



DEVON & SOMERSET FIRE & RESCUE AUTHORITY

REPORT REFERENCE NO.	HRMDC/12/4
MEETING	HUMAN RESOURCES MANAGEMENT & DEVELOPMENT COMMITTEE
DATE OF MEETING	19 MARCH 2012
SUBJECT OF REPORT	ASSESSMENT & DEVELOPMENT CENTRE (ADC) TECHNICAL ASSESSMENT - UPDATE
LEAD OFFICER	Director of People and Organisational Development
RECOMMENDATIONS	<p><i>That the Committee notes the approach taken in line with the principles of Technical Assessment and endorses:</i></p> <p><i>(a) The pass mark, and;</i></p> <p><i>(b) The IFE equivalent level for Supervisory level technical assessment – to be Level 3 Certificate.</i></p>
EXECUTIVE SUMMARY	<p>This report provides an update on the progress of technical assessment being introduced to replace stage 1 of the ADC, including the findings of a recent pilot which included 32 candidates. The outcome is that the assessments will be run on a paper-based exam basis, to include longer questions in addition to multi-choice, to increase the depth of questions and responses required. Recommendations on the level of passmark and IFE equivalence are included as outlined above.</p> <p>This represents part of the process of evolution of ADC's, which has recently included fundamental changes to validity periods and in-band processes.</p> <p>The recommendations above were approved by the SMB on 14th February 2012.</p>
RESOURCE IMPLICATIONS	<p>Potential future revenue from onward sale of technical assessment to other services.</p> <p>Time taken to mark the technical assessments replaces previous time required to mark Stage 1 (PQA based assessments) – and therefore is not anticipated to increase overall.</p>

EQUALITY IMPACT ASSESSMENT	ADCs are open to all operational staff regardless of duty system, gender, age etc. These proposals do not affect the existing way in which ADC processes are managed, and individual needs and reasonable adjustments will continue to be accommodated within any part of the ADC process.
APPENDICES	Appendix 1 – Examples of Technical Assessment questions Appendix 2 – Reading List
LIST OF BACKGROUND PAPERS	Report HRMDC/11/4 to Human Resources Management & Development Committee on 11 April 2011

1. **BACKGROUND**

- 1.1 Service Management Board previously approved plans to streamline the Assessment & Development (ADC) process and to introduce a technical assessment to replace the existing Stage 1 (February and June 2011). This approach was endorsed by the Committee at its meeting on 11 April 2011 (Minute *HRMDC/30 refers). The Training and Development Department have since developed a set of technical assessment questions to meet this need.
- 1.2 Over the past few months, Training & Development has made significant changes to the ADC process overall, including removing the validity criteria, significant changes to in-band ADC requirements and development and piloting of the streamlined ADC tools. New toolkits will be used at Supervisory level for the first time in February/March, where the benefits outlined (resource savings, reduced pressure on assessors and applicants) will begin to be seen.
- 1.3 Technical Assessment is being introduced to meet an immediate service delivery need, satisfying the requirements for improved firefighter safety and with a view to being able to provide a consistent and effective product that could be marketed across to other Fire & Rescue Services if appropriate. This paper focuses on the next steps for technical assessment
- 1.4 This report outlines:
- a) the findings of the trial assessment carried out in December 2011;
 - b) the planned format for the technical assessment process to be carried out in February 2012;
 - c) provides a recommended pass mark for SMB approval; and,
 - d) provides a recommendation of the link to the IFE framework (at the Supervisory ADC level) for SMB approval.

2. **THE PRINCIPLES**

- 2.1 The key principle for the assessment is to use operational technical knowledge as a measure to select suitable staff for progression to the more costly ADC. In addition successful completion of the Technical Assessment would allow for individuals to 'act up' to the next level on completion of the necessary risk critical training courses to achieve the Service's statutory response obligations.
- 2.2 In determining the structure of the assessment an analysis was carried out into the various assessment systems i.e. written answers verses multiple choice and paper based assessment verses electronic systems such as the services Classroom Performance System (CPS). In addition the structure of the Institution of Fire Engineers (IFE) examinations has been looked at for comparison and equivalency and an initial attempt has been made to mirror the style of syllabus for those examinations. Please note that we are aware that significant further work is required to fully look at the possibility of re-integrating IFE exams into the service. This brief report does not address this element in detail.

3. **QUESTION DEVELOPMENT**

- 3.1 The potential number of applicants that may apply from Firefighter to Crew Manager is estimated to be 60-100. Based on this figure it was considered that a meaningful assessment of an individual's technical knowledge would require a number of questions at a level and quality sufficient to meet the principles of assessment without being too onerous to mark by the Workforce Development team.
- 3.2 As such, the Selection and Development Group with representatives from Service Delivery agreed a mixture of multiple choice and both short written and longer written answers. On this basis, a paper was written using both existing questions from within our internal training department assessment processes and by development of additional question banks that have been written in line with the available syllabus materials. The questions are of a style that are not DSFRS specific and therefore can be easily referenced to both standard operating procedures and legislation and could be used in other FRS. The sample questions for technical assessment are set out in Appendix 1 of this report, together with a syllabus/reading list at Appendix 2 for information.
- 3.3 The assessment paper was split into two with part 1 consisting of multiple choice questions and part 2 written answers.

4. **TRIAL ASSESSMENT**

- 4.1 32 firefighters took part in a number of trial assessments in December 2011. They completed a written paper and in addition were asked to complete a feedback form outlining their view of the process, questions, format, the amount of preparation undertaken etc.
- 4.2 A reading list was published on the intranet 6 weeks in advance of the first assessment, providing links to all of the source documents and pinpointing specific chapters etc where appropriate.
- 4.3 The candidates completed a written paper, including 40 multiple choice questions and a number of short and long answer questions overall, taking between 50 and 90 minutes. The questions were categorised into 3 key areas; Operational, Incident Command and Other (Legislative etc).
- 4.4 The feedback on the process was extremely positive, with all participants welcoming the introduction of technical assessment as part of the promotions process.
- 4.5 There were individual concerns over accessing the extensive reading material remotely (at home) and efforts will be made to ensure all future participants are aware of how to access the materials from a variety of different sources. Interestingly, no one showed any concern about being 'given' the time to study and neither did anyone raise the question of payment or reward.
- 4.6 During the trial it was soon established that the benefits of electronic multiple choice questions (quick to mark and administer) were outweighed by the qualitative feel of longer questions.

- 4.7 Incident Command multi-choice questions were answered very well by all candidates irrespective of their previous level of Incident Command training with the minimum score achieved being 9/13 (69%). However, there were some areas of concern in subjects such as High Rise, Radio Procedure and the legislative obligations of the Service under the Fire Services Act. Breathing apparatus and branch lines were also poorly answered and these issues will be fed back into the training delivery teams for the necessary improvement.
- 4.8 The learning the Service can take from performance in particular areas of operational knowledge will become an important part of the new process. This can be used to provide a snapshot of the organisation learning cycle.

5. **PLANNED FORMAT**

5.1 Based on the outcomes of the pilot, the planned format of the February Technical Assessment is:

- Written (paper-based) assessment
- Mix of multi-choice, short and long answer questions
- 3 key sections – Operations, Incident Command and Other (including Legislation etc)

5.2 Candidates will have up to 1¼ hours (75 minutes) to complete the paper.

5.3 It will be held under exam conditions.

5.4 Based on our experience of marking longer questions, the Workforce Development Team will in future schedule a markers week to ensure all papers are marked and feedback reports compiled for a quick turnaround.

6. **THE PASS MARK**

6.1 The overall results (scores) for the pilot assessment are summarised in the attached table:

Overall Score achieved by candidates (%) - range	Number of Candidates Scoring in this range	% of candidates Scoring in range	% Candidates successful if passmark set at min of range
85%-100%	0	0%	0%
80%-85%	3	9%	9%
75% - 80%	3	9%	19%
70% - 75%	2	6%	25%
65% - 70%	3	9%	34%
60%-65%	6	19%	53%
55% - 60%	4	13%	66%
50% - 55%	5	16%	81%
45% - 50%	3	9%	91%
40% - 45%	2	6%	97%
35% - 40%	0	0%	97%
30% - 35%	1	3%	100%

6.2 In determining the pass mark a the Service needs to ensure operational competence and that the assessment is a robust test of knowledge.

6.3 What pass marks are set elsewhere?

- Across our courses/development programmes the Service typically sets a passmark of 70% (for multichoice questions).
- Other Services using similar sorts of technical assessment have typically been setting a passmark in the region of 50% - 60%.
- The IFE examination process pass mark is 40%

6.4 Given that approximately 35% of our staff did no preparation for this assessment (and therefore if they had, the Service would expect significantly higher scores), and our aspiration for excellence, together with the range and type of questions being set, it is **recommended that an overall score of 70% across all parts of the paper be required.**

6.5 25% of the pilot group achieved this level, and it is believe this is achievable (whilst stretching) for everyone if staff put in the pre-work.

7. EQUIVALENCY/VALIDITY

7.1 Although the validity of the 'ADC' itself (or stage 2 as formerly known) has now been extended indefinitely (subject to ongoing performance and competence in role), in earlier papers it is proposed that technical assessment would need to be retaken every year, to provide currency of knowledge and ensure ongoing technical competence. We have communicated out to staff that they would need to be successful in the technical assessment prior to each occasion that they apply for an ADC.

7.2 The Institute of Fire Engineers examinations are formal examinations held on an annual basis that require a level of commitment and study that should be acknowledged within DSFRS's selection process. Analysis of the IFE structure identifies the following cross mapping:

- Level 2 (formerly Preliminary exam) – FF level
- Level 3 Certificate (formerly Intermediate exam) – CM level
- Level 3 Diploma (formerly Graduates exam) – WM level
- Level 4 Certificate (formerly Members exam) – SM level

7.3 **Recommendation: On this basis completion of the level 3 certificate should allow a candidate to progress direct to the Supervisory ADC.**

7.4 It is also recommend that in order to maintain currency, the Service sets some time limit on the currency of the IFE exams. The suggestion is that the IFE exams need to have been completed in the past 2 years (or longer if evidence is provided by the candidate of ongoing CPD).

7.5 More detailed analysis needs to take place to determine the equivalency at SM level. Any equivalency will only be supported within two years of achievement of the qualification in line with Accreditation of Prior Learning.

7.6 Additional work is underway to look at inclusion of IFE qualifications as potentially an essential element of the person specification, thus requiring candidates to achieve the above levels prior to application for the next role. By placing the emphasis at person specification it overcomes issues of competency and pay. Any formal proposals for this will be presented to SMB for future consideration.

8 **FIRE CONTROL STAFF**

- 8.1 Although the original intent was for Fire Control staff to have a set of technical questions (similar to operational staff) ahead of the full ADC, due to the pressures on control resources to deliver the combined control room, resource has not been available to develop an appropriate question set. Additionally, due to the ongoing resource requirements of creating and delivering technical question sets, for relatively small numbers of staff, the Service is planning to use the 'sift' for Control staff consist of the Simulated Exercise (Simex) used previously. Stage 2 will be exactly the same as for other operational staff, with the same passmark etc applied.

9 **NEXT STEPS**

9.1 Supervisory Management ADC

- The first Supervisory ADC including Technical Assessment for stage 1 has been advertised (13th Jan).
- The assessment will take place between 20th and 27th February.
- Marking will be completed by 9th March
- Agreement of who will go through to stage 2: w.c. 12th March.

9.2 Middle Management ADC:

- Development of technical assessment questions – by early March
- Quality Assurance: March
- Use as part of the next ADC process – late April

10. **RECOMMENDATIONS**

- 10.1 It is recommended that the Committee notes the approach taken in line with the principles of Technical Assessment and endorses:

- (a) The pass mark
- (b) The IFE equivalent level for Supervisory level technical assessment – to be Level 3 Certificate.

JANE SHERLOCK

Director of People and Organisational Development

**Example Technical Assessment Questions
Stage 1 Supervisory ADC**

1. Example Multichoice Questions

Note: A correct answer on each multichoice question is worth 1 mark.

1.1 What is the minimum cooling period for an acetylene cylinder that has been involved in fire and shown signs of decomposition?

- A. 12hrs
- B. 6hrs
- C. 24hrs
- D. 36hrs

1.2 Which factor is common in all potential backdraughts?

- A. Vented compartment
- B. Slow burning fuel
- C. High energy flammable gases
- D. Limited Ventilation

1.3 In relation to conducting a rescue from a lift which of the following answers correctly identifies a shear trap?

- A. A risk of being caught between a moving lift and a landing opening
- B. A risk of being caught between a lift counter balance weight and structures within the lift shaft
- C. A risk of being caught in moving machinery in the lift motorway
- D. Both A and B

1.4 In relation to carrying out a rescue from a silo, what is meant by the term bridging?

- A. A phenomenon whereby the seemingly solid contents are in fact merely a bridge over a void as the contents have been emptied away from below.
- B. Using ladders in a horizontal method to bridge across a void
- C. A phenomenon where the contents of the silo have become compacted to form a solid surface
- D. Using an aerial appliance to gain access to an upper level of the silo

2. Example Short Answer Questions:

Note: A correct answer on each short answer question will be worth different numbers of marks according to the complexity or detail required in the answer. This will be specified on the final question paper.

2.1 The use of handheld communications is potentially hazardous in the following situations:

1. Hospitals
2. Incidents involving explosives
3. Rtc's where vehicles are fitted with SRS

Briefly explain what restrictions on radio use should be put in place for each of these incident types.

(12 marks)

2.2 FRSs operate a system for notifying environment agencies of incidents they are attending that have the potential to cause environmental pollution.

Give 5 examples of when the environment agency should be informed of fire service actions:-

(5 marks)

3. Long Answer Example Question

Finally there will be a scenario question similar to the one below, this question is designed to give you the opportunity to show your depth of knowledge and thought processes when dealing with a small incident. Marks for each part of the question will be provided in the paper.

You are officer in charge of the first attendance at a fire in a small guest house, (2 floors, 20m square) you have a crew of four and a second appliance is on its way.

You are greeted by the owner who says a fire has broken out in the kitchen fryer and there is still a guest in the first floor room number 3. She gives you a plan.

The building is ventilated and there is smoke issuing from several windows and the front door.

3.1 There is a risk of which fire phenomenon occurring at this incident?

Describe the phenomenon in your own words and list the signs and symptoms:

(10 marks)

3.2 If you were to commit a crew before the second pump arrives what procedure would you instigate?

What are the criteria that must be met for that procedure and what are its limitations?

(10 marks)

3.3 Which acronym would you use to brief the crew?

Give an example of a simple brief for this incident using this Acronymn.

(12 marks)

3.4 Write an informative message for this incident, assuming you have committed a crew. In addition, state which acronym you would use to assist you with a building fire informative.

(10 marks)

Post fire you notice that one of the fire escapes was padlocked.

3.5 It is determined that the locked door is a breach of fire safety legislation, which piece of legislation is it a breach of? Who enforces that legislation?

(4 marks)

Reading List: Technical Assessment

A full list of reading material and links can be found on the intranet on the following page:

<http://intranet/Departments/Training/SupervisoryLevel.asp>

The syllabus covers:

- Incident Command System
- Fire Safety
- Environmental Protection
- Equality & Diversity
- Health Safety and Risk Assessment
- Breathing Apparatus and Fire Fighting
- Legislation
- Hazardous Materials
- Electricity
- Transport
- Pumps & Water Supplies
- Water Rescue
- Working at Height
- Specific Risks