## Tank Farm Plant Operating Procedure

### Operate Portable Gas Generators

#### GENERAL

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
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<tr>
<td>E-1</td>
<td>10/01/2018</td>
<td>Inconsequential changes</td>
<td>Removed typo.</td>
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<tr>
<td>E-0</td>
<td>10/03/2016</td>
<td>Periodic review comment resolution.</td>
<td>Rewrote Caution to address required format from writer’s standard. Section 5.1 made note into Special Instruction to address implied actions. Clarified Steps 5.2.6, 5.3.2, 5.4.2.1, and 5.4.3.</td>
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<tr>
<td>D-0</td>
<td>08/26/2013</td>
<td>All changes are as a result of the periodic review process.</td>
<td>Globally modified/deleted vague phrases. Modified wording in Step 1.2.2. Added new Section 3.3. Added new Step 3.3.1. Deleted WARNINGS in Section 3.1. Modified wording in third and fourth bullets in Section 4.1. Deleted WARNINGS from Steps 5.1.8, 5.2.1, 5.4.4.2, 5.4.3.</td>
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<td>08/07/2013</td>
<td>PER-2012-1587</td>
<td>Update MSDS reference to include GHS-SDS</td>
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<td>C-3</td>
<td>08/08/2012</td>
<td>Operations request</td>
<td>Remove horsepower ratings and coolant from the procedure. Inserted MSDS for Gasoline.</td>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure is intended to provide supplemental information to personnel assigned to operate portable gas generators.

1.2 Scope

1.2.1 The intent of this procedure is for it to be used as a supplement to the manufacturers operating instructions found in the owner’s manual, and not as a stand-alone operating procedure.

1.2.2 This procedure is for operation of small portable gas generators.

2.0 INFORMATION

2.1 General Information

2.1.1 This equipment is used to support many different purposes and applications. It is supplied to customers with varying degrees of training and experience. For this reason, this equipment is designed for ease of operation. Operating instructions will be found in the owner’s manual provided with the portable gas generator, which identifies the steps necessary to safely operate the equipment. It is incumbent upon the operator to follow these instructions to ensure their safety and the safety of the equipment.

2.1.2 Small 4 stroke portable gas generators are normally mounted on a wheeled frame and are powered by a gasoline engine and have various load Kilowatt (KW) and voltage ratings.

2.1.3 The set up for use to support Tank Farm activities is performed in accordance with this procedure, the Owner’s manual, and responsible Facility Management specifications.
3.0  PRECAUTIONS AND LIMITATIONS

3.1  Personnel Safety

3.1.1  Portable gas generator must be free of obstructions during operation.

3.1.2  Do not operate gas generators in areas with insufficient ventilation or indoors due to the potential of carbon monoxide accumulation.

3.1.3  Place generators downwind and as far as possible from personnel and tent openings.

3.1.4  Do not place generators near breathing air compressors.

3.1.5  Portable generators are not required to be grounded if all of the following conditions are met:

3.1.5.1  Labeling on the generator does not require grounding.

NOTE - A cord with one to three molded receptacles may be connected to a receptacle on the generator. A portable GFCI may be used in lieu of a mounted GFCI on existing generators.

3.1.5.2  The generator is only being used to supply cord-and-plug connected equipment items through GFCI receptacles mounted on the generator; and

The generator is not used to supply equipment for electric power distribution.

3.1.6  The frame of a portable generator will serve as the grounding electrode if they supply power to corded equipment through a receptacle on the generator and the non-current carrying metal parts of the receptacle are bonded to the frame.
3.1 Personnel Safety (Cont.)

3.1.7 Portable generators in the back of trucks or other vehicles shall be treated as vehicle mounted generators and are required to follow the grounding requirements as specified below:

- The frame of a vehicle shall be permitted to serve as the grounding electrode for a system grounded by a generator under the following conditions:
  - Vehicle mounted generators bonded to the vehicle frame.
  - Vehicle mounted generators supply power to equipment on the vehicle or to cord and power equipment supplied through a receptacle.
  - The non-current carrying metal parts of equipment and equipment grounding conductor terminals of the receptacles are bonded to the generator frame.
  - A neutral conductor shall be bonded to the generator frame. The bonding of any other conductor shall not be required.

3.2 Equipment Safety

**CAUTION** - Cranking the generator engine longer than 5 seconds while starting may cause damage to the starter.

**CAUTION** - When refueling the generator engine, the following could result in damage to the engine:

- Use of stale or contaminated gasoline or an oil/gas mixture
- Getting dirt or water in the fuel tank.

**CAUTION** - Running with improper oil level could cause damage to the generator engine.

**CAUTION** - Generator output in excess of rated amperage may seriously damage equipment.

3.3 Environmental Compliance

3.3.1 Report any spills or releases immediately to the appropriate WRPS Shift Office. This includes any water discharge to surface contamination.
4.0 PREREQUISITES

4.1 Special Tools, Equipment and Supplies

The following supplies may be needed to perform this procedure:

- Drip pan
- Rags
- SAE 10W-30 weight oil (GHS-SDS #049876)
- Unleaded gasoline in proper container (GHS-SDS #018170).
5.0 **PROCEDURE**

5.1 **Preparing Generator for Operation**

**Special Instructions**

See Section 3.1 for grounding requirements of generator.

The generator must be off and on a level surface in order to get an accurate reading of oil and fuel level.

Drip pan(s) to catch minor oil and fuel leaks is/are required to be installed beneath the generator prior to and during operation of the generator.

5.1.1 **IF** required by NEC Article 250.34, **GROUND** portable gas generator.

5.1.2 **POSITION** portable gas generator as close to level as possible.

5.1.3 **PERFORM** a visual inspection to ensure the following:
- All guards are in place and securely fastened
- All hoses and/or lines are in good condition, secure, and not rubbing
- Drip pan(s) are installed beneath the generator
- No oil, or fuel leaks
- All electrical leads are secure and in good order
- Engine exhaust system is in good condition.

5.1.4 **IF** not already installed, **PLACE** a drip pan under the fuel storage and fill portions of the generator.

5.1.5 **IF** maintenance is required, **NOTIFY** Responsible Facility Manager.

5.1.6 **DON** proper PPE prior to checking fluid levels which includes as a minimum, Gloves, Leather or equivalent.
5.1 Preparing Generator for Operation (Cont.)

Check Generator Engine Fluid Levels

CAUTION
When refueling the generator engine, the following could result in damage to the engine:

- Use of stale or contaminated gasoline or an oil/gas mixture
- Getting dirt or water in the fuel tank.

CAUTION
Running with improper oil level could cause damage to the generator engine.

NOTE - Locations of where to fill oil and gasoline, could be located anywhere on the engine of the portable gas generator, refer to the manufacturer’s owner’s manual for proper locations.

- It is extremely important the operator check for proper fluid levels.

5.1.7 IF not sure where to check for fluid levels on the portable gas generator, CONTACT Responsible Facility Manager before continuing.

5.1.8 BEFORE checking fluid levels ENSURE generator engine has cooled down to prevent possible burns THEN.

PERFORM the following:

- CHECK oil level per manufacturer instructions and add oil as necessary
- CHECK fuel level per manufacturer instructions and refuel as necessary.
5.2 Generator Startup

NOTE - FWS may determine it is not necessary to perform some steps and/or portions of steps in this section.

- Proper positioning of the fuel valve will be dependent upon preferences of the generator manufacturer, refer to manufacturers owner’s manual for detailed instructions.

5.2.1 SETUP portable gas generator outdoors in an area with adequate ventilation per manufacturer’s instructions.

5.2.2 TURN fuel valve to ON position.

5.2.3 ENSURE generator output circuit breaker is OFF.

NOTE - It will take longer for the engine to warm up when the auto-throttle switch is left ON.

5.2.4 IF portable gas generator has an auto throttle switch, ENSURE it is OFF.

**CAUTION**
Cranking the generator engine longer than 5 seconds while starting may cause damage to the starter.

5.2.5 TURN engine switch to start AND HOLD it there for 5 seconds or until engine starts whichever is shorter.

5.2.6 IF engine fails to start within 5 seconds, WAIT at least 10 seconds AND TRY again.
5.2 Generator Startup (Cont.)

5.2.7 IF engine fails to start, CONTACT Responsible Facility Manager AND REQUEST Maintenance support.

5.2.8 AFTER engine starts, ALLOW engine switch to return to ON.

5.2.9 AFTER engine has warmed up for 2 to 3 minutes, TURN auto-throttle switch to AUTO.

5.2.10 CHECK the following after engine starts:
- No abnormal noises or vibrations
- No alarms or warning lights.

NOTE - Some portable generator systems are designed to provide multiple voltage outputs.

5.2.11 SET generator speed control to proper speed for required voltage.

### CAUTION
Generator output in excess of rated amperage may seriously damage equipment.

5.2.12 ALLOW engine to warm up per manufacturer specifications,

OR

IF warm up period is not specified, ALLOW engine to warm up for 3 to 5 minutes.

5.2.13 IF provided, POSITION output circuit breaker to ON position.

5.2.14 MONITOR operating parameters when engine is running to ensure operation within manufacturer specified ranges or normal operating ranges on indicators.

5.2.15 IF any abnormal conditions occur, NOTIFY Responsible Facility Manager.
5.3 Generator Shutdown

5.3.1 IF manufacturer has provided/posted shutdown instructions, SHUTDOWN portable gas generator in accordance with provided instructions in owner’s manual.

5.3.2 IF shut down instructions are not provided, or are unclear, PERFORM the following per Responsible Facility Manager direction:

5.3.2.1 DE-ENERGIZE loads being supplied by portable gas generator.

5.3.2.2 IF provided, POSITION output circuit breaker to OFF.

5.3.2.3 SET generator speed control to minimum setting.

5.3.2.4 ALLOW engine to cool down by running at idle speed for 3 to 5 minutes or as specified by manufacturer.

5.3.2.5 POSITION engine switch to OFF.

5.3.2.6 TURN fuel valve to OFF position.
5.4 Abnormal Condition/Alarm Response

5.4.1 NOTIFY Responsible Facility Manager of any abnormal condition or alarm.

5.4.2 FOLLOW provided manufacturer specific abnormal condition and/or alarm response instructions found in the owner’s manual.

5.4.2.1 IF abnormal condition and/or alarm response is/are not provided, or are unclear, PERFORM the following activities per Responsible Facility Manager direction.

Respond to Low Oil Level

CAUTION
Running with improper oil level could cause damage to the generator motor.

NOTE - Depending upon manufacturer, a low oil pressure condition may or may not automatically shutdown Portable Generator System.

5.4.3 IF oil pressure drops below normal operating range and engine does not automatically shutdown, POSITION Start/Stop Switch to OFF to immediately shutdown engine AND PERFORM the following:

5.4.3.1 ALLOW engine to cool down completely.

5.4.3.2 CHECK oil level AND

IF oil level is low, ADD oil.

a. IF oil level is not low, NOTIFY Responsible Facility Manager.

5.4.3.3 ENSURE loads being supplied by portable gas generator are in a shutdown condition.
5.4 Abnormal Condition/Alarm Response (Cont.)

5.4.3.4 IF provided, POSITION output circuit breaker to OFF.

5.4.3.5 ATTEMPT restart.

5.4.3.6 IF oil pressure is not restored, NOTIFY Responsible Facility Manager for Maintenance support AND DO NOT attempt another restart.

5.4.3.7 IF oil pressure is restored, INSPECT generator for oil leaks.

5.5 Records

No records are generated during the performance of this procedure.