Sheets are more complex than most people 	

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		<p>realize</p> <ul style="list-style-type: none"> ▪ Instrument Data Sheet or Spec Sheet Purpose: <ul style="list-style-type: none"> ▪ Sizing – The Process data on the Spec Form is used for Sizing ▪ Selection – The Body of the Spec together with the Size selects the Manufacturer and Model ▪ Quote – The Spec is issued to vendors for RFQ ▪ Purchase – After Sizing and Selection the Spec is issued for purchase ▪ Maintenance & Operation – Spec forms are maintained by Owner Operators for Operations <p>SPI Spec Sheet Types</p> <ul style="list-style-type: none"> ▪ Types of SPI Spec Sheets <ul style="list-style-type: none"> ▪ Single Sheet Most common Type of spec sheet and the default for most SPI “Out of the Box” Specs ▪ Multi-Sheet Used for special Spec Sheets that require more information such as additional Fieldbus pages, long notes or cover sheets. ▪ Multi-Item Used for commodity type instruments that have the same data with only a few unique fields of data that can be placed on additional tabular pages. ▪ Multi-Tag A rarely used type of Spec Sheet that allows several unique tags to appear on one spec sheet (Released in SPI Version 2007) <p>SPI Spec Sheet Mechanics</p> <ul style="list-style-type: none"> ▪ Elements of a SPI Spec Sheet <ul style="list-style-type: none"> ▪ Line work and Header Text that Corresponds to Data fields ▪ Data fields and Spec User Defined Fields from Tables ▪ Spec Page Title Box with Revision data area <p>The Elements combine to make a PowerSoft Report (PSR) Spec Page The PowerSoft Report (PSR) Spec Page has all of the elements to create a SPI Spec form and to query SPI Tables to Present Data for a Specific Tag Number</p> ▪ Spec Data fields come from several SPI Tables <ul style="list-style-type: none"> ▪ Data from Component Table (Index) ▪ Data from Piping Line Table ▪ Data from Process Data Table ▪ Spec User Defined Fields Spec User Defined Fields are used for any data not contained in any predefined SPI Table ▪ Spec Title Area is created as part of each PSR Page <ul style="list-style-type: none"> ▪ The Form Description is from the Form Table ▪ The Logo is defined in the Admin Module ▪ Revision Data is from an Internal Array controlled by SPI ▪ The Drawing Name is from the Drawing Table ▪ One or more Spec Pages are then associated to create SPI Spec Form 	

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		<p>SPI Spec Sheet Process Data</p> <ul style="list-style-type: none"> ▪ The Sizing data on the Spec Form is Process Data that is from the Process Data Module in SPI ▪ Given proper rights – the process data may be edited from the Spec Sheets <ul style="list-style-type: none"> ▪ Automatic Unit conversion does NOT work from Spec Sheets ▪ Only selected process data is visible on Spec Sheets ▪ Rights can be set to prohibit editing of process data from Spec Sheets ▪ Multi case process data can be accessed on the Spec Sheet from the process Module ▪ Editing Process Data from Spec Sheets is NOT Recommended ▪ Type and number of Process variables available for Spec Sheets are different for each process function ▪ Units of Measure or UID are separated from the variable in SPI ▪ Some Units of Measure are Computed fields <ul style="list-style-type: none"> ▪ Pressure unit of measure psi-g is two fields if (pd_press_uflg = 'G', rightTrim (pd_press_uid) + '-g', if (pd_press_uflg = 'A' , rightTrim (pd_press_uid) + '-a', ")) ▪ Different Process variables available for Process Function <ul style="list-style-type: none"> ▪ Temperature ▪ Pressure ▪ Level ▪ Flow ▪ Relief Valve ▪ Control Valve <p>Supplemented with Computed and Process Function Fields</p> <p>Spec Browser Data Dictionary</p> <ul style="list-style-type: none"> ▪ The Majority of the Selection data on a Spec is composed of User Defined Fields (e.g. Spec_udf_100) of which there are a possible 1780 ▪ The Spec Browser Data Dictionary allows users to define Headers to data columns including Spec_udf fields to give them specific meaning ▪ Blank lines on a spec can be named with the line number instead of Spec_udf numbers. This will make more sense in the browser ▪ The use of Spec_udf fields make the spec forms very flexible but also add to the Ambiguity of the SPI Spec Data Dictionary structure <p>Hexagon PPM Web API Tools</p> <ul style="list-style-type: none"> ▪ Postman is a complete API development environment for Web API developers ▪ Power BI display builder create interactive dashboards for accessing data ▪ Power BI interactive dashboards can display and manipulate data in real time 	

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		<p>Issues with SPI Specs and Web APIs</p> <ul style="list-style-type: none"> ▪ SPI Smart Form Generator (SFG) is in development by Hexagon PPM <ul style="list-style-type: none"> – The SFG Is a Web API based report form generator for the SPE – The SFG is designed to replace Infomaker as the base SPI reporting tool – The SFG may not be as powerful as Infomaker in the initial release ▪ It may be some time before we see Read and Write SFG capabilities ▪ Access to a Fluid Spec Data Dictionary may make Web APIs unstable <ul style="list-style-type: none"> – SPI Spec Data Dictionary is not normalized and uses Spec_UDFs – Non-normalized APIs need to be remapped on a form by form basis – User modified Spec Data Dictionaries will result in broken APIs ▪ Accessing complex spec forms on small devices may be difficult ▪ Development of Web APIs for Vendor interfaces will be difficult <p>Suggestions for SPI and Web APIs</p> <ul style="list-style-type: none"> ▪ Simplify the Spec Forms or eliminate complex forms (e.g. Multi Tag) ▪ Create Smaller SFG forms for different section of the Spec Forms ▪ Build Data Centric Web API interfaces for Remote Users and Vendors <ul style="list-style-type: none"> – Process Data Web API for Vendor Sizing programs – Material and Accessories Web API for Selection software – RFQ – PO – Manufacture and Model Web API for Purchasing ▪ Recommend that Hexagon PPM adopt the PIP DMDIM001 standard for a normalized Spec Data Dictionary <ul style="list-style-type: none"> – The normalized Data Dictionary could be mapped to specific UDF for Component, Process and Spec User Defined Field Tables – Additional Data Dictionary Tables can be added to SPI fill gaps between the PIP and SPI Data Dictionaries 	
10	Presentation 11:15	<p>SPI Governance Documents Part 1 Alex Koifman, ProLytX</p> <p>Governance</p> <ul style="list-style-type: none"> ▪ “In its most abstract sense, governance is a theoretical concept referring to the actions and processes by which stable practices and organizations arise and persist.” (Wikipedia) ▪ SPI governance documents – “A set of documents that describe processes and procedures by which engineering information is enabled, created and maintained in projects and operations using SPI.” (Alex Koifman) 	

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		<p>Why do we need governance documents?</p> <ul style="list-style-type: none"> ▪ Economic reality translates into a lot of optimization and less projects. ▪ Reduce waste ▪ Improve project quality ▪ Accommodate project execution in the Cloud environment ▪ Improve communications (“RTFF”) <p>Don’t we have them already?</p> <ul style="list-style-type: none"> ▪ We have an “SPI seed file”! ▪ We have an SPI project specification! ▪ We have best practices, international standards and project methodologies! ▪ We have vendor (Hexagon) documentation! ▪ We have consultants who can tell us what to do! <p>What governance documents do we need?</p> <ul style="list-style-type: none"> ▪ IT architecture and procedures (IT)Ω Θ ▪ Engineering Guide (engineering) Ω ▪ Project Specification (engineering, project management) Ω ▪ Facilities Guide (engineering, manufacturing/operations) Θ ▪ N.B.: Seed file should be a supplement to the Engineering Guide and Project Specification. <p>IT architecture and procedures</p> <ul style="list-style-type: none"> ▪ Infrastructure architecture ▪ Installation, setup and administration ▪ Business continuity (back-up restore, disaster recovery, etc.) ▪ Support infrastructure and procedures. <p>SPI Engineering Guide</p> <ul style="list-style-type: none"> ▪ Standards and practices (by reference) ▪ SPI configuration – modules used, NC, supporting tables, spec customization, etc. ▪ Procedures – data entry, quality control, integration, workflows, 3-d party data, coordination, close out, claim/merge, etc. ▪ Deliverables (formats and content) and mandatory data entry requirements. ▪ Sufficient rationale for all of the above <p>SPI Project Specification</p> <ul style="list-style-type: none"> ▪ Project parties – Client, Contractors, Plants, ▪ Project definitions – overall purpose, units involved, ▪ Exceptions to the Engineering Guide rules – additions and exclusions <p>SPI Facilities Guide</p> <ul style="list-style-type: none"> ▪ Access to and use of SPI information ▪ Ownership and upkeep responsibilities ▪ Using SPI information in integration with other IT systems – ERP/CMMS (SAP, Maximo, etc), Reliability, Safety Lifecycle Management, etc. <p>What not to include</p> <ul style="list-style-type: none"> ▪ No replication of the engineering practices already 	

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		<p>documented elsewhere (GP, best practices, etc.) – should be included by reference</p> <ul style="list-style-type: none"> ▪ No replication of the SPI training documents, Help or User Guides ▪ N.B. Use Appendices for detailed technical configuration <p>How to get it done</p> <ul style="list-style-type: none"> ▪ Collect existing information ▪ Interview stakeholders ▪ Structure and propose ▪ Review and approve ▪ Implement on a project <p><u>Continuously review, update and improve based on realities</u></p> <hr/> <p>SPI Governance Documents Part 2 Alex Koifman, ProLytX</p> <p>Background and subject</p> <ul style="list-style-type: none"> ▪ Continuation of the presentation from November 14, 2017 (can be found in LTUF archive) ▪ “Meet another reality” update <p>Governance <i>“In its most abstract sense, governance is a theoretical concept referring to the actions and processes by which stable practices and organizations arise and persist.” (Wikipedia)</i></p> <p>SPI governance documents – <i>“A set of documents that describe processes and procedures by which engineering information is enabled, created and maintained in projects and operations using SPI.” (Alex Koifman)</i></p> <p>What governance documents do we need?</p> <ul style="list-style-type: none"> ▪ IT architecture and procedures (IT) Ω Θ ▪ Engineering Guide (engineering) Ω ▪ Project Specification (engineering, project management) Ω ▪ Facilities Guide (engineering, manufacturing/operations) Θ ▪ N.B.: Seed file should be a supplement to the Engineering Guide and Project Specification. <p>IT architecture and procedures</p> <ul style="list-style-type: none"> ▪ Infrastructure architecture ▪ Installation, setup and administration ▪ Business continuity (back-up restore, disaster recovery, etc.) ▪ Support infrastructure and procedures. <p>SPI Engineering Guide</p> <ul style="list-style-type: none"> ▪ Standards and practices (by reference) ▪ SPI configuration – modules used, NC, supporting tables, spec customization, etc. ▪ Procedures – data entry, quality control, integration, workflows, 3-d party data, coordination, close out, claim/merge, etc. ▪ Deliverables (formats and content) and mandatory data entry requirements. ▪ Sufficient rationale for all of the above 	

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		<p>PROPOSED: SPI Engineering Guide</p> <ul style="list-style-type: none"> ▪ Project Scope definition – claiming to Engineering Project ▪ Module usage – Instrument Index, Process Data, Calculations, Specifications, Spec Binder/Document Binder, Installation Details, Wiring, Loops, EDE ▪ SPI Data entry scope and requirements – inclusions, exclusions, third-party supplied, interfaces and contractor scope boundaries, data entry methods ▪ Data management – engineering data management, management of templated configuration, management of project (non-template) definitions, specification library management, data validation and QC, use for other project tasks and manufacturing ▪ Project management – Coordination team, support (IT/Corporate Engineering), completion and close out, access and release of project information. <p>SPI Project Specification</p> <ul style="list-style-type: none"> ▪ Project parties – Client, Contractors, Plants, ▪ Project definitions – overall purpose, units involved, ▪ Exceptions to the Engineering Guide rules – additions and exclusions. <p>PROPOSED: SPI Project Specification</p> <ul style="list-style-type: none"> ▪ Project parties and definitions: Client, Contractors, plants, project description, SPI Usage, setup, implementation and support, ▪ Configuration: PBS/PAU, Naming conventions, UOM's , optional deliverables, wiring and loop requirements and generation, ▪ Procedures: rules for P&ID expansion, data and document revisions, issue of project data, handover procedures, ▪ Exceptions to the Engineering Guide <p>SPI Facilities Guide</p> <ul style="list-style-type: none"> ▪ To be addressed in the future <p>Some of the challenges/questions raised</p> <ul style="list-style-type: none"> ▪ Describing system setup and support ▪ Seed database – deliver managed seed vs. detailed instructions (and libraries)? ▪ Handover from the EPC: EPC flexibility vs. plant-controlled environment – how much data manipulation can and should be done? ▪ As Build/Project management for internally hosted SPI (level of procedural detail) ▪ Document logic for expanding simplified P&ID symbols into instrument index records? ▪ Information management handover specification vs. SPI database handover. ▪ “Examples of deliverables” appendix? ▪ Using Associate Document functionality vs. project document management system (SPF, Documentum, etc)? ▪ What is the best way to maintain “ever green” Governance Practice? <p>To be continued...</p>	

Item	Topic	Notes	Action/Due
11	Forum 11:45	Forum Discussion Topics All Attendees <ul style="list-style-type: none">• Data Centric Engineering• SPI Integration Issues• SPI 2016 Issues• SPI APIs	
12	12:00	<ul style="list-style-type: none">• Need Host for next meeting tentatively scheduled for August 14, 2018 at Fluor• John Dressel closed meeting with thanks to Jacobs for hosting and everyone for attending	