Tank Cars
Off Lease and Change of Service
Cleaning and Inspection

June 2016
AmSpec Overview

For 30 years AmSpec has independently and accurately measured and analyzed petroleum and petrochemical products.

AmSpec has seen significant growth in the last several years and currently has a staff of over 1,500. Our two largest locations are Houston and New York. Houston has 100+ inspectors and NYH has 50+ inspectors.

AmSpec is capable of undertaking any type of inspection and laboratory testing requirements.

AmSpec maintains an extensive network of offices and laboratories, providing full coverage from offices located in major ports and other strategic locations.

AmSpec performs inspection and testing for many of the world’s oil majors, traders, refiners and terminals.
SAFETY FIRST – before we even begin to talk about any subject that involves Petroleum or Transportation our first and foremost concern has to be mentioned - and that is SAFETY.

Safety of human beings, animals and the environment that sustains our existence, now and for our future generations has to be our number one consideration.
Crude by Rail

• Focus on Crude by Rail.

• Crude by Rail – no one could predict the boom, the bust, or where we are going. If you consider flat price only but indications are for improvement.

• Spreads are what really matter (WTI / Brent – Domestic/Foreign). Refiners and traders consider margins and crude grades. They factor in product yield and plant capabilities, the complexity of hedging crude differentials and product production and liquidity in commodity markets. The bid/ask spreads matter.

![Crude by Rail 2008-2015](source: Association or American Railroads)
• There are about 450,000 crude cars today in the North American railcar fleet with ~50,000 crude cars of various “generation” types are now in storage.

• Lease rates during the crude by rail boom averaged over $1,500 PCPM / Long Term – Full Service.

• The market is showing signs of improvement – but bids for long or short term crude car leases are limited to scheduled regulation conformity and are in short number. The bid can be quoted below $500 PCPM - period based on generation – or the useful life of the car with or without retrofit.

• Approximately 117,000 existing crude cars exist that can be retrofitted to meet new regulations. Retrofit cost estimates are between $25,000-$50,000 per car (this cost does not include position / reposition or lease rates paid while out of service) by May 1, 2025 (HM 251 standard).

• New car delivery in 2015 was 35,000+ crude cars. Forward order book is at ~140,000. Some lessees and purchasers for forward orders may be attempting to renegotiate car types and service for products or LPG rather than taking delivery of crude cars.

~$1,500 PCPM Full Service

~ $500 PCPM Full Service
Returning crude cars off-lease is not like it used to be. Cars used to be returned to be placed in the next lease and service. Today, if the market does not improve, many cars will be returned to a storage location.

Shops set up for cleaning are quickly booking forward space. Lessee’s are moving forward to contract cleaning services.

There is a perceived back log in shop space for cleaning off-lease. Change of service and retrofit are adding to the stampede.

Lessee’s with cars in storage are faced with the decision of timing for cleaning if they feel the cars will not stay in service for the term of lease or be considered for renewal.

There are considerations to clean cars before or after placing in storage.
Tank Car Leases and Cleaning Clauses

- Most existing leases and riders contain interior cleaning clauses.
- Lessor’s with negotiating prowess during the lease boom period would not remove redelivery wording that requires a wide range of condition requirements for lease termination.
- Even if tank cars were built for crude, and will go back to crude service, clauses exist to place a financial burden on lessee’s. In some cases there monetary negotiations rather than physical cleaning.
- Many leases and riders allow for multiple services depending on tank car suitability. Lessee’s can opt to place cars in another service during the period of the existing lease. Change of service can be compatible to current residue (example: crude to black oil), or with non-compatible products such as ethanol or clean petroleum products.
- Short or long term leases that are currently in play either require or are being contemplated for cleaning services for return or commodity change.
- Exterior Cleaning is required as well.
Cleaning Clauses and Contract Fulfilment

- Off-lease re-delivery: crude car clauses can be as simple as “RC re-delivered to Lessors designated placement free of residue and safe for human entry.”
- Or complicated including named next service, petroleum based pre-wash, steam and water wash followed by detergent wash. It could even include baking wording. Car types including components and lining are critical.
- If suitability for next commodity or service is named, and the cars are going to in storage because the next lease does not exist, there may be risk to lessee when car finally does enter next service.
- What if the Lessee wants to clean the cars and place them in storage for their account for the balance of the lease. Once lessor directs cars back to their placement per contract, has a time lapse created more risk for lessee.
- Placing residue cars in storage can cause baking and solidification that can create cleaning issues, while cleaning cars before storing can also create issues with moisture, rust and corrosion. Inert gas N2 is also a consideration for airspace in stored cars, but some facilities will reject N2 for next loads.
Economics of Tank Car Cleaning

- Cleaning is not the only cost incurred. There are also time on lease while cleaning and until accepted, storage costs, switch fees and empty freight.
- Cleaning costs vary tremendously based on car condition before cleaning, levels and types of residue, contract clauses and the next service.
- The cost differences in ‘shop cleaning’ versus a ‘field operation’ vary widely from both shop to shop and the field facility and operation set up. This decision can be dictated by lease also – if wording requires a lessor shop.
- Waste disposal can be mitigated if oily waste is able to be recycled if the cleaning takes place at an underutilized offload rack versus a shop.
- Completely portable field cleaning without mechanical nozzles can be achieved but set up and many controlling factors must be carefully analyzed.
- Placement for off-lease redelivery and change of service next load can incur empty freight charges.
Cost Mitigation

• Logical amendments to lease agreements can be brought to a mutual agreement. In order to achieve costs savings, knowledge is key.

• Many leases and riders were written with conditions in mind that have drastically changed. All involved entities would be well served to present suggestions to improve economics with the goal of benefit for all.

• Avoiding costly freight, switch, repositioning, additional time on lease, having cars cleaned multiple times and legal issues can be limited by planning.

• Although tank car cleaning is based on AAR standards, deviations occur.

• A mutually appointed third party can greatly benefit operations at a low cost.
Pre-Cleaning and Considerations

- Lease or change of service – required or negotiable, amendable.
- History of service, last cargoes and safety concerns (H2S).
- Mechanical and bad order history.
- Quantity of residue and type (may determine further handling).
- Enhanced observance of planned last offload.
- Evaluation of cleaning required once decided (lined / unlined / service).
- Facility: shop, terminal, rack or field. Emission and waste control.
Pre-Cleaning Procedures

- Personnel: all personnel approaching railcars will have proper personal protection including Nomex®, eye protection, boots, hard hat, gloves, H2S monitors and if required a safety harness. Always include a manway watch.

- General external condition inspection: note all stenciling including car numbers, certificate dates, placards, weight and measurements. Document all visual observances including dents or dings in steel tank or components, paint condition, oil staining, grime and residue and graffiti. Document cars position and all dates and times.

- Take photographs. Record all seal numbers. Note any open flanges.

- Check pressure and begin to safely open manways and valve protection.

- Begin procedure for safe entry certificate issuance H2S and LEL evacuation.

- Visually evaluate tank interior (lined / unlined).

- No entry until a confined space certificate is issued.

- Gauge and calculate the residue.

- Note the residue condition. Sample the residue.
Cleaning Procedures

- Removal of bulk residue (through manway or BOV).
- Steam / hot water to remove additional bulk residue.
- Mechanical or power wash.
- Squeegee.
- Solvent wash if required (petroleum based or other).
- Final detergent wash if required.
- Squeegee and mop dry if required.
- Clean exterior.
- Oily water waste – or petroleum based waste water separate and reuse (through manway or BOV).
- Detergent waste – reuse or disposal.
- Clean exterior.
- Record all quantities of water, solvents, petroleum and detergent used.
- Record all times and procedures.
Post-Cleaning Procedures

• General external condition inspection: note and document cars condition after cleaning. Take photographs. Document the car’s position and all dates and times.
• Visually inspect tanks interior and note condition. Note any rust, corrosion damage to lining. Take photographs.
• Tank should be clean and completely dry without condensation.
• Perform white rage wipes (including tank interior and accessible flanges).
• Perform Black Light (UV) test if required.
• Perform wall and bottom wash and test for color / other (if required).
• Button car back up and place seals on all required components – record.
• Issue Clean Certificate / Quality Certificate.
• Issue Final Inspection and Time Reports.
The One Factor We Can Count On: Change

- Nothing is 100% predictable. What busts today, booms tomorrow.
- We can only work with the hand we hold, knowing the cards (OR CARS) will change.

DOT 117 Specification Car
Why AmSpec for Rail Services

With our network of offices and employees, AmSpec is dedicated to providing our clients with premium quality services.

AmSpec provides a member of our team for direct and dedicated Rail Service in the position of Railcar Manager, North America.

Please contact us at any time for further information and discussion.

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Additional Information on AmSpec
The AmSpec Footprint

We’re Going Global

Current Locations
Expansion Locations
The past 30 years has been very good to AmSpec.

As you can see from our growth since 2009, we continue to explore expansion opportunities to better serve our customers.
AmSpec Environmental, Health & Safety Policy

AmSpec is committed to environmentally responsible operations and services by providing safe working conditions along with training to all employees. Thus ensuring they have the tools and knowledge to safely carry out their duties.

We will:

- Ensure our products and operations comply with relevant environmental legislation and regulations.
- Conduct our operations based on conservation of resources, recycling, prevention of pollution, and promotion of environmental responsibility.
- Manage the use of hazardous materials responsibly.
- Ensure all employees are trained and accountable for preventing work related injuries and maintain the practice of continual improvement.
- Create the health and safety practices that enable our personnel to work injury and illness free.
AmSpec provides a wide range of reliable, timely and unbiased analytical services. Our highly-trained and experienced lab staff and state of the art laboratories ensure that the analyses are performed with the highest level of quality, accuracy and precision.

The close proximity of our laboratories to the principle work sites minimizes turnaround times and allows competitive services with no compromises.

**Services performed:**
- Blending - Gasoline, Distillates or Fuels
- Crude Assay - Partial or Complete
- Tank Calibration and Meter Proving
- Loss Control / Cargo Superintendence
- Lab Outsourcing / Manpower Services
- Training and Technical Support
- Oversight Sampling and Testing Programs
- Additives - Corrective, Compliance or Value Added
Products Inspected and Tested by AmSpec

Petroleum
- Gasoline, RFG, RBOB, CG, CBOB
- Alkylates, Aromatics, Reformates
- Distillates, Jet / Kerosene, ULSD
- Crude Oils, Residual Fuels, Asphalts

Petrochemical & Chemicals
- Styrene, Polystyrene
- Alcohols, Ethers
- Acids, Caustics

Renewable Fuels
- Ethanol
- Biodiesel

LPG and LNG

Agri Products
AmSpec Houston Technical Center
AmSpec New York Harbor Office & Laboratory

Conference Room

Octane Lab

Inspector’s Room

Main Lab

Training Room

GC Lab
New York Harbor GC Laboratory