

MOVINS version 3

features • rules • best practice

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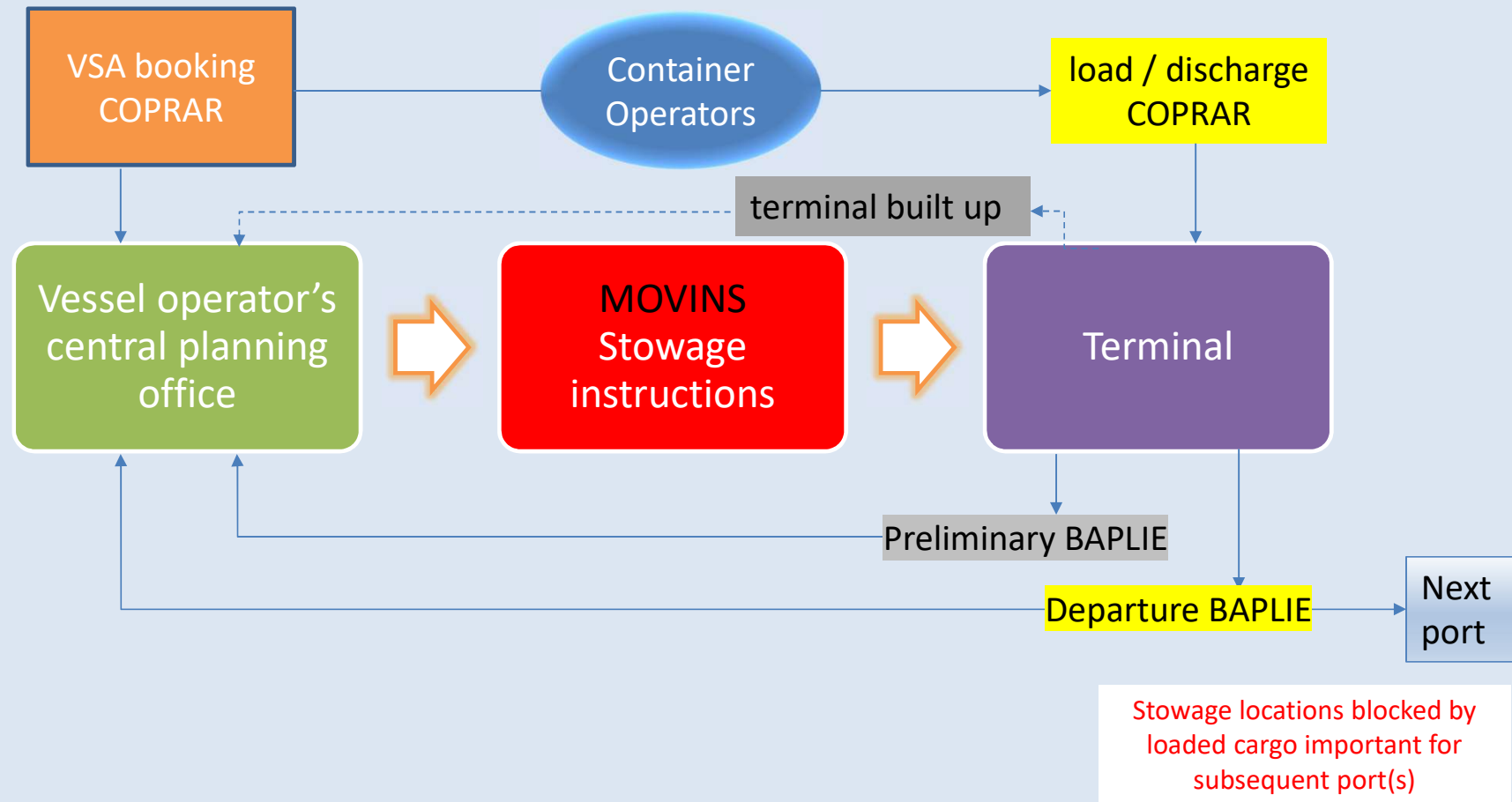
Issues around stowage instructions

- Business view
- Technical basics = parameters of stowage instructions
 - Bayplan – Vessel profile (below / above deck)
 - Cell grid of stowage locations (20', 40'); stacks; lashing bridges
 - Equipment (length, height, width); high cubes; pallet wide
 - Cargo types (DG, OOG, breakbulk, reefer)
- Rules for processing of stowage instructions

Aims of stowage planning

	Vessel Operator	Terminal
operations	load restow	discharge load restow
scope	vessel's voyage	single port of call
issues	vessel utilization	terminal operations
	VSA allocation management	resource planning
	vessel safety stress, stability, weather	cargo pre- and on-carriage road, rail, feeders
	DG stowage and segregation	yard operation planning
	vessel schedule	load operation planning
	vessel fuel consumption	

Stowage planning process



Bayplan



- **Bayplan used for load planning:**
(after-discharge bayplan)
 - Departure previous port
 - remove discharged cargo
 - remove blocking caused by discharged cargo

- Departure bayplan

After-discharge bayplan plus ...

- + loaded cargo
- + restowed cargo
- + blocking caused by loaded / restowed cargo

EDI attributes of loaded cargo

- Equipment type, ID, full/empty
- POL/Discharge port, opt. addl. routing
- Mass (VGM)
- Operator
- DG item attributes
- OOG measures
- Temperature / range settings
- Handling instructions
- Reference to blocked slots
- ...



Stowage Locations

- 20'/40' cell grid (bay row tier)
- on- /below deck
- resulting actual stack height
- blocked locations
- equipment restrictions
- multiple lashing options
- hatches other than 40'
- lashing bridges
- athwart stowage
- special setup of stack foundations

Standard Equipment (in standard workflow)

- standard dimensions 20'/40' length, 8'6"/9'6" height, 8' width
 - ⚠ equipment's size type might define other than standard dimensions
- different equipment **types** defined by size type
 - general purpose
 - ventilated
 - temperature control
 - open top (*standard* only as long as no over-height)
 - platform / flats (end walls up/down)
 - tanks
- max. transport stacking weight $\geq 192t$
- potentially bundles of flats

non-standard equipment (examples)

- equipment length 45', 48', 10', 27', 30', etc
- equipment width other than 8'
 - Pallet wide 40' HC: size type 4EG1 (≤ 2.5 m) ; 4NG1 (> 2.5 m)
 - Pallet wide 45' HC: size type LEG1 (≤ 2.5 m) ; LNG1 (> 2.5 m)
 - Pallet wide 20' (8'6): size type 2CG1 (≤ 2.5 m) ; 2LG1 (> 2.5 m)

Cargo causing **special attention** (examples)

- out-of-gauge
- temperature controlled equipment with special requirements (e.g. reefer engine fwd/aft, ripening process vs. deep freeze)
- breakbulk and supporting equipment
- handling instructions calling for special care
- ventilation and other atmosphere control of equipment
- equipment which requires special monitoring

Loading Instruction Rules (1 - general)

- *Message sender is obliged to take care that all stowage locations mentioned for loading (resp. restow target) are accessible*
- Stowage locations marked as reserved in after-discharge bayplan must not be used
- POD must be observed as specified for equipment in stowage location
- Length of equipment must match stowage location size (20'/40')
 - Special cases:
 - length > 40' is to be stowed into indicated stowage location
 - extra handling instructions required for odd equipment length like 10', 24' 30'
 - with/without lashing gap; restrictions by lashing bridges
- in case of vertical mix of equipment height the total stack height is to be observed
- reduced max. stacking weight of equipment to be observed
- in case multiple equipment is to be loaded into one stowage location the sequence of equipment is to be observed

Loading Instruction Rules (2 - mandatory)

- Equipment with at least one of the following attributes must be stowed into the indicated stowage location

Attribute	Attribute
DG - Dangerous Goods	OOG – Out-of-gauge
breakbulk and supporting equipment	
temperature controlled equipment - reefers	on-shore power supply
if required by equipment's handling instruction	

Equipment may be swapped with other equipment with identical attributes but different identification.

... some non-obvious cases (still to be decided)

- usage of supplementary stowage locations not mentioned in loading instructions, especially on top of stacks
- cargo not arriving in time
 - Which stowage locations to leave empty
- For optional extra loaders
 - Which stowage locations to be used for which POD?

Stowage Instructions: some *background intentions* not explicitly transmitted by codes



- Prepare height of adjacent stacks for loading large breakbulk in subsequent port
- limits for on-deck stack height
(e.g. passage of canals, crane height in subsequent ports)
- Weight distribution for control of stability, stresses, drought, trim