E&P (On-land) No. 13/08

Title: Methanol Tank Explosion

Activity Type (Result/outcome): Explosion and Flash fire

What happened:

A worker was climbing to the top of a 500 gallon (1,893 liter), polyethylene methanol storage tank to check the fluid level. When the worker reached the top of the tank, he touched the cap on the tank with his hand and the flammable vapor around the cap ignited resulting in an explosion and flash fire. The worker received first aid for a second degree burn to his arm.

What caused it:

- The worker had accumulated an electrostatic charge while climbing to the top of the tank.
- Flammable methanol/air mixture had developed inside the tank.
- Level inside the tank was low (less than 10 percent of total volume).

Corrective actions:

- Change out the existing plastic tanks which are nonconductive and difficult to ground. Also, as per API RP 2003, plastic tanks are not recommended for the storage of flammable liquids.
- Procedures for tank inspections, maintenance and filling should be updated.
- Sight glasses should be installed on all tanks for fluid level inspection.
- Tank filling pipe should be extended to the bottom of the tank to prevent splash filling.
- If it is necessary to open the tank cap, a personal ground strap must be worn in combination with gauntlet style gloves and platform should be provided to stand upon.

It is provided for information purpose. This information should be evaluated to determine if it is applicable in your operations, to avoid reoccurrence of such incidents.