Breakbulk & Project Cargo

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Design to Delivery of a Heavy-Lift Shipment Case Study

Breakbulk Academy

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Session moderators

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Subject Matter Experts (SMEs)





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Managing Partner, Hicks PLLC

Katherine Koppe
Global Director, Business Development, Geodis Project Logistics

Amanda Coughlin
Senior Chartering Broker, BBC Chartering

Gedge Knopf
Vice President Project Development, Oxbo

Introduction: Design to delivery

The two-session event will follow the design-to-delivery movement of an out-of-gauge/heavy-lift pressure vessel from India to New Orleans over an estimated 2-year time period.

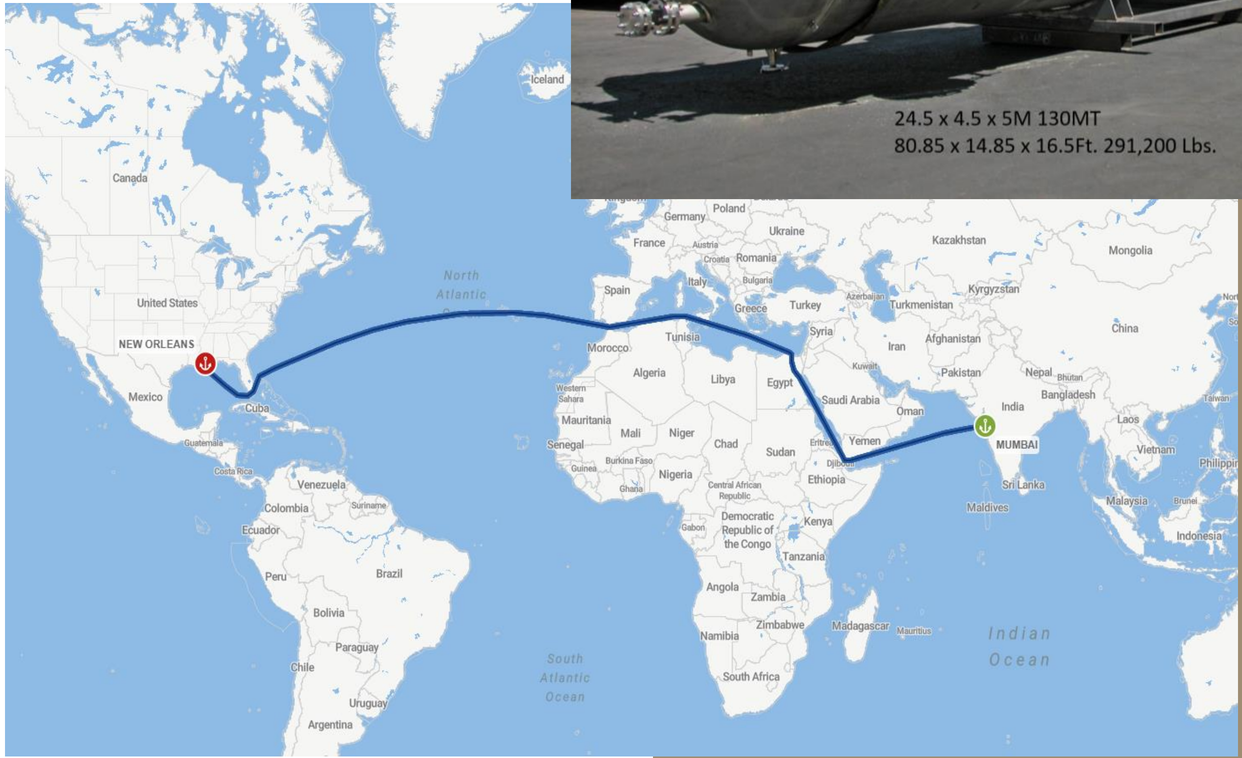
The sessions will engage attendees in learning about the D-to-D process (at a high level) by describing the critical/major steps involved following along a master process flow map.

Attendees will be presented with disruptions and challenges inserted along the path at two points, one in each session.

Attendees will discuss these disruptions and challenges and their implications for previously made plans for delivery and for the project schedule. They will then develop a solution to be presented by their group spokesperson.

Assignment

Learn the critical steps involved in moving an OOG pressure vessel from India to New Orleans over an approximately two-year period.



Typical design to delivery process steps

Engage Engineering
↓
Collaborate with Procurement
↓
LSP Contracting
↓
Shipment Planning
↓
Shipment Execution
↓
On-carriage Delivery

Critical Step 1

- **Engage Engineering**
- Collaborate with Procurement
- LSP Contracting
- Shipment Planning
- Shipment Execution
- On-carriage Delivery

Jesus Mejias
Director Logistics and
Trade Compliance, Kiewit

What does EPC stand for?

Engineering

Procurement

Construction

EPC firms deliver a full package of resources to complete projects.
EPC services typically provide a single responsible source for executing a project (turnkey)

Engagement is key

The engagement between design engineering and logistics is crucial for the success of any project

Initial Collaboration:

- Specification Development
- Supplier Selection
- Value Engineering
- Risk Management
- Continuous Communication

Effective collaboration between design engineering and Logistics is essential for optimizing product design, minimizing costs, and ensuring timely delivery of high-quality products.

Engineering and Logistics

Logistics Requirement Assessment and Cost Estimation are scalable to specific project requirement.

Phase I	Phase II	Phase III
Feasibility-Pre-Feed Basic Engineering – Feed	EPC Estimate 3-5 10%-30% Design	EPC Estimate 1-2 +30% Design

Physical Analysis Assessment

1. Utilize local expertise of countries involved in project, whether origin, transit or destination, as well as the international carriers, to determine infrastructure capacities, capabilities and potential bottlenecks throughout the potential routes
2. Conduct transport engineering planning, including preliminary route surveys, in order to establish a "transport envelope," identifying maximum dimensions and weight that can be accommodated throughout the route
3. Conduct QHSE and security evaluations and gap analysis as part of the infrastructure capabilities assessment.

Regulatory Assessment

1. The customs regulations and requirements of all countries to be involved.
2. The requirement/use of duty exemption process.
3. Any carrier flag requirements for international transport.
4. The permitting processes of the exporting and importing countries.

Engineering and Logistics

Logistics Requirement Assessment and Cost Estimation are scalable to specific project requirement.

Phase I	Phase II	Phase III
Feasibility-Pre-Feed Basic Engineering – Feed	EPC Estimate 3-5 10%-30% Design	EPC Estimate 1-2 +30% Design

Supply Chain Visibility Assessment

1. Logistics Timeline & Visibility Assessment
2. Establish general timelines for various types of shipments: ocean container, ocean break-bulk and air, from supplier pick-up to site delivery.
3. Assess engineered transport envelope sizes as compatibles to meeting origin restrictions in relation to the location of vendor to the place of export. Investigate air and ocean services to establish if there are direct port calls in order to evaluate cost effective transportation to destination.

Logistics Cost Estimation

1. Review cost estimate requirements for level of accuracy and assess the level of information available to provide estimate. Work with engineering and procurement to obtain materials information, i.e. estimated values, weights, dimensions and quantities required to complete estimate. If information is not available, agree on methodology to utilize whatever information is available to make the estimate.
2. Utilize information obtained through logistics requirement assessment to prepare the cost estimate, identify what information is not available and create plan/timeline for obtaining next level of effort/response.

Engineering and Logistics

Project Management Costing

EPC would be working directly for the project owner or operator, normally under one of two scenarios:

1. **Lump Sum-Turnkey (LSTK) EPC**

   Logistics team will be responsible for compiling the list of 3PL bidders and framing them. Within the RFQ, the logistics team would likely provide all 3PL bidders with data to develop their own logistics plans. Under this agreement, the information for the plan would be provided by logistics and engineering, or a combination of both, for the "logistics assessment."

2. **Cost Plus EPC**

   The logistics team will be responsible for compiling the list of 3PLs and framing the RFQ. Within a cost-plus EPC RFQ, the logistics team will have final say on awarded contractors and methodology, and owner and EPC could potentially guide all bidders to specific logistics service providers and could define the logistics strategy. Owners could also contract directly for key equipment and key services such as logistics.

   Under this scenario, EPC could make use of both the "logistic assessment" as described and the "logistics planning" as defined.

   In either scenario we recommend that a cost model based on assigned/dedicated personnel being compensated on an agreed remuneration schedule be utilized as basis for compensation, whether through a permanent team based within the EPC's office or operating out of service providers offices, plus costs (travel, external services, etc.).

Engineering and Logistics

EPCM

At this point, the best combination of project logistics management and project logistics execution activities should be considered. The final deliverables for the logistics scope will include:

- Project Logistics Management Planning
- Logistics Plan
- Determination/Recommendation of P.O. Purchasing Terms
- Logistics Management Organization
- Standard Operation Procedures
- Transport Engineering
- Project Visibility IT Solutions & Reporting
- Regulatory Compliance
- EPC Logistics Pricing Model

Critical Step 2

- Engage Engineering
- **Collaborate with Procurement**
- LSP Contracting
- Shipment Planning
- Shipment Execution
- On-carriage Delivery

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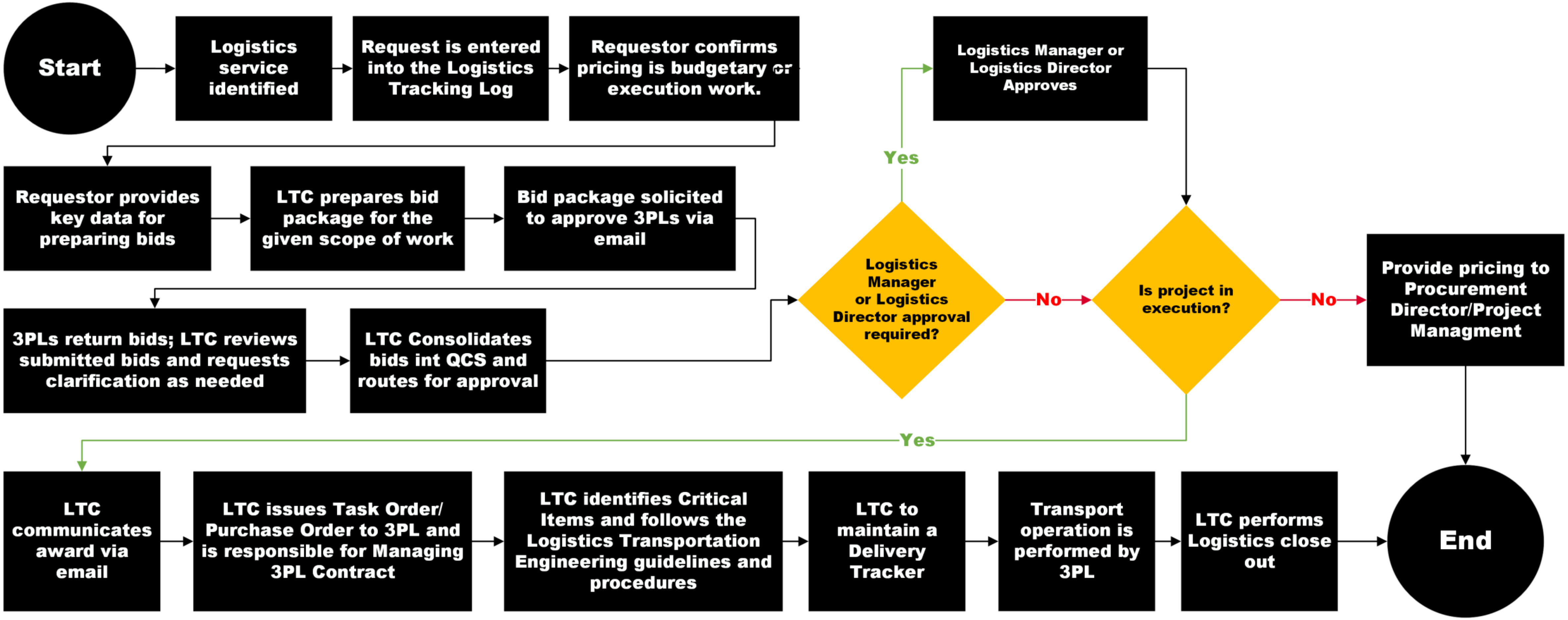
Logistics Process Flow Diagram



Critical Step 3

Engage Engineering

Collaborate with Procurement

LSP Contracting

Shipment Planning

Shipment Execution

On-carriage Delivery

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Managing Partner,
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Logistics Service Provider Contracts

The contracting process serves three critical functions in a project

Formalize the relationship between the shipper and the freight forwarder.

Set expectations and define responsibilities as between the parties.

Define the terms and conditions that will govern provided services.

Four Key Types of Contract Terms

- **Operational**
- **Financial**
- **Risk**
- **Troubleshooting**

Four Key Types of Contract Terms

Operational | **Financial** | **Risk** | **Troubleshooting**

Scope of Services
What will be moved, how will it be moved.

Performance Metrics
What are we measuring, and how will it be measured?

Prime Contract Flowdowns
What requirements of the shipper must also be met by the forwarder?

Four Key Types of Contract Terms

Operational | **Financial** | Risk | Troubleshooting

Pricing
How will the forwarder charge, and what can be charged?

Invoicing
What documents must be submitted, and at what interval?

Payment
How and when will forwarder be paid for work performed? How are hiccups handled?

Four Key Types of Contract Terms

Operational	Financial	**Risk**	Troubleshooting

Compliance
What laws, regulations and protocols govern the work to be performed?

Liability
How do we determine who is responsible when things go wrong, and what they owe?

Insurance
What insurance needs to be in place to protect the parties from the worst case scenario?

Four Key Types of Contract Terms

Operational | **Financial** | **Risk** | **Troubleshooting**

Deviations
How much can things change, and who approves a new plan?

Dispute resolution
How do we resolve issues that arise during execution of the work?

Termination
Under what circumstances can either party end the agreement? What happens?

Critical Step 4

- Engage Engineering
- Collaborate with Procurement
- LSP Contracting
- **Shipment Planning**
- Shipment Execution
- On-carriage Delivery

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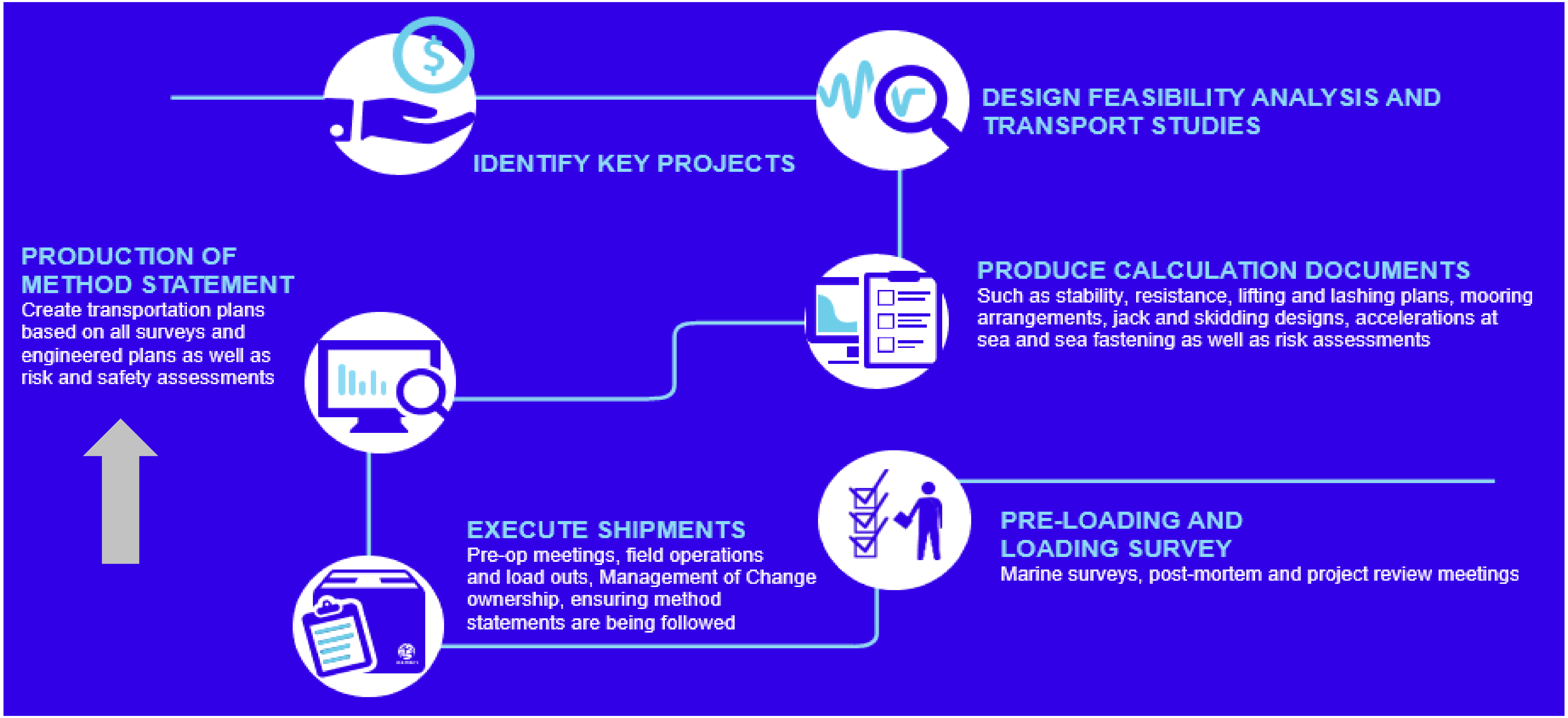
Senior Chartering
Broker, BBC Chartering

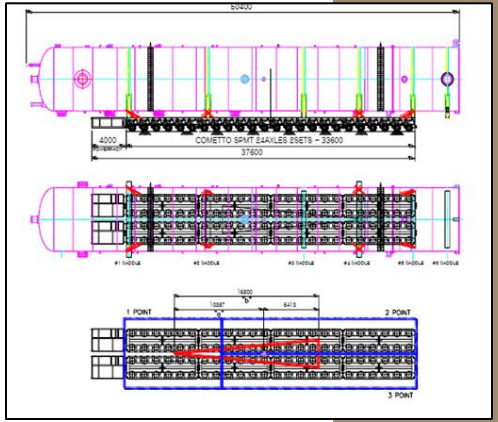
Planning to Execution – An Overview of the Process

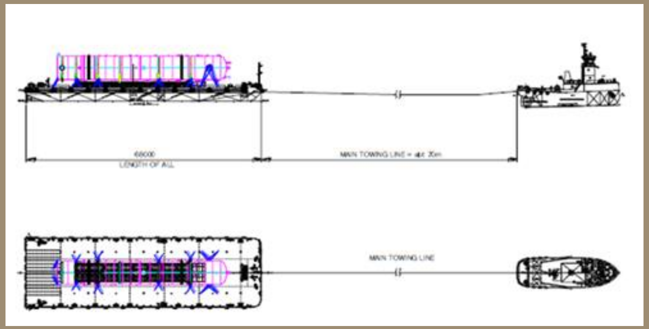


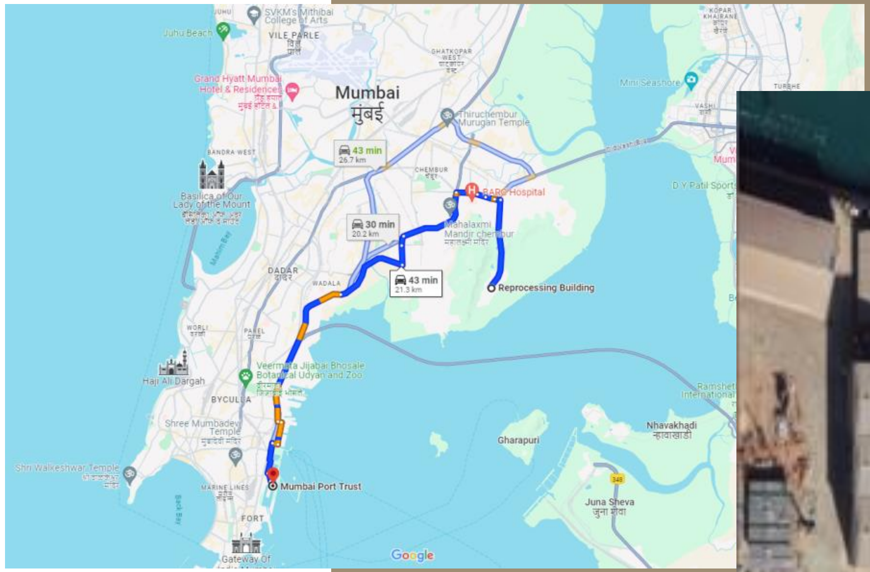
Project Shipment Planning

Implementing the Plan

- Engage resources
- Establish a communication plan and schedule calls
- Inspect cargo and confirm accuracy of transport drawings
- Finalize surveys of fabrication area, routes and ports
- Finalize risk assessment / HSSE Plans
- Finalize documentation and customs instructions
- Secure abnormal load permits
- Finalize and distribute method statement

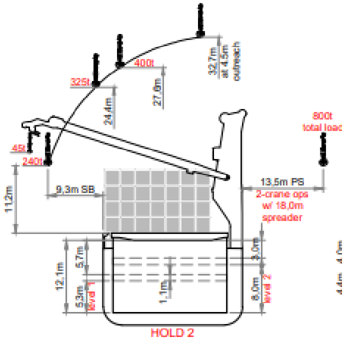


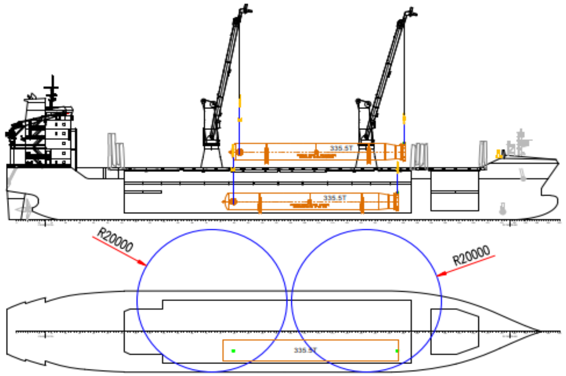


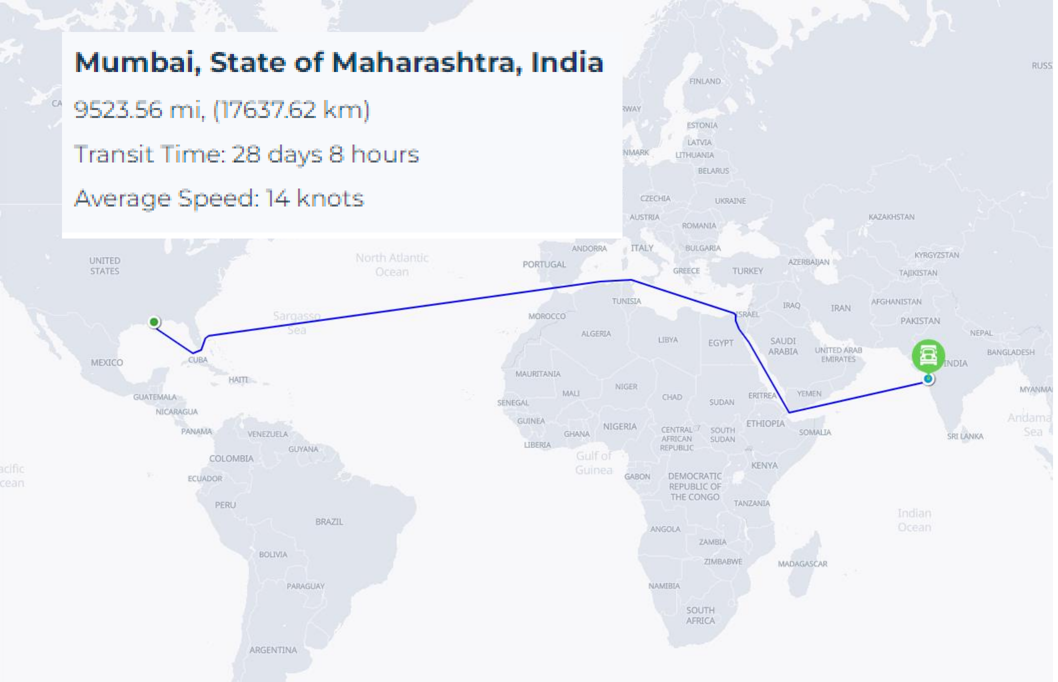


Project Shipment Planning

- Confirm Vessel, Dates and Intended Rotation
  - Suitability of Vessel Options
  - Plan stowage
  - Plan Load and Discharge Operations
- Finalize Lift/Stow/Lash-Secure Plans, Including Load/Discharge Sequence
- Analyze Geopolitical Situations and Other Part Cargoes That Could Impact Routing and Port Availability
- Ensure Communication Disruptions and Vessel Clearance Documentation are Aligned and Planned







DISRUPTION #1

- Shortly after the EPC buyer issues a P.O. amendment accommodating an engineering change altering the internal design of the pressure vessel, the Indian supplier has a fire at its Mumbai fabrication yard closing the yard indefinitely.
- The internal design change has resulted in an increase in the gross weight of the unit from 130MT to 150MT.
- Closing of the supplier's Mumbai yard has forced it to relocate fabrication to its Chennai, India facility which will also now be the new port of loading.
- The combination of the P.O. change and relocation to Chennai has caused the ship date to slip by 30-45 days!

THE CHALLENGE:

Key factors and perspectives needed for managing Disruption #1

- What are the cost and schedule implications of the disruption for the supplier, freight forwarder, carriers, and ultimately for the EPC and project owner.
- What changes in plans and accommodations must be completed to avoid further delivery delays and cost overruns?

Breakbulk & Project Cargo

Coffee Break
30 minutes

Session resumes at 3:30 pm

Typical design to delivery process steps

Engage Engineering

↓

Collaborate with Procurement

↓

LSP Contracting

↓

Shipment Planning

↓

Shipment Execution

↓

On-carriage Delivery

Critical Step 5

- Engage Engineering
- Collaborate with Procurement
- LSP Contracting
- Shipment Planning
- **Shipment Execution**
- On-carriage Delivery

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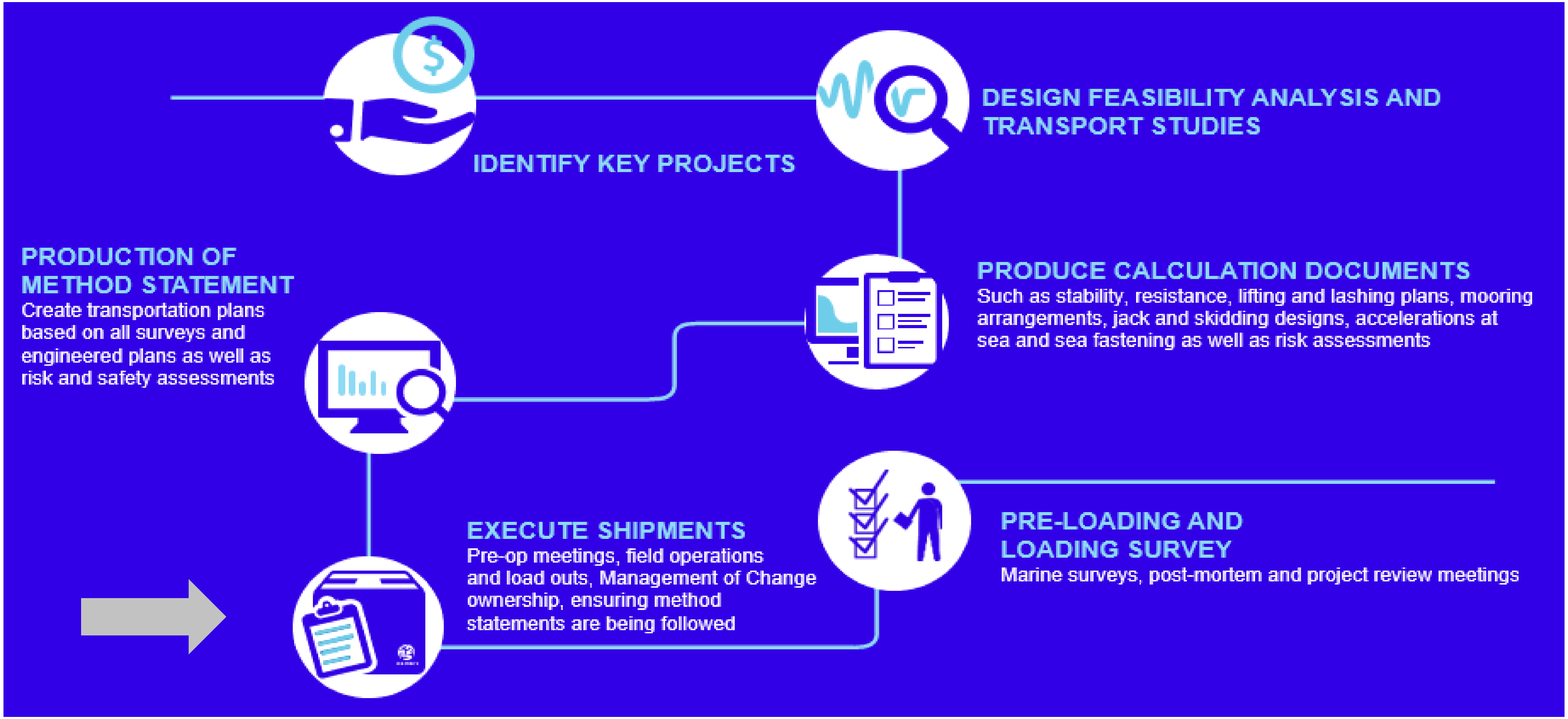
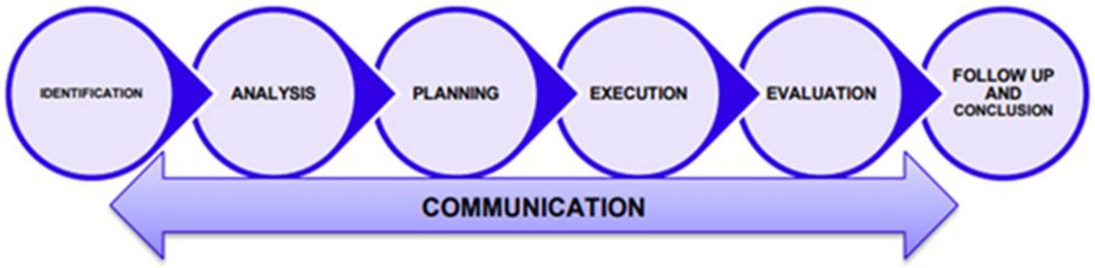
Planning to Execution – An Overview of the Process



Shipment Execution

Managing the Process

- Toolbox Meetings
- Following Method Statement / HSSE –QAQC
- Management of Change
- Daily Recaps – Reports
- Finalize Documents / Export-Import Compliance
- Pre-Alert
- Begin Daily Reports and Plan Delivery at Destination



PROJECT EXECUTION TIMETABLE

PRIOR TO OPERATION	>10 DAYS	Book Barge jetty.
	Friday, 21 JUNE	Confirm Barge date.
	Friday, 21 JUNE	Test SPMT & PP at equipment shop.
OPERATION TIMELINE SUN/MON 24-25JUNE	1100 HRS	Mobilize SPMT to Fab Yard
	1400 HRS	Hold toolbox meeting.
	1500 HRS	SPMT setting / commence loading and securing of pressure vessel onto SPMT at Fab Yard
	1700 HRS	Barge arrival at jetty.
	2200 HRS	Transport tower to jetty.
	2300 HRS	Load SPMT and tower onto barge. Secure.
	0000 HRS	Sail to Mumbai. Stand by at Indira Terminal
		Tug and Barge to standby until called forward by BBC - estimated load date 28-30 JUNE., to be narrowed.
NOTE:		The loading of the vessel depends on the ATA and the final loading sequence. Per our contract, we will be ensuring cargo is available for loading when NOR is issued. It may not be possible to load the same day as vessel arrival, so the below timeline will be subject to final confirmation. Our rates include 24 hours for the barge operation. The day rate will be applied thereafter to the tug and barge as standby for vessel readiness.
VESSEL ARRIVAL	24-26 JUNE	Other cargo to be loaded underdeck prior to vessel operation.
TIME IN PORT	28-30 JUNE	Anticipated 4 days in port for load operations.
SAIL TO NOLA	24-28 DAYS	
ETA NOLA	26-28 JULY	

Shipment Execution

Loading/discharging operations

- Shipper and forwarder ensure cargo has been delivered/ready to receive at port and cleared
- Port and stevedores have received, staged and vetted cargo. Labor is planned and ordered according to terms agreed.
- Port Captain, surveyors, stevedores and crew are present for loading/discharging operation
- Vessel agents have cleared vessel, sufficient stores and bunkers are onboard and documentation is prepared/completed.

Vessel in Transit to Mumbai

- Cargo checks
- Weather routing
- Vessel position reports communicated to client

To: Shipper/EPC/Forwarder

Re: BBC TBN – voyage number 1050086 - BN 24-123/ Mumbai to New Orleans

Good day,

Please note that as per today's view, we expect the following schedule for subject vessel:

ETA Mumbai Apr 25/26
agw wog wp fme uce

Latitude: 22 30' 45" N
Longitude: 61 15' 35" E
Sea State: 03 SLIGHT
Swell: 02 LOW SWELL, LONG
Wind Force: 04 MODERATE BREEZE

Kindly consider above as notice as per our governing contract.

We will keep you duly informed.

Critical Step 6

- Engage Engineering
- Collaborate with Procurement
- LSP Contracting
- Shipment Planning
- Shipment Execution
- **On-carriage Delivery**

Gedge Knopf
Vice President Project Development,
Oxbo

Critical Steps

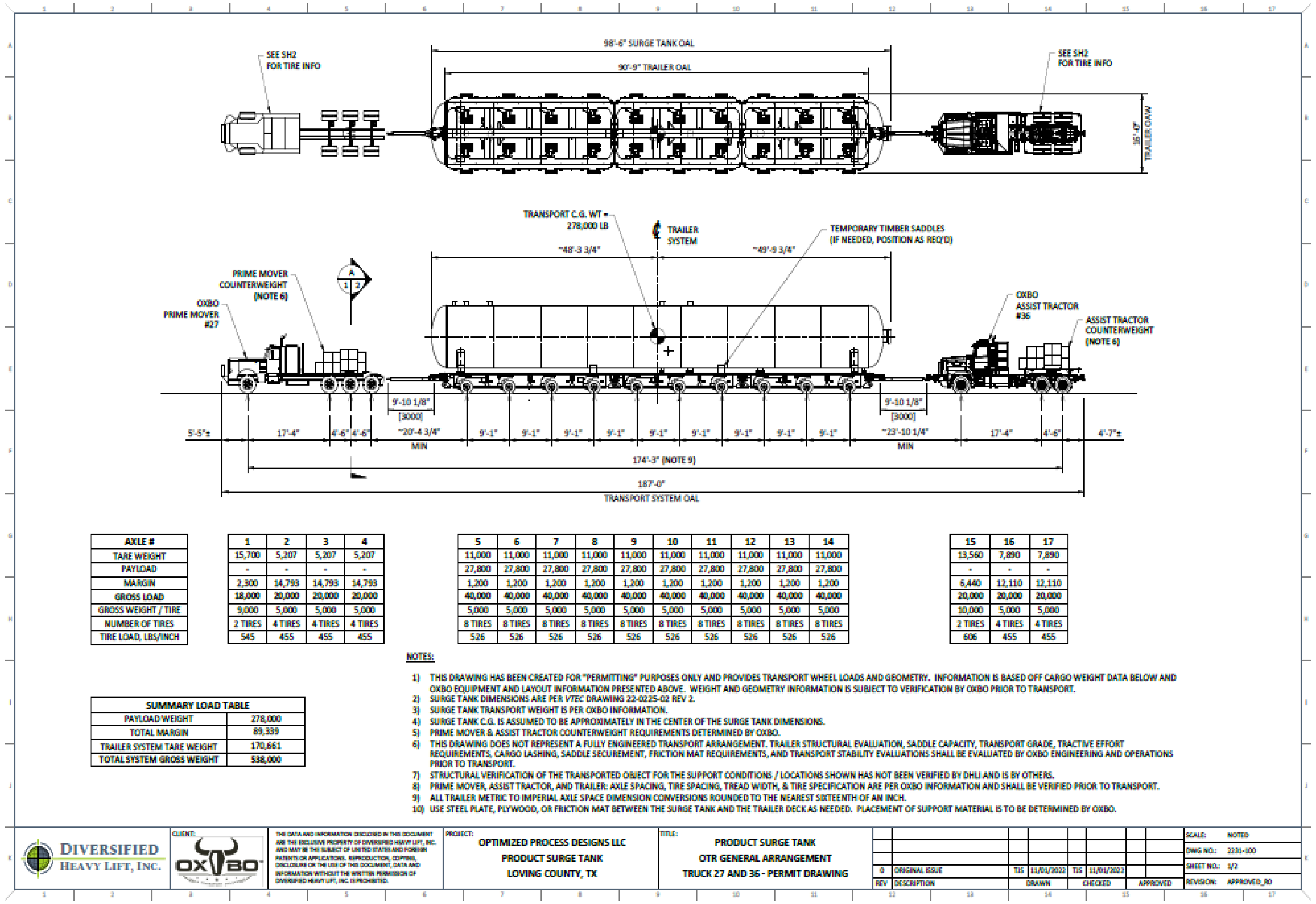
On carriage and delivery to final destination –
NOLA to project site in southern LA

Activities following receipt of RFQ

- Initial engineering
- Estimating
- Proposal development
- Contract negotiation

Post Award Activities

- Transport engineering
- Permit application
- Route survey
- Bridge engineering



On carriage and delivery to final destination

NOLA to project site in southern LA

Post Award Activities

- Transport engineering
- Permit application
- Route survey
- Bridge engineering
- Overhead obstruction mitigation
- Civil works
- Police and escort scheduling
- Equipment scheduling and reservation
- Securement engineering
- Port coordination

DISRUPTION #2

- Just three days before the shipment is scheduled to arrive in NOLA, labor at the marine terminal where the ship was set to discharge has unexpectedly gone out on strike due to a dispute over safety concerns.
- Labor across all NOLA's marine terminals have hit the picket line in solidarity. With labor and management ostensibly far from a resolution to the dispute, an extended shut down is possible.
- As delivery has already been delayed due to prior disruptions, and with jobsite equipment, labor, unloading, and setting plans having been scheduled, contingency arrangements for discharge at another port location outside of NOLA must be made.

THE CHALLENGE:

Key factors and perspectives needed for managing Disruption #2

- What are the cost and schedule implications of the disruption for the freight forwarder, carriers, and ultimately for the EPC and project owner.
- What changes in plans and accommodations must be completed to avoid further delivery delays and cost overruns?

Breakbulk & Project Cargo

Thank you!

Please send your comments, evaluations and suggestions to:

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