

STA JACKLOAD

For Virtue -I



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1 STA JACKLOAD

1.1 Introduction

STA Jackload is an onboard software used in Jack-Up Rigs for the maintenance and recording of afloat stability, variable load form, and preloading for Jack-Up Rigs. The working scenario of all the 8 cases for the Jack-Up Rig is assessed by the software, which helps the crew to keep a day-to-day record of the vessel.

1.2 Drawings

The corresponding difference in the position, trim, heel and elevated/ floating conditions will be represented in the diagrams.

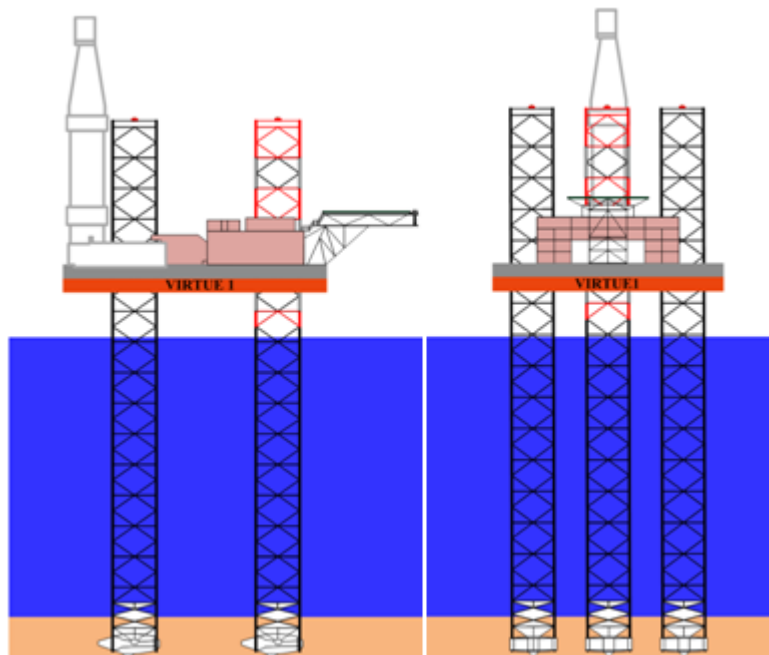


Figure 1. Side View and Front View of Jack-Up Rig at Drilling Position(as shown in the software)

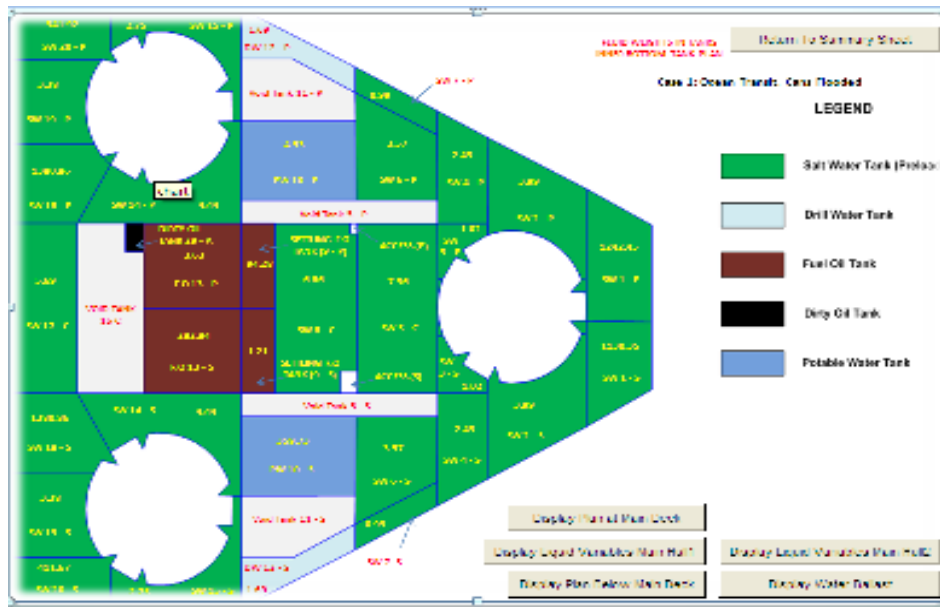


Figure 2. Inner Bottom Tank Plan (listed sounding in each tank)

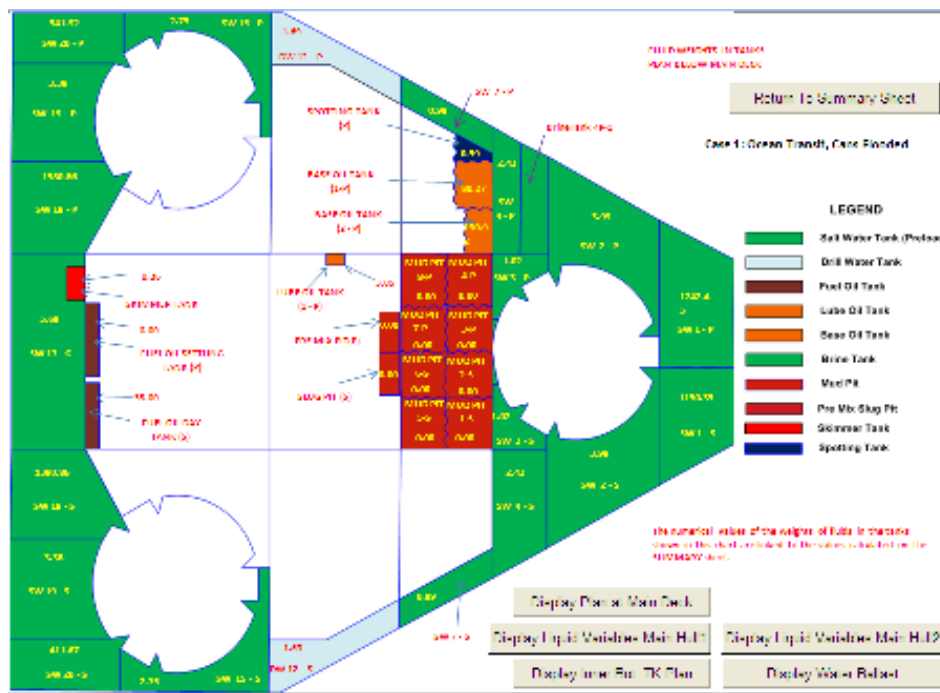


Figure 3. Plan below Main Deck (listed the sounding in each tank)

1.3 Instructions

The User requires changing the columns filled in YELLOW only. THE REST IS TO BE LEFT UNCHANGED. The following sheets contain the Input Data from the user.

1. Summary
2. Lightship Additions
3. Solid Variables Main Hull
4. Solid Variables Cantilever

5. Setback Load
6. Liquid Variables Main Hull1
7. Liquid Variables Main Hull2
8. Liquid Variables Cantilever
9. Water Ballast

1.4 Input Data

The Data to be Input by the User is in the above mentioned tabs are discussed below:-

1.4.1 Sign Convention

The sign Convention to be used is

- Heel :- Positive towards Port and Negative towards Starboard
- Trim :- Positive towards Fore and Negative towards Aft

1.4.2 Summary Sheet

- Wind Speed – The wind speed must be Input as per the daily weather information
- Wave Height – This must be Input as per the Sea condition
- Current Speed – Current speed must be input as per the Sea condition
- Water Depth
- Cantilever Extension – The extended length of the cantilever from the Main hull must be Input
- Rotary off CL
- Leg Positions
- Leg Length – The length of the leg is to be Input. When the vessel is towed a part of the leg is removed and kept horizontally overboard to gain more stability afloat.
- Tidal Difference – The difference in the tide
- Air Gap – This the gap made by the keel of the main hull to the sea level when it is in Jacked in to the position, standing on its legs.
- Select Case for Analysis – The Case must be selected from the eight different options given in the vessel.

300	Water Depth (feet)	
300.00	Water Depth with Tidal difference (feet)	
2	Select Case for Analysis (from 1 to 8)	
Select Case for Analysis Either Select Case for Analysis from Drop Down List, Or type Case Number: 1 = Ocean Transit, Flooded 2 = Ocean Transit, Buoyant 3 = Field Transit, Flooded 4 = Field Transit, Buoyant 5 = Preloading 6 = Jacking 7 = Drilling 8 = Storm Condition		Summary
ELEVATION		810.60
CANTILEVER		515.69
DRILLFLIGHT		521.18
LEG 300		126.44
LIGHTS		573.91
SOLID V		405.52
SOLID V		505.95
LIQUID VAR. (MAIN HULL)		1682.91

Figure 4. Different Cases

The case may be selected accordingly.

- After the case is selected, to load the actual environmental loads into the program, the User will have to click the button at the right-bottom of the Summary sheet.

STA JACKLOAD				VIRTUE-1				1/9/2009		
For Discovery Drilling PTE Ltd.		Rig Name: Virtue-1		Rig Location: Pacific		Field Name:		Field 105		
Revision Number: 2.05		Copyright Stewart Technology Associates 2008. Tel: (832) 472-2811, Fax: (713) 583-2058, www.stewart-usa.com, info@stewart-usa.com				Run Ref: Test Run 1				
Revision Date: 9/23/2008		Description of Run:		Development Testing				3:40:24 PM		
PROGRAM CONTROL AND LOAD CASE SELECTION (Yellow cells below)										
1	1=w/cans flooded, 2=w/cans buoyant	0.00	Cantilever Extension (0 ft = fully stowed, 92 ft fully extended)							
90.00	Wind Speed (knots)	0.00	Rotary off CL [port(-); stbd(+)] (feet)							
56.00	Wave Height (feet)	0.00	Hook load (kips)							
1.0	Current Speed (knots)	385.00	Leg Positions (TOC below baseline, feet)							
300	Water Depth (feet)	491.00	Leg Length (either 300 or 491 feet) 491 ft SELECTED							
300.00	Water Depth with Tidal difference (feet)	0.00	Tidal Difference							
8	<-Select Case for Analysis (from 1 to 8)	50.00	Air Gap (Used for Pictures) (ft)							
Weight Summary					Case 8: Storm Condition					
No.	DESCRIPTION	WEIGHT (kips)	VCG (BL) (feet)	LCG (FR.-1) (feet)	TCG (CL) (feet)					
1	ELEVATED HULL	14310.60	28.81	132.14	0.04	Display Inner Bot. TK Plan		Display End Profile		
2	CANTILEVER (STOWED)	1615.69	40.25	170.69	1.85	Display Plan Below Main Deck		Display Side Profile		
3	DRILLFLOOR (STOWED)	1621.18	92.44	212.17	-2.21	Display Plan at Main Deck		572		
LIGHTSHIP WEIGHT		17547.47	35.74	143.08	0.00			2989		
4	SOLID VAR. (MAIN HULL)	1405.52	28.58	111.33	2.70	FSMt	FSMl	-3583		
5	SOLID VAR. (CANTILEVER)	505.95	53.77	171.06	0.10	(kip-ft)	(kip-ft)	0		
6	LIQUID VAR. (MAIN HULL)	1682.91	5.69	88.21	-2.14	16777.1	10094.6	-21		
7	LIQUID VAR. (CANTILEVER)	6.45	36.42	168.71	25.54	3.6	3.6	3795		
VARIABLE LOAD		3600.82	21.44	109.02	0.11	16780.7	10098.1	51		
8	WATER BALLAST (in Main Hull)	0.00	0.00	0.00	0.00	0.0	0.0	-3602		
TOTAL		21148.29	33.31	137.28	0.018	16780.7	10098.1	165		
Afloat Stability Summary Not Applicable					Case 8: Storm Condition					
Draft (ft)	Disp (kip)	LCB (ft)	LCF (ft)	KML (ft)	KMT (ft)	Max. Allow. KG (ft)	Free surf.corr. (ft)	Corr. KG (VCG) (ft)	MCT1" (kip-ft)	MCH1" (kip-ft)
Trim Mom. ft-kip	Trim (ft) +ve down by aft	Heel Mom. ft-kip	Heel (ft) +ve down by stbd	Draft (FP) ft	Draft (AP) ft	Draft @ Midship ft			Trim Angle (degrees)	Heel Angle (degrees)
Elevated Stability Summary					Case 8: Storm Condition					
Fwd Leg Static Load (kips)		Port Leg Static Load (kips)		Stbd Leg Static Load (kips)						
7002.96		7069.94		7075.39						
Environment Load Checks					Case 8: Storm Condition					
Maximum Leg Loads (kips)			Minimum Fwd Leg Load (kips)			Maximum Chord Load (kips)			Copy and Paste Example Load Case Data for the Selected Case Number	
Fwd Leg	Aft Leg	Load Component	Load	Load Component	Load	Load Component				
7002.96	7075.39	Static Leg Load	7002.96	Static Leg Load	2358.46	Max. Static Load				
1725.00	1725.00	Leg Load Due to Wind	893.00	Can Uplift Due to Wind	1502.00	Chord Load Due to Wind				
359.00	359.00	Leg Load Due to Waves and Current	186.00	Can Uplift Due to Waves and Current	323.00	Chord Load Due to Waves				
9086.96	9159.39	Maximum Aft Leg Load	5923.96	Minimum Fwd Leg Load	4183.46	Max. Chord Load				
13425.00	13425.00	Maximum Permissible Leg Load	2308.00	Min. Permissible Fwd Leg Load	9510.00	Max. Permissible Chord Load				
Margin = 32.3%		Margin = 31.8%		Margin = 156.7%		Margin = 56.0%				

Figure 5. Snapshot of the Summary Sheet

1.4.3 Lightship Additions

- Any addition in the main hull, cantilever, and drill floor weights must be added to here which will reciprocate the final lightship in the Summary sheet

1.4.4 Solid Variable Main Hull

- Any change or addition in the weights and their Centre of Gravities(LCG, TCG, and VCG) must be recorded here.

1.4.5 Solid Variable Cantilever

- Any change or addition in the weights and their Centre of Gravities(LCG, TCG, and VCG) must be recorded here.

1.4.6 Setback Load

- Any change or addition in the weights must be recorded here, and the correction will automated into the "Solid Variable Cantilever" sheet.

1.4.7 Liquid Variables Main Hull 1

- Any change in the sounding and their Centre of Gravities(LCG, TCG, and VCG) must be recorded here.

1.4.8 Liquid Variables Main Hull 2

- Any change in the sounding and their Centre of Gravities(LCG, TCG, and VCG) must be recorded here.

1.4.9 Liquid Variables Cantilever

- Any change in the sounding and their Centre of Gravities (LCG, TCG, and VCG) must be recorded here.

1.4.10 Water Ballast

- Any change in the sounding and their Centre of Gravities (LCG, TCG, and VCG) must be recorded here.

1.4.11 Printing of Results

- Go to the print option inside the Excel options, and print the Summary sheet for the Daily record

1.5 Warnings and Pop-Ups

- The programs shows the warning when the environmental loads exceeds the allowed limit
- The warning is shown when the load exceeds the margin in the Storm conditions
- Buttons are provided for the easy navigation to different sheets and viewing various drawings of the vessel simultaneously.
- In the tank plans of below MDK and below Inner Bottom Deck, the details of the tanks will be shown when clicked on the particular tank.

1.6 Conclusion

The Software is developed taken into concern the same must be very much User-friendly. We expect the Crew onboard to find this software very much useful in preparing the daily records. For any further doubts on the software feel free to contact us at stewart.bill@gmail.com or info@aryatech.net.

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