Date December 23, 2011

PHASE II FINAL TECHNICAL AND BUSINESS PROJECT STATUS REPORT

Section I
Technical Status Report
Technology Investment Agreement 2010-625
between
the Advanced Technology Institute (ATI)
and
VT Halter Marine, Inc.
for
Enterprise Resource Planning (ERP) Integration with CAD

Project Overview

VT Halter Marine, Inc. (VTHM) presents a collaborative effort regarding the Enterprise Resource Planning (ERP) Integration with CAD project. The object of this project is to create a neutral data exchange format for the ease of exchange of material information from ShipConstructor to a variety of ERP systems. The process for determining the neutral data exchange format and its applications can then be mimicked to be applicable to other ERP systems.

The project team is lead by VTHM supported by five diverse shipyards, one design agent, one information technology consultant and a 3D design software developer.

This project is divided into two phases. Phase I will include the: (a) review and documentation of business processes, (b) generation of a common information alignment map and (c) start the creation of a neutral data exchange (then demonstrate the ability to export data directly from ShipConstructor). Item (a) will occur for each of the team shipyards. Items (b) and (c) will be common for all of the team shipyards.

Phase II will include: (a) complete the neutral data exchange and then demonstrate the ability to export data directly from ShipConstructor, (b) demonstrate the ability to import data directly to the ERP systems and (c) the refinements and validation of the overall exchange process. These will occur for each of the team shipyards.

In simple terms this project is to create one method that will allow the ShipConstructor output to directly transfer material required data with a variety of ERP systems. The process for the creation of this transfer method will be documented so that others can apply the development process when using alternative ERP and CAD systems.

The project team consist of VTHM, Austal USA, Marinette Marine Corporation (MMC), Bollinger Shipyards, ShipConstructor USA (SSIUSA), HII-Ingalls (formally Northrop Grumman

Shipbuilding (NGSB-GC)), Praeses and Jerry Pittman & Associates, Inc. (JPAI). Note that Todd (now Vigor) withdrew from the project.

A no cost extension to for the project activities was granted, to January 31, 2012, which allowed the team to complete its testing and to allow for some focused work for Austal, all in keeping with the scope of work for the project.

Technical Progress

This is the final Technical Status report for Phase II of the subject agreement. There have been eleven previously submitted Technical Status Reports (one Phase I Final Report, five Quarterly Reports and five Interim Reports) that addressed project's technical status. This report is for the new Milestone Number 13. Technical efforts for the period April 29, 2010 through December 23, 2011 include:

PHASE I ACTIVITIES

- The project kick-off meeting was held on June 8, 2010 with all team members represented.
- Each team member has mobilized their organization for the startup of this project.
- A website has been established at http://nsrp.shipconstructor.com for the team's use. The website has been regularly updated so that all team members have access to all project documents.
- The *Project Management Plan* has been created and placed on the website.
- The *Technology Transfer Plan* has been created and placed on the website.
- Milestone Number 1 (*Kick-off Meeting*) deliverables were submitted on June 28, 2010.
- Milestone Number 2 (*Quarterly Technical and Business Project Status Report #1*) was submitted on July 29, 2010.
- Milestone Number 3 (*Project Interim Status Report #1*) was submitted on August 2, 2010
- SSIUSA accompanied VTHM to a meeting held at NGSB-GC in Pascagoula, MS to meet with Logimatic MARS representatives Lars Francke Riisberg and Christian Massow and NGSB-IT MARS implementation specialist on August 17, 2010.
- MMC hosted the August Quarterly Project Team Meeting that was held on August 31, 2010 with the majority of the team members present.
- On August 24, 2010, Marinette Marine Corporation (MMC) has provided SSIUSA a representation of their business processes. This in preparation to their process model data capture scheduled for September 1, 2010.
- In September 2010, Bollinger Shipyards has provided SSIUSA their first draft of their business processes and process model. This in preparation to their process model data capture now scheduled for late October 2010.
- On September 20, 2010, Jerry Pittman & Associates (JPA) completed an upgrade of their hardware to support ShipConstructor 2008.
- Marinette Marine Corporation (MMC) hosted a process model data capture meeting. With the assist of SSIUSA, Praeses and VTHM, MMC's material business processes were documented. This meeting was held on September 1, 2010.

- Milestone Number 4 (*Quarterly Technical and Business Project Status Report #2*) was submitted on September 21, 2010.
- SSIUSA attended the NSRP Joint and BPT Panel meeting, (Washington, DC) on September 29 and 30, 2010 and presented a Technology Transfer briefing to NAVSEA and NSRP representatives on behalf of the project team.
- Austal hosted process model data capture meetings. With the assist of SSIUSA and VTHM, Austal's material business processes were documented. These meetings were held on October 13 and 14, 2010.
- NGSB-GC hosted process model data capture meetings. With the assist of SSIUSA, Praeses and VTHM, NGSB-GC's material business processes were documented. These meetings were held on October 19 and 21, 2010.
- Bollinger hosted process model data capture meetings. With the assist of SSIUSA, Praeses and VTHM, Bollinger's material business processes were documented. These meetings were held on October 25 and 26, 2010.
- On October, 20, 2010, JPAI completed a test 3-D model using VTHM's ShipConstructor parts catalogs.
- Milestone Number 5 (*Interim Project Status Report #2*) was submitted on October 29, 2010.
- Todd Pacific Shipyards hosted the November Quarterly Project Status Meeting on November 2, 2010, with a majority of team members present.
- Todd Pacific Shipyards hosted a process model data capture meeting. With the assist of SSIUSA, Praeses and VTHM, Todd's material business processes were documented. This meeting was held on November 3, 2010.
- ERP Project was showcased, at the 2010 SNAME Ship Production Symposium, November 3 – 5, 2010, at the ShipConstructor Exhibit booth.
- Praeses and SSIUSA convened a work session focusing on the information alignment map on November 23, 2010.
- On December 6, 2010, JPAI started a test 3-D model using NGSB-GC's ShipConstructor parts catalogs. This model was completed on January 28, 2011.
- ERP Project Status was briefed at the NSRP Joint Panel Meeting held in New Orleans, LA by Patrick Roberts on December 7, 2010.
- Milestone Number 6 (*Quarterly Technical and Business Project Status Report #3*) was submitted on December 28, 2010.
- In December 2010, SSIUSA started the development of the XML file generation from the ShipConstructor Database information as defined by the Data Alignment Matrix requirements gathered from each of the shipyards ERP system business models.
- In January 2011 it was announced that the ERP Project Presentation was selected for presentation at 2011 ShipTech in Biloxi, MS for March.
- *Alignment Map* was posted on the ShipConstructor website on January 25, 2011.
- Milestone Number 7 (*Project Interim Status Report #3*) was submitted on February 3, 2011.
- The process model for Austal was posted on February 7, 2011.
- The process model for NGSB-GC was posted on February 9, 2011.

- The process model for Todd was posted on February 9, 2011.
- The process model for Bollinger was posted on February 9, 2011.
- A partial process model for MMC was posted on February 9, 2011.
- A Quarterly Project Team Meeting was held on February 16, 2011 with all of the team members present, except for Todd. On February 17, 2011 a workshop was convened to obtain team input into this report.
- Milestone Number 8 (*Phase I Final Technical and Business Project Status Report*) was submitted on March 2, 2011.

PHASE II ACTIVITIES

- March 2011, SSIUSA assisted Praeses with methods for importing and utilizing XML Schema for import of XML output from ShipConstructor into CAD to ERP (C2E) from Praeses.
- March 14, 2011, Praeses received updated XML schema and data files from ShipConstructor.
- March 15 – 16, 2011, SSIUSA delivered Technology Transfer event as presentation on status and results so far at ShipTech 2011 in Biloxi, MS.
- April 2011, Bollinger performed initial testing on the Praeses XML export program as well as tested the XML to bill of material staging document with everything working well.
- April 2011, C2E Manager application development and refactoring updated at Praeses.
- April 2011, C2E Manager system documentation updated at Praeses.
- April 14, 2011, Praeses met with Huntington Ingalls Industries (HII) IT personnel.
- April 2011, XML Schema modified to account for data elements and ordering.
- April 2011, XML file generation from ShipConstructor completed.
- April 2011, Praeses updated the C2E Manager Application Development for (a) refactoring of application and testing, (b) begin work on revision system and (c) complete initial draft of application documentation (design document, application reference guide).
- Milestone Number 9 (*Project Interim Status Report #4*) was submitted on April 26, 2011.
- May 2011, SSIUSA and Praeses consulted on methods for importing and utilizing XML Schema for import of XML output from ShipConstructor into C2E (Cad to ERP) from Praeses.
- SSIUSA delivered Technology Transfer event as a presentation on the status and results so far at the NSRP Joint Panel Meeting in San Diego, CA on May 3, 2011.
- May 11, 2011, Praeses met onsite with Bollinger users discussing C2E process.
- May 2011, Praeses worked with Bollinger programmer with initial user acceptance testing (UAT).
- May 2011, Bollinger performed testing on the Praeses XML export program as well as tested the CSV to bill of material staging documents with everything working.
- April 14, 2011, Brian Burgess of Praeses and John Walks met with Virgel Smith of Ingalls IT to familiarize him with this project. V. Smith will evaluate how this software should interface with other IT initiatives at Ingalls.
- May 2011, Austal attended IFS Meetings regarding CAD to ERP interfacing.

- May 2011, Austal developed a list of additional data elements needed and consulted with SSIUSA.
- May 2011, Austal created initial design specification for IFS API to allowing loading of extract from ShipConstructor.
- June 2011, SSIUSA modified the XML Schema to account for data elements and ordering.
- Project Team Quarterly Project Status meeting was held at Bollinger Shipyards in Lockport, LA on June 2, 2011.
- Preases conducted several conference calls with VTHM and Austal in May and June of 2011.
- Milestone Number 10 (*Quarterly Technical and Business Project Status Report #4*) was submitted on June 20, 2011
- June 2011, Preases received updated XML schema and data files from SSIUSA.
- June 2011, SSIUSA updated XML file generation from ShipConstructor.
- July 7, 2011, Preases completed the update and release of the C2E Manager application development, that included Revisions functionality.
- July 7, 2011, Preases completed the updated design and reference material on the C2E Manager system.
- July 2011, Preases received code base from Bollinger's testing program.
- June - July 2011, SSIUSA continued to assisted Praeses with methods for importing and utilizing XML Schema for import of XML output from ShipConstructor into C2E (CAD to ERP) from Praeses.
- SSIUSA delivered Technology Transfer event as a presentation on the status and results at Huntington Ingalls Shipbuilding IT and MARS Integration Team in Pascagoula, MS on August 1, 2011.
- August 2011, SSIUSA updated the XML Schema to account for missing data elements required.
- Milestone Number 11 (*Project Interim Status Report #5*) was submitted on August 16, 2011.
- Project Team Phase II Final Project Status meeting, with workshop sessions, was held at ShipConstructor USA in Mobile, AL on September 13 and 14, 2011.
- It is noted, in the *Project Interim Status Report #5* that a request for project extension would be submitted. Thus, it was agreed in the September Project Team Meeting, that the original Milestone 12 (*Phase II Final Technical and Business Project Status* Report) will be replaced with this Quarterly Report. The Phase II Final Report will now be Milestone 13.
- September 15 – 16, 2011, Praeses and HII met, at HII, with HII's Material Sourcing personnel discussing the data upload process into MARS.
- In October 2011 a formal extension was requested, and ultimately formalized in November 2011, in order for the team to extend its testing and to complete some specific activities for Austal.
- November 2011, SSIUSA completed the XML file generation from ShipConstructor.

Major Developments

PHASE I ACTIVITIES

(a) Project Management

On June 8, 2010, the project kick-off meeting was held in Mobile, AL at the office facilities of ShipConstructor Software USA, Inc. in the Technology & Research Park at the University of South Alabama. All team members were represented. Figure 1 below provides a list of project participants that attended the Project Kick-off meeting.

ERP Integration with CAD Kick-off

NSRP ASE RA 0801-08

(Agreement No. 2010-625)

June 8, 2010

ShipConstructor Software USA, Mobile, AL

Attendee List

Project Technical Point of Contact & Project Manager:	David B. Hiscox (VT Halter Marine)
Project Team	
ShipConstructor Software USA Inc.	Patrick David (Director R&D)
ShipConstructor Software USA Inc.	Patrick Roberts (Director of Operations)
ShipConstructor Software USA Inc.	Devin Parker (Integration Developer)
Northrop Grumman Shipbuilding	John P. Walks (Advanced Capabilities Group)
Austal USA	John Lapeyrouse (Dir of Business Integration)
Bollinger Shipyards	Dennis Fanguy (VP of Quality Mgt)
Todd Pacific Shipyards	Kevin Hein (Engineering Manager)
Marinette Marine Corp.	John C. Blair (Configuration Mgmt)
Jerry Pittman & Associates	Heather Savage (Project Coordinator)
Jerry Pittman & Associates	Don Eason (Vice-President)
Praeses, LLC	Brian Burgess (Project Manager)
NSRP Team	
Project Technical Representative (PTR)	Ken Clarke
ATI Project Manager	Mary Saady

Figure 1: List of attendees at the Project Kick-off Meeting

The Project Kick-off Meeting followed the agenda is shown below in Figure 2. This meeting allowed the team to be in sync with the goals and requirements of this project.

Agenda

Tuesday June 8, 2010

ERP Integration with CAD (NSRP RA 0801-08)

9:00	Welcome and introductions	David B. Hiscox, VTHM
9:30	NSRP Overview Role of Program Technical Representative (PTR) Role of Advanced Technology Institute (ATI) Role of Major Initiative Team Leader (MITL) Role of Project Team	Mary Saady, ATI
10:00	Project Overview / Goals and Objectives	Patrick Roberts, SSIUSA
10:45	**Break**	
11:15	Review Statement of Work / Deliverables	Patrick David, SSIUSA Patrick Roberts, SSIUSA
12:00	Lunch	
1:15	Review proposed project schedule Review milestone payment schedule	Patrick Roberts, SSI
2:00	Review proposed project management plan	Patrick Roberts, SSIUSA
2:45	**Break**	
3:15	Review Invoicing & Payment procedures (report and invoice flow)	Patrick Roberts, SSIUSA
3:45	Review technology transfer and foreign access to technology	Patrick Roberts, SSIUSA
4:15	Discussion: next quarterly review date and location	David B. Hiscox, VTHM
4:45	**Adjourn**	

Figure 2: Project Kick-off Meeting Agenda

On June 16, 2010, ShipConstructor Software USA, Inc. established a web site to facilitate the communication between the project team. The site requires an authorized username and password. All team members have been provided access to this site. ATI representatives have also been provided access. This web site will remain active throughout the project's life cycle and was set up in support of Milestone 1. All of the documentations associated with the deliverables from the Project Kick-Off Meeting have been posted on the ShipConstructor NSRP Website at http://nsrp.shipconstructor.com. Documents posted in the first quarter include those listed below;

1. ***Project Kick-off Meeting Minutes*** have been submitted as part of the reporting of Milestone Number 1 and have been posted on the website forum on June 22, 2010 for the team to review and comment on prior to submitting to the PTR for approval.

2. ***Project Presentation Slides from ATI*** have been posted on the web site forum as of June 16, 2010.

3. ***Project Presentation Slides from SSIUSA*** have been posted on the website forum as of June 16, 2010.

4. The ***Project Management Plan*** (PMP) for this project was posted on the website on June 28, 2010.

5. The ***Technology Transfer Plan*** (TTP) for this project was posted on the website on June 28, 2010.

As a result of the Project Kick-off Meeting, a consolidated list of *Project Points of Contacts List* from each organization was developed and posted on the website forum as of June 16, 2010. This will allow our team to communicate amongst ourselves outside the website forum if needed. The list has been updated as changes occurred.

As noted in Figure 2, several other subjects were covered in the kick-off meeting included the project *Statement of Work (SOW)* so that each team member understood what was expected of their respective organization and what would be included in their SOW provided as part of their issued purchase order. A concept diagram (Figure 3) was presented and explained by ShipConstructor in the context of the Project SOW. On June 16, 2010, the Project SOW was posted in Word format for download.

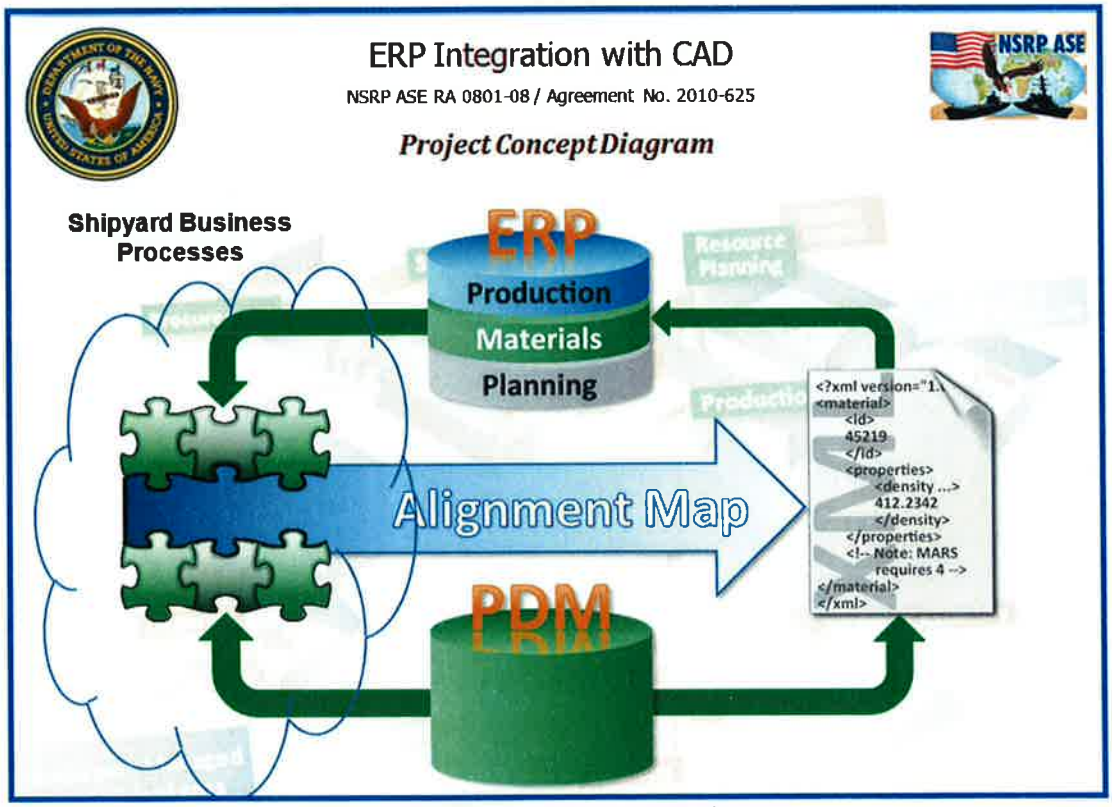


Figure 3: Project Concept Diagram

On August 31, 2010, a Project Team Meeting was held in Marinette, WI at the office facilities of MMC. All team members were represented, except for Austal and Todd Pacific representatives. Figure 4 below provides a list of project participants scheduled to attend the Project Team Meeting. Also in attendance were Terry Walley (NGSB-GC), Jeb Baugh (Praeses) and several members of MMC staff (including Mike Hoard and Daryl Lanaville).

ERP Integration with CAD August Team Meeting

NSRP ASE RA 0801-08

(Agreement No. 2010-625)

August 31, 2010

Marinette Marine Corp., Marinette, WI

Attendee List

Project Technical Point of Contact & Project Manager:	David B. Hiscox (VT Halter Marine)

Project Team

ShipConstructor Software USA Inc.	Patrick Roberts
ShipConstructor Software USA Inc.	Patrick David
ShipConstructor Software USA Inc.	Devin Parker
Northrop Grumman Shipbuilding	John P. Walks
Northrop Grumman Shipbuilding	Virgel Smith
Northrop Grumman Shipbuilding	Barbara Harris
Austal USA	John Lapeyrouse
Bollinger Shipyards	Dennis Fanguy
Todd Pacific Shipyards	Kevin Hein
Marinette Marine	John C. Blair
Jerry Pittman & Associates	Heather Savage
Praeses, LLC	Brian Burgess

NSRP Team

Project Technical Representative (PTR)	Ken Clarke
ATI Project Manager	Mary Saady

Figure 4: List of attendees at the August Project Team Meeting

The August Quarterly Project Team Meeting followed the agenda is shown below in Figure 5. This meeting allowed the team to be in sync with the goals and requirements of this project.

Agenda

Tuesday August 31, 2010

ERP Integration with CAD (NSRP RA 0801-08/2010-625)

7:30	Continental Breakfast	
8:00	Welcome and introductions	David B. Hiscox, VTHM
8:15	Project Status Milestones Completed	David B. Hiscox, VTHM
8:35	Review project schedule	David B. Hiscox, VTHM
8:55	Goals and Objectives (Revisited)	Patrick Roberts, SSIUSA
9:10	Points of Contacts (Confirmation)	David B. Hiscox, VTHM
9:25	ShipConstructor Website (Revisited)	Patrick Roberts, SSIUSA
9:45	Break	
10:15	Review Invoicing Requirements (reports and backup)	David B. Hiscox, VTHM
10:30	Report on Process Capture of VTHM Process (via Panel Project)	Patrick Roberts, SSIUSA
11:30	Lunch	
12:00	Report on Oracle E-Business Integration Activities	Dennis Fanguy, Bollinger
12:15	Report on MARS Integration Activities	John P. Walks, NGSB-GC
12:30	Report on IFS Integration Activities	John Lapeyrouse, Austal
12:45	Report on IFS Integration Activities	Kevin Hein, Todd
1:00	MMC Shipyard Tour	John Blair, MMC
3:30	Break	
3:45	NSRP/ATI Comments	Mary Saady, ATI Ken Clarke, PTR
4:00	Open Discussions	David B. Hiscox, VTHM
4:15	Discussion: Finalize Schedule of Data Capture Events	David B. Hiscox, VTHM
4:30	Summary of Action Items	David B. Hiscox, VTHM
4:45	Discussion: next quarterly review at Todd on November 2, 2010	David B. Hiscox, VTHM
5:00	Adjourn	

Figure 5: August Project Team Meeting Agenda

At the meeting, SSIUSA was allowed to revisit the goals and requirements of this project with the team members present. SSIUSA referenced the concept diagram noted in Figure 3 above in efforts to review and present to those MMC representatives that had not seen or heard of the associated project statement of work so that everyone in the meeting would be on the same page moving forward with the status and the discussion for the meeting.

SSIUSA also provided the project team with an overview of the project website and noted several project documents that each team member could reference and download as needed during the course of the project. SSIUSA had established a website to facilitate the communication between the project team. The site requires an authorized username and password. All team members had been provided access to this site, but several other team members were identified at the quarterly status meeting from MMC and Praeses that needed to be added. ATI representatives had also been provided access, but it was identified that our NAVSEA representative would need to be added as well. All of the documentation associated with the deliverables from the Quarterly Project Status Meeting are posted on the ShipConstructor NSRP Website at http://nsrp.shipconstructor.com. Documents posted in the second quarter include those listed below;

1. *August* ***Quarterly Project Status Presentation Slides*** were posted, on September 15, 2010.

2. An updated ***Project Schedule*** was posted, on September 15, 2010.

3. An updated ***Point of Contact List*** was posted, on September 15, 2010.

The SSIUSA website has been used to provide a central means of communication between team members. The SSIUSA website requires an authorized username and password. All team members have been provided access to this site. ATI representatives have also been provided access. This website will remain active throughout the project's life cycle and was set up in support of Milestone 1.

Milestone Number 2, *Quarterly Technical and Business Project Status Report #1*, was generated and submitted to ATI. The Quarterly Report identified developments on the project from the project start until July 20, 2010. This report was posted on July 29, 2010.

Milestone Number 3, *Project Interim Status Report #1*, was generated and submitted to ATI. The Interim Report identified developments on the project from the July 21 through August 2, 2010. This report was posted on August 2, 2010.

On August 17, 2010, SSIUSA's Patrick Roberts attend a meeting, with VTHM Project Technical Lead, David B. Hiscox, hosted by Northrop Grumman Shipbuilding – Gulf Coast to meet with Logimatic/Aveva MARS representatives Lars Francke Riisberg, Christian Massow and NGSB-IT MARS implementation specialist. In this meeting Logimatic identified that Aveva had recently acquired ownership of MARS. Aveva also owns a 3D design software company. Logimatic also noted that Aveva will continue to marker MARS as a standalone ERP package. At this meeting, a brief of this project was provided to the NGSB-GC representatives in efforts to coordinated MARS implementation initiatives with the NSRP project goals and objectives. It was noted at this meeting that the MARS application programming interface (API) could be accessed by NGSB-IT programming representatives if needed in correlation with this project scope of work. It was noted that an XML schema and output file would be generated as a result of this project, but understanding the data fields that could be accessed through the MARS API may help in the data alignment map that is to be generated as part of this projects statement of work.

SSIUSA has distributed special software licenses to the team members as the cost share for this project. Hardware locks and ShipConstructor License codes with software download links have been sent to the various shipyard representatives on this project. This goes towards SSIUSA's cost share responsibilities. The special licenses will be used for development of 3-D models used on this project and for final testing of the exchange method developed.

Milestone Number 4, Quarterly *Technical and Business Project Status Report #2*, was generated and submitted to ATI on September 21, 2010. The Quarterly Report identified developments on the project from the July 21 until August 31, 2010. This report was posted on September 21, 2010 with an updated posted on September 23, 2010.

Milestone Number 5, *Project Interim Status Report #2*, was generated and submitted to ATI on October 29, 2010. The Interim Report identified developments on the project from the September 1 through October 31, 2010. This report was posted on November 9, 2010.

In November 2010, Praeses personnel have completed their training on the ShipConstructor application. This training was focused on the extraction of data and coding thereof within the ShipConstructor program. This will allow Praeses to assist SSIUSA to perform the required coding to create the XML Schema needed for this project. The Praeses has installed and configure the ShipConstructor application in the Praeses development environment.

In September 2010, JPAI had (using their own funds) upgraded their hardware configuration set up to be compatible with the ShipConstructor Software, AutoCAD Software and SQL Server Software.

On November 2, 2010 the November Project Team Meeting was held in Seattle, WA at the office facilities of Todd Pacific Shipyards. All team members were represented, except for Austal and Bollinger representatives. NSRP/ATI representative (M. Saady) and NAVSEA representative (B. Kassel) joined via web and teleconference call. Figure 6 below provides a list of project participants scheduled to attend the Project Team Meeting. Also in attendance was Rob Parker (Praeses).

ERP Integration with CAD August Team Meeting

NSRP ASE RA 0801-08

(Agreement No. 2010-625)

November 2, 2010

Todd Pacific Shipyards, Seattle, WA

Attendee List

Project Technical Point of Contact & Project Manager:	David B. Hiscox (VT Halter Marine)

Project Team

ShipConstructor Software USA Inc.	Patrick Roberts
ShipConstructor Software USA Inc.	Patrick David
ShipConstructor Software USA Inc.	Devin Parker
Northrop Grumman Shipbuilding	John P. Walks
Northrop Grumman Shipbuilding	Virgel Smith
Northrop Grumman Shipbuilding	Barbara Harris
Austal USA	John Lapeyrouse
Bollinger Shipyards	Dennis Fanguy
Todd Pacific Shipyards	Kevin Hein
Marinette Marine	John C. Blair
Jerry Pittman & Associates	Heather Savage
Praeses, LLC	Brian Burgess

NSRP Team

Project Technical Representative (PTR)	Ken Clarke
ATI Project Manager	Mary Saady

Figure 6: List of attendees at the November Project Team Meeting

The November Quarterly Project Team Meeting followed the agenda is shown below in Figure 7. This meeting allowed the team to be in sync with the goals and requirements of this project.

Agenda

Tuesday November 2, 2010

ERP Integration with CAD (NSRP RA 0801-08/2010-625)

8:30	Welcome and introductions	David B. Hiscox, VTHM
8:45	Project Status Milestones Completed	David B. Hiscox, VTHM
9:00	Review project schedule	David B. Hiscox, VTHM
9:15	Report on Oracle E-Business Integration Activities	Dennis Fanguy, Bollinger
9:35	Report on MARS Integration Activities	John P. Walks, NGSB-GC
9:55	**Break**	
10:15	Report on IFS Integration Activities	John Lapeyrouse, Austal
10:35	Report on IFS Integration Activities	Kevin Hein, Todd
10:55	Report on MARS Test Models	Heather Savage, JPAI
11:15	Report On Mapping Process	Patrick Roberts, SSIUSA
11:35	Report On Mapping Process	Brim Burgess, Praeses
11:45	**Lunch**	
12:15	Todd Shipyard Tour	Kevin Hein, Todd
2:30	**Break**	
2:45	NSRP/ATI Comments	Mary Saady, ATI Ken Clarke, PTR
3:00	Open Discussions	David B. Hiscox, VTHM
3:30	Summary of Action Items	David B. Hiscox, VTHM
3:45	Discussion: next quarterly review at Praeses on February 8, 2011	David B. Hiscox, VTHM
4:00	Adjourn	

Figure 7: November Project Team Meeting Agenda

SSIUSA wrote an abstract/paper and submitted it for consideration as a paper presentation at the 2010 SNAME & SPS Conference. Although it was not selected, it was showcased at the trade show booth in the SNAME exhibition hall from November 3 to 5, 2010.

Milestone Number 6, *Quarterly Technical and Business Project Status Report #3*, was generated and submitted to ATI on December 28, 2010. The Quarterly Report identified developments on the project during the reporting timeframe, from September 1, 2010 through November 30, 2010. This report was posted on December 29, 2010.

Representatives from VTHM, SSIUSA, Praeses, MMC and Bollinger attended the NSRP Joint and BPT Panel meetings in New Orleans, LA, on December 7 – 9, 2010. SSIUSA's Patrick Roberts presented a Technology Transfer briefing to NAVSEA and NSRP representatives on behalf of the project team. The presentation slides (as well as slides from other presenters) can be seen on the NSRP website.

Milestone Number 7, *Project Interim Status Report #3*, was generated and submitted to ATI on February 3, 2011. The Interim Report identified developments on the project from the December 1, 2010 through January 30, 2011. This report was posted on February 3, 2011.

The February Quarterly Project Team Meeting was held on February 16 and 17, 2011 at Praeses, in Shreveport, LA. All team members attended, except for Todd and Pat David, also Ken Clarke was absent. Chad Fanguy of Bollinger also attended. In this meeting each team member reported on their project status. A workshop for the preparation of Milestone 8, *Phase I Final Technical and Business Project Status Report,* followed the regular meeting.

Figure 8 below provides a list of project participants who attended the February Project Team Meeting.

ERP Integration with CAD February Team Meeting

NSRP ASE RA 0801-08

(Agreement No. 2010-625)

February 16-17, 2011

Praeses, LLC, Shreveport, LA

Attendee List

Project Technical Point of Contact & Project Manager:	David B. Hiscox (VT Halter Marine)

Project Team

ShipConstructor Software USA Inc.	Patrick Roberts
ShipConstructor Software USA Inc.	Patrick David
Northrop Grumman Shipbuilding	John P. Walks
Austal USA	John Lapeyrouse
Bollinger Shipyards	Dennis Fanguy
Todd Pacific Shipyards	Kevin Hein
Marinette Marine	John C. Blair
Jerry Pittman & Associates	Heather Shows
Praeses, LLC	Brian Burgess

NSRP Team

Project Technical Representative (PTR)	Ken Clarke
ATI Project Manager	Mary Saady

General Notes

Dress for the meeting will be business casual.

Lunch Menu

Lunch will be provided.

Figure 8: List of attendees at the February Project Team Meeting

The February Quarterly Project Team Meeting followed the agenda is shown below in Figure 9. This meeting allowed the team to be in sync with the goals and requirements of this project.

Agenda

Wednesday February 16, 2011

ERP Integration with CAD (NSRP RA 0801-08/2010-625)

8:45	Welcome	David B. Hiscox, VTHM
9:00	Project Status Milestones Completed	David B. Hiscox, VTHM
9:15	Review project schedule	David B. Hiscox, VTHM
9:30	Report on Oracle E-Business Integration Activities	Dennis Fanguy, Bollinger
9:50	Report on MARS Integration Activities	John P. Walks, NGSB-GC
10:10	Report on MARS Test Models	Heather Shows, JPAI
10:30	**Break**	
10:50	Report On Mapping Process	Patrick Roberts, SSIUSA
11:10	Report On Mapping Process	Brian Burgess, Praeses
11:30	Report on IFS Integration Activities	Kevin Hein, Todd
11:50	Report on IFS Integration Activities	John Lapeyrouse, Austal
12:10	**Lunch**	
12:40	Report on Baan Integration Activities	John C. Blair, MMC
1:00	Software Demonstration	Brian Burgess, Praeses
2:00	**Break**	
2:20	NSRP/ATI Comments Process for gaining approval to enter Phase II	Mary Saady, ATI Ken Clarke, PTR
2:40	Open Discussions	David B. Hiscox, VTHM
3:00	Summary of Action Items	David B. Hiscox, VTHM
3:15	Discussion: next quarterly review at Bollinger on May 17, 2011	David B. Hiscox, VTHM
3:30	General discussion on 2/17/11 Workshop	David B. Hiscox, VTHM
4:00	**Adjourn**	

Figure 9: February Project Team Meeting Agenda

Immediately after the February Project Team Meeting the project team convened a workshop, also at the Praeses facility, to coordinate the team's input into this report. The workshop's agenda was as shown in Figure 10 below.

Agenda

Thursday February 17, 2011 ***WORKSHOP for Phase I Final Report***

ERP Integration with CAD (NSRP RA 0801-08/2010-625)

8:45	Welcome	David B. Hiscox, VTHM
9:00	Develop or complete input reports for each team member	All
ongoing	Identify areas that requires final tweaking after meeting	All
ongoing	Incorporate individual reports into final draft	David B. Hiscox, VTHM
11:30	Print first shot of draft final report for review	David B. Hiscox, VTHM
12:00	**Lunch**	
12:40	Input team comments into draft finale report	All
1:00	Team review of draft for final report on screen, update as we go	David B. Hiscox, VTHM
2:30	Summary of Action Items to complete Phase I Final Report	David B. Hiscox, VTHM
3:00	Approach once Phase II is authorized	Patrick Roberts, SSIUSA
3:30	Open Discussions	David B. Hiscox, VTHM
4:00	**Adjourn**	

Figure 10: February Project Team Workshop Agenda

Each team member was responsible for their organization's administration of the terms of the Agreement as it affected their scope of work. Each team member has worked closely with the other members to ensure that we have achieved a successful Phase I completion.

During Phase I and as noted above, the ShipConstructor website is used to communicate important documents between team members. In addition to postings noted elsewhere in this report, the following items were posted on the website:

- Technical Proposal – ERP Integration with CAD, posted on June 16, 2010
- Project Kick-off Meeting Agenda, posted on June 16, 2010
- Marinette Marine August 31st Meeting (travel information posted on July 26, 2010 and meeting agenda posted on August 2, 2010)
- Draft of August Meeting Slides, posted on August 24, 2010
- November Team Meeting Agenda, posted on October 11, 2010
- November Team Meeting – NAVSEA Comments, posted on November 9, 2010
- Shreveport Travel Package, posted on January 19, 2011
- Quarterly Meeting Posted Agenda February 2011, posted on January 19, 2011
- Draft Phase I Final Report, posted on February 3, 2011
- February Project Team Meeting and Workshop Slides, posted on February 25, 2011

Many of the initial postings were updated or commented upon by the team members. Thus, the website is, and will continue to be, widely used for the exchange of general information and is a form of technology transfer.

Throughout the project David B. Hiscox, of VTHM, constantly labored to: (a) ensure that all team members were aware of upcoming events and official communications, (b) organized team meetings, (c) prompted the team for input on each milestone report and integrated them into the final reports, (d) monitored team members invoices to VTHM, (e) compiled required submittal packages (hard copy and electronically) to NSRP/ATI, (f) ensured that invoices were submitted to NSRP/ATI as the Milestones were completed and (g) generally kept the project moving forward in a focused manner. These efforts will continue into Phase II, once it is authorized.

Milestone Number 8, Phase I Final Technical and Business Project Status Report, was generated and submitted to ATI on March 2, 2011. The Phase I Final Report identified developments on the project during the reporting timeframe, from April 29, 2010 through February 28, 2011.

PHASE II ACTIVITIES

Milestone Number 9, Project Interim Status Report #4, was generated and submitted to ATI on April 26, 2011. The Interim Report identified developments on the project from the March 1 through April 15, 2011.

On June 2, 2011 the June Project Team Meeting was held in Lockport, LA, at the office facilities of Bollinger Shipyards. All team members were represented, except for Austal, Todd and Marinette. Figure 11 below provides a list of project participants scheduled to attend the Project Team Meeting.

ERP Integration with CAD February Team Meeting

NSRP ASE RA 0801-08

(Agreement No. 2010-625)

June 2, 2011

Bollinger Shipyards, Lockport, LA

Attendee List

Project Technical Point of Contact & Project Manager:	David B. Hiscox (VT Halter Marine)

Project Team

ShipConstructor Software USA Inc.	Patrick Roberts
ShipConstructor Software USA Inc.	Patrick David
Huntington Ingalls Industries - Ingalls	John P. Walks
Austal USA	John Lapeyrouse
Bollinger Shipyards	Dennis Fanguy
Todd Pacific Shipyards	Kevin Hein
Marinette Marine	John C. Blair
Jerry Pittman & Associates	Heather Shows
Praeses, LLC	Brian Burgess

NSRP Team

Project Technical Representative (PTR)	Ken Clarke
ATI Project Manager	Mary Saady

Figure 11: List of Invitees for the June Project Team Meeting

The June Project Team Meeting followed the agenda as shown in Figure 12. This meeting allowed the team to be in sync with the goals and requirements of this project.

Thursday June 2, 2011

ERP Integration with CAD (NSRP RA 0801-08/2010-625)

8:45	Welcome	David B. Hiscox, VTHM
9:00	Project Status Milestones Completed	David B. Hiscox, VTHM
9:10	Review project schedule	David B. Hiscox, VTHM
9:20	Report on Oracle E-Business Integration Activities	Dennis Fanguy, Bollinger
9:50	Report on MARS Integration Activities	John P. Walks, HII-Ingalls
10:00	Report on MARS Test Models	Heather Shows, JPAI
10:10	Report on Baan Integration Activities	John C. Blair, MMC
10:20	**Break**	
10:50	Report on IFS Integration Activities	Kevin Hein, Todd
11:00	Report on IFS Integration Activities	John Lapeyrouse, Austal
11:10	Report on Mapping Process	Patrick Roberts, SSIUSA
12:10	**Lunch**	
12:45	Report on Mapping Process	Brian Burgess, Praeses
1:30	NSRP/ATI Comments	Mary Saady, ATI Ken Clarke, PTR
1:40	Open Discussions	David B. Hiscox, VTHM
2:00	**Break**	
2:20	Summary of Action Items	David B. Hiscox, VTHM
2:35	Discussion: Next quarterly review at SSIUSA on September 13, 2011	David B. Hiscox, VTHM
3:00	**Adjourn**	

Figure 12: June Meeting Agenda

Milestone Number 10, *Quarterly Status Report #4*, was generated and submitted, on June 20, 2011, which identified developments on the project from March 1, 2011 through May 31, 2011.

Milestone Number 11 (*Project Interim Status Report #5*) was submitted on August 16, 2011.

On September 13, 2011 the September Project Team Meeting was held in Mobile, AL, at the office facilities of ShipConstructor, USA. All team members were represented, except for Austal, JPA and Marinette. Figure 13 below provides a list of project participants scheduled to attend the Project Team Meeting.

ERP Integration with CAD February Team Meeting
NSRP ASE RA 0801-08
(Agreement No. 2010-625)
September 13, 2011
ShipConstructor USA, Mobile, AL

Attendee List

Project Technical Point of Contact & Project Manager:	David B. Hiscox (VT Halter Marine)

Project Team

ShipConstructor Software USA Inc.	Patrick Roberts
ShipConstructor Software USA Inc.	Patrick David
Huntington Ingalls Industries - Ingalls	John P. Walks
Austal USA	John Lapeyrouse
Bollinger Shipyards	Dennis Fanguy
Marinette Marine	John C. Blair
Jerry Pittman & Associates	Heather Shows
Praezes, LLC	Brian Burgess

NSRP Team

Project Technical Representative (PTR)	Ken Clarke
ATI Project Manager	Mary Saady

General Notes

Dress for the meeting will be business casual.

Lunch Menu

Lunch will be provided.

Figure 13: List of Invitees for the September Project Team Meeting

The September Project Team Meeting followed the agenda as shown in Figure 14. This meeting allowed the team to be in sync with the goals and requirements of this project.

Agenda

Tuesday September 13, 2011

ERP Integration with CAD (NSRP RA 0801-08/2010-625)

8:45	Welcome	David B. Hiscox, VTHM
9:00	Project Status Milestones Completed	David B. Hiscox, VTHM
9:10	Review project schedule	David B. Hiscox, VTHM
9:20	Report on Oracle E-Business Integration Activities	Dennis Fonguy, Bollinger
9:50	Report on MARS Integration Activities	John P. Walks, HII-Ingalls
10:00	Report on MARS Test Models	Heather Shows, JPAI
10:10	Report on Baan Integration Activities	John C. Blair, MMC
10:20	Break	
10:45	Report on IFS Integration Activities	John Lapeyrouse, Austal
11:00	Report on Mapping Process	Patrick David, SSIUSA
11:30	Report on Mapping Process	Brian Burgess, Praeses
12:00	Lunch	
12:45	Report on additional scope of work	Patrick Roberts, SSIUSA
1:00	NSRP/ATI Comments	Mary Saady, ATI Ken Clarke, PTR
1:10	Open Discussions	David B. Hiscox, VTHM
1:30	Summary of Action Items	David B. Hiscox, VTHM
1:45	Discussion: Workshops Meetings	David B. Hiscox, VTHM
2:00	Adjourn	

Figure 14: September Meeting Agenda

SSIUSA's hosted the September Quarterly Project Meeting at the SSIUSA's office on the campus of the University of South Alabama. Pat David and Pat Roberts provided insights in the overall status of SSIUSA's work performed up to date and Justin McDaniel and Jeremy Fant provided a live demonstration of the ShipConstructor software and the XML Export command used to generate the XML file for a selected Assembly drawing. Figure 15 below shows a conceptual diagram of the process that was shown within the live demonstration provided at the Quarterly Project Meeting.

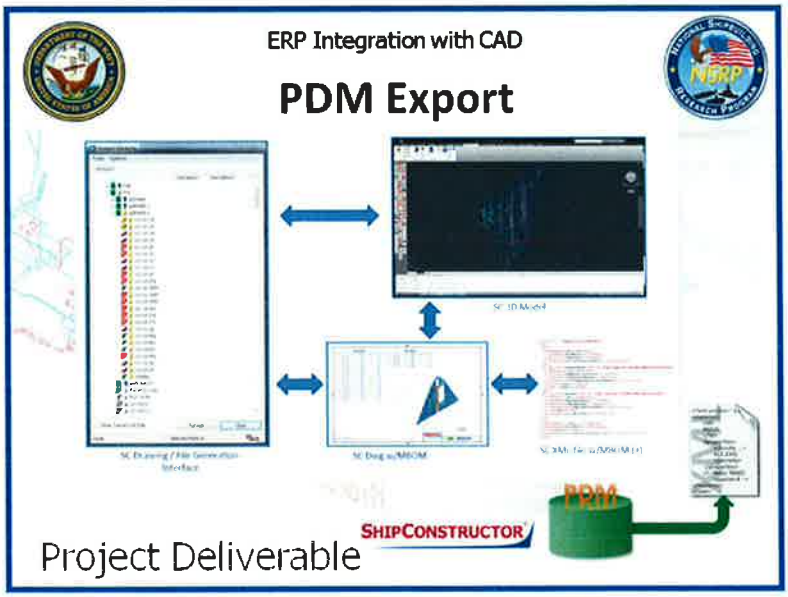


Figure 15: Product Data Model Export Conceptual Diagram

Throughout the project David B. Hiscox, of VTHM, continually labored to: (a) ensure that all team members were aware of upcoming events and official communications, (b) organized team

meetings, (c) prompted the team for input on each milestone report and integrated them into the final reports, (d) monitored team members invoices to VTHM, (e) compiled required submittal packages (hard copy and electronically) to NSRP/ATI, (f) ensured that invoices were submitted to NSRP/ATI as the Milestones were completed and (g) generally kept the project moving forward in a focused manner. These efforts assisted in bring this project to completion as now Phase II work is finished.

(b) Task 1 – Identification of data requirements in relation to business process

PHASE I ACTIVITIES

At the *August Project Team Meeting*, SSIUSA's Patrick Roberts walked the project team through the VTHM Process Model as represented in Figure 17, in order for the project team members to understand; 1) the process followed in respect to what was captured, and 2) the data / information that was captured and how the process data would be used in the next tasking of establishing an alignment map.

During the August 31, 2010 Quarterly Team Meeting, the project team was reintroduced to business process definition language. The process definition language is based on an Integrated Definition Diagram Language (IDEF). This language is a traditional Industrial Engineering process modeling method of capturing any type of process. Figure 16 is a reference to a meeting slide which attempts to summarize the definition of the various concepts that make up the IDEF language as it correlates to the graphical representation of those concepts.

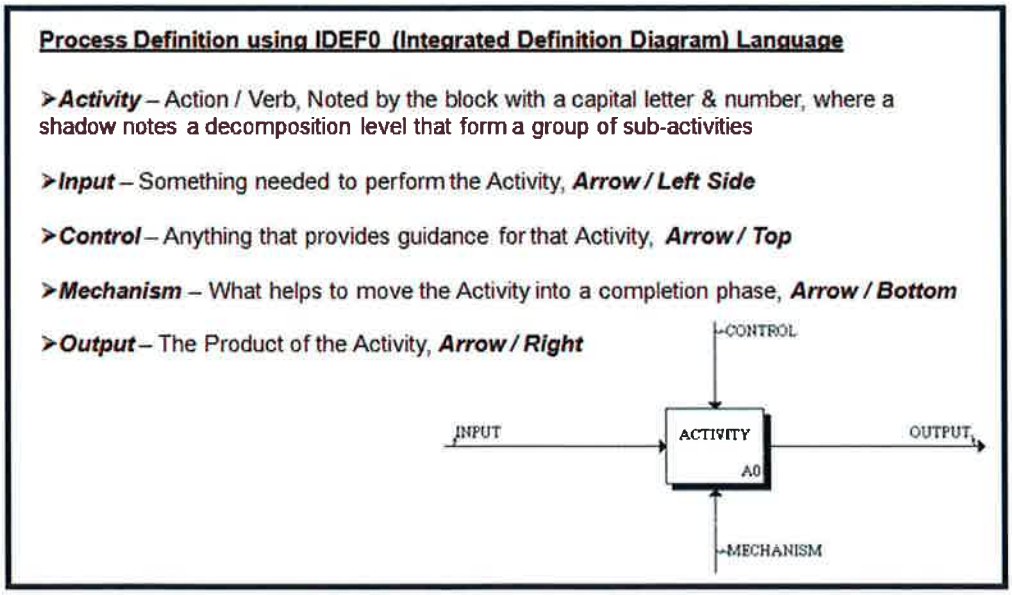


Figure 16: Integrated Definition Diagram (IDEF) Concept Explanation

At the Project Kick-Off Meeting, SSIUSA's Patrick Roberts, walked the project team through an example process that everyone in the room could relate to "outside" of shipbuilding (Cook an Omelet). This process was revisited at the August meeting. It was important that everyone could

relate to a process that the team could easily define on their own. The language was explained to the team and then everyone was asked questions of each process concept as they were defined. It became apparent working through the example that the understanding of the process was important to also define as the concepts were captured. After walking through the example, questions were asked of the team in respect to who would need to be involved in the data capture events internal to the shipyard. It was noted that having the right people in the room when these business processes are captured will be key to capturing an accurate AS-IS process model at the respective organizations.

In accordance with Agreement Number 2010-618, VTHM's material business process has been completely captured. The method of capture will be employed in the capturing of business processes for the shipyard team members. The VTHM's material business process has been posted on the website for full viewing by all of the team members. Figure 17 below is an example of a decomposition of one of the activities "Identify and Procure Materials to Build a Ship" from VTHM's AS-IS material process model. The full VTHM process model was posted on June 16, 2010.

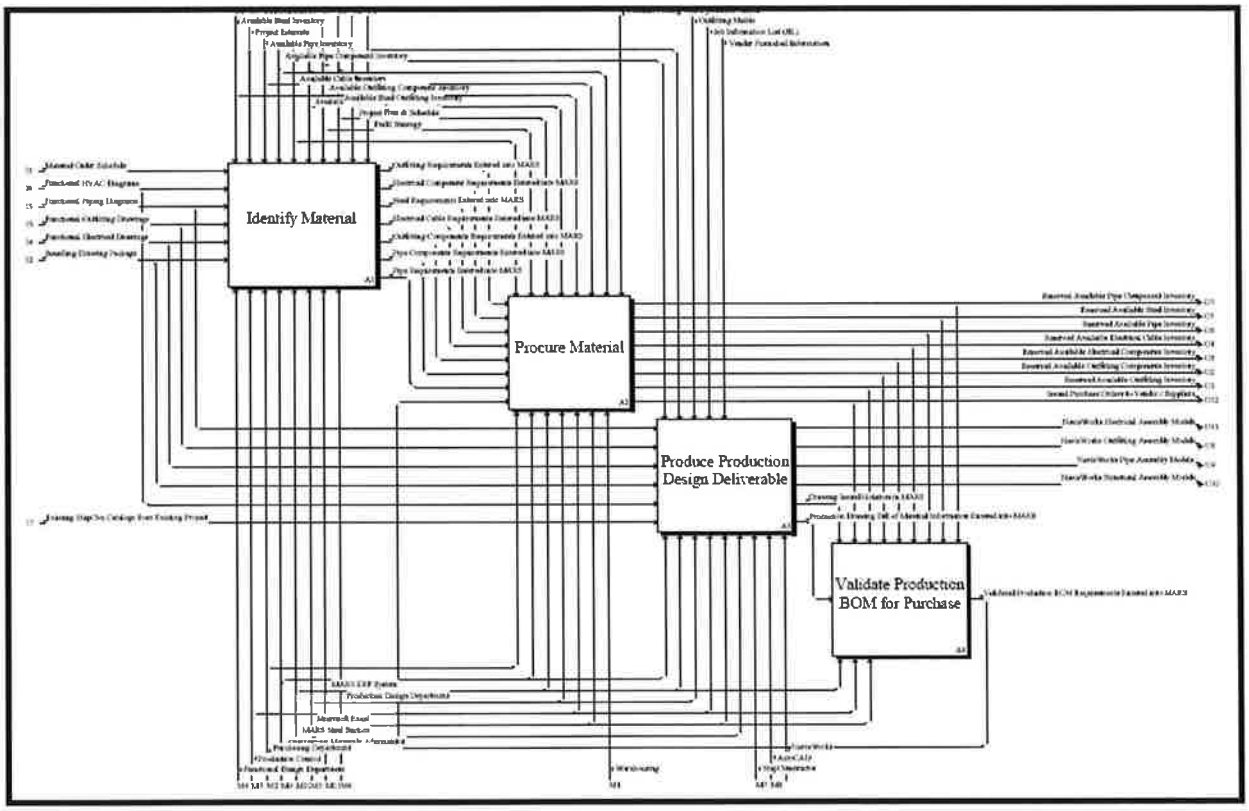


Figure 17: VTHM IDEF0 AS-IS Process Model of "Identify and Procure Materials to Build a Ship" Example

Utilizing the recent experience gained at VTHM under Agreement Number 2010-618, SSIUSA became better suited to make future captures in an efficient manner for this project.

At the time of the August Project Team Meeting there was a tentative schedule for the process capture of the team members. Austal's AS-IS material business process capture meetings was tentatively to be held at the shipyard in August 2010, it now as slipped into mid October due to personnel needed in efforts to the LCS rebid. Northrop Grumman's capture meetings were scheduled for the week of September 20-24, 2010 and due to the recent announcement of the Avondale shipyard closing, it has caused some delays in current initiatives. NGSB capture meetings have been pushed out until mid/late October timeframe. Marinette Marine's data capture event was scheduled and held on September 1, 2010. Todd Pacific's capture meeting is scheduled for November 3, 2010. Bollinger's capture meeting was being negotiated so that they fit well with availability of all parties. Actual capture meetings are discussed below.

During the second quarter, Praeses had consulted with VTHM and SSIUSA about their role in the project. Praeses had requested, and had been granted permission, to be present at some of the capture meetings. Their attendance will be coordinated with SSIUSA.

During the second quarter NGSB-GC started preparing for an "as-is" process capture exercise that was scheduled for the week of September 20, 2010. They are identifying the proper personnel to attend the meeting from various functional groups. They have also initiated a Non-Disclosure Agreement with ShipConstructor Software USA to facilitate the data capture activity. In the process, they are informally learning a bit about how data is currently transferred from engineering documents to ERP (MARS). For the most part, it is by manual data entry. As such, it is apparent that this project has the potential for significant ROI if implemented at NGSB. Those who are not involved in the data entry evolution (material buyers) are generally pleased with MARS in that it helps them speed up their portion of the process.

In the process of preparation for the process capture event, NGSB-GC uncovered an internal process for fleet support material procurement that had enjoyed automated transfer of list of material data to the legacy ERP system. This capability was eliminated when NGSB-GC transferred to the MARS system. Those persons adversely affected by the change are hopeful that this project will provide a benefit for their business process.

During the second quarter, Bollinger completed the first draft of their process review and process model and has forwarded this to SSIUSA for use in starting the IDEF0 process model. Bollinger planned to meet with SSIUSA/Praeses at the end of October for process capture of their process model. Bollinger has also offered what they envisioned for their interface between their ERP (Oracle) and ShipConstructor.

During the second quarter, Austal had completed their internal evaluation of existing processes and were completing draft documentation of these processes. Austal has created an initial draft specification of its high level data flows for the initial discussion and process review. Due to business demands, Austal had rescheduled their initial process review with ShipConstructor for the second week in October.

On August 24, 2010, in advance of the process capture meeting, MMC developed a Visio "swim lane" representation of their material process. This was turned over to SSIUSA which translated

it into a skeleton IDEF process model. This skeleton process model was then used as a starting point at the September process data capture meeting. This advanced work allowed the capture meeting to be much more effective than coming in with a blank piece of paper.

On September 1, 2010 SSIUSA, Praeses, VTHM and ATI all attended a process capture event at MMC following the August Project Team Meeting. Marinette supported the data capture event with personnel from Planning, Purchasing, Engineering and Configuration Management.

The MMC capture event was scheduled for an all day event. That was very ambitious to try and accomplish. However, approximately 80% of the AS-IS process was captured, and only the drawing revision work was not captured which follows a similar process as the Create Detail Design. A follow up communications was needed to pick up where the model effort left off. Figure 18 is a snap shot of the MMC AS-IS business process that was captured.

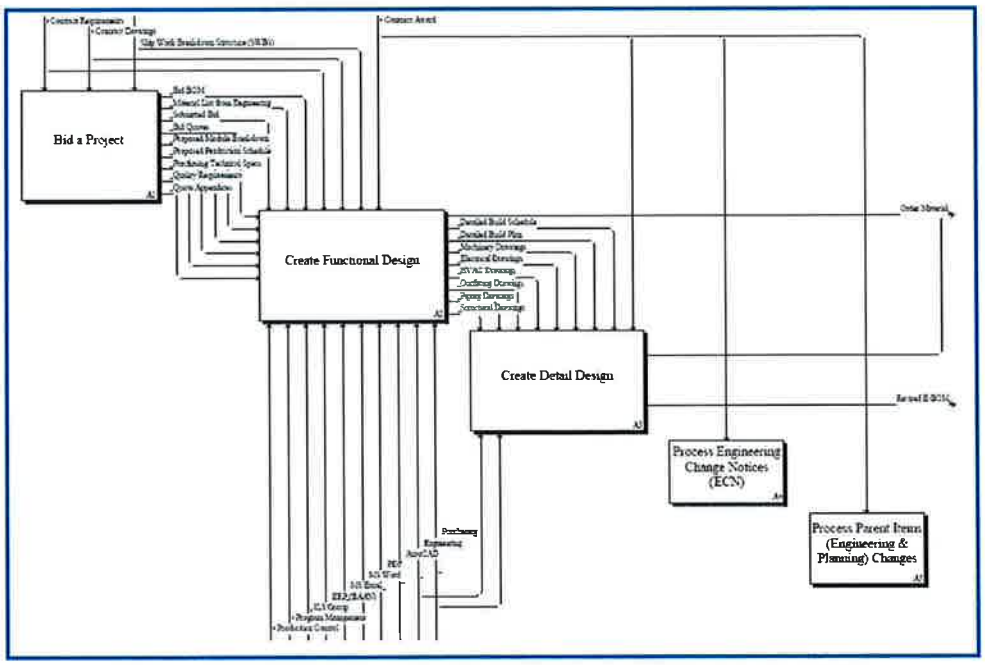


Figure 18: MMC's AS-IS ERP Process Model Example

Marinette reported that they had written various scripts which serve to export data from the ShipConstructor application into a CSV file. The file would then be validated and certain manual data manipulation performed prior to importing into MMC's ERP system (Baan). Understanding what data the shipyards are pulling out of ShipConstructor along with what manual steps they perform before inputting into ERP systems is at the crux of what the project team is trying to address with this effort. Another problem common to the shipyards which the team is seeking to address is that of disparate nomenclature. That is, different terms describe similar functionality – e.g., with the Baan system at Marinette, a "work package" is called a "parent item".

Austal USA met with SSIUSA and VTHM on October 13 and 14, 2010 for process capture of their material handling business model. In advance of the process capture meeting, Austal USA

also developed a Visio "swim lane" representation of their material and associated business processes in an effort to speed up the discussions and the data capture event. This was turned over to SSIUSA and was then used as a starting point at the process data capture meeting. This advanced work allowed the capture meeting to be much more effective as SSIUSA already had a good feeling of what needed to be targeted. Austal USA also had a very large, high level Visio poster that was referenced during the capture meetings. Having this available allowed everyone to see how far along we were in covering the "cradle to grave" process as it related to the material identification and procurement process. Personnel involved included representatives from Planning, Engineering and Configuration Control. The input needs for Austal's ERP system (IFS) were identified. Figure 19 shows the high level process captured. Initial data alignment mapping was also captured as a result of this meeting.

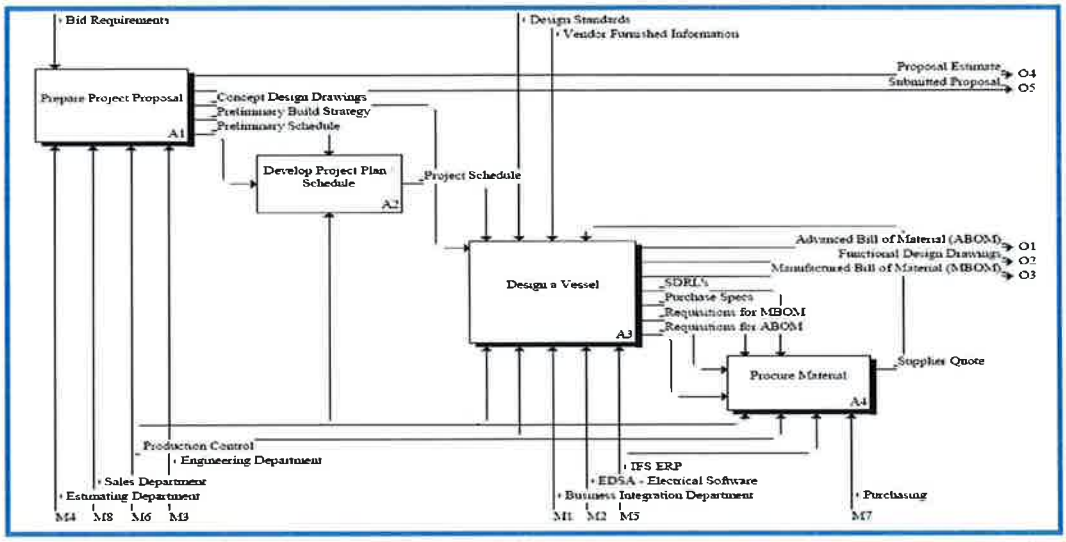


Figure 19: Austal USA's AS-IS ERP Process Model Example

NGSB-GC met with SSIUSA, Praeses and VTHM on October 19 and 21, 2010 for the capture of their business processes associated with their AS-IS Material Identification and Procurement Processes. Representatives from Praeses were also in attendance. Their entire material business process was captured from material identification to the issuing of a purchase order using NGSB-GC's ERP system (MARS).

Project team members met with personnel from the NGSB-GC Material Sourcing, Engineering Configuration Management, and Numerical Control Design groups. These meetings confirmed that, for the most part, data is received and validated by Material Sourcing and entered manually into MARS. This data comes from Engineering in almost all cases. As such, it is apparent that this project has the potential for significant ROI if implemented at NGSB-GC. The Material Sourcing personnel see a clear benefit from the project that will save them significant labor hours. They were eager to participate in the data capture event and provided very helpful input.

In the process of preparation for the data capture event, NGSB-GC uncovered an NGSB process for fleet support material procurement that had enjoyed automated transfer of list of material data to the legacy ERP system. This capability was eliminated when NGSB transferred to the MARS system. Those persons adversely affected by the change are hopeful that this project will provide a benefit for their business process, even though it is not the primary focus of the project. A portion of the data capture event included a separate interview with these personnel to more thoroughly understand their business needs. Figure 20 shows the high level process that was captured for NGSB.

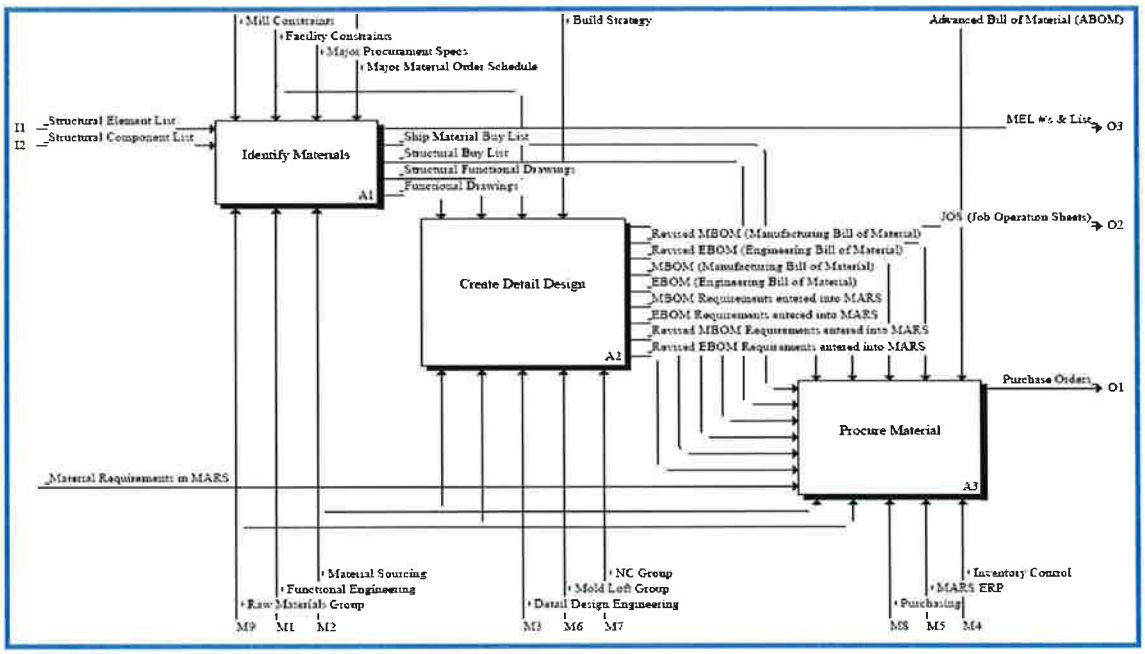


Figure 20: NGSB's AS-IS ERP Process Model Example

Bollinger completed their first draft of the process review and process model. This was advance development in support of the data capture event held at the end of October. Bollinger had also turned over a Production Planning IDEF0 model that was captured under a Louisiana Center of Manufacturing Sciences project that represented their as-is business processes. This information was provided to SSIUSA in an effort to speed up the discussions and the data capture event and was studied in advance of the meeting. Again, this advanced work allowed the capture meeting to be much more effective as SSIUSA already had a good feeling of what needed to be targeted. Bollinger also revealed, high level business Visio chart as an "overview" on the first day that was referenced during the capture meeting. This was not provided to the team in document format but was revealed and shared within the meeting itself.

Figure 21 shows the high level process captured. Initial data alignment mapping was also captured as a result of this meeting.

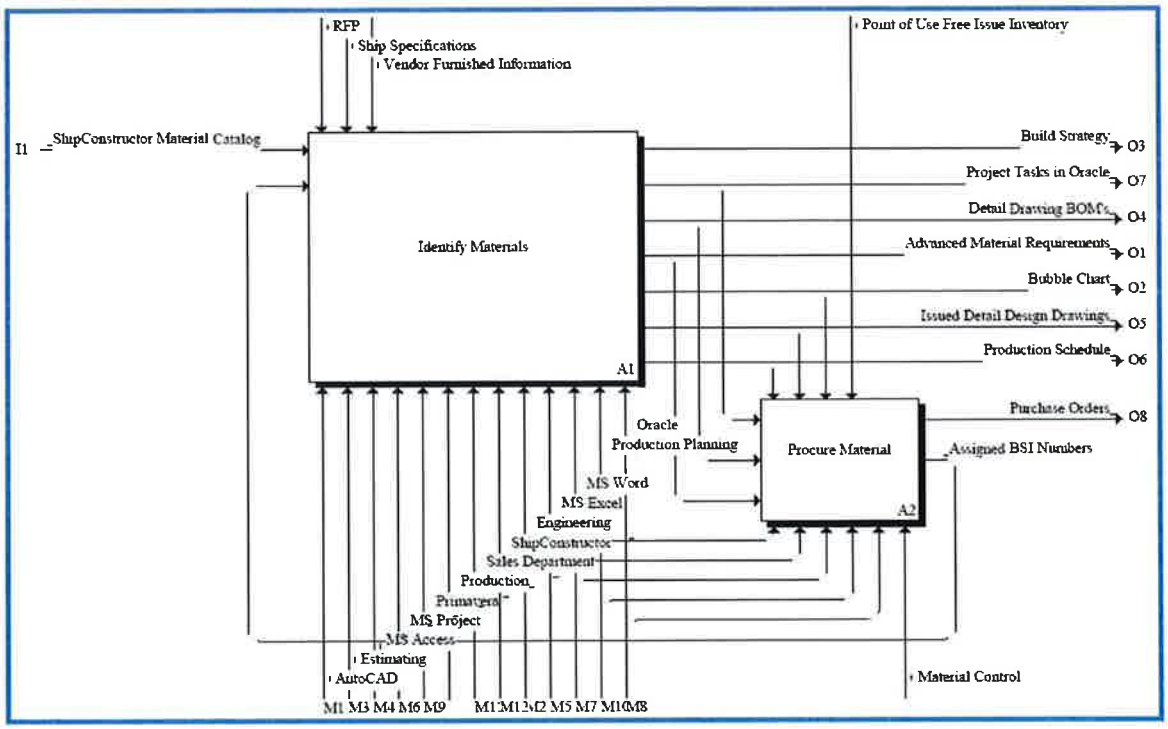


Figure 21: Bollinger's AS-IS ERP Process Model Example

Bollinger met with SSIUSA, Praeses and VTHM on October 25 and 26, 2010 for process capture of their process model with a focus on the interfaces with Bollinger's ERP system (Oracle E-business). Members from the following Bollinger departments were in attendance: Quality, Engineering, Planning and IT. Additionally, the team be viewed various Common Parts Catalog (CPC) data element definitions which would ultimately help form the information alignment map between ShipConstructor and the ERP systems. Subsequent to these meetings Bollinger sent Praeses an initial sample code for an XML parser which would serve as a catalyst to the future data exchange process between ShipConstructor and Oracle. The next step in Bollinger's activity will be to develop the interface table and outline how to export/import data.

Todd Pacific Shipyards met with SSIUSA, Praeses and VTHM on November 3, 2010 for process capture of their process model with a focus on the interfaces with their ERP system (IFS). The data capture meeting was attended by members of Engineering, Planning, Production, Material/Warehousing, Procurement, Systems and Information Technology. The data capture meeting moved quickly as Todd had recently developed a ShipBuilding System flowchart, which indicates how all of Todd's internal departments integrate with each other.

Figure 22 shows the high level process captured at Todd. Initial data alignment mapping was also captured as a result of this meeting.

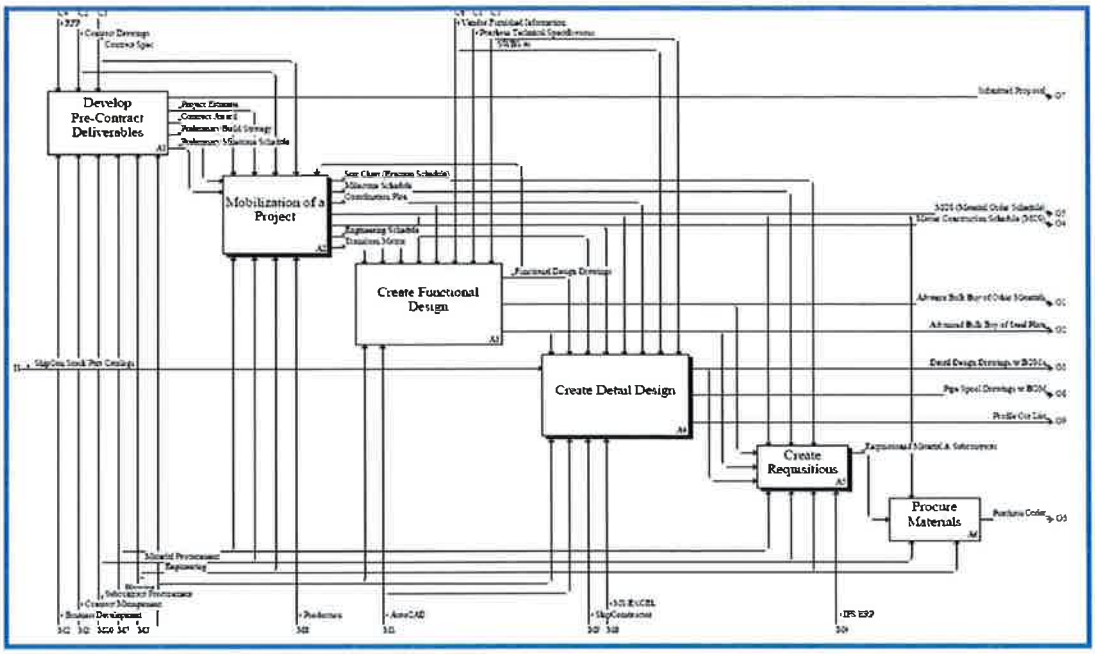


Figure 22: Todd's AS-IS ERP Process Model Example

In January 2011, Austal had continued to map their Design and Production processes in greater detail to confirm that they had captured all of the data elements required. This is an on-going effort that they are using to develop the complete detail of all their business processes. Austal has continued process mapping beyond engineering development of the BOM to identify other data elements needed from ShipConstructor. Austal has updated IFS in use data fields within the Alignment Map and has provided the update to ShipConstructor for incorporation into the XML Schema definitions.

The process model for Austal was posted on February 7, 2011.

The process models for NGSB-GC, Todd and Bollinger were posted on February 9, 2011. Also, a partial process model for MMC was posted on February 9, 2011.

The scope of Task 1 is to examine each shipyard's business process and identify the common data associated between their tools and their individual ERP systems. The common data will then lead into Task 2. Although there are still adjustments needed for the MMC process model, for the purposes of this project these process models are considered complete. As this Task enters into Phase II it will be in maintenance and refinement mode only.

PHASE II ACTIVITIES

During the early portion of Phase II, MMC concluded that further updates of their process model were unnecessary. MMC has chosen to pursue O&R ManTech funding to complete their process modeling.

Task 1 is considered complete for both Phases of the project.

(c) Task 2 – Development of an information alignment map between the PIM and ERP
PHASE I ACTIVITIES

One item of interest noted, at the Todd process capture meeting, of November 3, 2010, was the need to make sure that the drawing number, rev number and piece number are passed over from ShipConstructor into IFS (Todd Pacific's ERP system). Another piece of functionality discussed pertaining to the concept of operations for C2E (CAD to ERP Integration process) is to produce the XML export when the given drawing is sent to document control (ready to release to production) – the XML would be only for that particular drawing. In this manner, the system knows what has been released from the model and so can provide for better change control.

In the third quarter SSIUSA had begun the task of Mapping the Data Alignment Mapping. Data needing to be passed from the manufacturing bill of materials (MBOM) from the shipyards that have interviewed have revealed several key data fields into the ERP systems. Some of these common fields captured during meetings equated to about two dozen items, but this is not inclusive list;

1. BOM Item Number – Part Number
2. BOM Item Description – Part Description/Name
3. Major Equipment List ID# - MEL ID#
4. Hull #
5. Unit/Module #
6. File Directory
7. Ship Work Breakdown Structure# – SWBS#
8. Product Work Breakdown Structure# - PWBS#
9. Unit of Measure
10. Quantity
11. Cut Length (neat) – Profiles or Pipe
12. Cut Length (with stock) – Profiles or Pipe
13. Nest File – for Plate or Profiles
14. Weight
15. Drawing ID #
16. Drawing Revision #
17. Drawing Sheet #
18. Find Number – In the BOM table
19. Vendor supply – for equipment
20. Manufacturer – for equipment
21. Nominal Diameter – pipe & components
22. Finishes
23. Insulation
24. Component ID/ # – if it is from a larger Part Assembly / #

The Praeses project management and development team hosted SSIUSA (Patrick Roberts) in Shreveport, LA on November 23, 2010. The meeting was focused on the process of generating

the information alignment map for the project. An initial map displaying some of the common data elements across Oracle, MARS and IFS was created. Discussion also reviewed the VTHM TWR Model that was completed by JPAI. Additionally SSIUSA walked the Praeses team through the configuration of the ShipConstructor application in the Praeses development environment. This installation configuration will provide all that Praeses needs for continuing its C2E work. Praeses will analyze the full XSD specification for ShipConstructor – it is likely that only a small subset of this specification will be applicable to the C2E project work.

On January 18, 2011, Austal participated in a meeting with other IFS shipbuilders to see if their utilization of the IFS ERP system would require different data elements than Austal is using. They did not find any users that were using the product in a way that would require different data elements.

SSIUSA has completed the task for the creation of the Data Alignment Map. Data needing to be passed from the manufacturing bill of materials (MBOM) from the shipyards that were interviewed have revealed several key data fields into the ERP systems. The Alignment Map was posted on the ShipConstructor website on January 25, 2011. The file is illustrated in Figure 23 below.

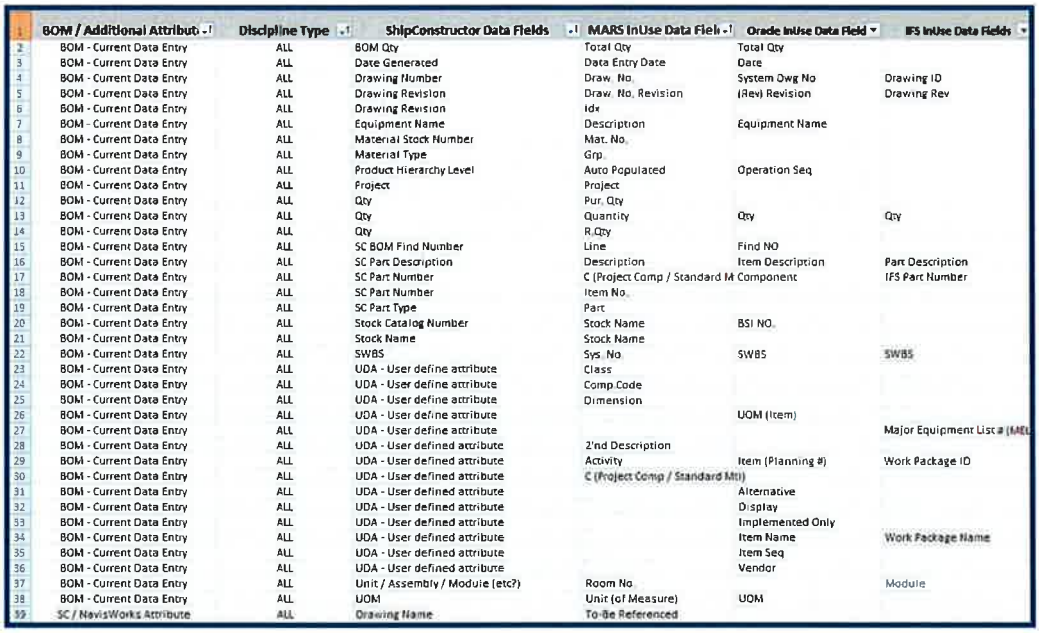
	BOM / Additional Attribute	Discipline Type	ShipConstructor Data Fields	MARS InUse Data Fields	Oracle InUse Data Fields	IFS InUse Data Fields	Bean InUse Data Fields
2	BOM - Current Data Entry	ALL	BOM Qty	Total Qty	Total Qty		tiitm901.qana
3	BOM - Current Data Entry	ALL	Date Generated	Data Entry Date	Date		tiitm901.edon
4	BOM - Current Data Entry	ALL	Drawing Number	Draw. No.	System Dwg No	Drawing ID	tiitm901.drwg
5	BOM - Current Data Entry	ALL	Drawing Revision	Draw. No. Revision	(Rev) Revision	Drawing Rev	
6	BOM - Current Data Entry	ALL	Drawing Revision	Idx			
7	BOM - Current Data Entry	ALL	Equipment Name	Description	Equipment Name		tipcs021.dsca
8	BOM - Current Data Entry	ALL	Material Stock Number	Mat. No.			tipcs021.item
9	BOM - Current Data Entry	ALL	Material Type	Grp.			tipcs021.citg
10	BOM - Current Data Entry	ALL	Product Hierarchy Level	Auto Populated	Operation Seq		
11	BOM - Current Data Entry	ALL	Project	Project			tipcs021.cprj
12	BOM - Current Data Entry	ALL	Qty	Pur. Qty			tipur041.oqua
13	BOM - Current Data Entry	ALL	Qty	Quantity	Qty	Qty	tiitm901.qana
14	BOM - Current Data Entry	ALL	Qty	R.Qty			
15	BOM - Current Data Entry	ALL	SC BOM Find Number	Line	Find NO		tipcs022.pono
16	BOM - Current Data Entry	ALL	SC Part Description	Description	Item Description	Part Description	tipcs021.dsca
17	BOM - Current Data Entry	ALL	SC Part Number	C (Project Comp / Standard M	Component	IFS Part Number	tipcs021.item
18	BOM - Current Data Entry	ALL	SC Part Number	Item No.			
19	BOM - Current Data Entry	ALL	SC Part Type	Part			
20	BOM - Current Data Entry	ALL	Stock Catalog Number	Stock Name	BSI NO.		
21	BOM - Current Data Entry	ALL	Stock Name	Stock Name			
22	BOM - Current Data Entry	ALL	SWBS	Sys. No.	SWBS	SWBS	tipcs021.cpcp
23	BOM - Current Data Entry	ALL	UDA - User define attribute	Class			
24	BOM - Current Data Entry	ALL	UDA - User define attribute	Comp.Code			
25	BOM - Current Data Entry	ALL	UDA - User define attribute	Dimension			
26	BOM - Current Data Entry	ALL	UDA - User define attribute		UOM (Item)		tipcs021.cuni
27	BOM - Current Data Entry	ALL	UDA - User define attribute			Major Equipment List # (MEL#)	
28	BOM - Current Data Entry	ALL	UDA - User defined attribute	2'nd Description			
29	BOM - Current Data Entry	ALL	UDA - User defined attribute	Activity	Item (Planning #)	Work Package ID	
30	BOM - Current Data Entry	ALL	UDA - User defined attribute	C (Project Comp / Standard Mtl)			
31	BOM - Current Data Entry	ALL	UDA - User defined attribute		Alternative		
32	BOM - Current Data Entry	ALL	UDA - User defined attribute		Display		
33	BOM - Current Data Entry	ALL	UDA - User defined attribute		Implemented Only		
34	BOM - Current Data Entry	ALL	UDA - User defined attribute		Item Name	Work Package Name	
35	BOM - Current Data Entry	ALL	UDA - User defined attribute		Item Seq		
36	BOM - Current Data Entry	ALL	UDA - User defined attribute		Vendor		tipcs021.suno
37	BOM - Current Data Entry	ALL	Unit / Assembly / Module (etc?)	Room No.		Module	
38	BOM - Current Data Entry	ALL	UOM	Unit (of Measure)	UOM		tipcs021.cuni
39	SC / NavisWorks Attribute	ALL	Drawing Name	To-Be Referenced			

Figure 23: CAD to ERP Data Alignment Map

Task 2 is to develop an alignment map which identifies where a specific piece of data of the CAD (PIM) system resides and identify where that data should be transferred to the corresponding ERP system. As the alignment map has been generated this Task is considered complete. It is recognized that there might be some refinement of the alignment map during Phase II.

PHASE II ACTIVITIES

XML Schema definitions for the XML file output were expanded and finalized to include all of the necessary data culled from the Data Alignment Matrix. Some of the data elements were previously not included, but have since been included into the schema definition. This required a modification of the underlying schema to accommodate them. SSIUSA's Patrick Roberts had previously posted the revised ERP to CAD Data Alignment Map on the NSRP project management website, and it is included below for reference (Figure 24):



	BOM / Additional Attribut	Discipline Type	ShipConstructor Data Fields	MARS InUse Data Fiel	Oracle InUse Data Field	IFS InUse Data Fields
2	BOM - Current Data Entry	ALL	BOM Qty	Total Qty	Total Qty	
3	BOM - Current Data Entry	ALL	Date Generated	Data Entry Date	Date	
4	BOM - Current Data Entry	ALL	Drawing Number	Draw. No.	System Dwg No	Drawing ID
5	BOM - Current Data Entry	ALL	Drawing Revision	Draw. No. Revision	(Rev) Revision	Drawing Rev
6	BOM - Current Data Entry	ALL	Drawing Revision	Idx		
7	BOM - Current Data Entry	ALL	Equipment Name	Description	Equipment Name	
8	BOM - Current Data Entry	ALL	Material Stock Number	Mat. No.		
9	BOM - Current Data Entry	ALL	Material Type	Grp.		
10	BOM - Current Data Entry	ALL	Product Hierarchy Level	Auto Populated	Operation Seq	
11	BOM - Current Data Entry	ALL	Project	Project		
12	BOM - Current Data Entry	ALL	Qty	Pur. Qty		
13	BOM - Current Data Entry	ALL	Qty	Quantity	Qty	Qty
14	BOM - Current Data Entry	ALL	Qty	R.Qty		
15	BOM - Current Data Entry	ALL	SC BOM Find Number	Line	Find NO	
16	BOM - Current Data Entry	ALL	SC Part Description	Description	Item Description	Part Description
17	BOM - Current Data Entry	ALL	SC Part Number	C (Project Comp / Standard M	Component	IFS Part Number
18	BOM - Current Data Entry	ALL	SC Part Number	Item No.		
19	BOM - Current Data Entry	ALL	SC Part Type	Part		
20	BOM - Current Data Entry	ALL	Stock Catalog Number	Stock Name	BSI NO.	
21	BOM - Current Data Entry	ALL	Stock Name	Stock Name		
22	BOM - Current Data Entry	ALL	SWBS	Sys. No.	SWBS	SWBS
23	BOM - Current Data Entry	ALL	UDA - User define attribute	Class		
24	BOM - Current Data Entry	ALL	UDA - User define attribute	Comp.Code		
25	BOM - Current Data Entry	ALL	UDA - User define attribute	Dimension		
26	BOM - Current Data Entry	ALL	UDA - User define attribute		UOM (Item)	
27	BOM - Current Data Entry	ALL	UDA - User define attribute			Major Equipment List (MEL
28	BOM - Current Data Entry	ALL	UDA - User defined attribute	2'nd Description		
29	BOM - Current Data Entry	ALL	UDA - User defined attribute	Activity	Item (Planning #)	Work Package ID
30	BOM - Current Data Entry	ALL	UDA - User defined attribute	C (Project Comp / Standard Mtl)		
31	BOM - Current Data Entry	ALL	UDA - User defined attribute		Alternative	
32	BOM - Current Data Entry	ALL	UDA - User defined attribute		Display	
33	BOM - Current Data Entry	ALL	UDA - User defined attribute		Implemented Only	
34	BOM - Current Data Entry	ALL	UDA - User defined attribute		Item Name	Work Package Name
35	BOM - Current Data Entry	ALL	UDA - User defined attribute		Item Seq	
36	BOM - Current Data Entry	ALL	UDA - User defined attribute		Vendor	
37	BOM - Current Data Entry	ALL	Unit / Assembly / Module (etc?)	Room No.		Module
38	BOM - Current Data Entry	ALL	UOM	Unit (of Measure)	UOM	
39	SC / NavisWorks Attribute	ALL	Drawing Name	To-Be Referenced		

Figure 24: ERP to CAD Data Alignment Map

At the end of Phase II, this Task is considered complete.

(d) Task 3 – Demonstrate and document the ability to gather required data from the PIM

PHASE I ACTIVITIES

During the second quarter, Praeses had initiated research into XSL templates for data exchange mechanism and are investigating basic CAD modeling with special focus on programmatic (.NET) interfaces and database linking. Praeses had begun to sketch an outline of a system design document to be used to describe the neutral data exchange process (between PIM and ERP Material system) for this project. The developer is approaching this effort to develop a data exchange standard much like that of a "working group" seen in other areas of computer science and manufacturing where similar multi-disciplinary teams engage in a common project.

The Praeses business analysis, responsible for process modeling activities, reviewed the extensive mapping of the VTHM Material Identification and Procurement Process performed by VTHM and SSIUSA under a separate project. This is instructive for this project's activities and will be used to broadly guide the mapping, data capture, efforts at other shipyards.

During the second quarter, under the MARS Integration status, Jerry Pittman & Associates' (JPAI) Heather (Savage) Shows and SSIUSA's Patrick Roberts helped provide the team with a review on the status of the "test" data model that would be generated for both VTHM and NGSB-GC under this project SOW. The hull selected was the Torpedo Weapons Receiver (TWR 841) Unit 2110. Figure 25 is a unit breakdown drawing of the TWR 841.

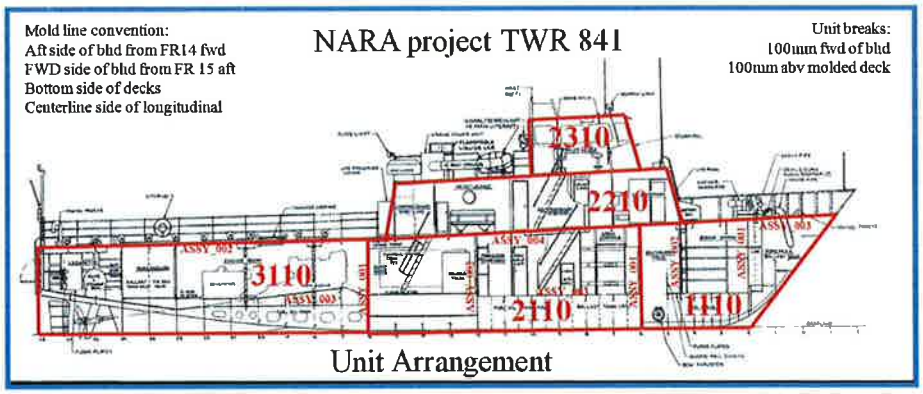


Figure 25: TWR 841 Unit Breakdown Drawing

It is noted that the TWR 841 is known as the NSRP unclassified Navy vessel that has been used on several ISE projects to test in exchanging standard data protocols in line with the Navy Product Data Initiative, as well as some of the STEP translation initiatives. Unit 2110 was the unit selected as it has a simple structural design and a good representation of the distributive systems as well. Figure 26 shows Unit 2110 structural unit that will be modeled using VTHM's part numbers, part naming conventions, and BOM specific data for the MARS ERP system.

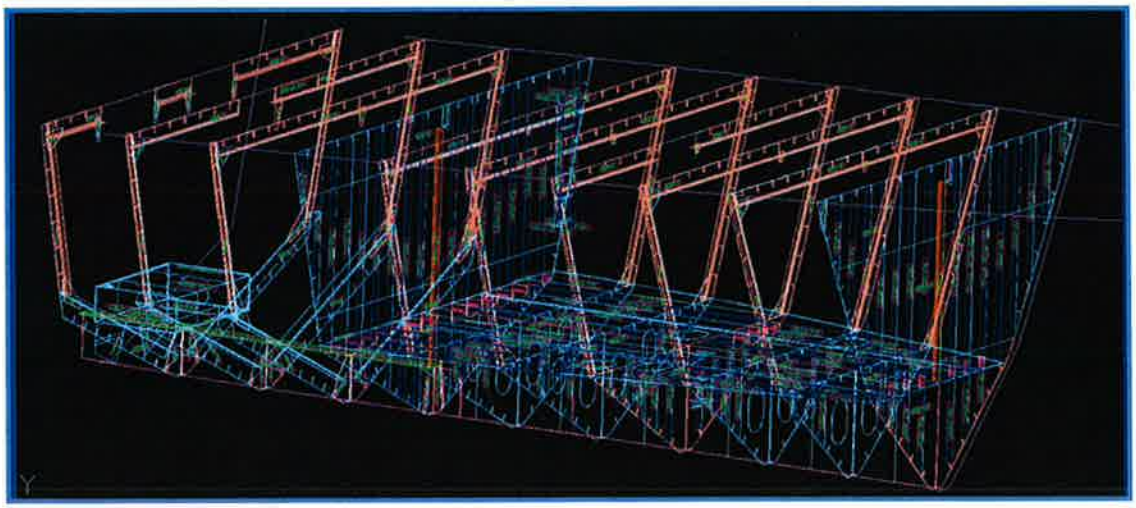


Figure 26: TWR 841 Unit 2110 Structural Model Example

Figure 27 shows only the Fuel Oil Piping System model for the TWR 841. This distributive system has enough piping information from pipe, flanges, valves, elbow, tees, union and other

pipe components that there shouldn't need to be much more modeled unless further testing is required.

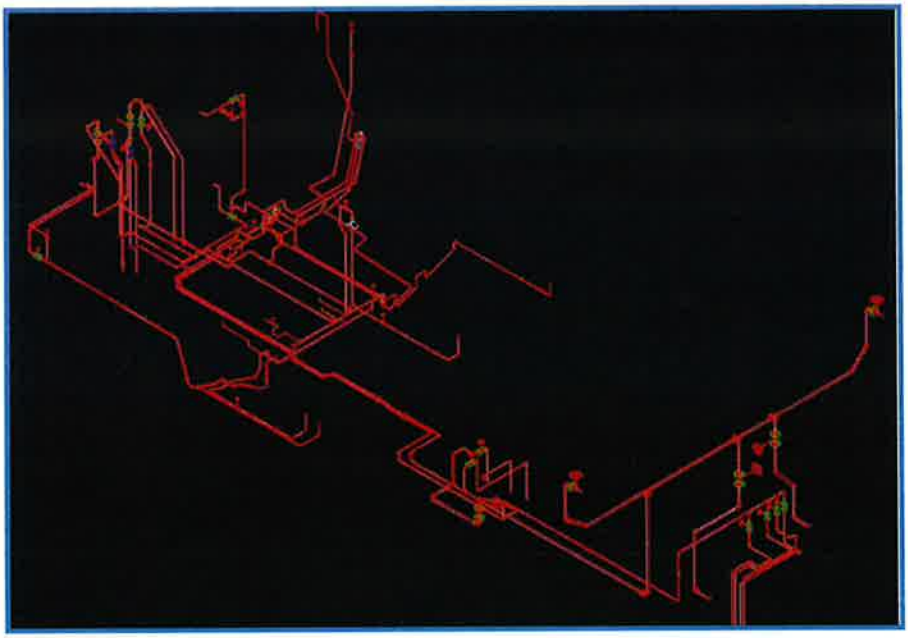


Figure 27: TWR 841 Unit 2110 Fuel Oil Piping System Model Example

Figure 28 shows the Unit 2110 Structural model, the Fuel Oil Piping System, HVAC and Equipment models for the TWR 841. It is anticipated this should be adequate for MARS integration testing for both VTHM and NGSB-GC.

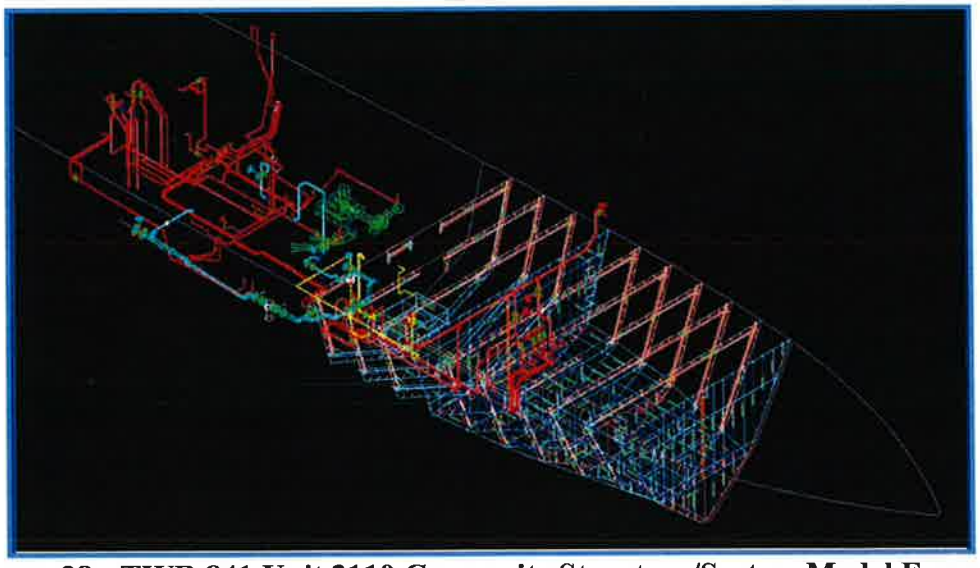


Figure 28: TWR 841 Unit 2110 Composite Structure/System Model Example

SSIUSA had assisted JPAI in getting their hardware configuration set up with the ShipConstructor Software, AutoCAD Software and SQL Server Software. JPAI was ready to start modeling in mid September.

At the October data capture meeting, Bollinger had outlined the process envisioned for the interface between Oracle and ShipConstructor as well as developed some code to test the interface process in addition to developing the first cut at the interface table is noted in Figure 29. The Interface Table will also serve Bollinger as total engineering bill of material. From this table Bollinger will interface with its ERP (Oracle) System.

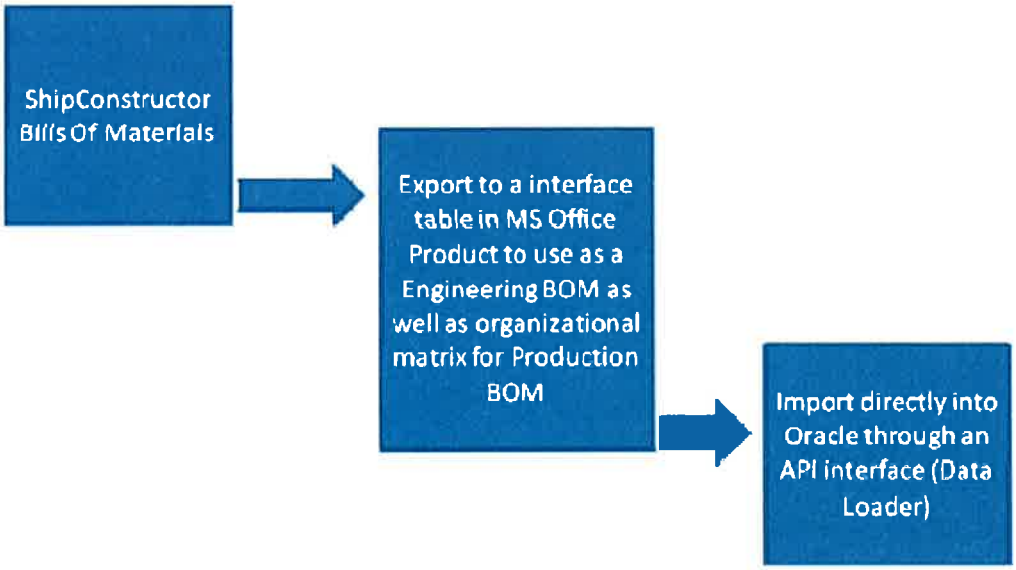


Figure 29: Bollinger Concept of Interface Between ERP and CAD

Bollinger has developed the XML Parser program which allows for a choice of xml elements that are needed for the .csv file to be used with Data Loader, Figure 30.

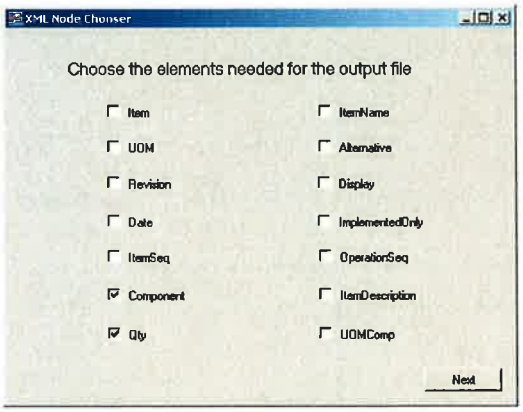


Figure 30: Bollinger's Data Loader

In addition, we have also created a "Bill Quantity Change Program" program which takes the outputted .csv file from the xml parser and separates the quantities needed for each component

into separate .csv files if necessary, Figure 31. This will allow the components to be sent to the correct locations.

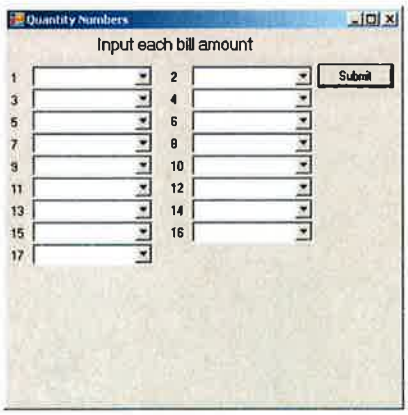


Figure 31: Bollinger's Bill Quantity Change Program

SSIUSA and Praeses have been working to establish a ShipConstructor API training sessions for the development. After further review, this seemed to be a bit of overkill and wouldn't allow the project to move at a faster pace that would end with a result that could be implemented by the end of Phase II. This training session has been re-scoped to an XML / API workshop that will allow Praeses the ability to see where the data is being retrieved from the ShipConstructor data tables. Once the XML file is written by SSIUSA, Praeses plans to have at least one developer attend this workshop in Mobile, AL in Phase II.

Praeses' work continued on the design documentation for the CAD to ERP Integration system which Praeses tentatively calls the C2E system (CAD to ERP). This includes documenting anticipated use cases and business model analysis. A very high-level view of the proposed data flow is shown in Figure 32, which was presented at the November Project Team Meeting and reviewed again at the February Project Team Meeting.

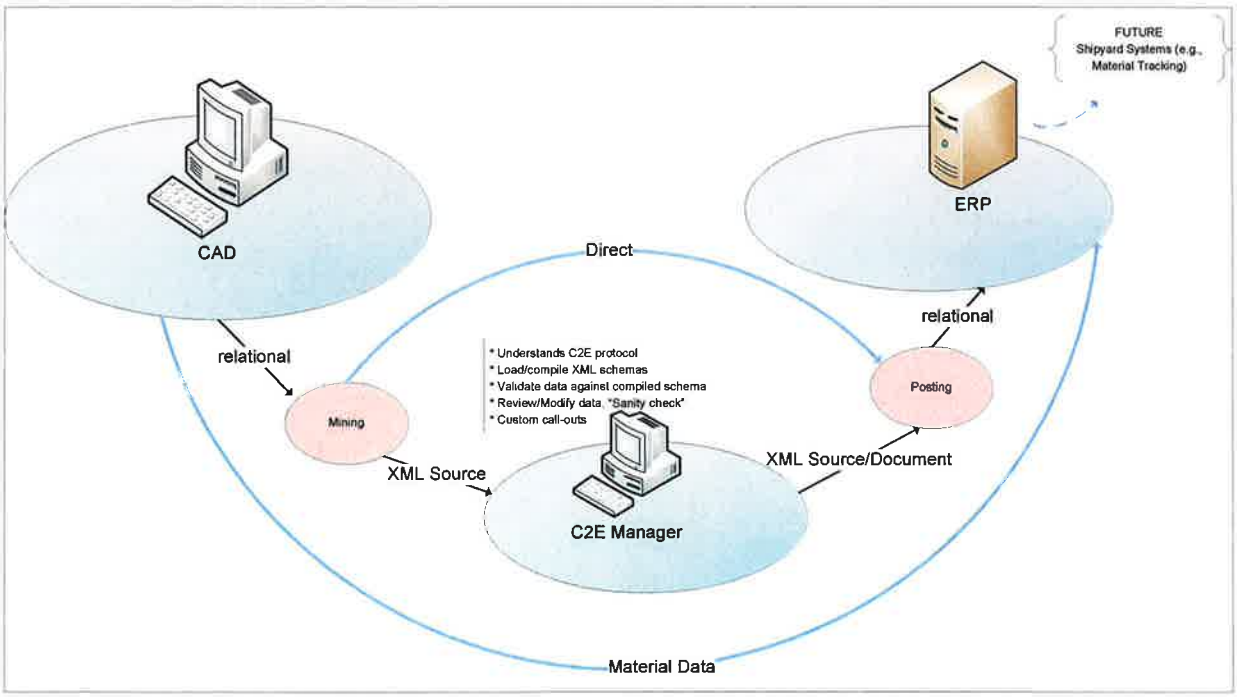


Figure 32: Praeses Proposed Data Flow

One key point guiding the developer is that the proposed system architecture should be flexible, independent of a specific product or company and provide for a relatively simple installation to be utilized by the end user.

Immediately after the August Quarterly Status Meeting in Marinette, WI, SSIUSA and JPAI began to work together to get ShipConstructor catalog data from an existing VTHM project in order to remodel the retired Navy Torpedo Weapons Receiver (TWR) into a VTHM specific data model. This will be done so that the industry can have access to the data and report information that will be a result of this effort. SSIUSA helped provided technical assistance to two marine designers that were focused on modeling the entire structure for the 2101 Unit and all of the piping for the Fuel Oil System. Also, it was determined through the data capture process that individual manufacturing drawing numbers (sometimes sheet numbers) were important in processing BOM data that was associated to the WBS structure of the structure and piping systems themselves. SSIUSA held a one day session for JPAI to understand drawing generation from the ShipConstructor database. As a result, on October 20, 2010, JPAI completed the 3-D model using VTHM's design practices and component data bases.

On November 18, 2010, NGSB-GC provides their design practices and component data bases to JPAI. This exchange of design practices and component data bases was delayed as security issues were identified and then resolved. A second 3-D model will be generated following the NGSB-GC's practices. Work on this second 3-D model development will start in December 2010. NGSB-GC executed a non-disclosure agreement with JPAI for the purpose of model data exchange.

The two 3-D models will be used in testing the data exchange with MARS at a later date. Figure 33 is an example of what will be provided by JPAI.

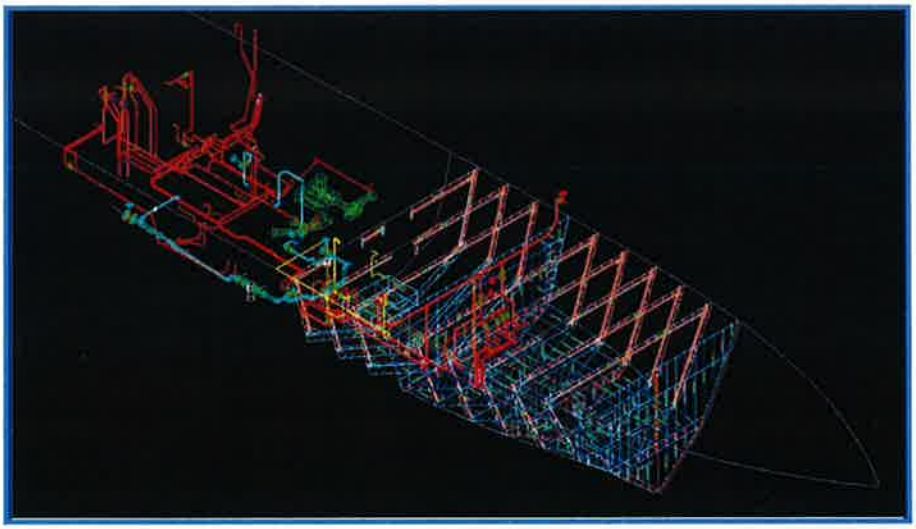


Figure 33: TWR 841 Unit 2110 Composite Structure/System Model Example

On December 2 and 3, 2010, SSIUSA's Pat David assisted JPAI with restoring XML file catalogs that were sent by NGSB-GC in efforts to get the modeling started. Unlike with the model development for the VTHM model, JPAI had only one marine designer to input distributed systems and create the structural model. Throughout December 2010 and January 2011, SSIUSA has provided significant support for the NGSB-GC TWR model development work.

JPAI had continued their work on the Part Catalogue Export files (from a current ShipConstructor project) received from NGSB-GC. This model is using the TWR (Torpedo Weapons Receiver) as a test model platform as was done with VTHM 3D model. JPAI began work on the NGSB-GC model on December 6, 2010. The NGSB-GC model work was completed on January 28, 2011.

Figures 34 through 39 are some screen shots from the VTHM and NGSB-GC based TWR models that JPAI developed.

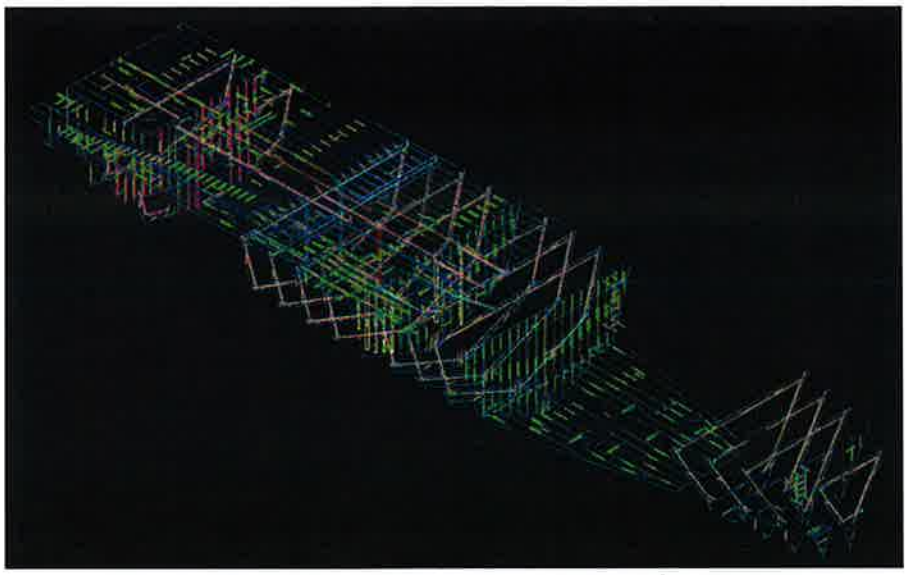


Figure 34: TWR 841 Structural Model for VTHM

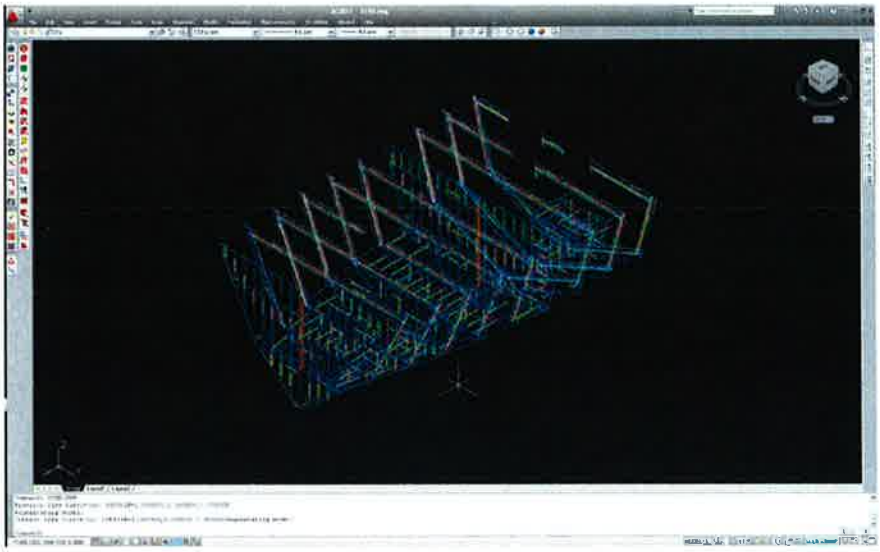


Figure 35: TWR 841 Structural Model for NGSB-GC

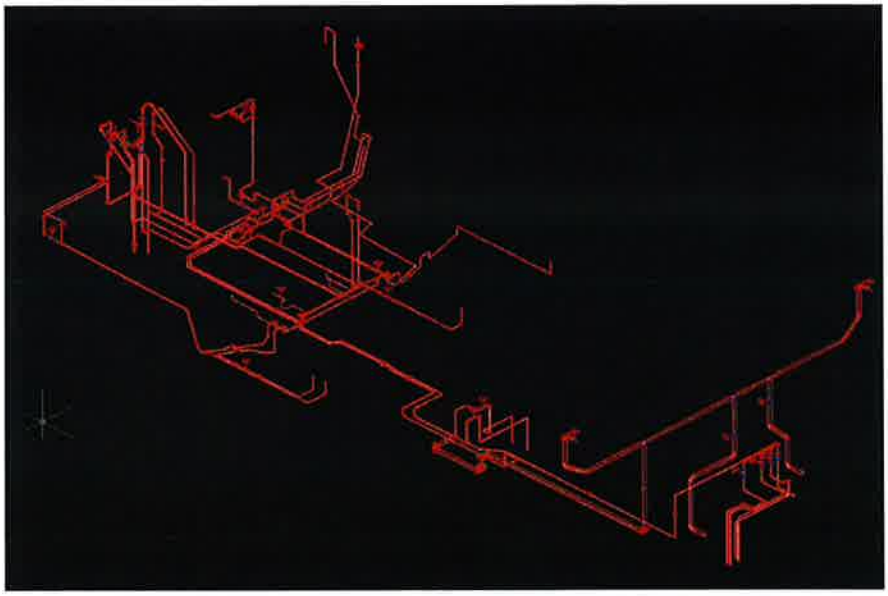


Figure 36: TWR 841 Piping Model for VTHM

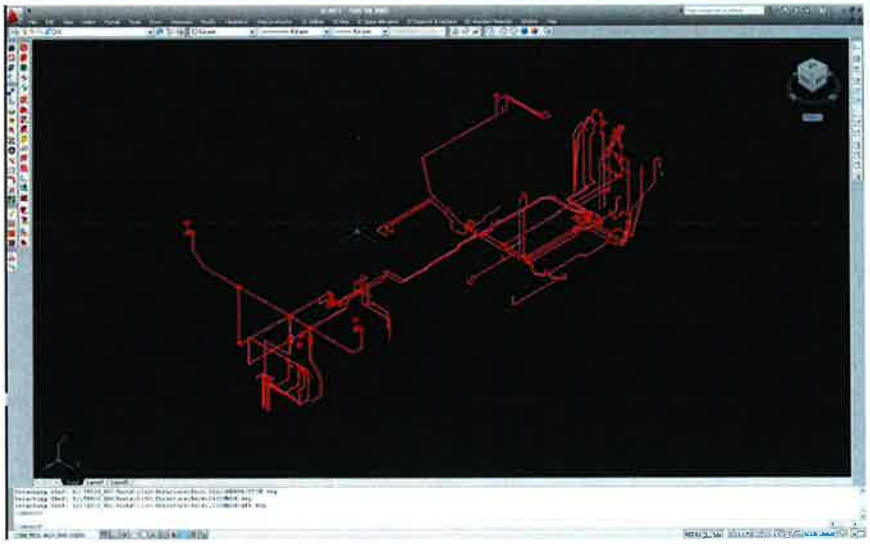


Figure 37: TWR 841 Piping Model for NGSB-GC

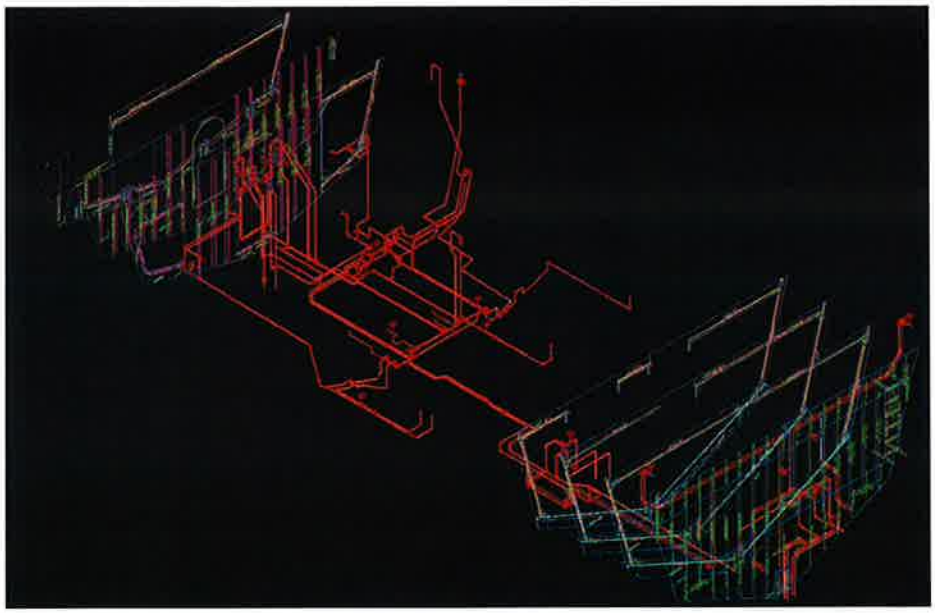


Figure 38: TWR 841 Composite Structure/Piping Model for VTHM

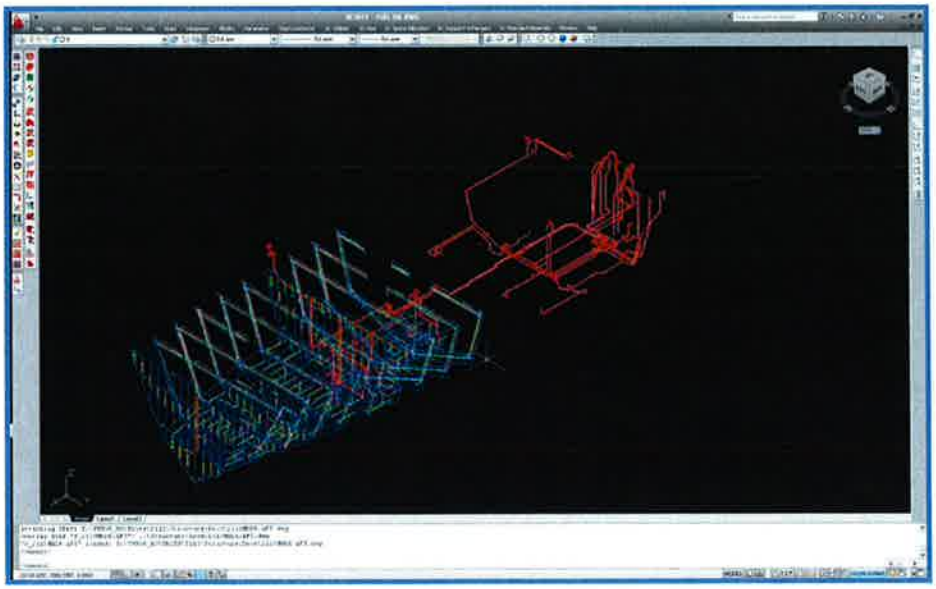


Figure 39: TWR 841 Composite Structure/Piping Model for NGSB-GC

SSIUSA has been actively working on producing a single neutral file from a CAD system, in this case ShipConstructor, that can be imported into the appropriate locations in an ERP system to facilitate the production of a ship model. Now, the first stage requirement of the business processes that would require this metadata be mapped has been completed. This was done through interviewing and examining the current shipyard procedures for manual data entry. The results of this examination produced a data map of the pertinent metadata. This data map was then collated with the data contained in the CAD system ShipConstructor. The results of this exercise produced the data alignment map as was noted earlier within this document. This data

alignment map shows the correlation between the required ERP data, and the same data in the CAD system. From this alignment map, the appropriate data can be collated for retrieval when the appropriate command is executed. Work has begun to write this data into an XML document that will be documented by an XSD document. Per the statement of work, the XML file will itself be neutral to any particular software, and will be understood by the parser for the ERP data insertion, regardless of source.

SSIUSA is working towards an implementation that will consist primarily of a custom program (Dynamic Link Library (DLL)) that will allow a command to be executed in the CAD software, ShipConstructor, that will initiate a query of the underlying database to retrieve the required data. This data will then be organized and output into the defined XML document. This XML document will be used in the next step where the XML data will be parsed and uploaded into the ERP system(s) to the appropriate locations. Further processing on the data can then take place natively within the ERP system as usual.

As defined by the business process logic at each shipyard, the XML file generation command will be executed from the ShipConstructor environment and will be run from a particular assembly stage of interest. The user will open an assembly stage drawing that they desire data to be pushed to the ERP from, and will execute a command that will query the data for all the parts in that particular build sequence level and format it into the XML output document. A given assembly stage drawing in ShipConstructor is intrinsically tied to the product hierarchy, which determines the build sequencing for the ship. Figure 40 below shows an example of an assembly drawing and interface.

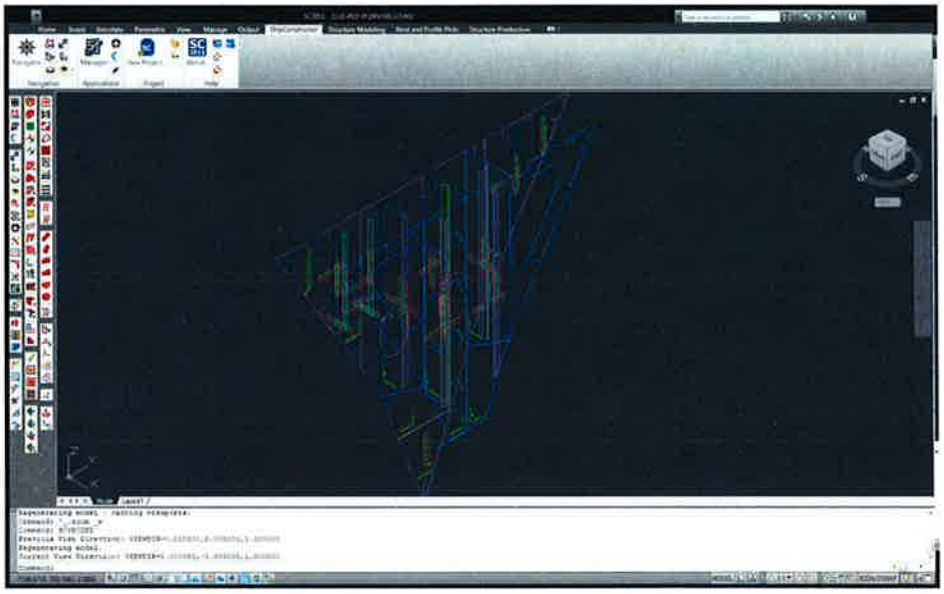


Figure 40: TWR 841 ShipConstructor Assembly Drawing and Interface

Figure 41 below show the Product Hierarchy of which the ShipConstructor assembly drawing and interface in which the XML file generation code would be ran from in order to generate the XML file. This would intrinsically follow the same process as an existing ShipConstructor user

would generate a drawing file for a manufacturing or construction process using the ShipConstructor software.

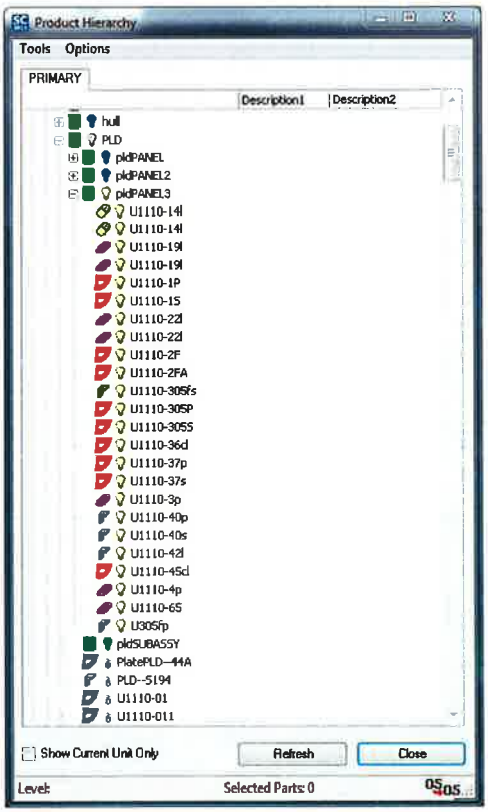


Figure 41: Example Sample Build Sequence from a ShipConstructor Product Hierarchy

This XML output document will be documented by the XML Schema Definition (XSD). This XSD document will provide all of the details required to write a valid XML document that can be parsed and processed by the methods used to insert this data into the ERP system, and most importantly; *it is not specific to any particular software*. The XML data will then be inserted into an interface table within the C2E system that Praeses will create. This interface table will be tailored to contain the data of interest for the parts, and will then allow the business logic contained in the ERP system to handle placing and categorizing the data appropriately. This important step allows the business logic in the ERP to handle the correct BOM data as exported from ShipConstructor through the XML output. The Data Alignment Map provides the necessary context to know how to organize the data for entry into the interface table into the ERP system(s).

A representative XML file and XSD document was sent to Praeses to use in testing their C2E program. Figure 42 shows the XML example.

```
- <Assembly xmlns:sc="ShipConstructorERPExport">
  - <Parts>
    - <Part>
        <sc:BOMQuantity>2</sc:BOMQuantity>
        <sc:StockName>StockName</sc:StockName>
        <sc:MaterialType>Material</sc:MaterialType>
        <sc:SCPartDescription>SCPartDescription</sc:SCPartDescription>
      </Part>
    - <Part d3p1:type="EquipmentPart" xmlns:d3p1="http://www.w3.org/2001/XMLSchema-instance">
        <sc:BOMQuantity>3</sc:BOMQuantity>
        <sc:StockName>Equipment Stock Name</sc:StockName>
        <sc:MaterialType>Equipment Material</sc:MaterialType>
        <sc:SCPartDescription>Equipment Part Description</sc:SCPartDescription>
        <sc:Anchored>true</sc:Anchored>
        <sc:NoSpool>false</sc:NoSpool>
      </Part>
    - <Part d3p1:type="PipePart" xmlns:d3p1="http://www.w3.org/2001/XMLSchema-instance">
        <sc:BOMQuantity>0</sc:BOMQuantity>
        <sc:StockName>Pipe Stock Name</sc:StockName>
        <sc:MaterialType>Pipe Material</sc:MaterialType>
        <sc:SCPartDescription>Pipe Part Description</sc:SCPartDescription>
        <sc:Color>Red</sc:Color>
        <sc:ExtrusionLength>100.12345</sc:ExtrusionLength>
      </Part>
    </Parts>
    <sc:DrawingNumber>12345</sc:DrawingNumber>
    <sc:DateGenerated>2/1/2011</sc:DateGenerated>
    <sc:Project>Project</sc:Project>
    <sc:ProductHierarchyLevel>Product Heirarchy Level</sc:ProductHierarchyLevel>
  </Assembly>
```

Figure 42: XML example

In December 2010, Praeses' developers were able to install ShipConstructor in their development environment and spent time analyzing the database structure. Praeses' project manager and developer also conducted a conference call with SSIUSA outlining the respective development responsibilities for each party so that Praeses continue to align our project efforts. SSIUSA will provide the XML schema and sample data and Praeses is developing the Cad to ERP (C2E) Manager application that is being designed to take that schema and data source, validate both, present a view of the resulting data for the end user and provide output for the target ERP system.

The Praeses project manager and developer conducted a conference call in January 2011 with SSIUSA outlining the respective development responsibilities for each party so that we continue to align our project efforts. SSIUSA will provide the XML schema and sample data and Praeses is developing the C2E Manager application that is being designed to take that schema and data source, validate both, present a view of the resulting data for the end user and provide output for the target ERP system. Praeses conducted a LiveMeeting session in February 2011 with ShipConstructor demonstrating the first version of the C2E Manager software.

Praeses' development continues on the C2E Manager. Broadly speaking the intent of C2E Manager is to: (1) allow the application user to load and compile XML schemas (currently based on ShipConstructor but can be any schema), (2) validate XML data against the compiled XML schema, (3) review, modify, save and revalidate data values and (4) provide call-outs for custom imports and exports. The application is early in the prototype stage but does successfully parse and validate both XML schema and XML data. Sample screenshots are shown below (note these are samples showing "dummy" data at this time)

Figure 43 shows an XML schema file (in this case part of a larger ShipConstructor XSD file) that has been successfully validated by C2E Manager. The schema definitions are shown in a tree view. The application will display status in the bottom menu bar as: Green=Successful validation, Yellow=Validation complete with Warnings (the application will allow the user to proceed), Red=Validation failed with Errors (the user must fix errors before proceeding). An analagous process occurs to validate a given XML data file. Figure 44 shows validation for a data file that has failed, with appropriate error messages displayed. Figure 45 shows a typical view of valid XML data in C2E. The initial development of the C2E design document was also drafted. This document will evolve over time and be completed in Phase II.

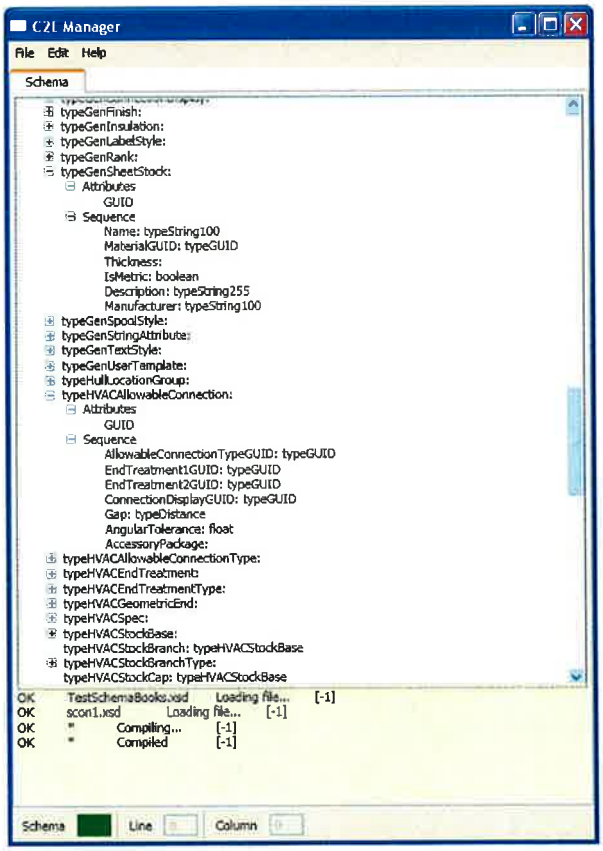


Figure 43: XML Schema successfully validated

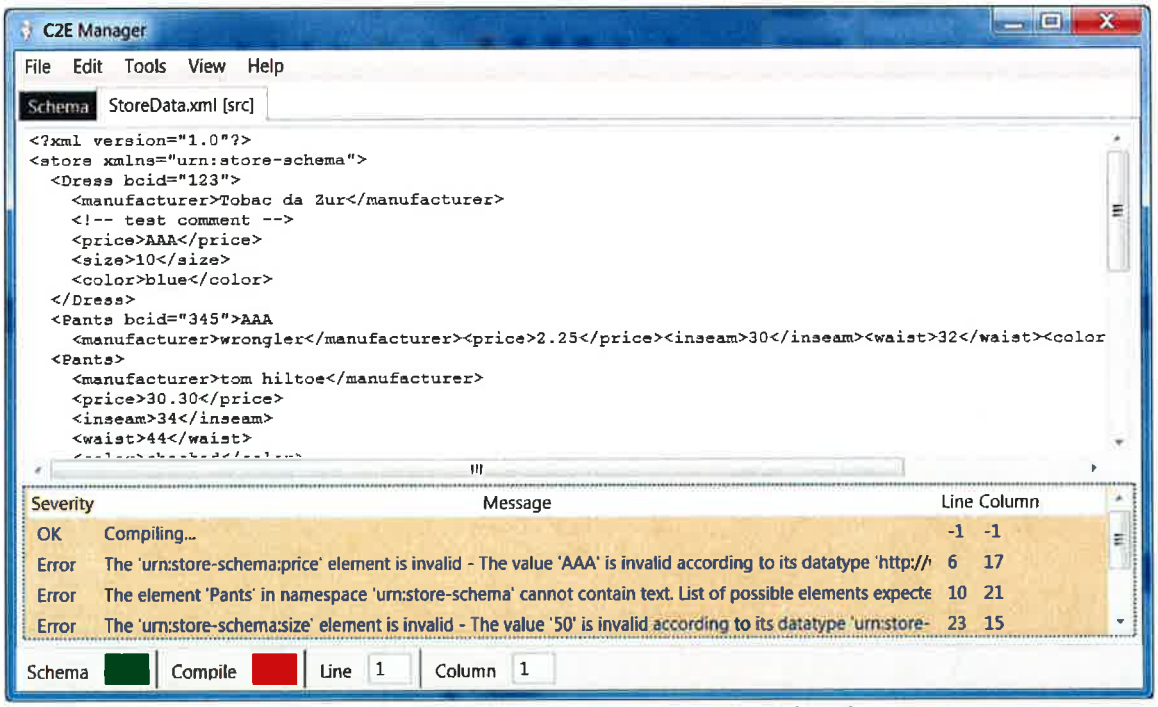


Figure 44: XML data which failed validation

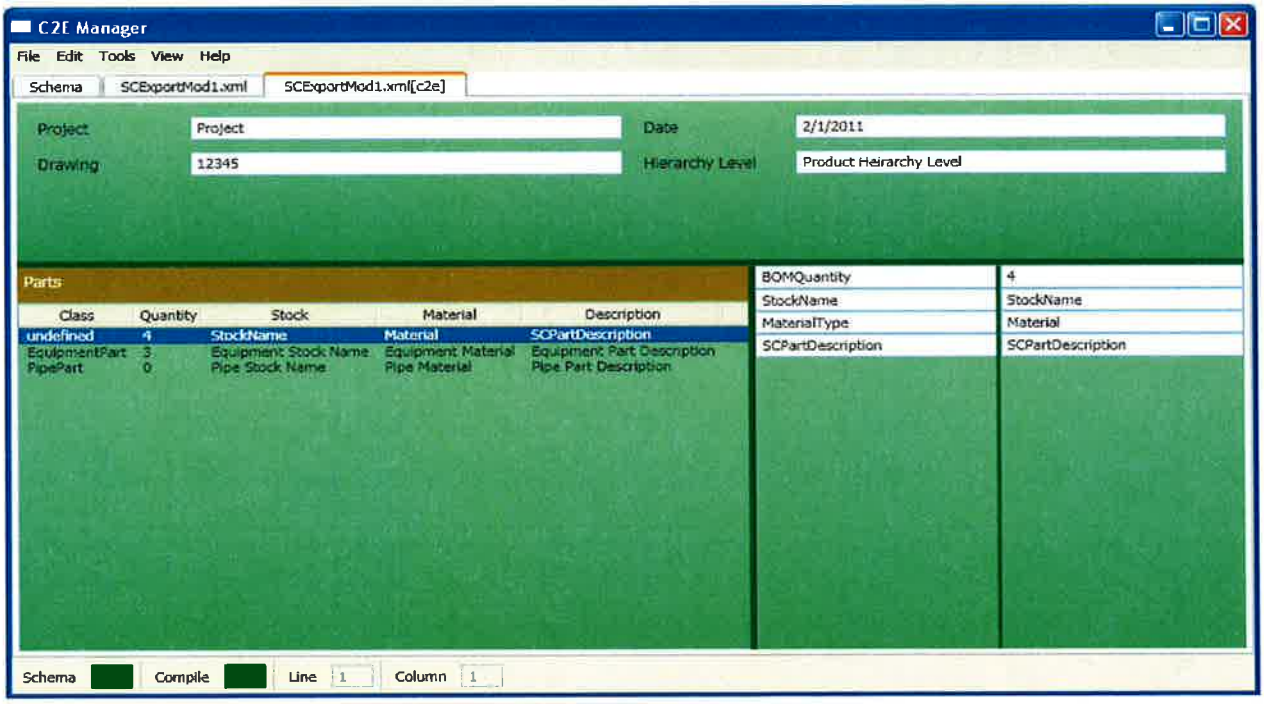


Figure 45: Typical view of valid XML data

In December 2010, Bollinger has completed their process review and process model. Bollinger has outlined the process envisioned for the interface between Oracle and ShipConstructor.

ShipConstructor is working on an export utilizing an XML Schema. Bollinger continues to work with Praeses on a general purpose schema compiler and data validation program. Bollinger has completed the first draft of the Query/Update program that takes in an XML file and queries/updates.

Task 3 requires the demonstration of the ability to gather data from the CAD (PIM) system. To accomplish this, independent models were created for VTHM and NGSB-GC using the public information of the TWR, as their current project and security concerns prevents the release of job information to the public. The models have been created. The development of the Schema and associated controls have been initiated and will be fine tuned during Phase II. The actual testing of the ability to gather data will occur in Phase II.

PHASE II ACTIVITIES
Phase II had no scheduled activities concerning Task 3.

(e) Task 4 – Demonstrate and document the ability to parse the data from the XML document

PHASE I ACTIVITIES
Within the third quarter, Praeses continues to work on documenting the design methodology (based on XML) proposed for this project. This includes research into relevant practices such as the Parts Library standardization initiative (ISO 13584).

The JPAI developed TWR model, using VTHM standards, was also provided to Praeses so that it could use this database in the testing of the XML file generation.

Task 4 requires the demonstration of parsing data into the ERP system. In order to accomplish this, the XML schema must be developed. Preparation work on this Task has been started. This Task will be finished during Phase II.

PHASE II ACTIVITIES
With the XML Schema definition finalized in Phase I, ShipConstructor was then able to produce working code that allowed the appropriate data to be exported from a ShipConstructor project into valid XML per the schema. This output file could be written based on a given assembly level in the project, and would export all of the required data from the alignment matrix for all the parts in the assembly level. This data comes from a mixture of the purely ShipConstructor database objects as well as information from the drawing file itself that references Bill of Material tables on the drawing. A custom ShipConstructor dynamic link library (dll) was generated that contained the necessary code and commands to allow the user to export the XML document from the ShipConstructor interface.

This XML file output was then delivered to Praeses for parsing and serialization into the C2E program in preparation for importing into ERP systems. Initially the first revision of the finalized XML document caused errors to appear for the XML parsing system in use by Praeses. At that point feedback and collaboration was initiated between ShipConstructor and Praeses to

understand the problems and to provide a solution. Praeses required that the XML data elements be ordered in a consistent manner to allow their XML parser to correctly identify and serialize the data elements. This required a revision of the underlying export code for the XML generation from ShipConstructor to adhere to those requirements. This did not actually put any constraints on the data elements that were being exported, but rather required the exporter be outputting the data elements in an ordered manner. Once the code had been revised, another round of XML documents was exported from the test ShipConstructor project and delivered to Praeses. Once the orders were corrected and accounted for the Praeses parser was able to correctly read the XML and serialize the data in C2E.

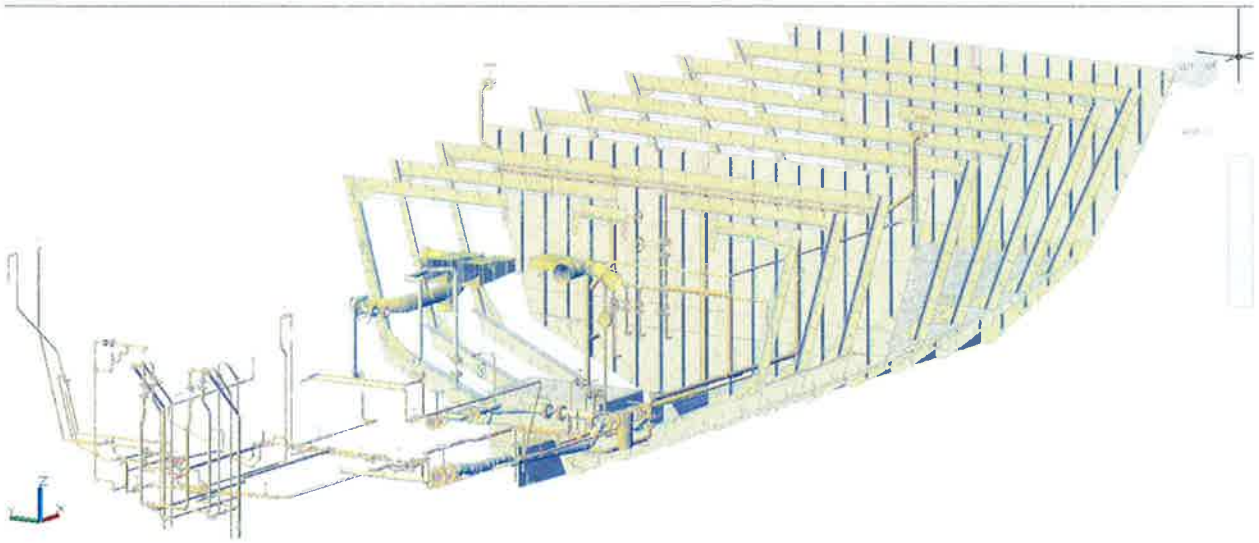


Figure 46: TWR Test Model

The data export was performed using the TWR test case model developed earlier in the project containing data attributes specific to each of the project member shipyards. The data export is specific to a given build sequencing level for the project assembly (Figure 47) level, and is dictated by the product hierarchy level for manufacturing (Figure 48).

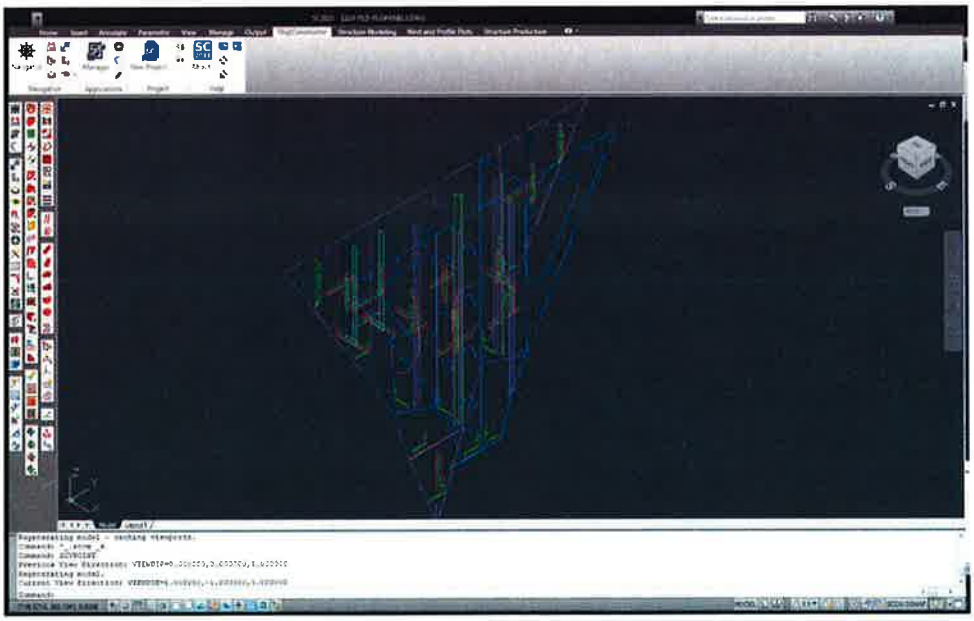


Figure 47: TWR 841 ShipConstructor Assembly Drawing and Interface

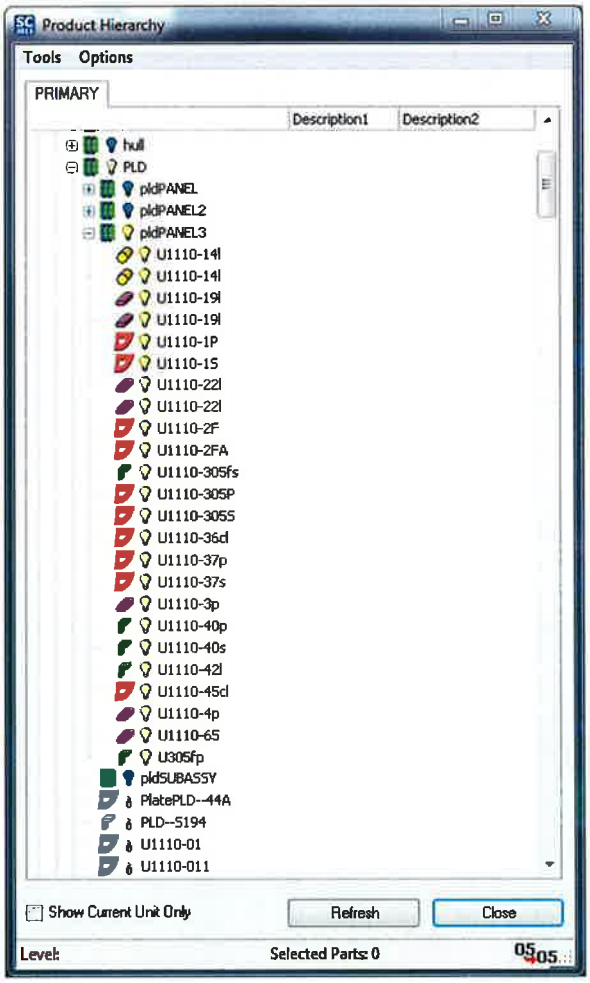


Figure 48: Example Sample Build Sequence from a ShipConstructor Product Hierarchy

The data export is successful to the C2E software that then serializes the XML content in preparation for importing into the various ERP systems under consideration. Samples of the XSD (XML Schema Definition) document and the XML output generated pertaining to the XSD are included below (Figures 49 and 50).

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:tns="ShipConstructorERPExport" elementFormDefault="qualified" ta
  <xs:complexType name="Assembly">
    <xs:sequence>
      <xs:element minOccurs="0" name="DrawingNumber" nillable="true" type="xs:str
      <xs:element minOccurs="0" name="DrawingName" nillable="true" type="xs:strin
      <xs:element minOccurs="0" name="LastDrawingRevisionDate" nillable="true" ty
      <xs:element minOccurs="0" name="LastDrawingRevisionDateUTC" nillable="true"
      <xs:element minOccurs="0" name="DateGenerated" nillable="true" type="xs:str
      <xs:element minOccurs="0" name="DateGeneratedUTC" nillable="true" type="xs:
      <xs:element minOccurs="0" name="Project" nillable="true" type="xs:string" /
      <xs:element minOccurs="0" name="ProductHierarchyLevel" nillable="true" type
      <xs:element minOccurs="0" name="Parts" nillable="true" type="tns:ArrayOfPar
    </xs:sequence>
  </xs:complexType>
  <xs:element name="Assembly" nillable="true" type="tns:Assembly" />
  <xs:complexType name="ArrayOfPart">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="Part" nillable="true"
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ArrayOfPart" nillable="true" type="tns:ArrayOfPart" />
  <xs:complexType name="Part">
    <xs:sequence>
      <xs:element minOccurs="0" name="BOMQuantity" type="xs:int" />
      <xs:element minOccurs="0" name="Drawing" nillable="true" type="xs:string" /
      <xs:element minOccurs="0" name="MaterialStockNumber" nillable="true" type="
      <xs:element minOccurs="0" name="MaterialType" nillable="true" type="xs:stri
      <xs:element minOccurs="0" name="SCPartDescription" nillable="true" type="xs
      <xs:element minOccurs="0" name="SCPartNumber" nillable="true" type="xs:stri
      <xs:element minOccurs="0" name="SCPartType" nillable="true" type="xs:string
      <xs:element minOccurs="0" name="StockCatalogNumber" nillable="true" type="x
      <xs:element minOccurs="0" name="StockName" nillable="true" type="xs:string"
      <xs:element minOccurs="0" name="UDAs" nillable="true" type="tns:ArrayOfUDA"
    </xs:sequence>
  </xs:complexType>
  <xs:element name="Part" nillable="true" type="tns:Part" />
  <xs:complexType name="ArrayOfUDA">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="UDA" nillable="true"
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ArrayOfUDA" nillable="true" type="tns:ArrayOfUDA" />
  <xs:complexType name="UDA">
        <xs:extension base="xs:string">
             <xs:attribute name="Name" type="xs:string" />
        </xs:extension>
  </xs:complexType>
  <xs:element name="UDA" nillable="true" type="tns:UDA" />
  <xs:complexType name="EquipmentPart">
    <xs:complexContent mixed="false">
      <xs:extension base="tns:Part">
        <xs:sequence>
          <xs:element minOccurs="0" name="Anchored" type="xs:boolean" />
          <xs:element minOccurs="0" name="NoSpool" type="xs:boolean" />
          <xs:element minOccurs="0" name="Material" nillable="true" type="xs:stri
          <xs:element minOccurs="0" name="PartName" nillable="true" type="xs:stri
          <xs:element minOccurs="0" name="EquipmentName" nillable="true" type="xs
          <xs:element minOccurs="0" name="Weight" type="xs:double" />
          <xs:element minOccurs="0" name="TotalQty" type="xs:int" />
          <xs:element minOccurs="0" name="Vendor" nillable="true" type="xs:string
```

Figure 49: Sample of the XSD Schema definition

```
<Assembly xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http:/
  <DrawingNumber />
  <DrawingName />
  <LastDrawingRevisionDate>3/14/2011 11:14:38 AM</LastDrawingRevisionDate>
  <LastDrawingRevisionDateUTC>3/14/2011 4:14:38 PM</LastDrawingRevisionDateUTC>
  <DateGenerated>3/14/2011 11:14:38 AM</DateGenerated>
  <DateGeneratedUTC>3/14/2011 4:14:38 PM</DateGeneratedUTC>
  <Project>TWR08</Project>
  <ProductHierarchyLevel xsi:nil="true" />
  <Parts>
    <Part xsi:type="PipePart">
      <BOMQuantity>1</BOMQuantity>
      <Drawing>testing</Drawing>
      <MaterialStockNumber>Steel ABS Gr.B</MaterialStockNumber>
      <MaterialType>Steel ABS Gr.B</MaterialType>
      <SCPartDescription>PIPE BLK 1 1/2IN SCH 40 A-53 SMLS</SCPartDescription>
      <SCPartNumber>PIPE 1 1/2IN SCH 40-016</SCPartNumber>
      <SCPartType>Pipe</SCPartType>
      <StockCatalogNumber>PIPE 1 1/2IN SCH 40</StockCatalogNumber>
      <StockName>PIPE 1 1/2IN SCH 40</StockName>
      <UDAs>
        <UDA Name="Model Number">4</UDA>
      </UDAs>
      <ExtrusionLength>0</ExtrusionLength>
      <AssemblyFullName>PROJECT/1110/Unspooled Pipe</AssemblyFullName>
      <AssemblyName>Unspooled Pipe</AssemblyName>
      <StartEndcut />
      <EndEndcut />
      <ExtrusionNest />
      <LCG>46.142733504562742</LCG>
      <TCG>591.19987778152074</TCG>
      <VCG>239.09958348943482</VCG>
      <Weight>408.34916697886968</Weight>
      <SurfaceArea>61911.14902105667</SurfaceArea>
      <StockDescription>PIPE BLK 1 1/2IN SCH 40 A-53 SMLS</StockDescription>
      <Manufacturer>ACME</Manufacturer>
      <PartSide />
      <PlateNestDrawing />
    </Part>
    <Part xsi:type="PipePart">
      <BOMQuantity>1</BOMQuantity>
      <Drawing>testing</Drawing>
      <MaterialStockNumber>Steel ABS Gr.B</MaterialStockNumber>
      <MaterialType>Steel ABS Gr.B</MaterialType>
      <SCPartDescription>PIPE BLK 1 1/2IN SCH 40 A-53 SMLS</SCPartDescription>
      <SCPartNumber>PIPE 1 1/2IN SCH 40-019</SCPartNumber>
      <SCPartType>Pipe</SCPartType>
      <StockCatalogNumber>PIPE 1 1/2IN SCH 40</StockCatalogNumber>
      <StockName>PIPE 1 1/2IN SCH 40</StockName>
      <UDAs>
        <UDA Name="Model Number">4</UDA>
      </UDAs>
      <ExtrusionLength>0</ExtrusionLength>
      <AssemblyFullName>PROJECT/1110/Unspooled Pipe</AssemblyFullName>
      <AssemblyName>Unspooled Pipe</AssemblyName>
      <StartEndcut />
      <EndEndcut />
      <ExtrusionNest />
      <LCG>46.142733504562656</LCG>
      <TCG>882.64330964823307</TCG>
      <VCG>478.19916697886964</VCG>
```

Figure 50: Sample of the XML export

Praeses received an updated version of the XML schema and sample data files from ShipConstructor on March 14, 2011. The schema reflects changes identified in previous testing between ShipConstructor and Praeses. Additionally, the schema is now generated from the ShipConstructor export utility and includes many new attributes over and above those in the initial round of testing. It is anticipated that the overall structure of the schema will stay intact; although additional attributes may be added based on testing at the project shipyards. Two

sample data files were sent – one focused on pipe parts and the other containing mostly structure parts.

After some minor tweaking, the CAD to ERP (C2E) Manager was able to successfully compile and validate the new schema and data files. Further effort is currently underway to modify the main data view for C2E to match the updated schema. As stated above, it is anticipated that the structure of the ShipConstructor schema is now substantially complete and the Praeses developer is almost complete with the necessary generalized adjustments in C2E. Note that we refer to the structure of the schema here; specific data elements that may need to be added (or dropped) later are easily accommodated within the application.

The primary Praeses focus of activities, in May 2011, was on refactoring the C2E Manager application and producing an initial draft of system documentation. This is a precursor to installing test versions of C2E Manager at the project team shipyards to begin the UAT and refinement process. This work began with the updated XML schema and data files received from ShipConstructor. The look and feel of the application has changed and is reflected in Figures 51 - 55 below.

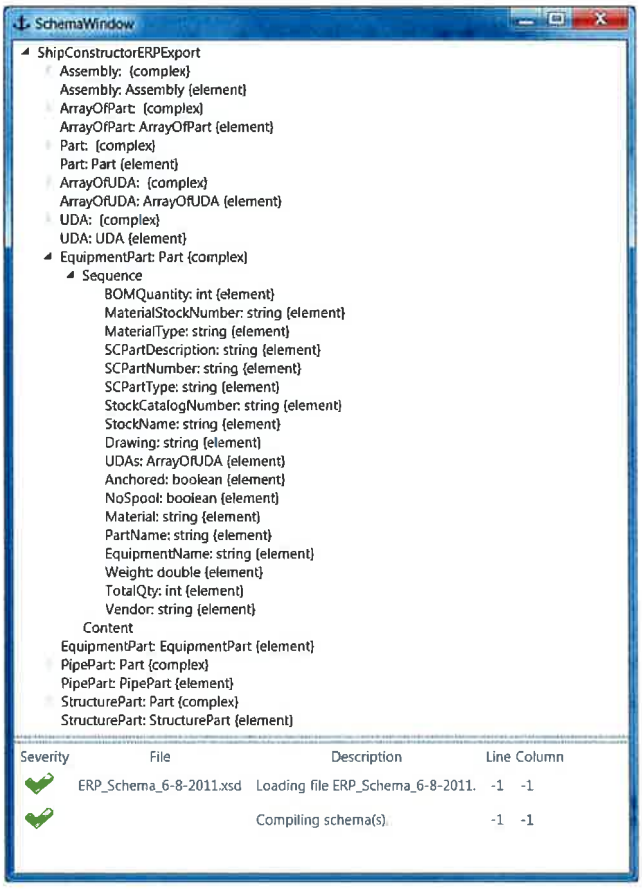


Figure 51: ShipConstructor XML schema successfully validated. This shows a tree view of the schema with Parts detail.

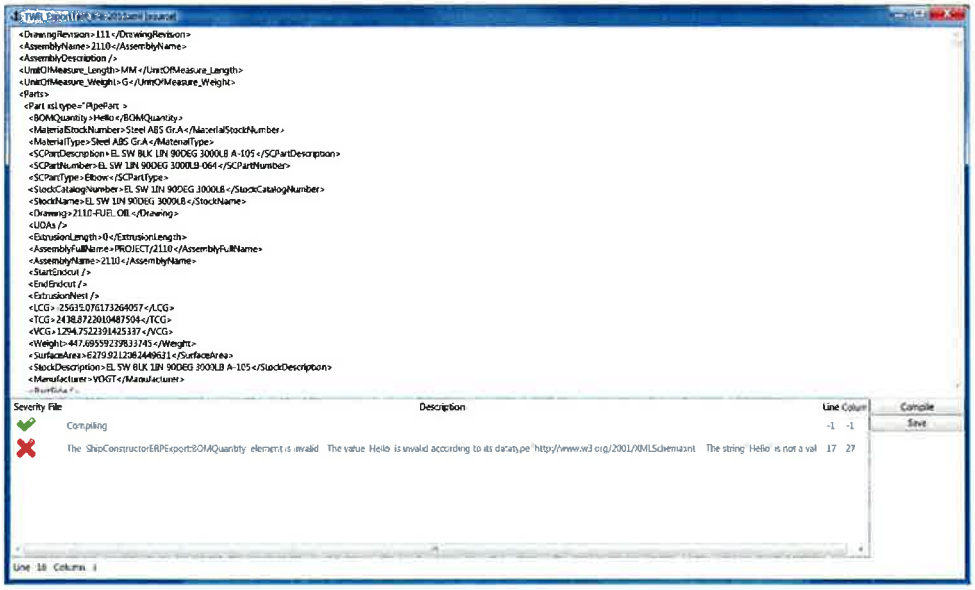


Figure 52: XML data which failed validation (Note Red compile indicator). The application indicates what the error is and where it occurs in the data file.

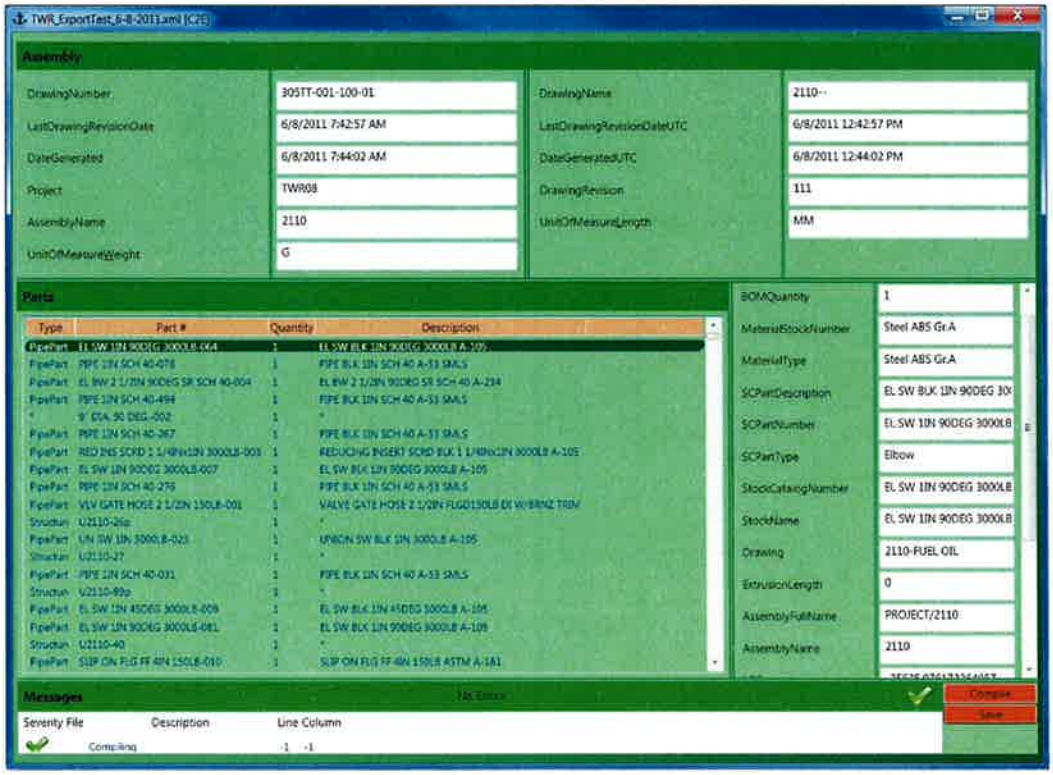


Figure 53: C2E view of the data.

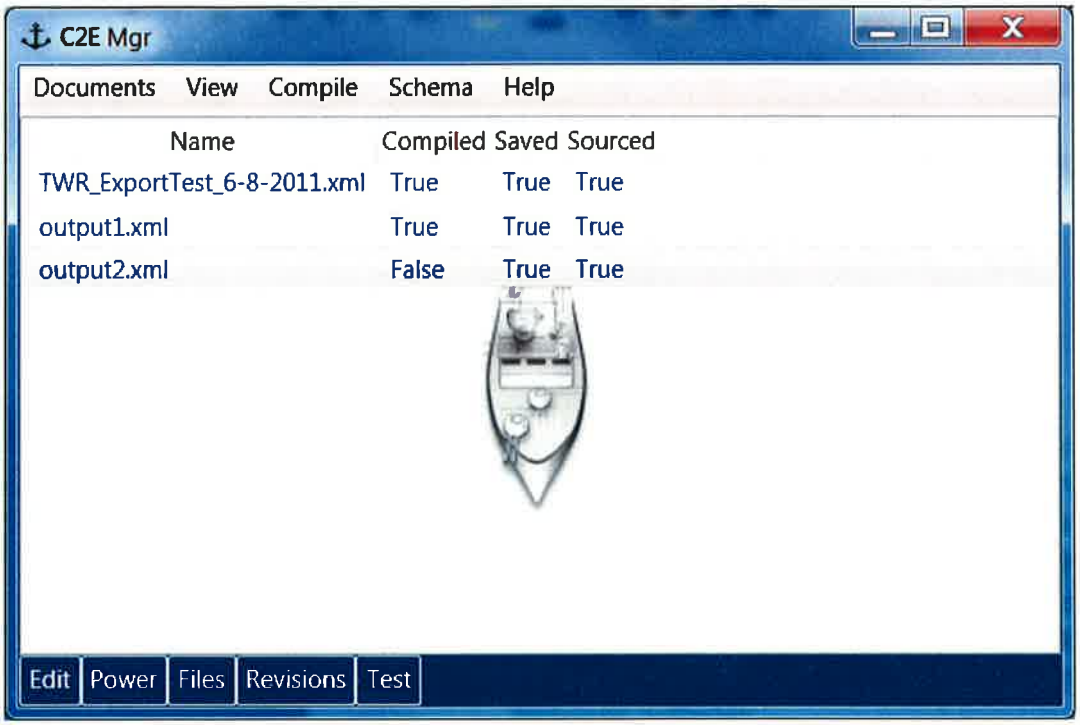


Figure 54: C2E Manager Control Panel. Note multiple documents are shown with their status. Future C2E versions will also show a document revision history.

Based on project team feedback (especially in initial testing at Bollinger), the Praeses developer began work on a document revision system within the C2E Manager which will be designed to store the XML data files by Project/Drawing and maintain multiple versions. In this manner, C2E users will have the option to manage revisions in the C2E Manager application rather than some external document versioning system (e.g., Sharepoint) thus simplifying the process for the end user. The system will manage changes to the document files and any change to an existing file will cause a new revision while older versions are maintained. The revision change will capture user information and be timedate stamped. The user can go back to earlier versions if desired. We anticipate using SQL Server Compact edition as the underlying database for this process. This functionality will be released in the next quarter of the project.

Draft documentation has been completed by Praeses:

1) C2E Manager Analysis and Design
   This document is intended to serve as a technical guide with a target audience of primarily the programmers that will write and/or support the C2E Manager application. Not only does it define the system requirements, it provides detailed design at a near-code level.

2) C2E Application Reference
   This guide is aimed at the intended user community and can serve as a reference guide, help document and test plan.

The Figures 55 and 56 (taken from the Analysis & Design document) illustrate two different user stories for C2E Manager:

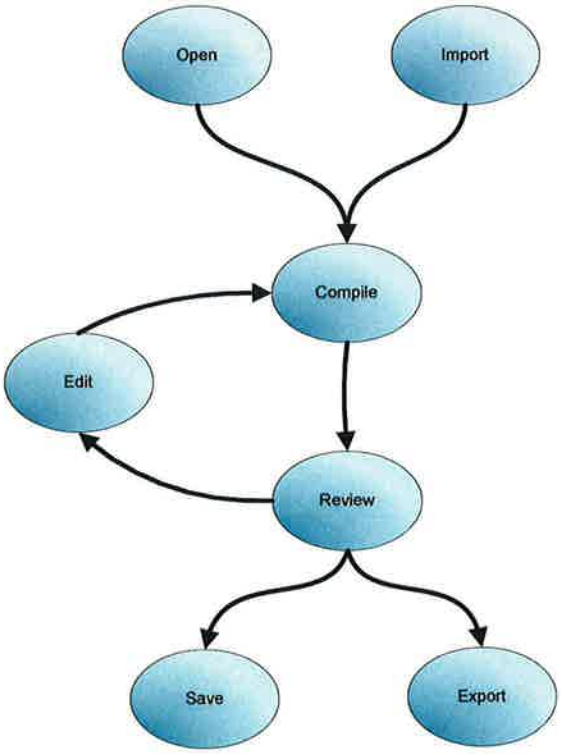


Figure 55: Story: Compile & Edit Cycle

The user starts by opening or importing some XML data and then compiling it against the loaded schema(s). The user would then review any compiler errors and the data itself, making corrections with an editor. If no changes were made, the user could then save and/or export the data. Otherwise they would compile and repeat the review/edit step.

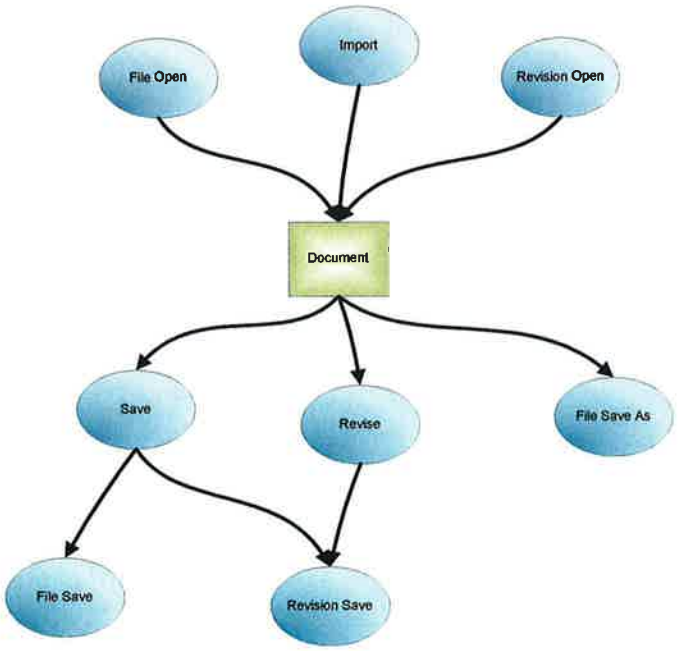


Figure 56: Story: File & Revise (Revisions to be implemented)

Input can come from three sources: File Open, Import, and Revision Open (when implemented). Saving a document that was opened with File Open will use File Save; saving one that was opened with Revision Open will use Revision Save. Save will not work on a document that was imported (unless revised or saved as). Revise can be used by a document opened by File Open or Import to enter it into the revision system. File Save As can be used by any document to save it in a file.

The Praeses developer and project analyst met onsite with Bollinger personnel in Lockport, LA on May 11, 2011. Discussion centered on the feedback concerning preliminary testing of C2E as well as the process Bollinger intends to use to push data into Oracle. Bollinger personnel have been integral in the initial integration testing of C2E Manager.

The Praeses PM met with HII IT personnel and project team member John Walks in Pascagoula on April 14, 2011. We briefed IT on the project and laid groundwork for later implementation/testing for C2E Manager. The team will need to determine the best integration approach for HII – especially considering the current CAD-to-MARS information flow via the Informatica data integration tool.

The Praeses PM provided updated C2E screenshots to ShipConstructor in support of a project briefing they delivered at the May NSRP meetings.

Bollinger has developed a C2E program which would be run once the C2E Manager, provided by Praeses, has created the necessary file.

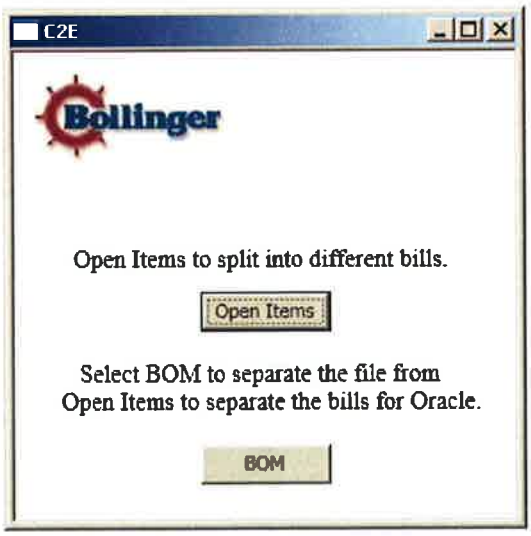


Figure 57: Bollinger C2E Program

The first part (Figure 58) of this Bollinger program creates a file with each component assigned to a specific Bill of Material. It takes input from the user to specify the bill, amount for each bill, exceptions that may occur comments for the exceptions, and overall quantity for each bill.

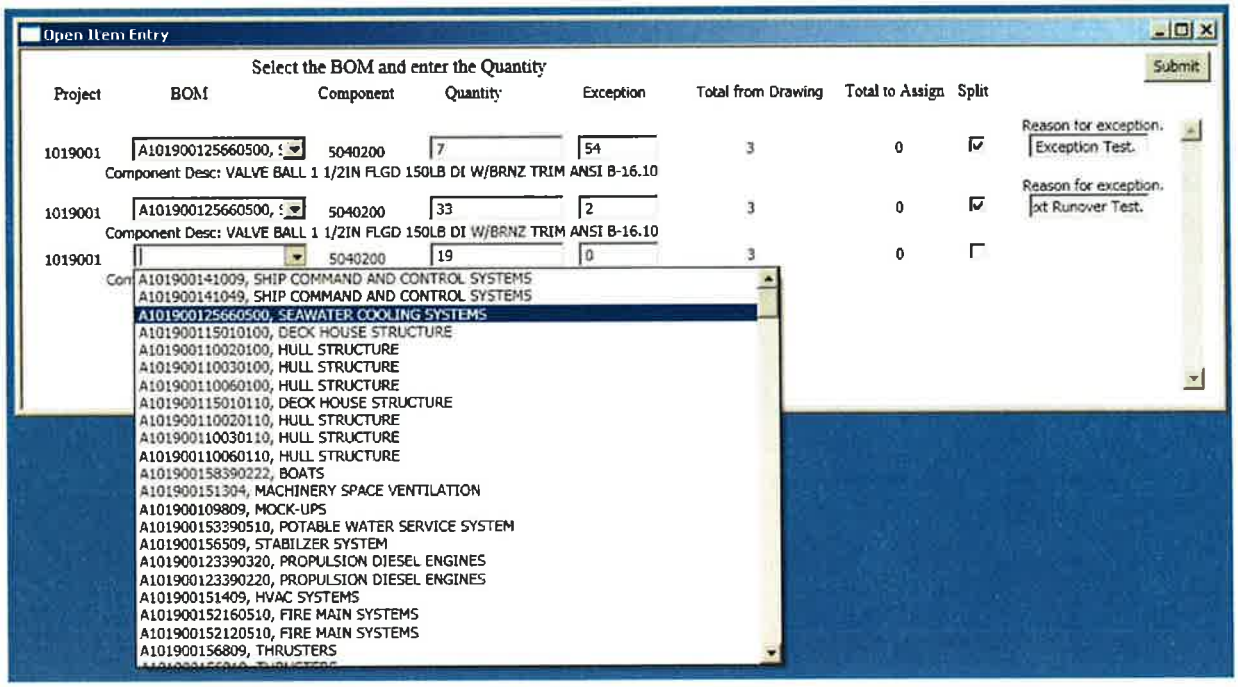


Figure 58: Bollinger Quantity Part

The second part (Figure 59) of the Bollinger program separates the file created in the first step into specific BOM files for the upload to Oracle. The user chooses the BOM they need at that point and the program separates the entries for that BOM from the others and creates a file for that particular BOM.

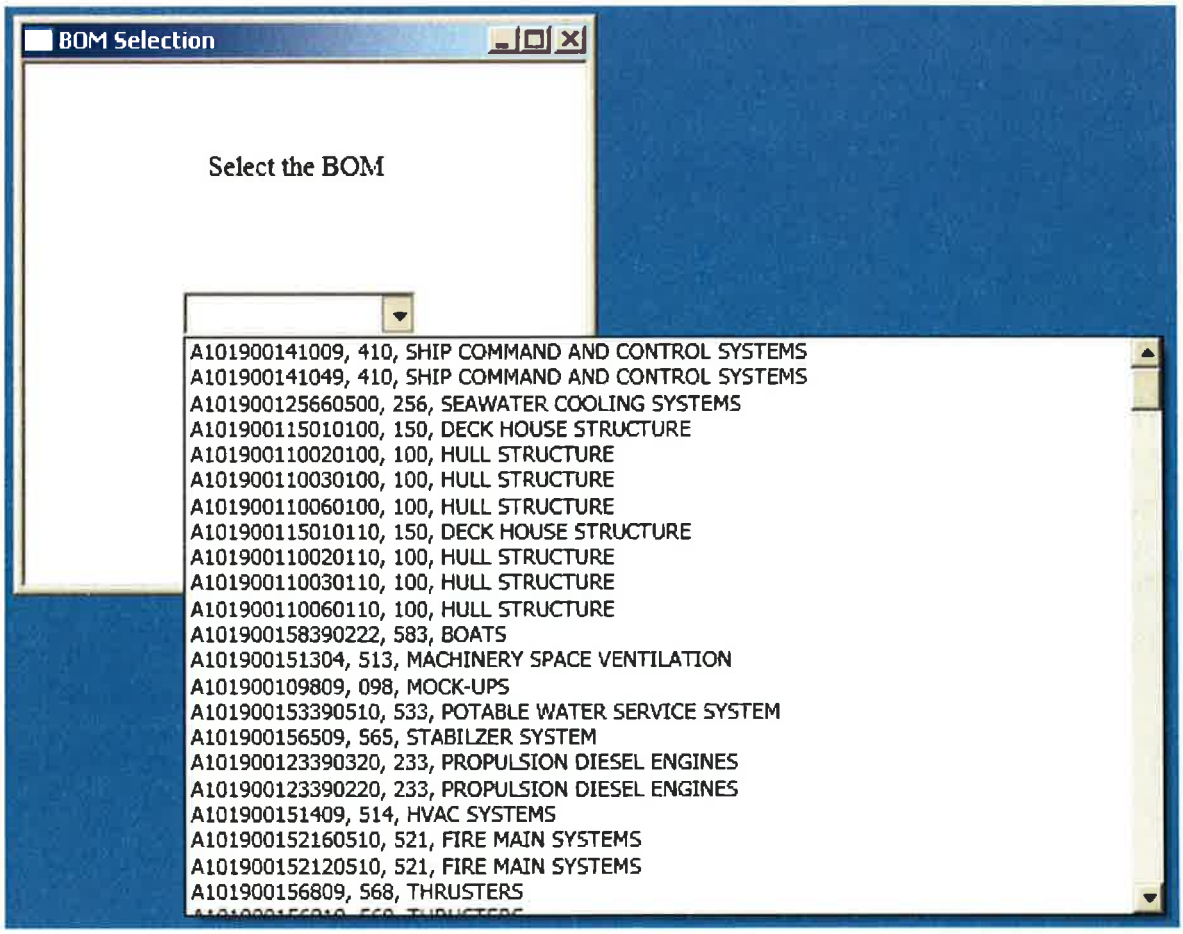


Figure 59: Bollinger BOM Selection

XML Schema definitions for the XML file output were expanded, revised, and finalized to include any additional data not culled from the Data Alignment Matrix. This required a modification of the underlying schema to accommodate them.

With the XML Schema definition finalized, ShipConstructor an XML file output test with XSD was then delivered to Praeses for parsing and serialization into the C2E program in preparation for importing into ERP systems. This update was provided by SSIUSA's Justin McDaniel provided Praeses with an updated XML output of the TWR and XSD document on August 1, 2011 for Praeses to test in the C2E program. See attached file information below;

SSIUSA's Patrick David, and Patrick Roberts attended the HII ERP Integration with CAD Technical Transfer Meeting on August 2, 2011. Patrick David provided the Technology Transfer project presentation on the overall status of the project on behalf of VT Halter Marine to Ingalls' IT and MARS Integration team while followed by Praeses provided the next steps needed to utilize the technology developed. SSIUSA was supported by project participants at the meeting presentation; those in attendance were John Walks, from Huntington Ingalls (who organized the meeting), and Brian Burgess and Steve Davis from Praeses, Inc.

The Praeses project manager attended the quarterly project team meeting held at Bollinger on June 2, 2011. The latest version of the C2E Manager application was demonstrated to the team. Discussion centered on the next steps needed in order to implement C2E at the shipyards. Subsequent to the meeting, the project manager and lead developer conducted separate conference calls with personnel from Austal and VTHM to start planning the implementation/testing process.

Praeses received an updated version of the XML schema and sample data files from ShipConstructor on June 8, 2011. The primary changes in this schema definition were the inclusion of the UOM fields (UOM_Length and UOM_Weight). Other new elements added were DrawingRevision and AssemblyName. A final schema update with AssemblyDescription removed was sent on June 10, 2011. C2E Manager was able to successfully parse the new schema and sample data files.

The primary focus of application development in this reporting period was on the implementation of Revisions functionality in C2E Manager. Other changes included adding the ability to Delete, Copy, Paste and Add parts within the application and various bug fixes. Finally, an improved schema browser (mostly useful for developers) was added. Revisions (C2ERevisions) is essentially a lightweight document management system now built-in to C2E Manager. C2ERevisons provides three main pieces of functionality for documents: 1) Revise – store and lock the document state, 2) Save – store document source, creating a new revision if necessary and 3) Browse – browse the revision system for a document. This functionality is briefly described below.

To access C2ERevisions, select **Documents->Revisions** from C2E Manager. Then either **Revise** (if a document is currently open and selected) or **Browse** to search.

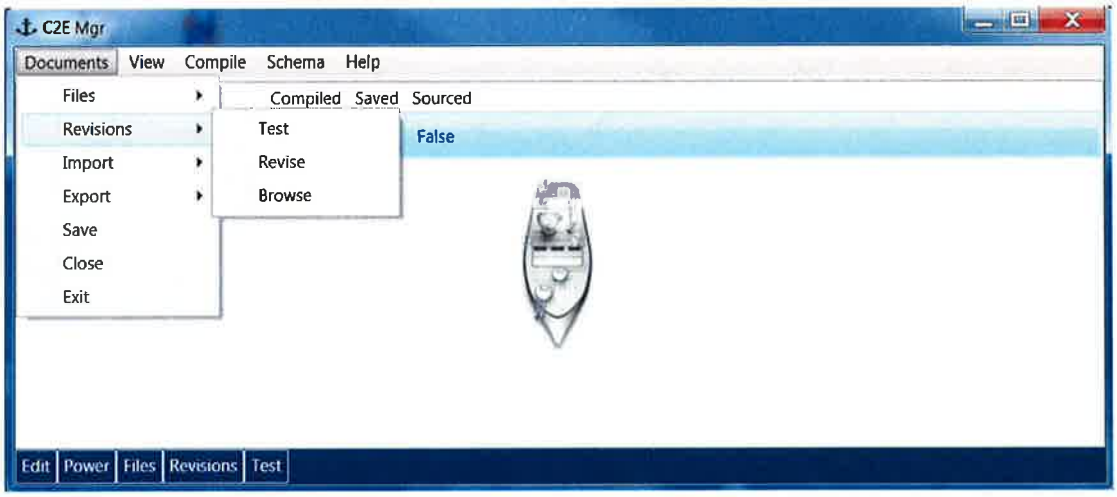


Figure 60: Enter document management system (C2ERevisions)

Select an active document, then choose **Documents->Revisions->Revise**. This will open up the revisions editor screen which is designed to display messages, including errors, as well as data extracted from the XML data source file. The user can enter a user defined field (hull in this example) and comments.

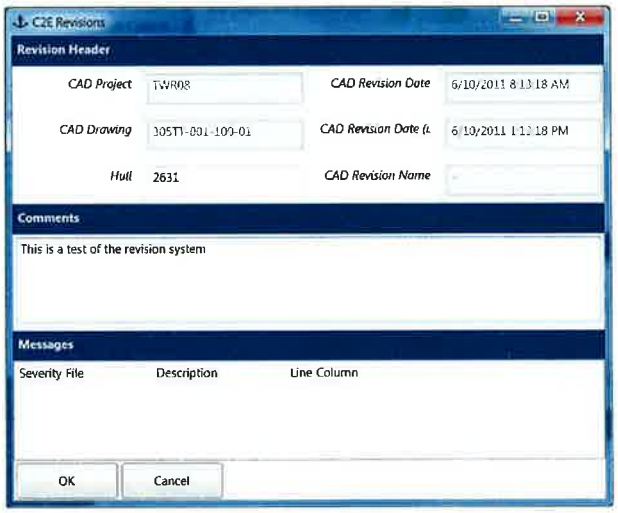


Figure 61: Revisions header information

Click OK and note that the document name has now changed reflecting this current revision. The new name consists of the CAD Project, CAD Drawing and Hull. The document is now under configuration control.

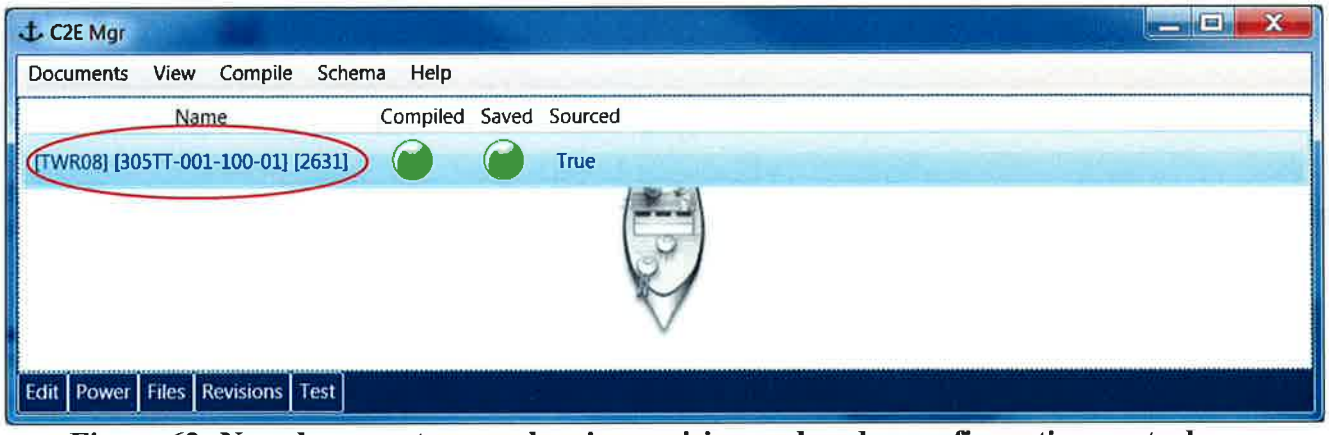


Figure 62: New document name showing revision and under configuration control

Browsing to the document and clicking the **Latest** button from the Basic Search tab will show the file as locked. Since it is locked, this version of the file can no longer be changed.

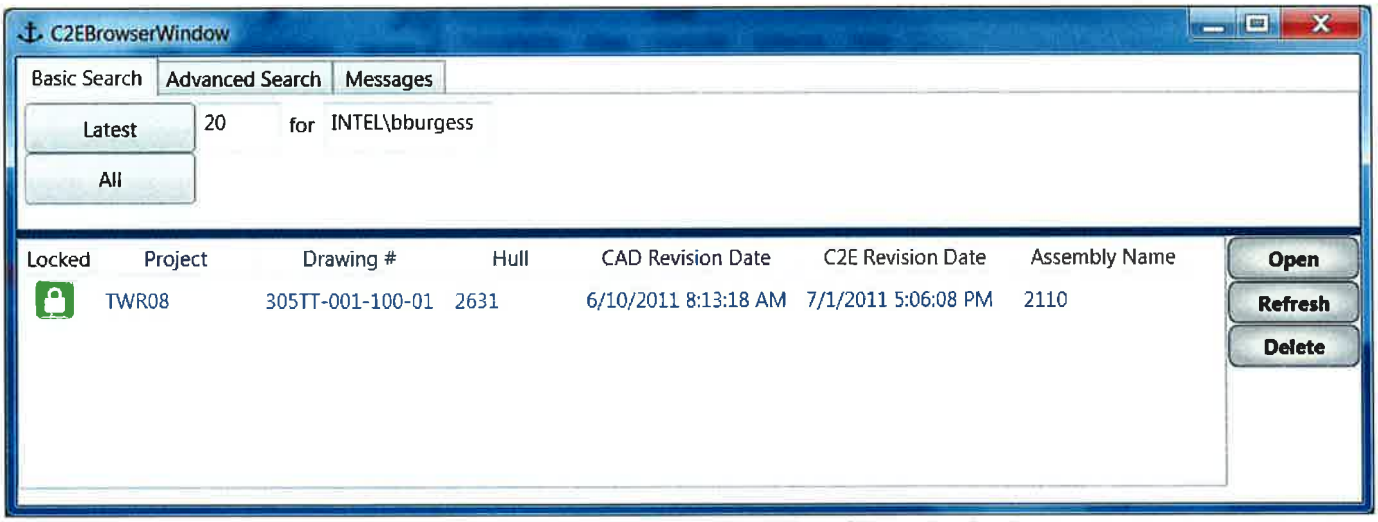


Figure 63: C2ERevisions browser showing file as locked

To create a new version of this file, select from the list and click **Open**. This will open the new version in the C2E Manager control panel.

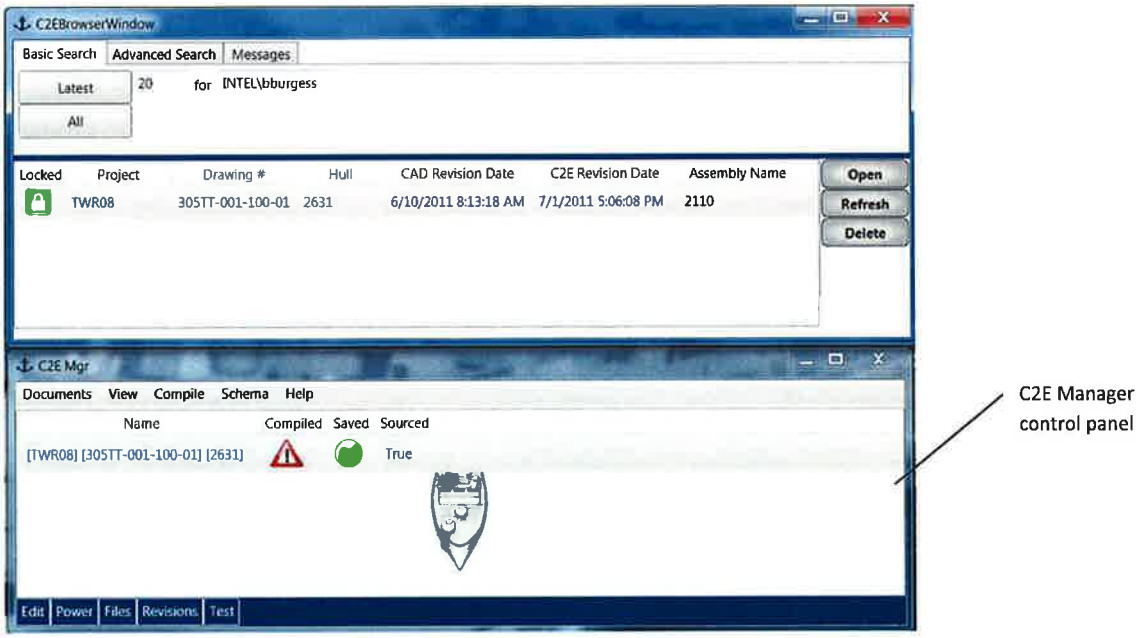


Figure 64: Select Open from the C2ERevisions browser which opens the file in a separate window, the C2E Manager control panel

From the C2E Manager control panel, click **Compile** then open the C2E view (**View->C2E View**). Make any change(s) desired then **Compile** and **Save**. Refreshing the C2ERevisions browser window will display the newly modified version of the file in an unlocked state. The previous version is also shown and remains locked. The unlocked version of the file can be updated and saved as often as necessary.

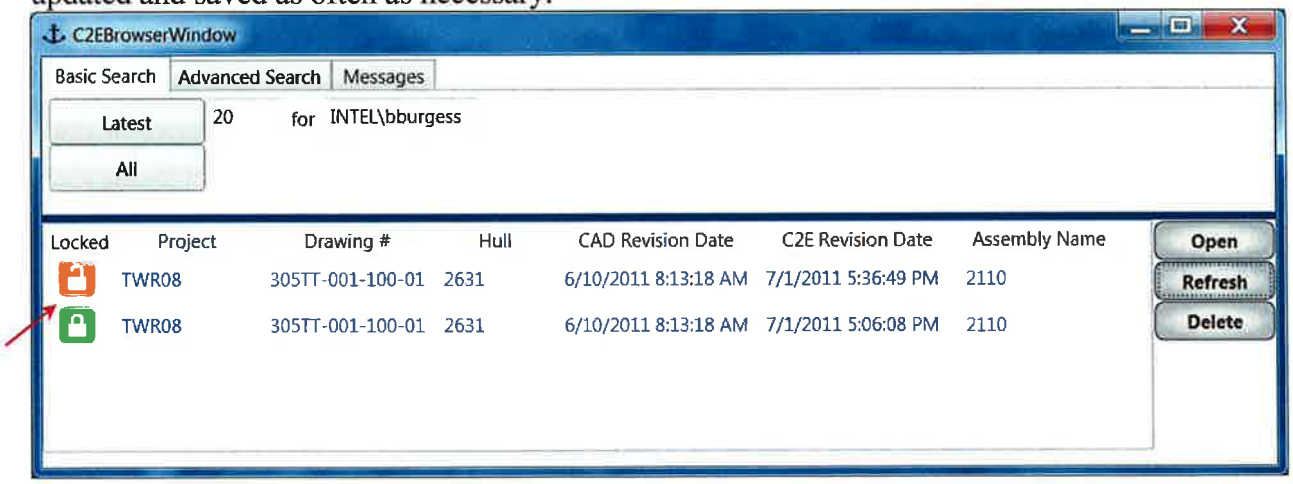


Figure 65: C2ERevisions browser showing new version of the edited file.

The C2ERevisions browser offers both basic and advanced search capabilities. The Advanced Search tab offers a number of different filters. For example, click the Advanced Tab and, using the "Equals" parameter, enter a value for Hull. Click the checkbox and then the **Refresh** button. The results using that filter are shown.

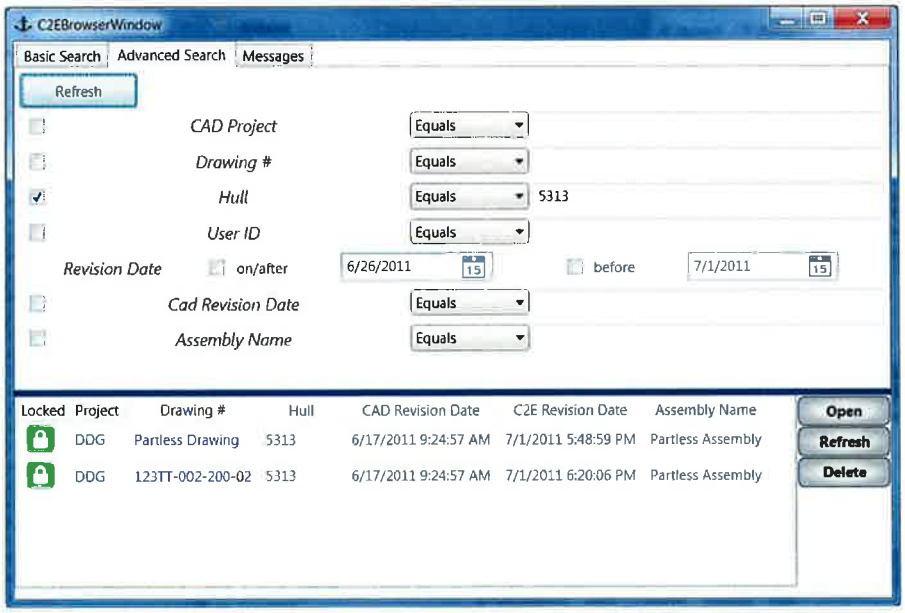


Figure 66: C2ERevisions browser – Advanced search with filter (Hull=5313 in this case)

System documentation (System Design document and Application Reference manual) has been updated to reflect the latest functionality incorporated into C2E Manager. The updated code (and documentation) was released to Austal and VTHM on July 7, 2011.

The developer who has been supporting C2E Manager integration efforts at Bollinger left the company in July. Praeses worked with him to get a copy of the Bollinger source code and incorporate it into Praeses source control (not yet complete). This code primarily works to pull information generated from C2E Manager into CSV files. These files are then converted and loaded into Oracle. Praeses can support this code in further testing with Bollinger as needed.

Bollinger has refined our C2E program which would be run once the C2E Manager, provided by Praeses, has created the necessary file.

Figure 67: Bollinger C2E Program

The first part of this program creates a file with each component assigned to a specific Bill of Material. It takes input from the user to specify the bill, amount for each bill, exceptions that may occur, comments for the exceptions, and the overall quantity for each bill.

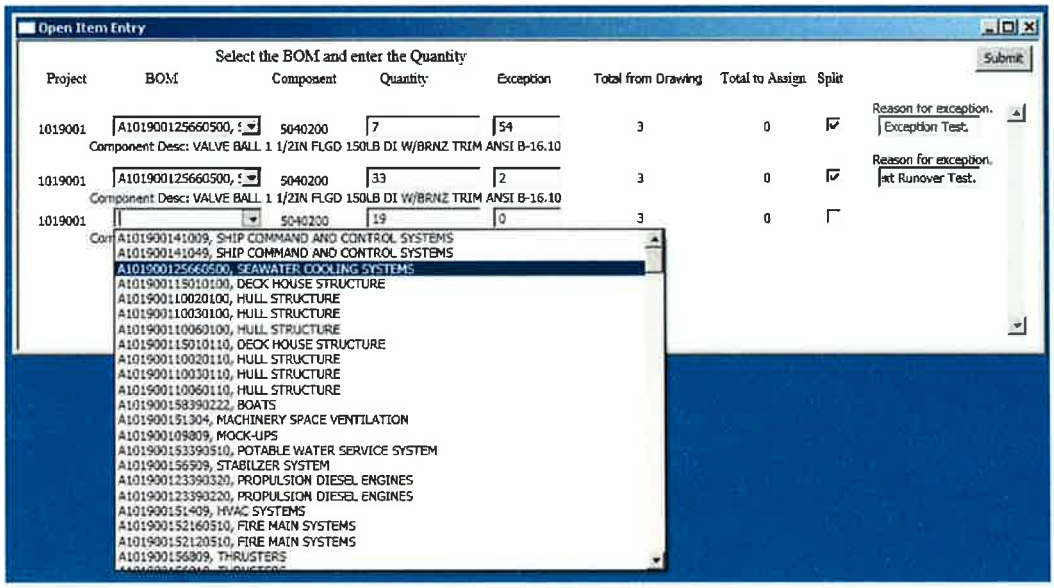


Figure 68: Bollinger Quantity Part

The second part of the program separates the file created in the first step into specific BOM files for the upload to Oracle. The user chooses the BOM they need at that point and the program separates the entries for that BOM from the others and creates a file for that particular BOM.

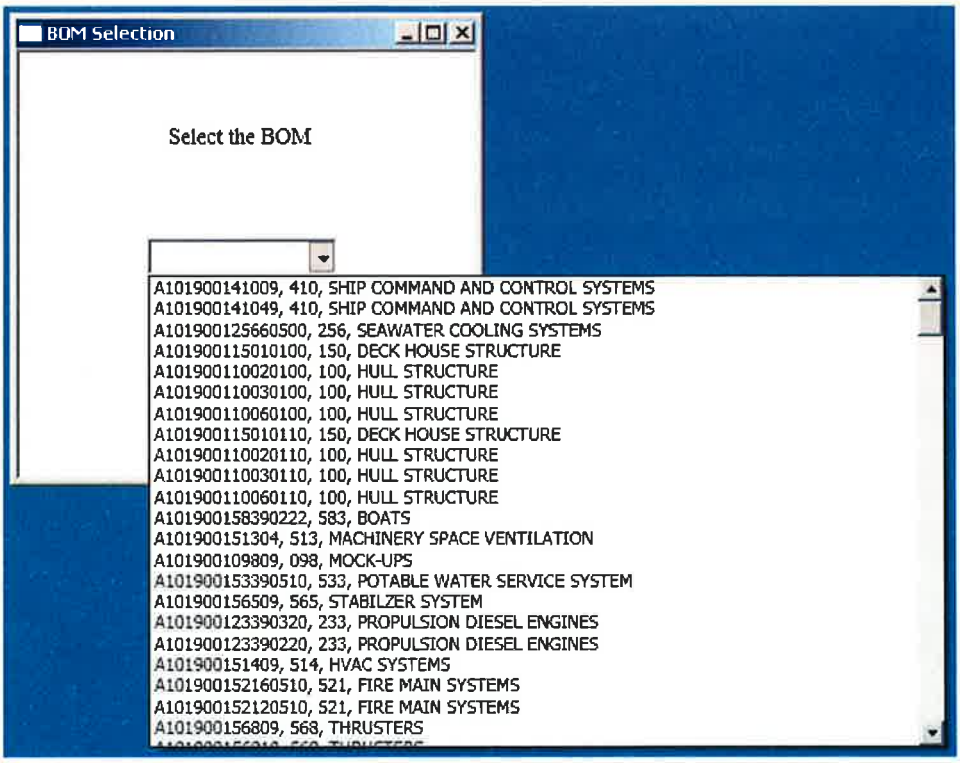


Figure 69: Bollinger BOM Selection

John Walks met with Cindy Murphy of Ingalls IT in late June to bring her up to speed on several Ingalls NSRP projects, among them this one. As an action from that meeting, John Walks has called a meeting with ShipConstructor, Praeses, and Ingalls IT and Material Sourcing personnel for August 2, 2011 to show the Ingalls personnel what the project has accomplished to date and to let the Ingalls folks inform Praeses as to what our needs are for the output of the C2E software.

Ingalls attended the quarterly review in Lockport, LA on June 2, 2011 with three persons (Geri Bertram, Mel Johnson, and John Walks). There was good discussion and many questions as to how Ingalls can utilize this software to reduce initial manual data entry to MARS.

Praeses will work in coordination with project team shipyards (HII, VTHM and Austal) to complete implementation and testing of C2E Manager. Onsite meetings are set for early August with IT personnel from HII and Aveva (MARS vendor). The development team will coordinate as needed with Bollinger with C2E Manager testing. Feedback from testing at the project shipyards will be incorporated in the application.

Praeses' primary focus of this quarter's activities was completing the C2E application enhancements (Revisions system and the ability to better manage parts editing by copy/paste/delete/add) and working with project team shipyards for further pilot testing. The selected screens below reflect some of the minor user interface (UI) changes of the C2E application along with a document management screen, Figures 70, 71, 72, 73 and 74.

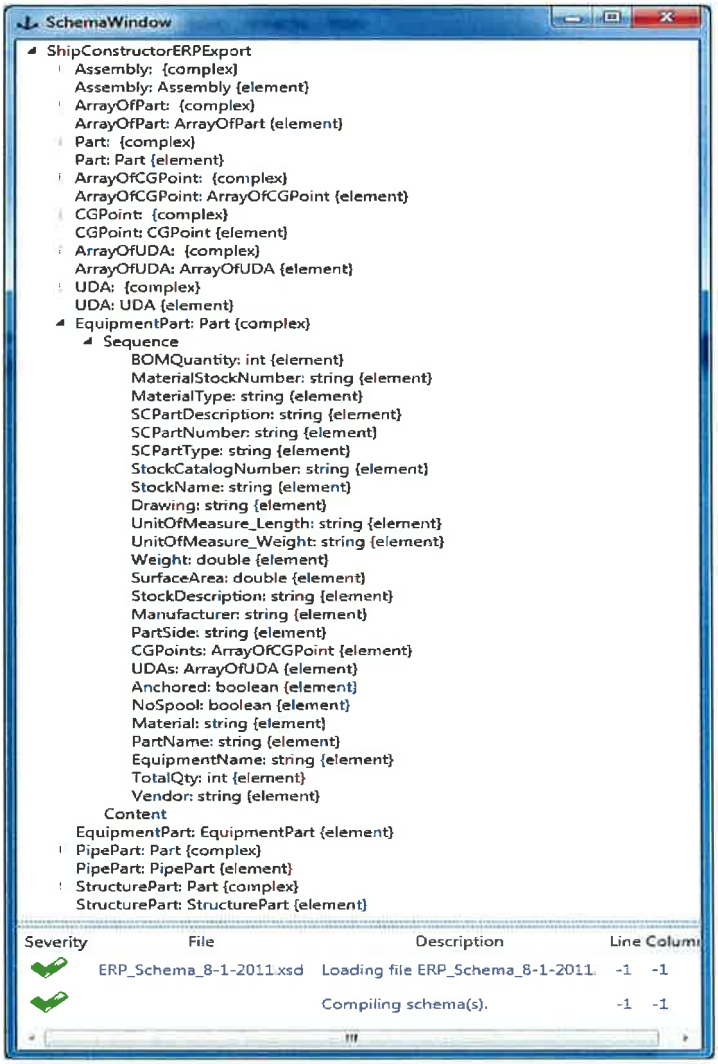


Figure 70: ShipConstructor XML schema successfully validated. This shows a tree view of the schema with Parts detail.

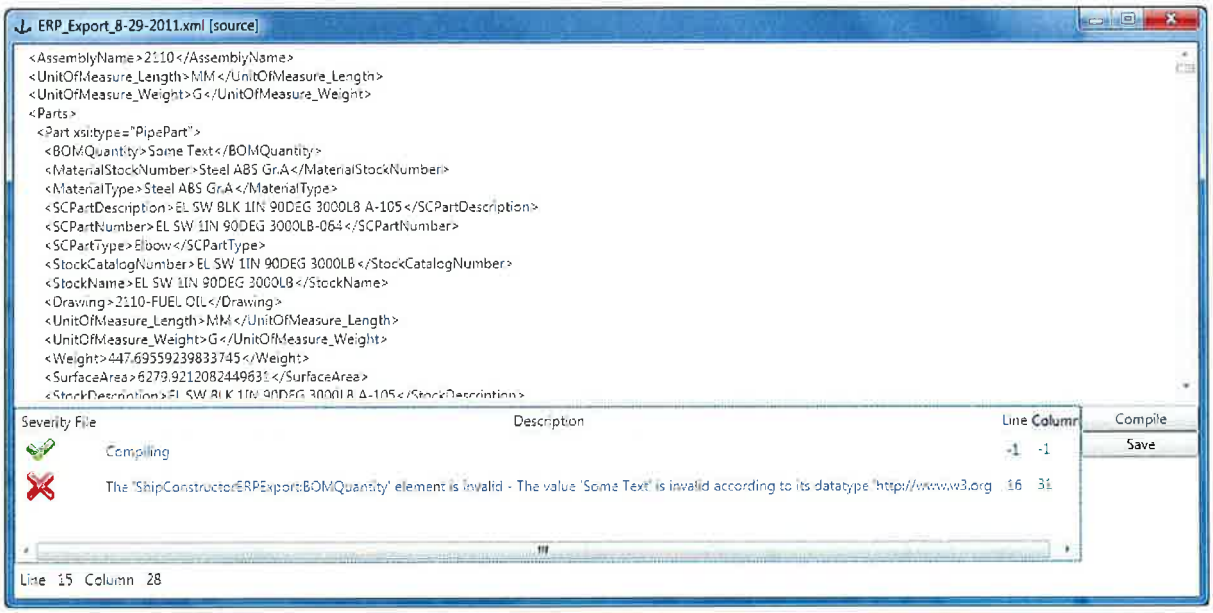


Figure 71: XML data which failed validation (Note Red compile indicator). The application indicates what the error is and where it occurs in the data file.

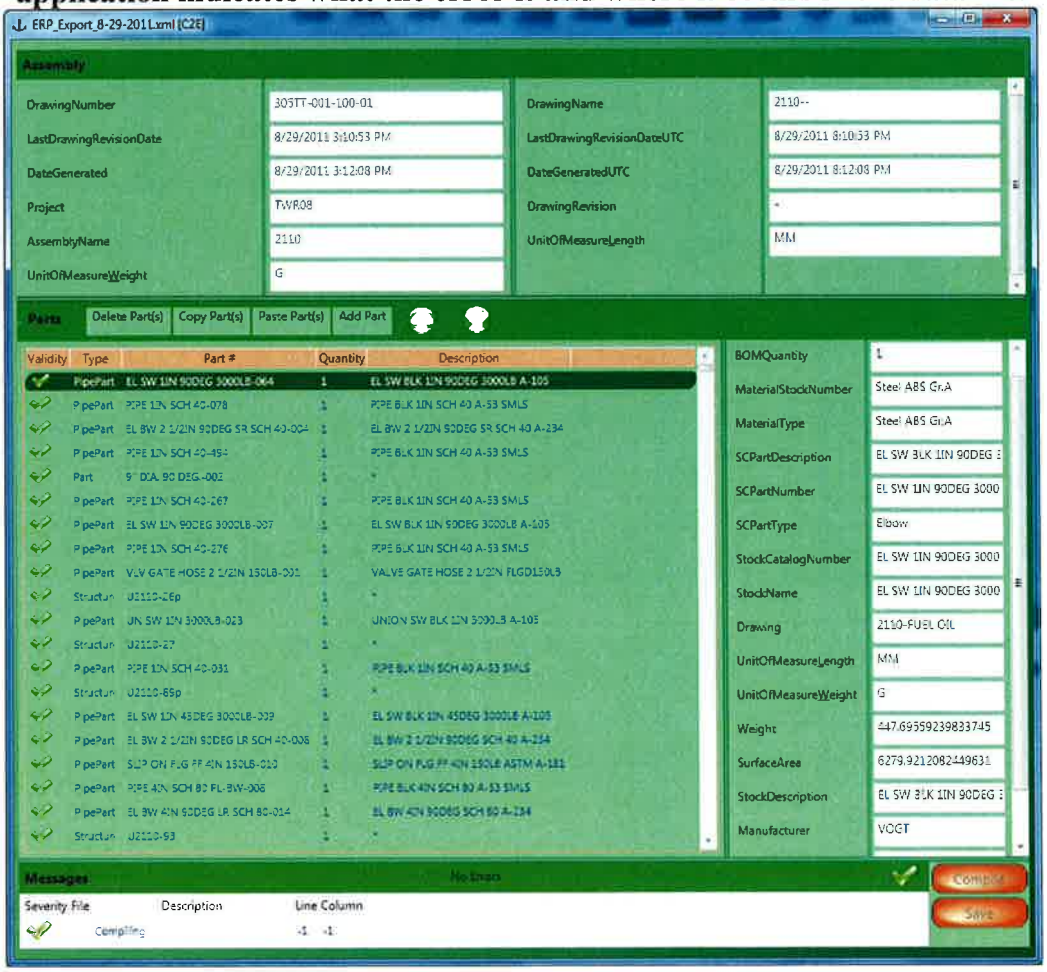


Figure 72: C2E view of the data.

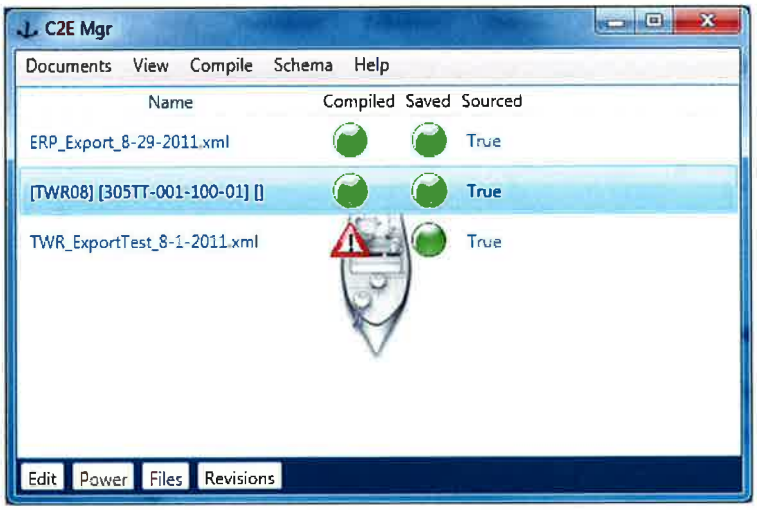


Figure 73: C2E Manager Control Panel. Note multiple documents are shown with their status including document revisions (highlighted).

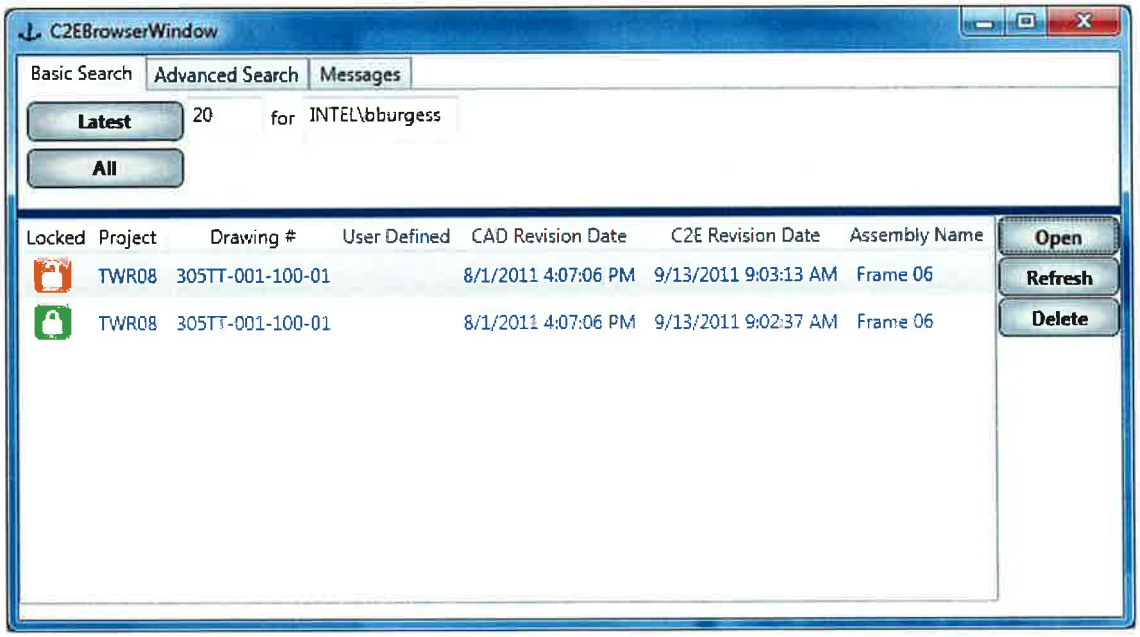


Figure 74: C2E Revisions (document management) browser. This shows the locked version of the drawing file along with the current version (unlocked and thus editable).

The C2E Revisions system is essentially a lightweight document management system that has been designed to be relatively easy to use within C2E Manager. A minimal number of (user) commands should be able to provide maximum utility with at least some sort of underlying logic. The three primary functions for C2E Revisions are:

- **Revise**: store and lock the document state.
- **Save**: store document source, creating a new revision if necessary.

- **Browse**: browse revision system for a document.

Once a revision is made (locked), it cannot be changed. Consequently, opening a revision actually creates a new revision. This system does not do a differential (delta) save; it saves the entire text. Given that some of these documents can be quite large we do not want the users creating spurious or interim revisions. At the same time, we want them to feel free to save changes periodically in order to reduce risk of lost work.

Enhanced parts editing capability was added with this latest release. The new parts commands are: delete, copy, paste, add, up and down. Data can be edited in place, making changes directly to the XmlDocument object. Parts can be created (add), copied, pasted, and deleted within and across data files. The parts list should reflect the order of the objects in the source file (XML data file from the CAD system), even after inserts, pastes, deletes, etc.

The system reference documentation has been updated to reflect these changes in C2E.

The Praeses developer and project manager met with business integration and IT personnel at Austal and VTHM to discuss methodologies needed to begin UAT at these shipyards. This included delivering the latest version of the C2E application and system documentation in July 2011. VTHM referred Praeses to Aveva for further discussions related to MARS (see below).

Praeses has been working in close coordination with the Bollinger developer throughout this project. That developer has departed Bollinger and the Praeses team was able to work with him to get a copy of the Bollinger source code and incorporate it into Praeses source control. This will allow us to maintain and update the code for this project as needed. The code primarily works to pull information generated from C2E Manager into CSV files for uploading into Oracle.

Praeses received several updates from ShipConstructor on the XML schema. The last schema update was received August 1, 2011 and included a fix to handle the export of parts quantities correctly. With some very minor tweaking, C2E Manager is able to process this new schema appropriately.

The Praeses PM and developer met with HII personnel from IT and Material Sourcing and project team member John Walks in Pascagoula on August 2, 2011. ShipConstructor personnel also attended the meeting. We (Praeses and ShipConstructor) briefed the assembled HII personnel on the project focusing on the remaining timeline and UAT steps that needed to take place. The team also presented a demonstration of the C2E application. Subsequent to that meeting the Praeses PM worked with John and the primary HII IT PM to establish the way forward to performing testing at HII. Progress has been made and these efforts will be completed in the next reporting period.

The Praeses PM and developer also have had several meetings with the MARS developers (Aveva). These occurred onsite in Pascagoula on August 3, 2011 and various subsequent conference calls. The Praeses PM and Aveva PM are working to coordinate C2E-MARS testing

at both HII and VTHM. After export control questions were addressed in late August (with the help of the overall project PM), an updated version of the C2E application, XML schema and sample XML data files was sent to Aveva. Aveva developers are currently testing the system including understanding the steps necessary to import C2E data files into MARS through the use of their Bulk Loader tool. Again, with appropriate modifications, this process will work for both HII and VTHM.

Throughout August 2011, Bollinger performed testing on the Praeses XML export program as well as tested the CSV to Bill of Material staging documents with everything working well.

Burgess of Praeses and Patrick Roberts and Patrick David of ShipConstructor USA met with representatives of multiple departments at Ingalls (Engineering, IT, Material Sourcing, and eShips homeroom) on August 2, 2011 to further disseminate the intent of the project and the results to date. There was a follow-on conference call on August 29, 2011 between Praeses, AVEVA (MARS software supplier), and Ingalls to discuss a path forward for collaboration.

The Praeses PM met with HII Material Sourcing personnel and project team member John Walks in Pascagoula on September 15-16, 2011. This included a review of the current data upload process flow whereby the sourcing personnel compile data for submission to MARS. This data is compiled from source engineering files into a main spreadsheet which is used as the source for input into the bulk uploader tool for MARS. Currently, HII uses this process only for electrical data. HII sent sample template files used in this process to Praeses in October.

Praeses' development activities, for in October/November 2011, were focused on implementation and testing of the MARS export functionality in C2E Manager. The Praeses PM and developer worked with Aveva staff (PM and developers) on understanding the requirements of the bulk loader tool (which imports data into MARS) along with refinement/testing of C2E Manager. The initial release was updated based on Aveva feedback and resent for testing in early November 2011. This generated additional feedback from Aveva on handling SWBS information and part numbers. ShipConstructor provided an updated schema with SWBS information (for pipe and HVAC parts) which Praeses incorporated into C2E Manager. The latest version of C2E Manager with the updated schema was sent to Aveva on 22 November 2011.

The Praeses PM provided project update slides to John Walks (HII) which were included in a presentation on the overall project that he delivered to the Aveva MARS User Group meeting in early December 2011.

The selected screens below show some of the functionality of the MARS export capability for C2E Manager including the HII-specific process. Start with the desired file:

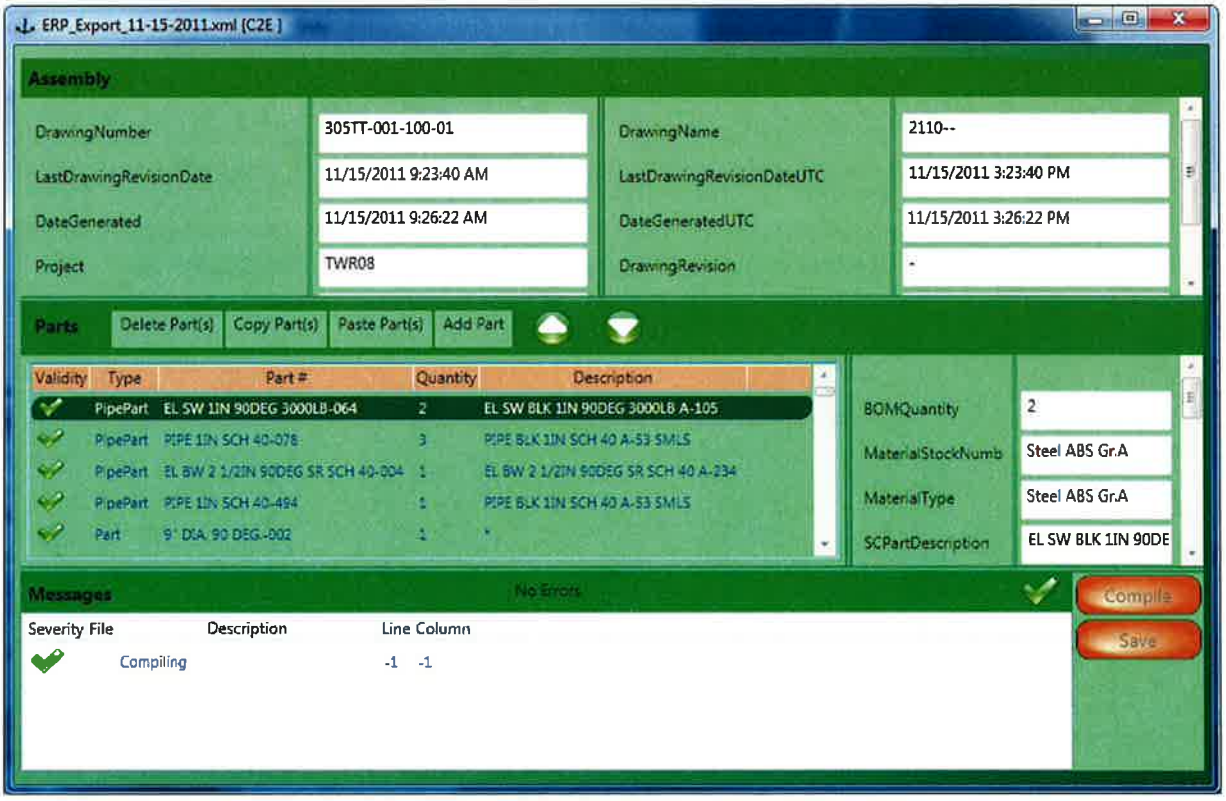


Figure 75: File to be exported.

From the **Documents** menu select *Export -> MARS Export*:

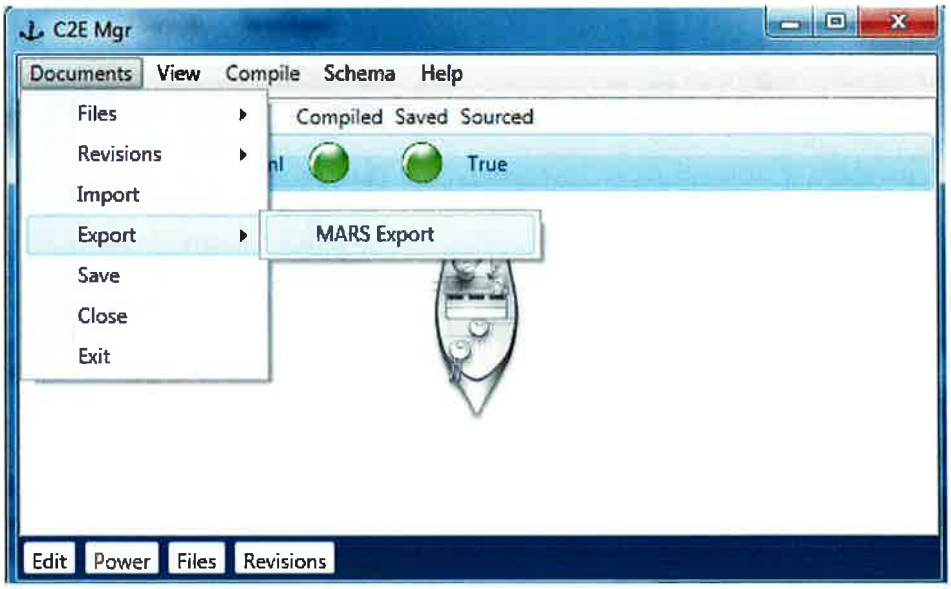


Figure76: Select the MARS Export option.

From the next window, choose the location of the folder to place the export files (via the **Browse** button) and name the files appropriately. The **Include Headers** checkbox is used to indicate if

header information is desired in the output file. This is more useful for testing – MARS does not need the header data in these files. The three output files are: ext_drawing (Drawing), ext_dpl (Parts List Header) and ext_dpl_item (Parts List Item Detail).

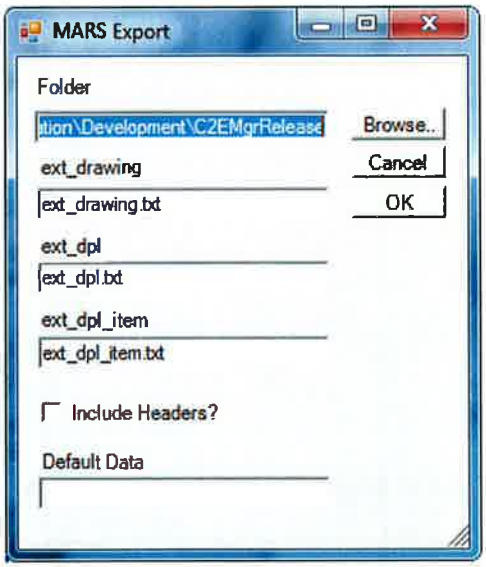


Figure 77: MARS Export window showing the three output files to be generated and the user-defined destination location.

The output files generated in the export process can then be pulled into MARS via the bulk uploader tool. In this case, via delimited text files:

Drawing

```
TWR08|305TT-001-100-01|2110|-|||||2|||||||||||||||||
```

Parts List (BOM) Header

```
TWR08|305TT-001-100-01|-|1|5|||1|||||||||||||
```

Parts List (BOM) Detail

```
TWR08|305TT-001-100-01|EL SW 1IN 90DEG 3000LB-064|1|-|S||0|2|||FUEL OIL|MM|||||||||||||||
TWR08|305TT-001-100-01|PIPE 1IN SCH 40-078|2|-|S||0|3|||FUEL OIL|MM|||||||||||||||
TWR08|305TT-001-100-01|EL BW 2 1/2IN 90DEG SR SCH 40-004|3|-|S||0|1|||LUBE OIL|MM|||||||||||||||
TWR08|305TT-001-100-01|PIPE 1IN SCH 40-494|4|-|S||0|1|||FUEL OIL|MM|||||||||||||||
TWR08|305TT-001-100-01|9" DIA. 90 DEG.-002|5|-|S||0|1|||HVAC|MM|||||||||||||||
TWR08|305TT-001-100-01|PIPE 1IN SCH 40-267|6|-|S||0|1|||LUBE OIL|MM|||||||||||||||
TWR08|305TT-001-100-01|EL SW 1IN 90DEG 3000LB-007|7|-|S||0|1|||FUEL OIL|MM|||||||||||||||
TWR08|305TT-001-100-01|PIPE 1IN SCH 40-276|8|-|S||0|1|||FUEL OIL|MM|||||||||||||||
.....
```

Figure 76: The three output files which feed the bulk uploader tool to import into MARS.

Note that the C2E View of the source file shows that the MARS export was performed successfully. Also note the inclusion of SWBS information for the parts.

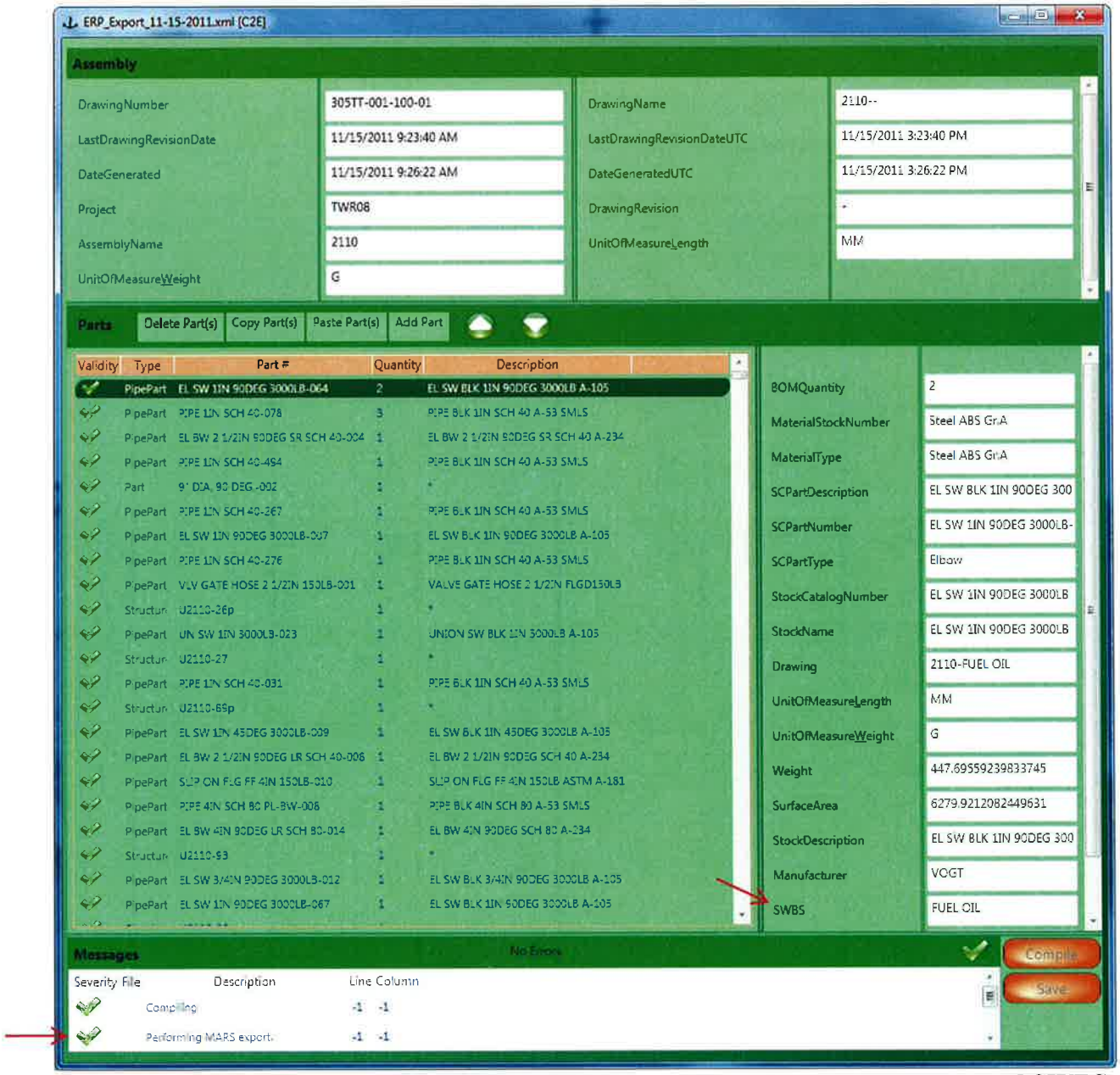


Figure 78: C2E view of the data showing the successful MARS export message and SWBS information (now included in the schema).

Finally, as an example for a shipyard-specific (HII-Ingalls) export, see Figures 79-81 below. Select the **Ingalls Export** menu item.

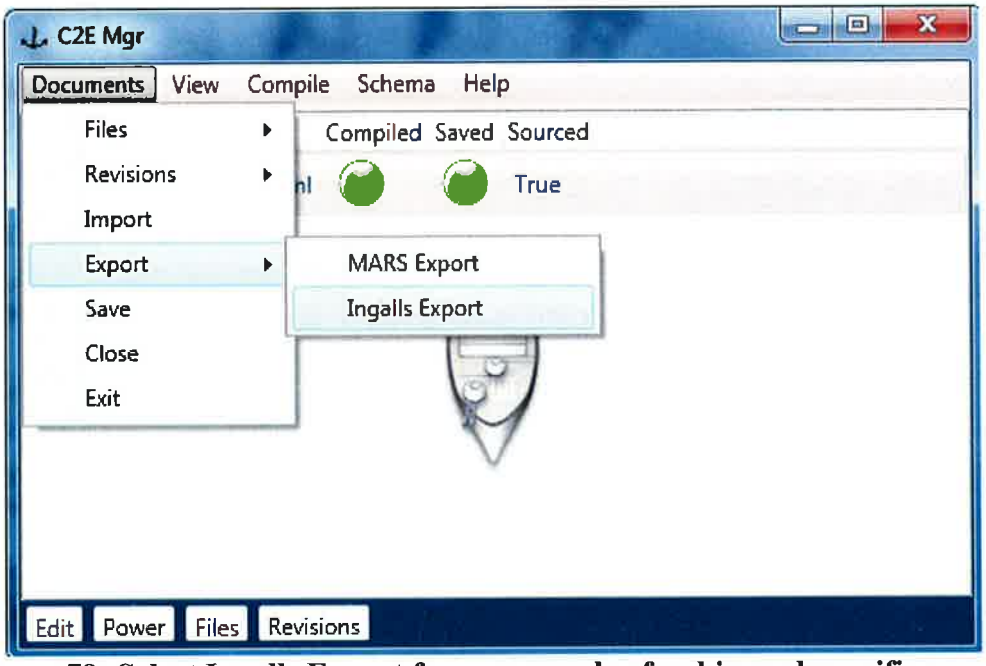


Figure 79: Select Ingalls Export for an example of a shipyard-specific export.

Browse to the desired folder and save the output file. In this case, the file is an XLS compatible CSV file.

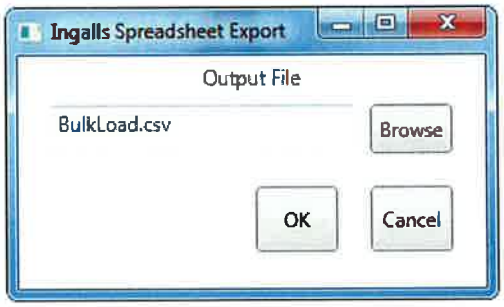


Figure 80: Select destination location and hit OK to save as a CSV file.

A sample output file is shown below. This is ready to be edited as necessary depending on the needs of the individual yard (for example, Ingalls would add certain non-engineering data) then imported into MARS via the current bulk uploader tool.

PROJECT_	DRAWING_ID	ITEM_ID	LINE_NO	REVISION	MATERIAL_GROUP_ID	ACTIVITY_ID	CORRECTION_TIME	QUANTITY	REMARK	POSITION	SYSTEM_NUMBER	UNIT	SISTER_PROJECT_ID	PRODUCTION_GROUP_ID	COST_ACCOUNT_ID	ROOM_NUMBER	CUSTOMER_COL_0	CUSTOMER_COL_1
TWR08	305TT-001-100-01	EL SW 1IN 90DEG 3000LB-064	1	-	S		0	2			FUEL OIL	MM						
TWR08	305TT-001-100-01	PIPE 1IN SCH 40-078	2	-	S		0	3			FUEL OIL	MM						
TWR08	305TT-001-100-01	EL BW 2 1/2IN 90DEG SR SCH 40-004	3	-	S		0	1			LUBE OIL	MM						
TWR08	305TT-001-100-01	PIPE 1IN SCH 40-494	4	-	S		0	1			FUEL OIL	MM						
TWR08	305TT-001-100-01	9" DIA, 90 DEG.-002	5	-	S		0	1			HVAC	MM						
TWR08	305TT-001-100-01	PIPE 1IN SCH 40-267	6	-	S		0	1			LUBE OIL	MM						
TWR08	305TT-001-100-01	EL SW 1IN 90DEG 3000LB-007	7	-	S		0	1			FUEL OIL	MM						
TWR08	305TT-001-100-01	PIPE 1IN SCH 40-276	8	-	S		0	1			FUEL OIL	MM						

Figure 81: Sample Ingalls output file.

Bollinger is to test the implement of Oracle loader/uploader process on to Oracle release 12 in the first quarter of 2011. This was initially anticipated in late November 2011. Although the system is ready for implementation, Bollinger is in the process of upgrading their ERP system and the interfaces will be slightly different in release12. As a result, they have decided to hold off implementation until Oracle Applications ERP system release 12 is implemented and stable which will be at the end of the first quarter of 2012. They will then make the necessary adjustments to their interface program and proceed with the implementation.

Task 4 is considered complete.

(f) Task 5 – Refinement of the data exchange standard for the ERP systems

PHASE I ACTIVITIES

Task 5 is to make refinements to the data exchange process. Preliminary discussions on the work have been tabled. The actual task scope of work for this Task will be accomplished in Phase II.

PHASE II ACTIVITIES

On 21 March 2011 the latest version of C2E Manager along with the data files was sent to Bollinger for initial testing. After working with the Praeses developer through some minor issues, Bollinger was able to successfully run the C2E Manager application validating the ShipConstructor schema and data files in the Bollinger environment. The Bollinger developer has written an export routine that creates a comma delimited output file from C2E Manager and is in the process of reviewing the output with staff from Planning and Engineering.

The Praeses developer has been working on refactoring the C2E Manager application, solidifying this current version of the software as the team begins to plan for testing at the project shipyards. The corresponding application documentation is being updated as well. Updated screenshots showing valid ShipConstructor data are shown in Figures 82, 83 and 84 below.

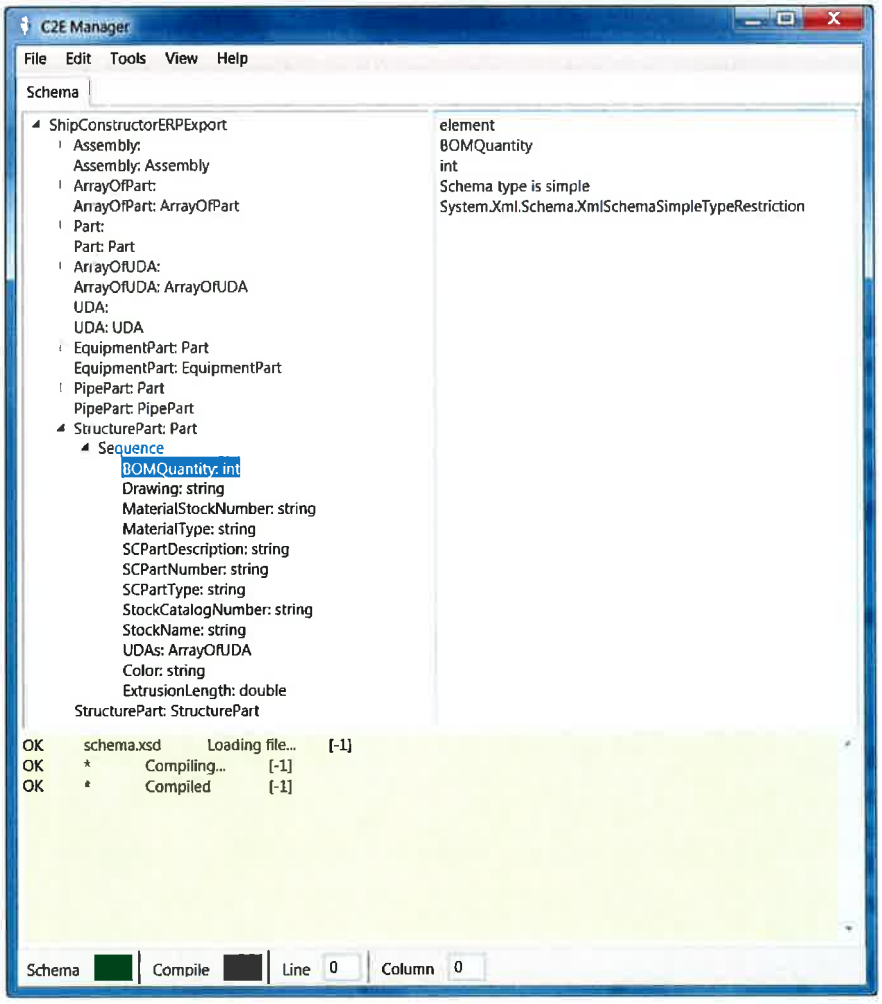


Figure 82: ShipConstructor XML Schema successfully validated. This view shows the schema detail for the structure parts.

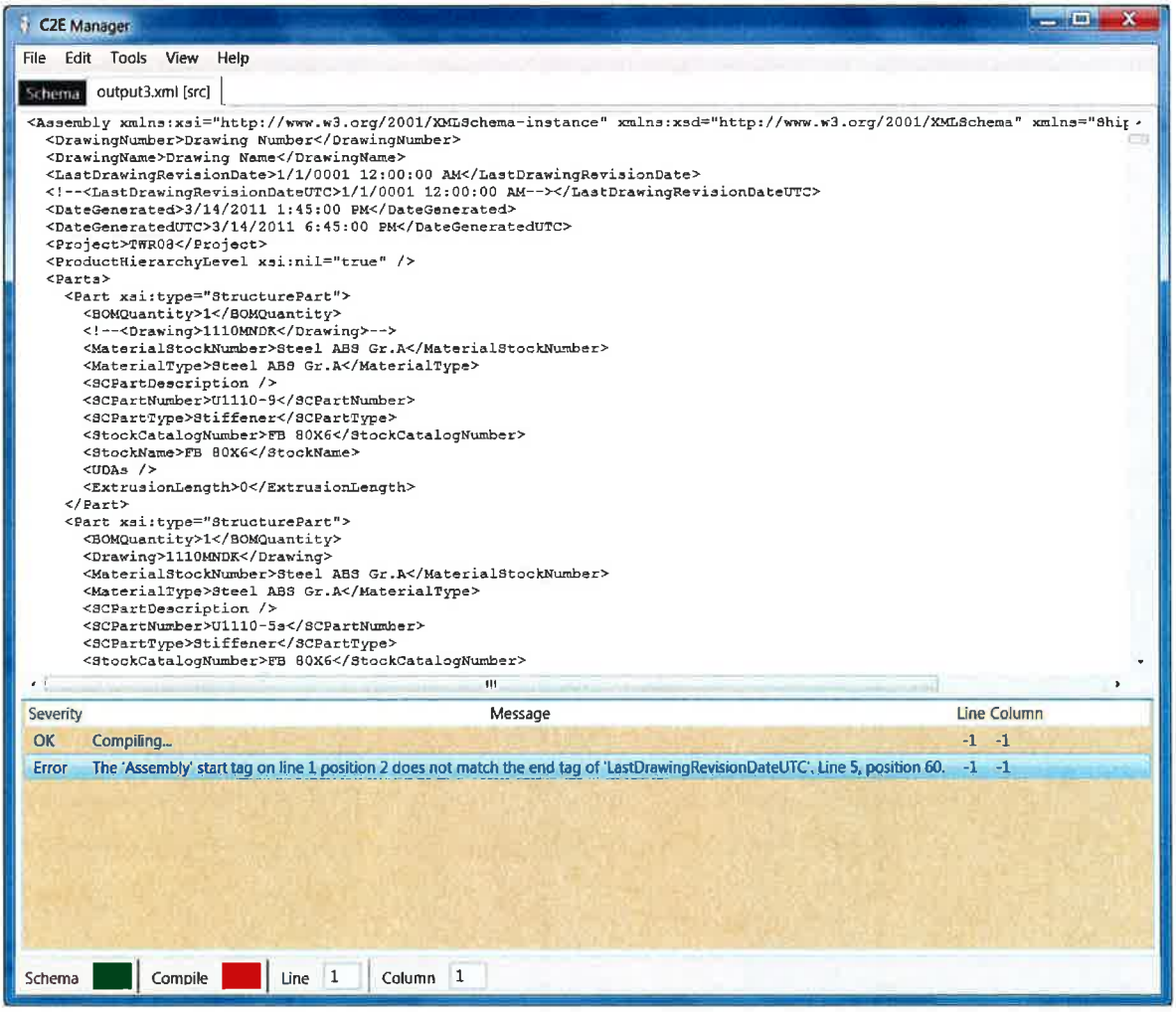


Figure 83: XML data which failed validation (Note Red compile indicator). The application indicates what the error is and where it occurs in the data file.

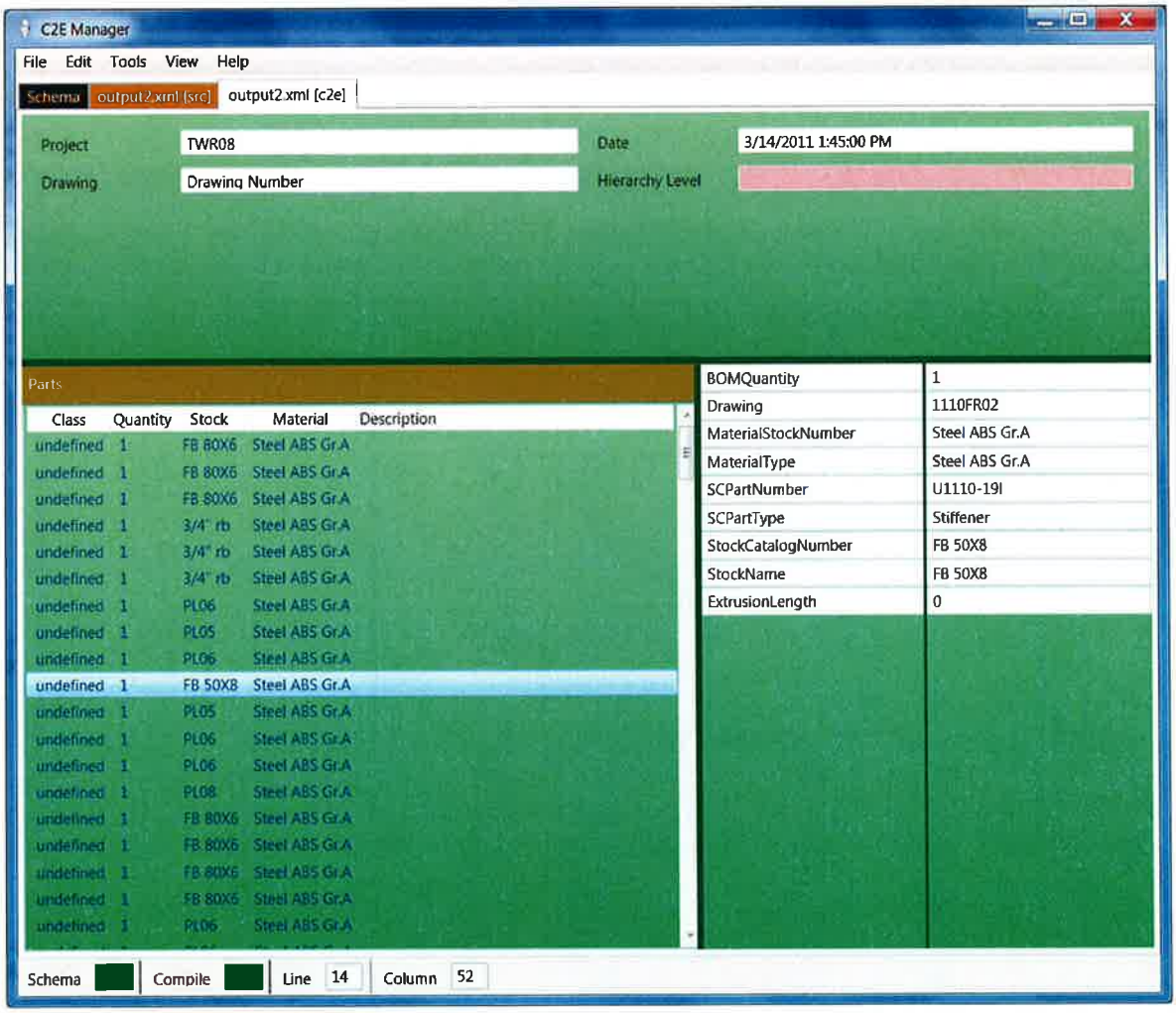


Figure 84: C2E view of the data. It is anticipated that this will be the view most commonly used by the system user.

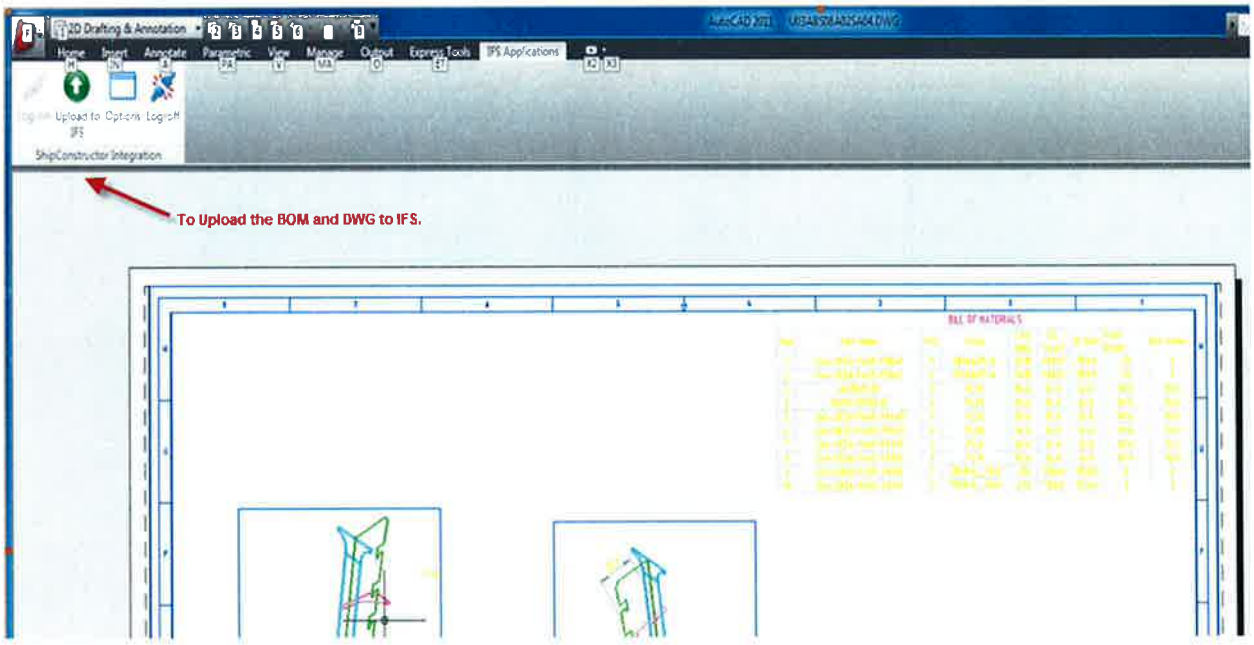
The developer is in the process of incorporating the use of versioning within the C2E Manager. This is advisable since C2E will provide the capability of system users to edit data within the application. Praeses is investigating the option of packaging a SQL database with the application that would allow the user to track revisions. This can be made completely optional – if the yard is doing edits and want to track versions, then that is activated in the configuration file. If not, then no database is created.

The Praeses project manager met with John Walks along with IT management (Virgel Smith and Quentin McGuire) for HII on April 14, 2011 in Pascagoula. HII is the former Northrop Grumman Shipbuilding (NGSB) operation which was formally spun off from Northrop Grumman on March 31, 2011. Virgel is the IT Manager responsible for the ShipConstructor implementation at HII and provided good insight as to how the project team should approach C2E implementation and testing at HII. HII makes extensive use of the Informatica data

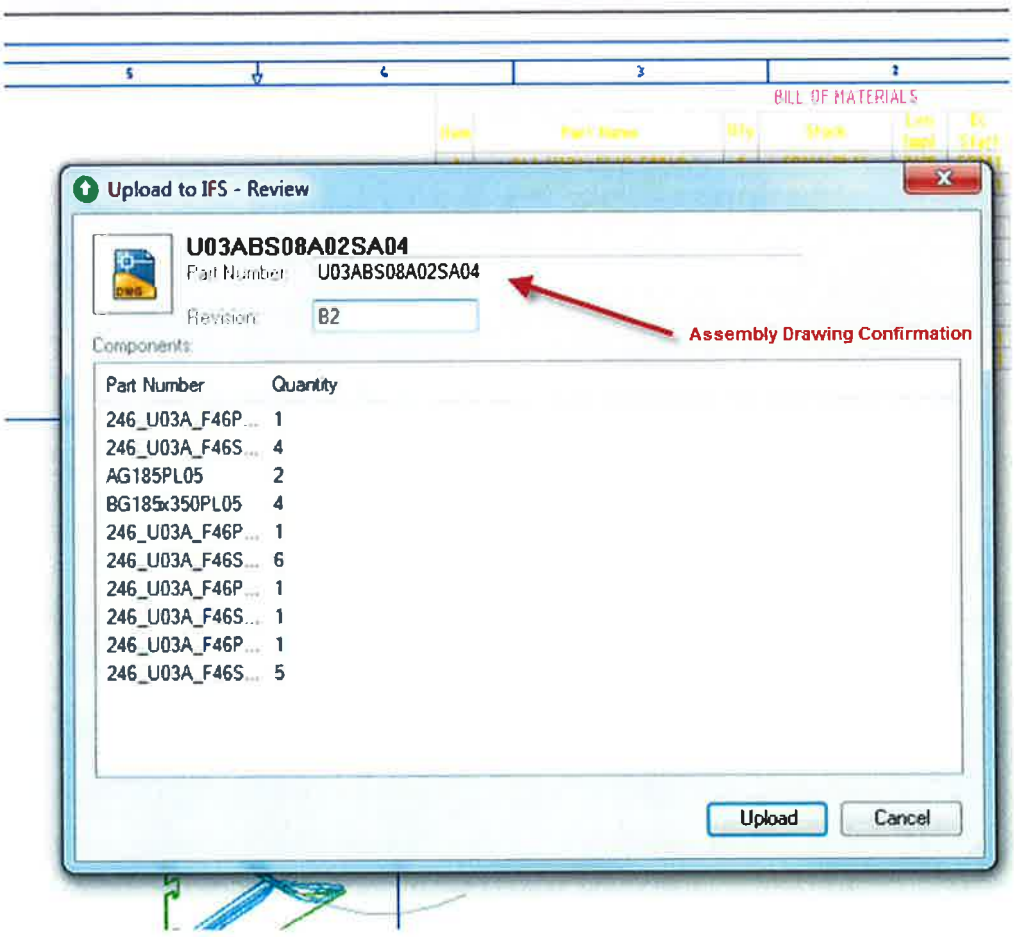
translation tool as an interface between disparate applications. C2E may need to be integrated into this approach.

Additional efforts were directed at Austal CAD to ERP exchange of data. Austal's configuration and processes necessitated a different approach for an equilivant data exchange as achieved by the C2E system.

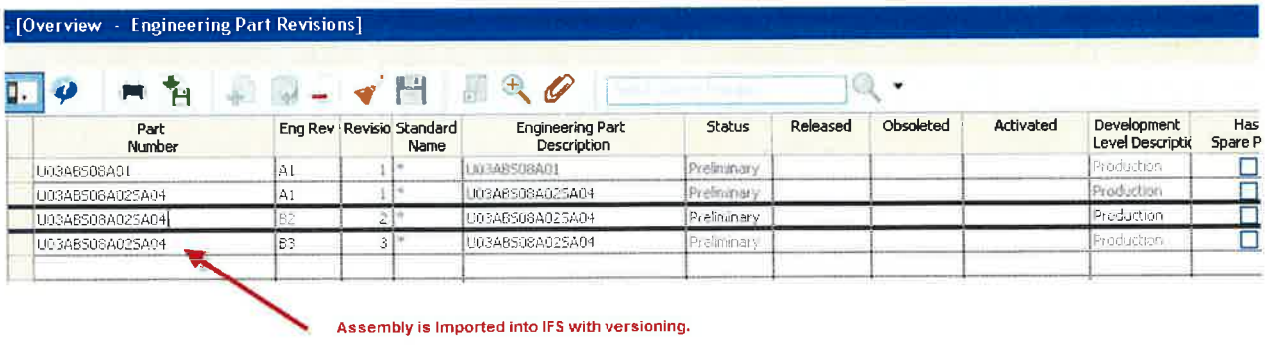
Austal IFS integration with Etrage utilized the methodologies developed in this project and customized the results further to accommodate Austal business practices. The approach was to first consider the use of production output drawings as a baseline, which was the current practice and discovered during this project business process mapping phase. Austal then used an approach that queried the particular output drawing in question for data directly from the drawing.



The image above demonstrates the custom work developed for Austal by Etrage that allows for direct linking from ShipConstructor to export data in preparation for loading into IFS. The drawing itself is queried and data is collected from the bills of material and various other data contained on the drawing object. This data is then collected and output for upload into IFS directly.

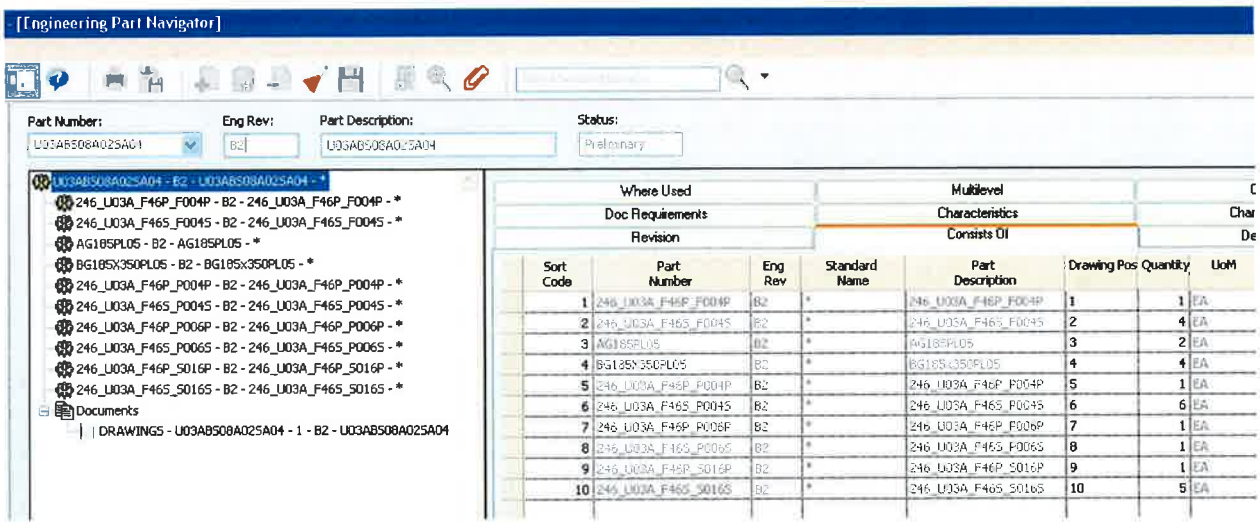


Review screenshot of the integration effort showing assembly drawing confirmation and parts listing culled from the ShipConstructor drawing. Once the appropriate information has been collected from the drawing object they are all collated and presented to the user for review and verification before uploading into IFS. The information is identified and tracked based on the assembly drawing name as generated in the ShipConstructor output, and is represented in IFS as a part number (actual assembly stage drawing name).



IFS part revisioning showing the uploaded data into IFS. Due to the tracking of the Assembly drawing object and associated data as a "part" in the IFS system, the ability to track part

revisions and changes can be handled directly in IFS through the native capabilities of the software. This also allows for process tracking and management of the information as well.



IFS screenshot showing the product structure representation as an engineering part. Here the full revisioning system is displayed as parts (ie: assembly sequencing drawing & associated data) are fully tracked and managed within the IFS system.

Final refinement of the XML data types and the defining XML Schema Definition (XSD) file were completed in November 2011 with the final addition of parsing the Ship Work Breakdown Structure (SWBS) data from the model if it was embedded. The XSD was modified as needed for proper validation of the data structures including the SWBS, and a sample XML file was generated from this XSD. The updated XSD was sent to Praeses for consideration and integration into C2E as needed to support this addition. The final format XSD and a sample XML is included as a deliverable on this project:

ERP_Export_11-15-2011.xml

ERP_Schema_11-15-2011.xsd

(g) SUMMARIES

Phase I Summary

The project's scope of work was segmented into five Tasks and project management. Project management, or administration of the project, is an ongoing process. To date submittals of deliverables have all been within a few days of the agreed due date. The project management duties will continue into Phase II.

Each of the five Tasks have progressed according to the original plan. As described above, most of these tasks have been started in Phase I. Those scheduled for completion in Phase I have been completed to the point that only maintenance adjustments will be required in Phase II. This is consistent with the anticipated progress for this project.

All required deliverables have been completed essentially on schedule. Although there has been some bumps as the project progressed the project team has been able to overcome all obstacles to complete the deliverables in addition to complete the need progress on the work.

The agreement laid out performance improvement metrics per Figure 85 below.

Metric	"As-Is" Baseline"	Project Goal	Tracking & Reporting Plan
Identification of the current state of data requirements and reuse possibilities based on shipyard processes.	Non-integrated, manual data re-entry and tracking	Identify and classify data requirements for these processes.	Report current state of data requirements and processes they are mapped to.
Document and create a logical neutral format for maintaining material data as identified in the above metric.	No capability.	Standardized neutral data format for describing material data and associated content	Report on the standard data format schema, and the methodology for use as well as extension if required.
Export to neutral data format from design software PIM, ShipConstructor	Manual data re-entry, or reliance on temporary processes	Seamless export of all material data required to support the specification identified by team members in the first metric	Demonstrated capability to export directly from design tool into the neutral format specification.
Import from neutral data format into each team members ERP system.	Manual data re-entry or reliance on temporary processes	Seamless import of all required material data to support the ERP from the specification above.	Demonstrated capability to import directly from the neutral data format into each team members ERP system.

Figure 85: Performance Improvement Matrix Table

The scope of work allows for only the first metric item to be completed In Phase I. The project team has captured the business process for each team shipyard as it relates to material information. The other three metrics will be finished during Phase II.

The work accomplished is within the cost assigned to the project. However, we are a little behind with the cost share predictions. The report above also indicates that we are in compliance with the technical requirements of the project.

Phase II Summary

Phase II activities included the maintenance of tasks completed in Phase I. This maintenance included the minor adjustments of the Phase I results in order to keep the tasks in line with Phase II Tasks.

In Phase II all of the projects tasks were successfully completed. This included testing at several of the team shipyards. All required deliverables have been submitted, with this report being the last deliverable.

The performance matrix items have all been completed. A neutral format has been created and documented, the export of data from the CAD (ShipConstructor) software has been tested and the importing of data in the ERP system has been confirmed.

The project work was accomplished is within the cost assigned to the project. However, we are a little behind with the cost share predictions. The report above also indicates that we are in compliance with the technical requirements of the project.

All of the XSD and XML samples were provided to Austal along with the compiled ShipConstructor .dll that would allow them to output the XML, and to understand how it was formed and could be used. Austal took this methodology and expanded it even further for internal use around further business practices.

This project is now complete.

Realized Benefits to Industry and Navy

The benefit to the industry and the Navy will be in the boarder use of ShipConstructor Software in commercial and military shipbuilding. The successful implementation of links between the design software and corporate material programming (ERPs) will enhance it marketability and usefulness as a design program. This will ultimately result in lower material accountability costs for naval projects.

Technology Transfer

PHASE I ACTIVITIES:

The Technology Transfer Plan (TTP) has been completed and posted on the website. The plan was submitted to the PTR and ATI on June 28, 2010 for approval. On June 28, 2010, it was posted.

Project Management Plan (PMP) for this project has been completed and posted on the website. The plan was submitted to the PTR and ATI on June 28, 2010 for approval.

As noted under the Major Development section, ShipConstructor has set up a Technology Transfer website as is shown in Figure 86 below.

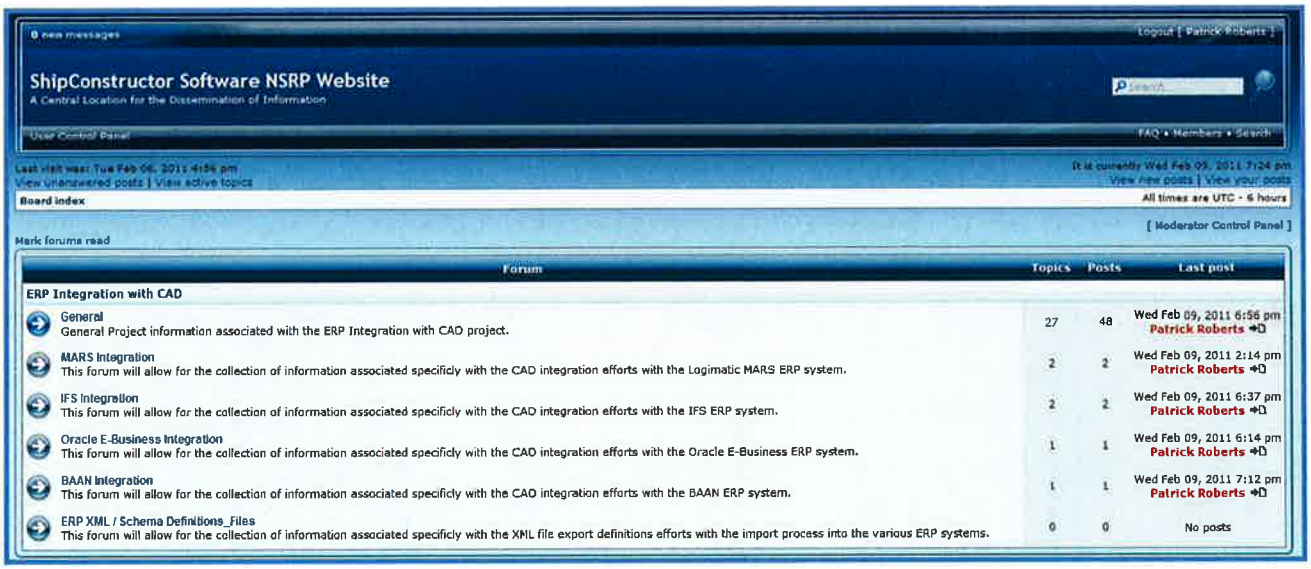


Figure 86: Screen shot of ShipConstructor NSRP Technology Transfer Website

The technical lead from each company represented on this project has been granted access to the Technology Transfer Website. Usernames and passwords have been provided to those project participants listed below as of June 18, 2010. As others join the group, they will be added to the website by the ShipConstructor website administrators.

The Technology Transfer Plan (TTP) is posted on the website. The TTP is regularly consulted for upcoming events.

The following Technology Transfer events occurred during this reporting period:

1. A Kick-off Project Team Meeting was held in Mobile, AL at ShipConstructor USA on June 8, 2010.

2. On behalf of the project team, Patrick Roberts of SSIUSA provided a Technology Transfer briefing of this project to NAVSEA and NSRP representatives at the NSRP Joint Panel and BPT Panel meetings of September 29 and 30, 2010, in Washington, DC.

3. A Quarterly Project Team Meeting was held in Marinette, WI at Marinette Marine Corp. on August 31, 2010.

4. A Quarterly Project Team Meeting was held in Seattle, WA at Todd Pacific Shipyards on November 2, 2010.

5. On November 3 – 5, 2010, the SNAME Ship Production Symposium was held in Bellevue WA. SSIUSA's Director of Operations, Patrick Roberts, had submitted an abstract paper for consideration by the Ship Production Symposium in correlation to this

project subject matter. Although the paper was not selected for presentation, SSIUSA showcased the virtues of this project at its ShipConstructor Exhibit booth. VTHM's Director of Engineering, Randy Nixie, also attended the SNAME/SPS Symposium to promote the team's efforts on this project and the expected ultimate benefits to the industry.

6. December 2010 BPT panel meeting in New Orleans, LA. – VTHM, SSIUSA, Praeses, MMC and Bollinger representatives attended the NSRP Joint and BPT Panel meetings in New Orleans, LA, on December 7 – 9, 2010. SSIUSA's Patrick Roberts presented a Technology Transfer briefing to NAVSEA and NSRP representatives on behalf of the project team.

7. The February Quarterly Project Team Meeting was held in Shreveport, LA at Praeses, LLC on February 16, 2011.

8. A Project Team workshop meeting was held in Shreveport, LA at Praeses, LLC on February 17, 2011, for the full team's participation in generating Milestone 8, "*Phase I Final Technical and Business Status Report*".

PHASE II ACTIVITIES:
The following Technology Transfer events occurred during this reporting period:

1. March 15 – 16, 2011, ShipTech 2011, Biloxi, MS, Misters Patrick Roberts and Patrick David presented details of this project to a diverse audience, including several project team members. See attached link for details; http://www.nsrp.org/Ship_Production_Panels/business_meetings.html

2. ***May 2011***– SSIUSA's Patrick David, Justin McDaniel and Patrick Roberts attended the NSRP Joint Panel Meeting, (San Diego, CA) on May 3 – 4, 2011. Patrick David provided Technology Transfer project presentation on the overall status of the project on behalf of VT Halter Marine. SSIUSA was supported by project participants at the meeting presentation; those in attendance were James Turner from VT Halter Marine, John Blair and Daryl Lanaville from Marinette Marine, Rob Parker from Praeses, Inc, and our PTR Ken Clarke from Huntington Ingalls – Newport News.

3. The June Quarterly Project Team Meeting was held in Lockport, LA at Bollinger Shipyard on June 2, 2011.

4. Milestone Number 10 (*Quarterly Technical and Business Project Status Report #4*) was submitted on June 20, 2011

5. Milestone Number 11 (*Project Interim Status Report #5*) was submitted on August 16, 2011.

6. Project Team Quarterly Project Status meeting, with workshop sessions, was held at ShipConstructor USA in Mobile, AL on September 13 and 14, 2011.

7. ***Sept 2011*** – NSRP Day at NAVSEA Meeting, (Washington DC) on September 22, 2011. Pat David and Pat Roberts, from SSIUSA, represented the project team as presenters at this event.

8. ***Oct 2011*** – NSRP All Panel Meeting, Newport News, VA, on October 4 – 5, 2011 SSIUSA's represented the team at this event.

9. ***Dec 2011*** – NSRP Joint Panel Meeting, New Orleans, LA on December 7, 2011 SSIUSA's Patrick David presented a status report of the project to the joint meeting.

10. ***Dec 2011*** – NSRP Business Panel meeting, New Orleans, on December 8, 2011 SSIUSA's Patrick Roberts presented the final project report to the Business Panel Members.

SSIUSA worked through various modifications that Praeses identified for ShipConstructor attributes that were not identified in the alignment map, or required ordering to support the ERP systems in consideration. These modifications were able to be supplied without pushing the team past any milestones or the project finish dates.

Praeses received notification in December that the C2E project abstract previously submitted to ShipTech has been accepted for a poster to be displayed at ShipTech 2012 to be held 14-15 February 2012 in Orlando, FL.

As the project is now complete, no further Technology Transfers are scheduled.

Plans for the Next Quarter

PHASE I ACTIVITIES

SSIUSA and Praeses have been working to establish a ShipConstructor API training sessions for the development. After further review, this training session has been re-scoped to an XML / API workshop that will allow Praeses the ability to see where the data is being retrieved from the ShipConstructor data tables. Once the XML file is written by SSIUSA, Praeses plans to have at least one developer attend this workshop in Mobile, AL in Phase II.

The Project Management Plan (PMP) for this project is posted on the website. The PMP is regularly consulted for upcoming commitments.

1. ShipTech Conference is scheduled for March 15 and 16, 2011 in Biloxi, MS. SSIUSA will be presenting details of this project to a diverse audience.

2. Project Interim Status Report #4 – that will include technical integration status with the MARS, IFS, and Oracle E-Business Enterprise Resource Planning (ERP) systems. This is scheduled for submission on May 2, 2011 as the first status report of Phase II.

ShipConstructor Software USA, Inc's Director of Research & Development, Patrick David, and Director of Operations, Patrick Roberts, submitted an abstract paper for consideration for presentation at the annual ShipTech 2011 Conference, in Biloxi, MS, in correlation to this project subject matter. This abstract paper has lead to an acceptance for presentation at the meetings of March 15 and 16, 2011.

SSIUSA will need to adjust each process model collected to enhance their clarity of presentation. These updates will be sent to the respective shipyard for final verification. Upon shipyard's final acceptance, the process models will be posted on the ShipConstructor website. This is an outstanding issue that SSIUSA will complete by the end of Phase I.

Application development on the remaining features of the C2E Manager prototype will be completed. This will include implementing the text editor to allow users to review, edit and re-validate data as well as provide custom call-out capability. Praeses plans to demonstrate C2E Manager prototype functionality at the February Project Team Meeting. This will be done with the ShipConstructor schema and data provided by SSIUSA. Documentation of the current C2E architecture will be completed as well.

Now that the process models have been captured, SSIUSA will help the Praeses team with the information alignment mapping. SSIUSA will support Praeses on the system design document describing the proposed data exchange process will continue.

PHASE II ACTIVITIES
As this report completes Phase II and the Project, there is no additional work planned.

Project Issues
There are no significant outstanding issues on the project.

On June 17, 2011, Mary Saady (ATI), David B. Hiscox (VTHM) and Kevin Hind (Todd) discussed Todd's current level of participation in the project. As a result of that discussion it was agreed that Todd would withdraw from future participation in this project.

It is noted that a request for project extension would be submitted. Thus, it was agreed in the September Project Team Meeting, that the original Milestone 12 (*Phase II Final Technical and Business Project Status* Report) will be replaced with this Quarterly Report. The Phase II Final Report will now be Milestone 13.

At this time there might seem to be a bit of a delay in the project due to some timing issues with ongoing work at Austal USA and this project work effort. The IFS ERP integration is the only thing left to finish under the current work scope. This will hopefully be resolved by the October

20, 2011, initial project complation date, but could be subject to slip if things become more complicated to work within the normal course of business at Austal USA.

With the withdrawal of Todd Pacific Shipbuilding due to the turnover in management to Vigor Shipyards, it has potentially freed up some work that could allow for funds to be redirected to the project team members to take a look at exchanging information with BAAN for Marinette Marine Corporation. This was not originally part of the scope of work as ERP systems MARS, IFS, and Oracle E-Business were the three systems that were scoped to be targeted. BAAN was not initially look at as MMC was in the evaluation stages of selecting an ERP and hand not yet decided to "hang their hat" on BAAN prior to the LCS contract award. Now that MMC's work on the LCS 3 and 5 has been underway, BAAN may be the tool that will be employed at MMC for now. Having a look at what it would take to exchange this information would add value to the project work and add yet another ERP system then the project team could stake claim to as covered under this project effort. Time constraints may be the ultimate factor here, but if the project could extend with no additional project cost to occur and MMC is up for the effort, we should consider rolling this into this project as additional scope. At MMC's request, further work with BAAN is not planned under this project. MMC will continue the work started on this project under a ManTech project.

There are no outstanding issues on the project as the project is now complete.

Schedule Issues

There is currently are no schedule compliance issues. Figure 87 below is the overall baseline project schedule at the start of this project as generated at the beginning of the project.

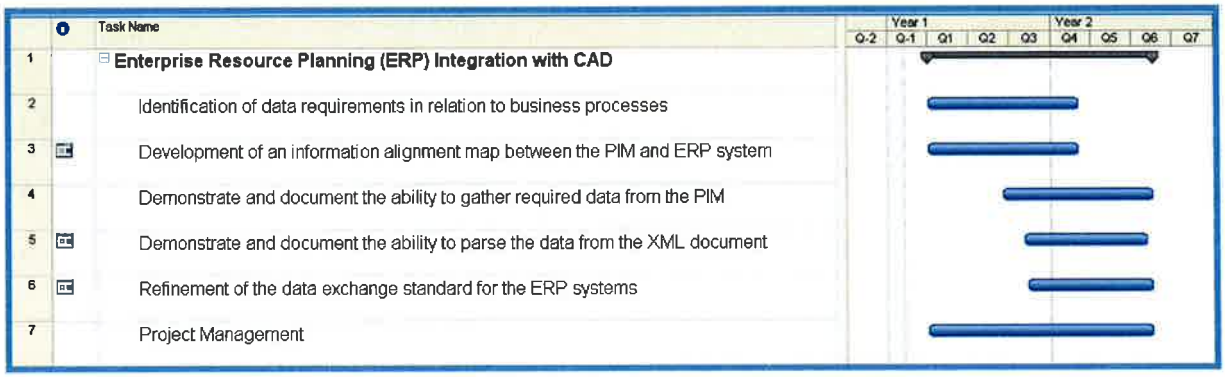


Figure 87: Early Project Baseline Schedule

There are still no real compliance schedule issues as known today. Figure 88 below is the current project schedule filtered with remaining scheduled task only.

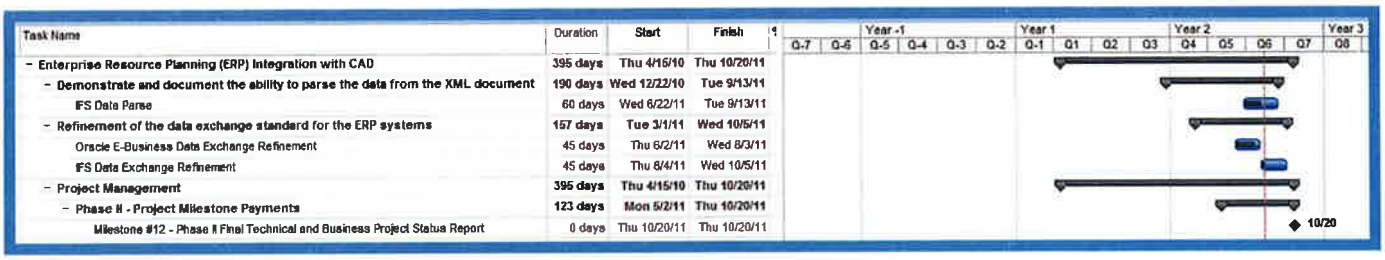


Figure 88: Revised Project Schedule

There is a potential of compliance to schedule. Figure 82 below is the current project schedule filtered with remaining scheduled task only. The IFS ERP data exchange and refinement is the remaining work associated with this project. With Todd Pacific removing their participation in the project as well as being an IFS ERP System adopter, we are now down to one adopter (Austal USA) to complete the scope of work assigned for the IFS integration efforts. It is anticipated that this effort could be completed within the timeframe left in on the project (approximately 1 month); however, this would be if everything goes to plan and no problems arise and all of the correct personnel are available to perform work on the project.

The project team has elected to extend the scope of work with no additional project cost, and MMC is added to the integration efforts with their BAAN ERP system, then the project schedule would need to be extended to accommodate the work associated with this effort. It is anticipated an approximate need for 90 days on the project schedule to work in this effort under the existing contract. Once a decision has been made by the project team and MMC, formal notification will be provided to the PTR and ATI Program Representative to approach this additional work scope, the project schedule will be revised, updated and shared. Note that work with BAAN was halted as MMC will continue its efforts under a ManTech program. BAAN interfacing was not in the original scope of work for this project.

Both Phases of this project are now complete.

Cost Issues

There are no current issues that may impact the contracted amounts for program funding and cost share.

Praeses has identified that their material (mainly travel) costs will exceed their material budget. Praeses and VTHM worked together to shift labor dollars to material/travel dollars. The total project cap for Praeses remained unchanged.

As Todd Pacific Shipyards withdraw from the project, there were some funds that became available to fund the performance additional work between SSIUSA and Austal. The funds were redistributed without impacting the total cost of the project.

This redistribution allowed Austal to have their process maps generated, and for test data to be able to be generated from ShipConstructor. Austal was supplied with the requisite XML samples and XSD to be able to understand the output, and the ShipConstructor .dll files for their version of SC that allowed them to generate this output.

The project is now complete.

Action Items
There are no outstanding issues between the project team and the PTR.

Project Summary
The initial portions of this project have reinforced the utility of this project for the shipbuilding industry. Capturing the business processes surrounding material procurement and management has provided the team valuable information and will serve as the foundation to the remaining project tasks.

The team is attempting to design the C2E system architecture such that it will be flexible, independent of a specific product or company and provide for a relatively simple installation to be utilized by the end user. Development of the C2E prototype application continues on track and the initial shipyard testing has begun.

The project continues to build on its base of partnership and collaboration. The project team is focused on a successful completion of this project as they all see the benefits that this project will bring to the industry.

As each of the team members preformed their individual scope of work a working relationship developed that brought normally competing shipyards together for a common goal. All project team members were encouraged to speak their mind in a constructive manner. In the end we successfully completed Phase I and Phase II of this project.

Section II
Business Status Report
Technology Investment Agreement 2010-625
between
the Advanced Technology Institute (ATI)
and
VT Halter Marine, Inc.
for
Enterprise Resource Planning (ERP) Integration with CAD

Agreement Summary Information

Total Amount of the Agreement:	$1,396,002
Total Estimated NSRP ASE Project Funding of the Agreement:	$686,432
Total Estimated Recipient Cost Share:	$709,570
Total Funds Obligated:	$686,432

Project Resource/Cost Information:

The following resources/costs are applicable to this project for the period April 2010 through December 23, 2011.

Company	Man Months Provided This Period **	Cumulative Man Months Provided **	Significant Material Costs This Period	Cumulative Material Costs	List of Personnel Working This Period
VT Halter Marine, Inc	1.864	7.073	$2337	$10,383	D.B. Hiscox, J. Turner, R. Nixie, A. Stewart, P. Anderson, D. Williams, S. Loyd, B. Bruebaker, B. Williamson
ShipConstructor Software USA, Inc.	2.306	9.476	$4,025	$11,724	P. Roberts, P. David, D. Parker, J. Shumock, J. Fant, K. Sanderson, M. Goff, P. Henderson, J. McDaniel
Austal USA	1.006	2.486	$624	$1,923	J. Lapeyrouse, R. Roberts, B. Turrens, B. Younger, D. Dellar
Todd Pacific Shipyards	0.0	1.352	$0	$2,251	K. Hein, T. Perrine, P. Torrey, and 9 others
Bollinger Shipyards, Inc.	0.164	6.254	$0	$5,773	D. Fanguy, C. Fanguy, C. Henry, G. Hull and 8 others
Marinette Marine Corp.	0.376	1.583	$2,699	$7,565	J.C. Blair, D. Lanaville, M. Hoard, R. Wellens, L. Tumberlin, J. Okins, D.

Company	Man Months Provided This Period **	Cumulative Man Months Provided **	Significant Material Costs This Period	Cumulative Material Costs	List of Personnel Working This Period
					Nasgoviz
HII-Ingalls (was Northrop Grumman Shipbuilding – Gulf Coast (NGSB-GC))	0.456	2.741	$380	$5,500	J. Walks, W. Delancey, G. Bertram, L. Hammler, G. Marsh, T. Mills, A. Furrow, D. Collins, G. Hollstein, B. Harris, T. Wally, M. Johnson, V. Smith,
Praeses, LLC	0.790	10.357	$422	$10,515	B. Burgess, R. Parker, J. Baugh, S. Davis, B. George
Jerry Pittman & Associates, Inc.	0.0	4.173	$0	$5,271	H. Shows, D. Eason, J. Pittman, M. Packard, D. Dudley, D. Boettner, K. Kasby
Total	6.962	45.495	$10,487	$60,905	

** As an alternate, actual costs (less material costs) may be provided in lieu of Man Months

Status of Milestones

Milestone Number and Description	Percentage Completed During this Period	Cumulative Percentage Completed
1 – Kick-Off Meeting and Required Project Plans	100	100
2 – Quarterly Technical and Business Project Status Report #1	100	100
3 – Project Interim Status Report #1	100	100
4 – Quarterly Technical and Business Project Status Report #2	100	100
5 – Project Interim Status Report #2	100	100
6 – Quarterly Technical and Business Project Status Report #3	100	100
7 – Project Interim Status Report #3	100	100
8 – Phase I Final Technical and Business Project Status Report	100	100
9 – Project Interim Status Report #4	100	100
10 – Quarterly Technical and Business Project Status Report #4	100	100
11 – Project Interim Status Report #5	100	100
12 - Quarterly Technical and Business Project Status Report #5 (new)	100	100
13 – Phase II Final Technical and Business Project Status Report	100	100

Interest Earned $0 (none)

Cost Share Provided by Project Participants

Cost share in the amount of $40,192 is provided for this reporting period. Cumulative cost share to date for the project is $675,174. The following summarizes the cumulative cost share provided for this project by category:

Participant-Provided Resources					
Resource Type	Cumulative Type A Private Sector (Federal Sources) Matching Funds	Cumulative Type B Private Sector (Non-Federal Sources) Matching Funds	Cumulative Public-sector participant provided funding	Total (less Public Sector provided funding)	Explanation
Funding Resources					
Cash (including donations from state or local governments). Examples include the outlay of funds to support the proposed statement of work through the acquisition of material or equipment and paying company cash for subcontractor labor or consultant cost				**$0**	
Labor costs associated with allowable labor cost categories that are not billed directly to program funds (e.g. SP Panel members)				**$0**	
Expenses associated with allowable labor cost categories that are not billed directly to program funds (e.g. ECB member travel)				**$0**	
Overhead (excluding labor related fringe benefits)				**$0**	
General and Administrative Services				**$0**	
SBIR and **STTR** in accordance with Government guidelines				**$0**	
IR&D (Internal Research and Development)		$30,500		**$30,500**	HII-Ingalls donation of half the cost of labor and material.
M&PE (Manufacturing and Production Engineering)				**$0**	
Estimated **Implementation Costs** for activities specifically included in participant proposals				**$0**	
In-Kind Resources					
Use of existing equipment including software (estimated fair market value)	$32,233	$612,441		**$644,674**	18 month (rent cost) of 11 full SC2009
Intellectual property (market value)				**$0**	
Space (land or buildings)				**$0**	
Totals	**$32,233**	**$642,941**		**$675,174**	

*IR&D matching funds should be identified separately and not included in the Overhead line.

Discussion
This is the final Business Status Report for Phase II, and the Project, of the subject Technology Investment Agreement. There has been five previous Quarterly Status Reports submitted. Variances in expenditures / shortages are attributable to the following;

1) Cost Share – Ingalls cost share has fallen behind consistent with their overall man-hour expenditures. ($34,398 difference – short this project)

2) Material Cost – Expenses associated travel not required for this quarter. ($19,369 difference - short this project)

3) Labor Man Months – Work did not involve all members, only mainly Praeses and SSIUSA. (0.689 man month difference - over this project)

Modifications to Estimated Milestone Payments
None required.

Signature _____

Title VP Government Contracts

Date 12/23/11

I certify to the best of my belief that this report is correct and complete and that all costs are supported by the records of this organization or input provided by other team members and/or subcontractors and are for the purposes of completing NSRP-ASE TIA #2010-625.