Vacuum Truck Operations

Overview

Purpose

The purpose of this document is to provide a means of controlling vacuum truck activities to minimize the hazards associated with transporting potentially combustible, flammable, toxic, or hazardous materials within a vacuum truck.
The purpose of the Vacuum Truck Operations Standing Instruction is to maintain safe working conditions by ensuring that the job is properly planned, personnel are well informed of hazards, and hazardous materials are properly identified and handled accordingly. The Vacuum Truck Operations Standing Instruction shall be used in conjunction with the existing Safe Work Permit Standing Instruction (HSS-201) requirements.
For the purpose of this standing instruction, both liquid and dry vacuum trucks will be identified as "Vacuum Trucks" unless otherwise specified.

Scope

This standing instruction covers all Marathon personnel and contractors that are involved in the operations of vacuum trucks at the Marathon Los Angeles Refinery (Carson Operations, Wilmington Operations, Watson Cogen, Blue Barn, Calciner, and Sulfur Recovery Plant). Environmental requirements can be found within the LAR MPC Environmental Department Vacuum Trucks Procedure (Reference: E221).

Records Retention

Printed copies of this document should not be retained more than 12 months. Any revision to this document will be retained a maximum of 10 years following the revision.

Supersedes

This Standing Instruction replaces FS-770 (Vacuum Truck Procedure) and O-123 (Vacuum Truck Operations Standing Instruction).

Table of Contents

1.0 References

1.1 Refining References

The table below lists the Refining references used with this document.

Number	Description
FS-490	LAR-C; Hazardous Material Storage
HSS-306	Respiratory Protection Program
HSS-401	Acid & Caustic Handling
HSS-201	Safe Work Permit
E221	LAR MPC Environmental Vacuum Trucks Procedure

1.2 Industry References

The table below lists the industry references used with this document.

Number	Description
API 2219	Safe Operation of Vacuum Trucks in Petroleum Service
NFPA 77	Recommended Practice on Static Electricity
49 CFR § 177.848	Segregation and Separation Chart of Hazardous Materials

1.3 Terms

The following terms are used in this document:

- Bill of Lading
- Carbon Filter
- Export Location
- Grounding & Bonding
- Import Location
- Loading Location
- Manifest
- Off-Loading Location
- Vacuum Truck Form
- Vapor Control System
- Wash Out

Reference: For details, see Appendix A: Terms and Definitions.

2.0 Roles and Responsibilities

2.1 Roles and Responsibilities

The table below describes the roles and responsibilities related to this document.

Roles	Responsibilities
Environmental Department	Environmental Department is responsible for proper handling and transporting of waste and recyclable materials for LAR. This department issues manifests for exporting waste material from LAR. Environmental Department will also issue compliance stickers to vacuum trucks indicating that visual inspections and Organic Vapor Analyzer (OVA) monitoring has been completed and the truck is approved for use at the Refinery.
Maintenance Planner	The individual responsible for assembling the job package and ensuring that the Safe Work Permit related paperwork are complete prior to scheduling the task. • Ensure that the Maintenance Coordinator, Transportation Foreman, or L6 is notified of offsite vacuum trucks being brought on site so that they have the required pre-use inspection. • Initiates the task by submitting the task packets (with the SDS).
Operations Maintenance Specialist (OMS)	The individual that is responsible for setting the priority, validating the risk level, requesting an isolation plan, and ensuring that the Safe Work Permit packages are at the unit. • Ensure the High Risk Vacuum Truck Form's (Appendix D) Planning Phase Checklist is completed and approved by the required Higher Level Approvers according to Task V12 of the Permitted Task List if the system is not vented, the pressure is greater than 35 psig, incompatible materials will be mixed, or the temperature is greater than 200F.
Operations Shift Supervisor (OSS)	• If necessary, establishes the proper loading / off-loading location for the applicable Permit Writer so that it is documented on the permit. • Resolves operational problems which prohibit loading / off-loading or a change in the loading / off-loading destination. • If the off-loading location is not in the Approved Vacuum Truck Off-Loading Locations Table in Appendix E, reviews task and if safe to do so, approves the off-load.
Permit Writer (Loading Location)	The Permit Writer is the operator in charge of the area where the vacuum truck is to operate. They will review the Safe Work Permit, Job Safety Analysis, Vacuum Truck Form(s), and associated Safe Work Permit documentation. • Properly identifies the material to be loaded into the vacuum truck. (NOTE: A pH test may be required to verify the material or determine if it is hazardous.) • Performs a risk assessment with the Servicing Group Representative and completes the supporting Safe Work Permit documentation. • Reviews SDS for precautions associated with material involved. • Verifies that the information on the Safe Work Permit, Job Safety Analysis, and Vacuum Truck Form are properly filled out and cover the task of the vacuum truck activities.

	• Completes the Loading Information Section of the Vacuum Truck Form with the Servicing Group Representative. • Reviews work conditions and provides additional requirements / precautions, if necessary. • If loading is to be performed on process equipment, shall be present for the connection and disconnection of the vacuum truck to process equipment. [NOTE - **All direct movement of valves owned by Operations needed during and after vacuum truck operations shall be discussed, documented, and approved by Operations on the Safe Work Permit.** The **only** locations in which vacuum truck drivers can manipulate valves owned by Operations are the following: • When loading from Carson Isom Tank 146, the Vacuum Truck Operator may open and close valves at the loading manifold after receiving an approved Safe Work Permit. • When loading from Carson Wastewater Tanks 95 and 391, the Vacuum Truck Operator may open and close valves at the loading manifold after receiving an approved Safe Work Permit.] • Ensures Vacuum Truck Driver is following all conditions agreed upon and documented on the Safe Work Permit and supporting documentation including personal protective equipment (PPE). • Shall verify worksite is safe and returned to normal after completion.
Permit Writer (Off-Loading Location)	The Permit Writer is the operator in charge of the area where the vacuum truck is to operate. They will review the Safe Work Permit, Job Safety Analysis, Vacuum Truck Form(s), and associated Safe Work Permit documentation. (Note: The Permit Writer for off-loading at the Waste Yard shall be a LAR Environmental Department representative or their delegate.) • Properly identifies the material to be unloaded from the vacuum truck. • Reviews SDS for precautions associated with material involved. • Should there be a question regarding the proper "off-load" location, contacts the Operations Shift Supervisor to discuss the job. • Completes the Off-Loading Information Section of the Vacuum Truck Form with the Servicing Group Representative. • Ensures that the off-loading location is on the Approved Vacuum Truck Off-Loading Locations Table in Appendix E. If not, reviews task with the OSS for approval. • Reviews work conditions and provides additional comments. • If off-loading is to be performed on process equipment, shall be present for the initial hook-up and at the start of the material off-loading. [NOTE - **All direct movement of valves owned by Operations needed during and after vacuum truck operations shall be discussed, documented, and approved by Operations on the Safe Work Permit.** The **only** locations in which vacuum truck drivers can manipulate valves owned by Operations are the following: • When offloading to Carson Wastewater Tanks 83 and 394, the Vacuum Truck Operator may open and close valves at the offloading manifold after receiving an approved Safe Work Permit.

	• When offloading to Carson Storage and Handling Tanks 12, 101, 102, and 103, the Vacuum Truck Operator may open and close valves at the filters after receiving an approved Safe Work Permit. • When offloading to Wilmington RP&S Tanks 80219, 7201, and 7501, the Vacuum Truck Operator may open and close valves at the offloading manifold after receiving an approved Safe Work Permit.] • Shall verify worksite is safe and returned to normal after completion.
Refinery Shift Superintendent (501/RSS)	• Authorizes Vacuum Truck operation in the event of an emergency. • Conducts the responsibilities of the Mechanical Shift Foreman when the Mechanical Shift Foreman is not in the LAR.
Servicing Group Representative	The Vacuum Truck Driver that is responsible for performing the task of operating the vacuum truck. • Reviews applicable LAR Environmental Policies to determine which regulations apply to the job and corresponding restrictions/requirements. If unclear, contacts the Environmental Department. • Is given a work assignment from the Transportation Foreman / L6 / or Maintenance Coordinator. The Safe Work Permit, Job Safety Analysis, and Vacuum Truck Form will be completed at the assigned unit with the permit writer following the Safe Work Permit Standing Instruction (HSS-201). • Reads the SDS to determine the proper means of handling of the material. Determines if the material to be picked up can be safely loaded and transported in the vacuum truck. • Ensures that the off-loading location is documented on the Vacuum Truck Form (V10) prior to loading any material onto the vacuum truck. If the off-loading location is not documented, ensures that material is not loaded onto the vacuum truck and notifies Foreman. If Foreman is a contract employee, must notify MPC representative. • Ensures that the off-loading location is on the Approved Vacuum Truck Off-Loading Locations Table in Appendix E. If not, ensures that the OSS for the area approves the task. • Prior to off-loading material within LAR, ensures that a Safe Work Permit is issued by the Owning Department at the off-loading location. • Inspects each vacuum truck prior to performing work to ensure that the trailer is empty and clean. • Reviews Hazardous Materials Load and Segregation Chart (49 CFR § 177.848) to determine if incompatible materials will be mixed during planned work. • Ensures truck is clean prior to material pick-up, unless multiple loads of compatible material will be loaded. • Ensures that the proper hoses, fittings, and connections are on the truck prior to reporting to the job site • Ensures that the grounding wire is securely attached to the truck and is in good working condition.

	• Ensures that the proper personal protective equipment is in their possession prior to reporting to the job site. • Is knowledgeable of the potential concerns and hazards associated with vacuum truck operations (see Appendix B for a list of potential concerns and hazards). • With the applicable Permit Writer, shall review the potential for toxic and/or flammable gases/vapors that may be present or vented to the atmosphere. • Ensure that a vapor control system (e.g., scrubber, thermal oxidizer, internal combustion engine) is available when transferring products from a tank or pipeline where vapors may be vented to atmosphere where the VOC would be greater than 500 ppmv or where the truck will be exhausting odorous vapors within 100' of the refinery fenceline. The areas where the vacuum truck operators and others work must be at or below air-contaminant Permissible Exposure Limits (PEL). (Note: The PEL for H2S is 10 ppm. The PELs for other contaminants can be found in Appendix B of HSS-201.) • Where toxic and/or flammable gases/vapors may be vented to the atmosphere, the vacuum truck operator will direct the released vapors at least 50 feet downwind from sources of ignition, such as the vacuum truck's engine and roadways, and away from areas where personnel are present. • With the applicable Permit Writer, shall review the means to mitigate personnel exposures or contact with sources of ignition including vent exhaust minimization, use of a vapor control system. • Shall conduct a Tool Box Talk meeting with the vacuum truck work party and ensures they understand the hazards and controls by obtaining their signatures on the Work Party Declaration on the Job Safety Analysis. • If the task is supporting work for an existing job packet, the Work Permit for the task shall be reviewed by the Permit Writer and Vacuum Truck work party. The Vacuum Truck work party shall sign the Work Party Declaration on the Work Permit in addition to the Declaration on the Vacuum Truck's Safe Work Permit. If the vacuum truck is supporting a task, the vacuum truck task can be blanketed with another task (see HSS-201, blanket work permit criteria for more information). • Ensures that the brakes are set and wheel blocks (chocks) are in place prior to loading or unloading. • Maintains radio contact with the applicable Maintenance Coordinator, Transportation Foreman, or L6. • Refuses to mix incompatible materials in a single load unless specifically instructed to do so on the High Risk Vacuum Truck Form. • Report any abnormalities (odors, spills, etc.). • Responsible for clean-up (washout) of the truck. • Reports to the applicable Maintenance Coordinator, Transportation Foreman, or L6 when job is complete to receive authorization to leave LAR.

	• Ensure that all potential hazards and appropriate mitigations have been identified. NOTE: The vacuum truck driver shall check with operations to ensure that the vessel and/or lines have been vented prior to applying a vacuum. Applying a vacuum to non-vented vessels/lines may result in equipment damage. If vessels and/or lines are under pressure, the vacuum truck driver shall monitor the pressure to ensure that it does not exceed 35 psig at the vacuum truck or any of its components. Additionally, the vacuum truck driver shall not allow product at temperatures greater than 200 degrees Fahrenheit to enter into the vacuum truck, or any of its components. Failure to comply with pressure and temperature limitations may result in equipment damage and/or personnel harm.
Transportation Foreman / Maintenance Coordinator / L6	The Transportation Foreman, Maintenance Coordinator, or L6 is an individual within the Maintenance Department responsible for dispatching manpower, for dispatching transportation equipment for the LAR. (Note: The Mechanical Shift Foreman and the Refinery Shift Superintendent (501/RSS) will have the Transportation Foreman's Delegation of Authority (DOA) during off hours.) • Orders the Vacuum Truck based on the maintenance schedule. • Reviews the Hazardous Materials Load and Segregation Chart (49 CFR § 177.848) to determine if incompatible materials will be mixed during planned work. • If it is necessary to schedule multiple jobs which require mixing incompatible products in a single load, shall ensure that a High Risk Vacuum Truck Form has been completed and approved prior to task. • Ensure that the vacuum truck brought onsite has current Marathon visual inspection and OVA monitoring compliance stickers. If not, notifies Environmental to have visual inspection and OVA monitoring completed. • Carson Only - Completes the Assignment Section of the Vacuum Truck Form. • Carson Only - Assigns the job by issuing and reviewing the Safe Work Permit, Job Safety Analysis, Vacuum Truck Form and corresponding attached SDS with the Vacuum Truck Driver. • Authorizes the Vacuum Truck Driver to leave LAR when the job is complete.

3.0 Requirements and Limitations

a. Vacuum trucks will not be used to recover liquefied petroleum gas (LPG), normal butane, isobutene, propylene, propane, or any lighter materials.

b. Caustic or acid loads require a clean (water-free) stainless steel truck to be used.

c. Empty contract vacuum trucks and associated equipment will be decontaminated (i.e. washed out and purged of vapors) based upon the type of chemical and material last used prior to leaving LAR and after every task is complete.

d. Do not transfer from a vacuum truck into a tank with an internal floating roof (IFR) by utilizing a gas/vapor motive force.
Note: It is acceptable to pump off the vacuum truck directly into a tank with an IFR utilizing the truck's side pump or a portable centrifugal pump.

e. If an Off-Loading location is not documented on the Vacuum Truck Form (V10) prior to loading any material onto the vacuum truck, DO NOT load any material onto the vacuum truck. Contact the applicable OSS and MPC Maintenance Foreman so that they agree upon the approved off-loading location.

- Warning: Gasoline or lighter hydrocarbon may saturate a carbon filter and cause break through, high temperatures and high pressures that can create additional hazards.
- Ensure that a vapor control system (e.g., scrubber, thermal oxidizer, internal combustion engine) is available when transferring products from a tank or pipeline where vapors may be vented to atmosphere where the VOC would be greater than 500 ppmv or where the truck will be exhausting odorous vapors within 100' of the refinery fenceline. The areas where the vacuum truck operators and others work must be at or below air-contaminant Permissible Exposure Limits (PEL). (Note: The PEL for H2S is 10 ppm. The PELs for other contaminants can be found in Appendix B of HSS-201.)

4.0 Safe Work Permit and Vacuum Truck Form

4.1 General

a. A vacuum truck can perform "Support work", which is when the vacuum truck is requested to perform a task for an existing job.

b. The vacuum truck work party shall review the task that they are supporting. They shall ensure that vacuum truck hazards are addressed on the JSA for the task, that the information related to their task is documented on the Safe Work Permit, and the Vacuum Truck Form (V10) is completed.

c. For all vacuum truck tasks, the Vacuum Truck Form (Appendix C) needs to be completed. For all high risk vacuum truck tasks (if the system is not vented, the pressure is greater than 35 psig, incompatible materials will be mixed, or the temperature is greater than 200F), the High Risk Vacuum Truck Form (Appendix D) must be completed and approved prior to performing the task.

d. Vacuum Truck personnel that are providing support for a permitted task shall participate in the toolbox talk for the task.

e. A new Safe Work Permit is required for each applicable Permit Writer during vacuum truck operations.

f. The same Vacuum Truck Form can be used for multiple Safe Work Permits from the Assignment Section through the Wash Out section.

4.2 Vacuum Truck Form General Information Section

a. The Servicing Group Representative completes this section by obtaining the information from the person, unit, or department requesting the work to be done.

b. Identify the type of equipment to be used with a check mark

c. **Material(s):** A complete description of all materials expected to be loaded into the Vacuum Truck. Document that all loads are compatible or if loads will not be mixed.
[NOTE: This could be a mixture of materials. Review the Hazardous Materials Load and Segregation Chart (49 CFR § 177.848) of this document to determine if materials are incompatible. Mixing of incompatible materials within a Vacuum Truck requires pre-approval of the High Risk Vacuum Truck Form.]

d. **Requested By:** The name of the individual, Unit or Department requesting the vacuum truck.

e. **SDS(s):** A complete listing of all SDS numbers associated with the materials listed in the material field.

f. **Estimated Volume:** The total quantity of material expected to be loaded. If the amount of material cannot be estimated, it is acceptable to document amount after pickup.

g. **Loading Unit & Location:** The unit and area where the material is to be picked-up.

h. **Off-Loading Unit & Location:** The unit and area where the material is to be delivered.

i. **Hazards:** This is a checklist of products / materials that are commonly encountered during vacuum truck activities.
j. **Controls:** This is a checklist of common controls to address the hazards of the tasks to be conducted with a vacuum truck.
k. **Additional Hazards and Controls:** This area is to be used to list hazards and controls that are not identified in the checklist above.

4.3 Vacuum Truck Form Assignment Section

a. At Carson, the Transportation Foreman or L6 shall complete each of the fields in the assignment section of the permit. At Wilmington, this responsibility is assigned to the Vacuum Truck Driver.
b. **Assigned Driver:** This is the individual that has been assigned to the job.
c. **Company Name:** Name of the company that the assigned driver works for.
d. **Truck Number:** The assigned truck cab number.
e. **Trailer Number:** The equipment number uniquely associated with the Vacuum Truck Trailer (not the Truck Cab Number).
f. **Truck Inspection:** Verification that the truck is empty and clean of liquid and solids.

4.4 Vacuum Truck Form Loading Section

a. The Permit Writer at the loading area and the Servicing Group Representative shall complete each of the fields in the loading section of the Form.
b. **Material Verification:** The Permit Writer to confirm that the product to be loaded matches the SDS and material description listed in the General Information Section of the Form.
c. **Product temperature:** Permit Writer to note product temperature.
NOTE: Vacuum truck and components are not to exceed 200°F.
d. **Is system vented:** Verify that the system that the vacuum truck is connected to is vented.
e. If the product is being pushed into the trailer, then the vacuum truck trailer needs to be vented.
f. **Is pressure below 35 psig:** Verify that the pressure that could reach the trailer is below 35 psig.
NOTE: If no is answered to either question d or f above, the work must stop and go back to the OMS to ensure the High Risk Vacuum Truck Form is completed and approved.
g. **Other Requirements / Precautions:** List specific items needed for the Loading operation (e.g. high pressure hoses, grounding system, clamp connections).
h. **In the event of a spill cleanup, document the quantity of hydrocarbon and aqueous solution loaded:** If there is a spill cleanup, the volume of hydrocarbon and the volume of aqueous

solution loaded onto the vacuum truck needs to be documented. This needs to be done after loading is complete.

i. **Expected Loads:** The estimated amount of loads needed to perform the task.

j. **Actual Loads:** The amount of actual loading to complete the task.

4.5 Vacuum Truck Off-Loading Section

a. The Permit Writer at the off-loading area and the Servicing Group Representative shall complete each of the fields in the off-loading section of the form.

b. The off-loading section has been split into two (2) locations, and if two (2) locations are used then both sections shall be completed.

c. **Unit & Location**: Identify the unit and the location inside the unit where the task will be conducted.

d. **Material Verification:** The Permit Writer shall verify that the material corresponds with the description on the permit. Should there be a discrepancy; the operator shall notify the Operations Shift Supervisor.

e. **Number of expected loads:** The estimated number of loads needed to complete the off-loading process.

f. **Unable to off-load:** Identify if the contents of the trailer cannot be off-loaded. If checked then an explanation is required in the comment section below.

g. **Is system vented:** Verify that the system that the vacuum truck is connected to is vented.

h. **System temperature:** Permit Writer to note product temperature the vacuum truck is off-loading into.

i. **Additional Requirements:** Specific items to the off-loading area (e.g. high pressure hoses, grounding system, clamp connections)

4.6 Vacuum Truck Form Wash-Out Section

a. The Permit Writer at the loading area and the Servicing Group Representative shall complete each of the fields in the Wash Out Section of the Form.

b. **Unit:** The unit name.

c. **Location**: The job site.

4.7 Vacuum Truck Form Final Inspection Section

a. The Transportation Foreman or L6 shall apply a checkmark next to the Final Inspection to indicate the use of this section.

b. The Transportation Foreman or L6 is responsible for conducting the Final Inspection of the Vacuum Truck Trailer prior to authorizing the Trailer to leave LAR.

c. **NOTE:** The Mechanical Shift Foreman or Refinery Shift Superintendent (501/RSS) are designated alternates to the Transportation Foreman or L6.

d. The Transportation Foreman or L6 is responsible for verifying that the job is complete prior to authorizing the Vacuum Truck to leave LAR.

e. In cases where the Trailer may be utilized in LAR the next day, the Transportation Foreman or L6 may waive final inspection as the Vacuum Truck Trailer is not leaving LAR.

The information required for each of the fields shall correspond with the following:

f. Verify that the trailer is empty and clean

g. Identify that the driver is approved to leave LAR: with the trailer, without the trailer, or not applicable

h. Upon completion of the Vacuum Truck Form, the Vacuum Truck Driver is authorized to leave LAR.

i. For off-hour operations, the Refinery Shift Superintendent (501/RSS) shall have Delegation of Authority (DOA).

4.8 Import / Export Section

a. Environmental Department is responsible for all waste material and verification that the paperwork required for vacuum trucks exporting waste from LAR is proper and appropriate.

b. The Transportation Foreman or L6 is responsible for all non-waste material and verification that the paperwork required for vacuum trucks exporting material from LAR is proper and appropriate.

c. The Transportation Foreman or L6 shall apply a checkmark next to the Import / Export to indicate the use of this section.

d. **Import From:** The Import Location is the name and location of the facility where the truck received the material for transport to LAR.

e. **Export To:** The Export Location is the name and location of the facility where the truck is to deliver the material that is being transported from LAR.

f. The Transportation Foreman or L6 verifies that a Manifest / Bill of Lading has been generated and is in the possession of the driver prior to leaving LAR.

4.9 Vehicle Entry

a. Vehicle entries into a classified area shall comply with HSS-201. (Note: for the purposes of this Standing Instruction, entry into process areas only occurs once the engine of the vehicle crosses the unit boundary. Example: Crossing the unit boundary with the trailer of a vacuum truck or forks of a forklift do not require a Vehicle Entry Permit until the vehicle engine needs to cross the line.)

b. The Permit Writer shall identify which vehicles will be applied to the entry and identify the route they will utilize to reach the job site.

c. The Permit Writer shall conduct a gas test of the route to be travelled to verify a gas free area.

5.0 Vacuum Truck Operation Requirements

5.1 General Requirements

a. Weigh in at the Traffic Office when making deliveries or exporting materials from the LAR-C. Weigh in at the LPG Loading Rack when making deliveries or exporting materials from the LAR-W.

b. All Hazardous Waste shipments leaving LAR shall be characterized and manifested through the Environmental Department. All other shipments (e.g., recyclable and non-hazardous materials) shall have appropriate shipping papers (e.g., non-hazardous manifest, bill of lading).

c. When practical, the vacuum truck should remain on the roadway and use a hose to reach the pickup point rather than operating the truck in a process unit.

d. Set brakes and wheel blocks (chocks) to prevent the movement of the trailer while loading or unloading. The placement of the wheel blocks shall prevent the vehicle from moving in either direction.

e. Attach ground wire or bonding strap to all equipment while in service.

f. An electrical wire (grounding protection) shall be connected between the Truck/Trailer Body and one of the following: Piping that is grounded or Plant Ground Loop System.

g. Before operating, make sure ALL ground wire connections are tight and free from corrosion and paint.

h. If the ground wire is connected to the truck frame instead of Body, a bonding wire shall be installed from Frame to Body.

i. Attend truck at all times unless the pump is turned off.

j. Appropriate vapor control system must be properly rated for the amount of vent exhaust generated by the vacuum truck pump and positively bonded to the vacuum truck to prevent buildup of static charges.

Warning: Gasoline or lighter hydrocarbon may saturate a carbon filter and cause break through, high temperatures and high pressures that can create additional hazards.

k. The vacuum truck operator will maintain the minimum vacuum necessary to load hydrocarbon to minimize flashing in the tank and to prevent vapor from being exhausted. In areas where the vacuum pump should not be operated or exhaust venting allowed, a vacuum may be established on the vacuum truck tank prior to loading.

l. When removing flammable liquids, the truck shall be positioned at least 50 feet upwind from the source of hydrocarbon vapors. Wind direction should be monitored for changing conditions during the loading operation.

m. If there is exhaust opacity, contact an Environmental Department representative for them to determine if the opacity exceeds 20%.

5.2 Combustible Dust

a. Prior to vacuuming any dust (other than soil) within LAR, review the SDS to determine if the dust is combustible. If an SDS is not available for the material, notify immediate Supervisor so that information on the material can be researched by the applicable Support Group.
b. Vacuum truck shall only be used when other safer options are not feasible.
c. If use of a vacuum truck to clean up combustible dust is determined to be necessary, the following controls must be met:
    - There must be a dedicated person continuously wetting down the combustible dust being vacuumed.
    - A conductive type hose must be used.
    - The vacuum truck must be properly grounded.
    - The entire length of hose being used for the task must be bonded.

5.3 Liquid Vacuum Trucks

a. Locate truck up wind and no closer than 30 feet from an open source of flammable material when possible.
b. Exhaust should be vented at least 20 feet away from truck and not near any people or sources of ignition.
c. BEFORE starting to load, it may be necessary to cover the end of Hose for a short time to create a vacuum in the Body.

5.4 Dry Vacuum Trucks

a. Make sure Latches on Baghouse doors are unfastened while operating so that any ignition is not confined. (Note: Does not apply to Pneumatic Trailers)
b. Hoses are specially designed to conduct static electricity. **DO NOT** substitute hoses of unknown construction, particularly plastic types that may not conduct static electricity. If plastic type hose must be used for the task, ensure it is bonded.
c. Hose couplers shall have rubber sealing gaskets. (Note: Dirt and corrosion can prevent electrical conduction from hose to hose through the hose clamps. It is recommended that the hose couplers be bonded to each other.)
d. When determining the best overall setup consider that increased physical effort is required for larger hose diameters.
e. Four-inch (4") diameter hose may be handled by one (1) person with minimal rest periods
f. **Do not handle** an Eight-inch (8") diameter hose; feed material to this size line with shovels, wheelbarrows, or multiple smaller hoses.
g. A “Safety Tee” shall be installed on hoses with a diameter of Six inches (6”) and greater and within fifty feet (50’) of the vacuum truck.

The "Safety Tee" operator shall have a clear line of sight of the workers operating the end of the hose. If there is no means of line of sight, radio communication must be maintained.

5.5 Air Mover Type Truck

a. Ensure that personnel are kept clear of the suction and the area is barricaded at least 15 feet.

b. Make sure Latches on Baghouse doors are unfastened while operating so that any ignition is not confined. (Note: Does not apply to Pneumatic Trailers)

c. Hoses are specially designed to conduct static electricity. **DO NOT** substitute hoses of unknown construction, particularly plastic types that may not conduct static electricity. If plastic type hose must be used for the task, ensure it is bonded.

d. When determining the best overall setup consider that increased physical effort is required for larger hose diameters.

e. Four-inch (4") diameter hose may be handled by one (1) person with minimal rest periods

f. **Do not handle** an Eight-inch (8") diameter hose; feed material to this size line with shovels, wheelbarrows, or multiple smaller hoses.

g. A "Safety Tee" shall be installed on any hose within fifty feet (50') or greater of the vacuum truck. The "Safety Tee" operator shall have a clear line of sight of the workers operating the end of the hose. If there is no means of line of sight, radio communication must be maintained.

5.6 Exception for Emergency Situations

a. In an emergency situation, the Refinery Shift Superintendent (501/RSS) can authorize and assign a Vacuum Truck to a job as necessary to gain control of the situation. This means in an emergency situation, work can start without a permit, as time allows, an approved permit can be issued.

6.0 Training

All vacuum truck drivers must receive Operations Level HAZWOPER training and have a Commercial Class A license with hazardous endorsement. All vacuum truck drivers must be aware of the requirements in this standing instruction HSS-605.
A record of the HAZWOPER training for Marathon employees will be maintained by the Training Department.

Appendix A: Terms and Definitions

A.1 Bill of Lading	A legal document which accurately records the transportation of hazardous and non-hazardous materials.
A.2 Carbon Filter	A carbon bed with which the vapors from the Vacuum Pump are vented through. Carbon will absorb hydrocarbon from the vapors acting as a scrubber.
A.3 Export Location	The Export Location is the name and location of the facility where the truck is to deliver the material being transported from LAR.
A.4 Grounding and Bonding	Grounding is a method to give an electrical current a place to go to dissipate (i.e. grounding rod). Bonding is a method used to ground a piece of equipment by running a wire (bonding cable) from a grounded component to a non-grounded component, in order to equalize voltage.
A.5 Import Location	The Import Location is the name and location of the facility where the truck received the material for transport to LAR.
A.6 Loading Location	The Loading Location is the area within LAR where the truck is permitted to receive the material to be transported.
A.7 Manifest	A state document which accurately describes hazardous and non-hazardous waste being transported from a generator to a TSDF (Transportation Storage or Disposal Facility).
A.8 Off-Loading Location	The Off-Loading Location is the area within the LAR where the truck is permitted to deliver the material.
A.9 Vacuum Truck Form	The Vacuum Truck Form is a work document that identifies the task, its locations, vehicle inspection, import / export of material, and documents the hazards and controls.
A.10 Vapor Control System	A piece of equipment that captures and scrubs vapors prior to being vented to atmosphere.

A.11 Wash Out The residual material left in a vacuum truck after Off-Loading has been completed. Wash-out is primarily solids saturated with the liquid product transported in the truck since its last cleaning.

Appendix B: List of Potential Concerns and Hazards Associated with Vacuum Truck Operations

Potential Concerns	Potential Hazards
Overpressure or Vacuum	• Use of air or nitrogen pressure to discharge flammable materials from a vacuum truck could result in overpressure to the truck tank; • Over-pressuring tank can result in activation of truck tank pressure relief device which can release hazardous materials in an area with potential ignition sources; • Fouling or blockage in the tank truck relieving devices combined with vessel filling could cause an overpressure; • Excessive vacuum (negative pressure) may result in air entrainment which can create explosive atmosphere inside truck tank.
Hydrocarbon and/or Toxic Material Release	• Use of a high vacuum during loading could result in flashing in the vacuum tank and unnecessary amounts of hydrocarbon or toxic vapor being discharged to the atmosphere; • Mixing of incompatible materials in the vacuum truck tank or at discharge locations could result in an adverse reaction or situation; • Loading hydrocarbons at temperatures above their flash point into vacuum trucks could result in flashing of material and unnecessary amounts of vapor being discharged to the atmosphere; • Vapors from the vacuum tank exhaust system can create an explosive atmosphere if not properly routed and controlled; • The use of pneumatic conveyor (air mover) type vacuum trucks for handling flammable or combustible liquids can create hazards due to high internal temperatures and air induction
Ignition Sources	• Equipment could produce static charge if not bonded and grounded correctly; • Pyrophoric materials and oxidizers can cause ignition of flammable vapors within the truck tank; • Vacuum truck engines, electrical systems and heat generated by vacuum equipment could serve as a source of ignition
Vacuum exhaust venting control	• Ensure that a vapor control system (e.g., scrubber, thermal oxidizer, internal combustion engine) is available when transferring products from a tank or pipeline where vapors may be vented to atmosphere where the VOC would be greater than 500 ppmv or where the truck will be exhausting odorous vapors within 100’ of the refinery fenceline. The areas where the vacuum truck operators and others work must be at or below air-contaminant Permissible Exposure Limits (PEL). (Note: The PEL for H2S is 10 ppm. The PELs for other contaminants can be found in Appendix B of HSS-201.) • Vapors should not be discharged onto roadways or other areas where sources of ignition may inadvertently occur or where people could be exposed to toxic gases; • Prevent diesel engine acceleration, or “runaway” • Properly vent to atmosphere via vertical exhaust extending to dissipate vapors before they reach ignition sources or other potential hazards and personnel

Other	• Without a level measurement of some type, the truck could easily be overfilled leading to a liquid release and spray from the top of the truck or, if the material enters the pump/blower, a fire or explosion in the pump/blower.

Appendix C: Vacuum Truck Form

Los Angeles Refinery VACUUM TRUCK FORM

Permitted Task List ID#V10

PERMIT#: _____

GENERAL INFORMATION

☐ AIR MOVER ☐ PNEUMATIC TRAILER ☐ VACUUM TRUCK ☐ LIQUID MATERIAL ☐ DRY MATERIAL

Material(s): **Are all loads compatible:** ☐Yes ☐N/A (If neither Yes nor N/A, do not proceed)	**Requested By:**	**Date:**
SDS Number(s):	**Estimated Volume (Barrels):**	
Loading Unit & Location:	**Off Loading Unit & Location** (list all)**:**	

HAZARDS:	**CONTROLS:**
☐ Acid/Alkali/Caustic ☐ Toxic Gas	☐ Fresh Air ☐ Acid Gear ☐ Rubber Gear ☐Face Shield
☐ Vapors (Potential LEL ☐Benzene	☐ Vent through Carbon Canister ☐Scrubber Required; Type:_____
☐Asbestos Containing Material (ACM)	☐ Respirator Required - Cartridge type: _____
☐Combustible Dust	☐ Hose Bonding ☐Conductive Hose ☐Continuous Water Use
Additional HAZARDS:	**Additional CONTROLS:**

ASSIGNMENT SECTION

Assigned Driver (print):		Company Name:
Truck Number:	Trailer Number:	Trailer Inspection: ☐ Pass ☐ Fail
Comments:		

LOADING INFORMATION

Does the location match the description above? ☐Yes ☐No (if no, stop and re-assess)

Does the loading material match the description above? ☐Yes ☐No (if no, stop and re-assess) Product Temperature: (if >200ª, stop and re-assess)

Is System Vented: ☐ Yes ☐ No Is pressure below 35 psig: ☐Yes ☐No (If "No" is answered for either question do not proceed)

Other Requirements/Precautions:

In the event of a spill cleanup, document the quantity of hydrocarbon and aqueous solution loaded (differentiate between the volume of each):

Number of expected loads:	Number of actual loads:

OFF LOADING INFORMATION

Unit & Location 1:	Unit & Location 2:
Is the material to be off loaded compatible with material(s) at this location? ☐Yes ☐ No (if no, stop and re-assess)	Is the material to be off loaded compatible with material(s) at this location? ☐ Yes ☐ No (if no, stop and re-assess)
Number of expected loads: ☐ Unable to off-load	Number of expected loads: ☐ Unable to off-load
Comments:	Comments:
Is System Vented: ☐ Yes ☐ No System Temp.:	Is System Vented: ☐ Yes ☐ No System Temp.:
Additional Restrictions (must comply with all above requirements):	Additional Restrictions (must comply with all above requirements):

WASH OUT INFORMATION

Unit:	Location:

☐ **FINAL INSPECTION SECTION** (equipment arriving and departing the Los Angeles Refinery) ☐ **IMPORT / EXPORT SECTION**

☐ Trailer verified empty & clean	Driver approved to leave the refinery: ☐ With Trailer ☐ Without Trailer ☐ Not Applicable
☐ Import from: ☐ Export to:	Manifest / Bill of Lading obtained: ☐Yes ☐No (if no, stop and re-assess)
Comments:	

Appendix D: High Risk Vacuum Truck Form

Marathon Petroleum Company LP

High Risk Vacuum Truck Approval and Mitigation Form - Permitted Task List ID#: V12

Page 1 - Planning Phase Form - To Be Completed by the Owning Department for Vacuum Truck Use if: -System is NOT vented, OR
-Pressure is ABOVE 35 psig, OR
-Incompatible Materials WILL be Mixed, OR
-Temperature is GREATER than 200F

Work Scope Information					
Affected Unit(s):		**Originator:**			
Process Equipment Name/Tag Number:		**Planned Date of Work:**			
Description of work:					
All prerequisite questions must be answered.		**YES**	**NO**	**N/A**	**Name/Signature/Date**
B. Evaluation – By Owning Department Supervision (all answers must be YES or N/A to proceed with work)					
Has the Table on the next page, based on the expected hazards, been completed by the Servicing Group Representative, and been submitted for review to approving parties?		☐	☐	☐	
C. Required Approvals – all indicated persons must sign	**Signatures**				
Area Team Leader					
Maintenance Manager					
Safety Manager					

Appendix D: High Risk Vacuum Truck Form (continued)

Marathon Petroleum Company LP

High Risk Vacuum Truck Approval and Mitigation Form -
Permitted Task List ID#: V12

Completed By:		
What will be the task steps?	**What could go wrong? What hazardous energy is expected?**	**What will be done to protect the work party, the environment, and equipment?**

Appendix D: High Risk Vacuum Truck Form (continued)

Los Angeles Refinery VACUUM TRUCK FORM

Permitted Task List ID#V10

PERMIT#: _____

GENERAL INFORMATION

☐ AIR MOVER ☐ PNEUMATIC TRAILER ☐ VACUUM TRUCK ☐ LIQUID MATERIAL ☐ DRY MATERIAL

Material(s): **Are all loads compatible:** ☐Yes ☐N/A (If neither Yes nor N/A, do not proceed)	**Requested By:**	**Date:**
SDS Number(s):	**Estimated Volume (Barrels):**	
Loading Unit & Location:	**Off Loading Unit & Location** (list all)**:**	

HAZARDS:	**CONTROLS:**
☐ Acid/Alkali/Caustic ☐ Toxic Gas	☐ Fresh Air ☐ Acid Gear ☐ Rubber Gear ☐Face Shield
☐ Vapors (Potential LEL ☐Benzene	☐ Vent through Carbon Canister ☐Scrubber Required; Type:_____
☐Asbestos Containing Material (ACM)	☐ Respirator Required - Cartridge type: _____
☐Combustible Dust	☐ Hose Bonding ☐Conductive Hose ☐Continuous Water Use
Additional HAZARDS:	**Additional CONTROLS:**

ASSIGNMENT SECTION

Assigned Driver (print):		Company Name:
Truck Number:	Trailer Number:	Trailer Inspection: ☐ Pass ☐ Fail
Comments:		

LOADING INFORMATION

Does the location match the description above? ☐Yes ☐No (if no, stop and re-assess)

Does the loading material match the description above? ☐Yes ☐No (if no, stop and re-assess) Product Temperature: (if >200°, stop and re-assess)

Is System Vented: ☐ Yes ☐ No Is pressure below 35 psig: ☐Yes ☐No (If "No" is answered for either question do not proceed)

Other Requirements/Precautions:

In the event of a spill cleanup, document the quantity of hydrocarbon and aqueous solution loaded (differentiate between the volume of each):

Number of expected loads:	Number of actual loads:

OFF LOADING INFORMATION

Unit & Location 1:	Unit & Location 2:
Is the material to be off loaded compatible with material(s) at this location? ☐Yes ☐ No (if no, stop and re-assess)	Is the material to be off loaded compatible with material(s) at this location? ☐ Yes ☐ No (if no, stop and re-assess)
Number of expected loads: ☐ Unable to off-load	Number of expected loads: ☐ Unable to off-load
Comments:	Comments:
Is System Vented: ☐ Yes ☐ No System Temp.:	Is System Vented: ☐ Yes ☐ No System Temp.:
Additional Restrictions (must comply with all above requirements):	Additional Restrictions (must comply with all above requirements):

WASH OUT INFORMATION

Unit:	Location:

☐ **FINAL INSPECTION SECTION** (equipment arriving and departing the Los Angeles Refinery) ☐ **IMPORT / EXPORT SECTION**

☐ Trailer verified empty & clean	Driver approved to leave the refinery: ☐ With Trailer ☐ Without Trailer ☐ Not Applicable
☐ Import from: ☐ Export to:	Manifest / Bill of Lading obtained: ☐Yes ☐No (if no, stop and re-assess)
Comments:	

Appendix E: Approved Vacuum Truck Offloading Locations

Approved Vacuum Truck Off-Loading Locations - Los Angeles Refinery
(If Material being Offloaded is not One of the Approved Offload Locations Below or Material is not an Acceptable Product at the Offload Location, then offload must be approved by the OSS on the Permit).

Site	Destination	Contact	Service	Acceptable Products	Truck Offload Location	Tank Rundown	Constraints/Comments
Carson	Tank 1	Storage and Handling	Crude	Crude, Water with crude	Tank 1	Water, neshaps oil, crude tankage	No caustic
Carson	Tank 12	Storage and Handling	Slop	Diesel, gasoline, JFA, gasoil	Tank 12	Water, #2 oxidizer oil, coker via the treater spent caustic tanks	Minimal water
Carson	Tank 102	Storage and Handling	NESHAPS (Light slops)	Water with gasoline, jet or diesel	North of Tank 103	Water, Neshaps oil, Tank 12	No caustic
Carson	Tank 103	Storage and Handling	NESHAPS (Heavy slops)	Water with crude	North of Tank 103	Water, Neshaps Oil, Tank 190	No caustic
Carson	Wash Out Pit	Waste Management	Sewer	Water with minimal hydrocarbon	West of Tank 18	Water, oily water sewer solids-hauled out	No caustic
Carson	Blowhole	Wastewater	Sewer	Water with minimal hydrocarbon	West of Tank 20	Oily water sewer	No caustic, No benzene
Carson	Tank 309	Wastewater	Wastewater slop, sludge	Sludge, oily water	North of Tank 309	Water, oily water sewer oil, Tank 394	No caustic. Alternative to Tank 83
Carson	Tank 310	Wastewater	Wastewater slop	Oily water	North of Tank 309	Water, oily water sewer oil, Tank 394 Sludge, Tank 83	No caustic. Alternative to Tank 394
Carson	Tank 394	Wastewater	Wastewater slop	Oily water	North of Tank 394	Oil-coker	No caustic. Primary heavy wastewater slop
Carson	Tank 83	Wastewater	Sludge	Sludge with minimum water	Tank 83	Oil-Tank 394 Sludge-Hauled out	No caustic. Primary sludge tank
Wilmington	Tank 7201	RP&S	Sludge	Oil/water solids	Vacuum truck station north of 7201	7201	
Wilmington	Tank 7501	RP&S	DISCONTINUED	NONE	NONE	N/A	This was for ETD clean water, but water has been found to contain oil so this system is blinded.
Wilmington	Tank 80219	RP&S	Solid free slop oil/slop water	Oil/water per LARW standing instruction O-034 and O-035.	Vacuum Truck offloading station west of TK80219	TK80219	When strainers are plugged, seek Pumper 2 for assistance.

Revision History

Document Revision History

Complete the following table for each document revision.

Rev. No.	Description of Change	Author	Approved By	Rev. Date	Effective Date
00	Initial Issue	Alek Hamparian	Mike Kulakowski	6/05/20	6/11/20
01	Added Requirement and Limitation d to document per MPC PSA#20-02.	Alek Hamparian	Mike Kulakowski	11/04/20	11/04/20
02	Added two responsibilities to the Servicing Group Rep regarding ensuring that the off-loading location is documented prior to receiving a load.	Alek Hamparian	Mike Kulakowski	06/07/21	06/07/21