



ICAS 2014 - Building on excellence

Delivering real products for the real world.

Adrian Hernandez Cecilia Del Real



Agenda & ICAS Team



| HORARIO | SESIONES | | |
|---------------|---|--|--|
| 8:30 - 9:00 | Registro | | |
| 9:00 - 9:45 | Bienvenida y Conferencia Magistral | | |
| 9:45 - 10:00 | Coffee Break | | |
| PRODUCTO | CADWorx | CAESAR II | PV Elite |
| Salón | Alameda 3 | Juárez | Alameda 6 |
| 10:00 - 11:30 | Técnicas Avanzadas para Creación de Especificaciones para Mejores Diseños | Selección y Diseño de Soportes de Resorte en Caesar II | API 579: Capacidad de Servicio - Un enfoque sobre el impacto de la corrosión |
| 11:30 - 11:45 | Coffee Break | | |
| 11:45 - 13:15 | Aprovechando Nubes de Puntos para Producir Modelos As-Built Precisos | Adaptación de la interfaz de CAESAR II para un rendimiento óptimo | Actualización sobre las Capacidades PV Elite |
| 13:15 - 14:15 | Comida | | |
| 14:15 - 15:45 | Construcción de Grandes Modelos de Planta: Desde DTI's a ISOs | Desmitificando Conceptos de Modelado de Análisis de Tuberías Enterradas | Evaluación de Aberturas en Recipientes |
| 15:45 - 16:00 | Coffee Break | | |
| 16:00 - 17:30 | Cómo I-Configure Puede Ayudarle a Crear Exactamente los Resultados que Desea | Próximas Mejoras en B31 para Modelado y Evaluación de las Conexiones de Ramales | Teoría, Principios y Efectos de la Fluencia en lo que Respecta a la Presión de Diseño de Recipientes |

Presenters & Team
CAESAR II –
Richard AY

PV Elite – Luis Sanjuan

CADWorx – Sonia Delgadillo

Sales -

Steven Ashcroft

Subject Mater Expert - Mitch Sklar







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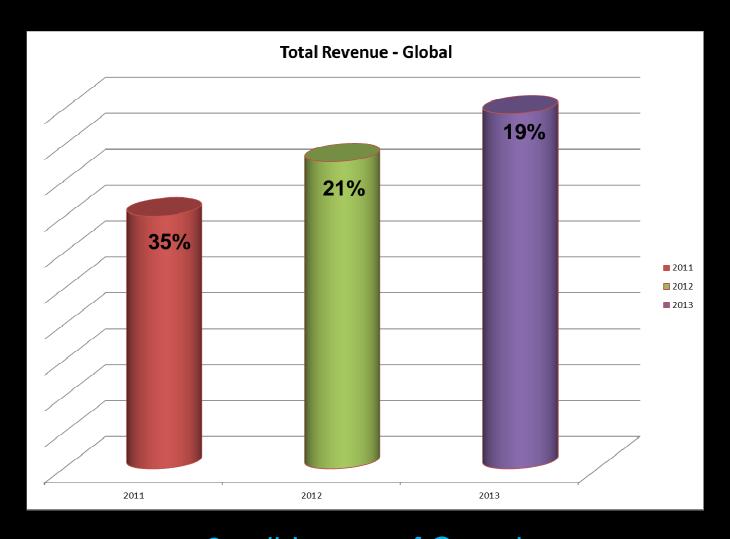
William Rasco

Global Sales & Operations Manager – ICAS billy.rasco@intergraph.com



ICAS is solid





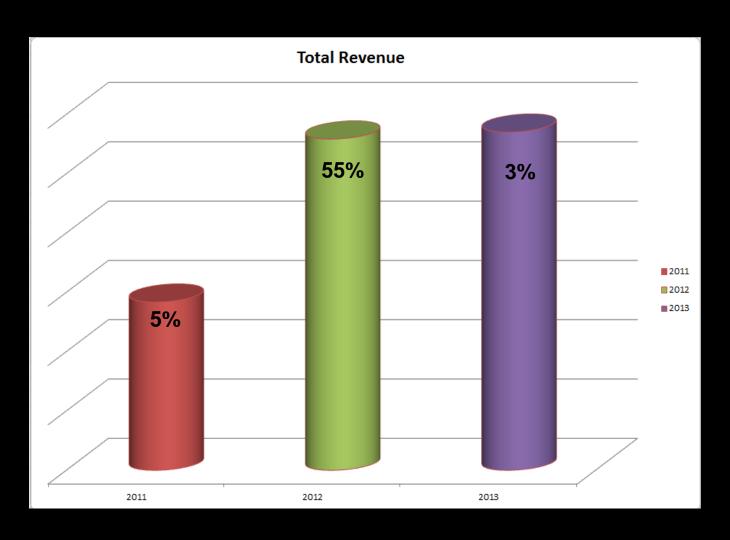
3 solid years of Growth

Strong sales globally in 2013 = 19% growth



ICAS is solid in Mexico





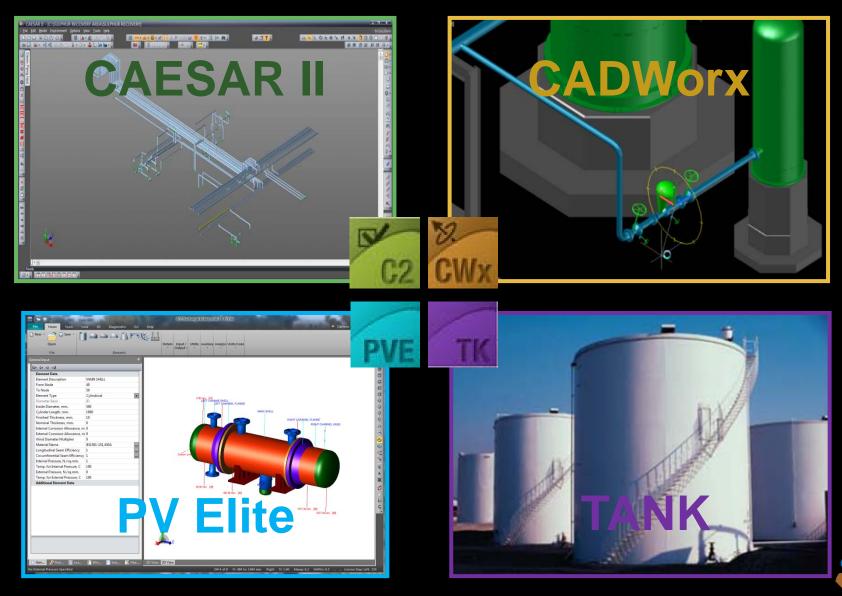
Terrific Growth from Mexico in the last 2 years

Gracias!



ICAS Dynamic Improvements & Solutions

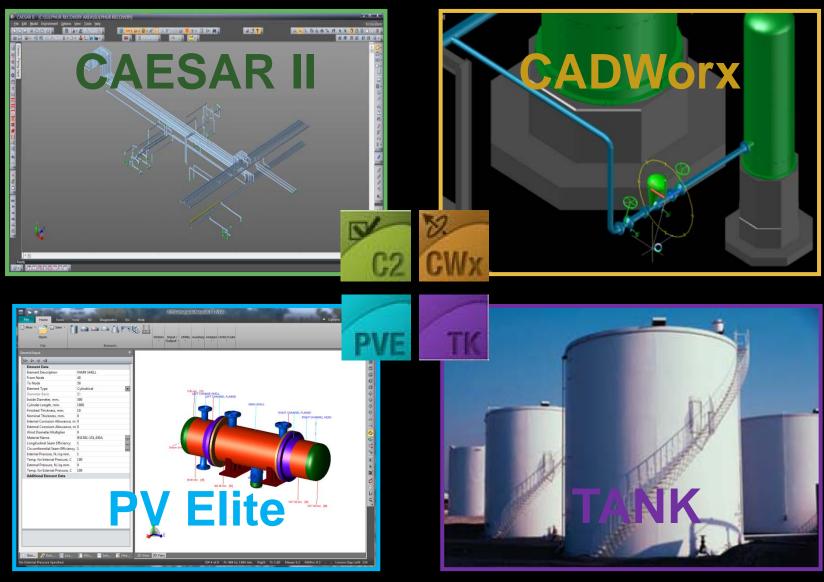






CADWorx Dynamic Solutions





Continually working to provide for client & market needs



- Dynamic Pipe Supports
- ✓ Tee to Cross Conversion Grip
- ✓ Stretch Tubing
- ✓ CAESAR II 2013 In/Out
- ✓ Pipe Supports on Tees

- Dynamic Pipe Supports As pipe supports are attached to pipe and anchored to something else usually steel, changes to either the pipe or the steel member require the support to change as well. This is accomplished automatically based on the specification. The Pipe Supports will assume the properties of the steel and pipe to which it is attached. Changes to either the steel or pipe will affect the attached support. Supports will move with associated steel and pipe if possible.
- Tee to Cross Conversion Grip -In some instances a tee must be changed to a cross to accommodate piping designs. This will allow for easy conversion of a tee to a cross using only a grip point.
- Stretch Tubing Tubing acts just like piping allowing for stretching of tubing and routing with a simple drag motion.
- CAESAR II 2013 In/Out The interface with CEASAR II has always been an important feature for the workflow of projects. This functionality has been improved to include CAESAR II 2013 and CADWorx 2014.
- Pipe Supports on Tees Pipe Supports are sometimes required to be placed on tees. This now allows for this configuration.





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- ✓ CAESAR II 2013 In/Out
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- ✓ Center of Gravity Consolidation
- Branch Component to a Reducer with a Grip
- Enhanced Bolt, Gasket, and Weld representation
- ✓ Mitered Elbows

- Center of Gravity Consolidation Center of Gravity of a model is important for various reasons. With CADWorx the COG needed to be run on steel and piping separately and then consolidated with equipment and other non-CADWorx objects to determine the complete weight and COG. Now with the new consolidated COG all items will be calculated and a report will list each type of component with a total weight and COG location. Additional COG points can be added to the model to accommodate the non-CADWorx objects as well.
- Branch Component to a Reducer with a Grip Piping systems sometimes require branch connection points on reducers to accommodate vents drains and instrument taps. Now, using a grip, a branch can easily be added to any reducer.
- Enhanced Bolt, Gasket, and Weld representation With a 3D model the visualization of a design becomes clear. Adding enhanced views of bolts, gaskets and welds better represent the real world representation of the model.
- Mitered Elbows Mitered Elbows are used extensively in many industries including mining. The new Mitered Elbow now allows for inclusion of this important component. Spec driven inserted mitered elbows is as easy as any other CADWorx component.





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- Change Pipe Runs from Non-Segmented to Segmented
- ✓ Multiple Component Dynamic Move
- ✓ Automatic Coupling insertion
- ✓ Custom User Fields
 - ✓ assigned to Components
 - ✓ accessible in CEDIT and GCEDIT
 - ✓ included in the Live Database

- Change Pipe Runs from Non-Segmented to Segmented Piping systems are designed in steps. Being able to change a pipe run from non-segmented design phase to segmented final phase is critical to workflow. With an easy selection the piping can be switched from non-segmented to segmented using the BREAKPIPE command and segmented to non-segmented using the JOINPIPE command.
- Multiple Component Dynamic Move Moving components along a pipe run is very useful and easy with CADWorx. Now moving multiple components together is easy.
- Automatic Coupling insertion With SW and THD pipe runs couplings are used to connect individual pipe sections. CADWorx 2014 adds the ability to automatically insert these couplings in a pipe run through the piping rules.
- Custom User Fields assigned to Components Good design work requires decisions dependent on good data. This data is best applied to each component in a given model. Now with CADWorx 2014 any additional custom data can be added to the piping components.
- Custom User Fields accessible in CEDIT and GCEDIT The values of the custom data added to components needs to be modified easily and with CEDIT and GCEDIT this can be done.
- Custom User Fields are included in the Live Database Custom data needs to be extended to the live database and now has been added. Any custom field will be added to the live database and the data recorded.



- Custom User Fields available in the BOM
- ✓ Line Isolate will filter on
 - Custom User Fields
 - ✓ Line Number
- ✓ Line Isolate can invert the set filtering
- ✓ Line Isolate filters can be saved and reused
- Change Pipe Elevation from TOP, BOP, or Center

- Custom User Fields available in the BOM Bills of Material are essential in any design project and now all custom user fields will available for developing BOM lists.
- Line Isolate will filter on Custom User Fields as well as Line Number and Spec Components Large models need to be isolated to help with the design process. This gives an easy, clear picture of filtered components. Now with CADWorx 2014 the filtering can use the custom user fields as well as the spec and line numbers. Filtering can be done on any field or combination of fields.
- Line Isolate can invert the set filtering Sometimes it is easier to turn off specific components and now this can be done with the invert filtering functionality in Line isolate.
- Line Isolate filters can be saved and reused With the use of custom user fields now available in the Line Isolate pallet many filtering schemes can now be created. As many of these will be used over and over again, saving and reusing these will be required. This is now possible with the saving of these schemes for reuse.
- Change Pipe Elevation from TOP, BOP, or Center Sometimes a pipe run needs to be moved from one mounting position to another. With CADWorx 2014 a pipe run can now be moved from TOP to BOP or Center routing position with the CHANGELEVATION command.



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- ✓ OLET Interference Piping Rule
- ✓ OrthoGEN Direct From CADWorx
- Intersecting Pipe converts automatically to appropriate branch

- ISOGEN Repeatability Creating Isometric drawings is almost always required to communicate the design intent to fabrication. Changes in design are a normal process and these design changes usually affect the Isometrics that have already been generated. Revised Isometric drawings need to keep the original look including numbering of BOM, welds and sheets. With CADWorx 2014 this is possible and rerunning an Isometric drawing will produce an identical drawing with only the modifications added to the drawing.
- OLET Interference Piping Rule Good design requires rules and one of these is weld interferences. In many cases welds are required to be separated. In the case of Olets these should not be placed on top of an existing weld. A new rule has been added to CADWorx 2014 to control the placement of Olets and Couplings preventing the overlap of welds.
- OrthoGEN Direct From CADWorx OrthoGen for CADWorx is a new offering from Intergraph. The integration of OrthoGen is accomplished in CADWorx 2014 with a simple icon selection to generate the orthographic drawing based on a configuration selection directly inside of CADWorx.
- Intersecting Pipe converts automatically to appropriate branch Intersecting pipe runs are common in plant design modeling. These should convert to branches as needed based on the branch table. This is now possible in CADWorx 2014. Tees and Crosses will automatically be placed at intersecting pipe runs.



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- ✓ Generic Attach for Nozzles
- Database Changes Highlighted on Affected Components
- ✓ Formulas in the User fields.
- ✓ Import and Export LD, SD, TAG, PN Schemas

- Generic Attach for Nozzles Adding mechanical equipment from outside of CADWorx is normal. This could include pumps, compressors, expanders, vessels, exchanges, etc. These usually have nozzles to attach pipe runs to and require intelligence to be attached to help in auto routing, ISOGEN and OrthoGen generation, CAESAR II export etc. CADWorx 2014 now has a special Nozzle Generic Attach to add this required intelligence to any position in a CADWorx model using the NGENERIC command.
- Database Changes Highlighted on Affected Components With a live database many changes can be made directly in the database. These changes will now be highlighted in the model and allow for easy approval.
- Formulas in the User fields Creating formulas in the Catalog is a very powerful way of quickly creating new components. With CADWorx 2014 user fields can now use formulas as well.
- Import and Export LD, SD, TAG, PN Schemas Schemas for Long Descriptions, Short Descriptions, Tags, and Part Numbers are built inside of the specs. Now these schemas can be saved and reused again and again. This helps to quickly create new specs based on existing schemas.





- ✓ Component level LD, SD, TAG, PN
- ✓ Import SmartPlant Reference Data Specs
- ✓ DBCODES table with Index added to Catalog Editor
- Copy records from any Spec to another Spec
- ✓ Separate Spec Editor Install

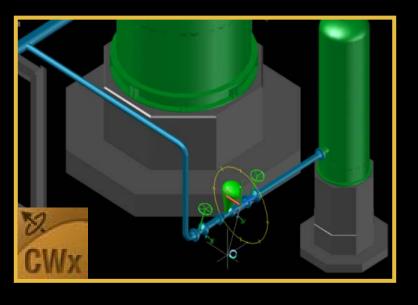
- Component level LD, SD, TAG, PN Developing Long Descriptions, Short Descriptions, Tags, and Part Numbers in the Project Specs was done at the project and spec level. With CADWorx 2014 these can now be determined down to the component level for better control.
- Import SmartPlant Reference Data Specs Large projects have more controls required for proper workflow. One of these is complete project specification controls. With Smart Plant Reference Data these controls are well maintained. With CADWorx 2014 SPRD specs can now be imported and used directly. This is a powerful addition allowing projects to be developed with Smart Plant, PDS or CADWorx and use the same specifications.
- DBCODES table with Index added to Catalog Editor Part Numbers do not always conform to a schema based style. With the addition of the DBCODES in CADWorx 2014 this can now be accomplished. The power of these codes can be added to any Part Number Schema to gain even more flexibility than in the past.
- Copy records from any Spec to another Spec With Specifications reusing many of the same components copying from one to the other is critical. CADWorx 2014 adds the ability to copy component records from one spec to another or the same spec if desired.
- Separate Spec Editor Install Many times specifications are written outside of the designer's role. With the new separate install of the Spe Editor, this can now be accomplished easily.



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Attention to Quality



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So you can get the job done

- Copy records from any Spec to another Spec
- ✓ Separate Spec Editor Install



Lets talk bout some of the jobs CADWorx has been used on recently.

CADWorx Dynamic Solutions





Mission:

Involved in the Brewing, Distilling, Food, Pharmaceutical, Health & Beauty and Biofuels markets, providing process engineering solutions for the world's leading companies

Life Sciences

- CADWorx Plant Professional
- CADWorx P&ID Professional
- CADWorx Steel Professional

CADWorx

Why?

- 1. Single point of data access
- Better collaboration between all disciplines allows correct deliveries
 Less on-site changes
- 3. Time savings of 10-15%
- 4. Short learning curve new employees



More Beer anyone?

Won a project to Increase the capacity from 65 million, to 105 million litres of alcohol per year

Used of CADWorx on past projects provided confidence in expanding their offerings to grow their business



CADWorx Dynamic Solutions





Mission:

Provide project planning, engineering, testing & inspection services, constructions management

- CAESAR II, PV Elite
- CADWorx Plant Professional
- CADWorx P&ID Professional CADWorx Design Review



Why?

- Solutions' ease of use and proven reliability
- Strong links between CADWorx and CAESAR II & PV Elite
- 3. Strength of the CADWorx Design Suite over competitors offerings
- 4. Excellent local support



\$60 million Project

\$8 million for construction labor cost that was complete for \$6.2 million
Thousands of feet of 30 inch, 36 inch and 24 inch sch. 120 pipe.

NCG

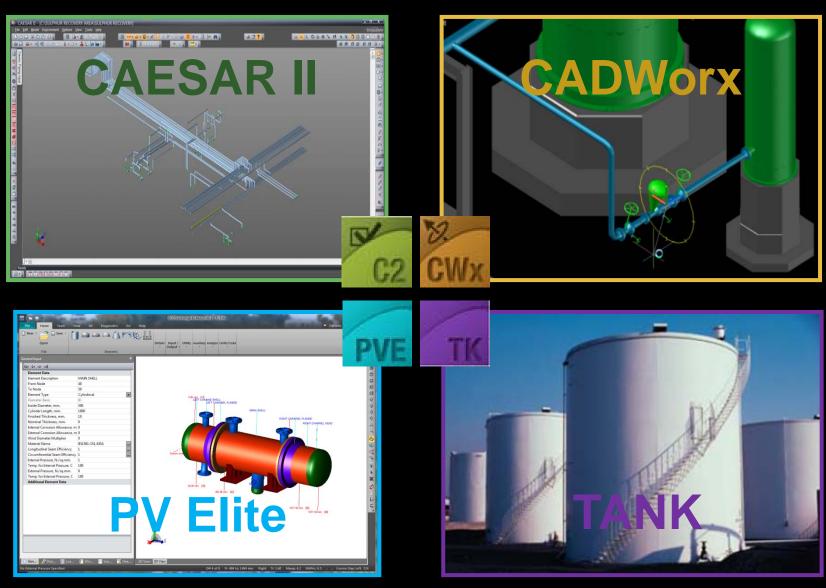
(8) 100,000bbl Tanks, (10) high pressure "H" Pumps, (4) VRU's, (4) circulation Pumps (2) 750bbl Oil Tanks, and (3) Inlet Separators.

Less than ½ percent re-welds work!



ICAS Dynamic Solutions



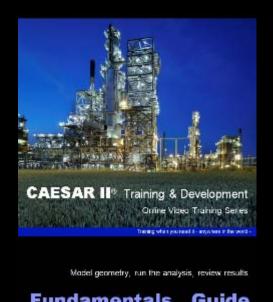


Continually working to provide for client & market needs

CAESAR II 2013 - Quality Delivered



- ✓ 1 Major release, 3 service packs.
- ✓ Productivity Improvements
- ✓ 30 years of knowledge built-in, tested and trusted software
- ✓ Implemented the stringent ASME NQA-1 Quality Assurance standard for CAESAR II Nuclear software with additional reporting and verification tools released
- ✓ Incorporated FEATools
- ✓ CAESAR II Navigation Training

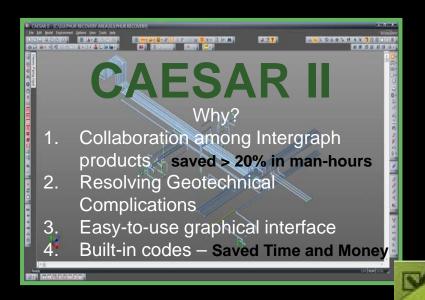


- 1 major release, 3 service packs that addressed many user requests . Code updates available where needed. ASME B31.1, B31.3, B31.8, B31.9, and Z662 codes We include 35+ codes for multiple disciplines (steel, FRP, Jacketed, On-shore, Off-shore, Underground, Cryogenic.)
- Productivity, Usability Enhancements, Performance and Functionality Improvements - Model almost any loading condition – Static, dynamic, wind, wave, snow, seismic, water-hammer & a powerful load case editor that allows users to model almost any client requirement
- 30+ years of knowledge built-in, tested and trusted software We deliver technical content along with an outstanding product 9 product webinar s (~2000 attendees), CAU (530 users). Analysis resources established around the world (Houston, Latin America, Japan, UK, S.A., Mid-east, India, Australia..)
- Implemented the stringent ASME NQA-1 Quality Assurance standard NQA-1 QA std. improves our existing quality control efforts & removes the QA burden from clients for class 2, 3 analysis
- Incorporated FEATools Provides FEA interface to improve accuracy of standard piping codes. Over 1000 webinar registrants
- Online Navigation Training- Online Fundamental, self paced user

Lets talk bout some of the jobs CAESAR II has been used on recently.

CAESAR II - Dynamic Solutions





Petrofac 🏚

Mission:

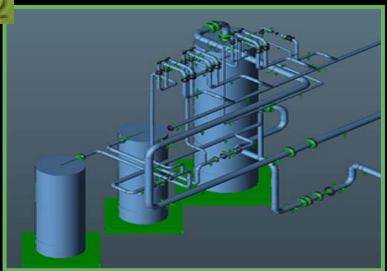
To be the world's most admired oilfield service company.

- CAESAR II
- PV Elite
- CADWorx Plant Professional

Simple to Complex!

\$0.5 billion project to process 30 million standard cubic feet per day of ethane and 3 million tons per year of naphtha.

Unstable locations required long term settlement values to calculate nozzle loads.





arrukh, lead piping stress engineer

CAESAR II - Dynamic Solutions





AGILITYGROUP Solutions and services for the oil and gas industry

Vision:

To be a good corporate citizen and a major participant and team player in the oil & gas and process industry.

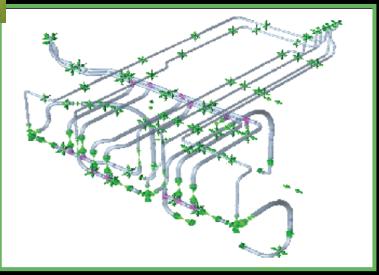
We shall base our activity on innovation and open-mindedness to changes.

- CAESAR II
- SmartPlant 3D

Expertise Across Borders

Engineering in China and Norway, with little time and numerous modifications running concurrently

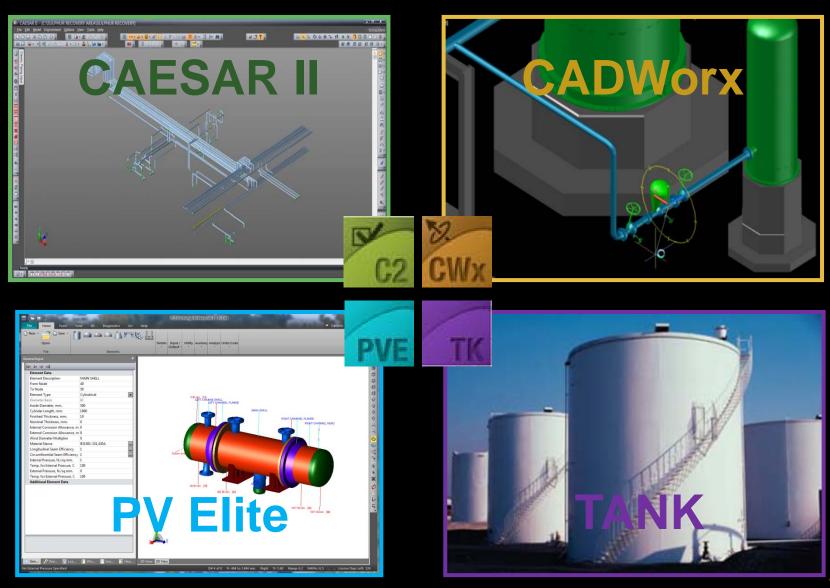
Unique fabrication that can't be accurately modeled using standard piping codes. Technical assistance from CAESAR II experts provided a viable solution and the results





ICAS Dynamic Solutions





Continually working to provide for client & market needs



PV Elite 2013 – Quality Delivered



- Code Updates and Analysis changes
- ✓ Internationalization
- ✓ Productivity Enhancements

Code Updates and Analysis changes - (hundreds of changes/additions)

ASME 2013 VIII-1 Edition Incorporated

ASME 2013 VIII-2 Edition Incorporated

ASME 2013 Section II Part D Edition Incorporated,

PD 5500 2013 Addenda Changes Incorporated

BS EN 13445-3:2009+A1:2012 Updates Included

IBC 2012 Wind/Seismic Added

ASME STS Stack Code updated to latest Edition

Internationalization

EN 1092 Flange Pressure Temperature ratings updated including PN 2.5 series

EN 1092 Flange Dimensional Data updated

South African Wind Code Added

South African Seismic Code Added

User customizable G-loading option added

Productivity Enhancements

Automatic File Backups

A New testing Program is included

Smart Selections for ANSI/EN-1092 Flange Class/Grade Group Selections

Updated Help

Outside Diameter Specification available for all Codes

Saving Model image as jpeg, bmp, html etc

PV Elite 2013 - Quality Delivered



- Code Updates and Analysis changes
- ✓ Internationalization
- ✓ Productivity Enhancements
- ✓ New Analysis Features
- ✓ QA/Validation and Verification

New Analysis Features

TEMA Exchanger Analysis Back in CodeCalc ASME Appendix 9 Type 2 Jackets Added PD 5500 Type 2 Jackets Added Nozzle FEA via NozzlePRO back in CodeCalc Direct UI support for EN-13445 Cold Spun Heads User definable 'G' loading

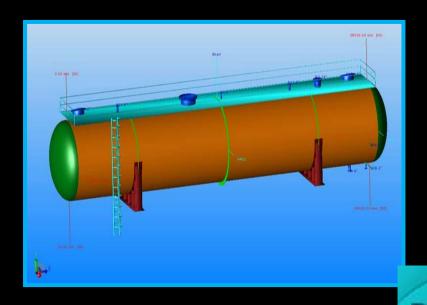
OA/Validation and Verification

We continue to add new QA problems to the benchmark solution set. Many new EN nozzle tests are included in the QA. Additionally, PV Elite 2014 has been benchmarked against ASME PTB-4 (ASME VIII-1 problem samples manual). The QA manual has also been updated to include tables of comparison for various sample problems



PV Elite - Dynamic Solutions

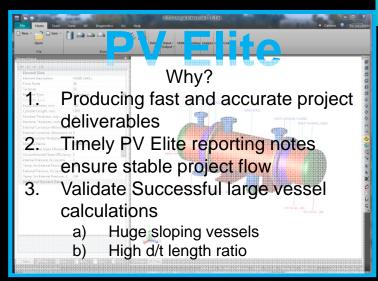




Success = Future jobs!

31 Vessels designed with Critical support locations accurately defined.

PV Elite produce complex mechanical strength calculations in very short time.





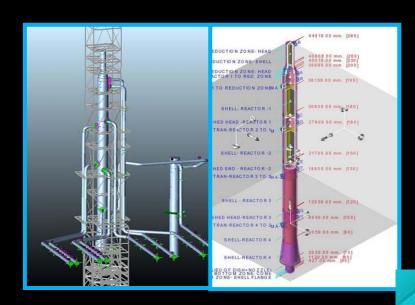
to be a leading supplier for the worldwide energy sector, the oil & gas industry and related industries

PV Elite



PV Elite - Dynamic Solutions



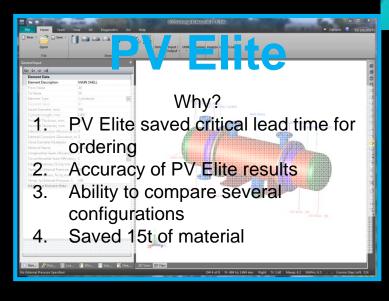


Success = Future jobs!

High pressures & temperatures

Exotic/expensive materials

PV Elite provides ability to compare several configurations





Mission:

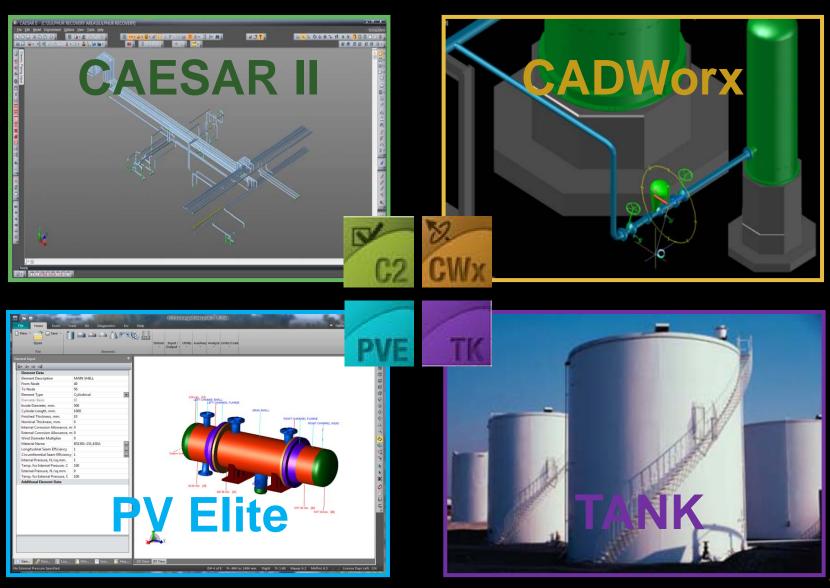
To be a leading design, engineering, and turnkey contracting company for energy and other industrial projects.

PV Elite



ICAS Dynamic Solutions





Continually working to provide for client & market needs

TANK 2013 & 2014 - Quality Delivered



- 2 Major release
- ✓ Updated and improved the user interface

TANK 2013 - May 2013

Updated and improved the user interface, including the following enhancements:

Tabbed ribbon interface with a Microsoft Office 2007/2010 look Enhanced report printing with a "straight-to-PDF" option that you can use from the input, output, or graphics modules.

Included more robust Output Processor features, such as:

Report re-ordering with drag-and-drop functionality

Text searching (highlighting) in reports

Print-to-PDF capability

Select all text in a report

Select all reports at one time

Color-coded report names, which display warnings and errors Enhanced new computation control options that tailor how analysis proceeds

Updated documentation guides and help files

TANK 2014 - Dec 2013

Enhanced 3D graphics

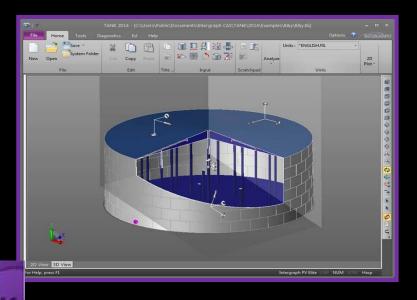
New API 650 12th edition (just released)

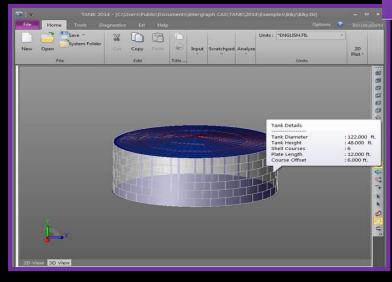


ICAS Dynamic Solutions

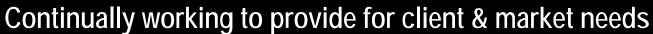














2013 New Opportunities - Analysis

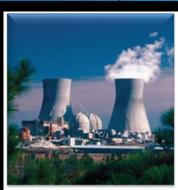


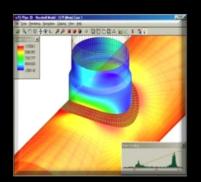
CAESAR II Nuclear:

- NQA-1 QA std. improves our existing quality control efforts
- Removes the QA burden from existing clients for class 2, 3.

FEATools:

- Integrates finite element (FE) generated data in to CAESAR II model to address shortcomings of piping code limitations.
- Easy, simplified & efficient process that maintains the same deliverables with out much additional time required.







2013 New Opportunities - Design



OrthoGen for CADWorx:

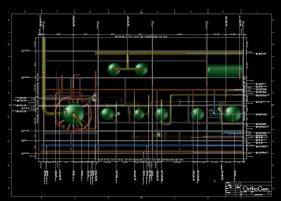
- Automated orthographic generation
- User configurable final output
- Company or project standards
- Automated tags, dimensions & BOMs

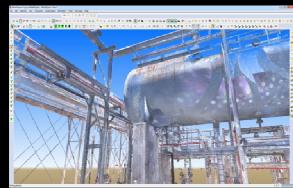
Cloudworks for CADWorx FieldPipe:

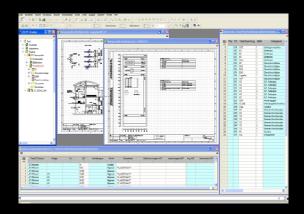
- Access laser scans (e.g. Lecia HDS) in a CADWorx environment
- Photo realistic manipulation of point cloud
- Best-fit intelligent 3D models from scan

CADWorx E&I:

- Electrical and process control design
- General layout, Cabinet layout
- Datasheets, PLC, Motor & Bus Diagrams
- Plus much more









2014 New Opportunities



Incase you missed the *Announcements – 2-10-2014*

ATLANTA BUSINESS CHRONICLE

Feb 10, 2014, 3:20pm EST

Intergraph acquires GT STRUDL

SCIENCE AND TECHNOLOGY

Intergraph Acquires GT STRUDL Engineering Software System from Georgia Tech

Posted February 10, 2014 | Atlanta, GA



A structural engineering software system developed at Georgia Tech has been acquired by Intergraph®, a leading producer of engineering enterprise software. GT STRUDL®, a computer-aided structural.







Intergraph® Acquires GT STRUDL® from the Georgia Tech Research Corporation

Leading structural engineering software system for nuclear power, nuclear defense, general plant design, civil engineering and offshore industries expands Intergraph analysis solutions portfolio



2014 New Opportunities



What is GT STRUDL® Structural Design & Analysis Software

For Over 35 Years, GT STRUDL® has been One of The Most Widely Used & Accepted World Class Structural Design & Analysis Software Programs for Architectural - Engineering - Construction (AEC), CAE/CAD, Utilities, Offshore, Industrial, Nuclear & Civil Works.

As a Fully Integrated General-Purpose Structural Information Processing System, GT STRUDL® is Capable of Supplying an Engineer with Accurate & Complete Technical Data for Design Decision Making.









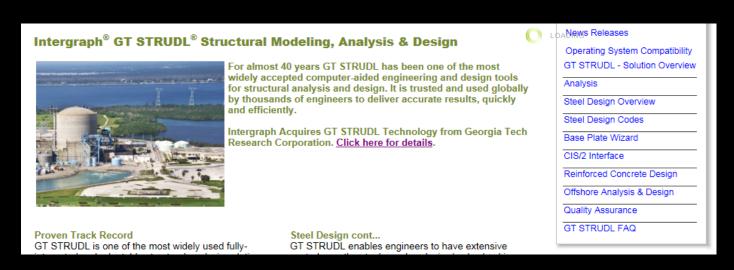


2014 New Opportunities



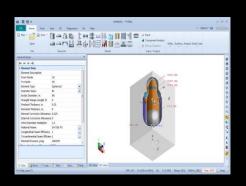
GT STRUDL® Technology Joins ICAS:

- Uniquely integrates graphical modeling, frame and finite element linear and nonlinear static and dynamic analysis, structural frame design, graphical analysis and design result display and structural database management all into a powerful, menu-driven information processing system.
- Well-respected with a 30-year history of meeting stringent U.S. Nuclear Regulatory Commission and Department of Energy regulations and guidelines.



More too come - GT STRUDL will incorporate its popular annual user conference into CAU2014@HxGN LIVE in Las Vegas June 2-6, 2014 Stay tuned!





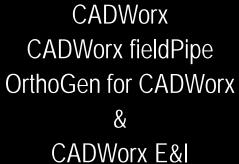
Thank You! for attending CAUx

CAESAR II, CAESAR II Nuclear & FEATools

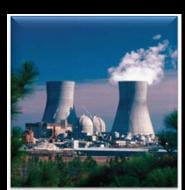




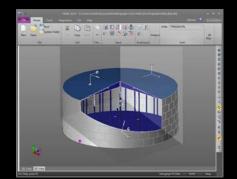
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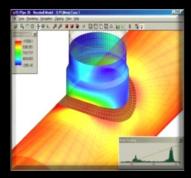














We are looking forward to a amazing 2014





Questions









