2016 SWANA Safety Award Submission
Best Safety Innovation Category

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Executive Summary:
Through a collaborative effort of management and technicians a committee was formed to investigate the root cause of a UTV rollover. The root cause of the accident was technicians were not aware of the UTV tip over point or where in the well fields the UTV had the potential to exceed the rollover angle.

Tip table testing was conducted using 15 degrees (manufacturers recommendation) as the baseline for the tipping point. Testing showed that the actual tip over point was between 38 and 40 degrees depending on configuration of UTV and the installation of wheel spacers.

The employees showed innovation in creating tip tables to identify the actual tip over angle for UTV’s and increased the safe operating angle through the installation of wheel spacers. Inclinometers with audible alarms where installed on all UTV’s to alarm within an identified safety margin of 15 degrees.
• DTE Biomass Energy owns and operates 19 projects across the country, including many with GCCS responsibility.
Background:

On April 29, 2015 a DTE Biomass wellfield technician was involved in a near miss that occurred when his UTV rolled over.

The UTV driver attempted to drive over a patch of clay that was approximately 18-24 inches higher than the grade on which the UTV was being driven. This caused the driver’s side tires to be elevated to an unsafe angle. The vehicle started to tilt and continued to tip further when the driver stopped the UTV. The UTV tipped over and the driver was uninjured.
Description of Hazard:
UTV’s are used in areas that require technicians to operate them beyond the manufacturers recommended maximum safe angle of 15 degrees.

Hazard addressed:
Verify maximum safe angle of UTV operation through experimentation and increase the safe operating angle to meet the landfill and warn when operating beyond identified safe working angle.

Tip Table tests:
• Unloaded and Loaded (300lbs in cargo, 200lbs in driver seat) without wheel spacers
• Unloaded and Loaded with 2” wheel spacers
• 2014 Ranger Polaris 800 6x6, 2008 Ranger Polaris 700 6x6
• Front tires were 26x10.00-12
• Rear tires were 26x12.00-12
<table>
<thead>
<tr>
<th></th>
<th>One wheel up angle</th>
<th>Tipover angle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2014 Polaris 800 6x6</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Wheel Spacers</td>
<td>Unloaded</td>
<td>44°</td>
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<tr>
<td></td>
<td>Loaded</td>
<td>45°</td>
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<tr>
<td>2&quot; Wheel Spacers</td>
<td>Unloaded</td>
<td>38°</td>
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<tr>
<td></td>
<td>Loaded</td>
<td>39°</td>
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<tr>
<td><strong>'08 Polaris 700 6x6</strong></td>
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<tr>
<td>No Wheel Spacers</td>
<td>Unloaded</td>
<td>43°</td>
</tr>
<tr>
<td></td>
<td>Loaded</td>
<td>45°</td>
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</tbody>
</table>
DTE SWANA Safety Award Submission
Best Safety Innovation Category - Pictures of Testing
Inclinometers were installed in all UTVs. The inclinometers have both audible and visual alarms that can be set to alert the operator of areas that are too steep to safely access.
Results:

• No rollovers have occurred since the improvements were put in place.