

Perkins Specialized Transportation Contracting

EDUCATION & OPPORTUNITY IN WASTE MANAGEMENT A NON-PROFIT ORGANIZATION





The Challenges Faced Moving Dimensional and Heavy Shipments.



Agenda for Presentation

- Overview of Perkins Specialized Transportation Contracting
- Difficulties in the permitting and transportation of irradiated oversize and overweight cargo on public highways



Singular Market Focus

Perkins Specialized Transportation Contracting is a 100% asset-based carrier headquartered in Northfield, MN. We are recognized in our industry as a leader in engineered transportation solutions for the long distance highway movement of extreme dimension and super heavy cargo.



Northfield Operations Center





Modern Equipment

Mack "Titan" Prime Mover – Next Generation Tractors – Low Emission Perkins Custom Design "Quantum" and "Road Train" Transport System









Pilot Vehicles

High Profile / Visibility Vans





Perkins is the only company in North America that is qualified to self-train its employees for Minnesota and Utah **DOT Escort** certification, which is recognized and accepted by 45 other states.





Perkins is not a "Trucker"

While Perkins uses truck and trailer combinations to move our client's cargo, we are unique in that we are a process driven project cargo carrier. We have developed our own ISO named Perkins Business Systems that first and foremost addresses safety through recognized and proven engineering methods and processes, employee safety training, project management and customer communication.



Common Types of Trailers

- Flatbeds
- Drop Frames
- Double Drops
- Stretch Trailers

Conventional equipment





Equipment Used By Perkins

Perimeter Frame





Equipment Used By Perkins

Suspension Beam





Equipment Used By Perkins

Platform Trailers







Transportation of Oversize and Overweight Cargo

The Issues We Manage During the Transportation of Dimensional^{AD} and Heavy Cargo



We Make It Look Easy





It Is NOT Easy!





Project Overview – Transformer





Project Overview - Transformer

- 200 hours engineering support
- 400 hours project pre-planning
- 140 hours field surveys
- 180 hours equipment ready and assembly
- 10 hours night time travel to loading location (24 miles) 2 county permits, 2 city permits, 1 state permit, 2 bridges evaluated by 3rd party engineering firm



Project Overview - Transformer

- 80 hours loading and securing (8 man crew)
- 10 man crew for loaded travel
 - Loaded travel 43 miles 60 hours
 - 4 state patrol escorts
 - 3 utility companies
 - 1 state permit, 1 city permit and 1 permit for moving infrastructure
 - » 1 Guard rail, 6 street and directional signs and 1 power pole relocation
 - 100 hours offload
 - 100 hours return 43 miles with same support and permits.



- Each move a puzzle to be sorted out; no clear cut formulas. Multiple variables to engineered transportation solutions.
- Complete and accurate information from the customer
 - Detailed drawings and cargo information
 - Projections
 - Support points
 - Vertical and horizontal centers of gravity
 - Estimated time of shipping
 - Delivery Expectations
 - Lead Time



This information leads to:

- Selecting the right transport system
 - Minimizing the loaded dimensions of the envelope vehicle
 - Weight mitigation to minimize the impact on roads and bridges (driven by states traveled)
 - Weight and balance distribution



- Things considered in selecting the right transport system:
 - How must the cargo be supported during transit?
 - Minimizing the loaded height dimension of the envelope vehicle.
 - Height is more difficult and is a very costly part of dimensional transportation.
 - Wider is better than higher as it is easier to manage.
 - Weight mitigation to minimize the impact on roads and bridges.



- Where is it moving from and going to?
 - Different parts of the country will influence the transportation method and selection of equipment.
 - Vertical clearances.
 - Northeast sensitive to height. Old infrastructure. Fewer routes to support loaded transports
 - Deep south is primarily agricultural. Secondary highways built to lower threshold for weight.
 - Weight restrictions.
 - Procurement time for permits.
 - City, county and municipal permitting and coordination.



Engineering the Move

- Cargo Mass Distribution Consideration Cargo Center of Gravity:
 - Improperly located or unknown COG will allow disproportionate mass transfer to axle groups.
 - Length of suspension or distribution beam affects rate of change.



Predictive Engineering – "what it will look like"





Suspension Engineering – hardware analysis

"Worst Case – diagonally opposite loads"



"ANSYS finite element"

"blocking, chaining & cross chaining"

Permit Application – Elevation View

"PSTC push tractor shown"

Permit Application – Plan View

"PSTC dual-lane loading system"

Planning The Move

Route Surveys - Things To Consider

- Is the load round or square and why is that important?
- Is the overhead obstruction the same height all the way across?
- Are there obstacles on all 4 corners of the turn?
- Are the signal lights on wires or cantilever arms?
- Is there a median in the turn? Is the median decorative or constructive?

Height Issues

Project Planning- Difficult Turns

Project Planning

- Formal permit submission
- Verification of permitted routing through physical surveys (average 4-6 weeks depending on distance and number of states involved)
- Upon completion of surveys final submittal for weight studies
- Bridge analysis process (8-12 week process depending on weight of load and states involved)

Transportation Industry Issues

- No uniformity in rules / regulations
 - Barrier states
 - Weight allowance disparities
 - Escort requirements civilian and police
 - Height requirements / restrictions
 - Night moves
 - Weekend travel restrictions
 - Flags, signs and banners

Escalating Ancillary Costs

- Ancillary costs: any cost not included in the basic move of the shipment ie;
 - Police: state, city, county
 - Utility companies: telephone, cable, power companies
 - Municipal: cities, towns for signals and signs
 - These requirements are imposed on the carrier by state permitting officials.
 - In most cases there is no contact information provided and the carrier must fend for himself.

Escalting Ancillary Costs

- There are no best practices or other guidelines for these requirements.
- There is no oversight for the entities providing the support.
- In many case these requirements are being viewed as a revenue stream by those performing the support.
- Helping to manage these requirements will not only help our customer but will help in making the move less obtrusive to the public.

- Parking Cities, counties and private land owners don't want radioactive shipments parked in their community or property.
- City and county permitting lack of knowledge on the permitting process for USDOT confuses many local authorities.
- Political / special interest groups. Security issues and concerns for shipments in transit requiring security surveillance during off time hours.

Radioactive Project

- San Clemente, CA to Clive, UT
- Steam Generator Lower Assembly
- 4 Shipments
- 760,335 LBS, 43' L, 15' 6" W, 15' 6" H each
- Loaded dimensions 399' L 20' W 16'10" H total gross vehicle weight 1,561,050 lbs.
- 1 pull tractor 5 push tractors 3,250 combined HP
- Radioactive Class 7
- 830 Routed Miles 14 travel days
- Perkins Engineered and Designed Transport System

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...when execution matters most