

Data Recording, Analysis and Corrective Action System

Introduction

Data Recording, Analysis and Corrective Action System (DRACAS) shall be employed for the duration of the In-Service and Disposal Phases of AM2.

The main purpose of DRACAS is to assist in the Design Upkeep and Update of DTSS and therefore, any improvements to be considered for implementation are based on the optimal engineering and functional performance and cost parameters. DRACAS also provides:

- Reliability Performance Monitoring.
- Trend Analysis.
- Evidence for Incident Investigations and analysis to aid corrective action decisions.
- Evidence for Sentencing Panels in making sentencing decisions.
- Documentary evidence of proof of close out of the incident and / or sentence is completed.
- Evidence for Implementing Change including but not restricted to those part of Post Design Services (PDS).

Incident Classification

An incident is defined as “any event indicating a possible non-conformance with the specification” and therefore includes observations.

To assist in the Investigation of DRACAS incidents and/or observations, each recoded entry shall be classified to assign the severity and nature of the incident, these being:

- No Fault Found (NFF) The fault and/or observation is/are not found and/or cannot be reproduced, when diagnosed and examined by the Contractor and/or their nominated Sub Contractors.
- Minor Fault/Failure This type of fault and/or observation relates to User comfort and does not impact on or results in a de-gradation or loss of performance or capability and hence the status of the equipment remains, ‘Fully Fit (FF)’. Additionally, Minor Faults are normally associated as candidates for inclusion as part of planned or future platform Major Update programmes.
- Medium Fault/Failure (also referred to as Basic Failure incidents, when associated with hardware) This type of fault results in reduced performance and/or decreased capability and hence the status of the equipment is classified as, ‘Limited Role (LR)’.
- Major Fault/Failure (also referred to as Mission Failure incidents, when associated with hardware) This type of fault is considered as unacceptable and directly impacts User Availability. The status of the equipment will be classified as ‘Non Task Worthy’ (NTW). Additionally, where these failures are associated with Safety and Environmental issues they will be subject to further governance.
- Catastrophic Fault/Failure (also referred to as Security Critical, Safety and Environmental matters) This type of fault is considered as a totally unacceptable event. The capability of the equipment is completely lost and the equipment status is classified as NTW. Due to nature of these faults being associated with high impacts on Security, Safety & Environmental, and the equipment must be quarantined, until investigations have taken place to mitigate the severity of the incident to an acceptable level. Additionally, the quarantine action may also be applicable to the entire fleet and/or host interoperable system.

Analysis – Incident Investigation

The Contractor shall propose resolutions to recorded incidents and/or observations through use of AR&M tools Failure Model and Effect Analysis (FMEA) and Fault Tree Analysis (FTA) to ensure all effects of the fault are identified. The ILS process of Support Analysis (SA) shall also be used, in cases of the 'Corrective Action' identifies a potential Update for immediate and/or future implementation.

Corrective Action – Data Reporting of Proposed Resolution

The Contractor shall report to the Authority all proposed resolutions to incident and/or observations by:

- Level 4 Feedback on User's Incident Report on nature of fault, classification and proposed resolutions.
- Update of the LIR with the Data Recording and Analysis (DRA) elements of DRACAS including the Incident Classification and Severity of failure and proposed and / or Immediate Resolutions, including:
 - Equipment Usage and Equipment Usage since Last Failure, including the Line Replacement Unit (LRU) Usage where applicable.
 - AR&M performance characteristics (Mean Time between Failure - MTBF) to reflect Equipment and LRU Usage. This shall also include the Failure Analysis, possible causes and modes of failure.
 - Failure Effects Analysis by Component, SRU, LRU, Local Equipment, Sub-System, System, Platform and Interoperability with other Systems.
 - Immediate Resolution and Recommended Contractor Repair proposal Identified at Inspection of Failed Equipment/Item/Function including Components/Functions Identified as Faulty.
- Update of the LIR with the following information Corrective Action System (CAS) elements of DRACAS based on the progress of incident information to provide a 'closed loop' including:
 - Analysis of incidents and their causes (FMEA and FTA) by the Contractor to provide Corrective Actions (CA) and Updates where necessary.
 - AR&M estimates in performance parameters if there is a potential for an Update.
 - Supporting Evidence for implementing CAs. This will include the Contractor's SA, SSA and associated reports to justify and or support the recommended mitigation and implementation. This can be local and/or fleet wide Update, noting all issues of effects on interoperability and associated systems must be included.
 - Planning estimates and Update Programmes.
 - Actual dates when embodied of CA and Update.
 - Date Loop Closed containing the evidence and agreement details.

Sentencing Classification

Sentencing of failures is part of the DRACAS process and for AM2 this pertains to failures being classed either as Attributable or Non-Attributable.

Attributable Failures refer to:

- Normal Wear and Tear.
- Design Specification issues, failure or fault.
- Manufacturing Defects.
- Interactive Electronic Technical Publication (IETP) Documentation Defects and/or omissions by the Contractor.

Non-Attributable Failures refer to Human Intervention (HI) failures:

- Battle Damage, external explosion, impact and/or damage through contact on operations and/or on training by friendly or enemy forces.

- Misuse (or accident), negligence, accidental damage or storage or use of the equipment outside of its intended environment or specification limits unless agreed with the Contractor in advance. Additionally, this includes damage through Natural Disasters.
- Technical Documentation Defects and/or omissions by the Authority.

NFF failures can be both Attributable and Non-Attributable. The decision as to whether the NFF is Non-Attributable, shall be incumbent on the Contractor to provide evidence that the User failed to comply with laid down instructions/procedures. NFF failures will be assumed to be Attributable unless evidence contradicts otherwise.

All failures through life will be subject to Sentencing and must be reached in agreement by the Authority. Sentencing will also be used during any Warranty period, to facilitate the Contractor in recovering associated repair/inspection costs for equipment/function failures sentenced as Non-Attributable.

Information Reviewed at the Incident and Sentencing Panel

Incident and Sentencing LIR information reviewed at each panel will consist of:

- Data recorded and reported in review period.
- Performance including AR&M trends/characteristics, top ranking spares by usage, major cost drivers.
- Total quantity of incidents, including total quantity per period.
- Quantity of 'open' incidents and sentences.
- List of open incidents and sentences by date, with actions.
- List of closed incidents and sentences.
- List of incidents by trend, i.e. by appropriate equipment.
- List of any equipment considered to require investigation.
- List of any incidents deemed relevant to equipment safety.
- Provision of data to enable Incidents to progress through the DRACAS process to ensure a 'closed loop' for the potential change and/or Update implementation as part of PDS.

Incident Sentencing Panel

The prime function of the Incident Sentencing Panel (ISP) is to examine and sentence all reported observations and incidents which may have an impact on AR&M qualities of the equipment and/or function. The ISP will provide a forum where In-Service data can be assessed, discussed and remedial actions agreed to the satisfaction of all parties involved.

ISP Composition

The composition of the ISP will include:

- Authority TTLSM – (Chair).
- Authority Reliability and Maintainability SME – Optional.
- Contractor ILS/AR&M Representative – (Secretary).
- User Representative as required (User Community Training and Maintainer Representatives e.g. QM Tech & Brigade HQ, as required).
- Incident Subject Matter Expert(s) as required.
- Authority and Contractor Safety representative (if required).

The composition of the ISP will be that which can effectively assess the DRACAS information and determine the most appropriate course of action.

Formal voting is not to be used in incident sentencing. Where a consensus cannot be reached then sentencing may be deferred if further investigation is required. If a consensus cannot be reached then the incident should be sentenced by the Chairperson. Where significant areas of disagreement exist the conflict resolution chain will be; ISP Chairperson → LSC → Contract Resolution Process.

In accordance with Def Stan 00-044, once incidents have been formally sentenced, the sentence can only be changed by the ISP and/or the LSC. Incidents that have been sentenced by the ISP are submitted to the LSC and/or appropriate Governance area for ratification.

ISP Terms of Reference

The ISP will:

- Review incident and observation data.
- Determine the root cause of failure and/or observation in functional performance.
- Perform further investigations where there is potential for a secondary and/or interoperability AR&M issue.
- Assess and review any recommended immediate resolution and corrective actions to restore functionality to the failed equipment/function, including authorisation of Contractor repair costs as part of the Task Approval Form (TAF) process.
- Determine any proposed change and subsequent refresher/familiarisation in the operation and maintenance of the equipment and function.
- Determination and verification of any proposed Change as part of PDS on equipment design and functional specification.
- Determine sentencing classification of all AR&M incidents and function related observations.
- Maintain an auditable trail for each sentencing and incident decision made (meeting minutes, evidence presented, rationale for decisions and resultant actions) within the LIR.
- Be responsible for the reporting of findings to other key Governance Areas, LSC, Risk, Security, Safety and Environmental.
- Convene monthly and be reviewed quarterly at the LSC and/or the associated Governance area. **Note:** the scheduling of ISP will be continually reviewed to ensure scheduling is commensurate with the number of incidents and observations to be sentenced.

The Contractor's ILS/AR&M representative will be responsible for the minutes of the meeting. This ensures committee members will have full access to the technical information and rationale behind all proposed immediate resolutions, their implications and any subsequent remedial actions requiring agreement.

Once incidents have been formally sentenced, the sentence can only be changed by the ISP and/or the LSC, appropriate Governance area. All Incidents, observations that have been sentenced and agreed are submitted to the LSC, appropriate Governance area for ratification.

The ISP meetings should be an open forum for discussion of all issues relating to the incidents and observations being sentenced, and should invite contributions from all members.

FRACAS/DRACAS Reporting

The Contractor shall use this Annex to detail FRACAS/DRACAS reporting as detailed in Clause 3.7 of the Contract.


Serial Number
Date reported
Time reported
Communication Method
Name of Originator
Equipment
Failure Description Reported
Corrective Action Taken
Date Corrective Action Taken/Initiated
Date Corrective Action Closed
Response to Originator
Date of Response to Originator
Incident Closed Date

DRACAS REPORT

Find below:

- DRACAS Single Event Report Sheet – An extract from the extant DRACAS Database in use with Team M3. The DRACAS database will be used to support all equipment applicable to the this Contract. This DRACAS Database complies with all the requirements detailed in:
 - KPI 2 at Annex A to the Contract.
 - KPI 3 at Annex A to the Contract.
 - Annex AF to this Contract.
 - CDR No 3 at Annex V to the Contract.
 - DefStan 00-44
 - JSP 886 Vol7 Part 8.04
- DRACAS Quarterly Report. An example of the type of reports that can be extracted from the DRACAS database.

TEAM M3 - DRACAS Single Event Report Sheet

DRACAS Details		Ser No 997	
  		DRACAS DETAILS	
Save and New		Close	
Project Cost Code:	SAMPLE	Contract Number:	
Originator Name and Rank:		MOD EFR Reference:	
Originator Contact No:		Originator Unit/dept:	
Date/Time Reported:	25/09/2013	DRACAS Type:	
System Title:		Equipment Description:	
ERM/Serial No:		Part/Serial No:	
Failure/Incident Description Reported:			
Hours Run/ Operation Time (Hours):	N/A	Error Message Reported:	
Total Down Time (Hours):	N/A	Operating Conditions at Time of Failure:	
Initial Action Taken:			
Initial Assessment/Survey Description:			
Survey Outcome:			
Corrective Action Taken:			
Undertaken By:		Attachments:	
Date/Time Corrective Action Completed:			
Is further action required:			
Additional information:			
Safety Implication:			
Safety Implication Details:			
Priority:	Normal	CLOSED DATE:	
Status:	Not Started	Closed By:	
Assigned To:			

DRACAS Quarterly Report Example

Customer DRACAS Quarterly Report System Title: DEW						CLOSE REPORT
						SEND REPORT VIA EMAIL
DRACAS ID	Date/Time Reported	Equipment Description	Failure/Incident Description Reported	Corrective Action Taken	Date/Time Corrective Action Completed	Closed Date
971	25/03/2013	Electrical Instalation Cabling	During the BS7671 the inspector identified large amounts of shrink back on the terminated cables specifically on lighting and socket. Though not a failure it was reported with an advisory for rectification.	Worst shrink back reterminated whilst on site. - System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013	25/03/2013	13/09/2013
970	25/03/2013	System Electrical Interface Panel (Main Breaker)	During Support Visit March 13 the BS7671 test inspection highlighted the requiremnet for the replacement of the Main incoming RCD Due to high impedance recorded. Though not a failure it was reported with an advisory for rectification	System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013		
972	25/03/2013	16A Comercial Socket Outlet	The rotary isolator security device is U/S	None. Observation Only. System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013	21/06/2013	21/06/2013
973	25/03/2013	Systems Lighting	1 off 5ft Strip lights removed from both C&J and F&B, Light defusers in general are now becoming brittle and warped.	System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013		
974	25/03/2013	Emergency Bulkhead Lights	The batteries are no longer providing effective emergency lighing power during power outage.	System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013		
975	25/03/2013	Double Water Proof Socket.	1 Off Damagedsocket outlet In C&J and F&B both U/S	System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013		
976	25/03/2013	Emergency Spot Light Control Boxes.	2 off units are inoppperable (PCB failure suspected) Remaining units all show reduce battery performance.	System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013		
977	25/03/2013	Floor Mounted Grinder C/W Extractor	Extractor on/off switch broken	System visit report H3400/348/REP Iss1 sent to PT for review 25/03/2013 awaiting response.		

13 September 2013

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