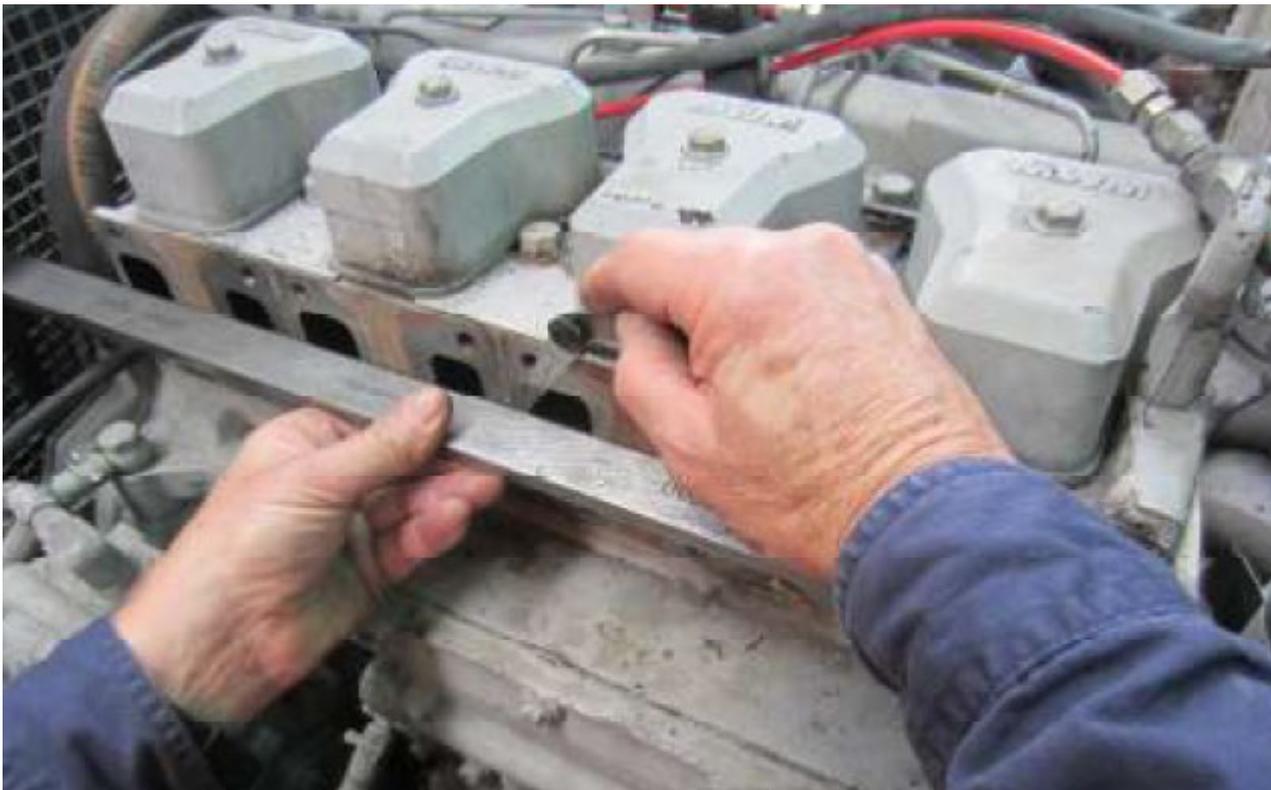


Consolidated report

Licensed recognised service facility (RSF) assessment

Assessment of licensed workshops overhauling or repairing explosion-protected diesel engine systems
(ExDES (RSF) licence)

December 2021 to May 2023



Published by the Department of Regional NSW

Title: Consolidated report – Licensed recognised service facility (RSF) assessment – explosion-protected diesel engine systems (ExDES (RSF) licence - December 2021 to May 2023

First published: May 2024

Department reference number: RDOC24/5504

Amendment schedule		
Date	Version	Amendment
May 2024	1	First published

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Executive summary

The principal mining hazard of fire or explosion has many elements that exist within the mining environment and can potentially cause serious and/or fatal injuries to workers if not controlled effectively. Diesel engine systems operating in underground coal mines carry a risk of fire or explosion if explosion protection properties are not maintained during operation. Overhauling and repairing explosion protected diesel engine systems (ExDES) that may affect explosion protection properties must be carried out under, and in accordance with, a licence.

Part 10 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2022 sets out the requirements for licensed activities at, or with respect to, underground coal mines.

The Regulator has conducted a planned inspection program to assess compliance with regulatory requirements of licensed recognised service facility (RSF) workshops.

This report provides an overview of RSF assessment program findings and recommendations for the period from December 2021 to May 2023.

ExDES (RSF) licence

Legislation requires that a person must not carry out any overhauling or repairing activities that may affect the explosion protected properties of explosion protected diesel engine systems without a licence (section 154 of the Regulations).

To obtain a licence from the Regulator the applicant must ensure Sections 3 to 5 and Appendices A to C of AS/NZS 3584.3:2012 Diesel engine systems for underground coal mines – Maintenance are met.

The facility must also meet licence eligibility criteria such that all activities carried out under the licence will –

- (a) be supervised by a competent person, and
- (b) be carried out by workers who have had training in safe working methods in relation to the activity, and
- (c) be carried out by workers who have –
 - (i) completed a course of training specified by the regulator in relation to the activity, or
 - (ii) appropriate experience or training in the carrying out of the activity, and
- (d) be carried out using procedures, equipment and facilities that are suitable for the activities.

The Regulator may grant an ExDES (RSF) license subject to conditions (section 158 of the Regulation). The Regulator may also suspend or cancel the licence.

ExDES (RSF) licence assessment findings

A total of 18 assessments were conducted by the Regulator at ExDES (RSF) licensed workshops between December 2021 and May 2023.

There were **17** compliance notices in total issued to **15** of the **18** RSF workshops in relation to the assessment, and these form the basis of the assessment findings. All **17** notices issued were WHSA s191 improvement notices. **Two** of the **15** RSF workshops assessed were served with 2 WHSA s191 improvement notices.

Assessment criteria

The assessment consisted of 12 criteria types, divided into a total of 22 criteria.

Explanatory notes on the assessment system are also listed in Appendix A.

A tabulation of the 12 criteria types and 22 criteria for the ExDES (RSF) assessment is provided below in Table 1.

Table 1. Criteria type and criteria for assessment of ExDES (RSF) licensed workshops.

Criteria type	Criteria number	Criteria
Licence document	10	Facility licence is displayed or available for examination.
Scope and location	20	Licensed activity scope is in accordance with the activities of the facility.
	21	Accreditation scope supports the licensed activity scope.
	22	Technical assessment has been carried out by accreditation body by the date specified on the licence.
Maintenance activity procedures	30	The facility has documented how the facility manages and carries out licensed work.
	31	The facility has systems and procedures to support licensed work including code D inspections.
Supervision	40	The facility has a competency/training matrix to identify competent people and supervisors.
	41	The facility has systems to map the registered item to the design registration and representational drawings.
	42	Work carried out by the licensed facility is supervised and the supervision is documented (for example by ITP).
	43	The facility has guidance for supervision of diesel exhaust emission testing.
	44	The facility has methods for supervision where work is carried out remotely from the workshop facility.
Repairs	50	Compliance statements issued by the licensed facility for inspection of engine systems and components are concise and accurate.
Inspection for registration	60	The facility has procedures developed for inspection for the purpose of item registration of new, reconditioned, and previously registered engine systems, and renewal of currently registered engines.
Specific checking	70	The facility has methods is in place for calibration of sensors.

Criteria type	Criteria number	Criteria
	71	The facility has specific checking for assessment and repair of ExDES joint mating surfaces.
	72	The facility has specific procedures and practises in place for the installation, checking and management of fasteners.
Repairs and replacement parts	80	Documentation is in place for the use of alternative parts.
Modifications	90	The facility has processes to manage the change of engine system design to a new altered registration (dash number change).
Places of work	100	Workshop facilities are suitable for licensed repair, maintenance, inspection and testing work.
	101	The facility has tools, measuring equipment and facilities suitable for licensed repair, maintenance, inspection and testing work at a remote site. (where applicable).
Competent person interviews	110	Competent person interviews.
Supervisor interviews	120	Supervisor interviews.

Assessment findings

Overall, the assessment findings were:

- 18 RSF workshop assessments were reviewed for this report
- 396 individual findings recorded for the assigned criteria numbers
- 82 findings with enforcement action recorded
- 17 compliance notices (WHS s191 improvement notices) issued to 15 of the 18 RSF workshop assessed.

Criteria type assessments findings:

- The overall assessment finding by criteria type was assessed at **87%** compliance
- The lowest scoring criteria type – ‘Repairs’ was assessed at **72%** compliance
- The highest scoring criteria type – ‘Competent person interview’ was a normative assessment scored at **100%** compliance
- Three criteria type assessed in the orange colour range (assessed compliance between greater than or equal to 65%, and less than 80%). These were:
 - ‘supervision’ - compliance ranking of 77%
 - ‘repairs’ - compliance ranking of 72%

- ‘inspection for registration’ - compliance ranking of 73%

The overall assessment findings for the 12 criteria types are detailed in Figure 2:

Figure 2. Summary assessment findings overall results by criteria type



Criteria_{assessment} findings:

The 2 lowest_{criteria} assessment findings are shown in Figure 3 below as the red colour range (assessed compliance less than 65%). They were:

- 63% compliance – criteria type ‘scope and location’ and criteria number 22 - ‘technical assessment has been carried out by accreditation body by the date specified on the licence’
- 63% compliance – criteria type ‘supervision’ and criteria number 44 – ‘the facility has methods for supervision where work is carried out remotely from the workshop facility’.

There were eight (8)_{criteria} assessed in the orange colour range (assessed compliance between greater than or equal to 65%, and less than 80%):

The overall assessment findings for the 22 criteria are detailed below in Figure 3:

Figure 3. Summary assessment findings overall results by criteria type and criteria

Licence document	10	Facility licence is displayed or available for examination	96%
	Total		96%
Scope and location	20	Licensed activity scope is in accordance with the activities of the facility	97%
	21	Accreditation scope supports the licensed activity scope	100%
	22	Technical assessment has been carried out by accreditation body by the date specified on the licence	63%
	Total		87%

Maintenance activity procedures	30	The facility has documented how the facility manages and carries out licenced work	72%
	31	The facility has systems and procedures to support licensed work including code D inspections	100%
	Total		86%
Supervision	40	The facility has a competency/training matrix to identify competent persons and supervisors	83%
	41	The facility has systems to map the registered item to the design registration and representational drawings.	89%
	42	Work carried out by the licensed facility is supervised and the supervision is documented (for example by ITP)	69%
	43	The facility has guidance for supervision of diesel exhaust emission testing	78%
	44	The facility has methods for supervision where work is carried out remotely from the workshop facility	63%
	Total		77%
Repairs	50	Compliance statements issued by the licensed facility for inspection of engine systems and components are concise and accurate	72%
	Total		72%
Inspection for registration	60	The facility has procedures developed for inspection for the purpose of item registration of new, reconditioned, and previously registered engine systems, and renewal of currently registered engines.	73%
	Total		73%

■ Green (=100%)
■ Yellow (>= 80% and <100%)
■ Orange (>= 65% and <80%)
■ Red (<65%)

Specific checking	70	The facility has methods is in place for calibration of sensors	100%
	71	The facility has specific checking for assessment and repair of ExDES joint mating surfaces	97%
	72	The facility has specific procedures and practises in place for the installation, checking and management of fasteners	100%
	Total		99%
Repairs and replacement parts	80	Documentation is in place for the use of alternative parts	84%
	Total		84%
Modifications	90	The facility has processes to manage the change of engine system design to a new altered registration (dash number change)	84%
	Total		84%
Places of work	100	Workshop facilities are suitable for licensed repair, maintenance, inspection and testing work	94%
	101	The facility has tools, measuring equipment and facilities suitable for licensed repair, maintenance, inspection and testing work at a remote site. (where applicable)	100%
	Total		97%
Competent person interviews	110	Competent person interviews	100%
	Total		100%
Supervisor interviews	120	Supervisor interviews	97%
	Total		97%

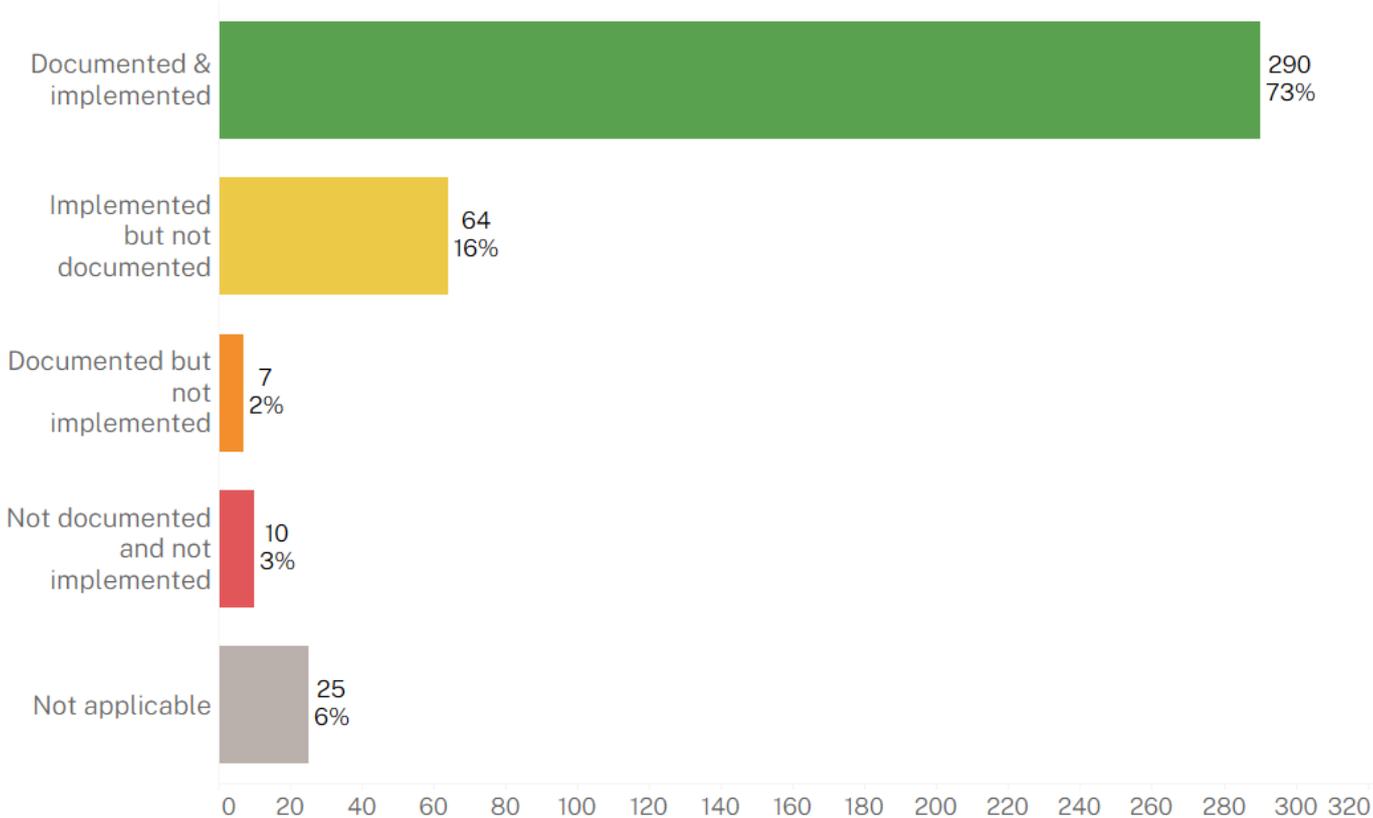
■ Green (=100%)
■ Yellow (>= 80% and <100%)
■ Orange (>= 65% and <80%)
■ Red (<65%)

The overall analysis of assessment findings ratings indicated:

- Documented and implemented assessed at **73%**.
- Implemented but not documented assessed at **16%**.
- Documented and not implemented was found to be **2%**.
- Not documented and not implemented was found to be **3%**.
- Not applicable was **6%**.

The analysis of the overall assessment findings ratings is summarised below in Figure 4:

Figure 4. Overall assessment findings ratings



Notices issued

There were **17** compliance notices in total issued to **15 of the 18** assessed ExDES (RSF) workshops in relation to the assessment program. All compliance notices were WHSA s191 improvement notices.

Two of the **15** RSF workshops assessed were served with 2 WHSA s191 improvement notices.

Review of the 17 notices issued on the licensed RSF facilities identified similar non-compliances across a number of notices, with three of the non-compliances appearing in approximately half of the notices issued.

Table 5 identifies the total number and type of notices issued.

Table 5: Notices issued for the planned inspection program – Licenced recognised service facility (RSF)

NOTICE TYPE	TOTAL ISSUED	NUMBER OF RSF
s.191 improvement notice	17	15
Total	17	15

Note: some mines were issued multiple notices

Table 6 provides a review of notices issued and the top 5 topics of non-compliance and typical recommendations.

Table 6: Compliance notices issued and the top 5 topics of non-compliance and typical recommendations.

Notices Issued	Top 5 topics of Non-compliance	Typical recommendations
10	Supervision process unclear or not documented for work under license	<p>The facility should develop and document the process for supervision of work conducted under the licence, including:</p> <ul style="list-style-type: none"> • That licensed works undertaken by competent persons are supervised. • How supervision is performed at the facility and mine sites. • Direct and indirect supervision, and the required frequencies of communication, hold points, witness points etc. • The appointment of competent supervisors. • Assessment and retraining needs. <p>The facility should review AS3584.3 for supervision requirements, consider an inspection and test plan (ITP) concept and identify where direct and indirect supervision is suitable.</p>
8	Missing or overdue accreditation body technical assessment (NATA)	<p>Facility should develop an overarching policy to manage work conducted under the licence remaining compliant with the conditions of the licence.</p> <p>Carry out independent technical assessment, implement a process for the management of the accreditation body technical assessments to ensure ongoing compliance, and implement any recommended controls identified in the technical assessments by the specified date.</p>
8	Conformance process not consistent with requirements, including Certificate of Conformance checks	<p>Review and revise as necessary the documented procedure for validation of documents to align with work practices.</p> <p>Workshop inspection reports to include a conformance statement for the final assembled engine. The compliance statement should include that the certification was conducted under and in accordance with the license.</p> <p>Review and develop ‘Code D’ inspection declaration that accurately reports the details of the inspection.</p> <p>Include compliance statements on individual component test reports.</p> <p>Inspection declarations for ‘ExDES’ components must state the works completed and compliance assessment findings of the inspection.</p>

Notices Issued	Top 5 topics of Non-compliance	Typical recommendations
		<p>Develop systems and procedures to create certificates of conformity when performing modifications from one design registration (configuration) number to another.</p>
4	<p>Procedures do not address identified safety related issues</p>	<p>Examples include:</p> <ul style="list-style-type: none"> • In consultation with workers and a competent person, assess the risk for the exposure of workers to diesel exhaust fumes when operating diesel engines inside the workshop. Implement controls in accordance with the hierarchy of controls. • Conduct a risk assessment with respect to fire hazards for the task of thermal sensor testing. Develop a plan for the implementation of controls in accordance with the hierarchy of control. • Provide a fit-for-purpose pressure relief valve or pressure release system to protect workers from over pressurisation of the test rig. • Provide suitable guarding or discharge of the pressure relief system to adequately protect workers from hazards from the release of pressurised (hot) fluids. • Review and revise documented procedures where grades of fasteners and torque are nominated to ensure optional fastener grades have corresponding appropriate alternate torque settings. • Review house-keeping practices in the workshops 'Code D' inspection area to prevent damage to ExDES components.
4	<p>Process does not identify all licensed work requirements</p>	<p>Carry out a risk assessment to determine the risks associated with licensed work and implement the actions of the risk assessment into the facility safety management system (safe work method statements, procedures, work instructions, etc) used to carry out licensed work.</p> <p>Facility should develop an overarching policy to manage work conducted under the licence including:</p> <ul style="list-style-type: none"> • remaining compliant with the conditions of the licence • eligibility requirements for a licence under WHS(MPS) Reg s156 • a description of the scope of licensed work and the principal elements of AS3584.3, such as how supervision, tools, facilities, subcontracting, document management, etc are managed <p>Identify how the facility satisfies the conditions of licence specified on the licence and in legislation WHS(MPS) Reg s157 (2)(3)(4)</p> <p>Ensure workers are trained in safe working methods in relation to those activities.</p>

Recommendations

Recommendations are based on the findings outlined in this report, in particular criteria findings assessed as **65%** or less (red colour ranking), and with respect to the numbers and types of compliance notices issued during the program.

ExDES (RSF) workshop operators should review the following recommendations:

- Review the criteria type '**scope and location**' considering the criteria finding:
 - Criteria No 22 assessed compliance of **63%**: 'technical assessment has been carried out by accreditation body by the date specified on the licence'.
- Review the criteria type '**supervision**' considering the criteria finding:
 - Criteria No 44 assessed as **63%**: 'the facility has methods for supervision where work is carried out remotely from the workshop facility'.
- Review of **compliance notices** and the common issues identified during the assessment:
 - Develop systems to ensure technical assessments are completed in line with the frequency specified on the licence and consistent with requirements of the licence.
 - Develop systems for the appropriate supervision of work conducted under the licence and the keeping of supervision records.
 - Develop a process for periodic review and indication of revision status/date of currency for training matrix.

Further information

For more information on safety assessment programs, the findings outlined in this report, or other mine safety information, please contact the NSW Resources Regulator:

CONTACT TYPE	CONTACT DETAILS
Email	cau@regional.nsw.gov.au
Incident reporting	To report an incident or injury call 1300 814 609 or log in to the Regulator Portal
Website	www.resourcesregulator.nsw.gov.au
Address	NSW Resources Regulator 516 High Street Maitland NSW 2320

Appendix A – Assessment criteria rating

Each assessed criteria was rated from 1 through 4 based on evidence supporting the expected control supports identified at the mine site:

Evidence supporting expected control supports

Expected control supports	Rating	Evidence supporting rating / comments				
	<table border="1"> <tr> <td>4</td> <td>3</td> </tr> <tr> <td>2</td> <td>1</td> </tr> </table>	4	3	2	1	
4	3					
2	1					

Assessment findings results are calculated based on the total points allocated to the assessed ratings as a percentage of the maximum possible points for each criteria group, and any findings rated as ‘Not applicable’ were excluded from the calculation.

Criteria assessed ratings and points

Assessed as	Rating	Points
Documented & implemented Compliant	4	4
Implemented but not documented Improvement needed	3	2
Documented but not implemented Significant improvement needed	2	1
Not documented and not implemented Non compliant	1	0
Not applicable (N/A)		

Findings results (points) with colours assigned as follows:

- Green (=100%)
- Yellow (>= 80% and <100%)
- Orange (>= 65% and <80%)
- Red (<65%)
- Not applicable