

## TOPS Construction Software

### Innovation Description:

TOPS Construction Software utilizes technology to allow for real-time collaboration and coordination of construction activities between Owners, Contractors and Sub-Contractors by allowing all parties to access the information in the data “cloud”.

By leveraging project control relationships and associating them to planning, construction, schedule, turnover and commissioning by the Owner efficiency, accuracy and quality have been greatly increased.

### What the Innovation is:

TOPS allows more effective sharing of information concerning Construction Scope, Activities, Quality Requirements, Inspections and Project Controls such as RFI's, Punch lists, Drawings, Change Orders, Purchasing, Receiving, Transmittals, Quality Inspections, and ASME & AWS Welding activities.

Construction Scope is entered during the planning phase of a project and target dates are set for logical chunks of work also known as work/test packages.

As construction activities progress RFI's and Punch list items are associated to the work packages. Field completion and corresponding Inspections are also recorded, this provides for a much smoother and efficient turnover and commissioning process with the Owner.

Summary reports provide progress of construction and quality activities and allow improved effectiveness and management of the project.

### Why the Innovation is Important:

TOPS is so important because it allows for the field and the office to share a common tool to track, progress and turnover construction projects to the Owner in a controlled manner, that improves quality, while bringing down the cost of construction.

### Origination:

“Necessity is the mother of invention”; TOPS is no exception to that. TOPS originated as a result of the need to be able to better manage the Inspection activities, Punch lists & RFI's to allow for easier and smoother turnover of systems to the Owner, and to provide summarized progress of these activities throughout the cycle of the project.

### Changes & What it Replaces:

TOPS changes the way information flows and increases its effectiveness and accuracy. TOPS replaces paper and or manual summary systems for tracking construction and quality inspections.

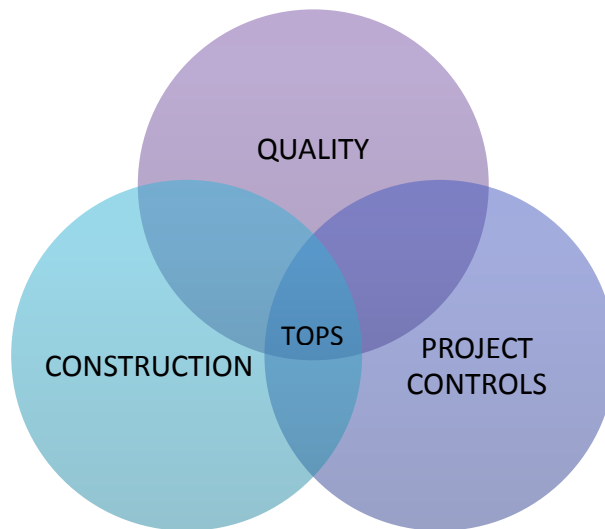
### Specific Innovations:

TOPS is innovative in that it associates all information necessary to smooth turnover of work packages to the Owner and makes that information easily accessible to the Owner, Contractor and Sub-Contractors involved in construction activities.

### Applications:

TOPS has been used by BMW Constructors Inc. on three major refinery projects over the past year and has helped make them more efficient by providing necessary tools to perform the work more effectively.

PIPING TURNOVER SYSTEM for BP Work List: 2013 DDU TAR								BMW CONSTRUCTORS, INC.			
Turnover System	Packages	Field Complete	Insp.- NDE Complete	Pre- Test Walked	Needs Pressure	Test Complete	Restored	Not Submitted	Submitted	Returned	Owner Accepted
	2	0	0	0	0	0	0	0	0	0	0
Cooling Water	1	1	1	0	0	0	0	0	1	0	0
E-301/ Product	12	1	1	1	9	1	0	12	0	0	0
Reactors	2	0	0	0	0	0	0	2	0	0	0
Reactors, Effluent/Amin	1	0	0	0	0	0	0	1	0	0	0
Steam/ Condensate	14	3	4	3	4	2	2	10	3	0	0
Steam/ Condensate & Servi	1	0	0	0	1	0	0	1	0	0	0
Sweet Water to F-317	1	0	0	0	1	0	0	1	0	0	0
	140	24	30	27	83	21	12	116	16	0	0
Percent:		17.14%	21.43%	19.29%		25.30%	8.57%	82.86%	11.43%	0.00%	0.00%



**PACKAGE VERIFICATION**

Work List: 2013 DDU TAR | T-O System: | Feed/ Preheat: | Scope Description: Demo 10" piping and insulation from C-311 shell side outlet to B-301 Feed Heater inlet. Demo 2" steam piping. Demo T125609, RV-DDU4, FV/FY25615A, MOV

Test Type	Field Complete	Insp.-NDE Complete	Pre-Test Walk	Test Complete	Field Restored	QC Restored Insp	Package Status	Owner Acceptance
Hydro							Not Submitted	

**NDE**

Request Num	Request Date	Weld Num	Size	Sch	Type	Drawing	NDE	NDE Status	NDE Date	Package ID
002	1/10/2013	38	6	80	BW	O-2510008-01	RT	ACCEPT	1/10/2013	200.17.09
003	1/11/2013	43	6	80	BW	O-2510008-02	RT	REJECT	1/11/2013	200.17.09
004	1/14/2013	68	6	80	BW	O-2510010-02	RT	ACCEPT	1/14/2013	200.17.09
004	1/14/2013	43R1	6	80	BW	O-2510008-02	RT	ACCEPT	1/14/2013	200.17.09
004	1/14/2013	55	6	80	BW	O-2510009-02	RT	ACCEPT	1/14/2013	200.17.09
005	1/17/2013	80	6	80	BW	O-2510011-02	RT	ACCEPT	1/17/2013	200.17.09
006	1/23/2013	76A	4	80	BW	O-2510011-02	RT	ACCEPT	1/23/2013	200.17.09
006	1/23/2013	45	6	80	BW	O-2510030-01	RT-BS	ACCEPT	1/23/2013	200.17.09

**Punch List**

Item Number	Date Created	Description	Date Corrected	Verified By
001				
002				
003				

**RFI**

BMW RFI	Owner RFI	Date Created	Inquiry	Response	RFI Answered?
2013 DDU Outage - 0014	N/A	1/16/2013	Mating flange to instrument FV 25525 connecting is out of alignment. Please advise how to proceed.		No
2013 DDU Outage - 0021	N/A	1/21/2013	Drains were left off of the spools in order to avoid damage during shipping. The drains will be installed and hydro tested where		No