valley longwall
INTERNATIONAL
DIESEL DIVISION

Technical Bulletin / Safety Alert

Unique ID No: GEN2011-TBSA-01 **Rev:** 0

Subject: Explosion of Axle Tie Rod Assembly due to Heating

Date: 18/03/2011

Applicable to: All Driftrunner 211 & 278 Axles and Brumby 276 Axles

Note: Minimum PPE required to carry out any inspections contained in this TBSA shall be protective clothing & footwear, safety glasses, hearing protection & any site specific requirements. A JSA or equivalent should be carried out prior to performing these tasks.

Occurrence:

On 17th January 2011, a Valley Longwall International Diesel Division (VLIDD) employee was seriously injured when the ball joint in the tie rod assembly from a Driftrunner front drive axle exploded due to heat being applied to assist with disassembly.

Investigation & Cause:

Key findings from the investigation into the incident included:

- A Standard Work Method Statement (SWMS) existed for this task however the use of heating to assist with disassembly was not described and consequently the hazard of explosion and subsequent disconnection from the ball joint from heating was not anticipated.
- Correct PPE for the task was being worn at the time of the incident however with the absence of the identified hazard in the SWMS, adequate PPE was questionable.

Results:

The existing SWMS and Full Risk Assessment (FRA) for the tie rod replacement process have been revised.

Immediate Action:

Communication of the incident and awareness of the revised SWMS FRA.
The practice of using heat to assist with the removal of tie rods is to cease immediately until training in the revised SWMS FRA has been completed.

Future Action:

1. Train all personnel in the revised SWMS FRA and record in the training matrix.
2. Review the hot work permit system to ensure it adequately incorporates risk management processes.
3. Monitor and review the effectiveness of the changes made to SWMS FRA.

Conclusion:

Please ensure this document is circulated to all relevant personnel within your organisation.

Should you have any further queries please contact your VLI Diesel Representative.

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Diesel Division – Safe Work Method Statement (SWMS)/Full Risk Assessment (FRA)

Task Description: Replacing a tie rod on Driftrunner 211 & 278 Axles and Brumby 276 Axles

SWMS, FRA Unique Identifier: **5065** Date developed: 07/03/2011

Functional Area: ☒ Workshop ☒ Field Service ☐ Other (specify) _____

Number of personnel required: ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 or more (specify) _____

Tools & equipment involved in task: ☐ VLI gear only ☒ VLI & non VLI gear ☐ Non VLI gear only

Competency Standard to be Achieved	**Assessment methodology (may be a combination)**
Person must be able to undertake the specified task in accordance with the requirements of this SWMS.	☐ Written/oral knowledge assessment ☒ Practical assessment ☐ Other (provide details) _____
Essential qualifications for person delivering training	**Training duration**
TAE Cert IV	1 hour

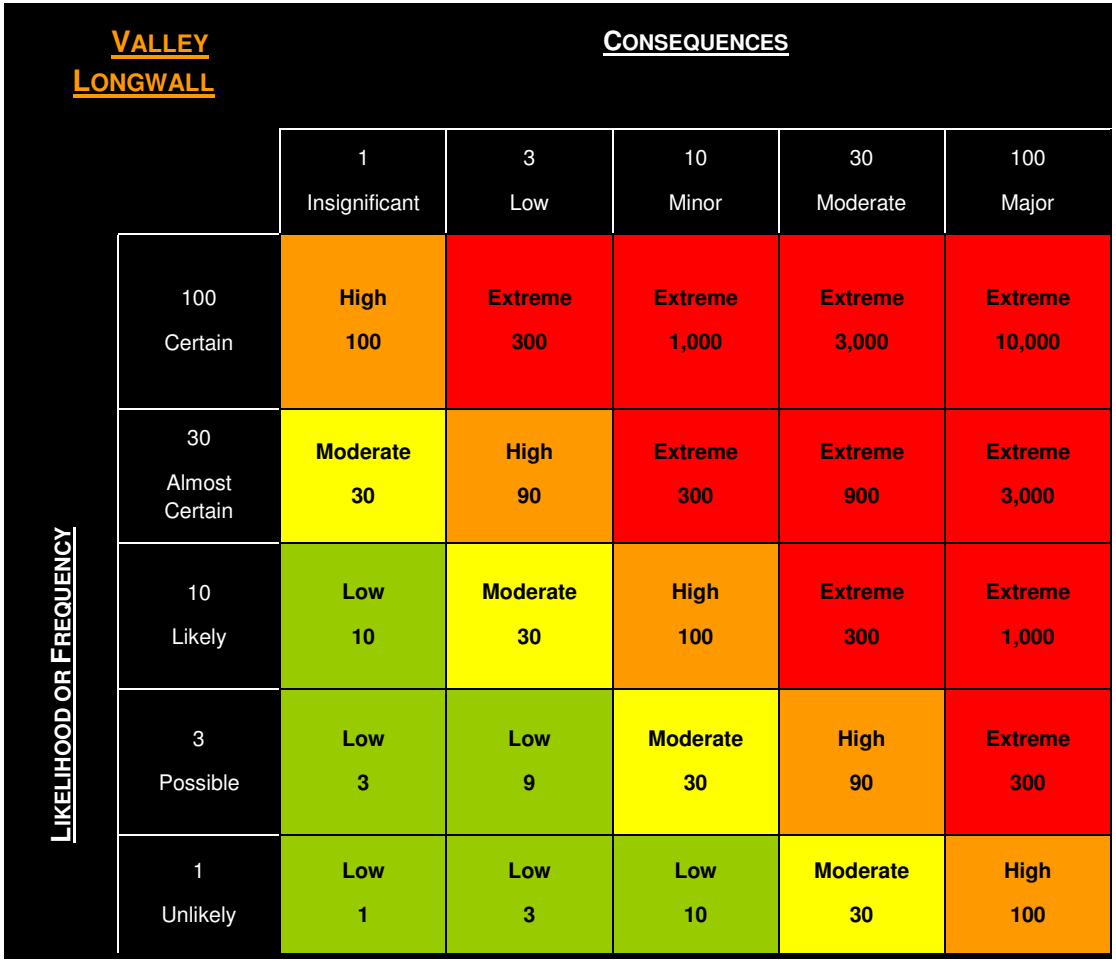
Personal Protective Equipment required for personnel undertaking task	**List details of tools & equipment involved in task**
• Safety glasses and face shield, hearing protection, gloves, leather apron (for hot work / thermal cutting) • Fit for purpose tools to reduce muscle strain	• Isolation Locks and Personal Danger Tags, • Out of Service Tags, • Wheel Chocks, • Steering and Boom Locks, • Tapered wedges • Bars and Pins. • Soft barrier for restricting area. • Fit for purpose hand tools. • Heating Equipment. • Thermal temperature measurement device.

Qualifications/Competencies required for personnel undertaking task	Qualifications/Competencies required for personnel supervising task
• Trade qualified • VLI General Induction • Respective site inductions • Driftrunner/Brumby Operator competency • Competency to operate overhead crane • Competency in hot work / thermal cutting processes • Competency in this task via knowledge of the SWMS • Competency in the use of MSDS sheets • Competency in the use of hand tools	The person supervising this task has been delegated and approved (in writing) by the relevant Operations Manager as an authorized person to ensure duty of care and due diligence will be followed by personnel operating under their control to ensure compliance to relevant legislative and Company requirements.

SWMS/FRA conducted by:	**Position: Luke Muras**	**Date: 15/03/2011**	**Sign:**
Personnel consulted:	**Position: David Pettit**	**Date: 15/03/2011**	**Sign:**
Personnel consulted:	**Position: Wayne Davies**	**Date: 15/03/2011**	**Sign:**
Personnel consulted:	**Position: Peter Wade**	**Date: 15/03/2011**	**Sign:**
SWMS/FRA reviewed and approved:	**Position: David Cook**	**Date: 15/03/2011**	**Sign:**
SWMS/FRA review date (must be reviewed within 2 years)	**Date: 15/03/2013**		

Reference Documents	Recommended maintenance checks on equipment or tools
• SWMS FRA 5037 for Isolation of Plant and Equipment • SWMS 6115 for Lifting and Supporting Vehicle. • SWMS FRA 5004 Wheel Changing for Mobile Plant. • Safety Clothing Standard; AS/NZS 4602:1999 • Safety Glasses Standard; AS/NZS 1337.6 • *Occupational Health and Safety Act* 2000; • *Occupational Health and Safety Regulations* 2001*;* • *Coal Mining Health and Safety Act* 2002; • *Coal Mining Health and Safety Regulations* 2006*;* • *Workplace Health and Safety Act* 1995 (Qld) • *Workplace Health and Safety Regulations* 1997 (Qld) • *Coal Mining Safety and Health Act* 1999 (Qld) • *Coal Mining Safety and Health Regulations* 2001 (Qld) • *Occupational Safety and Health Act 1984 (WA);* • *Occupational Safety and Health Regulations 1996 (WA);* • *Smoke-Free Environment Act* 2000 (as amended); • Hard Hat Standard; AS/NZ 1800: 1998 • Safety Boots Standard; AS/NZS 2210.3 • Safe use of portable and mobile oxy-fuel gas systems for welding, cutting, heating and allied processes; AS4839-2001 • Flashback arresters – Safety devices for use with fuel gases and oxygen or compressed air; AS4603-1999 • Electrical Code of Practice; • Manual Handling Code of Practice • Hazardous Substance Code of Practice (MSDS sheets) • MDG 1 Guideline for Free Steer Vehicles • MDG 41 Hydraulic Hoses & Fittings	Ensure all tools are fit for purpose and use.

Risk Matrix



HIERARCHY OF CONTROLS

(a) Eliminate the risk all together;

(b) Substitute the hazard for a hazard which produces a lesser risk;

(c) Isolate the hazard from the people put at risk;

(d) Minimise the risk through engineering means;

(e) Minimise the risk through administrative means;

(f) Minimise the risk through the use of PPE;

Consequence		Injury	Property Damage or Process Loss	Environmental Impact
1	Insignificant	Low level, short term injury. First Aid Injuries	Low financial loss (< $10,000)	No lasting effects.
3	Low	Reversible disability or impairment. Medical Treatment Injury	Medium financial loss ($10,001 - $100,000)	Minor effects.
10	Minor	Moderate Irreversible disability or impairment. Lost Time Injury	High financial loss ($100,001 - $1M)	Moderate occurrence not effecting eco-system and short to medium term effects.
30	Moderate	Single Fatality and / or severe irreversible disability	Major financial loss ($1M - $10M)	Serious occurrence with some impairment to eco-system and medium to long term effects.
100	Major	Multiple fatalities or significant irreversible human health effects to multiple people.	Extreme financial loss (> $10M)	Very serious impairment of eco-system and long term effects.

Likelihood		Description	Frequency
100	Certain	Common occurrence	Less than 1 per week
30	Almost Certain	Probably will occur or has happened	Less than 1 per month
10	Likely	Could happen at some time	Less than 1 per year
3	Possible	Not likely to occur	1 – 10 years
1	Unlikely	Practically impossible	Less than 1 per 10 years

Task Step Number 1 **Task Step Description - <u>If working on site</u>**

- Sign on and complete self-test blood alcohol content breathalyser if required.
- Report to site contact and obtain Authority to Work Permit (ATW) and keep a copy of the permit with the Job Pack at all times.
- If oxy cutting or welding, obtain a Hot Work permit.
- Complete Job Safety Analysis (JSA)
- Ensure all site requirements are adhered to.

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Noise	3	10	30	Correct PPE (Hearing Protection)	1	10	10
Dust	3	10	30	Correct PPE (Dust Mask)	1	10	10
Mobile equipment.	3	10	30	Correct PPE, Safety vests or reflective high visibility clothing at all times.	1	10	10
Slips, trips and falls	3	10	30	Keep to designated walkways	1	10	10

Task Step Number 2 **Task Step Description - Go to authorized work area:**

- Review the SWMS / FRA and JSA to ensure relevance to the environment in which the work is to be carried out.

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Excessive Noise	3	10	30	Correct PPE (Hearing Protection)	1	10	10
Dust	3	10	30	Correct PPE (Dust Mask)	1	10	10
Mobile equipment.	3	10	30	Correct PPE, Safety vests or reflective high visibility clothing at all times.	1	10	10
Slips, trips and falls	3	10	30	Keep to designated walkways, Maintain housekeeping in work area	1	10	10
Excessive spillage.	3	10	30	Maintain spill Kits in the area.	1	10	10
Pinch & Nip points, *crush injuries,* muscle strain or back injury.	3	30	90	Correct use of hand tools, place components in an accessible position to work on.	1	30	30
Cuts and abrasions.	3	30	90	Remove all burrs, correct PPE.	1	30	30
Coal Dust.	3	10	30	Correct PPE (dust Mask)	1	10	10
Wet Floors.	3	10	30	Clean Floor , maintain a safe work area	1	10	10
If working at heights, risk of falling.	3	30	90	Correct PPE , (harnesses)	1	30	30

Task Step Number 3 **Task Step Description – Prepare and Isolate Machine:**

- Select a level area clear of main traffic sufficient to carry out testing job.
- Cordon off area to ensure safety of operators and other personnel. To meet site specific requirements.
- Wash down vehicle / axle to remove mud and grease from machine / it in wash bay allocated pay particular attention to tie rod ends.
- Isolate machine and test for "Dead" confirm isolation is complete and there is no stored energy. Refer to SWMS FRA 5037 for Isolation of Plant and Equipment

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Machine tip over.	3	30	90	Ensure ground is level and sound and clear from other personnel and machinery.	1	30	30
Uneven ground	3	10	30	Ensure ground is level and sound and clear from other personnel and machinery.	1	10	10
Excessive noise.	3	10	30	Wear hearing protection, PPE	1	10	10
Excessive spillage.	3	10	30	Have spill kits near location.	1	10	10
Dust	3	10	30	PPE (dust Mask)	1	10	10
Mobile equipment.	3	30	90	Keep to designated walkways and reflective clothing at all times.PPE	1	30	30
Slips, trips and falls.	3	30	90	Keep to designated walkways, Maintain housekeeping in work area	1	30	30
Hoses on floors & walkways.	3	30	90	Proper housekeeping, remove any trip hazards from the floor area.	1	30	30
Pinch & Nip points,	3	30	90	Correct use of hand tools, place components in an accessible position to work on. Correct use of hand tools, place components in an accessible position to work on.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques and place components in an accessible position to work on.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Remove all burrs, correct PPE.	1	30	30

Coal Dust	**3**	**10**	**30**	PPE (Dust Mask)	**1**	**10**	**10**
Wet Floors	**3**	**30**	**90**	Watch for trip hazards and be aware of slippery unsure ground.	**1**	**30**	**30**
High pressure water.	**3**	**30**	**90**	Wear Gloves Wear appropriate PPE & PPC,	**1**	**30**	**30**
Burns from hot water.	**3**	**30**	**90**	Wear Gloves Wear appropriate PPE & PPC,	**1**	**30**	**30**
Eye injury	**3**	**30**	**90**	PPE (eye protection ,Face shield)	**1**	**30**	**30**
Chemical degreasers	**3**	**30**	**90**	PPE suitable for the MSDS (Apron and Face shield)	**1**	**30**	**30**

Task Step Number 4 **Task Step Description – Set vehicle up on stands in designated area:**

- Refer to SWMS 6115 for Lifting and Supporting Vehicle.
- Isolate or remove crane.

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	**Likelihood**	**Consequences**	**Risk Ranking**	**Control Required**	**Likelihood**	**Consequences**	**Risk Ranking**
Pinch and nip points,	**3**	**30**	**90**	Ensure stands are correctly positioned.	**1**	**30**	**30**
Jamming of hands,	**3**	**30**	**90**	Use correct manual handling techniques.	**1**	**30**	**30**
Muscle strain or back injury.	**3**	**30**	**90**	Use correct manual handling techniques	**1**	**30**	**30**
Cuts and abrasions.	**3**	**30**	**90**	Wear Gloves Ensure all PPE is worn,	**1**	**30**	**30**
Slips, trips and falls.	**3**	**30**	**90**	Keep to designated walkways, watch for trip hazards and be aware of slippery unsure ground, Maintain housekeeping in work area	**1**	**30**	**30**

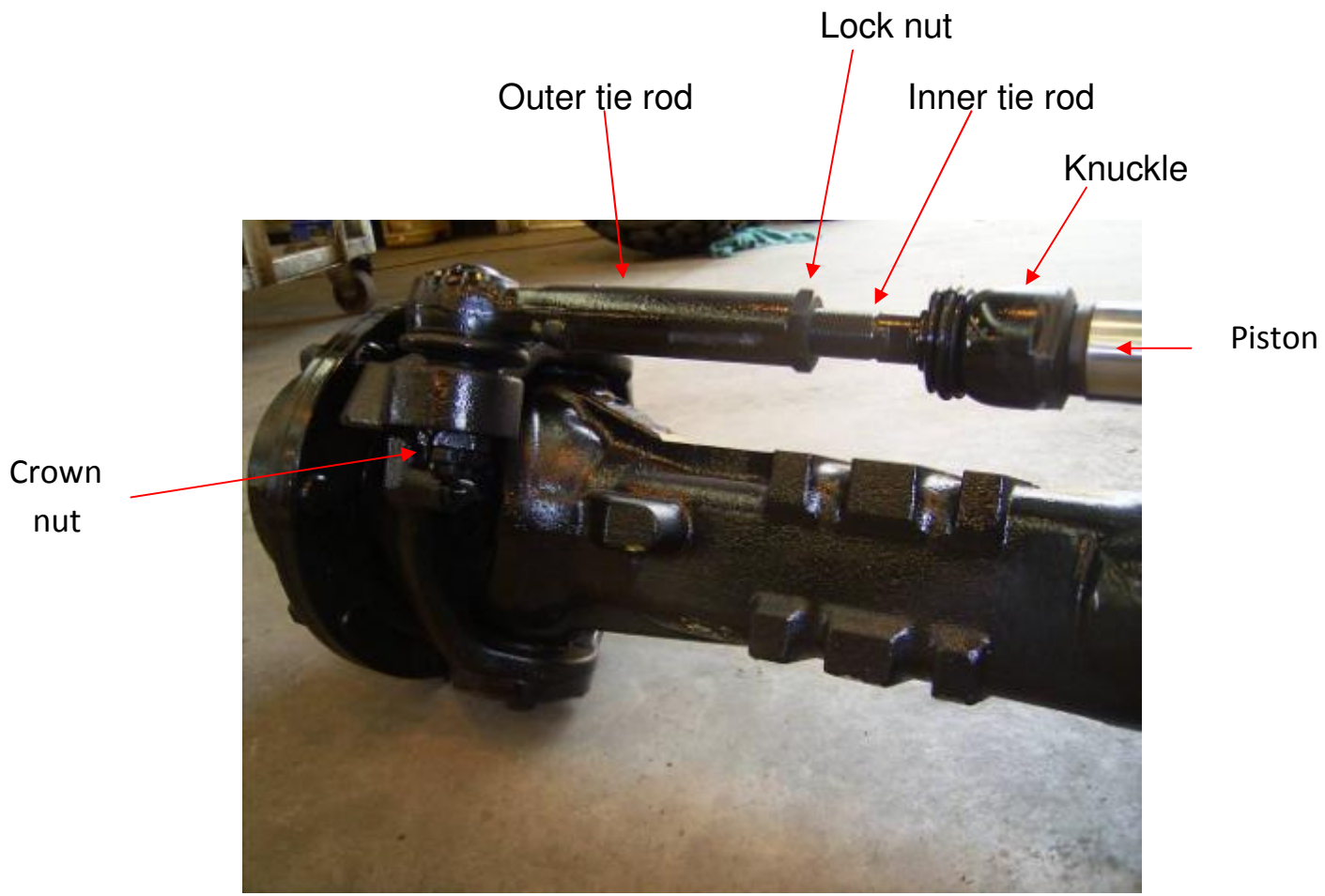
Task Step Number 5 **Task Step Description - Remove wheels (If required):**

- Refer to SWMS FRA 5004 Wheel Changing for Mobile Plant.

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	3	30	90	Ensure stands are correctly positioned.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Wear Gloves Ensure all PPE is worn,	1	30	30
Slips, trips and falls.	3	30	90	Keep to designated walkways, watch for trip hazards and be aware of slippery unsure ground, Maintain housekeeping in work area	1	30	30

Task Step Number 6 **Task Step Description – Disconnecting Tie Rod from Steer Case:**



- Measure the tie rod prior to removal to assist with wheel alignment adjustment when the new rod is installed.
- Crack the locknut using correct hand tool.
- Remove the split pin; undo the nut flush to the end of threads.
- Hit the steer case with a dolly to release the tie rod. The use of a pigs foot tapered wedge may assist with this step.
- Disconnect the tie rod from the steer case.

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	**3**	**30**	**90**	Ensure stands are correctly positioned.	**1**	**30**	**30**
Jamming of hands,	**3**	**30**	**90**	Use correct manual handling techniques.	**1**	**30**	**30**
Muscle strain or back injury.	**3**	**30**	**90**	Use correct manual handling techniques	**1**	**30**	**30**
Cuts and abrasions.	**3**	**30**	**90**	Wear Gloves Ensure all PPE is worn,	**1**	**30**	**30**
Slips, trips and falls.	**3**	**30**	**90**	Keep to designated walkways, watch for trip hazards and be aware of slippery unsure ground.	**1**	**30**	**30**
Flying debris.	**3**	**30**	**90**	Correct PPE (Face Shield) Use correct manual handling techniques. Wear gloves. Use correct tools for the job	**1**	**30**	**30**

Task Step Number 7 **Task Step Description - Disconnecting the tie rod from the steer piston rod:**

- Use spanners to unwind tie rod off the steer piston rod (considerable force could be required). Note: All right hand threads on both left and right tie rods.
- If the tie rod does not unwind, the tie rod end may need to be heated in order to expand the threaded joint to assist release. If this is the case, the ball joint will need to be separated first. This can be done by cutting the ball joint case with a cutting disc longitudinally then spreading the housing using a tapered wedge to remove the ball. The axle might need to be removed to complete this task. Once the ball joint has been separated, only a small amount of heat will be required. Do not heat excessively and do not exceed 100℃ **(Ensure a Hot Work Permit is completed prior to heating and monitor surface temperature with a temperature measurement device eg Infrared Thermometer - Ensure manufacturers operating instructions are followed).** Wrap piston rod in wet rags to minimise heat transfer and potential damage to rod and seals.

Caution – Excessive heating at this location can result in an explosive disconnection of the ball joint if the ball joint is not separated prior to heating. Therefore only proceed with heating as described above after the ball joint has been separated. Excessive heating will also damage the piston rod chrome surface.

Note:

Please ensure that if heating is required all personnel have been trained in the use of oxy acetylene operation and are familiar with the operation of the thermal measurement device to be used.

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	**3**	**30**	**90**	Ensure stands are correctly positioned.	**1**	**30**	**30**
Jamming of hands,	**3**	**30**	**90**	Use correct manual handling techniques.	**1**	**30**	**30**
Muscle strain or back injury.	**3**	**30**	**90**	Use correct manual handling techniques	**1**	**30**	**30**
Cuts and abrasions.	**3**	**30**	**90**	Wear Gloves Ensure all PPE is worn,	**1**	**30**	**30**
Burns.	**10**	**30**	**300**	Position yourself appropriately in relation to the job line of fire.	**3**	**30**	**90**
Explosion causing serious injury Component damage.	**10**	**30**	**300**	Use correct tools for the job and adhere to all steps of this SWMS	**3**	**30**	**90**

Task Step Number 8 **Task Step Description – Prepare the new tie rod:**

Inner Tie rod

Apply Anti-seize

Ensure steer cylinder is central

- Remove the inner tie rod knuckle, anti-seize threads and refit, tighten well.
- Release the lock nut and separate the inner and outer parts of the tie rod.
- Anti-seize the threads and refit.
- Adjust the new rod according to measurements taken prior to removal of old tie rod.

Don't lock the nut at this stage**.**

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	3	30	90	Ensure stands are correctly positioned.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Wear Gloves Ensure all PPE is worn,	1	30	30

Task Step Number 9 **Task Step Description – Refit the tie rod to the steer case:**

- Ensure that the inner threads of the piston rod are clean.
- Anti-seize the threads of the tie rod knuckle and fit to the piston rod.
- Ensure that it is well tightened.

Note: For Risk Rating Guide, employees refer to "VLI Control Risk Matrix"

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	3	30	90	Ensure stands are correctly positioned.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Wear Gloves Ensure all PPE is worn,	1	30	30
Slips, trips and falls.	3	30	90	Keep to designated walkways	1	30	30

Task Step Number 10 **Task Step Description – Fit the tie rod to the piston rod:**

- Ensure that the taper and threads are clean, anti-seize and fit to the steer case.
- Nip-up the nut but don't tighten at this stage.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	3	30	90	Ensure stands are correctly positioned.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Wear Gloves Ensure all PPE is worn,	1	30	30
Slips, trips and falls.	3	30	90	Keep to designated walkways	1	30	30

Task Step Number 11 **Task Step Description – Check the wheel alignment:**

Measure toe in

- Check that the piston rod is at half stroke.
- Measure from wheel hub flanges, 2 to 5mm toe-in from front to rear.
- Adjust the tie rod / tie rods to achieve the correct toe-in.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Mobile equipment.	3	30	90	Keep to designated walkways and Hi-Vis clothing at all times.PPE	1	30	30
Hoses on floors & walkways.	3	30	90	Proper housekeeping, remove any trip hazards from the floor area.	1	30	30
Wet Floors. Slips, trips and falls.	3	30	90	Keep to designated walkways	1	30	30

Task Step Number 12 **Task Step Description – Tightening Lock Nuts:**

- Secure the tie rod nut; align to the split pin hole.
- Install a new split pin.
- Tighten the tie rod lock nut.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Mobile equipment.	3	30	90	Keep to designated walkways and Hi-Vis clothing at all times.PPE	1	30	30
Hoses on floors & walkways.	3	30	90	Proper housekeeping, remove any trip hazards from the floor area.	1	30	30
Wet Floors. Slips, trips and falls.	3	30	90	Keep to designated walkways	1	30	30

Task Step Number 13 **Task Step Description – Refit the wheels:**

Refer to SWMS FRA 5004 Wheel Changing for Mobile Plant.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	3	30	90	Ensure stands are correctly positioned.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Wear Gloves Ensure all PPE is worn,	1	30	30
Slips, trips and falls.	3	30	90	Keep to designated walkways, watch for trip hazards and be aware of slippery unsure ground.	1	30	30

Task Step Number 14 **Task Step Description – Remove stands and place the vehicle on the ground:**

- De-isolate vehicle.
- Remove danger tags.
- Drive the vehicle, ensure that the steer operates correctly and that everything feels secure.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	3	30	90	Ensure stands are correctly positioned.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Wear Gloves Ensure all PPE is worn,	1	30	30
Slips, trips and falls.	3	30	90	Keep to designated walkways, watch for trip hazards and be aware of slippery unsure ground.	1	30	30

Task Step Number 15 **Task Step Description – Isolate the vehicle if any adjustments are required.**

- Refer to SWMS FRA for Isolation of Plant and Equipment.
- Refer to previous steps of this SWMS FRA for required adjustments.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	3	30	90	Ensure stands are correctly positioned.	1	30	30
Jamming of hands,	3	30	90	Use correct manual handling techniques.	1	30	30
Muscle strain or back injury.	3	30	90	Use correct manual handling techniques	1	30	30
Cuts and abrasions.	3	30	90	Wear Gloves Ensure all PPE is worn,	1	30	30
Slips, trips and falls.	3	30	90	Keep to designated walkways, watch for trip hazards and be aware of slippery unsure ground.	1	30	30

Task Step Number 16 **Task Step Description – Clean up work area:**

- Remove danger tags.
- De-isolate.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Pinch and nip points,	**3**	**30**	**90**	Ensure stands are correctly positioned.	**1**	**30**	**30**
Jamming of hands,	**3**	**30**	**90**	Use correct manual handling techniques.	**1**	**30**	**30**
Muscle strain or back injury.	**3**	**30**	**90**	Use correct manual handling techniques	**1**	**30**	**30**
Cuts and abrasions.	**3**	**30**	**90**	Wear Gloves Ensure all PPE is worn,	**1**	**30**	**30**
Slips, trips and falls.	**3**	**30**	**90**	Keep to designated walkways, watch for trip hazards and be aware of slippery unsure ground.	**1**	**30**	**30**

Task Step Number 17 **Task Step Description – Job Completion Checks:**

- On completion of job Identify if machine is ready for use or "Out of Service" tag attached, if the machine is operational attach relevant information tag.
- Inform Site Co-Ordinator/Supervisor of actions and status of machine.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Noise	3	30	90	Correct PPE (Hearing Protection)	1	30	30
Dust	3	30	90	Correct PPE (Dust Mask)	1	30	30
Mobile equipment.	3	30	90	Correct PPE, Safety vests or reflective high visibility clothing at all times.	1	30	30
Slips, trips and falls	3	30	90	Keep to designated walkways	1	30	30

Task Step Number 18 **Task Step Description – Return to Office:**

- Report to Co-Ordinator/Supervisor to sign off the job and alert to safety issues.

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Noise	3	30	90	Correct PPE (Hearing Protection)	1	30	30
Dust	3	30	90	Correct PPE (Dust Mask)	1	30	30
Mobile equipment.	3	30	90	Correct PPE, Safety vests or reflective high visibility clothing at all times.	1	30	30
Slips, trips and falls	3	30	90	Keep to designated walkways	1	30	30

Task Step Number 19 **Task Step Description – Sign out and exit site:**

- Sign off on ATW and hand in to site Co-Ordinator/Supervisor if required.
- Complete PTCP work order and submit to the client's plant engineer if required
- Sign out and exit site as required

Potential Hazards (use checklist as a guide)	Likelihood	Consequences	Risk Ranking	Control Required	Likelihood	Consequences	Risk Ranking
Noise	**3**	**30**	**90**	Correct PPE (Hearing Protection)	**1**	**30**	**30**
Dust	**3**	**30**	**90**	Correct PPE (Dust Mask)	**1**	**30**	**30**
Mobile equipment.	**3**	**30**	**90**	Correct PPE, Safety vests or reflective high visibility clothing at all times.	**1**	**30**	**30**
Slips, trips and falls	**3**	**30**	**90**	Keep to designated walkways	**1**	**30**	**30**

Competency Assessment Verification & Approval

Personnel Verification			Supervisor Verification & Approval		
I verify that I have been trained and assessed as being competent in the contents of this Safe Work Method Statement			**I verify that the listed personnel have been trained and assessed as being competent in the contents of this Safe Work Method Statement**		
Personnel name & Position	**Personnel Signature**	**Date**	**Supervisor name & position**	**Supervisor Signature**	**Date**