Appendix H Preparedness, Prevention, and Contingency (PPC) Plan/Emergency Action Plan (EAP)/Spill Prevention Control and Countermeasure (SPCC) Plan

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Preparedness, Prevention, and Contingency (PPC) Plan/Emergency Action Plan (EAP)/Spill Prevention Control and Countermeasure (SPCC) Plan

Biofuels Coyote Canyon Biogas, LLC
Renewable Natural Gas Facility

20661 Newport Coast Drive
Newport Beach, CA 92660

Issued: April 9, 2024

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1 INTRODUCTION

The purpose of the Preparedness, Prevention and Contingency (PPC) Plan, Emergency Action Plan (EAP), & Spill Prevention, Control, and Countermeasure (SPCC) Plan is to consolidate the State and Federal pollution incident prevention and emergency response programs into one overall plan.

- The purpose of the PPC Plan is to prevent/control accidental discharge of polluting materials to surface or groundwater.
- The purpose of the SPCC Plan is prevent/control accidental discharge of oil and hazardous substances into the waters of the United States.

1.1 Five-Year Review and Technical Amendment Log [40 CFR 112.5(b)]

A review and evaluation of this Plan is conducted at least once every five years as is required by 40 CFR Part 112.5(b). As a result of this review and evaluation, Archaea Energy, Inc. will amend this Plan within six months of the review to include more effective prevention and control technology if: (1) such a technology will significantly reduce the likelihood of a spill event from the facility, and (2) if such technology has been field-proven at the time of review.

The Designated Responsible Person, or his/her designee, will review this Plan for conformance with current PPC/SPCC regulations. A technical amendment to this Plan will be made within six months after a change in the facility design, construction, operation, or maintenance which materially affects the facility's potential for the discharge of oil into or upon navigable waters of the United States or adjoining shorelines.

Date of Original Plan: April 9, 2024

A review and evaluation of Biofuels Coyote Canyon Biogas, LLC PPC/SPCC Plan was performed on the following date(s). The reviewer has indicated below whether or not the Plan was (or will be) amended as a result of the review.

Table 1-1
Five-Year Review and Technical Amendments

Review Date	Plan Amended? (Y or N)	Description of Amendment	Name and Signature of Plan Reviewer and/or Certifying Amender

CERTIFICATION INFORMATION

Name of Facility	Biofuels Coyote Canyon Biogas, LLC (Coyote Canyon RNG)
Type of Facility	Renewable Natural Gas (RNG)
Date of Initial Operation	TBD
Location of Facility	20661 Newport Coast Drive Newport Beach, CA 92660
Name/Address of Owner	Biofuels Coyote Canyon Biogas, LLC 201 Helios Way, Floor 6 Houston, TX 77079

DESIGNATED PERSONS RESPONSIBLE FOR ENVIRONMENTAL EMERGENCY RESPONSE PLANS

Name:	Emily Zambuto Executive Director of Environmental Compliance
Management Approval:	Full approval is extended by Management at a level with authority to commit the necessary resources.
Signature:	_____

1.2 SPCC Self-Certification Statement *[40 CFR §112.6]*

I, Emily Zambuto, Executive Director of Environmental Compliance, certify that the following is accurate:

1. I am familiar with the applicable requirements of 40 CFR §112;
2. I will visit the facility, once constructed;
3. This Plan was prepared in accordance with accepted and sound industry practices and standards;
4. Procedures for required inspections and testing have been established in accordance with industry inspection and testing standards or recommended practices;
5. I will fully implement the Plan;
6. The facility meets the following qualification criteria (under §112.3(g)(1)):
7. The aggregate aboveground oil storage capacity of the facility is 10,000 gallons or less;
8. The facility has had no single discharge as described in §112.1(b) exceeding 1,000 gallons and no two discharges as described in §112.1(b) each exceeding 42 gallons within any twelve-month period in the three years prior to the SPCC Plan self-certification date, or since becoming subject to 40 CFR Part 112 if the facility has been in operation for less than three years (not including oil discharges as described in §112.1(b) that are the result of natural disaster, acts of war, or terrorism);
9. There is no oil storage container at the facility with an aboveground capacity greater than 5,000 gallons;
10. This Plan does not deviate from any requirement of 40 CFR Part 112 as allowed by §112.7(a)(2) (environmental equivalence) and §112.7(d) (impracticability of secondary containment) or include any measures pursuant to §112.9(c)(6) for produced water containers and any associated piping; and
11. This Plan and individual(s) responsible for implementing this Plan have the full approval of Management, which has committed the necessary resources to fully implement this Plan.

I also understand my other obligations relating to the storage of oil at this facility, including, among others:

1. To report any oil discharge to navigable waters or adjoining shorelines to the appropriate authorities. Notification information is included in this Plan.
2. To review and amend this Plan whenever there is a material change at the facility that affects the potential for an oil discharge and at least once every five years. Reviews

and amendments are recorded in a log [See Five-Year Review and Technical Amendment Log].

3. Optional use of a contingency plan. A contingency plan:
4. May be used in lieu of secondary containment for qualified oil-filled operational equipment, in accordance with the requirements under §112.7(k);
5. Must be prepared for flowlines and/or intra-facility gathering lines which do not have secondary containment at an oil production facility; and
6. Must include an established and documented inspection or monitoring program; must follow the provisions of 40 CFR §109; and must include a written commitment of manpower, equipment, and materials to expeditiously remove any quantity of oil discharged that may be harmful. If applicable, a copy of the contingency plan and any additional documentation will be attached to this Plan.

I certify that I have satisfied the requirement to prepare and implement a Plan under §112.3 and all of the requirements under §112.6(a). I certify that the information contained in this Plan is true and accurate to the best of my knowledge.

Signature: _____ Date: _____

Emily Zambuto, Executive Director of Environmental Compliance

2 PREPAREDNESS, PREVENTION, AND CONTINGENCY (PPC) PLAN

2.1 Description of Facility

Facility Address/Phone: 20661 Newport Coast Drive
Newport Beach, CA 92660
XXX-XXX-XXXX

Facility Owner/Operator: Biofuels Coyote Canyon Biogas, LLC
201 Helios Way, Floor 6
Houston, TX 77079

Table 2-1
Facility Contacts / Critical Call List / Emergency Phone Numbers

Name	Title	Telephone
TBD	Lead Operator	
TBD	Regional Operations Manager	
Dustin Shutter	Vice President of RNG Operations	315-406-8516
Emily Zambuto	Exec. Director of Environmental Compliance	585-278-4773
Sam Gilley	Sr. Field Safety Manager	979-220-7651
Archaea Emergency	Emergency Call Service	855-595-5319

AMBULANCE, FIRE, POLICE, RESCUE: 911

Clinic/Hospital: Hoag Hospital
1 Haog Drive
Newport Beach, CA 92663
949-764-4624

Poison Control Center: 800-222-1222

SPILL NOTIFICATION TELEPHONE NUMBERS

National Response Center:	800-424-8802
California OES:	800-852-7550
Anaheim City Fire Dept.	714-765-4072
Orange Co. Env. Health	714-433-6406

Note: Notifying the State Warning Center (800) 852-7550 and the UPA or 911 constitutes compliance with the requirements of section 11004 of title 42 of the United States Code regarding verbal notification of the SERC and LEPC (California Code of Regulations, Title 19 Section 2631 (e).

EMERGENCY SPILL RESPONSE

Clean Harbors: 800-OIL-TANK

2.2 Site Information

The Facility will be staffed full-time Monday through Friday, 7:00 AM to 3:00 PM by a Lead Operator and an Operations Technician.

Although the Facility is on leased property within the landfill, it is a completely separate facility with separate ownership and operational personnel/control.

The site is approximately a 2-acre, irregularly shaped parcel (see Figure 1). The site is accessible through the Orange County Waste & Recycling (OCWR) Coyote Canyon Landfill main entrance.

The Facility consists of equipment skids used to process landfill gas into renewable natural gas. There are vessels filled with air filter media which are periodically cleaned (spent media removed & replaced). There are three Envirotemp fluid transformers (BioTran-35), and other ancillary equipment, that are located at the Facility on concrete pads. Equipment skids are equipped with secondary containment.

2.3 Process Description

The Biofuels Coyote Canyon Biogas, LLC Facility (the Facility) will receive landfill gas (LFG) from the Orange County Waste & Recycling (OCWR) Coyote Canyon Landfill and, through an extensive treatment and refining process, will produce RNG for sale and injection into a nearby pipeline. The Facility and the landfill are separately owned and operated.

The Facility will be designed to process up to 3,200 standard cubic feet per minute (scfm) of raw LFG, at an assumed methane content up to 50 percent. The raw LFG received at the Facility will be initially treated in accordance with applicable EPA New Source Performance Standards (NSPS) requirements, as follows:

- Filtration: LFG will pass through a series of filters designed to remove particulates and free moisture in the raw LFG.
- Dewatering: LFG will pass through a series of moisture knockout vessels as well as mechanical chiller for dewatering.
- Compression: Gas blowers/compressors will pressurize the gas necessary for the subsequent RNG refining process.

Following treatment, gas will undergo extensive processes designed to generally capture/retain the methane portion of the gas, while separating out the other gas constituents (i.e. CO_2, VOCs, N_2, O_2). The end result is pipeline-quality methane such that it can be transferred to a natural gas pipeline for distribution to end users.

The refining process involves the following key steps:

- Initial LFG Treatment: Compression, filtration and dewatering.
- Bulk hydrogen sulfide removal: After the LFG is initially treated and is around 30 psig, the LFG will flow through a vessel filled with non-regenerative H2S removal media. The H2S concentration of the process gas leaving the H2S removal vessels will have a maximum outlet concentration of 25 ppm.
- Carbon Dioxide (CO_2) Removal: This step involves in-line gas processing to remove impurities from the process gas (water & VOCs) followed by membrane system removal of CO_2 from the gas stream.
- Nitrogen/Oxygen (N_2/O_2) Removal: This step involves pressure swing adsorption (PSA) separation of N_2 and O_2 from the gas stream.
- Supplemental gas compression and gas dryer for final delivery.

The final product gas is monitored for gas quality as stipulated by the gas tariff and is then transferred to the natural gas pipeline for distribution to end users.

The Facility will include a Tier 4 natural gas-fired generator, to be used only in emergency situations.

The LFG condensate will not contain oil as it will be routed through the OWS before being stored in two (2) 15,000 gal. Condensate Tanks (CST-01 and CST-02).

Table 2-2 provides a summary of the material storage at the Facility.

Table 2-2
Material Storage

Description	Contents	Location	Design Capacity	Volume & Release Rate (gal/hr)	Predicted Direction of Flow	Leak Prevention and/or Spill Containment	Overfill Prevention
Bulk Storage Containers							
Two Hydrogen Sulfide (H_2S) Removal Vessels (Single-wall tanks)	LFG (Does not contain oil)	Outside	4,800 scfm LFG (max H2S 25 ppm)	Gradual to Instantaneous (4,800 scfm LFG – max H2S 25 ppm)	Failure resulting in pressure relief valve lifting would result in release of LFG to atmosphere.	N/A	N/A
Condensate Storage (Coated carbon steel double-wall tank)	Waste Condensate (Does not contain oil)	Outside	15,000 gal.	Gradual to Instantaneous (15,000 gal.)	Captured in secondary containment. Failure would result in flow to concrete pad and gravel area, and ultimately to stormwater pond to northwest.	Interstitial space of double-wall tank	Level transmitter with HH & H-level alarm in HMI & manual level indication
Air Compressor Condensate Tote	Condensate (Does not contain oil)	Outside on concrete pad	250 gal.	Gradual to Instantaneous (250 gal.)		Secondary containment	Operator inspection/Daily Rounds
Two New Oil Storage Totes (Dual IBC storage tote)	New Oil	Outside under cover on spill pallet	330 gal. each (660 gal. total)	Gradual to Instantaneous (330 gal.)		Under cover on spill pallet	N/A

Description	Contents	Location	Design Capacity	Volume & Release Rate (gal/hr)	Predicted Direction of Flow	Leak Prevention and/or Spill Containment	Overfill Prevention
Oil/Water Separator (Coated carbon steel double-wall tank)	Oily Water	Underground	550 gal.	Gradual to Instantaneous (550 gal.)	Captured in secondary containment. Failure would result in flow to subsurface soils.	Double-wall tank	Tank is equipped with a level gauge (on HMI) and high level alarm.
Oil-Filled Equipment							
Three (3) Recycle Compressors and Two (2) Stage 1 & 2 Feed Compressors	Compressor Oil	Outside	192 gal. each (960 gal. total)	Gradual to Instantaneous (192 gal.)	Captured in secondary containment. Failure would result in flow to concrete pad and gravel area to northwest.	Secondary containment; Daily visual inspection	Level gauge and high-level audible alarm; Overflows piped to OWS
Mechanical Chiller	Propylene Glycol (50%)	Outside	136 gal. est.	Gradual to Instantaneous (136 gal.)	Release to flat concrete pad and pool under equipment.	Daily visual inspection	Level sight glass
	Oil		1.43 gal. Circuit 1 & 2 each (2.86 gal. total)	Gradual to Instantaneous (up to 1.43 gal.)			
	Refrigerant (R410A)		25.5 lb Circuit 1 & 2 each	Gradual to Instantaneous (up to 25.5 lbs)	Release to atmosphere		
T1 & T2 – Transformers (Single wall oil-filled equipment	Envirotemp. Fluid (Vegetable Oil)	Outside	1,300 gal. each (2,600 gal. total)	Gradual to Instantaneous (1,300 gal.)	On flat concrete pad, will pool under equipment.		Level gauge

Description	Contents	Location	Design Capacity	Volume & Release Rate (gal/hr)	Predicted Direction of Flow	Leak Prevention and/or Spill Containment	Overfill Prevention
tanks)							
Total Oil Storage Subject to SPCC Rule (gal.):			**4,222**	(Includes tanks, containers, and equipment ≥ 55 gallons. Does not include OWS, condensate tanks, or empty totes/drums.)			

3 EMERGENCY ACTION PLAN (EAP)

In the event of an emergency, all personnel are to immediately evacuate the Facility and proceed to the designated evacuation area as instructed within this EAP.

3.1 Emergency Notification

Emergencies are communicated via fire alarm pull stations and verbal communications. Verbal communications are to be made in person by cellular phone or, in the event of a fire, the alarm will ring.

3.2 Emergency Assembly Area

Refer to the PPC site map in Figure 2. Upon hearing the alarm or being notified of an emergency, all personnel will evacuate and assemble at a predetermined area unless otherwise directed by the lead operator or management. The Facility's emergency assembly areas are described on the enclosed PPC site map.

3.3 Potential Off-Site Exposure

Shelter in place.

3.4 Key Roles

The following roles at the Facility are designated as key roles.

Table 3-1
Key Roles

Key Role	Primary Position	Secondary Position
Emergency Coordinator	Lead Operator	Operations Technician
Communications Coordinator	Lead Operator	Operations Technician
Evacuation Coordinator	Lead Operator	Operations Technician
Qualified First Aid/CPR Administrator	Lead Operator	Operations Technician

Responsibilities for the above positions are defined as follows.

Emergency Coordinator

Upon notification of an incident, the emergency coordinator will assess the event and initiate the appropriate actions based on the current situation, interface with emergency response personnel (if applicable) as the subject matter expert, and direct actions of key personnel initiating the EAP.

Communications Coordinator

Responsibilities for this person will include interfacing with the media, notification of the local municipal emergency response organizations (if applicable), followed by Green Meadows' local management; activate the company Crisis Communication Process by initiating the Critical Call List procedure and working with their local Emergency Planning Committee to ensure proper response criteria and community notification protocols.

Evacuation Coordinator

Following the notification of the incident and, if safe to do so, the evacuation coordinator is to assure that all persons have vacated the Facility by physically inspecting the Facility without subjecting themselves to the incident. Upon arrival at the assembly area, the evacuation coordinator shall conduct a head count of plant personnel, contractors, and visitors checking them against the Facility roster and visitor sign in log. Once completed, the evacuation coordinator is to report to the emergency coordinator the status of evacuation.

First Aid Administrator

The first aid administrator is to be currently certified in performing first aid & CPR. Their primary responsibility is to render medical assistance (while awaiting professional help) to anyone who has been injured or becomes ill as the result of the incident, so long as they are not subjecting themselves to potential harm while performing these services.

3.5 Process Control Coordinators

Both the Lead Operator and the Operations Technician shall act as process control coordinators. See Table 3-2 for additional information.

These positions only act in a defensive posture from outside of the hot zone whenever possible and are not to engage in any direct activity involving the incident. If the incident precludes the ability to perform an assigned function safely, the designated person shall withdraw from the involved area and report to the emergency coordinator.

Table 3-2
Process Control Coordinators

Process Controls	Primary Position	Secondary Position
Securing inbound/outbound pipeline block valves	Operations Technician	Lead Operator
Securing bulk tank block valves	Operations Technician	Lead Operator
Securing tube trailers block valves	Operations Technician	Lead Operator
Securing plant electrical power	Operations Technician	Lead Operator
Removing trucks from the immediate danger area	N/A	N/A
Traffic control – securing front gate and directing incoming responders	Lead Operator	Operations Technician

3.6 Major Site Hazards

Only trained personnel will attempt to control or extinguish an incipient stage fire using portable fire extinguishers or perform designated process control activities from outside of the hot zone, whenever possible, when mitigating an event without endangering themselves or other personnel. See Table 3-3 for major hazards at the site.

Table 3-3
Major Site Hazards

Hazards	Mitigation Technique	Location
Electrical Fire	E-Stop / Kill Power / CO_2 Fire Extinguisher	Motor Control Centers (MCC), Electrical Equipment, Switchgear, Substation
Oil Spills	Pig Mats/ Absorbents	Within Process Skid or at the Used Oil Aboveground Storage Tank (AST)
Combustible /Flammable Storage Areas	E-Stop, Fire Alarm, Fire Extinguishers, Evacuation to Muster Location	In gas processing area (air filter medias/activated carbon used for H_2S removal)
Methane Leak	E-Stop, Fire Alarm, Evacuation to Muster Location	In gas processing area
H2S/SO2 Leak	E-Stop, Fire Alarm, Evacuation to Muster Location	In gas processing area

3.7 Emergency Contact List

Emergency contacts are provided in Table 2-1.

3.8 Emergency Scenarios

3.8.1 Emergency Evacuation & Response Procedures

1. Initiate the EAP notification system (fire alarm, E-stop, verbal communications).
2. Determine the type of emergency (fire, liquid spill, personnel injury, etc.).
3. Notify emergency responders if required (ambulance, fire, police, etc.).
4. Evacuate visitors, customers, contractors, and non-essential company personnel.
5. Proceed to designated assembly area – staying up-wind of any vapor cloud and keeping roadway open for clear access by emergency personnel.
6. Designate a person to report to the main gate to secure, direct, and inform incoming emergency responders.
7. Evacuation coordinator to conduct head count, brief personnel on the emergency actions, and report back to the incident coordinator.
8. Begin internal notification of management and support personnel as directed by Facility protocol.

3.8.2 Injury/Illness

1. Initiate the Emergency Evacuation and Response Procedure (if necessary).
2. Assess environment:
3. If safe to enter, evaluate if it is safe for the victim to stay.
4. If it is safe for the victim to remain, then leave them where they are.
5. If they are not safe and in immediate danger, remove the victim if possible. Otherwise, wait for assistance from emergency services.
6. Administer first aid (if trained) as necessary until trained medical help arrives.
7. Personnel needing immediate medical attention but not needing an ambulance should be taken to the local hospital accompanied by plant management.
8. Regardless of the severity of treatment, emergency services must be provided information pertaining to potential allergic reactions of the injured party.

3.8.3 Fire/Explosion

Only trained personnel will attempt to perform designated process control activities necessary in mitigating an event involving a release of hazardous materials, if doing so will not endanger themselves or other personnel. Only attempt to extinguish an incipient stage fire using a portable fire extinguisher using the following procedure:

1. Initiate the Emergency Evacuation and Response Procedure.
2. Shut down, disconnect power, and isolate affected equipment if required and can be done so safely.
3. If the fire involves flammable or oxidizing gases, do not attempt to extinguish the flame if the gas source cannot be shut off safely.
4. If the fire involves electrical systems, disconnect the power source and extinguish without using water.
5. If the explosion or fire involves MCCs or transformers, notify the utility company.

Actions Required: Securing inbound/out-bound pipeline block valves, securing bulk tank block valves, securing tube trailers block valve, securing plant electrical power, removing trucks from the immediate danger area, and traffic control – securing front gate and directing incoming responders.

3.8.4 Inert Cryogenic (N_2) Liquid Spill & Vapor Cloud

Only trained personnel will attempt to perform designated process control activities necessary in mitigating an event involving a release of hazardous materials, if doing so will not endanger themselves or other personnel.

*****WARNING: Inert cryogenic liquids displace oxygen and will cause asphyxiation if exposed. Avoid contact with the liquid or vapor phase, stay up-wind, and do not walk through any vapor cloud.*****

1. Initiate the Emergency Evacuation and Response Procedure.
2. Isolate the area and identify the cryogenic liquid involved, if possible.
3. Isolate and shut down affected equipment if required and can be done so safely.
4. Shut off the flow of liquid, if possible, by approaching up-wind of the leak while avoiding contact with cryogenic liquids.
5. Determine the direction of the vapor cloud movement. If vapor cloud will drift outside the property, contact appropriate law enforcement agencies for possible evacuation of areas outside the Facility and blocking of necessary roadways.
6. If the cloud reaches a public roadway where local authorities are not available, send personnel to flag down traffic to prevent entry into the cloud. Hazards include an oxygen deficient atmosphere and loss of visibility when entering the vapor cloud.

7. Use of an analyzer to determine the percent oxygen concentration at fringes of the vapor cloud. Concentrations below 19.5% should be treated as potentially oxygen deficient atmospheres and should be avoided.
8. Allow vapor cloud to dissipate. If the release is indoors or in poorly ventilated areas, ventilate the area utilizing mechanical or natural ventilation.

3.8.5 Pipeline Break, Explosion, or Fire

Only trained personnel will attempt to perform designated process control activities necessary in mitigating an event involving a release of hazardous materials, if doing so will not endanger themselves or other personnel. Only attempt to extinguish an incipient state fire using a portable fire extinguisher.

1. Immediately isolate the area.
2. Establish a safe zone up-wind of the affected area.
3. Follow instructions given by the utility pipeline owner/operator.

3.8.6 Flammable or Oxidizing Gas Leak – No Fire

1. Initiate the Emergency Evacuation and Response Procedure.
2. Isolate and shut down affected equipment, if it can be done so safely.
3. Shut off all electrical power and other ignition sources in the immediate area.
4. No smoking or open flame within one hundred (100) feet of the affected area.
5. Approach up-wind of the leak, and shut off the flow of gas.
6. If a flammable gas cylinder is leaking, move it to an open area away from sources of ignition, oxygen, or other flammables, if this can be done safely.
7. If personnel are exposed to gas vapors, instruct them to get out into fresh air and abstain from smoking for at least one-half hour from being exposed.
8. Use an analyzer to determine the % lower explosive limit (LEL) or oxygen (O_2) concentration, as appropriate, at fringes of the affected area.
9. Concentrations above 10% of the LEL should treated as though flammable vapors are present.
10. Concentrations above 23.5% oxygen should be treated as enriched atmospheres.

3.8.7 Oil, Fuel, or Hazardous Liquid Spill

Only trained personnel will attempt to perform designated process control activities necessary in mitigating an event involving a release of hazardous materials, if in doing so will not endanger themselves or other personnel.

This applies to spills involving large quantities of liquids such as fuels or other hazardous liquids that could present health hazards and environmental concerns.

1. Initiate the Emergency Evacuation and Response Procedure.
2. Determine what the spilled material is and if it has a Reportable Quantity (RQ) threshold.
3. Isolate and contain the spilled material, if possible to do so safely.
4. If a flammable material is involved, isolate all possible sources of ignition (heat, electrical, etc.).
5. Cover and protect material from discharge to drains and sewers.
6. Initiate the site SPCC Plan.
7. Contact Clean Harbors and ensure environmental cleanup is performed.

Spills involving quantities equal to or exceeding the RQ value require reporting the spill to the state Office of Emergency Management, Local Emergency Planning Committee, and National Response Center. For an oil spill exceeding 55 gallons, or if the spill reaches a navigable waterway, the spill must be reported to the National Response Center immediately upon knowing of the release.

3.8.8 Natural Disasters/Severe Weather: Earthquakes/Hurricanes/Tornados/Wild Fires

1. Initiate the Severe Weather Plan and initiate the Emergency Evacuation and Response Procedures, as necessary.
2. Turn on emergency radio.
3. Stop process. Evacuate if there is time; otherwise, move to an interior wall of the control room.
4. Wait for the storm to pass and prepare to initiate the EAP/SPCC Plan.
5. After the event has occurred, investigate the plant.
6. Be sure to wear proper PPE and personal gas monitors.
7. Report findings to management, as necessary.

3.9 Material and Waste Inventory

Refer to the Facility's Waste Stream Management Plan.

3.10 Pollution Incident History

Table 3-4
Pollution Incident History

Date	Description (Cause/Magnitude/Action/Impact)
4/9/2024	No releases within the past five years.

Release Certification

I hereby certify that I have knowledge of the daily operations of the Facility and attest that there have been no releases of hazardous substances from this Facility for the period indicated below.

Signature of Responsible Official	Start Date	to	End Date
Name of Responsible Official	Title		Date

3.11 Implementation Schedule for Plan Elements Not Currently in Place

Does not apply.

3.12 Description of How Plan is Implemented by Organization

Facility personnel will participate in annual training to allow site personnel to perform their duties in such a way as to prevent the discharge of harmful quantities of oil and other materials. This training will include familiarization with the PPC & SPCC Plan, safety data sheets (SDSs) appropriate to the job assignment, and emergency response procedures, equipment, and systems.

Annually, at a minimum, Facility personnel will be given a discharge prevention briefing which includes their responsibilities for compliance with the requirements of the spill laws and emergency response regulations applicable to the Facility.

The Compliance Department will be responsible for periodically reviewing and evaluating the Plan and instituting appropriate changes at regular intervals. The Compliance Department shall also be responsible for the review of new construction and process changes at an installation relative to the Plan (as required by the company's MOC process).

3.13 Spill Leak Prevention and Response

The Facility will provide appropriate containment and/or diversionary structures or secondary containment to prevent a discharge of oil from the Facility. Personnel will monitor these containment structures to prevent a discharge of oils to waters of the United States. Accumulated waters in the containment curbs will be inspected for the presence of oils and will be allowed to evaporate or will be manually pumped from the containment curbing to the oil-water separator (OWS).

The on-site drainage is designed to carry uncontaminated stormwater runoff from the Facility. The runoff is collected and then conveyed to a dry detention basin directly northeast of the Facility.

3.14 Pre-Release Planning/Spill Prediction

A summary is provided in Table 2-2.

All liquid storage areas have containment capacity sufficient to hold the volume of the largest single container or tank plus a reasonable allowance for precipitation based on local weather conditions and plant operations. Containment systems are impervious to contain spilled material or waste until it can be removed or treated. Tank or container materials are compatible with the material or waste stored.

All piping, gas processing, material handling equipment, and material handling areas are designed and operated so as to prevent spills.

3.14.1 Material Compatibility

All tanks and oil-filled equipment are constructed with materials that are compatible with specified contents. The AST storing condensate has been designed, manufactured, and installed in accordance with UL 142.

Piping systems will be designed and installed in accordance with (i) ULC-C107.7; and/or (ii) ASTM D2996-88.

Adequate provisions must be made to protect all exposed piping from physical damage that might result from moving machinery such as forklifts, automobiles, and trucks.

Inspection and Monitoring Program

All ASTs, oil-filled equipment, connected piping, and secondary containment must be periodically inspected for proper operation, damage, leaks, and suitability for continued service. All steel ASTs must be inspected and maintained in accordance with STI SP001 – Standard for the Inspection of Aboveground Storage Tanks, or API Standard 653 – Tank Inspection, Repair, Alteration, and Reconstruction.

Daily walkthroughs for inspection of all pipes, pumps, valves, and fittings for leaks; tanks for corrosion; tanks supports and foundations for deterioration; evidence of spilled materials along drainage ditches; effectiveness of housekeeping practices; damage to shipping containers; leaks, seeps, or overflows at waste storage areas will be conducted. Monthly and annual documented inspections will be conducted following company procedures.

Preventative Maintenance

Archaea Energy, Inc. has developed a standardized preventative maintenance program. The program identifies the equipment and systems; periodic inspection of identified equipment and systems; periodic testing of equipment and systems (such as routine calibration); appropriate adjustment, repair or replacement of parts; and complete recordkeeping of the preventative maintenance activities, inspection and test results, calibration dates, repairs, replacement, and adjustment to the applicable equipment and systems.

Housekeeping/Safe Work Practices

Housekeeping is of utmost priority. Employees will be trained to maintain clean, orderly, and safe work areas; material storage areas; and eliminate or control employee exposure to hazardous conditions.

3.14.1.1 Working Surfaces/Floors

- Keep all walking and working surfaces clean and orderly.
- Keep work surfaces dry and swept.
- Clean up small spills immediately, report large spills to a supervisor.
- Promptly remove scraps, debris, and waste, and discard them according to the waste stream management disposal procedures.

3.14.1.2 Concrete Pads

- Where wet processes are used and/or ponding may occur from precipitation events, ensure that drainage channels are kept clear.

3.14.1.3 Aisles

- Keep walkways clear and marked as appropriate.
- Maintain fire extinguishers unobstructed.
- Store materials or equipment in such a way that sharp projections will not interfere with or protrude into aisles or passageways.

3.14.1.4 Elevated Surfaces

- Pile, stack, or rack material on elevated surfaces in a manner that will prevent the material from tipping, falling, collapsing, rolling, or spreading.

3.14.1.5 Entryways and Exits

- All entryways and exits will be kept clean, dry, and clear of all obstructions.

3.14.1.6 Lighting

- Lighting shall be adequate to help reduce accidents and identify spills during nighttime hours.
- Replace lightbulbs and/or fixtures as necessary to maintain adequate lighting at all times.

Fire and Explosion Prevention

Flammable and combustible materials and residues will be controlled so that they do not cause or contribute to a fire emergency.

3.14.1.7 Waste Management

Dry combustibles and used rag containers are emptied daily.

3.14.1.8 Containers

Any flammable and combustible liquids stored onsite will be stored within approved fire-resistant containers with self-closing lids.

3.14.1.9 Electrical Equipment

Maintain a clear access to electrical panels at all times so that they can be opened quickly in case of an emergency.

3.14.1.10 Fire Exits

Always keep evacuation routes clear. Do not store boxes or other items in aisles or near gates to emergency pathways and exits. Ensure that existing doors on containers and the control room are kept clear on both sides so that they can be easily opened in an emergency. Emergency lights are checked monthly.

3.14.1.11 Fire Extinguishers

Access to extinguishers shall be kept clear at all times. Extinguishers will always be kept visible. They shall not be blocked by stacks of boxes, forklifts, or other items.

Security

The RNG Facility is located within the Coyote Canyon Landfill, which is a secured landfill (fencing and natural barriers). In addition, the RNG Facility is surrounded by a 10' perimeter wall, which prevents security threats and vandalism.

- The landfill entrance gate is fully staffed during operating hours.
- The landfill entrance gate is locked when the landfill is not in operation.

Within the secured landfill, the Facility is designed to be in constant production and will be physically staffed during normal operating hours each day. Contractors, including vendors providing petroleum products to the Facility, will check in at the Facility's office and will not have unsupervised access.

Lighting is adequate to detect spills during nighttime hours.

External Factor Planning

If there are any major storms/severe weather forecasted (earthquakes, hurricanes, flooding, landslides, wildfires), management will take necessary precautions and arrange for the safe shutdown of the Facility.

Employee Training Program

Appropriate Facility personnel will be trained annually in spill and emergency response procedures. This training will include preventing, reporting, stopping, containing, cleaning up, and disposing of spill materials; emergency communications; etc. New personnel with responsibilities related to management of petroleum products will be trained within two months after entering the Facility.

Personnel shall also be trained in daily walkthrough/visual inspections and formally documented monthly inspections. Typical inspections include the following: pipes, pumps, valves, and fittings for leaks; tanks for corrosion; tank supports and foundations for deterioration; evidence of spilled materials along drainage ditches; effectiveness of housekeeping practices; etc. Areas that shall be inspected include the following: storage,

loading and unloading, transfer pipelines, material storage areas, and waste storage areas. Routine monitoring shall also be performed to determine the physical conditions and liquid levels in tanks, the quality of plant site runoff in diked areas, etc.

Personnel shall also be instructed in good housekeeping practices, including the following: neat and orderly storage of chemicals; prompt removal of small spillage; regular refuse pickup and disposal; maintenance of dry, clean floors by use of brooms, vacuum cleaners, or cleaning machines; and provisions for the storage of containers or drums to keep them from protruding into open walkways, pathways, or roads.

The site will have a Safety Program in place. This will outline Company Safety Polices, Procedures, Qualifications, and Inspections. Operating Procedures/Job Hazard Analyses (JHAs) will be prepared for potentially dangerous activities performed on-site. The Company provides on-going safety programs/weekly toolbox talks.

Emergency telephone numbers and basic first-aid procedures will be posted throughout the Facility.

Facility personnel shall take immediate action upon discovery of a release to protect human health, safety, and the environment. Immediate actions which may be necessary include, but are not limited to, the following: signaling alarms, mitigation of fire and safety hazards, contacting emergency response officials, evacuation of personnel from the site, isolation of the impact zone, preventing the migration of the release, and stopping, plugging, or containing the release. Corrective actions shall be undertaken to clean up and remove the release material and restore the site to protect public health, safety, and the environment. The list of emergency contacts and spill reporting procedures is also maintained in the Facility's SPCC Plan.

Countermeasures

3.14.1.12 Discovery of a Release

The person discovering a release of material from a container, tank, or operating equipment should initiate the following immediately:

- **Extinguish any sources of ignition.** Until the material is identified as nonflammable and noncombustible, all potential sources of ignition in the area should be removed. Vehicles should be turned off. If the ignition source is stationary, attempt to move spilled material away from ignition source. Avoid sparks and movement creating static electricity.

- **Attempt to stop the release at its source.** Assure that no danger to human health exists first. Simple procedures (turning valves, plugging leaks, etc.) may be attempted by the discoverer if there is no health or safety hazard, and there is a reasonable certainty of the origin of the leak. All efforts to control leaks must be under the supervision of the Emergency Coordinator or Assistant Emergency Coordinator.
- **Initiate spill notification and reporting procedures.** Report the incident immediately to the Supervisor and the Emergency Coordinator. If there is an immediate threat to human life (e.g. a fire in progress or fumes overcoming workers), an immediate alarm should be sounded to evacuate the building, and the fire department should be called. Request the assistance of the fire department's hazardous materials response team if an uncontrollable spill has occurred and/or if the spill has migrated beyond the site boundaries.

3.14.1.13 Containment of a Release

If material is released outside the containment areas, it is critical that the material is accurately identified, and appropriate control measures are taken in the safest possible manner. Consult SDS file for petroleum products used at the Facility. To contain a release, the following procedures should be followed:

- **Attempt to stop the release at the source.** If the source of the release has not been found, if special protective equipment is necessary to approach the release area, or if assistance is required to stop the release, the fire department should be called to halt the discharge at its source. Facility personnel should be available to guide the fire department's efforts, as needed.
- **Contain the material released into the environment.** Following proper safety procedures, the spill should be contained by absorbent materials and dikes using shovels and brooms. A spill kit that includes adsorbent material, containment socks, rags, plastic, and a salvage drum is located in the Facility. Consult applicable SDSs for material compatibility, safety, and environmental precautions.
- **Continue the notification procedure.** Inform the Emergency Coordinator of the release. Obtain outside contractors to clean up the spill, if necessary.

3.14.1.14 Spill Cleanup

Appropriate personal protective equipment and cleanup procedures can be found on SDSs. Care must be taken when cleaning up spills in order to minimize the generation of waste. The Facility Emergency Coordinator or their designated representative can provide assistance for the issues discussed below. The management personnel listed in the Critical Call List must be made aware of all cleanups of spills over 5 gallons and spills of any size if they release to the ground surface outside.

- **Recover or cleanup the material spilled.** As much material as possible should be recovered and reused where appropriate. Material which cannot be reused must be declared waste. Liquids absorbed by solid materials shall be shoveled into open-top, 55-gallon drums; or if the size of the spill warrants, into a roll-off container(s). When drums are filled after a cleanup, the drum lids shall be secured, and the drums shall be appropriately labeled (or relabeled) identifying the substance(s), the date of the spill/cleanup, and the Facility name and location. Combining non-compatible materials can cause potentially dangerous chemical and/or physical reactions and may severely limit disposal options. Compatibility information can be found on SDSs.
- **Cleanup of the spill area.** Surfaces that are contaminated by the release shall be cleaned using an appropriate substance or water. Cleanup water must be minimized, contained, and properly disposed of. Occasionally, porous materials (such as wood, soil, etc.) may be contaminated. Such materials will require special handling for disposal.
- **Decontaminate tools and equipment used in cleanup.** Even if dedicated to cleanup efforts, tools and equipment that have been used must be decontaminated before replacing them in the spill control kit.

3.14.1.15 Post Cleanup

- **Notification and reports to outside agencies.** The Emergency Coordinator shall determine if a reportable spill has occurred. Verbal notifications to government agencies and emergency planning committees shall be executed, if necessary. Where verbal notification is given, a written report shall be sent to the same entity.
- **Arrange for proper disposal of any waste materials.** The waste material from the cleanup must be characterized. The Manager of Environmental Programs or their designated representative must approve the disposal. Representative sampling and analysis may be necessary to make this determination. In any case, the Emergency Coordinator shall assure that the waste is transported and disposed of in compliance with applicable laws and regulations. When manifests are needed, the Emergency Coordinator shall see that they are prepared and, when appropriate, returned in the allotted time by the disposal site.
- **Review the contingency and spill plans.** Management and operating personnel shall review spill response efforts, notification procedures, and cleanup equipment usage to evaluate their adequacy during the episode. Where deficiencies are found, the PPC and SPCC Plan shall be revised and amended.

3.14.1.16 Internal Reporting via EHS Insight

Spills that are regulated per this Plan must be documented using the company's incident reporting system. The report shall be prepared by the Emergency Coordinator or their designated representative. At a minimum, the report will document the following items:

- Date/time/duration of release;
- Source and total volume(s) of the release;
- Spill cleanup procedures;
- Personnel who discovered and/or participated in the spill remediation;
- Equipment used during the cleanup;
- Waste disposal methods; and
- Unusual events, injuries, or agency inspections.

3.14.1.17 Communications

In the event of a fire, spill, or other emergency, verbal communications can be used to contact personnel.

3.14.1.18 Spill, Fire, and Safety Equipment

E-stops, fire detection, LEL and hydrogen sulfide (H_2S) detection sensors are located throughout the Facility.

Portable fire extinguishers are located throughout the Facility, are well marked, and are easily accessible. Records are kept on fire equipment in service, and regular inspection/testing is performed in accordance with established good procedures.

Oil-only and universal spill kits are located at the Facility. Spill kits are inspected monthly, and supplies are replenished as necessary.

For added safety, personnel are required to wear personal 4-gas monitors while on-site.

3.14.1.19 Liaison with Local Authorities

Copies of this Plan will be submitted to the local fire department, police department, and hospital as requested or needed by them. In addition, familiarization sessions will be held with personnel from these organizations, as they feel necessary. It is important that personnel responding to an emergency be familiar with chemicals used, the possibilities for releases of hazardous materials, and the location of the firefighting equipment.

Emergency Spill Control Network

As previously discussed, Archaea Energy Operating, LLC will ensure efforts to familiarize police, fire departments, emergency response teams, and the County Emergency Management Coordinator with the layout of the installation, the properties and dangers

associated with the hazardous materials handled, places where personnel would normally be working, entrances to roads inside the Facility, and the possible evacuation routes.

4 SPILL PREVENTION, CONTROL, AND COUNTERMEASURE (SPCC) PLAN

4.1 SPCC Plan Introduction

A non-transportation related facility is subject to Spill Prevention, Control, and Countermeasure (SPCC) regulations if the total aboveground storage capacity of oil exceeds 1,320 gallons; and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines. Each section heading in this Plan is followed by the corresponding regulatory citation from the Code of Federal Regulations (CFR). Each section then includes a discussion of the facility's conformance with the requirements of the referenced citation. A copy of this SPCC Plan will be kept on-site in the operations building, as well as maintained in electronic files in accordance with 40 CFR §112.3(e).

The Oil Pollution Act requires facilities that "could reasonably be expected to cause substantial harm to the environment by discharging into or on navigable waters" to prepare a facility-specific response plan. Archaea Energy, Inc. has determined (using published federal guidelines) that its facility does not meet the criteria of a facility that poses substantial harm (primarily based on the limited oil storage capacity).

The Certification of Substantial Harm Determination is included in Appendix A.

4.2 SPCC Plan Requirements Conformance [40 CFR §112.7(a)(1)]

This SPCC Plan was prepared in accordance with 40 CFR Part 112 and follows the specified sequence presented in 40 CFR Part 112.7 and 40 CFR Part 112.8.

4.3 SPCC Facility Requirements Conformance [40 CFR §112.7(a)(2)]

The Facility is in compliance with the requirements of 40 CFR Part 112. This SPCC Plan does not deviate from the requirements of 40 CFR Part 112.7(g), h(2), h(3), and (i) or from the requirements of 40 CFR Part 112 subparts B or C. See Table 4-1 for the SPCC regulation cross-reference table.

Table 4-1
SPCC Regulation Cross-Reference

Regulation	Description	Document Section
§112.3(d)	Professional Engineer Certification	N/A
§112.3(e)	Location of SPCC Plan	Section 4.1
§112.5(a)	Amendment of SPCC Plan	Section 1.1
§112.5(b)	Review of Plan	Section 1.1
§112.6	Self-Certification Statement	Section 1.2
§112.7	Management approval of Plan	Section 1.1
§112.7	Discussion of facilities, procedures, methods, or equipment not yet fully operational with details of installation and operational start-up	N/A
§112.7(a)(1)	General requirements; discussion of facility's conformance with rule requirements	Section 4.2
§112.7(a)(3)	Facility description and diagram, type of oil and capacity of each container, transfer stations and piping, buried containers on diagram	Section 4.3-4.4, Figure 1
§112.7(a)(3)(ii)	Discharge prevention measures	Section 4.6
§112.7(a)(3)(iii)	Discharge drainage controls	Section 4.6.1
§112.7(a)(3)(iv)	Countermeasures for discharge discovery, response, and cleanup	Section 4.7
§112.7(a)(3)(v)	Methods of disposal of recovered materials in accordance with legal requirements	Section 4.8
§112.7(a)(3)(vi)	Contact list and phone numbers for facility response coordinator, National Response Center, cleanup contractors, all Federal, State, and local agencies who must be contacted in case of a discharge	Section 4.9
§112.7(a)(4)	Spill reporting information	Section 4.10
§112.7(a)(5)	Discharge procedures	Section 4.7 & 4.11
§112.7(b)	Failure prediction (sources, quantities, rates, and directions)	Table 2-2, Section 4.12
§112.7(c)	Secondary containment for all areas from which a discharge of oil could occur (i.e. mobile refuelers, loading/unloading areas, transformers, oil-filled operational equipment, etc.) other than bulk containers	Table 2-2, Section 4.13
§112.7(e)	Written procedures for inspections and tests	Section 4.15
§112.7(e)	Records of inspections and tests signed and kept 3 years	Section 4.15
§112.7(f)(1)	Employee training	Section 4.16
§112.7(f)(2)	Designated individual accountable for discharge prevention	Section 4.16
§112.7(f)(3)	Discharge prevention briefings scheduled and conducted annually	Section 4.16
§112.7(g)	Security: How oil handling, processing and storage areas are secured, and access is controlled	Section 4.17

Regulation	Description	Document Section
§112.7(g)	Security: How master flow and drain valves of containers are secured	Section 4.17.2
§112.7(g)(3)	Security: How unauthorized access to starter controls on oil pumps is prevented	Section 4.17.3
§112.7(g)(4)	Security: How tank loading/unloading connections are secured	Section 4.17.4
§112.7(g)(5)	Security: Appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharges is addressed	Section 4.17.5
§112.7(h)(1)	Containment for contents of largest compartment	Section 4.18
§112.7(i)	Brittle fracture or catastrophic failure evaluation requirements	Section 4.19
§112.7(j)	Conformance with State requirements	Section 4.20
§112.8(a), §112.12(a)	Meet general and specific requirements	Section 4.22
§112.8(b)(1), §112.12(b)(1)	Facility drainage: Restrain drainage from diked areas; inspect accumulation	Section 4.23 & 4.24.3
§112.8(c), §112.12(c)	Bulk storage containers	Section 4.24
§112.8(d), §112.12(d)	Facility transfers operations, pumping and facility process	Section 4.25-4.29
§112.20(e)	Completed and signed certification of substantial harm form	Appendix A

Note: If a provision is not listed, then the provision is not applicable to this facility.

4.4 SPCC Facility Diagram and Physical Layout [40 CFR §112.7(a)(3)]

The Facility is located at 20661 Newport Coast Drive, Newport, Beach, Orange County, CA within the OCWR Coyote Canyon Landfill property. The Facility will consist of gas processing skids and equipment used to beneficially recover the methane portion of LFG to produce RNG. The Facility has bulk oil storage containers (above ground tanks) and operational oil storage as described in the following section.

Figure 1 contains a site diagram of the Facility that marks the location and contents of each oil storage container and the location of all transfer stations and connecting pipes.

4.5 Oil Type and Storage Capacity [40 CFR §112.7(a)(3)(i)]

This section describes the bulk oil storage containers and oil-filled equipment located at the Facility.

4.5.1 Bulk Oil Storage Containers

The locations of oil storage at the site are shown in Figure 1. The Facility maintains the following oil storage regulated by SPCC, as listed in Table 2-2.

4.5.2 Operational Oil Storage

See Table 2-2.

4.6 SPCC Discharge Prevention Measures [40 CFR §112.7(a)(3)(ii)]

This section presents those measures that have and will be taken to prevent the discharge of oil to navigable waters as defined in 40 CFR 112.1. Discharge prevention measures are comprised of operational procedures/practices and structural type controls (e.g. secondary containment structures) used to minimize the possibility of a discharge. Activities performed to prevent the discharge of oil to navigable waters once oil has been released from containers/equipment (emergency spill response) is not a discharge prevention measure, but a discharge countermeasure as discussed in Section 4.7.

4.6.1 Oil Storage Containment [40 CFR §112.7(a)(3)(iii)]

All oil stored in containers and equipment regulated under 40 CFR 112 must have some form of physical containment that precludes the discharge of oil to navigable waters. If providing containers/equipment with containment is impracticable, the plan must explain why and include an oil spill contingency plan following the provisions of 40 CFR 109.

At the Facility, all equipment/containers that use or store oil have secondary containment, and each is discussed in the following sections. Secondary containment system requirements vary between bulk oil storage (e.g. new and used oil) and operational oil storage (e.g. engine oil reservoirs). All operational and bulk storage containers must meet the general requirements specified in 40 CFR 112.7(c). Additionally, bulk storage containers are subject to 40 CFR 112.8(c) (presented in Section 4.24 of this Plan).

4.6.1.1 Bulk Storage Tanks/Secondary Containment

For the initial design and installation of the Facility, no bulk storage tanks are being proposed. Any totes/drums and containers onsite greater than 55-gallons will be situated within secondary containment.

4.6.1.2 Operational Oil Storage Containment

The oil-filled compressors are situated on secondary containment skids. Spills/releases from the compressors would be contained in the secondary containment below the compressor. If a spill escaped the containment, it would be contained on the concrete pad

and appropriately managed using active spill containment. Containments will be visually checked and cleaned during operator rounds.

The oil-filled transformers are situated on a concrete pad. Operators will provide the appropriate spill response in the event of a leak or release.

4.6.2 Aboveground Piping Protection from Vehicular Traffic

All aboveground piping is within the protection of the containment area. No bumpers or other means of protection are required.

4.6.3 New Oil Receiving

New compressor oil is delivered in IBC totes or drums. Warning signs are posted, and wheel chocks are used to prevent vehicle movement. Personnel are present during deliveries, and totes/drums are inspected for damage/leaks. A spill kit is available in the immediate area of the delivery.

4.6.4 Used Oil Loadout

Warning signs are posted, and wheel chocks are used to prevent vehicles from departing before complete disconnection of flexible oil transfer lines. Proper flexible hose hookups are made to connect the vacuum truck to the used oil storage tank. Prior to beginning the transfer, site personnel inspect the tank level gauge to ensure that adequate space is available within the tanker truck to accept the used oil pickup and inspect the hose connections to verify that they are secure. Personnel are present throughout all transfer operations to maintain communication with the tanker delivery driver and monitor the storage tank sight glass while filling. Once the transfer is complete, personnel verify that all isolation valves have been returned to the closed position before disconnecting the transfer hoses. Prior to departure, the vehicle outlets and drains are examined to verify caps are in place. A spill kit is available in the immediate area of the used oil loadout.

Warning signs will be used at the Facility to prevent vehicles from departing prior to completely disconnecting from transfer lines. The signage shall instruct the attendant loading or unloading to examine valves, hoses, connections, fittings, and lowermost drain and outlets of their vehicles for leakage prior to loading, unloading or departure. See Appendix B.

4.7 SPCC Oil Release Countermeasures [40 CFR §112.7(a)(3)(iv)]

This section presents the countermeasures (discovery, response, and cleanup procedures) that the Facility personnel must take in the event of an oil release. In accordance with 40 CFR Part 112.7(a)(5), this portion of the Plan is organized in a way that will make procedures

readily usable in an emergency. Supporting materials are included as appendices. The basic components are listed below:

1. Spill discovery and notification;
2. Immediate response actions;
3. Cleanup activities; and
4. Waste disposal.

Except for a catastrophic event, it is not anticipated that an oil spill at the Facility will require the assistance of an emergency response contractor. It is the responsibility of the Facility operators and Plant Manager to determine if outside assistance is required.

4.7.1 Discharge Discovery and Notification

Facility personnel routinely inspect the tanks and surrounding area for any discharge from the tanks. Walking past the storage tanks provides the Facility personnel with an opportunity for discharge discovery multiple times per week.

Once a discharge is detected (or suspected) the Lead Operator/Emergency Coordinator shall be notified immediately. Landfill personnel will be notified if the discharge leaves the leased parcel or threatens the landfill's on-site stormwater or leachate containment ponds. Federal, state, and local agencies shall be contacted if the discharge leaves the Landfill property. Additional contact information is provided in Sections 4.9 and 4.10 of this Plan.

4.7.2 Discharge Response

Immediate response activities are performed from the time of spill detection (or if a release is suspected) to the time the leak is stopped (if possible) and the spill is contained. The Lead Operator/Emergency Coordinator is in charge of implementing spill containment procedures by providing oversight and guidance during response. If required, the services of a spill response contractor (see Appendix C) should be obtained. To the extent feasible, all oil spills must be prevented from leaving the property and entering the stormwater drainage system.

If a spill does reach the stormwater drainage system, immediately set up a series of downstream booms using on-site spill response equipment to skim oil from the surface of the water. If larger booms are required than those maintained on-site, contact a spill response contractor designated in Appendix C.

4.7.3 Discharge Cleanup

Cleanup activities begin following spill containment and conclude with full site remediation. Cleanup objectives include the following:

- Removal of oil from storm drainage system and waterways;

- Removal of free product; and
- Removal of contaminated materials.

Expedite cleanup activities to minimize adverse environmental impacts caused by the release. Attempt to recover as much free product as possible, thus minimizing the amount of oil infiltrating into underlying soils. Oil can impair (i.e. soften) an asphalt surface if left in contact with it too long. Stormwater drainage systems need to be thoroughly cleaned to prevent further migration of oil during subsequent rainfall events. A list of equipment and supplies to utilize in the cleanup activities that are available at the Facility are listed in Appendix D. Other equipment needed may be available from local equipment rental companies or from spill response contractors (Appendix C).

4.7.3.1 Removal of Product

Removal of oil as a liquid may be required as part of cleanup efforts. Oil requiring removal may be in diked areas, stormwater drains, or atop water.

For small volumes of oil recovered, a closed-top, 55-gallon drum can be used to temporarily store the recovered oil. Larger volumes may require a tanker for storage of the oil. Appendix C provides a listing of local companies that supply tankers. Additionally, vacuum truck services are available from a limited number of the companies identified.

Close attention should be paid to the filling operations to minimize any spillage that may occur. Oil absorbent booms and granules should be available to clean up minor spills. Spent cleanup material should be immediately placed in open-top, 55-gallon drums or other suitable containers and then sealed.

4.7.3.2 Removal of Contaminated Media

The Lead Operator/Emergency Coordinator will determine the magnitude of the cleanup activities governed by current regulations. Remediation may involve the excavation of soils either manually or with the use of heavy equipment. Develop waste type and quantity estimates for obtaining proper disposal approvals. Waste characterization sampling may be required. The Lead Operator/Emergency Coordinator may coordinate water and/or soil sampling to verify that applicable cleanup standards have been met.

Contain oil-contaminated materials (i.e. excavated soils, absorbent materials, etc.) in drums or placed directly into plastic lined dump trucks (or other containers determined to be appropriate for transportation and disposal). Avoid stockpiling materials in open areas since this requires additional material handling and could spread the contamination. If temporary stockpiling cannot be avoided, line the temporary storage area with heavy gauge plastic sheeting, and berm around the edges of the area. Cover the material with plastic sheeting and secure with sandbags.

Ensure that materials destined for disposal as solid waste are void of free liquids. If necessary, place drier soil and/or absorbent material into the drums/trucks to soak up any free liquids that may drain from saturated materials. If possible, mix the materials in the drums or truck to alleviate this situation. Cover dump trucks after filling to avoid exposure to precipitation. Dump trucks containing contaminated materials shall not be left uncovered overnight.

4.7.3.3 Removal of Oil from Stormwater Drainage System and Waterways

Releasing oil into a waterway in sufficient amounts to cause a visible sheen or bottom sludge is a violation of state and federal water quality standards. Remediation is not complete until all visible indications of oil have been removed. Small areas may be soaked up using oil absorbent mats. Oil booms can be used to contain oil on water surfaces. Large surface areas may require the use of an oil skimmer.

Remove oil released into dry stormwater drains to prevent the migration and contamination of waterways during future precipitation events. Future stormwater discharges from these conveyances should be monitored for signs of oil.

4.8 Recovered Material Disposal Methods [40 CFR §112.7(a)(3)(v)]

All oil-contaminated material will be disposed of in accordance with federal, state, and local regulations. Anticipated waste streams generated from the cleanup of an oil spill may include liquid oil, water-contaminated oil, oily water, and oil-contaminated solids (e.g. soils, gravel, absorbent materials, and personal protective equipment) that do not contain free liquids.

The Facility maintains a list of waste oil disposal companies (Appendix C) that provide transportation and disposal of waste oil and oily water. Oil, which after recovery can no longer be used as originally intended, will be disposed of as waste oil under all current and applicable regulations. Waste disposal companies can provide guidance on oil disposal or recycling of collected oil.

Oil-contaminated solids (i.e. soils, absorbent materials, clothing, etc.) which do not contain any free liquids may be allowed to be disposed of at the GFL Hickory Meadows Landfill pending approval from landfill representatives.

4.9 Discharge Contact List [40 CFR §112.7(a)(3)(vi)]

Appendix E presents a contact list with phone numbers for the National Response Center, and other federal, state, and local agencies that must be contacted in case of a discharge of oil (as described in §112.1(b)) from a facility into or upon the navigable waters of the United States or adjoining shorelines (which is generally defined as any lake, river, or stream

utilized for travelling, recreation, or other purpose) that causes a film or sheen upon, or discoloration of, the surface of the water or adjoining shorelines or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

4.10 Discharge Reporting Procedure [40 CFR §112.7(a)(4)]

This section provides information and procedures (i.e. emergency notification requirements) that will enable a person reporting a discharge as described in §112.1(b) to relate the information required in §112.7(a)(4).

4.10.1 Internal Notification

Except for minor releases, Facility personnel shall immediately notify the Plant Manager when there is an oil release. Minor releases are those that can quickly be cleaned up by on-site employees using custodial supplies/equipment. Small spills within containment structures or on asphalt or concrete are considered minor. Employees must immediately report to the Plant Manager if oil is released to a stormwater culvert or gravel, soil, or vegetated area.

The Lead Operator/Emergency Coordinator shall notify landfill personnel if a release leaves the leased property or threatens the landfill's on-site stormwater and leachate collection ponds.

4.10.2 Notification of Regulatory Agencies

The Lead Operator/Emergency Coordinator is responsible for determining whether a particular spill event is reportable (based on information known to him/her) and for notifying the appropriate regulatory agency. In ascertaining whether (and to whom) a spill is reportable, the Lead Operator/Emergency Coordinator will use the following guidelines:

1. If the oil has the potential to reach navigable waters that causes a film or sheen upon, or discoloration of, the surface of the water or adjoining shorelines or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines, immediately notify the National Response Center at 1-800-424-8802.
2. The Lead Operator/Emergency Coordinator shall be prepared to report the following information to the regulatory agency contacted:
3. Address and phone number of Facility;
4. Spill date/time;
5. Type of material spilled;
6. Estimates of total quantity spilled;
7. Estimated of total quantity spilled into navigable water;

8. Source of the spill;
9. Description of affected medium;
10. Cause of the spill;
11. Damages or injuries caused by spill;
12. Actions being used to mitigate effects of discharge;
13. Whether an evacuation may be needed; and
14. Individuals/organizations who have been contacted.

Contact names and phone numbers are provided in Appendix E and Section 2.1 of this Plan. Appendix F contains a discharge notification form for collecting information that will need to be provided to the National Response Center.

4.11 Discharge Response Procedure [40 CFR §112.7(a)(5)]

Discharge response procedures (i.e. countermeasures) that the Facility personnel must take in the event of an oil release are specified in Section 4.7 of this Plan.

4.12 Equipment Failure Discharge Prediction [40 CFR §112.7(b)]

The probability of an oil discharge reaching off-site navigable water is extremely remote. The off-site release of oil would most likely occur as the result of oil being transported by stormwater during a heavy rainfall event, coupled with the failure of on-site spill control procedures or failure of secondary containment. To date there have been no discharges from the Facility.

The most probable equipment failure discharge scenarios are the following:

- An uncontrolled release during the removal of the oily layer from the OWS;
- Sudden rupture or equipment failure (i.e. a compressor, releasing oil content);
- Tote overfill or transfer hose break (tanks filled infrequently, but could release around 15 gal.);
- Leaks at the compressors, or oil coolers;
- The complete emptying of one tanker truck compartment, typically 1,000 gallons or less of condensate (a worst-case scenario). This situation would occur only if operational equipment or secondary containment systems experienced failure.

Unless secondary containment is provided, overflows and leaking equipment will flow onto the concrete pad underneath and/or beside the equipment. Spill response includes active containment with spill kit materials. Operators are trained to provide appropriate spill response.

See Table 2-2 for container-specific release volumes, predicted directions for flow, leak prevention/spill containment measures, and overfill prevention information.

4.13 Discharge Containment Structures [40 CFR §112.7(c)]

The Facility utilizes discharge containment structures as described in Section 4.6 of this Plan. The structures are capable of containing oil and are constructed so that any discharge will not escape the containment system before cleanup occurs.

4.14 Oil Spill Contingency Plan [40 CFR §112.7(d)]

Discharge containment structures utilized at the Facility are described in Section 4.6 of this Plan and are not deemed impractical. Therefore, an oil spill contingency plan and a written commitment of manpower, equipment, and materials to control and remove a discharge (as described in §112.7(d)(1) and §112.7(d)(2), respectively) are not required.

4.15 Facility Inspections, Tests, and Records [40 CFR §112.7(e)]

Facility operators will conduct inspections and tests and maintain equipment/containers as specified in this section. Written procedures and records of inspections and tests, signed by the appropriate supervisor or inspector, will be maintained on file for a period of at least three years.

4.15.1 Inspections and Tests

The oil storage containers included in this Plan shall be inspected or tested on a regular schedule and whenever material repairs are made. Integrity testing of aboveground storage tanks shall be in accordance with the Consensus Code Steel Tank Institute (STI) SP001, an accepted industry testing and inspection practice. The testing schedule, as recreated from Table 5.5 of the 5th Edition (2011) of SP001, shall be as follows:

Table 4-2
SP001 Testing Schedule

AST Type and Size (gallons)		Category 1
Shop Fabricated ASTs	0 - 1,100	P
	1,105 – 5,000	P
	5,001-30,000	P, E(20)
Portable Container (drums, totes)		P
Where: P = Periodic AST inspection by owner E = Formal exterior inspection by certified inspector (20) = Maximum inspection interval in years		

The tank categories are defined in SP001 and are based on the ability to detect releases and provide spill control. Double walled tanks and single walled tanks located within secondary containment dike/berm are considered Category 1, as they provide both a means to detect releases and control spills. See Appendix G for a copy of the STI SP001.

Per SP001, all oil tanks require periodic inspection by the owner.

The Facility is required to perform monthly visual inspections of all aboveground tanks and aboveground piping included in this SPCC Plan. Monthly inspection forms are provided in Appendix H. Monthly inspections are conducted in accordance with the requirements of 40 CFR 112(c)(6) and 40 CFR 112.8(d) and typically involve a visual inspection to identify any oil staining, spills or leaks, and corrosion of tanks and associated piping. Adjustments and repairs are performed as necessary and recorded with inspection records. Inspections of leak detection equipment and spill response materials must also be conducted monthly. Piping inspections include observation of the condition of each item such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces. A facility inspection summary is included in Table 4-3.

Table 4-3
Facility Inspection Summary

Inspection Item	Inspection Method	Inspection Schedule
Aboveground bulk storage containers	Visual inspection	**Monthly** and whenever material repairs are made
Container supports and foundations	Visual inspection	**Monthly** and whenever material repairs are made
Liquid level sensing devices	Test for proper operation	**Monthly**
Dike containment areas, double wall tank interstices, secondary containment basins and transfer areas	Visual inspection of container integrity and signs of release or accumulation of oil or water inside diked areas	**Monthly**
Liquid accumulated within containment areas	Visual inspection	**Prior to** and **following** all transfer events
Aboveground valves, piping, hoses, dispensers, and appurtenances	Visually inspect the condition of items such as flange joints, valve glands and bodies, spill buckets, pipeline supports, locking of valves, and metal surfaces	**Monthly**
Overall Facility compliance and in-depth aboveground bulk storage container	Visual inspection	**Annually**

*Monthly and annual inspections are documented for recordkeeping.

4.15.2 Records

Maintaining records required by this SPCC Plan is the direct responsibility of Archaea Energy, Inc. All records, reports, inspections, checklists, etc. specified in this SPCC Plan are to be kept on file for at least a period of three years. Records of inspections, testing, and maintenance activities required by this Plan may be kept using plant recordkeeping systems already in place. Use of the log sheets provided in the appendices is not required. However, any alternate recordkeeping system should include the items specified in the Appendix H and I logs.

4.16 Discharge Prevention Training [40 CFR §112.7(f)]

The Facility is responsible for properly instructing its personnel in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and the contents of the SPCC Plan.

Facility personnel whose job requirements relate to oil handling are properly trained in equipment use, maintenance, operation, and inspection. A record of all personnel qualified to handle oil shall be maintained by the Facility.

The Facility is responsible for ensuring that spill prevention briefings are conducted for respective operating personnel at intervals frequent enough to assure adequate understanding of this SPCC Plan. Such briefings highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.

Briefings and/or training shall be conducted as necessary and annually at a minimum. The records of these meetings (content of training and/or sign-in sheets) will be filed in Appendix I.

The Lead Operator/Emergency Coordinator is responsible for discharge prevention in accordance with the requirement of 40 CFR 112.7(f)(2).

4.17 Security [40 CFR §112.7(g)]

This section describes the security in place at the Facility. Facility personnel are on call twenty-four hours per day. 24-hr phone numbers are provided in Appendix E. Strict security of the oil handling and storage equipment is maintained. The buildings are locked when unoccupied. The site is fenced, and gates are locked when the site is unoccupied. All operators have keys to the fence gates and buildings. A set of keys is provided to landfill personnel.

4.17.1 Fencing [40 CFR §112.7(g)(1)]

The Facility is enclosed by fencing that is kept in good repair. The fencing is gated and locked from the hours of 4:00 p.m. to 7:00 a.m. Monday through Friday and on weekends.

4.17.2 Master Flow and Drain Valves [40 CFR §112.7(g)(2)]

The Facility is either occupied by employees or locked during non-working hours; therefore, access to the flow control valves on the condensate tanks is limited.

4.17.3 Oil Pump Starter Control [40 CFR §112.7(g)(3)]

Oil is pumped from storage totes using a pneumatic diaphragm pump. The pump secured when not in use. The Facility is either occupied by employees or locked during non-working hours; therefore, access to the pump controls is limited.

4.17.4 Piping and Loading/Unloading Connections [40 CFR §112.7(g)(4)]

The loading/unloading connections to the storage tanks are physically capped when not in use.

4.17.5 Facility Lighting [40 CFR §112.7(g)(5)]

Outdoor lighting is adequate for all nighttime operations conducted at the Facility to aid in the discovery of discharges and the prevention of vandalism.

4.18 Tank Loading/Unloading Rack [40 CFR §112.7(h)]

This Facility does not have a loading rack, and thus a secondary containment structure for a tank truck unloading area is not required.

4.19 Post Repair/Failure Container Evaluation [40 CFR §112.7(i)]

The ASTs at this Facility are not field-constructed.

4.20 Discharge Prevention Conformance [40 CFR §112.7(j)]

To the best of its knowledge, the Facility is in conformance with all applicable discharge prevention and containment requirements and procedures contained in 40 CFR Part 112 and all other state regulations.

4.21 Qualified Oil-Filled Equipment [40 CFR §112.7(k)]

Except for the transformers, secondary containment is provided for oil-filled operational equipment as described in Section 4.6.1.2 of this Plan. Therefore, alternative requirements for qualified oil-filled equipment are not necessary.

4.22 General Requirements [40 CFR §112.8(a)]

This SPCC Plan meets the general requirements listed in 40 CFR Part 112.7 and the special requirements listed in 40 CFR Part 112.8.

4.23 Drainage of Diked Areas [40 CFR §112.8(b)]

Secondary containment and drainage controls are described in Section 4.6 of this Plan. The diaphragm pumps are manually activated, and the drain valves are not of flapper-type design. The accumulated material is inspected for oil before discharge.

4.24 Bulk Storage Containers [40 CFR §112.8(c)]

This section describes compliance with the requirements specified in §112.8(c) that are specific to bulk storage containers.

4.24.1 Storage Container Material Compatibility [40 CFR §112.8(c)(1)]

All bulk storage containers, piping, valves, fittings, etc. at the Facility are made of materials that are compatible with the product stored (new or used lube/compressor oils). The piping, valves, and fittings are coated steel.

The exposed exterior surfaces of all aboveground tanks, piping, and ancillary equipment at the Facility shall sandblasted and protected from corrosion. Protection must be provided by the following:

- Paints, consisting of an inhibitive primer coat, intermediate inhibitive, and two or more final coats applied to a properly prepared surface or an equivalent or better surface coating.
- For any spot corrosion, the area should be sanded by hand (wire wheel or similar) and re-coated with two or more topcoats of PPG Amerlock 2 Epoxy in white. This paint has built in inhibitors/rust protection and UV protection. It is part number AK2-3.

The two condensate tanks were built to UL-142 standards and were commercially blasted and lined with Phenicon (an epoxy lining).

4.24.2 Secondary Containment of Storage Containers [40 CFR §112.8(c)(2)]

Secondary containment for the two bulk storage oil containers at the Facility is described in Section 4.6 of this Plan.

4.24.3 Drainage of Rainwater from Diked Areas [40 CFR §112.8(c)(3)]

The inspection of and procedure for drainage of rainwater from diked areas is described in Section 4.6 of this Plan.

4.24.4 Buried Tank Corrosion Protection [40 CFR §112.8(c)(4)]

The Facility will have an underground OWS (550 gal.). It is a HighGuard, double-walled tank. HighGuard Tanks feature a strong dielectric coating of high solids polyurethane for protection. The HighGuard protective coating is a dense, solvent-free, tar-free, two-component coating system with high impact properties and tensile strength. The superior strength coating resists surface damage during transportation and/or installation. HighGuard does not require cathodic protection or corrosion monitoring. The finished tank is quality checked by a spark test to ensure coating integrity and effective corrosion protection.

4.24.5 Partially Buried Tank Corrosion Protection [40 CFR §112.8(c)(5)]

N/A

4.24.6 Container Integrity Testing [40 CFR §112.8(c)(6)]

EPA suggests adhering to industry standards for integrity testing when applicable. For shop-built storage tanks, the most current version of Steel Tank Institute (STI) "Standard for Inspection of In-Service Shop Fabricated Above Ground Tanks for Storage of Combustible and Flammable Liquids, SP001-05" (Appendix G), is a widely used and accepted industry standard.

Periodic visual inspections of the tanks are performed by Facility personnel as discussed in Section 4.15 to detect any unusual corrosion or tank deformation between the integrity testing events.

4.24.7 Heating Coil Leakage Control [40 CFR §112.8(c)(7)]

N/A

4.24.8 Container Discharge Avoidance Engineering [40 CFR §112.8(c)(8)]

Both condensate tanks are equipped with a level indicator that quickly responds to liquid level changes in the tank. The gauges are clearly visible during tank filling operations. When unloading/loading occurs, personnel are always present to monitor the liquid level by observing the gauges.

Totes and oil-filled equipment can be visually checked for level, and monitored during filling/emptying activities.

4.24.9 Treatment Facility Observation [40 CFR §112.8(c)(9)]

N/A

4.24.10 Visible Discharge Correction [40 CFR §112.8(c)(10)]

Any visible evidence of leaks that occurring from the containment structure (e.g. seams, gaskets, piping, pumps, valves, rivets, bolts) will be promptly cleaned and corrected.

4.24.11 Portable Storage Containment [40 CFR §112.8(c)(11)]

Site operators and any outside contractors will ensure that mobile or temporary oil storage containers brought on-site are equipped with secondary containment.

4.25 Buried Pipeline Corrosion Protection [40 CFR §112.8(d)(1)]

N/A.

4.26 Terminal Connection Capping [40 CFR §112.8(d)(2)]

The loading/unloading connections to the storage tanks are capped and locked when not in use.

4.27 Pipe Support Design [40 CFR §112.8(d)(4)]

The pipe supports at the Facility are designed to minimize abrasion and corrosion, and allow for thermal expansion and contraction.

4.28 Pipe System Inspections [40 CFR §112.8(d)(4)]

As stipulated in Section 4.15, Facility personnel conduct monthly inspections of all above ground valves, piping, dispensers and other oil transfer appurtenances. Inspection results are recorded on the log sheet in Appendix H.

4.29 Vehicle Damage to Piping Warning [40 CFR §112.8(d)(5)]

Piping is overhead on pipe supports. Tanks and piping are protected from vehicle damage.

FIGURES

Figure 1
Site Layout Map – Oil Storage Locations

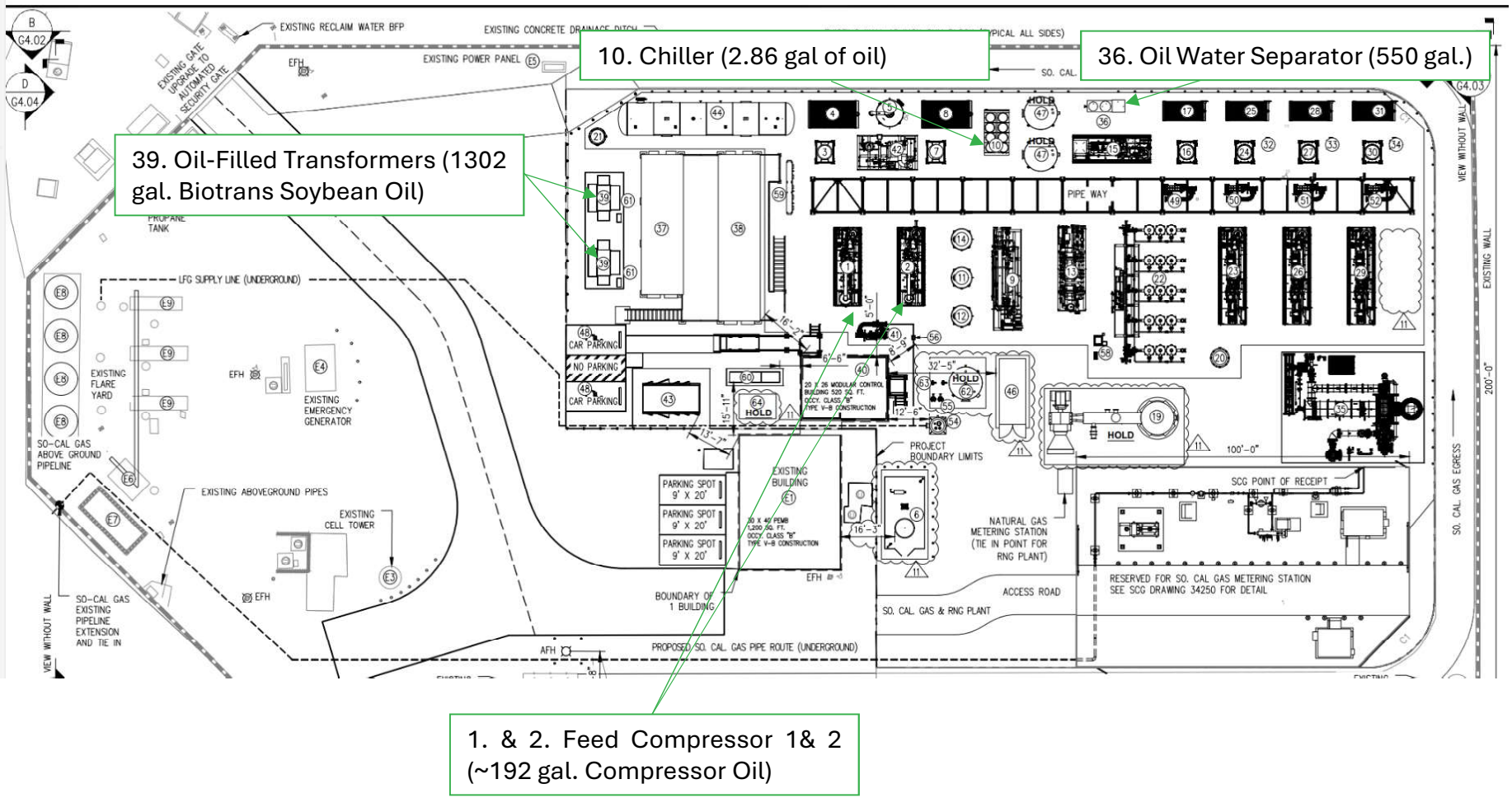

Figure 2
Site Safety Map –

(To be updated or supplemented after construction with locations of online Methane and Hydrogen Sulfide Leak Detection Sensors, and locations of Fire Extinguishers, First Aid Kits, Eye Wash Bottles/Station.)

APPENDIX A
Applicability of the Substantial Harm Criteria Checklist

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA CHECKLIST

Facility Name: **Biofuels Cayote Canyon Biogas**

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

   Yes: No: **X**

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

   Yes: No: **X**

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the formula in Attachment C-III), Appendix C, 40 CFR 112) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

   Yes: No: **X**

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula (Attachment C-III, Appendix C, 40 CFR 112) such that a discharge from the facility would shut down a public drinking water intake?

   Yes: No: **X**

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

   Yes: No: **X**

Certification: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: _____ Date: _____

Emily Zambuto, Executive Director of Environmental Compliance

APPENDIX B
Notice to Petroleum Vendors/Fuel & Oil Transfer Checklist

NOTICE TO PETROLEUM PRODUCT VENDORS

November 2024

To: All Bulk Petroleum Product Vendors
From: Coyote Canyon Biogas, LLC ● Lead Operator #: TBD
~~231-334-4322~~

Petroleum product vendors who deliver, load, unload, or pick up petroleum/oil-based products or used oil to or from our facility are required to comply with the following:

Exercise caution when maneuvering vehicles to avoid damage to secondary containment structures.

Drivers are to be present and alert while monitoring the transfer of petroleum product full time while product is being transferred to or from on-site storage containers.

Chock the tank truck wheels while loading or unloading tanks and do not remove the wheel chocks until after the transfer is complete and the transfer hose is disconnected to prevent an accidental drive-off without removing the transfer hose.

Prior to filling and departure, closely inspect for discharges at the lowermost drain and all outlets of the tank truck, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.

Continuously monitor for potential tank overfills while loading or unloading storage containers. Check the freeboard capacity of containers prior to filling to estimate the volume to fill the tank and visually monitor the filling process to ensure the tank does not overfill. For tanks with audible air vent alarms, continuously listen for the audible air vent overfill warning whistle.

Promptly stop and clean up any petroleum product leaks or spills that occur while loading or unloading containers.

Immediately report leakage or spillage requiring assistance of site personnel to clean up to Hickory Meadows Landfill site management.

Prior to loading/unloading, place an empty container under the hose end to be disconnected first with enough capacity to catch the remaining liquid in the transfer hose. Verify that appropriate valves are closed before disconnecting loading/unloading lines. Prior to disconnecting the transfer hose, gravity drain remaining product in the hose to the lowest container.

This notice is provided for your information to make you aware of these requirements to help us limit the potential for spills at this facility during transfer operations.

APPENDIX C
Tanker Supplier/Oil Spill Cleanup Services

<table>
<tr><th colspan="2">LOCAL REMEDIATION SERVICES</th></tr>
<tr><td colspan="2">Clean Harbors / Safety Kleen</td></tr>
<tr><th>SPILL CLEANUP SERVICES</th><th>VACUUM TRUCK SERVICES/CLEANUP</th></tr>
<tr><td>MSA & Emergency Response Services
Provided by
Clean Harbors / Safety Kleen
ariaenergy@cleanharbors.com
1-800-OIL-TANK</td><td rowspan="3">Clean Harbors / Safety Kleen
ariaenergy@cleanharbors.com</td></tr>
<tr><th>USED OIL RECYCLING</th></tr>
<tr><td>Clean Harbors / Safety Kleen
ariaenergy@cleanharbors.com</td></tr>
</table>

APPENDIX D
Spill Response Equipment/Supplies

Spill Response Equipment/Supplies	
Expendable Materials/Supplies	**Quantity**
PIG® Spill Kit in 50 Gallon Wheeled Overpack Salvage Drum, Item # KIT272 which contains:	1
3” x 48” L PIG® Blue Absorbent Sock (4048)	5
3” x 10” L PIG® Blue Absorbent Sock (PIG202)	5
PIG® Absorbent Mat Pad (MAT203)	40
PIG® Absorbent Pillow (PIL201)	4
PIG® PR40 All-Purpose Wipers (WIP310)	56
2” x 6” L Tamperproof Seal Label (LBL100)	6
36” x 60” H Polyethylene Disposable Bags (BAG201-L)	5
PIG® Spill Kit in 50 Gallon Wheeled Overpack Salvage Drum, Item # KIT402	2
Nitrile Gloves, Apron, Goggles	1
Fire Extinguisher	10
Equipment	**Quantity**
Broom & Dustpan	1
Shovel	1

APPENDIX E
Spill Notification Call-Out List

Critical Call List / Emergency Phone Numbers

Facility Address/Phone:

Coyote Canyon Biogas Facility
20661 Newport Coast Drive
Newport Beach, CA 92660

Facility Owner/Operator:

Biofuels Coyote Canyon Biogas, LLC
c/o Archaea Energy Operating
201 Helios Way, Floor 6
Houston, TX 77079

Facility Contacts / Critical Call List / Emergency Phone Numbers

Name	Title	Telephone
TBD	Operator Technician	
Steven Henry	Regional Operations Manager	858-357-1256
JP McNeil	Interim Vice President of RNG Operations	404-862-3782
Emily Zambuto	Exec. Director of Environmental Compliance	585-278-4773
TBD	Field Safety Manager	
Sam Gilley	Sr. Field Safety Manager	979-220-7651
Archaea Emergency	Emergency Call Service	855-595-5319

AMBULANCE, FIRE, POLICE, RESCUE: 911

Hoag Hospital
1 Haog Drive
Newport Beach, CA 92663
p. 949-764-4624

Poison Control Center: 800-222-1222

Medcore (non-emergency injuries/illness): 877-222-1222

SPILL NOTIFICATION TELEPHONE NUMBERS

National Response Center:	800-424-8802
California OES:	800-52-7550
Anaheim City Fire Dept.	714-765-4072
Orange Co. Env. Health	714-433-6406

Note: Notifying the State Warning Center (800) 852-7550 and the UPA or 911 constitutes compliance with the requirements of section 11004 of title 42 of the United States Code regarding verbal notification of the SERC and LEPC (California Code of Regulations, Title 19 Section 2631 (e).

EMERGENCY SPILL RESPONSE

Clean Harbors: 800-OIL-TANK

ARCHAEA ENERGY
a bp company

APPENDIX F
Discharge Notification Form

In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information will be provided to the National Response Center ***(also see the notification information provided in Section 4.9 of the Plan)***:

DISCHARGE NOTIFICATION FORM (information provided to the National Response Center in the event of a discharge)			
Discharge/Discovery Date		Time	
Facility Name			
Facility Location (Address/Lat-Long/Section Township Range)			
Name of reporting individual		Telephone #	
Type of material discharged		Estimated total quantity discharged	Gallons/Barrels
Source of the discharge		Media affected	☐ Soil ☐ Water (specify) ☐ Other (specify)
Actions taken			
Damage or injuries	☐ No ☐ Yes (specify)	Evacuation needed?	☐ No ☐ Yes (specify)
Organizations and individuals contacted	☐ National Response Center 800-424-8802 Time ☐ Cleanup contractor (Specify) Time ☐ Facility personnel (Specify) Time ☐ State Agency (Specify) Time ☐ Other (Specify) Time		

APPENDIX G
Steel Tank Institute Standard for Inspection of In-Service Aboveground Tanks (SP001)

STANDARD FOR THE INSPECTION OF ABOVEGROUND STORAGE TANKS

SP001

February 2024
7th Edition

Steel Tank Institute
A Division of STI/SPFA
944 Donata Court
Lake Zurich, IL 60047
847-438-8265
www.stispfa.org

TABLE OF CONTENTS

PREFACE

The Steel Tank Institute (STI), formed in 1916, is a not-for-profit organization whose purpose is to secure co-operative action in advancing by all lawful means the common purposes of its members and to promote activities designed to enable the industry to conduct itself with the greatest economy and efficiency. It is further the purpose of STI to cooperate with other industries, organizations, and government bodies in the development of reliable standards which advance industry manufacturing techniques to solve market-related problems.

This Standard was developed by the Steel Tank Institute AST Inspection Standards Committee. STI published the first edition of SP001 in September 2000, and the document has been updated on a regular basis since.

Previous editions include:

- 1st Edition – September 2000
- 2nd Edition – Unpublished
- 3rd Edition – January 2003
- 4th Edition – July 2006
- 5th Edition – September 2011
- 6th Edition – January 2018

This 7th Edition was prepared by the AST Inspection Standards Committee which was comprised of the following members and alternates:

Sonny Underwood, Chair
Mid-South Steel Products, Inc.
Cape Girardeau, MO

Tim Woofter, Co-Chair
Stanwade Metal Products, Inc.
Hartford, OH

Steve Allwein
Morrison Bros. Co.
Severna Park, MD

Greg Bareta
Storage Tank Regulation/Bureau of
Weights & Measures/Wisconsin DATCP
Madison, WI

Matt Bjornson
Bjornson Oil Company
Cavalier, ND

Jeff Burton
AGI Envirotank Ltd.
Biggar, SK, Canada

Kimberly Churchill
US EPA Region 5
Chicago, IL

E. Alex Eckman
Department of Environmental Protection
Harrisburg, PA

Craig Fletcher
Fletcher Consultants, Inc.
Oakland, CA

Jennifer LaCroix
AST Program Coordinator Virginia DEQ
Virginia Beach, VA

Charlie Frey, Jr.
Highland Tank
Manheim, PA

Jason Greer, Co-Chair
Greer Tank & Welding Inc.
Fairbank, AK

Rich Hart
JD2 Environmental, Inc
Washington, PA

Bill Hickman
CO Division of Oil & Public Safety
Denver, CO

Carl Horstmann
Mass Tank Sales Corp.
Middleborough, MA

Mark Howard
USEPA Office of Emergency Management
Washington, DC

Kevin Kupitz
Qi2 Elements
Kent, WA

David Kwasny
General Motors LLC
Columbiaville, MI

Mike Lattner
Morrison Bros. Co.
Dubuque, IA

Brian Laine
Kinder Morgan, Inc.
Houston, TX

Tim Laughlin
North Carolina Petroleum Marketers Association
Raleigh, NC

John Lieb
Tank Industry Consultants
Bolingbrook, IL

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Newberry Tanks
West Memphis, AR

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Owensboro, KY

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Randall Tomic
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Los Angeles County Fire Dept
Sylmar, CA

Ric Young
Tanknology
Lake Wylie, SC

Corri Zilio
General Motors
Detroit, MI

1 GENERAL

1.1 Introduction

1.1.1 This Standard provides inspection and evaluation criteria required to determine the suitability for continued service of aboveground storage tanks (AST), as defined in this Standard, until the next scheduled inspection. The purpose of conducting inspections is to identify the condition of and changes to the AST.

1.1.2 This Standard is intended for use by organizations and/or individuals who are knowledgeable and experienced in aboveground tank inspection.

1.1.3 The inspection requirements included in this Standard are minimum requirements. When applicable federal, state, or local laws, codes, or regulations concerning tank inspection are more stringent than the requirements of this Standard, then these applicable federal, state, or local laws, codes, or regulations shall apply.

1.1.4 Other standards, recommended practices, and equivalent engineering and best practices exist that provide alternative inspection requirements for tanks defined both within and outside the scope of this Standard. For example, see API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*, for additional information pertaining to tanks built to API Standard 650 and API Specification 12C tanks; and API 12R1, *Recommended Practice for Setting, Maintenance, Inspection, Operation, and Repair of Tanks in Production Service*, for tanks employed in production service or other similar service.

1.2 Owner's Responsibility

1.2.1 The owner is responsible for compliance with this Standard, fire codes, ordinances, and other rules and regulations applicable to owner's tanks. The owner may choose to retain assistance from specialists to aid in inspection, regulatory compliance, safe operations, and installations, in accordance with recognized industry standards.

1.2.2 The owner shall verify that persons working on ASTs understand and address all hazards associated with the contents of the ASTs, as well as safe entry and hot work procedures associated with those ASTs.

1.2.3 The owner's inspector is responsible for completing and/or updating the STI SP001 AST Record for each AST being inspected and for performing the periodic AST inspections and documenting the results in accordance with Section 6.0 of this Standard.

1.2.4 The owner is responsible for assuring that the tank is appropriately designed, constructed, repaired (if necessary), and maintained to operate safely in the intended service conditions, in accordance with accepted good engineering practice at the time of design, construction or repair.

1.2.5 The owner has the responsibility to address corrective actions identified in inspection reports.

1.3 Scope

1.3.1 This Standard provides the minimum inspection requirements of aboveground storage tanks. These storage tanks include shop-fabricated tanks, field-erected tanks, and portable containers as defined in this Standard, as well as their containment systems. This Standard applies to ASTs storing stable, flammable, and combustible liquids at atmospheric pressure. Further, this Standard applies to ASTs storing liquids with operating temperatures between ambient temperature and 200 degrees F (93.3° C).

1.3.2 This Standard may be applied to ASTs containing other types of liquids as long as an individual with the appropriate training, education, and/or experience has evaluated such use and approved the application of this Standard or a modification of the Standard, including assessing the compatibility of the liquid with the AST materials to address potential failure mechanisms.

1.3.3 The requirements for heated thermoplastic tanks are covered separately in Appendix D.

1.3.4 At a minimum, the following tank components shall be inspected (as applicable):

- Primary tank
- Secondary tank
- Tank supports
- Tank anchors
- Tank foundation and external supports
- Tank gauges and alarms
- Overfill valves and alarms
- Insulation covering
- Tank appurtenances
- Normal vents
- Emergency vents
- Release prevention barriers
- Spill control systems
- Tank valves and connections
- Manways

2 DEFINITIONS

ABOVEGROUND STORAGE TANK (AST) – A tank or container designed to operate at pressures ranging from atmospheric pressure through a gauge pressure of one psig measured at the top of the tank. The tank may be sitting on the ground or set on supports such as saddles, skids, or legs, etc., and may be installed in a vault. Included are shop-fabricated tanks, field-erected tanks, and portable containers.

CAPACITY – The amount of liquid that the AST is capable of holding. For the purposes of Table 5.5, the capacity of a compartment in a multi-compartmented AST shall be considered a separate and distinct capacity, provided that the bulkhead between compartments is fully welded around its perimeter and compartments are not manifolded. The capacity of an AST shall be determined by one of the following sources:

- A label on the AST that indicates its capacity;
- AST documentation, such as drawings or packing lists;
- Consulting the tank manufacturer, if known; OR
- Measuring the AST to determine its capacity. In the case of double-wall tanks, the dimensions of the inner tank will determine the capacity.

CERTIFIED INSPECTOR – A tank inspector who meets the certification requirements identified in Section 4.2 of this Standard.

COATING FAILURE – Significant peeling, cracking, spalling, blistering, pitting, chipping, etc. of the coating, paint or lining on an AST, resulting in the exposure of the metal surface and corrosion of the tank shell.

CONCRETE EXTERIOR ABOVEGROUND STORAGE TANK (CE-AST) – A shop-fabricated aboveground storage tank that includes a concrete exterior. A CE-AST with a UL 2085 label has integral secondary containment that allows monitoring for leakage in the interstice between the primary tank and the secondary containment.

CONTINUOUS RELEASE DETECTION METHOD (CRDM) – A means of detecting a release of liquid through inherent design. CRDM is passive because it does not require sensors or power to operate. Liquid releases are visually detected by facility operators (See Appendix A for additional information). The system shall be designed in accordance with good engineering practice. Several acceptable and commonly used CRDM systems are:

- Release prevention barrier (RPB) (described in definition of “Release prevention barrier”)
- Double-wall AST or double-bottom AST
- Elevated AST, with or without release prevention barrier
- Steel diked AST, open or closed top
- Concrete exterior AST (CE-AST) with an integral secondary containment and interstitial monitoring opening

CONNECTION - A method or fitting for fastening a pipe to the AST or an appurtenance. Examples are flanges, pipe threads, pipe welds, expansion joints, and flexible fittings.

CORROSION RATE – The rate of degradation of a material due to a chemical reaction with its environment.

DOUBLE-BOTTOM AST – An AST with a bottom plate integral to the primary container and a second bottom plate designed to provide an interstice. The interstice allows testing of both bottoms for tightness, or monitoring for leakage into the space.

DOUBLE-WALL AST – An AST manufactured as a tank-within-a-tank. The second tank provides integral secondary containment. An interstitial space between the two tanks is formed, which allows testing of both tanks for tightness, as well as monitoring for leakage into the space. A tank insulation system or insulating jacket placed on a tank does not constitute a double wall tank.

DYE PENETRANT TESTING (DT) – a method for nondestructively testing the surface of a material. A liquid dye is applied to the surface and excess is removed. A developing solution is then applied which indicates cracks in the material.

ELEVATED AST – An AST, which is not in contact with the ground, and which is raised above the surface of the ground or bottom of a vault using tank supports. An elevated AST allows for a visual, external inspection of the bottom of the tank.

FIELD-ERECTED AST – A welded carbon steel or stainless steel AST erected on the site where it will be used. For the purpose of this Standard, ASTs meeting either of the following descriptions are to be inspected as field erected ASTs:

a. The AST's nameplate (or other identifying means, such as accurate drawings) indicates that it is a field-erected AST with a maximum shell height of 50 feet (15.24 meters) and a maximum diameter of 30 feet (9.14 meters).
b. The AST has no nameplate (or other identifying means such as accurate drawings) and is more than 75,000 U.S. gallons (283,906 liters) with a maximum shell height of 50 feet (15.24 meters) and a maximum diameter of 30 feet (9.14 meters).

FORMAL EXTERNAL INSPECTION (FEI) – A documented external inspection conducted by a Certified Inspector to assess the condition of the AST and determine its suitability for continued service, without entry into the AST interior.

FORMAL INTERNAL INSPECTION (FII) – A documented inspection conducted by a Certified Inspector to assess both the internal and external conditions of the AST and determine its suitability for continued service. A FII includes the inspection requirements of a FEI, therefore, a FII satisfies the requirements of a FEI and shall be considered equivalent to or better than a FEI for the purposes of inspection scheduling. Requires entry into the AST interior following emptying and cleaning. See Section 3 for guidance on cleaning and entry safety considerations.

INSPECTION PLAN – A written plan developed by the owner/operator, Certified Inspector or a Professional Engineer that details the inspection requirements for a facility.

INTERSTICE – In a double-wall AST, the space between the primary tank and secondary tank; in a double-bottom AST, the space or void between the two bottoms. This space may be open or closed to the atmosphere and may be monitored or tested by vacuum or leak detection equipment or by visual inspection.

INITIAL SERVICE DATE – The date on which liquid was originally placed in the AST, regardless of the ASTs current location and/or ownership. If the initial service date is not known (e.g., rented, or repurposed AST), see Section 5.1.

LEAK TESTING METHOD (LTM) – A point-in-time test method to determine if an AST is liquid-tight. Leak testing is not preventative: it provides an indication only of whether the AST's integrity has already been breached. Therefore, it may only be used as a tank integrity measure or as a supplement to other inspection procedures. LTMs may include the following technologies:

- Gas pressure decay (includes vacuum decay)
- Gas pressure soap bubble testing
- Gas tracers (e.g., helium tracer)
- Soil tracers (chemical marker)
- Mass measurement
- Level measurement
- Hydrostatic test

LOCKOUT/TAGOUT – A procedure for affixing lockout or tagout devices to energy-isolating equipment and otherwise disabling machines or equipment to prevent unexpected energization, startup, or release of stored energy. The intent of the procedure is to prevent injury to employees and to comply with the following Occupational Safety & Health Administration (OSHA) regulations or their equivalent:

- 29 CFR 1910.146 Permit Required Confined Space
- 29 CFR Part 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*
- 29 CFR Part 1910.331 to 1910.333, *Electrical Lockout/Tagout*

MAGNETIC FLUX LEAKAGE (MFL) – A method used to nondestructively inspect ferromagnetic materials, such as a carbon steel floor plate. A magnetic field is applied to steel to near-saturation, so that it cannot hold any additional field. In the presence of a flaw (wall thinning), some of the magnetic flux escapes or "leaks" into the surrounding environment, where magnetic sensors detect it and qualitatively report a flaw signal. This method is commonly used on AST floors (MFL floor scan) to determine the underside condition of the tank floor.

MAGNETIC PARTICLE TESTING (MT) – A method used to nondestructively inspect ferromagnetic materials, such as carbon steel. It is used for detecting surface and subsurface linear discontinuities by inducing a magnetic field into the material and applying iron oxide particles.

MANWAY – An opening designed to allow personnel entry into an AST.

MICROBIAL-INFLUENCED/INDUCED CORROSION (MIC) – Corrosion caused or accelerated by certain microbes. Depending on the type of bacteria, the degree of microbial activity, and the thickness and type of AST material, MIC is characterized by a high rate of corrosion. It sometimes penetrates tank walls and bottoms in two years or less. It is typically characterized by a ring-like pattern of crater-shaped or channel-like penetrations.

NONDESTRUCTIVE TESTING (NDT) – The development and application of technical methods to examine materials and/or components in ways that do not impair future usefulness and serviceability, in order to detect, locate, measure, interpret, and evaluate flaws.

OVERFILL PREVENTION – Systems, procedures or devices used to prevent liquid in ASTs from running over or spilling out of the AST during the filling process. A person who is physically present and in control of a shutoff device during the entire tank filling process is an acceptable procedure to achieve overfill prevention.

OWNER – The legal entity having control and responsibility for the operation of the existing AST and storage facilities.

OWNER'S INSPECTOR – The owner or owner's designee responsible for conducting owner's periodic AST inspections.

PERIODIC AST INSPECTION – A visual, documented inspection conducted by an owner's inspector to assess the AST's general condition without suspending AST operations or removing the AST from service.

PERMIT-REQUIRED CONFINED SPACE – A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant, or has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or by a floor which slopes downward and tapers to a smaller cross-section.
- Contains any other recognized serious safety or health hazard.

PORTABLE CONTAINER – A closed AST having a liquid capacity equal to or greater than 55 U.S. gallons and not intended for fixed installation. This definition does not include a mobile storage container on a vehicle, or one being towed, that is used to store and transport liquids for transfer into or from vehicles, mobile equipment, or another storage container. This definition also does not include storage containers used for onboard propulsion of a vehicle.

PRIMARY TANK – The tank in direct contact with the liquid stored.

PROFESSIONAL ENGINEER (PE) – A person who has fulfilled specific education and/or experience requirements under state licensure laws and has received a license to practice engineering.

RELEASE PREVENTION BARRIER (RPB) – A liquid containment barrier that is installed under the AST. Its purpose is to divert leaks toward the perimeter of the AST where they can be easily detected, as well as to prevent liquid from contaminating the environment. RPBs are composed of materials compatible with the liquid stored in the AST and meet appropriate engineering standards. Examples are steel (as in steel double-bottom tanks), concrete, elastomeric liners, or other suitable materials, provided the above criteria are met.

REMOTE IMPOUNDING – A spill control system that uses a sloped spillway or drainage system to channel liquid releases away from an AST to a contained collection area that is remote from important facilities, adjoining property, or waterways. The containment area is sized for the capacity of the largest AST, plus sufficient freeboard to allow for precipitation. For the purposes of this Standard, remote impounding is equivalent to secondary containment. Remote impounding is further defined in NFPA 30.

SECONDARY CONTAINMENT DIKE/BERM – A spill control system consisting of walls and a floor completely surrounding single or multiple ASTs. It provides a secondary means of containment for the entire capacity of the largest single AST within a dike, berm, or other engineered secondary containment system (such as a pond, lagoon, or catchment basin), plus sufficient freeboard to contain precipitation and the displacement volume present below the dike wall of other ASTs in the containment area. The secondary containment dike/berm is to be constructed according to accepted good engineering practices. (Note: See NFPA 30, 40 CFR Part 112, and/or other local requirements for additional requirements.)

SECONDARY CONTAINMENT SYSTEM – Provides a secondary means of containment for the entire volumetric capacity of the largest single AST within a dike, berm, or other engineered secondary containment system (such as a pond, lagoon, or catchment basin) plus sufficient freeboard to contain precipitation. The secondary containment system is to be designed to contain a spill until it can be discovered and cleaned up. It must be constructed according to accepted good engineering practices. (Note: See NFPA 30 and/or 40 CFR Part 112, and/or other local requirements for additional requirements.)

STEEL DIKED AST – An AST with an integral steel secondary containment dike. These dikes may be pans, boxes, or containers, and are designed to contain the contents of the primary tank if it fails. A steel diked AST may be open or closed to the atmosphere. Closed-top steel dike ASTs have welded covers or movable rain shields to keep precipitation from collecting in the dike, but open-top dike ASTs do not have such covers. The secondary containment of steel diked ASTs must be sized to contain the primary tank volume, plus sufficient freeboard to contain precipitation as necessary.

SECONDARY TANK –The outer wall of a double-wall AST.

SHELL – For the purposes of this Standard, the AST shell includes the roof, bottom, head, and wall of the AST. Refer to Appendix A for more information.

SHOP-FABRICATED AST – A welded carbon steel or stainless steel AST fabricated in a manufacturing facility, or an AST not otherwise identified as field-erected, with a volume less than or equal to 75,000 U.S. gallons (283,906 liters).

SINGLE-WALL AST – An AST with only one wall or shell.

SPILL CONTROL – A means of preventing a release of liquid to the environment, including adjoining property and waterways. Spill control methods include:

- Remote impounding
- Secondary containment system
- Secondary containment dike/berm
- Open top steel diked AST
- Closed top steel diked AST with overfill prevention
- Double-wall AST with overfill prevention
- CE-AST with overfill prevention

A tank insulation system or insulating jacket does not constitute spill control.

SUITABILITY FOR CONTINUED SERVICE – The determination that an AST's condition is adequate for continued use, based on the criteria presented in this Standard.

TANK SUPPORTS – Structures designed to elevate an AST above the ground. These include saddles, skids, beams, legs, and similar structures.

THERMOPLASTIC – substances, such as asphalt cement, that are solid at ambient temperature and become molten upon heating. The application of this Standard is for thermoplastics stored in a liquid form.

ULTRASONIC TESTING SCAN (UTS) – An ultrasonic scan which scans 100% of a designated surface area. The designated surface area can be any size depending on the corrosion damage suspected or found while performing the UTS. A UTS will detect all thinned areas due to material loss on the opposite side of the inspection surface using an ultrasonic flaw detector. This inspection is to be performed by an NDT examiner certified in accordance with ASNT-TC-1A (or equivalent), per paragraph 4.3.2 of this Standard.

ULTRASONIC THICKNESS TESTING (UTT) – A point thickness reading taken by a person trained, per paragraph 4.3.3.1 of this Standard, utilizing a digital ultrasonic thickness meter.

VACUUM BOX EXAMINATION (VB) – A weld-testing method used to check for leaks in the welds of the shell of an AST.

3 SAFETY CONSIDERATIONS

3.1 The hazards associated with cleaning, entry, inspection, testing, maintenance, or other aspects of ASTs are significant. Safety considerations and controls should be established prior to undertaking physical activities associated with ASTs.

3.2 This Standard does not address all applicable health and safety risks and precautions with respect to particular materials, conditions, or procedures. Information concerning safety and health risks and precautions should be obtained from applicable standards, regulations, suppliers of materials, and suppliers of safety data sheets.

3.3 The following activities may be regulated. Consideration of the relevant requirements and best management practices shall be included in an inspection, such as:

- Breaking lines, isolating, and release of equipment
- General work permit
- Hot work
- Lockout/tagout
- Gas testing
- Contractor safety
- Respiratory protection
- Tank cleaning, repair, and dismantling
- Confined space entry

3.4 Plans to enter an AST require development and use of appropriate safety procedures, precautions and requirements. The owner, the contractors, and all persons associated with the AST inspection, cleaning, or entry shall review these safety procedures prior to the start of work.

3.4.1 Before the inspection begins, check for accumulation of harmful vapors around and in the AST. Refer to the following documents for additional information:

- NFPA 326, *Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning or Repair*
- API Standard 2015, *Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks*

3.4.2 Each AST entry requires an Emergency Action Plan (EAP). The owner and contractor must develop the EAP together. The EAP describes the actions required for personal safety from fire and other emergencies and includes the following requirements, as well as others:

- Confined space entry plan as necessary
- Appropriate personal protection equipment
- Establishment and review of emergency escape routes and procedures with authorized entrants.

- Establishment of an assembly area and procedures to account for all authorized entrants after emergency evacuation is complete.
- Establishment of rescue and first-aid duties for those authorized and assigned to perform them.

3.4.3 After plans, procedures, and administrative controls are in place and before entering the AST, isolate the AST by locking out and tagging all energy sources associated with the AST. Line isolation shall be at the closest practical flange to the equipment or space.

3.4.4 The atmosphere inside the space must be tested and confirmed safe before authorized entrants may enter without wearing supplied-air respiratory protection or SCBA. Continuous atmospheric monitoring is best. At minimum, test the space for the following, and in the following order:

- Oxygen
- Flammable vapors
- Toxics

3.5 In addition to entry hazards, there are hazards associated with the access to AST roofs. Corrosion may first attack the deck plate at the edge of a fixed roof and at the rafters in the center of the roof. Inspect the roof and support structures for soundness. Inspect stairs, ladders and platforms to determine that they can safely support equipment and people before accessing them. For AST roofs where one side is not visible, it may be necessary to check the plate thickness with ultrasonic instrument or hammer test it to verify its adequacy. If there is a doubt, place planks that span structural members on the roof and walk on the planks instead of directly on the roof. These same hazards may also apply to other AST walking surfaces, such as the surfaces of floating roofs. Guidance for these hazards is covered in API Standard 2015, *Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks*.

3.6 A safety analysis shall be conducted prior to a leak test. Some leak testing scenarios may be hazardous. For example, the leak test methods referenced in 9.1.1 require that either an inert gas be used or that the tank be thoroughly cleaned and gas-free prior to testing and pressurizing an AST. Combining hydrocarbons with air generates a potentially hazardous atmosphere. Each test method may have unique hazards; these shall be considered and addressed in a pre-test safety plan prior to testing activities. A competent person shall review the safety plan.

4 AST INSPECTOR QUALIFICATIONS

4.1 Owner's Inspector Qualifications

4.1.1 Periodic Inspections are to be performed by an owner's inspector.

4.1.2 The personnel performing these inspections shall be knowledgeable about storage facility operations, the type of AST and its associated components, the spill control system for the facility, and characteristics of the liquid stored. Owner's inspectors must also be familiar with pumping, piping, and valve operations of the AST system.

NOTE: STI/SPFA has developed an online *Tank Integrity Management* program to educate owner's inspectors in tank inspection requirements. See the website www.stispfa.org and refer to the "Education" section for more information about this voluntary educational program.

4.2 Certified Inspector Qualifications

4.2.1 FEI and FII are to be performed by a Certified Inspector.

4.2.2 A Certified Inspector shall be certified by one or more of the following (Additional certifications may be required by individual states or other governing bodies.):

4.2.2.1 American Petroleum Institute (API) Standard 653 Authorized Inspector Certification with STI SP001 Adjunct Certification.

4.2.2.2 Steel Tank Institute (STI) Certified SP001 AST Tank System Inspector.

4.3 NDT Examiner Qualifications

4.3.1 Non-destructive test (NDT) examiner personnel performing non-destructive examinations shall meet the qualifications described below, but need not be certified in accordance with paragraph 4.2. The results of NDT work, however, must be considered in the evaluation of the tank by the Certified Inspector.

4.3.2 NDT personnel referenced within this Standard shall be qualified in accordance with their employer's written practices, which must be in accordance with the American Society for Nondestructive Testing's (ASNT) document SNT-TC-1A Personnel Qualification and Certification in Nondestructive Testing, unless otherwise noted within this Standard.

4.3.2.1 Referenced within this Standard are the following nondestructive techniques. All inspectors performing the following inspection methods shall be certified per 4.3.2:

- MT – Magnetic particle testing
- UT – Ultrasonic testing (refer to definition of UTS in Section 2)
- MFL – Magnetic flux leakage
- PT – Penetrant testing
- VB – Vacuum box testing

4.3.3 Testing personnel performing ultrasonic thickness testing (UTT) point readings are required to have the minimum training described in this paragraph (Section 4.3.3.1) to operate a digital ultrasonic thickness meter. A digital ultrasonic thickness meter is an ultrasonic unit which is only used to obtain a point thickness reading and display the resulting specimen thickness. The training does not cover the use of ultrasonic flaw detectors or interpretation of A, B or C scan unit readout.

4.3.3.1 The operator of the digital ultrasonic thickness meter must be trained for a minimum of one hour by a person competent in the operation, calibration, and set-up of the meter. Training is usually performed by the manufacturer or manufacturer's representative upon delivery of the meter. This training shall be documented and specifically state that the trainee has received at least one hour of training in the proper operation, calibration, and set-up of the meter. The meter manufacturer and model shall be noted on the documentation. The trainer shall sign his name on the documentation to attest that the training has been completed and the trainee is now proficient in the use of that ultrasonic digital meter. At the time of training, the trainee shall have all of the tools and materials needed to carry out the proper function of the meter. These tools and materials are:

- Step wedge of the correct thickness range and material for the desired application.
- Ultrasonic couplant appropriate for the desired application.
- Ultrasonic transducer of the correct type, frequency, and diameter for the desired application.

4.3.3.2 Testing personnel shall be aware of the many factors that affect performance and accuracy of a digital thickness meter, such as:

- Equipment calibration
- Surface roughness of test specimen
- Coupling technique
- Couplant
- Curvature of test specimen
- Taper or eccentricity of the test specimen
- Acoustic properties of the material to be tested
- Temperature of the test specimen

4.3.3.3 Surface coatings may have a significant effect on the performance and accuracy of the thickness reading. Where possible, UTT test equipment and procedures shall be selected to avoid the removal of coating from the tank. It may be necessary to remove the coating prior to taking a thickness reading, depending on the inspection equipment used, the type of coating applied, and the thickness of the coating. If the coating is removed during the thickness reading process, it must be properly repaired.

5 INSPECTION SCHEDULE

5.1 The owner shall use the AST's type, capacity, installation characteristics, and previous inspection history, if any, to develop a schedule of applicable types of inspections for each AST, per Table 5.5. The interval for the initial inspection shall begin from the AST's initial service date. If the initial service date is not known, the owner shall be responsible for establishing and documenting the initial service date (for example, from nameplates, as-built drawings, manufacturer cut-sheets, due diligence reports, fire marshal inspection records, state operating permits, building code permits, etc.).

5.2 Owners who have an inspection plan shall use this Standard to establish inspection criteria for ASTs described in this Standard, using the AST's type, capacity, and installation characteristics.

5.3 Certified Inspectors using this Standard to conduct inspections shall use the AST's type, capacity, installation characteristics, corrosion rate, and the schedule determined by the owner.

5.4 AST categories used in Table 5.5 (Appendix A includes further explanation of some typical tank types and their corresponding AST category.):

5.4.1 Category 1 - ASTs with spill control and CRDM. If it is determined that, during an inspection, that the integrity of the CRDM or spill control has been compromised the tank category and inspection timetable should be re-evaluated.

5.4.2 Category 2 - ASTs with spill control, and without CRDM If it is determined that, during an inspection, that the integrity of the spill control has been compromised the tank category and inspection timetable should be re-evaluated.

5.4.3 Category 3 - ASTs without spill control (note Category 3 ASTs may not meet regulatory requirements)

5.5 In Table 5.5, use the following designations:

5.5.1 P – Periodic AST inspection by a qualified party designated by the owner.

Refer to Section 6

5.5.2 E – Formal External Inspection by Certified Inspector

Refer to Section 7

5.5.3 I – Formal Internal Inspection by Certified Inspector

Refer to Section 8

5.5.4 L – Leak test by a qualified party designated by the owner or owner's designee

Refer to Section 9

5.5.5 Numbers included in parentheses, for example (5), indicate the maximum inspection interval in years. Thus, E (5) indicates Formal External Inspection every 5 years.

TABLE 5.5 TABLE OF INSPECTION SCHEDULES

AST Type and Capacity in U.S. gallons (liters)		Category 1	Category 2	Category 3
Shop-Fabricated Welded Steel ASTs	0 – 1100 (0-4164 liters)	P	P	P, E&L(10)
	1101 - 5,000 (4168-18,927 liters)	P	P, E&L(10)	[P, E&L(5), I(10)] or [P, L(2), E(5)]
	5,001 - 30,000 (18,931-113,562 liters)	P, E(20)	[P, E(10), I(20)] or [P, E(5), L(10)]	[P, E&L(5), I(10)] or [P, L(1), E(5)]
	30,001 - 75,000 (113,566-283,906 liters)	P, E(20)	P, E&L(5), I(15)	P, E&L(5), I(10)
Portable Containers*		P	P	P**

* Portable containers can be constructed of metallic (steel, stainless steel) or non-metallic (plastic) materials and should be constructed to a recognized standard for the purpose they are being used.

** In addition to periodic Portable Container Monthly Inspections described in Appendix C, Owners shall either discontinue use of portable container for storage or have the portable container DOT (Department of Transportation) tested and recertified per the following schedule (refer to Section 9.2):

- Plastic portable container – every 7 years
- Steel portable container – every 12 years
- Stainless Steel portable container – every 17 years

6 PERIODIC AST INSPECTIONS

6.1 Periodic AST inspections are to be conducted by owner's inspector. Sample checklists for periodic AST inspections are found in Appendix C of this Standard. These are to be used as a guide for recording inspection data and can be adapted to the specific operational parameters for the AST to be inspected.

6.2 The owner's inspector must meet the requirements of paragraph 4.1.

6.3 Review prior inspection, repair, and alteration data before each inspection. Note special conditions for a particular AST.

6.4 The owner's inspector is to complete or update the *STI SP001 AST Record* for each AST or tank site as designated in the checklists. Note special conditions and changes or alterations to the tank.

6.5 The owner's inspector is to complete or update the *STI SP001 Monthly Inspection Checklist* or equivalent each month. Take note of instructions on the checklist. Note special conditions.

6.6 The owner's inspector is to complete the *STI SP001 Annual Inspection Checklist* or equivalent each year. Take note of instructions on the checklist. Note special conditions.

6.7 For portable containers, the owner's inspector is to complete only the *STI SP001 Portable Container Monthly Inspection Checklist* or equivalent each month. Take note of the instructions on the checklist. Note special conditions.

6.7.1 As an alternative, if documentation is kept on-site for each portable container that indicates how long each has been kept at the facility, then the owner's inspector is to complete only the *STI SP001 Portable Container Monthly Inspection Checklist* each month for containers onsite for 91 days or more. Take note of the instructions on the checklist. Note special conditions.

6.8 Additional requirements for field-erected tanks are included in Appendix B.

6.9 Refer to Section 10.0 for conditions that warrant immediate action.

6.10 The functional life of an AST can be significantly extended by regularly checking for the presence of water inside a tank and in the interstice of a double-wall AST (or double-bottom AST or CE-AST). Water should be removed from storage tanks and the owner or operator should take corrective action. Water affects the quality of some stored liquids. Microbes are ubiquitous and, in the presence of water, can create colonies on surfaces and suspended in stored liquids such as petroleum. Microbial activity can cause the formation of undesirable by-products, such as sludge, biological mats, filter-clogging granular material, and organic acids. Such activity can corrode metals, deteriorate plastics, and may affect product quality. If signs of microbiological activity or corrosion due to MIC are found (such as filter clogging, slow flow, or accumulations of sludge), treat the AST with a proper biocide, emulsifier or other water control additive, or otherwise sterilize the

AST. In addition, take necessary steps to repair or remove the AST from service if warranted by the extent of corrosion found.

6.10.1 Monitor for water accumulation monthly, except as described in paragraphs 6.10.2 through 6.10.6 and 6.11.

6.10.2 If no measurable amounts of free-standing water are found during four consecutive months of monitoring a category 1 AST, the frequency of monitoring for water may be reduced to annually.

6.10.2.1 If measurable amounts of free-standing water are found during annual monitoring, one of the following actions shall be taken:

a. The AST shall be tested for the presence of bacteria that could cause MIC. If bacteria that could cause MIC are present, remediation of the stored product should be conducted and the monitoring frequency shall be increased to monthly. The monitoring frequency of a Category 1 AST may again be reduced to annually after four consecutive months if no measurable amounts of free standing water are found. If bacteria that could cause MIC are not present, the monitoring frequency may remain at annual; OR
b. The source of water should be investigated and any repairs to the system initiated. Monthly monitoring should continue until the water ingress is eliminated.

6.10.2.2 If a reduced frequency for water monitoring in Category 1 ASTs is allowed and utilized as described above, documentation demonstrating no measurable amounts of free-standing water are present during monthly and annual checks shall be kept on file for as long as the reduced water monitoring frequency is used and three years thereafter.

6.10.3 Category 1 ASTs containing liquids that are miscible with water, for example, gasoline with ethanol, and where water is known or expected to be present do not require monthly monitoring for water. However, such ASTs should be monitored for possible phase separation.

6.10.3.1 Tanks storing waste materials, where water is known or otherwise expected to be present (such as waste oil), do not require monthly monitoring for water if they are holding liquids that are drained from the lowest point in the tank AND (1) entirely emptied every 180 days or less, or (2) where the tank throughput during the 180-day period is greater than or equal to the tank capacity.

6.10.4 Category 1 ASTs that are drained from the lowest point in the tank do not need to be monitored for water if the tank is entirely emptied at least every 120 days. If the 120-day throughput of a bottom draining tank is greater than or equal to the tank capacity, water monitoring is not required.

6.10.5 Category 1 ASTs containing liquids which are agitated on a schedule to prevent the formation of a water layer that could support MIC do not require monitoring for water.

6.10.6 ASTs containing thermoplastics covered in Appendix D do not require monitoring for water.

6.11 For Category 1 tanks, as an alternative to checking for water in accordance with 6.10, the tank owner may follow a written program to ensure water is removed or treated on a regular basis to prevent damage due to MIC. The STI publication *Keeping Water Out of Your Storage System* is a good source of information when developing a written program. However, it is highly recommended to check for water periodically, even if there is a program to remove water regularly.

7 FORMAL EXTERNAL INSPECTION (FEI) GUIDELINES

7.1 General

7.1.1 FEI are to be performed by Certified Inspectors, per paragraph 4.2.

7.1.2 The following paragraphs describe minimum inspection guidelines. There are numerous AST configurations and components, and it is the responsibility of the Certified Inspector to identify and properly inspect them to conform to the owner's requirements, industry standards and regulatory requirements, as applicable. The inspector or the inspection company shall develop detailed checklists that identify, record, and document all aspects of each inspection.

7.1.3 Review prior formal and periodic inspections, repair alteration data, and records of functionality testing of alarms and equipment before each inspection.

7.1.4 Record AST nameplate data, if available, and check the information included for accuracy against actual conditions. Verify that the properties of the contents of the AST conform to the standard to which it was built. Verify the accuracy of owner's STI SP001 AST Record data as marked on the record form (e.g., spill control, CRDM, tank category, etc.). Record AST data, inspection findings, and problems identified.

7.1.5 Inspect the fabrication of the AST against applicable industry standards.

7.1.6 Inspect the AST foundations for indications of settlement, cracking, exposed rebar, or general disrepair. Inspect for areas of wash-out and voids under the AST. Inspect for vegetation growing alongside/against the AST or the foundation. Confirm that the ground is sloped away from the AST and that there is no soil resting against the side of the AST, covering parts of the shell or bottom extension. Inspect for standing water against the AST or the indication of drainage problems.

7.1.7 Visually inspect the condition of the AST's supports. Severe cracking or spalling of concrete supports shall be noted and evaluated. If there are pad plates between the supports and the shell, inspect their condition. Inspect the supports to be sure that they are sitting securely on the foundation or grade. If the supports are welded to the shell, inspect the welds for visible signs of stress or deterioration.

7.1.8 Identify and record the type and condition of the secondary containment, spill control, and CRDM, if present.

7.1.8.1 Visually inspect the general condition of the containment area to ensure that it is in good condition and that there is not a breach in the containment structure. Note changes from the original design and installation information if available.

7.1.8.2 Inspect for foreign materials, including excessive vegetation, in the secondary containment system. Inspect for liquid in the secondary containment system and CRDM. If liquid is present, find the source and

report findings. Record other ASTs or containers within the same secondary containment system.

7.1.8.3 Verify that the drain valves are operable and in good condition. Report penetrations through the secondary containment systems that may compromise the integrity of the secondary containment system. Report penetrations that are likely to lead to failure of the secondary containment system should the liquid level of water or liquid rise to these penetrations.

7.1.9 Inspect and verify the operability of ancillary equipment, including the following items:

7.1.9.1 Visually inspect accessible piping, piping supports and piping connections for signs of stress or leakage, due to severe corrosion, rusted bolted connections, or other severe degradation.

7.1.9.2 Inspect normal and emergency vents and pressure/vacuum devices. Verify that the devices are of adequate size and capacity, operable, and in good condition. Refer to the device manufacturer's literature, typical industry venting requirements, and other appropriate resources. Record the types and locations of these devices.

7.1.9.3 Inspect primary tank level gauge and secondary tank interstitial gauge for free movement and determine if the floats, guides, and attachments are in working order. Verify the liquid level gauge length is sized correctly for the tank diameter.

7.1.9.4 Inspect the secondary tank interstitial monitoring equipment where present. Where possible verify free movement of floats and attachments and external alarms. Note that prior to triggering any alarm, proper warnings need to be made to the tank owner.

7.1.9.5 Verify and inspect tank overfill prevention devices including high level alarms and high level shut off valves. It may not be possible to verify operability of all devices, but where possible verify equipment is functional and calibrated to the appropriate liquid levels within the tank.

7.1.10 Inspect the bonding and grounding system of the AST, if present. (Refer to NFPA 780 *Standard for the Installation of Lightning Protection Systems*, NFPA 77 *Standard Practice on Static Electricity* or other applicable standard.)

7.1.11 Inspect stairways, handrails, and platforms for broken welds, bent members, and corrosion.

7.1.12 Inspect the coating on the AST shell and supports for coating failure.

7.2 Determine the original shell thickness of the AST. Suggested methods are:

7.2.1 Review the original tank documentation, such as drawings and packing lists.

7.2.2 Consult the tank manufacturer.

7.2.3 Examine the tank labels for evidence of a widely accepted tank standard, such as Underwriters Laboratories Standard UL 142, etc. Consult the referenced standard to determine the minimum design shell thickness.

7.2.4 Measure the tank thickness of several areas of the tank that have no visible corrosion or pitting. The average of these measurements will result in a shell thickness measurement that can be used as the original shell thickness measurement.

7.3 Horizontal AST Requirements - in addition to the applicable items in 7.1:

7.3.1 Inspect shell plates and welds for indications of exterior corrosion, buckling, or distortion, as well as for cracking, pinholes, or mechanical damage. Inspect the shell of the AST and the ancillary equipment (per paragraph 1.3.5) for signs of distortion and stress.

7.3.1.1 Take and record UTT readings and the location of the reading of each plate or shell course in areas accessible without entering the AST. Readings must be concentrated in areas where corrosion is likely to occur. If significant internal corrosion is detected, further investigation using UTS is required. If applicable, include areas marked from previous readings. Refer to Section 10.0.

7.3.1.2 Existence of external corrosion may require the use of a pit depth measurement device in addition to the UTT to determine the remaining wall thickness.

7.3.2 Inspect shell attachments for changes made after the AST was fabricated. Refer to previous drawings or make new sketches that show all the appurtenances, attachments, and nozzle locations on the AST shell and heads or roof. Record repads (reinforcing plates) and/or insert plates. Inspect attachment welds for signs of stress and corrosion.

7.4 Vertical or Rectangular AST Requirements - in addition to the applicable items in 7.1:

7.4.1 Shell surface – Refer to 7.3.1 and 7.3.2

7.4.2 Shell attachments – Refer to 7.3.2

7.4.3 Vertical AST roof - Inspect for low areas on the roof and standing water that may corrode the roof areas. Inspect for coating failure, holes, and corrosion. Take UTT readings on the roof and record results. If possible, measure thicknesses in previously measured areas for corrosion rate determination. If significant corrosion is detected, further investigation using ultrasonic testing scans (UTS) is required. Refer to Section 10.0.

7.5 Double-wall and Double-bottom AST Requirements - in addition to the applicable items in 7.1:

7.5.1 Verify that the leak detection equipment or method is operating if the tank is so equipped.

7.5.2 Check for leaks or the presence of liquid in the interstice. When liquid is present in the interstitial space of the AST, thickness measurements should be taken on the secondary tank. UTT and UTS shall be of sufficient quantity and location to verify adequate containment integrity of the secondary tank. If product is found in interstitial space, perform a leak test to determine if primary tank is tight.

7.5.3 Double-bottom ASTs require UTT readings of areas that are single-wall as described in paragraph 7.3.1.1 above. Double-wall ASTs do not require UTT readings for the primary tank. If corrosion is evident on the outside surface of the secondary tank shell, UTT readings of the corroded areas are required.

7.6 Steel Diked AST Requirements - in addition to the applicable items in 7.1 to 7.4:

7.6.1 For open-top dikes, inspect the condition of the dike and determine if liquid is present. For closed-top dikes that are fitted with an access port, inspect the condition of the inside of the enclosed diked area and determine if liquid is present. AST modifications may be needed in order to provide access for additional assessment. If liquid has entered the space or conditions indicate corrosion could be causing a problem, further evaluation is required.

7.6.2 Ultrasonic thickness measurements shall be taken on the tank shell wherever accessible, such as above the rain shields and by removing rain shields to gain access within the dike area where possible.

7.6.3 Ensure tank systems are operated with spill and overfill prevention controls. Ensure an emergency vent is present and functions for closed-top containment structures.

7.7 Insulated AST Requirements - in addition to the applicable items in 7.1 through 7.4, except as modified below:

7.7.1 Inspect the insulation material and outer jacket for indications of damage where water may be allowed to wick into the insulating layer. Specifically inspect for areas where water may be trapped behind or within the insulation. If any of the following conditions are identified, then remove sections of the insulation to check for corrosion:

- Evidence that the tank may be compromised,
- Evidence that the base of the tank is consistently in contact with standing water, or
- Insulation is significantly compromised and has not been repaired or replaced in a timely manner

7.7.2 If corrosion under the insulation is suspected, remove sections of the insulation to check for corrosion. Damage done to the insulation for the purpose of inspection shall be repaired.

7.7.3 Take UTT readings of the shell where accessible and where insulation is removed per 7.7.1 and record results. In addition, include, if applicable,

areas marked from previous readings. If significant internal corrosion is detected, further investigation using ultrasonic testing scans (UTS) is required. Refer to Section 10.0.

7.8 Concrete Exterior ASTs (CE-ASTs) Requirements - in addition to the applicable items in 7.1:

7.8.1 Follow the tank manufacturer's instructions for inspection and maintenance.

7.8.2 Inspect concrete exterior body of the tank for cleanliness, need of coating, or rust staining.

7.8.3 Inspect the entire exterior of the tank for cracks in concrete.

- Cracks larger than 1/16 of an inch in thickness require repair.
- If cracks greater than 1/16 of an inch are present on all four top chamfer edges, then the tank shall be further evaluated and repaired in consultation with the tank manufacturer, due to the possibility of damage or over-pressurization of the secondary containment.

7.8.4 Check for leaks or the presence of liquid in the interstice. If liquid is found, then further investigation is needed to determine the cause.

7.8.5 Check the seal between the pipe nipples (and other tank top appurtenances) and concrete.

7.8.6 CE-ASTs with joints or seams in the concrete exterior require inspection of the joint seal for deterioration, holes, tears, and cracks.

7.9 Additional requirements for field-erected ASTs are included in Appendix B.

7.10 For each FEI performed in accordance with section 7 the certified inspector shall prepare a written FEI report. In the FEI report, include field data, measurements, pictures, drawings, tables, and an inspection summary. In the FEI report summary, identify unacceptable conditions and recommended and/or mandatory corrective actions. Determine the suitability for continued service of the AST per Section 10.0 and document this in the FEI report. Include the date of the next scheduled FEI or FII, as applicable. Include the inspector's name and certification number in the FEI report.

8 FORMAL INTERNAL INSPECTION (FII) GUIDELINES

8.1 General

8.1.1 FII are to be performed by Certified Inspectors per paragraph 4.2.

8.1.2 The following paragraphs describe minimum inspection guidelines. There are numerous AST configurations and components; it is the responsibility of the Certified Inspector to identify and properly inspect them to conform to the owner's requirements and/or industry standards. The inspector or the inspection company shall develop detailed checklists that identify, record, and document all aspects of each inspection.

8.1.3 An FII includes the requirements of an FEI with the addition of the requirements described below. Refer to paragraphs 7.1 to 7.9 for FEI requirements.

8.1.4 For elevated ASTs where all external surfaces are accessible, the internal inspection requirements may be satisfied with an examination from the exterior by using such methods as UTS. For all other situations, entry into the interior of the AST is necessary to assess the condition of all surfaces.

8.2 Horizontal AST Internal Inspection

8.2.1 Identify, measure, inspect, and record all AST internal appurtenances. Inspect for mechanical damage, corrosion, cracking, etc. Inspect for deteriorating or corroding internal attachments and piping. Take thickness readings of internal structures and record the readings.

8.2.2 Inspect the welds for cracking by visual inspection or, if necessary, by magnetic particle (MT) inspection or equivalent method.

8.2.3 Internal NDT Inspection

8.2.3.1 Ultrasonic testing equipment that is capable of scanning the tank (UTS), rather than measuring only individual points (UTT), is the preferred method of testing. Personnel performing UTS are to be qualified per paragraph 4.3.2.

8.2.3.2 If testing methods that are capable of complete floor coverage are not practical, use equipment that tests individual points. For individual point testing, test a grid that measures a 12 inch x 12 inch (0.3 meters x 0.3 meters) square area of the shell and take at least 15 equally spaced UTT measurements per each 12 inches x 12 inches area. Any questionable areas are to be assessed by UTS. The number of 12" x 12" UTT areas shall be determined by the owner/Inspector based on the foundation materials, surrounding environment and any factor that may be a cause of underside shell corrosion. As a minimum, the inspector must take (1) 12" x 12" UTT measurement per plate in contact with the ground and no less than (8) 12" x 12" UTT measurements along the bottom of the tank shell in contact with the ground.

8.2.3.3 Perform a vacuum box (VB) examination of questionable welds to check for leaks.

8.2.3.4 Refer to Section 10.0 for criteria for suitability for continued service.

8.3 Vertical and Rectangular AST Internal Inspection

8.3.1 Identify, record, inspect, and measure all AST internal surfaces and appurtenances. Inspect AST internals to check for mechanical damage, corrosion, cracking, etc. Check for deteriorating or corroding internal attachments and piping. Take thickness readings of internal structures and record the readings.

8.3.2 Inspect the welds for cracking, corrosion or incomplete fusion which may result in a leak by visual inspection. If additional investigation is needed, the weld may be tested using vacuum box (VB), or if necessary magnetic particle (MT) or liquid dye penetrant (DPT) inspection or equivalent method.

8.3.3 Internal NDT Inspection

8.3.3.1 AST floor thickness assessments is required as follows:

Complete coverage of the AST floor is recommended due to random corrosion characteristics of metal in contact with the ground. Inspection of the AST floor is recommended using inspection methods capable of determining the underside floor condition, such as UTS, MFL followed by UTS of questionable areas, or other equivalent methods. If testing methods that are capable of complete floor coverage are not practical, use equipment that tests individual points. For individual point testing, test a grid that measures 12 inches x 12 inches (0.3 meters x 0.3 meters) square area of the shell and take at least 15 equally spaced UTT measurements per each 12 inch x 12 inch area. Any questionable areas are to be assessed by UTS. The number of 12" x 12" UTT areas shall be determined by the owner/Inspector based on the foundation materials, surrounding environment and any factor that may be a cause of underside shell corrosion. As a minimum, the inspector must take (1) 12" x 12" UTT measurement per plate in contact with the ground and no less than (8) 12" x 12" UTT measurements per tank floor.

8.3.3.2 Perform a vacuum box (VB) examination of questionable welds to check for leaks.

8.3.4 Refer to Section 10 for criteria for Suitability for Continued Service.

8.4 Additional requirements for field-erected ASTs are included in Appendix B.

8.5 For each FII performed in accordance with Section 8 the certified Inspector shall prepare a written FII report. In the FII report, include field data, measurements, pictures, drawings, tables, and an inspection summary. Identify in the summary unacceptable conditions and recommended and/or mandatory corrective actions. Determine the suitability for continued service of the AST per Section 10.0 and document this in the FII report. Include the date

of the next scheduled FEI and/or FII, as applicable. Include the inspector's name and certification number in the FII report.

9 LEAK TESTING METHODS (LTM)

9.1 Shop-fabricated AST leak testing procedure

9.1.1 Consult the Steel Tank Institute Recommended Practice R912*, Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable, Combustible Liquids*. Air shall not be used for a pressure test; an inert gas shall be used instead. The introduction of a gas containing oxygen (such as air) to a tank that has previously held petroleum liquid can pose an explosion hazard.

9.1.2 Vacuum testing of the interstice of double-wall or double-bottom tanks is an option. Refer to the Steel Tank Institute Recommended Practice R912, *Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable, Combustible Liquids*.

9.1.3 Leak testing of CE-ASTs that are listed and labeled as UL2085 shall be performed in accordance with the specific requirements (or the testing manual) of the manufacturer. The testing, which includes brand-specific vacuum and hydrostatic testing, shall be performed by properly trained personnel.

9.2 Portable containers leak testing procedure – Refer to DOT Sections 49 CFR 173.28 (Reuse, reconditioning and remanufacturing of packagings – mainly for drums) and 49 CFR Part 178 Subpart O – Testing of IBC's [Intermediate Bulk Container] (section 178.803 Testing and certification of IBC's) and 49 CFR 180.605, (Requirements for periodic testing, inspection and repair of portable tank), or equivalent, for portable container testing and recertification. Electronic versions of these documents are available online.

9.2.1 See the definition of Leak Testing Methods for more information.

10 SUITABILITY FOR CONTINUED SERVICE

10.1 A determination of suitability for continued service of the AST shall be performed and documented in any FEI and FII report prepared by a Certified Inspector based on the results of Formal External and/or Internal Inspections. When the inspection results (refer to Section 7 and 8 of this standard) show that a change has occurred from the original physical conditions of the tank system, this section describes the actions to be taken by the owner. These evaluations may require consultation with other individuals who have the appropriate training, education, and/or experience to evaluate the changes.

10.2 Aside from corrosion related tank degradation, a tank is not considered suitable for service if conditions are noted during the inspection that jeopardize the life or safety of personnel working near the tank. These conditions include but are not limited to:

- Lack of adequate emergency relief venting
- Visible signs of leakage from appurtenances which cannot be resolved without removing the tank from service
- Damaged or non-compliant electrical systems within the hazardous area which may create an imminent ignition source.

10.3 Corrosion related degradation noted during formal external and internal inspections (refer to AST categories in Section 5.0)

10.3.1 For all tanks in Table 5.5, if damage that compromises tank integrity (see 10.3.2 through 10.3.4) is found at any time, then repairs to all damaged areas on the AST shall be promptly made. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST.

10.3.1.1 If MIC is suspected, a sample of liquid from the tank bottom (if available) should be tested for bacteria that could cause MIC.

10.3.1.1.1 If MIC is confirmed, mitigation measures shall be taken to eliminate the source of MIC. Mitigation measures shall use good engineering practice appropriate for the tank system design and the material being stored.

10.3.2 Category 3 ASTs - If the shell thickness has been reduced to less than 75% of the original shell thickness at any point, then the AST shall be taken out of service and repaired or replaced. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST. The Certified Inspector shall document in the FEI or FII report that the next Formal External or FII shall be within 5 years and each subsequent 5 years thereafter, until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested, or is in a

steady-state condition, then follow the inspection intervals shown in Table 5.5 for subsequent inspections.

10.3.3 Category 2 ASTs – The AST shall be repaired or replaced if more than 3 square inches of any one square foot of the tank shell (i.e., approximately 2%) is found to be less than 75% of the original shell thickness; or if the remaining shell thickness of an area is less than 50% of the original shell thickness at any point. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST. The Certified Inspector shall document in the FEI or FII report that the next Formal External or FII shall be within 5 years and each subsequent 5 years thereafter, until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested, or is in a steady-state condition, then follow the inspection intervals shown in Table 5.5 for subsequent inspections.

10.3.4 Category 1 ASTs - The AST shall be repaired or replaced if more than 3 square inches of any one square foot of the tank shell (i.e., approximately 2%) is found to be less than 50% of the original shell thickness; or if the remaining shell thickness of an area is less than 25% of the original shell thickness at any point. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST. The Certified Inspector shall document in the FEI or FII report that the next Formal External or FII shall be within 5 years and each subsequent 5 years thereafter, until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested, or is in a steady-state condition, then follow the inspection intervals shown in Table 5.5 for subsequent inspections.

10.3.4.1 For Category 1 ASTs, alternatively, if the Certified Inspector establishes and documents a corrosion rate, the inspector may determine the next Formal External Inspection based upon corrosion rates. The calculated time until the next Formal External Inspection may exceed the values listed in Table 5.5 if corrosion rates allow.

10.3.4.2 Refer to API 575, *Inspection of Atmospheric and Low-Pressure Storage Tanks*, for some acceptable methods of determining corrosion rates.

10.3.4.3 Further, if the shell thickness is reduced anywhere to less than 25% of the original shell thickness, the AST shall be repaired or replaced. Refer to Steel Tank Institute SP031 *Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids* for alterations or repairs to an AST.

10.3.5 Corrosion in the knuckle area - Corrosion in the knuckle area of a tank is considered a critical condition. The knuckle is the curved portion of the steel that joins the bottom or end of the AST to the shell. The AST is

manufactured with a circular piece of steel with a formed flange and is often found on horizontal or vertical shop-fabricated ASTs. It may not be possible to accurately measure metal loss in the knuckle area from an external inspection alone. If suspected, more evaluation is needed and internal inspection may be justified. The maximum allowable metal loss at any single point is the same as the plate thickness limits shown in the previous paragraphs for each category of tank.

10.3.6 Double wall ASTs - The criteria for suitability for continued service of a double wall AST when corrosion of the secondary tank has been found shall be per paragraph 10.3.4 above (double wall ASTs are to be considered Category 1 for the suitability for continued service). Further, if a leak is found in the primary tank, the tank shall be repaired or replaced. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST. When the tank degradation has been arrested, or is in a steady-state condition, then follow the inspection intervals shown in Table 5.5 for subsequent inspections.

10.3.6.1 CE-ASTs shall be repaired or replaced if one of the following is found:

a. Fuel or other product is found in the interstice.

b. The CE-AST has failed all published primary and secondary containment testing methods of the manufacturer. The testing, which includes brand specific vacuum and hydrostatic testing, shall be performed by properly trained personnel.

c. CE-ASTs with joints or seams that show clear signs of failed joint seals shall be taken out of service if the joint seal is below the liquid level. CE-ASTs with joint seals above the liquid level shall have the joint seal repaired.

d. CE-ASTs with exterior wall damage greater than 3 inches in depth, 6 square inches in size, or showing exposed reinforcing steel shall be taken out of service. Repairs may be possible based on the tank manufacturer's recommendation.

e. Where corrosion of pipe nipple below surface of concrete has caused a rust-through, the tank shall be taken out of service unless the fitting can be permanently sealed.

f. If liquid is found in the interstice, the liquid shall be removed and additional investigation is required. Refer to paragraph 7.8. Repair is required per manufacturer's guidelines, and the CE-AST may or may not need to be removed from service.

10.3.6.2 Other tank damage – An AST subjected to damage caused by the following conditions requires evaluation by an engineer experienced in AST design or by a tank manufacturer who will jointly work with the owner determine if an immediate Formal External or Internal Inspection is required:

- Fire – AST exposed to fire or flame impingement
- Natural disaster – AST exposed to flooding, hurricane force winds, etc. and has been lifted or damaged
- Excessive settlement – AST that has experienced excessive settlement
- Overpressure – AST exposed to excessive internal pressure caused by overfill or failure of venting devices or other reason
- Damage from cracking – AST with evidence of cracking of welds or of an AST surface

10.4 If a leak is discovered at any time by the owner or the inspector, the tank must be repaired, replaced, or closed and removed from service, in accordance with accepted good engineering practice.

11 RECORDKEEPING

11.1 Retain each AST Record for the life of the AST. Refer to Appendix C for example.

11.2 Retain each Monthly Inspection Checklist for at least 36 months. Refer to Appendix C for example.

11.3 Retain each Annual Inspection Checklist for at least 36 months. Refer to Appendix C for example.

11.4 Retain each Portable Container Monthly Inspection Checklist for at least 36 months. Refer to Appendix C for example.

11.5 Retain all formal inspection reports developed by certified inspectors for the life of the AST.

REFERENCES

American Petroleum Institute:

- API Publication 341, *A Survey of Diked-area Liner Use at Aboveground Storage Tank Facilities*
- API Recommended Practice 575, *Inspection of Atmospheric and Low Pressure Storage Tanks*
- API Standard 650, *Welded Steel Tanks for Oil Storage*
- API Bulletin D16, *Suggested Procedure for Development of a Spill Prevention Control and Countermeasure Plan*
- API Recommended Practice 12R1, *Recommended Practice for Setting, Maintenance, Inspection, Operation and Repair of Tanks in Production Service*
- API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*.
- API Standard 2015, *Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks*
- API Specification 12D, *Specification for Field Welded Tanks for Storage of Production Liquids*
- API Specification 12F, *Specification for Shop Welded Tanks for Storage of Production Liquids*

American Society for Nondestructive Testing

- ANSI/ASNT Recommended Practice No. SNT-TC-1A, *Guideline to Personnel Qualification and Certification in NDT*

International Code Council

- *International Fire Code*

National Fire Protection Association:

- NFPA 30, *Flammable and Combustible Liquids Code*
- NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*
- NFPA 70, *National Electrical Code*
- NFPA 77: *Recommended Practice on Static Electricity*
- NFPA 326, *Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair*
- NFPA 780, *Standard for the Installation of Lightning Protection Systems*

STI/SPFA:

- SP031, *Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids*
- R111 Recommended Practices for Storage Tank Maintenance
- R893, *Recommended Practice for External Corrosion Protection of Shop Fabricated Aboveground Tank Floors*
- R912, *Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable, Combustible Liquids*

Underwriters Laboratories Inc.

- UL 142, *Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids*
- UL 2085, *Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids*

United States Environmental Protection Agency:

- EPA 40 CFR part 112, *Oil Pollution Prevention and Response; Non-Transportation-Related Onshore and Offshore Facilities*
- EPA 510-K-15-001, *Musts for USTs*

United States Department of Labor, Occupational Safety & Health Administration (OSHA)

- 29 CFR Part 1910.146 Permit Required Confined Space
- 29 CFR Part 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*
- 29 CFR Part 1910.331 to Part 1910.333, *Electrical Lockout/Tagout*

United States Department of Transportation

- DOT Sections 49 CFR 173.28, *Reuse, Reconditioning and Remanufacturing of Packaging*
- DOT 49 CFR part 178, Subpart O, *Testing of IBC's*
- DOT 49 CFR part 178.803, *Testing and certification of IBC's*
- DOT 49 CFR part 180.605, *Portable container Testing and Recertification*

APPENDIX A
SUPPLEMENTAL TECHNICAL INFORMATION

A.1 TYPICAL AST DIAGRAMS

A.1.1 The diagram below shows terms commonly associated with ASTs. For the purposes of this Standard, all of these surfaces are called the “shell” of the AST to avoid confusion.

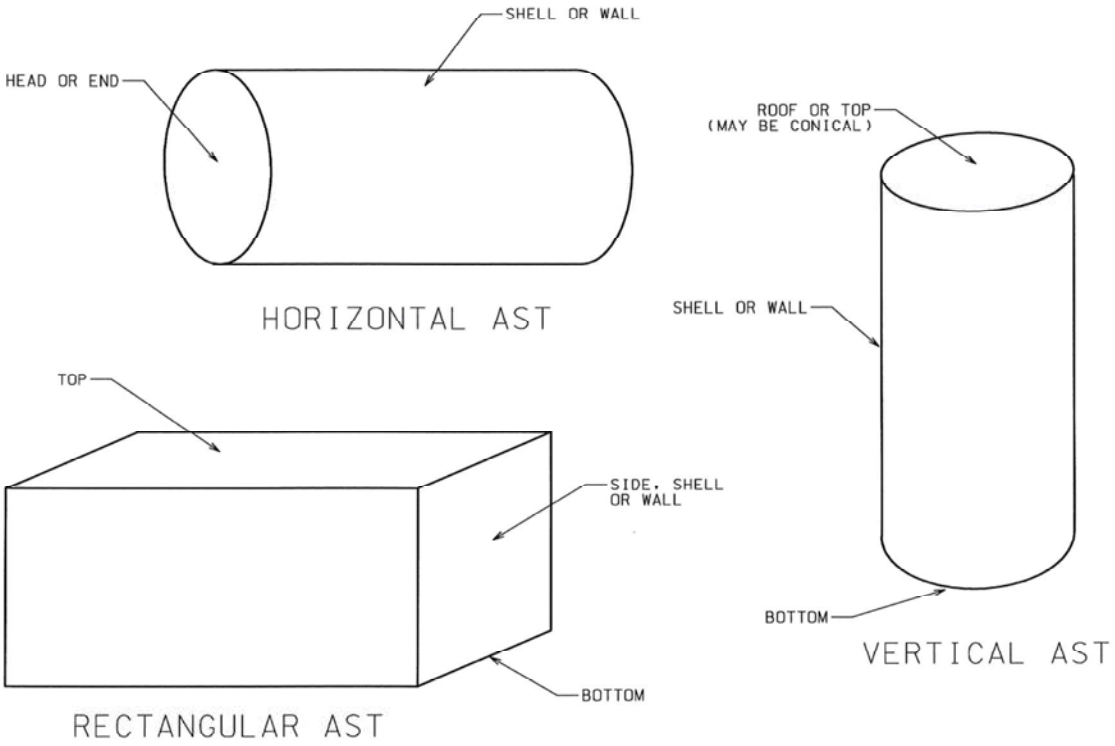

FIGURE A.1.1

A.1.2 The diagram below identifies the appurtenances of an AST. A specific tank may include some or all of these appurtenances.

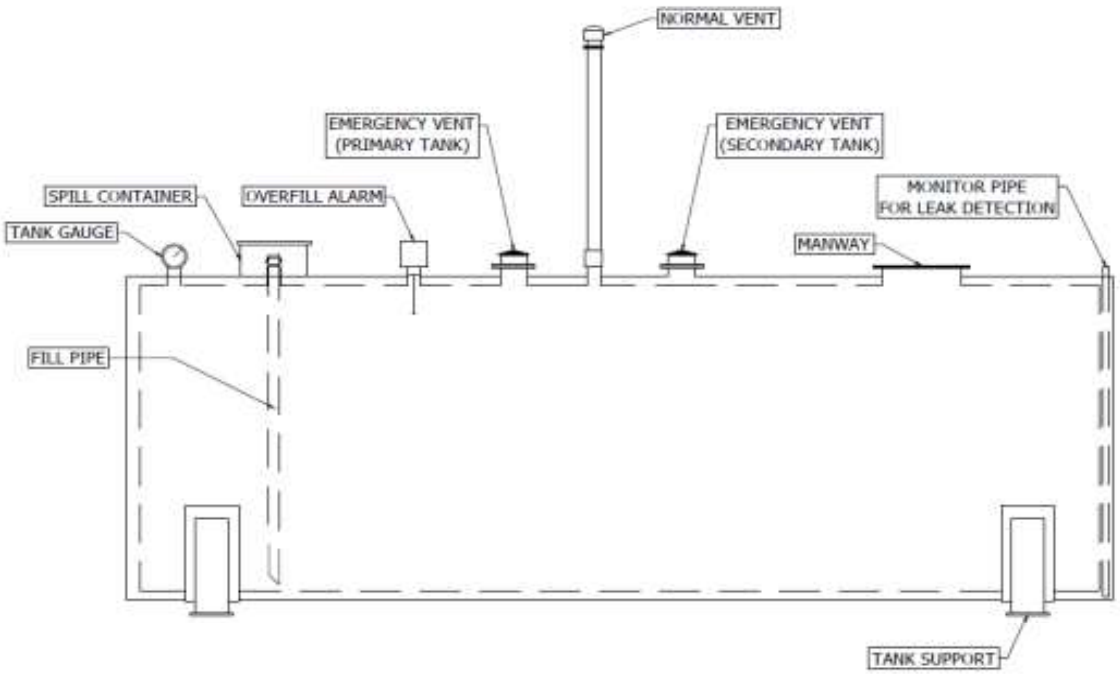

FIGURE A.1.2

A.1.2.1 The purpose of these appurtenances is as follows:

A.1.2.1.1 Emergency vent (for primary and secondary tank) – These tank accessories prevent damage to the tank by allowing excess pressure to be vented. They are designed to relieve excess pressure in the event of an emergency, such as a fire.

A.1.2.1.2 Monitor pipe for leak detection – A pipe installed in the air space (Interstice) between the primary tank and secondary tank of a double-wall tank. It is typically used with leak detection equipment to detect a leak in either the primary or the secondary tank.

A.1.2.1.3 Normal vent – A primary tank accessory that allows air to enter the tank when liquid is being withdrawn and exhausts air when the tank is being filled. This prevents damage to the tank due to excessive pressure or vacuum.

A.1.2.1.4 Overfill alarm – A device designed to alert personnel who are filling a tank when a predetermined level is reached.

A.1.2.1.5 Spill container – A tank accessory designed to catch spills during tank filling operations. It typically has a lockable, hinged lid and may allow spilled fluid to drain into the tank.

A.1.2.1.6 Tank supports – These structures are used to elevate the tank off the ground.

A.1.2.1.7 Fill Pipe – A pipe attached to the fill connection to reduce product turbulence and generation of vapors during tank filling.

A.1.2.1.8 Tank Gauge- A mechanical or electrical device that reports the quantity of product in the tank.

A.1.2.1.9 Manway- A removeable sealed access hatch that is attached to the tank that can allow for access to the tank interior.

A.2 TANK TYPES AND THEIR CORRESPONDING AST CATEGORY

A.2.1 Figure A.2.1 is an aid to determine the Category of the tank (see paragraph 5.4 of the Standard for more information):

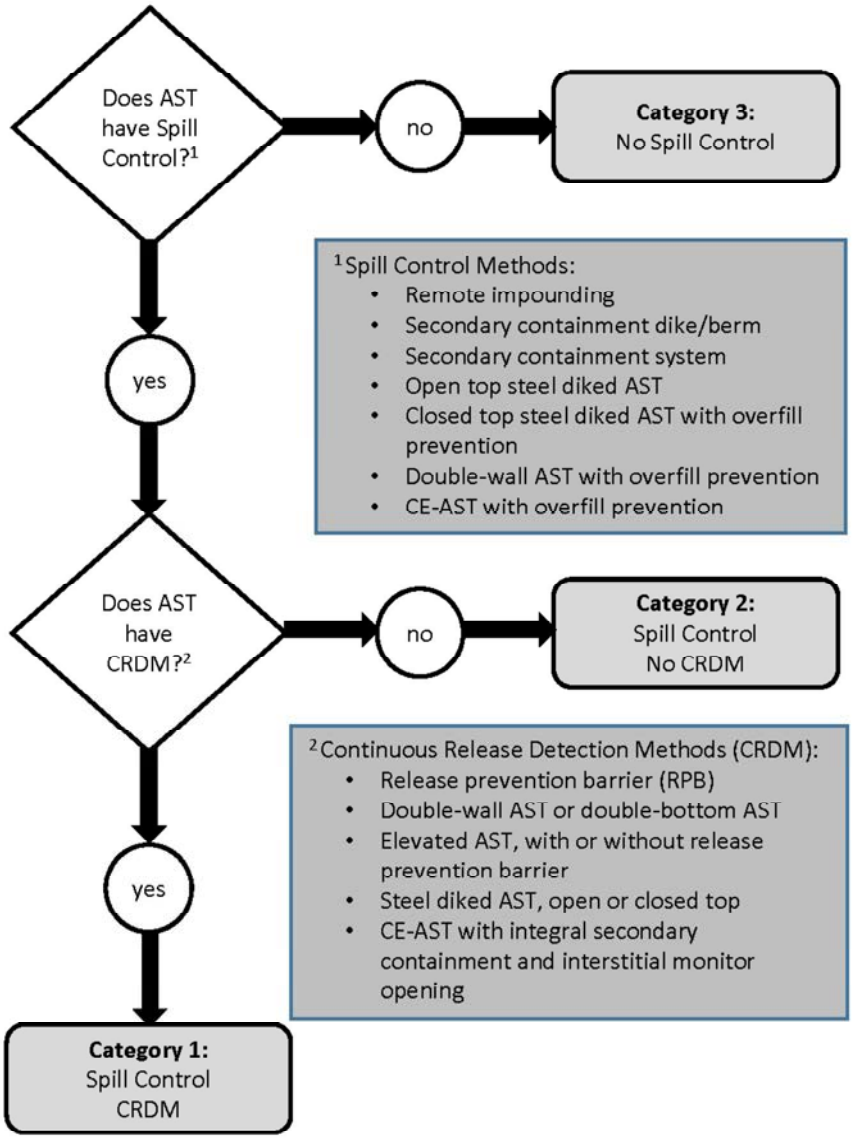

FIGURE A.2.1
TANK CATEGORY DECISION TREE

A.2.2 Table A.2.2 shows some typical tank types, although not an exhaustive list, and their corresponding AST category.

TABLE A2.2
EXAMPLE TANK CONFIGURATION AND AST CATEGORY

Tank Configuration	Tank has Spill Control?	Tank has CRDM?	AST Category
Single wall vertical AST in contact with ground and no spill control	No	No	3
Single wall vertical AST in contact with ground in an earthen dike	Yes	No	2
Single wall vertical AST in concrete dike with concrete floor. Concrete floor extends under tank completely	Yes	Yes	1
Single wall vertical AST in dike with elastomeric liner. Liner extends under tank completely	Yes	Yes	1
Single wall vertical AST installed on gravel and no spill control	No	No	3
Single wall vertical AST installed on gravel in an earthen dike	Yes	No	2
Elevated AST with spill control	Yes	Yes	1
Elevated AST without spill control	No	Yes	3
AST with double-bottom and spill control	Yes	Yes	1
Double-wall AST* with overfill prevention	Yes	Yes	1
Double-wall AST* without overfill prevention	No	Yes	3
Concrete exterior AST with overfill prevention	Yes	Yes	1
Concrete exterior AST without overfill prevention	No	Yes	3

*Double wall AST is defined in section 2

A.3 RELEASE MANAGEMENT SYSTEM (RMS)

A.3.1 One of the basic purposes of AST inspection standards is to minimize the likelihood and consequences of leaks. Over extended periods, even small leaks may have considerable impact on the environment. The use of industry standards to prevent leaks is a fundamental principle of pollution prevention. Industry standards cover the tank life cycle from construction, to ongoing inspection and maintenance, to final closure.

A.3.2 Applying RMS can reduce the likelihood and consequences of leaks. Typically, RMS is applied to provide additional integrity assurance against leaks.

A.3.3 In the context of this Standard, RMS specifically refers to two basic methodologies as defined below:

- Leak Testing Methods (LTM)
- Continuous Release Detection Methods (CRDM)

A.3.4 Experience has shown that long-term, slow leaks may develop and cause environmental damage from an AST that is in direct contact with the ground. These types of ASTs are subjected to the full hydrostatic pressure of the liquid on one side of the AST surface and are in direct contact with the ground on the other side of the AST surface. These ASTs may allow a slow leak over a long time under full liquid hydrostatic pressure, which may go undetected and cause environmental damage. LTM is a layer of protection beyond conventional AST inspection practices that is most effective when applied to ASTs that are in direct contact with the soil and that do not have CRDMs. An LTM is ordinarily not necessary for tanks that have CRDMs (continuous release detection methods) such as elevated tanks, double-wall tanks, or tanks with release prevention barriers.

A.3.5 Figure A.3.5 shows RMS graphically.

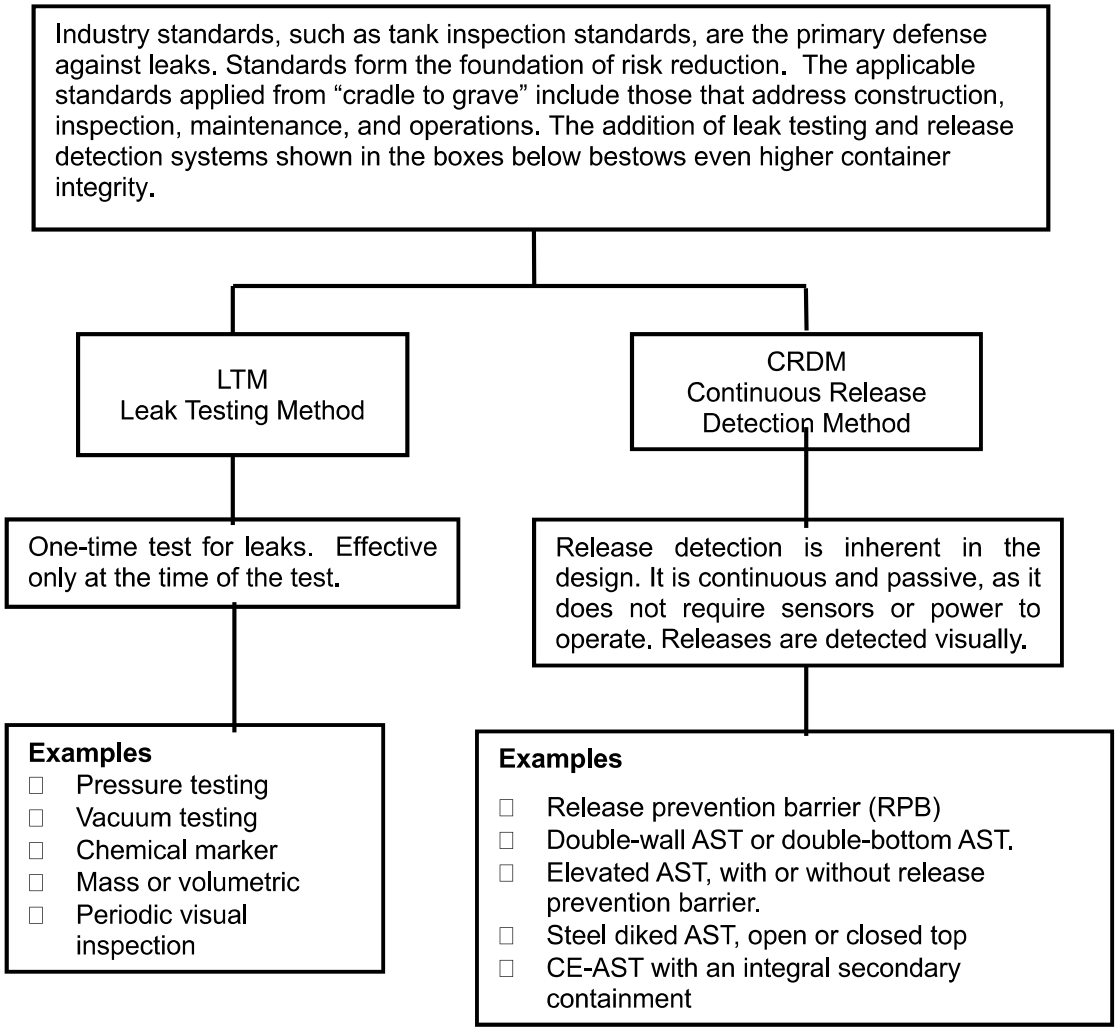

FIGURE A3.5
RELEASE DETECTION SYSTEMS

A.4 REGULATIONS

A.4.1 The Federal EPA has promulgated regulations regarding the storage and handling of oils, both petroleum and non-petroleum, called the Spill Prevention Control and Countermeasures (SPCC) Rule under the authority of the Clean Water Act (40 CFR part 112). Additionally, some states and localities have developed AST regulatory programs under specific state or local authority. Entities regulated by these sections may use this Standard or others to inspect and determine the fitness of their storage systems. Refer to https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations and American Petroleum Institute's (API) Recommended Practice Bulletin D16, *Suggested Procedure for Development of a Spill Prevention Control and Countermeasure Plan* for more information.

APPENDIX B
INSPECTION OF FIELD-ERECTED ASTS

B.1 GENERAL

B.1.1 Purpose and Applicability – This Appendix addresses additional and special inspection requirements for field-erected tanks. Tanks larger than 30 feet (9.1 meters) in diameter or more than 50 feet (15.2 meters) high should be inspected according to an appropriate field-erected tank inspection standard. This Appendix is applicable only when specifically referenced by written contractual language between the owner and the inspector. Further, it is applicable only when not prohibited by the regulatory authority having jurisdiction. This Appendix specifies only those requirements which modify or exceed the requirements of the main body of the Standard.

B.1.2 Scope - This Appendix applies to steel ASTs that are:

B.1.2.1 Welded and flat-bottom, cone-up or cone-down design

B.1.2.2 Up to 30 feet (9.1 meters) in diameter and with a height of less than 50 feet (15.2 meters)

B.1.2.3 Fabricated with full-fusion, butt-welded shells and with lap-welded or butt-welded bottom plates

B.1.2.4 Fabricated with a shell thickness of each course less than ½ inch and with original nominal bottom thickness plates equal to ¼ inch or 6 mm

B.1.2.5 Built to a nationally recognized standard

B.1.3 Brittle Fracture Assessment - Because the tank shells are less than ½ inch thick, the risk of brittle fracture is minimal. Brittle fracture assessments and documentation are not required for tanks that fall within the scope of this Standard.

B.2 INSPECTIONS

B.2.1 Refer to Table B.2.1 below for the inspection timetable. Category 1, 2, and 3 as well as the P, E, I, and L designations are described in the main body of the SP001 Standard. Note that the internal inspection intervals shown in this table are guiding values when corrosion rates are not determined, in accordance with recognized and accepted industry principles and practice.

B.2.1.1 When corrosion rates are established, the corrosion rates may govern the internal inspection interval, which may be shorter or longer than the values shown.

B.2.1.2 For Category 1 tanks, the maximum internal re-inspection interval is 30 years.

B.2.1.3 For Category 2 tanks, the maximum internal re-inspection interval is 20 years.

B.2.1.4 For Category 3 tanks, the maximum internal re-inspection interval may not be longer than shown in Table B.2.1.

TABLE B.2.1
TABLE OF INSPECTION SCHEDULES

AST Type and Capacity	Category 1	Category 2	Category 3
Field-erected AST	P, E(5), I(10)	P, E&L(5), I(10)	P, E&L(5), I(10)

B.2.2 Follow the requirements found in the main body of the SP001 Standard for Periodic Inspections, FEI and FII and any additional requirements in this Appendix. Also, follow all the requirements of the Safety Section. Leak testing methods for field-erected tanks are currently under research by API and STI, and additional requirements will be added to SP001 in the future.

B.2.3 Below are additional inspection requirements for field-erected ASTs.

B.2.3.1 Vertical AST Floating Roof

B.2.3.1.1 For safety, make sure that the roof pontoons are free of liquid and harmful vapors and that the floating roof is properly stabilized against collapse. (See API 2016, *Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks*.) Inspect the vapor space on top of the floating roof before gaining access.

B.2.3.1.2 For FII, inspect the seal for deterioration, holes, tears, and cracks to determine the Suitability for Continued Service.

B.2.3.1.3 For external floating roofs, assess the condition of the outer roof rim plate by visual or ultrasonic methods. It may be necessary to assess the condition by performing ultrasonic inspection from the inside of the pontoon. Inspect that either the roof drain is open, or the drain plug in the roof is open in case of unexpected rain. Inspect the roof legs for their contact with the floor and that the striker plates are present and in position. Inspect the roof legs for corrosion and damage.

B.2.3.1.4 Inspect for standing water on top of the roof and inspect the roof drainage system operation. Inspect the pontoons for presence of liquid.

B.2.4 Suitability for Continued Service

B.2.4.1 As an alternative to the criteria in the main body of SP001, and if the Certified Inspector is API 653 Certified, then the methods included in API 653 may be used to evaluate the AST.

B.2.4.2 The minimum allowable remaining thickness is 0.1 inch (2.54 mm). In setting the next inspection interval based upon corrosion rates, neither the bottom nor the shell shall be allowed to corrode less than 0.1 inch.

B.2.4.2.1 The minimum required thickness of each shell course shall be according to:

$$t_{min} = \frac{(H-1)DG}{10{,}000}$$

t_{min} = the minimum acceptable average thickness, in inches, for each course as calculated from the above formula. However, t_{min} shall not be less than 0.1 inch (2.54 mm) for any tank course.
D = nominal diameter of tank, in feet.
H = height from the bottom of the shell course under consideration to the maximum liquid level when evaluating an entire shell course, in feet.
G = largest specific gravity of the contents.

B.2.4.3 One method of determining the interval between FII required by the tank bottom assessment is as follows (corrosion rates shall be assumed constant for these calculations):

$$MFIII = \frac{\min\left(RT_{bc}, RT_{ip}\right) - MRT}{(St\ \mathrm{Pr} + U\ \mathrm{Pr})}$$

MRT = minimum allowable remaining tank bottom thickness at the end of inspection interval which is 0.1 inch (2.54 mm).
MFIII = maximum Formal Internal Inspection interval (years to next internal inspection) not to exceed that allowed in paragraph 2.1 of this Appendix.
RT_{bc} = minimum remaining thickness from bottom side corrosion after repairs.
RT_{ip} = minimum remaining thickness from internal corrosion after repairs.
St Pr = maximum rate of corrosion not repaired on the top side. This value is zero for coated areas of the bottom. The expected life of the coating must equal or exceed MFIII to use *St* Pr = 0.
U Pr = maximum rate of corrosion on the bottom side. To calculate the corrosion rate, use the minimum remaining thickness after repairs. For tanks that have proven cathodic protection, the corrosion rate from the underside shall be *U* Pr = 0.002 inches per year (0.05 mm per year).

Note: For areas of a bottom that have been scanned by the magnetic flux leakage (or exclusion) process and do not have effective cathodic protection, the thickness used for calculating *U* Pr must be the lesser of the MFL threshold or the minimum thickness of corrosion areas that are not repaired. The MFL threshold is defined as the minimum remaining thickness to be detected in the areas inspected. This value should be predetermined by the owner based on the desired inspection interval.

B.2.4.4 Widely scattered pitting will not significantly affect the strength of the tank shell and the tank may be allowed to continue operation, provided that both of the following conditions are met:

B.2.4.4.1 Pit depths or thinning with a diameter or maximum dimension of less than 2 inches (50.8 mm) does not result in a remaining wall thickness of less than 0.05 inch (1.27 mm).

B.2.4.4.2 No pit or thinned area results in any area 2 inches (50.8 mm) in diameter or larger with a thickness less than 0.1 inch (2.54 mm).

APPENDIX C
AST RECORDS AND PERIODIC INSPECTION CHECKLISTS

STI SP001 AST Record

Form completed by (Name) _____ Date _____

(Title) _____

OWNER INFORMATION	FACILITY INFORMATION	INSTALLER INFORMATION
Name	Name	Name
Number and Street	Number and Street	Number and Street
City, State, Zip Code	City, State, Zip Code	City, State, Zip Code
	Regulatory facility ID number (if applicable)	

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OWNER'S TANK ID	OTHER ID	INITIAL SERVICE DATE

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Product Date:

Design: ☐ UL _____ ☐ SwRI _____ ☐ API _____ ☐ Other _____ ☐ Unknown
☐ Horizontal ☐ Vertical ☐ Rectangular

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____
☐ Coated Steel ☐ Concrete encased steel ☐ Stainless steel ☐ Other _____
☐ Double-Bottom ☐ Double-Wall ☐ Lined inside; Date lining installed: _____

Spill control: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete
☐ None ☐ Other _____

Tank elevated on supports ☐ yes ☐ no
Support material: ☐ steel ☐ concrete ☐ other _____

Release Prevention Barrier: ☐ yes ☐ no If yes, Date Installed: _____
If yes, Type: ☐ concrete ☐ synthetic liner ☐ clay liner ☐ steel ☐ other _____

CRDM: ☐ yes ☐ no
If yes, type: ☐ Release Prevention Barrier ☐ Elevated tank ☐ Double bottom tank
☐ Double wall tank ☐ CE-AST ☐ other _____

AST Category: ☐ Category 1 ☐ Category 2 ☐ Category 3

OWNER'S TANK ID	OTHER ID	INITIAL SERVICE DATE

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Product Date:

Design: ☐ UL _____ ☐ SwRI _____ ☐ API _____ ☐ Other _____ ☐ Unknown
☐ Horizontal ☐ Vertical ☐ Rectangular

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____
☐ Coated Steel ☐ Concrete encased steel ☐ Stainless steel ☐ Other _____
☐ Double-Bottom ☐ Double-Wall ☐ Lined inside; Date lining installed: _____

Spill control: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete
☐ None ☐ Other _____

Tank elevated on supports ☐ yes ☐ no
Support material: ☐ steel ☐ concrete ☐ other _____

Release Prevention Barrier: ☐ yes ☐ no If yes, Date Installed: _____
If yes, Type: ☐ concrete ☐ synthetic liner ☐ clay liner ☐ steel ☐ other _____

CRDM: ☐ yes ☐ no
If yes, type: ☐ Release Prevention Barrier ☐ Elevated tank ☐ Double bottom tank
☐ Double wall tank ☐ CE-AST ☐ other _____

AST Category: ☐ Category 1 ☐ Category 2 ☐ Category 3

OWNER'S TANK ID	OTHER ID	INITIAL SERVICE DATE

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Product Date:

Design: ☐ UL _____ ☐ SwRI _____ ☐ API _____ ☐ Other _____ ☐ Unknown
☐ Horizontal ☐ Vertical ☐ Rectangular

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____
☐ Coated Steel ☐ Concrete encased steel ☐ Stainless steel ☐ Other _____
☐ Double-Bottom ☐ Double-Wall ☐ Lined inside; Date lining installed: _____

Spill control: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete
☐ None ☐ Other _____

Tank elevated on supports ☐ yes ☐ no
Support material: ☐ steel ☐ concrete ☐ other _____

Release Prevention Barrier: ☐ yes ☐ no If yes, Date Installed: _____
If yes, Type: ☐ concrete ☐ synthetic liner ☐ clay liner ☐ steel ☐ other _____

CRDM: ☐ yes ☐ no
If yes, type: ☐ Release Prevention Barrier ☐ Elevated tank ☐ Double bottom tank
☐ Double wall tank ☐ CE-AST ☐ other _____

AST Category: ☐ Category 1 ☐ Category 2 ☐ Category 3

STI SP001 Monthly Inspection Checklist

General Inspection Information:

Inspection Date: _____ Prior Inspection Date: _____ Retain until date: _____

Inspector Name (print): _____ Title: _____

Inspector's Signature _____

Tank(s) inspected ID _____

Regulatory facility name and ID number (if applicable) _____

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are equivalent and meet all applicable inspection checklist items. Inspections of multiple tanks may be captured on one form as long as the tanks are substantially the same.
- For equipment not included in this Standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Inspect the liquid for regulated products or other contaminants and dispose of properly.
- * designates an item in a non-conformance status. This indicates that action is required to address a problem. Note that some non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- If the inspection finds the integrity of the spill control system and/or the CRDM, such as items 13 and 14, is compromised the tank category and inspection time table should be re-evaluated by someone knowledgeable about the SP001 standard.
- Retain the completed checklists for at least 36 months.
- **After severe weather (snow, ice, wind storms) or maintenance (such as coating) that could affect the operation of critical components (normal and emergency vents, valves), an inspection of these components is required as soon as the equipment is safely accessible after the event.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Tank and Piping		
1	Is tank exterior (roof, shell, heads, bottom, connections, fittings, valves, etc.) free of visible leaks? **Note**: *If "No", identify tank and describe leak and actions taken.*	☐ Yes ☐ No*	
2	Is the tank liquid level gauge legible and in good working condition?	☐ Yes ☐ No* ☐ N/A	
3	Is the area around the tank (concrete surfaces, ground, containment, etc.) free of visible signs of leakage?	☐ Yes ☐ No*	

4	Is tank shell or supports free of soil, vegetation, water, or foreign material collected or covering the grade line (tank chime or bottom projection)?	☐ Yes ☐ No* ☐ N/A	
5	Is the primary tank free of water or has another preventative measure been taken? NOTE: Refer to paragraphs 6.10 and 6.11 of the standard for alternatives for Category 1 tanks. N/A is only appropriate for these alternatives.	☐ Yes ☐ No* ☐ N/A	
6	For double-wall or double bottom tanks or CE-ASTs, is interstitial monitoring equipment (where applicable) in good working condition?	☐ Yes ☐ No* ☐ N/A	
7	For double-wall tanks or double bottom tanks or CE-ASTs, is interstice free of liquid? Remove the liquid if it is found. If tank product is found, investigate possible leak.	☐ Yes ☐ No* ☐ N/A	
	Equipment on tank		
8	If overfill equipment has a "test" button, does it activate the audible horn or light to confirm operation? If battery operated, replace battery if needed.	☐ Yes ☐ No* ☐ N/A	
9	Is overfill prevention equipment in good working condition? If it is equipped with a mechanical test mechanism, actuate the mechanism to confirm operation.	☐ Yes ☐ No* ☐ N/A	
10	Is the spill container (spill bucket) empty, free of visible leaks and in good working condition?	☐ Yes ☐ No* ☐ N/A	
11	Are piping connections to the tank (valves, fittings, pumps, etc.) free of visible leaks? **Note**: *If "No", identify location and describe leak.*	☐ Yes ☐ No*	
12	Do the ladders/platforms/walkways appear to be secure with no sign of severe corrosion or damage?	☐ Yes ☐ No* ☐ N/A	
	Containment (Diking/Impounding)		
13	Is the containment free of excess liquid, debris, cracks, corrosion, erosion, fire hazards and other integrity issues?	☐ Yes ☐ No* ☐ N/A	
14	Are dike drain valves closed and in good working condition?	☐ Yes ☐ No* ☐ N/A	
15	Are containment egress pathways clear and any gates/doors operable?	☐ Yes ☐ No* ☐ N/A	
	Concrete Exterior AST (CE-AST)		
16	Inspect all sides for cracks in concrete. Are there any cracks in the concrete exterior larger than 1/16"?	☐ Yes* ☐ No ☐ N/A	
17	Inspect concrete exterior body of the tank for cleanliness, need of coating, or rusting where applicable. Tank exterior in acceptable condition?	☐ Yes ☐ No* ☐ N/A	
18	Visual inspect all tank top openings including nipples, manways, tank top spill containers, and leak detection tubes. Is the sealant between all tank top openings and concrete intact and in good condition?	☐ Yes ☐ No* ☐ N/A	
	Other Conditions		
19	Is the system free of any other conditions that need to be addressed for continued safe operation?	☐ Yes ☐ No*	

Additional Comments:

STI SP001 Annual Inspection Checklist

General Inspection Information:

Inspection Date: _____ Prior Inspection Date: _____ Retain until date: _____

Inspector Name (print):_____ Title: _____

Inspector's Signature: _____

Tank(s) inspected ID _____

Regulatory facility name and ID number (if applicable) _____

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are substantially equivalent and meet all applicable inspection checklist items.
- For equipment not included in this Standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Promptly remove standing water or liquid discovered in the primary tank, secondary containment area, interstice, or spill container. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and dispose of it properly.
- In order to comply with EPA SPCC (Spill Prevention, Control and Countermeasure) rules, a facility should regularly test liquid level sensing devices to ensure proper operation (40 CFR 112.8(c)(8)(v)).
- * designates an item in a non-conformance status. This indicates that action is required to address a problem. Note that non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 36 months.
- Complete this checklist on an annual basis, supplemental to the owner monthly-performed inspection checklists.
- **Note: If a change has occurred to the tank system or containment that may affect the SPCC plan, the condition should be evaluated against the current plan requirement by a Professional Engineer knowledgeable in SPCC development and implementation.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Tank Foundation/Supports		
1	Free of tank settlement or foundation washout?	☐ Yes ☐ No*	
2	Concrete pad or ring wall free of cracking and spalling?	☐ Yes ☐ No* ☐ N/A	

3	Tank supports in satisfactory condition?	☐ Yes ☐ No* ☐ N/A	
4	Is water able to drain away from tank if tank is resting on a foundation or on the ground?	☐ Yes ☐ No* ☐ N/A	
5	Is the grounding strap between the tank and foundation/supports in good condition?	☐ Yes ☐ No* ☐ N/A	
Tank Shell, Heads and Roof			
6	Free of visible signs of coating failure?	☐ Yes ☐ No*	
7	Free of noticeable distortions, buckling, denting, or bulging?	☐ Yes ☐ No*	
8	Free of standing water on roof?	☐ Yes ☐ No* ☐ N/A	
9	Are all labels and tags intact and legible?	☐ Yes ☐ No*	
Tank Manways and Piping			
10	Are piping system joints, manway covers, gaskets, and attachment bolts tight and in good condition with no sign of wear, damage, leaks or corrosion?	☐ Yes ☐ No* ☐ N/A	
11	Are piping supports in good condition and free of corrosion and damage?	☐ Yes ☐ No* ☐ N/A	
12	Is leak or release detection on underground piping being performed and documented if required?	☐ Yes ☐ No* ☐ N/A	
Tank Equipment			
13	Normal and emergency vents free of obstructions?	☐ Yes ☐ No*	
14	Have the level sensing devices (e.g, level gauges, alarms) been checked for operability, where possible, as per manufacturer's instructions or good engineering practice?	☐ Yes ☐ No* ☐ N/A	
15	Have flame arrestors been maintained per manufacturer's recommendations?	☐ Yes ☐ No* ☐ N/A	
16	Is the emergency vent in good working condition and functional, as required by manufacturer? Consult manufacturer's requirements. Verify that components are moving freely (including long-bolt manways).	☐ Yes ☐ No* ☐ N/A	

17	Is interstitial leak detection equipment in good condition? Are windows on sight gauges clear? Are wire connections intact? If equipment has a test function, does it activate to confirm operation?"	☐ Yes ☐ No* ☐ N/A	
18	Are all valves free of leaks, corrosion, and other damage? Follow manufacturers' instructions for regular maintenance of these items. Check the following and verify (as applicable): ☐ Anti-siphon valve ☐ Check valve ☐ Gate, ball, or isolation valve ☐ Pressure regulator valve ☐ Expansion relief valve ☐ Solenoid valve ☐ Fire valve ☐ Shear valve	 ☐ Yes ☐ No* ☐ N/A ☐ Yes ☐ No* ☐ N/A ☐ Yes ☐ No* ☐ N/A ☐ Yes ☐ No* ☐ N/A ☐ Yes ☐ No* ☐ N/A ☐ Yes ☐ No* ☐ N/A ☐ Yes ☐ No* ☐ N/A ☐ Yes ☐ No* ☐ N/A	
19	Are strainers and filters clean and in good condition?	☐ Yes ☐ No* ☐ N/A	
	Insulated Tanks		
20	Free of missing insulation? Insulation free of visible signs of damage? Insulation adequately protected from water intrusion?	☐ Yes ☐ No* ☐ N/A	
21	Insulation free of noticeable areas of moisture?	☐ Yes ☐ No* ☐ N/A	
22	Insulation free of mold?	☐ Yes ☐ No* ☐ N/A	
23	Free of visible signs of coating failure?	☐ Yes ☐ No* ☐ N/A	
	Other Equipment		
24	Are electrical wiring and boxes in good condition?	☐ Yes ☐ No* ☐ N/A	
25	Has the cathodic protection system on the tank been tested as required by the designing engineer?	☐ Yes ☐ No* ☐ N/A	

Additional Comments:

STI SP001 Portable Container Monthly Inspection Checklist

General Inspection Information:

Inspection Date: _____ Prior Inspection Date: _____ Retain until date: _____

Inspector Name (print): _____ Title: _____

Inspector's Signature (): _____

Container(s) inspected ID _____

Regulatory facility name and ID number (if applicable) _____

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are equivalent and meet all applicable inspection checklist items.
- This periodic Inspection is intended for monitoring the external condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector who is familiar with the site and can identify changes and developing problems.
- * designates an item in a non-conformance status. This indicates that action is required to address a problem. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 36 months.

	Item	Area:	Area:	Area:	Area:
	Portable Container Containment/Storage Area				
1	Are all portable container(s) within designated storage area?	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*
2	Is the containment and storage area free of excess liquid, debris, cracks or fire hazards?	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*
3	Are drain valves closed and in good working condition?	☐ Yes ☐ No* ☐ N/A	☐ Yes ☐ No* ☐ N/A	☐ Yes ☐ No* ☐ N/A	☐ Yes ☐ No* ☐ N/A
4	Are containment egress pathways clear and any gates/doors operable?	☐ Yes ☐ No* ☐ N/A	☐ Yes ☐ No* ☐ N/A	☐ Yes ☐ No* ☐ N/A	☐ Yes ☐ No* ☐ N/A
	Container				
5	Is the container free of leaks? Note: *If "No", discontinue use of container*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*
6	Is the container free of distortions, buckling, denting or bulging? Note: *If "No", discontinue use of container*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*

Comments:

APPENDIX D
INSPECTION OF THERMOPLASTIC ASTS

D.1 GENERAL

D.1.1 This Appendix applies to ASTs storing thermoplastics with operating temperatures between ambient and 500°F (260°C).

D.1.2 This Appendix applies to portable containers, shop-fabricated ASTs and field-erected ASTs as defined in the main body of this Standard.

D.1.3 Inspections are to be performed whenever the tank or container contains product.

D.2 INSPECTION SCHEDULE

D.2.1 AST Categories for thermoplastic ASTs are as follows:

D.2.1.1 Category 1A – ASTs with spill control and with CRDM that contain a thermoplastic heated to temperatures greater than 200°F.

D.2.1.2 Category 2A – ASTs with spill control and without CRDM that contain a thermoplastic heated to temperatures greater than 200°F.

D.2.1.3 Category 3A – ASTs without spill control that contain a thermoplastic heated to temperatures greater than 200□F.

D.2.2 Refer to Table D2.2 below for the inspection timetable. The P, E, I, and L designations are described in the main body of this Standard in section 5.5.

TABLE D2.2
TABLE OF INSPECTION SCHEDULES

AST Type and Size (U.S. gallons)		Category 1A	Category 2A	Category 3A
Shop-Fabricated Welded Steel ASTs	0 – 1100 (0-4164 liters)	P	P	P
	1101 - 5,000 (4168-18,927 liters)	P	P	P, E (35)
	5,001 - 30,000 (18,931-113,562 liters)	P	P	P, E(30)
	30,001 - 50,000 (113,566-189,271 liters)	P	P, E(35)	P, E(25)
Field-erected ASTs		P, E(5), I(10)	P, E(5), I(10)	P, E(5), I(10)
Portable Containers		P	P	P

D.3 INSPECTION GUIDELINES

D.3.1 Follow the requirements found in the main body of the SP001 Standard for Periodic Inspections and FEI plus any additional requirements in this Appendix.

D.4 SUITABILITY FOR CONTINUED SERVICE

D.4.1 Evaluation for suitability for continued service is a result of Formal External and/or Internal Inspections performed by a Certified Inspector. This section describes the actions to be taken by the owner as a result of these inspections. These conditions and others found during these inspections may require additional inspections or evaluations.

D.4.2 For all tanks in Table D2.2, if damage that compromises tank integrity (see D4.4.1 through D4.4.3) is found at any time, then repairs to all damaged areas on the AST shall be promptly made. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST.

D.4.2.1 If MIC is suspected, a sample of liquid from the tank bottom (if available) should be tested for bacteria that could cause MIC.

D.4.2.1.1 If MIC is confirmed, mitigation measures shall be taken to eliminate the source of MIC. Mitigation measures shall use good engineering practice appropriate for the tank system design and the material being stored.

D.4.3 If the re-inspection confirms that MIC has been mitigated due to measures taken to eliminate it, such as regular and careful water removal and sterilization of the tank and piping systems, then the AST may be inspected according to Table D2.2.

D.4.4 Shop-fabricated ASTs and Portable Containers containing thermoplastics

D.4.4.1 Category 3A ASTs - If the shell thickness has been reduced to less than 75% of the original shell thickness, then the AST shall be taken out of service and repaired or replaced. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST. The Certified Inspector shall document in the FEI or FII report that the next Formal External or Formal Internal Inspection shall be within 5 years and each subsequent 5 years thereafter until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested or is in a steady-state condition, then follow the inspection intervals shown in Table D2.2 for subsequent inspections.

D.4.4.2 Category 2A ASTs – The AST shall be repaired or replaced if more than 3 square inches of any one square foot of the tank shell (i.e., approximately 2%) is found to be less than 75% of the original shell thickness or if the remaining shell thickness of an area is less than 50% of the original shell thickness at any point. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST. The Certified Inspector shall document in the FEI or FII report that the next Formal External or Formal Internal Inspection shall be within 5 years and each subsequent 5 years thereafter until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested or is in a steady-state condition, then follow the inspection intervals shown in Table D2.2 for subsequent inspections.

D.4.4.3 Category 1A ASTs - The AST shall be repaired or replaced if more than 3 square inches of any one square foot of the tank shell (i.e., approximately 2%) is found to be less than 50% of the original shell thickness or if the remaining shell thickness of an area is less than 25% of the original shell thickness at any point. Refer to Steel Tank Institute SP031 Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids for alterations or repairs to an AST. The Certified Inspector shall document in the FEI or FII report that the next Formal External or Formal Internal Inspection shall be within 5 years and each subsequent 5 years thereafter until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested or is in a steady-state condition, then follow the inspection intervals shown in Table D2.2 for subsequent inspections.

D.4.5 Field-erected ASTs containing thermoplastics

D.4.5.1 The minimum allowable remaining thickness is 0.1 inch (2.54 mm). In setting the next inspection interval based upon corrosion rates, neither the bottom nor the shell shall be allowed to corrode less than 0.1 inch.

D.4.5.2 The minimum required thickness of each shell course shall be according to:

$$t_{min} = \frac{(H-1)DG}{8{,}000}$$

t_{min} = the minimum acceptable average thickness, in inches, for each course as calculated from the above formula. However, t_{min} shall not be less than 0.1 inch (2.54 mm) for any tank course.

D = nominal diameter of tank, feet.

H = height from the bottom of the shell course under consideration to the maximum liquid level when evaluating an entire shell course, feet.

G = largest specific gravity of the contents.

D.4.6 Refer to Table D.2.2 above for the inspection timetable. Note that the internal inspection intervals shown in this table are guiding values when corrosion rates are not determined, in accordance with recognized and accepted industry principles and practice.

D.4.6.1 When corrosion rates are established, the corrosion rates may govern the internal inspection interval, which may be shorter or longer than the values shown.

D.4.6.2 For Category 1A tanks, the maximum internal re-inspection interval is 30 years.

D.4.6.3 For Category 2A tanks, the maximum internal re-inspection interval is 20 years.

D.4.6.4 For Category 3A tanks, the maximum internal re-inspection interval may not be longer than shown in Table D.2.2.

APPENDIX H
Monthly & Annual Inspection Logs

ARCHAEA ENERGY

Audit & Inspection

Scoping

Business Entity	Coyote Canyon
Date Performed	11/21/2024
Question Set / Route	Monthly/Annual Tank Farm Inspection

Details

Instructions	Upon the discovery of any leak, spill or release, please contact your supervisor, your Regional Manager and the Compliance Dept. with the following information: 1) The time of discovery; 2) The location and cause of the leak, spill or release; 3) The estimated total amount released (gal); 4) Corrective actions used by personnel to stop the source of the leak, spill or release; 5) Clean up procedures and; 6) The total estimated amount recovered (gal).
Audit Time	3:08 PM
Auditor	Emily Zambuto

Questions

G. General

G.1	Inspection Type:	
	Guidelines	The Annual Inspection will serve as the monthly for the month that it was conducted.
G.2	Tank ID's:	
G.3	Is the tank registration certificate posted onsite?	
G.4	3rd Party Certification:	
G.4.1	Chemical Storage Tanks have been formally inspected by a Certified Inspector once every 5 years (New York) and the records maintained?	
G.4.2	Used Oil Tanks have been formally inspected by a Certified Inspector once every 5 years (California) and the records maintained?	
G.4.3	Shop Fabricated Tanks greater than 5000 gal, Formal 20-Year Exterior Inspections must be performed by a Certified Inspector and the records maintained?	
G.5	SPCC/SPR Plan:	
G.5.1	Is the SPCC Plan current and correct (ensure contact info is current & up to date)?	
G.5.2	Any other conditions needing to be addressed, or that may affect the site SPCC and/or SPR Plan?	

1.0. Containment Dikes

1.1	Containment General:
1.1.1	Dike Condition: Chips, breaks, peeling, paint, and seam.
1.1.2	Standing water, liquid, debris
1.1.3	Evidence of Spill/Leaks
1.1.4	Stormwater Inspected and removed?
1.1.5	Appropriate Drum Strorage (labeled, closed lids, bungs in place)
1.1.6	Containment egress pathways clear/fire exinguishers are maintained?
1.1.7	Debris in tank farm sump?

1.2	Valves/Pumps:
1.2.1	Gate Valves/pumps used for emptying containment area are secured.
1.2.2	Valves Operational & Labeled directionally for "Open" and "Close"
1.3	Sump:
1.3.1	Evidence of spill, release, discharge?
1.3.2	Any liquid or debris removed appropriately?

2.0. Tanks

2.1	Tanks General:
2.1.1	Evidence of Spills/Leaks?
2.1.2	Supports in good condition?
2.1.3	Anchor Bolts tight?
2.1.4	All tanks gauges have been inspected and are operational?
2.1.5	Tank Straps/Chains Damaged or Unsecured (where applicable)?
2.1.6	Double-Wall Tanks, Interstitial Space free from liquids?
2.1.7	Settlement/Cracks/Corrosion/Weeds
2.1.8	Spill Buckets/Containers Clean, Labeled & Locked (top & drain)?
2.1.9	Fill Port API Color Coded?
2.1.10	Fill Port Maintained & Locked?
2.1.11	Cracks/Bulges/Corrosion/Rust Spots/Discoloration?
2.1.12	Paint/Sealant in Good Condition?
2.2	Foundation:
2.2.1	Free of tank settlement or foundation washout?
2.2.2	Concrete pad or ring wall free of cracking or spalling?
2.2.3	Water able to drain away from tank?
2.3	Tank Shell:
2.3.1	Check tank shell surface for any areas of rust or other deterioration (paint failure, pitting and corrosion). Check welds, rivets/bolts, seams, and foundation.
2.3.2	Free of noticeable shell/head distortion, bucking, denting, or bulging?
2.3.3	Free of visible signs of shell/head corrosion or cracking?
2.4	Tank Roof:
2.4.1	Free of standing water on roof?
2.4.2	Free of holes?
2.5	Venting:
2.5.1	Normal and emergency vents free of obstructions?
2.5.2	Normal vent on tanks storing gasoline equipped with pressure/vacuum vent cap?
2.5.3	Emergency Vent is good working condition and functional, and tested as required by manufacturer?
2.6	Level & Overfill Prevention:
2.6.1	Electronic or mechanical liquid level gauge tested for proper operation?
2.6.2	Electronic or mechanical liquid level gauge calibrated during the previous 12 months?
2.6.3	Is the overfill prevention equipment in good working condition (overfill valve, audible alarm, etc.)?
2.6.4	Is the tank ullage (i.e. fill capacity) being determined and documented before filling the tank?
2.7	Electrical Equipment:
2.7.1	Is tank/equipment grounding adequate and in good condition?
2.7.2	Is electrical wiring for control boxes, lights, and other high voltage equipment in good condition?
2.8	Release Detection:
2.8.1	Is inventory control being performed and documented as required?
2.8.2	Is release detection being performed and documented on underground piping as required?
2.9	Labeling:
2.9.1	Are the tanks properly labeled?

3.0. Piping

3.1	Piping General:
3.1.1	Leaks and Spills
3.1.2	Gaps/Punctures/Cracks/Bulges/Corrision/Rust Spots/Discoloration?
3.1.3	Paint/Sealant in Good Condition
3.1.4	Inspect for leaks/standing on piping, flanges, manifolds and valves. Were any leaks noted?
3.1.5	Condition: rust, missing bolts, pipe condition.
3.1.6	Fill valves should be secured, caps in place.
3.1.7	Flanged connection bolts tight and fully engages with no signs of wear or corrosion?
3.2	Are the pipes properly labeled?
3.3	Release Detection:
3.3.1	Is inventory control being performed and documented as required?
3.3.2	Is release detection being performed and documented on underground piping as required?

4.0. Unloading Area

4.1	Signs of spills, leaks, or standing water.
4.2	Unloading area condition

5.0. Area Outside of Containment

5.1	Signs of spills, leaks, discolored Soil
5.2	Vegetation around tank area is trimmed, not presenting a fire or other hazard.
5.3	Walking/working surfaces are clean, free of obstructions and hazards.
5.4	Crankcase blowdown barrels have available space?
	Guidelines Applicable to INGENCO Facilities only.
5.5	Area around transformers free of leaks?

6.0. Spill Kit

6.1	Is a spill kit available?

Comments

Comments

Signatures

Auditor's Signature

APPENDIX I
Briefings and Training Records

TRAINING LOG

TRAINING LOGS MUST BE MAINTAINED WITH THIS SPCC PLAN.

***By signing below, the trainee attests that they have completed the indicated training and fully understand the concepts, intentions, and procedures of this SPCC Plan.**

NAME	TITLE	SIGNATURE*	TRAINING DATE	INSTRUCTOR

ARCHAEA ENERGY
a bp company

bp

October 2024

Annual SPCC Training

FOR INTERNAL PURPOSES ONLY

What is an SPCC?

- In order to meet the requirements of EPA's Oil Pollution Prevention regulation 40 CFR Part 112 the owner or operator or an onshore or offshore facility subject to this section must prepare in writing and implement a Spill Prevention Control and Countermeasure Plan.
- This regulation applies to any facility with a cumulative oil storage capacity of 1,320 gallons or more that stores and/or uses oil, which in the event of a release, could be reasonably expected to discharge oil in harmful quantities into the "Navigable Waters of the United States".
- SPCC Plans outline:
  - Where oil is stored onsite (includes tanks and oil filled equipment with a capacity of 55-gal. or greater)
  - How oil is contained, and prevented from being released
    - Transfer operation considerations, description of overfill prevention and alarms
  - Inspection procedure
  - Spill and emergency response procedures
    - Reporting/Notification Procedures
- **Copy of the Site-Specific SPCC Plan**

Add Site's SPCC Figure 1

FOR INTERNAL PURPOSES ONLY

Site Security

- Containers must be located in areas that are accessible to authorized site personnel only.
  - Fill ports and secondary containment should be kept locked.
- Lighting must be sufficient to enable the discovery of a spill during hours of darkness and to prevent spills from occurring due to acts of vandalism.

Roles and Responsibilities

Environmental Advisors:

- Developing SPCC Plans
- Providing Annual Spill Prevention Training and Guidance for Staff
  - Maintaining training records
- Assigning periodic inspections
- Monitoring regulation changes
- Supporting spill incident reporting and follow up
  - Ensure spill equipment is stocked
- Reviewing SPCC/SPR Plans at least once annually

Roles and Responsibilities

Site Operators:

- Attend Spill Prevention Training
- Be familiar with SPCC Plan requirements
- Be familiar with the locations of spill cleanup materials, and inventory at least once month.
- Perform required periodic inspections of bulk storage tanks and containers (daily, weekly, monthly, annually, as assigned by the EA)
- Keep records of inspections, fuel deliveries, secondary containment dike drainage, records of maint. and repairs made to the tank or systems
- Control, contain, cleanup spills. Document spills, provide appropriate notifications of spills.

Daily Inspections

- Check for leaks on all equipment covered by the plan.
- Inspect secondary containments. Drain rainwater from containment, assuming no oily sheen is present. Remove any vegetation, accumulated dirt or debris.
- Make sure containment valves are closed and locked.
- Ensure all portable containers used onsite have labels and proper secondary containment.

Monthly/Annual Inspections

- Documented in EHS Insight: Monthly Tank Inspection
- ***All components for daily inspection, in addition:***
- Making sure level sensors are working properly, testing high level alarms, if possible.
- Checking interstitial space of double wall tanks (if manual check is required).
- Ensuring proper labeling on tanks / containers
- Ensuring fill ports closed and locked and directional arrow, or open/close is legible on all flow control valves.
- Piping in good condition, with no leaks
- Spill kits present and re-stocked as needed
- Making sure SPCC hard copy is onsite, along with any necessary tank registrations

Transfer Operations

Prior to Transfer Operations

- A designated, trained facility employee must be present to observe all oil deliveries/used oil loadout, etc. and to ensure that proper spill prevention procedures are followed.
- Have spill kit materials present in area of planned work.
- Determine the volume needed to fill the tank to the working capacity (90% of design capacity).
- Identify the fill port and receiving tank for oil being delivered.
- Place a drip container under the fill port or hose.
- Verify that the drain valves to the secondary containment structures are in the closed position.

Transfer Operations

During Transfer Operations

- Verify driver has placed wheel checks to prevent vehicles from departing before complete disconnection of flexible oil transfer lines.
- Verify that there are no leaks and that the oil is transferring to or from the desired tank.
- Inspect piping and tank, including valves and connections for leaks during the delivery.
- Monitor the liquid level in the receiving tank to prevent overflow.

Transfer Operations

After Transfer Operations)

- Verify that all isolation valves have been returned to the closed position before disconnecting the transfer hoses.
- Verify that the delivery/vac truck vehicle is disconnected from the tank and piping prior to exiting the facility.
- Prior to the vehicle exiting the facility inspect the loading area to ensure that no oil has been leaked or spilled during the delivery.
- Verify vehicle outlets and drains are in place.
- Document and maintain records of the delivery including – quantity of oil delivered, receiving tank, and any problems encountered during the Transfer Operation.

Spill Response

- Identify the source of the spill or discharge. If spill response procedures are known and proper PPE is readily available, attempt to stop the release at its source (i.e. close valve, return drum to upright position, plug holes, etc.)
- Remember the 3 C's of handling any accidental spills. These are control, contain, and clean up.
- Controlling the situation is to stop the cause or source of the spill or slowing down the rate of release.
- Containing the spill is minimizing the damage of the oil or hazardous material by preventing the spill from spreading to other areas.
- Clean up is the removal of the contaminants or substance itself from the affected area. The proper disposal of the materials used in the removal of the contamination is the final step in any clean up.

24/7 Emergency Response

Removal of Product

- Removal of oil or glycol as a liquid may be required as part of cleanup efforts.
- Oil/glycol requiring removal may be in diked areas, storm water drains, or atop water.
- Place the absorbent pads, pillows or rolls directly on the liquid.
- Scatter the absorbent pads or rolls in the different areas to aid in the clean up.
- Continue placing and replacing absorbent pads until the last drop of liquid is absorbed.
- Get ready with your plastic bags found in the Spill Kits for the soiled absorbents.
- Place all the soiled absorbent pads inside the plastic bag and re-bag soiled absorbents to prevent leakage.
- Once you have finished with bagging everything place the bags inside the spill kit overpack drum.
- Label or tag the container.

Removal of Contaminated Materials

- EAs will determine the magnitude of the cleanup activities governed by current regulations.
- Remediation may involve the excavation of soils either manually or with the use of heavy equipment.
- Develop waste type and quantity estimates for obtaining proper disposal approvals.
- Waste characterization sampling may be required. The facility manager may coordinate water and/or soil sampling to verify that applicable cleanup standards have been met.
- Contain oil or glycol-contaminated materials (i.e., excavated soils, absorbent materials, etc.) in drums or place directly into plastic lined dump trucks (or other containers determined to be appropriate from transportation and disposal)

Removal of Oil from the Storm Water Drainage System and Waterways

- Releasing oil into a waterway in sufficient amounts to cause a visible sheen or bottom sludge is a violation of state and federal water quality standards.
- Remediation is not complete until all visible indications of oil have been removed.
- Small areas may be soaked up using oil absorbent mats. Oil booms can be used to contain oil on water surfaces.
- Large surface areas may require the use of an oil skimmer.
- Remove oil released into dry storm water drains to prevent the migration and contamination of waterways during future precipitation events.
- Future storm water discharges from these conveyances should be monitored for signs of oil.

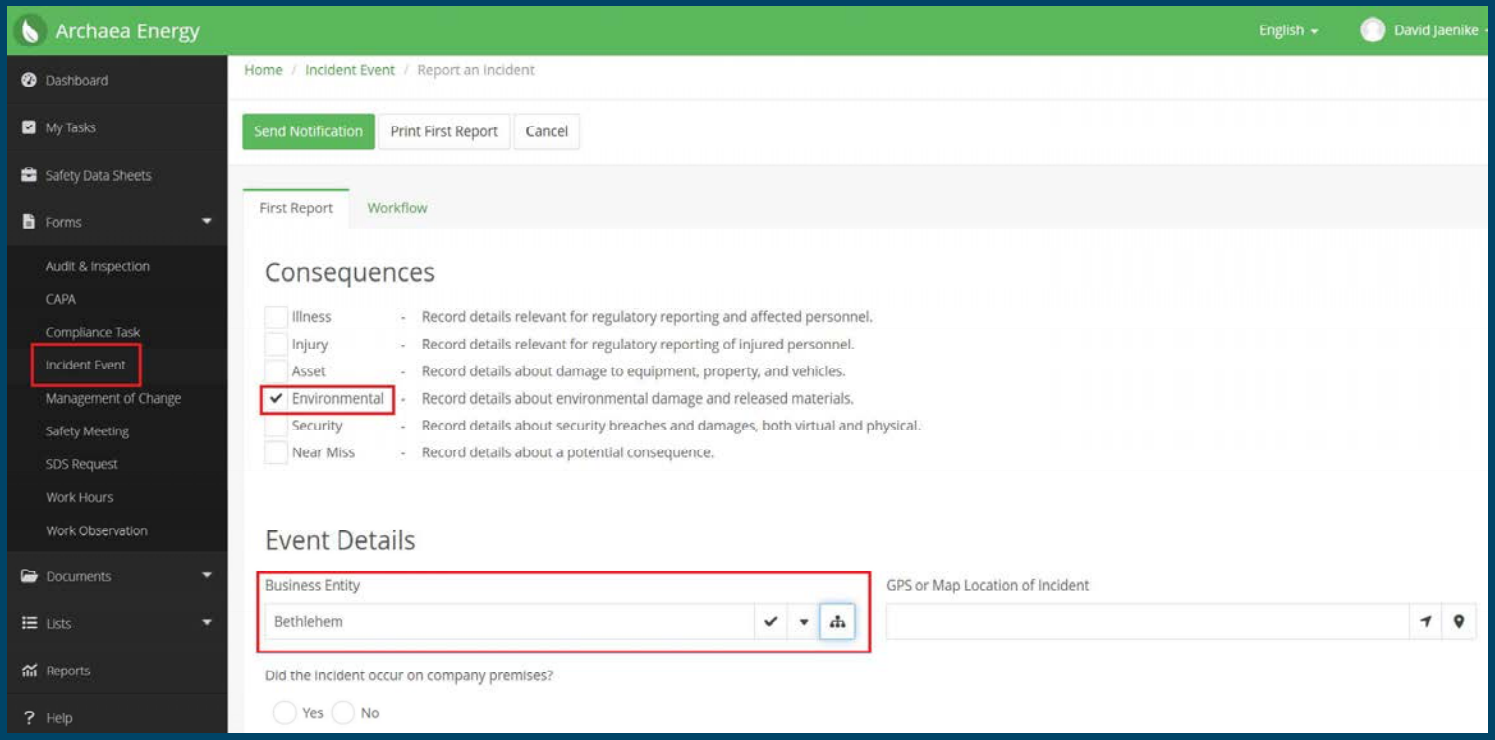
Removal of Contaminated Materials

- EAs will determine the magnitude of the cleanup activities governed by current regulations.
- Remediation may involve the excavation of soils either manually or with the use of heavy equipment.
- Develop waste type and quantity estimates for obtaining proper disposal approvals.
- Waste characterization sampling may be required. The facility manager may coordinate water and/or soil sampling to verify that applicable cleanup standards have been met.
- Contain oil or glycol-contaminated materials (i.e., excavated soils, absorbent materials, etc.) in drums or place directly into plastic lined dump trucks (or other containers determined to be appropriate from transportation and disposal)

Spill Notifications

- Once a discharge is detected (or suspected) the Plant Manager shall be notified immediately.
  - The Plant Manager will submit the incident report via EHS Insight
  - The EA will follow up with the Plant Manager or Site Operator to obtain additional information.
    - EA will notify Federal, state and local agencies as necessary.
- Landfill personnel will be notified if the discharge leaves the facility's property or threatens the landfill's on-site storm water or leachate containment ponds.

Spill Reporting

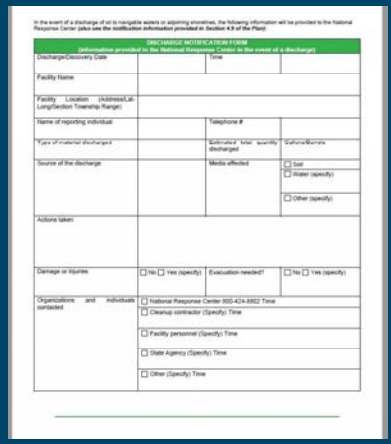


[EHS Insight Spill Report]

FOR INTERNAL PURPOSES ONLY

Recordkeeping

- Records of spills must be maintained onsite for at least 5 years.
- All records must include:
  - Name and title of employees involved in spill response
  - Date and time of the release of oil
  - Type of material released
  - Estimates of the total quantity released
  - Estimates of the quantity discharged, Source of release
  - Environment impact
  - Any damage or injuries as a result
  - Parties notified
  - Spill response summary
  - Estimation of volume of oil recovered
  - Waste disposal records
  - Records of regulatory notifications (if necessary)
  - Operating procedures and equipment upgrades needed to prevent recurrence, Recommendations to prevent future spills.



DISCHARGE NOTIFICATION FORM
(Information provided to the National Response Center in the event of a discharge)

Discharge/Discovery Date		Time	
Facility Name			
Facility Location (Address/Lat-Long/Section Township Range)			
Name of reporting individual		Telephone #	
Type of material discharged		Estimated total quantity discharged	Gallons/Barrels
Source of the discharge		Media affected	☐ Soil ☐ Water (specify) ☐ Other (specify)
Actions taken			
Damage or injuries	☐ No ☐ Yes (specify)	Evacuation needed?	☐ No ☐ Yes (specify)
Organizations and individuals contacted	☐ National Response Center 800-424-8802 Time		
	☐ Cleanup contractor (Specify) Time		
	☐ Facility personnel (Specify) Time		
	☐ State Agency (Specify) Time		
	☐ Other (Specify) Time		

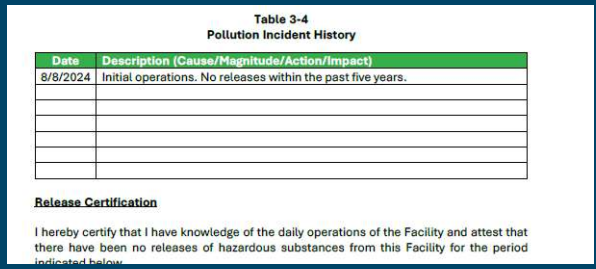


Table 3-4
Pollution Incident History

Date	Description (Cause/Magnitude/Action/Impact)
8/8/2024	Initial operations. No releases within the past five years.

Release Certification

I hereby certify that I have knowledge of the daily operations of the Facility and attest that there have been no releases of hazardous substances from this Facility for the period indicated below.

Common SPCC Violations

- Untrained Personnel
- Failure to Report Spills
- Lack of adequate SPCC Plans, or out-of-date plans (emergency contact info)
- Inadequate secondary containment
- Lack of procedures and control measures to prevent a spill from reaching the environment
- Lacking or damaged labeling
- Missing inspection records
- Corrosion on active tank and/or piping systems

Disposal

- Used oil: 55 gallon drum or 275 gallon tote
  - Container must be closed when not filling. Must have “Used Oil” Label placed on side of drum.
  - Container must be on containment
  - Dispose via Safety Kleen, or another licensed waste hauler.
- Oily condensate: oil/condensate skimmed off the oil water separator. **Must be managed separate from used oil, profiled prior to disposal. Environmental Advisor to assist**
- Oily rags, oily filters and oil spill clean up material: Placed in 55 gallon open top drum.
  - Container must be closed when not filling. Must have “Oily Absorbents” Label placed on side of drum.
  - Dispose via Safety Kleen, or another licensed waste hauler.

Questions?

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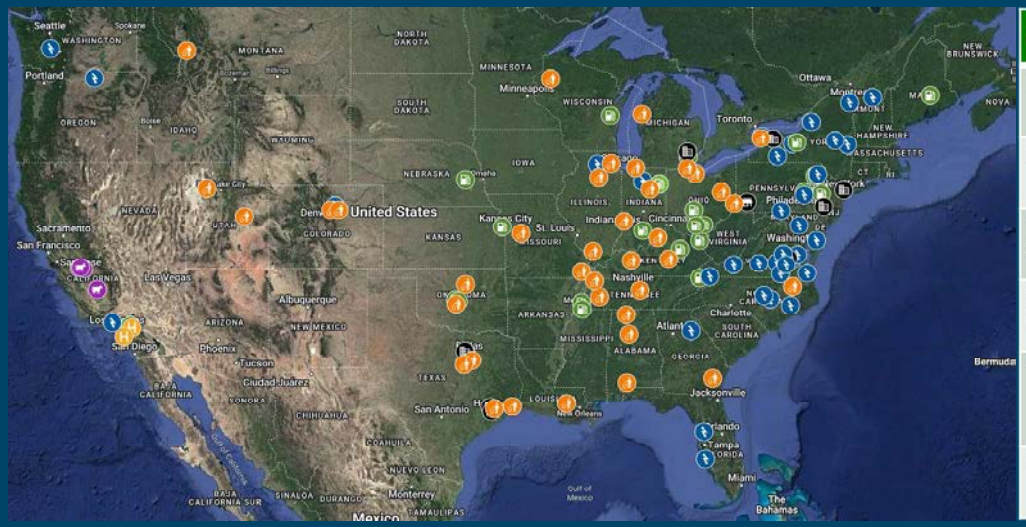

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