

Identifying and Mitigating Common Supply Chain Issues

- Common Supply Chain Issues
- Mitigation Strategies

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About Anvil Procurement

17 staff, including Buyers, Expeditors, and Document Technicians

2023 Statistics

- 630 Purchase Orders
- Over 5,000 individual line items
- Over \$87MM purchase value
- 16 delivery locations
- Over 10,500 supplier documents processed

Capabilities

- Equipment and material procurement
- Shop expediting
- Logistics, including heavy haul and international
- SAP, Maximo, and other client procurement systems





Three Biggest Global Supply Chain Challenges

World Events

- COVID, international conflicts, political upheavals

Economic Impacts

- Great resignation, talent hiring and retention in both technical and craft personnel

Over Reliance on Global Sourcing

- Strained to the breaking points due to COVID and other events

Global Supply Chain Trends

No Consistency in Recovery

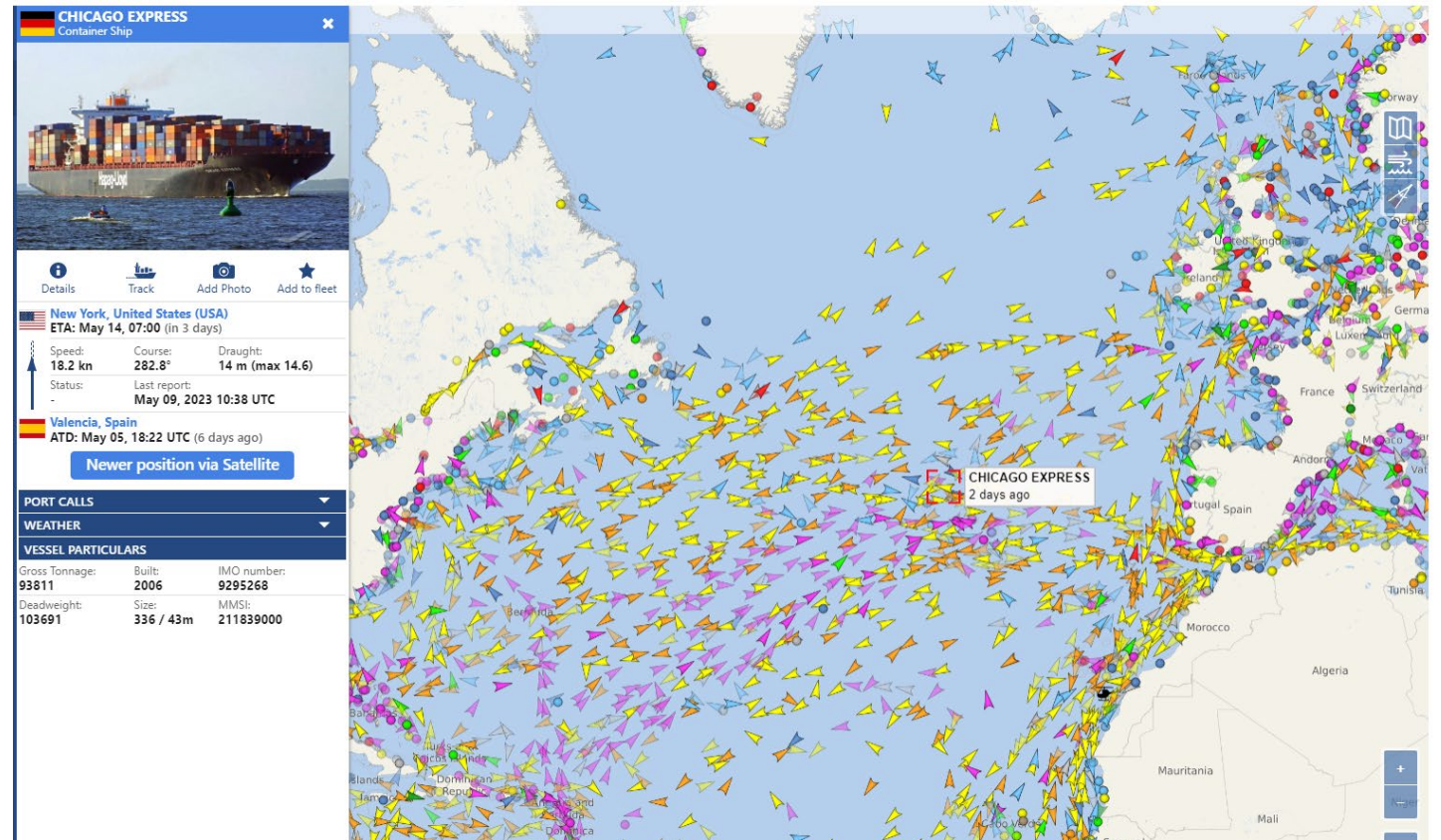
- Fixed / rotating equipment manufacturing lead times seem to have stabilized
- “New Normal” electrical equipment and material lead times with delays common
- Control systems equipment and materials still have impacts from component delays, quality issues, and production delays
- PVF is still experiencing shortages and manufacturing delays (both domestic and overseas) with high demand from current projects
- Transportation has mostly recovered, although transportation to and within Alaska is still constrained
- Increased level of high-impact quality issues caught by both manufacturers and third-party inspectors
- Reduction in supplier engineering staff (and less experience) has impacted timing and quality of supplier data submittals (resulting in recycle)



Mitigating Global Supply Chain Challenges

Strategies

- Purchase long lead equipment as early as possible
- Increase phone expediting
- PO kickoff meetings / weekly status meetings
- Third party inspections / Shop expediting
- Leveraging Master Purchase Agreements
- Liquidated damages
- Proactive logistics planning





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Purchase Long Lead Equipment as Early as Possible

- Understand lead times for critical equipment
 - Approval documentation lead times
 - Documentation review durations
 - Potential recycle to align supplier design with project requirements
 - Equipment lead time after drawing approval
 - Contingency for delays
- Perform interactive schedule reviews and equipment criticality reviews for major projects
- Provide funding for long lead purchases prior to Detail Design or Execution phases



Increase Phone Expediting

- Anvil standard expediting frequency is:
 - **Technically complex equipment, critical schedule, and/or supplier with history of quality or delivery issues:** At least once per week
 - **Equipment with standard complexity, some schedule float, and/or supplier with history of meeting quality and delivery requirements:** Every 1-2 weeks
 - **Simple or “Off-the-shelf” equipment with minimal documentation and no potential to impact project schedule:** Every 2-3 weeks
- Multiple calls and emails per week are becoming necessary to keep the most critical equipment on track
- Escalation to manufacturing leadership if necessary
- Every supplier contact should be documented



PO Kick-off and Weekly Update Meetings

- Used for complex engineered equipment where a significant amount of coordination is necessary
- Facilitates alignment during design
- Reduces approval drawing recycle
- Maintains focus on schedule milestones
- Engages key stakeholders



AGENDA

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PROJECT:	PROJECT NO:
CLIENT:	CLIENT NO:

MEETING DATE:	MEETING TIME:	MEETING LOCATION: Teams
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MEETING PURPOSE: Weekly Update	MEETING CALLED BY:
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WRITTEN BY:	MEETING NOTES ISSUE DATE:
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ATTENDEES:		
Anvil:	Client:	Vendor/Fabricator:

DISTRIBUTION:
All attendees

DISCUSSION TOPIC:

1. **Design:**

- Open Design Items-

2. **Status of Submittals (SDR Items)**

- Currently in Review:
- Recently Returned:
- Due Next:
- Overdue:

3. **Review Submittal Comments**

- Review current or recently returned [comments](#)

4. **Procurement:**

- Status of Material Procurement:
- Open/Pending Change Notices:

5. **Schedule:**

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Third Party Inspection / Shop Expediting

- Third Party Inspection:
 - Confirm fabrication status
 - Witness testing / hold points
 - Quality checks to confirm compliance
 - Final check / shipping release
- Shop Expediting:
 - Check detailed status of milestones and activities against fabrication schedule
 - Confirm purchased materials have been received and allocated to the purchase order
 - Identify and mitigate production bottlenecks
 - Escalate as needed to project management, production management, or senior management
 - Report status to project stakeholders



GENERAL SHOP EXPEDITING REPORT

SUMMARY OF ACTIVITIES	
1. INTRODUCTION:	
1.1.	
2. AREAS OF CONCERN:	
2.1.	
3. ENGINEERING:STATUS AS FOLLOWS - _% COMPLETE	
3.1.	
4. MATERIALS: STATUS AS FOLLOWS - _% COMPLETE	
4.1	
5. FABRICATION: STATUS AS FOLLOWS - _% COMPLETE	
5.1.	
6. COMPLETION:	
6.1.	
END OF REPORT	

Leveraging Master Purchase Agreements

- Where appropriate, Anvil utilizes our client's master purchase agreements with suppliers.
- Agreed terms and conditions allow for quicker purchase.
- Escalating to agreement sponsors for both parties can help resolve issues and improve delivery dates.



Liquidated Damages

- Liquidated Damages (LDs) can provide some leverage to minimize schedule risk.
- LDs are **not** penalty clauses.
- LDs quantify the impact of delays on a project.
- To be enforceable, the Purchaser must meet its commitments, including:
 - Not making post-award changes or providing equitable schedule relief for changes
 - Meeting document review and inspection dates
- Typical LDs will include:
 - A “trigger date”
 - A period where supplier shall take all steps necessary to ship as soon as possible (shop OT, materials expediting, air freight of components or finished equipment)
 - One or more dates that trigger monetary damages
 - A provision to address change orders



Proactive Logistics Planning

- Use the proper Incoterm to manage cost and schedule risk.
 - EXW (Ex Works) – Risk/cost transfers to buyer at supplier's facility (unloaded)
 - FCA (Free Carrier) – Risk/cost transfers to buyer at named place (loaded on buyer's transport)
 - FOB (Free On Board) – Risk/cost transfers to buyer at named port (loaded on vessel)
 - DAP (Delivered at Place) – Supplier is responsible to deliver to named place, but buyer is responsible for import duties and customs clearance
 - DDP (Delivered Duty Paid) – Same as DAP, but supplier must clear for import
- Identify preferred carriers and shipping modes well in advance of shipment.
- Understand weights and dimensions.
- Understand the difference between standard loads, permit loads, and heavy hauls.
- Have a back up plan to mitigate shipping delays.

