



Defence
Infrastructure
Organisation

Safety Alert Parts A, B & C

Subject: Fuel System VJ Coupling Failure

Number SA 2022/06 Revised

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This Safety Alert is to be read by the following so appropriate action can be taken:

- 1. DIO Service Manager (or equivalent for non-NGEC/FDIS contracts)**
- 2. DIO's Maintenance Management Organisations**
- 3. Others**

Others interested in the content of this Safety Alert might include:

DIO Staff and Contractors; Public, Private Partnerships, Private Finance Initiatives Project Managers/Commercial Officers, Commanding Officers / Heads of Establishment (CO/HoEs) and representatives; and Chief Environment and Safety Officers (CESOs) or equivalent, Estate Facilities Managers (EFMs), Senior Estate Facilities Managers (SEFMs), CAEs, Authorising Engineers and Authorised Persons

When it takes effect: Immediately

When it is due to expire: When updated or rescinded.

Health and Safety

This Safety Alert does not necessarily cover all aspects of the subject matter and readers should make themselves aware of other potential issues. Readers should also not rely on DIO publications as their only means of becoming aware of safety, operational or technical issues, but they should consult widely across other media to maintain awareness.

Aim

1. To provide guidance for owners, users, operators, maintainers and other appropriate persons responsible for liquid fuel systems containing flexible seal axial clamping pipe couplings and other similar couplings. To mitigate the risk of fuel loss and subsequent environmental damage due to the failure of these couplings.

Introduction

2. In this Safety Alert (SA) The term 'VJ Coupling' is not to be considered specific to one manufacturer as it is a term used across the estate to identify flexible seal axial clamping pipe couplings. It should also be noted that this mode of failure is common to any coupling using the clamping of a flexible seal as the primary method of creating a liquid tight seal.
3. Compliance with the contents of this SA will enable compliance with the Health & Safety at Work etc. Act 1974 and its subordinate Regulations. Avoidance of a 'Dangerous Occurrence' as defined under Schedule 2 serial 26 'Release of flammable liquids and gases' in the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 and will provide the protection of groundwater as required by MoD policy document JSP 418 Leaflet 2 Pollution Prevention which ensures compliance with the Pollution Prevention Control (PPC) Act 1999.
4. The appropriate MOD officer shall arrange for the Maintenance Management Organisation (MMO) contractor to carry out all actions in accordance with this SA.
5. Any work required as a result of this SA must be carried out in accordance with JSP 375 Part 2 Volume 3 – High Risk Activities on the Defence Estate.
6. On MOD Establishments occupied by United States Visiting Forces (USVF) responsibility is jointly held by USVF and DIO(USF). At base level this jointly managed organisation is to take appropriate action to implement the contents of this SA.
7. The Secretary of State has stated¹ that; "Overseas, we will comply with the laws of Host States, where they apply to us, and in circumstances where such requirements fall short of UK requirements, we will apply UK standards so far as it is reasonably practicable to do so."
¹ Health, Safety and Environmental Protection in Defence, Policy Statement by the Secretary of State for Defence, 2nd April 2020.
8. The estates occupied by BF(G) apply their own local (German) regulations. The competency of the contractor is established prior to contract let and local procedures apply to the selection and appointment of the Competent Person. For this reason, while the general principles mentioned in this document may be applicable, the document will be of limited use to BF(G) staff.

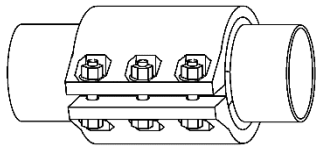
Background

9. There has been a trend of fuel leaks on the MoD Estate attributable to the use of flexible seal axial clamping pipe couplings on fuel pipelines. These pipe couplings are often referred to by the trade name Viking Johnson or 'VJ' couplings. The loss of product is normally due to the age of the coupling sealing material and the lack of maintenance resulting in failure of the seals.
10. Where these or similar couplings are present in deep wells or chambers that may be difficult to access it may discourage regular inspection and has resulted in undiscovered leakage followed by catastrophic failure and significant fuel loss.

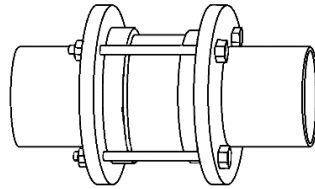
Requirements

11. On fuel distribution systems within the MoD Estate flexible seal clamping type pipe couplings or adaptors should not be used on fuel systems except in exceptional circumstances and only when approved by DIO Technical Services Principal Fuels and Mechanical Engineer.
12. Only jointing methods identified in DIO Technical Standard Petroleum 01 Specialist Works on Petroleum Installations on MOD Property (TS Pet 01) shall be used.
13. The following types of coupling or adaptor are covered by this Safety Alert. These are flexible seal axial clamping pipe couplings (i.e. Viking Johnson couplings), grooved pipe type couplings (i.e. Victaulic couplings) and Axial grip type couplings.
14. Where present in a deep well or other similarly inaccessible locations regular inspection must take place until such time as the coupling can be replaced with a welded spool piece made to the same specification as the existing pipework.
15. Where readily accessible, and subject to the location in which the coupling is present being able to contain leakage from the coupling, arrangements must be put in place to ensure regular maintenance and inspection is undertaken.
16. Under no circumstances shall these types of couplings be left in continued use in locations where leakage would not be effectively contained e.g. over grass or gravelled areas, non-bunded valve pits or un-intercepted hard standings. Where present in such locations they should be removed as soon as is practicable and prior to removal enhanced arrangements for regular inspection must be put in place until such time as the coupling is replaced with a welded spool piece made using the same specifications as the existing pipework.
17. The inspections required in this SA should be consistent with those inspections already being undertaken to comply with Technical Standard Petroleum 02 Inspection, Maintenance and Testing of Equipment Installed at Petroleum Installations on MOD Property (TS Pet 02).
18. Regular inspection of the coupling should be determined by a suitable and sufficient risk assessment based on the volume of fuel passing through the pipe coupling, the environmental damage that may be caused by any leakage and the difficulties of access to the coupling. However, inspection should take place at a maximum interval of 3 months. This is in accordance with TS Pet 02 serial 11.1 Mechanical Works, Job No. 1.2, 4.1 & 5.1. (FDIS SFG20 1120-13 Display 2, 1120-12 Display 3 & 1120-13 Display 4).
19. The spool piece used to replace the coupling shall be constructed in compliance with TS Pet 01. If for any reason this is not viable, then a specification should be drawn up using the specifications for the original installation. Where specifications are not in line with TS Pet 01, approval shall be sought from DIO Technical Services principal Fuels and Mechanical Engineer.

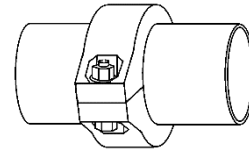




Axial Grip



Axial Clamping



Grooved Pipe

Coupling types

Part A

20. DIO and others responsible for infrastructure delivery, are to arrange for the Maintenance Management Organisation (MMO) to use suitably competent staff or contractors to survey pipelines and pipework within their area of jurisdiction to determine the following.
 - a. Identify the location of all couplings of the type described in this SA.
 - b. Establish the condition of those couplings, by checking records and by undertaking physical inspection.
 - c. Identify if the location in which they are found would contain any leakage effectively until such time as the leak was discovered and before any environmental damage occurs.
 - d. Identify any couplings present in areas where any leakage would be uncontained.
 - e. Identify those couplings in deep well and other difficult to inspect locations.
21. The MMO is to notify the DIO Service Manager, the HoE, and the establishment 4Cs Duty Holder of their findings.
22. The contents of this SA should be considered when undertaking Professional Inspections of this type of asset.
23. The MMO is to notify DIO Technical Services principal Fuels and Mechanical Engineer and any other relevant parties of any changes required to comply with the requirements of this SA.

Part B

24. The MMO is to notify the DIO Service Delivery Performance Management Team, DIO SD-Perf Mgt Team (MULTIUSER) account, through their respective DIO Service Manager, of the information gathered in the above 'Part A' and identify in brief the proposed remediation required to meet the above 'Requirement'.
25. **The data requested at paragraph 20 is required by 27th May 2022 and will be reviewed on the 27th June 2022.**
26. DIO and others responsible for infrastructure delivery, are to put in place proposals to obtain compliance with this SA. These proposals are to be provided to the HoE/budget holder for action.

Part C

27. The MMO is to notify the DIO Service Delivery Performance Management Team, DIO SD-Perf Mgt Team (MULTIUSER) account, through their respective DIO Service Manager of the date action detailed in **Part B** has been completed.

End