

SmartPlant Instrumentation Technical User Forum P2C2 (Houston SPI TUF) Meeting		May 25, 2017 8:00 am Jacobs Tower II
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Attendees	36 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 to CB&I 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 2017 to be June 13-16 with the GTUF on June 12 at the Venetian Las Vegas, NV.. • Approval of the Minutes from February 23, 2017 	
3	Presentation 8:20	<p style="text-align: center;">SPI 2016 Product Update Guy Masin, Intergraph</p> <p>SPI 2016 SP1 – Released May 2017</p> <ul style="list-style-type: none"> • Improving the EDE overall performance • Revamping SPI's explorers- Better Windows 10 Support, Better User Experience: <ul style="list-style-type: none"> ○ Domain Explorer ○ Reference Explorer ○ Binder module explorer ○ Wiring explorer • Improving productivity – Favorites • Improving productivity – Show EDE • Improving productivity – Quick search • Revamping SPI's explorers <ul style="list-style-type: none"> ○ Better Windows 10 Support ○ Better User Experience : <ul style="list-style-type: none"> ▪ Domain Explorer ▪ Reference Explorer ▪ Binder module explorer ▪ Wiring explorer • Added Functions to Explorers <ul style="list-style-type: none"> ○ Sort ○ Search ○ Filter • Improving productivity <ul style="list-style-type: none"> ○ New Favorites Tab (replacing my list) ○ Customize your Tab – Folders and content <ul style="list-style-type: none"> ▪ Documents ▪ Macro Definitions ▪ Panels ▪ Mixed 	

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		<ul style="list-style-type: none"> ○ Show EDE <ul style="list-style-type: none"> ▪ Create an EDE in your Private folder ▪ Show EDE from Domain Explorer – to use Domain explorer filter. ▪ Edit your data ○ Filtered Folder in the Domain Explorer ○ Choose you EDE (Private Folder) ○ EDE is available for the Task at hand • Quick Search <ul style="list-style-type: none"> ○ Search as you type ○ Search from everywhere ○ Search for anything (Documents, Instruments, Queries,...) ○ Have a complete Right Click Menu functionality (Open Document) ○ Have a Domain Explorer Go-To -Item 	
4	Presentation 8:45	<p>Considerations for an SPI SEED File Ron Jackson, Fluor</p> <p>Before You Start</p> <ul style="list-style-type: none"> • Determining the version of SmartPlant Instrumentation • Collect the relevant corporate standards: <ul style="list-style-type: none"> ○ Naming Conventions ○ Installation Details ○ Approved Cable Types ○ Common Instrument Terminations ○ I/O Equipment Information ○ Typical Drawings - Loop & Wiring Diagrams <p>Administration Module</p> <ul style="list-style-type: none"> • Owner Operator vs EPC Mode (Logo) • Default Plant-Area-Unit Structure • Naming Conventions • Disable Modules: <ul style="list-style-type: none"> ○ Process Data & Calculation ○ Document Binder ○ Maintenance ○ Calibration ○ Construction • User Groups and Rights • User Preferences • Custom User Defined Fields and Tables <ul style="list-style-type: none"> ○ Predefined Lists ○ Reserved – EPC, OO, users, project <p>Browser/EDE Modules</p> <ul style="list-style-type: none"> • Instrument Index <ul style="list-style-type: none"> ○ Engineering, Design or unified ○ With or without construction information ○ Report vs data dump to construction • Cable Schedule • Alarm Set Point Index (MAC information exports) • External PSR Reports • Site Specific 	

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		<p>Index Module</p> <ul style="list-style-type: none"> • Support Tables <ul style="list-style-type: none"> ○ Instrument Types <ul style="list-style-type: none"> ▪ Current ISA standard, old ISA standard or custom ▪ Software tags? ○ I/O Types with Control System UDF/UDT vs custom ○ Status types ○ Locations • Custom Tables <ul style="list-style-type: none"> ○ Control System ○ Construction Work Package <p>Specifications Module</p> <ul style="list-style-type: none"> • Specification Page/Form Library • Specification Data Dictionary • Title Block Overlays <p>Wiring Module</p> <ul style="list-style-type: none"> • Equipment Tables <ul style="list-style-type: none"> ○ Panel ○ Terminal Strip ○ Terminal ○ Wiring Equipment • Wiring Support Tables <ul style="list-style-type: none"> ○ Cable <ul style="list-style-type: none"> ▪ Types ▪ Colors ▪ Manufacturers ▪ Models ○ Wire ○ Connector • Telecom • Other Tables • Standard Reports <p>Hook-Up Module</p> <ul style="list-style-type: none"> • Use corporate details • Use supporting images? • Use Bill Of Material? • Use Item libraries? • Data transfer to other tools <p>Reference Explorer</p> <ul style="list-style-type: none"> • Panels <ul style="list-style-type: none"> ○ Device ○ Junction Boxes ○ Marshalling Rack ○ DCS/SIS ○ PLC • Cables <ul style="list-style-type: none"> ○ Common cables – IEC/AWG ○ Vendor configurations • Wiring Equipment - DCS Vendor catalogs • Macros 	

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		<ul style="list-style-type: none">• Typical Instrument• Queries <p>Wrapping things up</p> <ul style="list-style-type: none">• CheckDB• Validate the database• Develop Drawing Templates• Develop Custom Symbols <p>SEED Package Files</p> <ul style="list-style-type: none">• SEED file backup• Setup Guidelines• Implementation Guidelines• User Guidelines• Drawing Templates• Custom Symbols	

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5	Presentation 9:20	<p data-bbox="496 180 1252 212">Applying Standards to SPI John Dressel, Fluor</p> <p data-bbox="496 239 930 270">Instrumentation Standards for SPI</p> <ul style="list-style-type: none"> <li data-bbox="545 275 1289 541">• P&ID Instrumentation Standards <ul style="list-style-type: none"> <li data-bbox="643 306 1260 363">○ PIP PIC001 Piping and Instrumentation Diagram Documentation Criteria <li data-bbox="643 367 1289 424">○ ISO/IEC-14617 and ISO 10628 Graphical Symbols for Diagrams <li data-bbox="643 428 1268 485">○ ANSI/ISA-5.1-2009 Instrumentation Symbols and Identification <li data-bbox="643 489 1273 546">○ KKS – Instrument Identification System for Power Plants <li data-bbox="545 550 1235 638">• Instrumentation Wiring Standards <ul style="list-style-type: none"> <li data-bbox="643 581 1235 613">○ ANSI/ISA-5.4-1991 Instrument Loop Diagrams <li data-bbox="643 617 1078 648">○ NEC and IEEE Wiring, standards <li data-bbox="545 653 1292 730">• Instrumentation Specification Standards <ul style="list-style-type: none"> <li data-bbox="643 684 1292 730">○ ISA TR20.00.01-2007 Specification Forms Process Measurement <li data-bbox="545 735 1182 823">• Safety Instrumented Systems Standards <ul style="list-style-type: none"> <li data-bbox="643 766 1182 823">○ ISA 84.01/IEC 61511 Standard for Safety. Instrumented Systems <li data-bbox="545 827 1273 1073">• Data integration Standards <ul style="list-style-type: none"> <li data-bbox="643 858 1227 915">○ ISO 15926 Industrial automation systems and integration <li data-bbox="643 919 1243 976">○ IEC 62424 and CAEX Data Exchange between P&ID tools CAE tools <li data-bbox="643 980 1273 1012">○ NAMUR / Prolist NE-100 Interface Data Definition <li data-bbox="643 1016 1154 1073">○ PIP DMDIM001 Instrument Design Tool Configuration <p data-bbox="496 1100 907 1131">P&ID Instrumentation Standards</p> <p data-bbox="496 1159 704 1190">PIP PIC001:2008</p> <ul style="list-style-type: none"> <li data-bbox="545 1194 1300 1316">• Piping Industry Practice - PIC001 “Piping and Instrumentation Diagram Documentation Criteria” has symbols for Process Piping and Equipment as well as Basic Instrumentation Symbolology <li data-bbox="545 1320 1300 1377">• This standard can be used to create a complete P&ID and is the basis for most Intelligent P&IDs including SP-PID <li data-bbox="545 1381 1300 1503">• PIP PIC001 refers to ISA 5.1 as the basis for Instrument Symbols and the two standards should be used in conjunction for the most up to date representation of Control Systems technology <p data-bbox="496 1530 813 1562">ISO 10628 and ISO 14617</p> <ul style="list-style-type: none"> <li data-bbox="545 1566 1256 1688">• ISO 10628-1:2014 “Diagrams for the chemical and petrochemical industry” does not contain instrument and control symbols but defines the physical sequence of process equipment and systems <li data-bbox="545 1692 1243 1780">• This standard is used to create Process Flow Diagrams (PFDs) and represent only Equipment, Piping and Mechanical elements <li data-bbox="545 1785 1300 1873">• The PFD provides the basis for the development of P&ID with Control System schemes and Instruments added under ISO 14617-6: 2002 <li data-bbox="545 1877 1300 1934">• ISO 14617-6:2002, Graphical symbols for diagrams - Part 6: Measurement and control functions on Process Flow 	

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		<p>Diagrams (PFD) representing simple applications instead components or devices implementing such functions</p> <ul style="list-style-type: none"> • Specifies symbols for measurement and control loops in diagrams using symbols and naming conventions • The PFD provides the basis for the development of P&ID and Control System schemes, with Safety and Operational information added during the design phase of a project <p>ANSI/ISA-5.1:2009</p> <ul style="list-style-type: none"> • The latest version of ANSI/ISA-5.1-2009 Instrumentation Symbols and Identification has significant changes over the previous version ISA-5.1-1984 (R1992) • This standard has been updated to include new and evolving Instrument Technology, Control Systems and Computer Networks <p>Over 8 Years after the release of ANSI/ISA-5.1-2009 most companies are still using only PIP PIC001 or ISA-5.1 1984 for their P&IDs and in SmartPlant Instrumentation</p> <ul style="list-style-type: none"> • ANSI/ISA-5.1-2009 – Clause 4 <ul style="list-style-type: none"> ○ Some additions to Clause 4, “Identification letter tables”: <ul style="list-style-type: none"> ▪ C – “Close” Modifier ▪ D – “Deviation” Modifier ▪ G – “Gauge” Function ▪ O – “Open” Modifier ▪ R – “Run” Modifier ▪ S – “Stop” Modifier ▪ W – “Probe” Function ▪ X – “Accessory Device” ▪ Z – “SIS” Variable Modifier • ANSI/ISA-5.1-2009 – Clause 5 • column A - DCS - BPCS <ul style="list-style-type: none"> ○ Primary Shared Control System (DCS) ○ Basic Process Control System (BPCS) • column B - PLC - SIS <ul style="list-style-type: none"> ○ Alternate Shared Control System (PLC) ○ Safety Instrumented System (SIS) • column C - Software <ul style="list-style-type: none"> ○ Computer Functions and Software ○ High Level Control System (HLCS) • column D - Hardware <ul style="list-style-type: none"> ○ Discrete Primary Elements ○ Discrete Transmitters ○ Discrete Switches and Indicators ○ Discrete Transponders and Relays ○ Discrete Hardware Controllers ○ Discrete Final Control Elements ○ Discrete Control Valves • ANSI/ISA-5.1-2009 Added Symbols • Several new technology functions (e.g. OP-MH = Orifice Plate Multi-hole, GWR = Guided Wave Radar, etc...) • Added Wireless, Fieldbus and Smart or Serial signal symbols • Added Valves with Positioner to eliminate the use of I/P Transducer • Added Function modifiers FF = Ratio, FQ = Total, FS = 	

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		<p>Safety & FZ = SIS</p> <ul style="list-style-type: none"> • ISA now recognizes over unique 1000 Instrument Type identifiers • Clause 5. These examples are more generic and limited in nature than the previous ANSI/ISA-5.1-1984 (R 1992) <p>KKS Industry Standards</p> <ul style="list-style-type: none"> • The Kraftwerks Kennzeichnungs System (KKS) industry standards establish naming conventions for the power industry • The naming convention adds elements like system, location and function to the SPI naming conventions • These naming conventions are to be used on the P&IDs and in SPI • SPI contains the ability to download the KKS naming conventions into the SPI Reference Library for use on power plant projects • KKS standards are available on Intergraph Smart Support <p>Instrumentation Wiring Standards</p> <p>ANSI/ISA-5.4-1991 Instrument Loop Diagrams</p> <ul style="list-style-type: none"> • This standard is an extension of the ANSI/ISA-5.1 Symbol Standard for documenting the field wiring • Defines Symbols and Formats for creating Instrument Loop Diagrams <ul style="list-style-type: none"> ○ Instrument interconnection and signal action information shown on Loops ○ General terminal strip symbols ○ Instrument terminals or ports ○ Instrument system power supply ○ Identification of instrument action <p>NEC and IEEE Wiring, standards</p> <ul style="list-style-type: none"> • NFPA - NEC defines a nationwide standard for the installation of electrical wiring and equipment in residential, commercial, and industrial environments • Institute of Electrical and Electronics Engineers (IEEE) Standards association standards governing Instrumentation: <ul style="list-style-type: none"> ○ IEEE 488 Standard for Programmable Instrumentation ○ IEEE 532 Guide for selecting Instrumentation, and Control Cables ○ IEEE 538 Standard for Computer Automated Measurement and Control ○ IEEE1174 Standard for Serial Interface for Programmable Instrumentation <p>GE Masoneilan™ ValSpeQ 4.0.5.0 Interface</p> <ul style="list-style-type: none"> • Masoneilan™ ValSpeQ is a full function valve sizing, selection and specification tool used to validate technical suitability of selected valve configurations for Masoneilan, Mooney & Becker valves • It has very limited Import Export capabilities for interfacing with SPI so it may be necessary to use Cut and Paste to move data from SPI to a Project template. 	

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		<ul style="list-style-type: none"> • Reports from ValSpeQ can be saved as Excel or Word files. • It does not provide Dimensional Data for Piping (DDP) <p>Instrumentation Specification Standards</p> <ul style="list-style-type: none"> • ISA TR20.00.01-2007 Specification Forms for Process Measurement and Control Instruments • Updated with 27 new specification forms in 2004-2006 <ul style="list-style-type: none"> ○ Updated with 11 new specification forms in 2007 ○ ISA Spec forms do not have fields for P&ID, Service or Some purchasing information. ○ The new ISA TR20 Spec form are very complex with multiple pages on some forms • SPI 2016 Spec Forms are based loosely on ISA S20-1981 <ul style="list-style-type: none"> ○ Most EPCs and Operating companies have developed their own SPI Spec Libraries ○ The Spec Module in SPI 2016 remains the same as in previous versions. <p>Standard for Safety Instrumented Systems</p> <ul style="list-style-type: none"> • International Electrotechnical Commission (IEC) developed IEC61511 Functional safety - Safety instrumented systems for the process industry sector in 1998 • ISA S84 committee adopted the IEC61511 standard in 2004 creating ANSI/ISA-84.00.01-2004 • These standards called for Safety Instrumented Systems to be designed to automatically respond to potentially dangerous process conditions and take preprogrammed action to mitigate or avoid a dangerous condition • Documenting SIS in SPI 2016 requires defining User Defined Fields and Tables for Safety Data • Additional Index Data for SIS Systems: <ul style="list-style-type: none"> ○ Unique Tag Identifiers for SIS Instrument Devices ○ Special SIS Notes for Operations ○ Instrument System Identifiers ○ UPS Power Requirements ○ Certification Requirements ○ Maintenance Cycles ○ Interlock Numbers ○ SIS SIL Ratings • Additional Spec Sheet Data for SIS: <ul style="list-style-type: none"> ○ Safety Integrity Level Ratings ○ Testing Requirements ○ Certifications and Approvals ○ Redundancy or Conditioning Requirements ○ Special Notes for Design Engineering ○ Partial Stroke Testing Requirements (for Valves) ○ Cross references to Safety Documents <p>Data Integration Standards</p> <ul style="list-style-type: none"> • ISO 15926 Industrial automation systems and integration - Integration of life-cycle data for process plants including oil and gas production facilities <ul style="list-style-type: none"> ○ Part 1 – Introduction, Purpose is to facilitate integration of data ○ Part 2 - Data Model, a generic 4D model that can 	

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		<p>support all disciplines, supply chain company types and life cycle stages</p> <ul style="list-style-type: none"> ○ Parts 4,5,6 - Reference Data, the terms used within facilities for the process industry. ○ Part 7 – Implementation, Methods for the integration of distributed systems, defining an implementation architecture that is based on the W3C Recommendations for the Semantic Web <ul style="list-style-type: none"> ● The Intergraph SmartPlant Foundation data model uses a common basis with ISO 15926 Part 2 for Meta data ● IEC 62424 specifies how process control engineering requests are represented in a P&ID for automatic transferring data between P&ID and CAE tools to avoid misinterpretation of graphical P&ID symbols ● Defines the exchange of process control engineering data using a data transfer language Computer Aided Engineering eXchange (CAEX) ● CAEX represents meta data in a hierarchal data model of System, Role, Interface and Instance. ● The Intergraph SmartPlant Suite uses a hierarchal data model (P-A-U) similar to CAEX for integration ● NAMUR / Prolist NE-100 Interface Data Definition ● PROLIST NE-100 for engineering processes to build and maintain chemical plants using Lists of Properties (LOP) for data exchange <ul style="list-style-type: none"> ○ NE-100 Version 3.2 contains 107 LOP for: <ul style="list-style-type: none"> ○ Sensor Types (51) ○ Interface Devices (37) ○ Actuator Types (19) ○ DCS/PLC I/O Types are in Development ● When building vendor interfaces for SPI it is recommended that Standards for minimum data requirements and consistent data modeling be followed ● NE-100, ISO 15926 and IEC 62424 are redundant in nature and contradict the use of term Standards ● PIP DMDIM001 Instrument Design Tool Configuration (IDTC) ● IDTC Purpose: <ul style="list-style-type: none"> ○ Facilitate Data Sharing ○ Create Generic Practice ○ Define a 'Harmonized' Mapping ○ Provide Autonomy to Each Data Contributor ○ Review industry standards (e.g., ISA, OSI, SPI, ISO, NE-110 Etc...) and incorporate instrument datasheets. ○ Focus on data elements for flow, level, pressure, and temperature instruments ● Houston SPI LTUF is conducting a IDTC Special Interest Group <p>SPI 2016 Standards Summery</p> <ul style="list-style-type: none"> ● The P&ID is the source of most of the SPI 2016 Data <ul style="list-style-type: none"> ○ The Standards used on the P&ID must fit the project and be up to date with technology 	

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		<ul style="list-style-type: none"> ○ ANSI/ISA-5.1-2009 Instrumentation Symbols and Identification should be used in most cases • Instrumentation Wiring Standards have become important with the addition of cable management and S3D integration in SPI 2016 <ul style="list-style-type: none"> ○ NEC and IEEE Wiring, standards should be strictly adhered to when defining the cable and wiring on projects • Instrumentation Specifications in SPI 2016 have not changed but Intergraph is re-developing the Spec Module with focus on standards and data dictionaries • Most projects have Safety Instrumented Systems and the ISA 84.01/IEC 61511 Standard should be followed when developing you system requirements in SPI 2016 • SPI 2016 relies heavily on data integration with other tools and vendor databases – The application of ISO 15926 or PIP DMDIM001 can improve this activity <p>“The nicest thing about standards is that there are so many of them to choose from” ~ Ken Olsen</p>	
6	SIG Update 10:10	PIP IDTC SIG Update <ul style="list-style-type: none"> • Instrument Design Tools Configuration (IDTC) 	Gene Haney, CB&I

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		<ul style="list-style-type: none"> • PIP DMDIM001 Instrumentation Metadata Requirements Practice • SIG Members: <ul style="list-style-type: none"> ○ Gene Haney, CB&I (SIG Chair) ○ Bob Zerda, PIP ○ Alex Koifman, F.I.R.S.T. CONVAL ○ Betty Alexander, JGC ○ Chris Cordes, Covestro ○ Guillermo Vigna, Endress+Hauser ○ John Dressel, Fluor ○ Kory Johnson, Marathon ○ Nezar Faitouri, Mangan, Inc. • Agenda <ul style="list-style-type: none"> ○ Encourage software providers, such as Intergraph, to include more 'defined' data elements in the out-of-the-box schema. ○ Agree on data elements that we share in common and would like to have Intergraph add to the SPI schema ○ Participate on the IDTC Task Force team and help shape the future of this Practice 	
	Presentation 10:30	<p>Enhanced Report Utility (AKA: ESL) Nezar Faitouri, Mangan</p> <p>Introduction</p> <ul style="list-style-type: none"> • ESL Usage • ESL Report Types • ESL Backgrounds • ESL Symbols • ESL Saving Methods • ESL Revision Control • ESL/SPI Items and Documents • ESL vs. CAD • ESL Challenges • ESL Enhancements <p>Usage of ESL</p> <ul style="list-style-type: none"> • ESL is part of the Intergraph SmartPlant products • It is widely used especially with SPI • It is considered as a mini-version of Intergraph SmartSketch software • It has the capability to work directly with the SPI database (Live Connection) • It has the capability of working offline • It has the capability of saving ESL files to CAD drawings (AutoCAD, SmartSketch, and MicroStation) <p>ESL Report Types</p> <ul style="list-style-type: none"> • Loop Drawings • Segment Drawings • Wiring Drawings: • Installation Details (Hookup) Dwgs • Layouts • Cable Block Drawings • Telecom Drawings 	

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		<p>ESL Backgrounds</p> <ul style="list-style-type: none"> • An ESL background file is the drawing title block • ESL provides a set of default background files • Background files can be customized • The customization can be: <ul style="list-style-type: none"> • As minimum as changing a Logo • To a maximum as incorporating a full customized title block that matches a company title block (CAD drawing title block) • Tips and Tricks: <ul style="list-style-type: none"> • When adding additional background macros, always copy and paste an existing macro, then change the macro • For the headers and section background, always group the headers and the lines together • It is recommended to place additional macros on the background file instead of the ESL layouts. This way, users cannot change these macros • For a list of Macros, see the ESL help menu – title block Macros <p>ESL Symbols</p> <ul style="list-style-type: none"> • ESL Symbols are used to generate the SPI drawing • ESL provides a set of default symbols that can be used • Symbols can be customized such as: <ul style="list-style-type: none"> • Symbol sizes, Symbol connection points, Symbol representation, Etc • Symbol customization is executed using the Symbol Editor Utility • Symbols can also be used as external objects on drawings such as Grounding, Fuses, Clouding, Etc • Symbols can be used as Smart Symbols (Macro imbedded symbols) or Dummy Symbols • Tips and Tricks: <ul style="list-style-type: none"> • When customizing a symbol, always start with an existing symbol • Unless necessary for the symbol, never change the X,Y positioning of the symbol • When Converting symbols to Smart Symbols, always do so using the Symbol Editor Utility, and always open the Symbol Editor Utility from within SPI (Ctrl + E or Tools – Symbol Editor) • It is recommended to place macros on the symbols instead of the ESL layouts. This way, users cannot change these macros <p>ESL Saving Methods</p> <ul style="list-style-type: none"> • There several methods to save ESL drawing data to SPI tables <ul style="list-style-type: none"> • Drawing Level • Layout Level • Soft Tag Level • Redlining Drawing Level or Redlining Layout Level) • Tips and Tricks <ul style="list-style-type: none"> • Utilize the SPI ESL access Rights to Control ESL drawings and Layouts (Plant Level) • Instead of creating different layouts for macros and 	

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		<p>redlining, always use the ESL filters options. This help reduce the amount of ESL layouts</p> <ul style="list-style-type: none"> • Use Redlining to represent OAS as Cut and Tape when one side of the OAS is not connected. By default, SPI do not have such symbol/function • Always Save 1 drawing to the Layout level (Master Drawing) and the rest to the drawing level • Saving the remaining items to the drawing level helps protect these items from being modified by a layout change • Use the ESL Layout Description field to document the Master Drawing Name (Item name) <p>ESL Revision Control</p> <ul style="list-style-type: none"> • Most (if not all) ESL drawings have the revision control (archiving) capability • The archiving option is turned ON in the SPI admin module. It is per project • The archiving option allows the user to generate/print reports at any revision level • The archiving option allows the user to compare between revisions. And, ESL will cloud the changes automatically <p>ESL/SPI Items and Documents</p> <ul style="list-style-type: none"> • ESL has the capability to access SPI items for editing • ESL has the capability to access SPI documents for viewing and printing • The document viewing and printing function helps eliminate having a lot of macros on drawings and paper <p>ESL vs. CAD</p> <ul style="list-style-type: none"> • For the majority of SPI project work, ESL is the tool of choice • For some projects, CAD is the tool of choice • CAD Blocks is limited to the SPI report types it can be used with. CAD can only be used with Loop Drawings and Hookup Drawings • All ESL drawings can be saved as CAD drawing; however, these drawings are using ESL formats <p>ESL Challenges</p> <ul style="list-style-type: none"> • Symbols and background files are External Files • To many preferences to Manage • User Knowledge with ESL and Preferences • Macro and Redlining saving mechanism • Owner Operator project challenges with ESL and claims/merges • No easy function to apply layout format (positioning, macros, etc) to drawings without having to generate drawings • No standard reports to view ESL data (positioning data, SmartText, etc) <p>ESL Enhancements</p> <ul style="list-style-type: none"> • Store Redlining Symbols in the database as objects • Store Symbols and Background files as objects in the database • Provide an export and import function for these symbols and 	

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		background files <ul style="list-style-type: none"> • Include ESL tables to the new V2016 EDE module 	
7	LTUF Forum 11:00	Forum Discussion Topics <ul style="list-style-type: none"> • HxGN 2017 • SPI HF1 Errors • SPI 2016 Training • SPI Integration Issues • SPI CR Ranking Website 	All Attendees
8	Close 11:55	<ul style="list-style-type: none"> • Next meeting is tentatively scheduled August 15, 2017 at FLUOR, One Fluor Daniel Dr, Sugar Land, TX 77478 • John Dressel closed meeting with thanks to Jacobs for hosting and everyone for attending 	