

OE-3: 2017-03

July 2017

## **S/CI Alert: Ratchet Strap Bolts**

### **PURPOSE**

This Operating Experience Level 3 (OE-3) document provides information about a safety concern arising from the presence of suspect/counterfeit components in ratchet strap assemblies. Identifying suspect/counterfeit components with regard to ratchet strap assemblies and ties downs is important due to failures of these assemblies being capable of serious risk of property loss, property damage, injury, and death. The Occupational Safety and Health Administration includes: 1) gear and equipment not properly inspected and 2) defective gear and equipment as the first two items listed that can create "Struck-by and Crushing Hazards" resulting in serious injuries or fatalities. Inspections of tie down equipment can identify these hazards and prevent accidents.

### **BACKGROUND**

In 2016 and 2017, three events involving suspect/counterfeit items (S/CI) identified in ratchet strap assemblies were reported to the Occurrence Reporting and Processing System (ORPS); one of which was also reported in a Lessons Learned article by Portsmouth Mission Alliance. The events are described below:

- 1) On January 13, 2017, Paducah Gaseous Diffusion Plant issued a report on their review of ratchet assemblies in response to a Lessons Learned report (see References). Nine ratchet assemblies were identified with suspect/counterfeit metric bolts matching the description of those identified in the Lessons Learned report. The ratchet assemblies were not in use at

the time of the review and were pulled from service. The ratchet straps had been purchased from a local vendor and were labeled Ancra International, LLC, Grand Saline, Texas. The label stated that they were made in China and the straps indicated a working load of 3,333 lbs. These ratchet straps were marked for disposal and were replaced with new ones. (ORPS Report EM--PPPO-SST-PGDPENVRES-2017-0002)

- 2) On December 1, 2016, a Quality Assurance (QA) inspector at the Portsmouth Gaseous Diffusion Plant inspected seven ratchet tie-down assemblies. The Purchase Order had requested 10,000-pound ratchet straps that met all Department of Energy (DOE), California Highway Patrol, and Commercial Vehicle Safety Alliance regulations, with a working load of 3,300 pounds and breaking strength of 10,000 pounds. The bolts connecting the ratchet to the webbing were observed to be potential suspect counterfeit (S/CI) with no identifiable head markings. The ratchet straps had been purchased from an established local vendor who purchased them from another supplier. The ratchet straps listed "Made for PALMETTO Equipment," the part number "5014 WH/WH 2P," and were labeled "Made in the USA." An internet search revealed no additional information on PALMETTO Equipment or the associated part number. QA personnel proceeded to follow up with the local vendor and were told that "D.O.T. Tie Down" was the manufacturer of the ratchet straps for PALMETTO Equipment. D.O.T. Tie Down

was contacted and written associated testing data was requested. A testing report was provided, but the provided written report was in a foreign language and could not be reasonably authenticated. In addition, this report did not appear to be an official associated document or linked to any of the listed manufacturers or the listed part number. (Lessons Learned Report B-2017-PMA-PORTS-001; ORPS Report EM-PPPO--PMA-PORTENVRES-2017-0001)



Figure 1. Image of S/CI bolt from Lessons Learned Report B-2017-PMA-PORTS-001

On January 25, 2016, during a routine walk around of the West Valley Site, a QA inspector observed four ratchet straps which were used to secure a sander to the bed of a Dodge truck. Upon inspection, the inspector discovered each ratchet strap contained a metric 8.8 bolt with no manufacturer head markings. Since the vehicle was obtained through the General Services Administration, no vehicle inspection had been performed. The vehicle and sander were immediately secured to prevent usage and the four suspect 8.8 counterfeit bolts were removed from the four ratchet straps and replaced with approved grade 5 bolts. (ORPS Report EM-OH-WVDP-CHBW-CF-2016-0001)

## RECOMMENDATIONS

It is important to perform a thorough inspection of ratchet straps and other tie-downs upon initial arrival at DOE, and prior to each use. S/CI associated with straps and tie-downs can reduce load capacity and increase the risk of failure, thus presenting a serious risk of property loss, property

damage, injury, and death. All component parts of tie-downs are considered critical.

If an S/CI is suspected, inspectors are instructed to inform the Inspector General and with AU-23's assistance, complete a Data Collection Sheet (DCS) for items in which an identified defect appears to be due to misrepresentation of the item by the vendor, supplier, distributor, or manufacturer.

In addition to potential S/CI, tie-downs must be inspected for defective items (DI) and damage to component parts. Signs of defect or damage include:

- A missing or illegible identification tag.
- Holes, tears, cuts, snags, or embedded materials.
- Broken or worn stitches in the load-bearing splices.
- Knots in any part of the webbing.
- Acid or alkali burns on webbing.
- Melting, charring, or weld spatters on any part of the webbing.
- Excessive abrasive wear or crushed webbing.
- Signs of ultraviolet (UV) light degradation.
- Distortion, excessive pitting, corrosion, or other damage to buckles or end fitting(s).
- Any other conditions which cause doubt as to the integrity or strength of the ratchet strap.

Tie-downs with any of these signs of defect or damage should be reported, labeled, and discarded.

Additionally, the incident at the West Valley Site demonstrates the need to evaluate how vehicles and equipment are brought on-site, and to ensure that a rigorous inspection process is adhered to prior to use.

## CONCLUSION

It is important for inspectors to be aware of these recently discovered S/CI component parts of ratchet straps, and to thoroughly inspect all tie-downs for S/CI, DI, or damage. If S/CI, DI, or damage is observed to any tie-down equipment,

removing it from service and properly discarding it will reduce the risk of property loss, damage, injury, or death from using these items. Reporting these discoveries will help to raise awareness of the issue throughout DOE.

## REFERENCES

[Occupational Safety and Health Administration, Rigging Hazards](#)

ORPS Report EM--PPPO-SST-PGDPENVRES-2017-0002. *S/CI Bolts in Ratchet Assemblies*

ORPS Report EM-OH-WVDP-CHBW-CF-2016-0001. *Suspect Counterfeit Bolts Discovered on Sander Ratchet Strap Tie-Downs*

Lessons Learned Report B-2017-PMA-PORTS-001. *Suspect/Counterfeit Components Identified in Ratchet Tie-Down Assemblies*

ORPS Report EM-PPPO--PMA-PORTENVRES-2017-0001. *Suspect/Counterfeit Item Bolts Found in Ratchet Assemblies Used in Field*

[EFCOG Best Practice #155, Preventing Use of Suspect/Counterfeit Bolt Fasteners in DOT Ratchet Type Tie-Down Assemblies](#)

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This OE-3 document requires no follow-up report or written response.



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