

Geophysicist Grade I

S20 and S23

The following should be read and used in conjunction with the information pack 'Competence Assurance & Assessment: Introduction for Experienced Freelance Personnel'.

Evidence Required

- Competence appraisal:** ♦ at Geophysicist Grade I level
- Work records:**
- ♦ copy of one safety related document such as, risk assessment form, toolbox talk sheet or safety briefing which clearly shows that the candidate was involved in the process
 - ♦ copy of field acquisition report
 - ♦ copy of preliminary interpretive report for a standard site survey
- Witness testimonies:**
- ♦ one example of the candidate maintaining a safe working environment for self and others
 - ♦ one example of candidate taking overall responsibility for QC and preliminary interpretation and reporting for a standard site survey
 - ♦ one example of the candidate being responsible for technical liaison with the client representative and directing the progress of a standard rig site survey where necessary
- Essential knowledge:** ♦ written answers to Geophysicist Grade I questions
- Curriculum vitae:** ♦ detailing offshore trips, work scope, clients, regions, etc.

IMCA Framework Requirements

The competence assurance and assessment framework developed by IMCA (the International Marine Contractors Association) sets out a number of elements for each safety-critical position. The following table shows how competence can be demonstrated against each element.

Code	Demonstration	Covered by
S/S20/000/01 Safety	Ability to adhere to offshore safety standards and maintain a safe working environment Ability to follow company safety procedures Ability to participate in risk assessment process Ability to recognise hazards in the work place Demonstrate a knowledge of how to react to safety critical situations and what immediate action can be taken to minimise/eliminate them	CA(a), WT, Q4 CA(a), WT, Q5 R, Q3 CA(a), Q2 CA(a)
S/S20/000/02 Emergency Procedures	Ability to recognise a potential or actual emergency situation and report it appropriately	WT, CA(a), Q1,4, 5
S/S20/000/03 Behavioural Factors	Ability to give and receive handovers at start and end of shift Ability to use concise and unambiguous writing skills and the ability to handle written language effectively Ability to communicate effectively with marine crew using correct descriptive terms for direction, vessel locations and relevant seamanship terms	CA(b) R, CA(b) CA(b)
S/S20/000/05 Seamanship	Demonstrate basic knowledge of practical seamanship and basic rigging skills Demonstrate knowledge of how weather conditions affect ship handling and its impact on the safe handling of survey systems	CA(e) Q4
S/S23/000/06 Software	Ability to configure geophysical QC software packages Ability to operate geophysical data processing and interpretation software packages	CA(d) CA(f)

Code	Demonstration	Covered by
S/S23/000/07 Data Acquisition	Ability to take appropriate action in cases of unacceptable data quality Ability to check logs and offset diagrams produced by junior personnel Ability to QC seabed sample logs produced by junior personnel Ability to QC sub bottom profiler source signature and amplitude level tests Ability to assess all types of geophysical data and approve or otherwise based on knowledge, experience and company standards	CA(g), WT CA(i), WT CA(i), WT CA(g), (h), WT CA(g), (h), R
S/S23/000/08 Data Management	Ability to check that logging, labelling and storing of data is being carried out correctly Carry out regular data backups	R WT
S/S23/000/09 Data Interpretation	Ability to interpret all standard survey data and to understand basic survey objectives	R, WT
S/S23/000/10 Data Presentation	Ability to prepare basic survey reports Ability to manipulate and present information and survey data using Office IT packages	WT, CA(j) CA(c)
S/S23/000/11 Graphical presentation and mapping	Ability to prepare advanced maps including complex contouring	WT
S/S23/000/12 Survey principles	Ability to understand complex survey principles and geodesy and how they can affect survey data and results	CA(i)

Q Question (written answer required)

CA Competence Appraisal Form

R Record of work; document or product

WT Witness Testimony

Sample Achievement Record

Candidate name:

First assessor name:

	Assessment Decision	Approval of Internal Verifier/ Competence Focal Point
Safety		
Emergency Procedures		
Behavioural Factors		
Seamanship		
Software		
Data Acquisition		
Data Management		
Data Interpretation		
Graphical presentation and mapping		
Survey principles		

Comments:

First assessor signature: Date:

Verifier signature: Date:

Sample Competence Appraisal

The appraiser must have observed the appraisee completing the task before completing the relevant section. Where necessary a number of different appraisers may be used to complete the form fully.

Appraisee name:

Task	Feedback to Appraisee	Appraiser <i>(Print name, sign and date)</i>
<p>a) Demonstrate safety and emergency awareness, familiarisation with worksite and ability to identify hazards.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>b) Maintain effective teamwork and communication, including the supervision of a shift.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>c) Demonstrate IT skills including Office packages and data management.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>d) Install, configure and maintain technical software packages for processing and interpretation tasks, diagnose faults and rectify.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>e) Operate ancillary survey equipment, including safe launch and recovery of sensors and rigging skills.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>f) Have a full understanding of, and be able to carry out, QC checks for monitoring the quality of digital seismic data.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		

Task	Feedback to Appraisee	Appraiser <i>(Print name, sign and date)</i>
<p>g) Process digital seismic data to brute stack including carrying out preliminary velocity analysis.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>h) Supervise all geophysical equipment tests and checks. Determine if data quality is acceptable. Suggest changes to equipment or towing configuration where necessary.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>i) Be fully conversant with acoustic and seismic surveying techniques and systems.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>j) Demonstrate ability to QC work carried out by junior staff and ability to produce a preliminary interpretive report for a standard site survey to the appropriate standard to be issued to the client.</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>		
<p>Projects</p> <p>Indicate which projects you have participated in during the last 12 months. Specify project work scope</p>		
<p>Projects</p> <p>Performance is exceptional <input type="checkbox"/></p> <p>Performance is competent and dependable <input type="checkbox"/></p> <p>Additional skills or experience required <input type="checkbox"/></p>	<p>N.B. Feedback should be based on projects detailed above</p>	
<p>Hardware/Software</p> <p>Indicate which hardware and software you have used during the last 12 months</p>		

Task	Feedback to Appraisee	Appraiser <i>(Print name, sign and date)</i>
Hardware/Software Performance is exceptional <input type="checkbox"/> Performance is competent and dependable <input type="checkbox"/> Additional skills or experience required <input type="checkbox"/>	N.B. Feedback should be based on software / hardware detailed above	

Appraisee comments:

Appraisee signature:

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Date:

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Essential Knowledge – Sample Questionnaire

- 1 What is the definition of 'near miss' incident?
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- 2 List the most important hazards encountered when working offshore and the benefits of toolbox talks.
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- 3 What is the task risk assessment (TRA) process and how does it apply to typical tasks carried out in your work environment?
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- 4 What is the difference between sea, swell and current and explain their effect on towed equipment and survey operations.
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- 5 What types of geophysical equipment should be selected for use in different environments (e.g. water depth, geology)?
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- 6 For your worksite describe in detail how any safety incidents are reported.
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- 7 Where can you find the company emergency procedure documents for your worksite?
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- 8 Describe some factors which have an impact on site survey design.
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- 9 Explain the importance of a near trace plot and far field hydrophone.
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10 List the checks that should be carried out on data following test shots at the start of 2DHR acquisition.

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11 Explain the importance of good communications.

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12 Why is it important to monitor the frequency content of 2DHR seismic data? How is this done?

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13 What is the effect on the data of increasing/decreasing the source/receiver array depth?

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14 Why do we need to monitor the feather angles? What effect does a high feather angle have on the data?

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15 What are the limitations of 2DHR seismic? List some artefacts you may expect to find on brute stacked data.

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16 List the characteristics indicative of shallow gas on a seismic record.

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17 Provide some examples of geohazards you may expect to find on the continental shelf environment.

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18 Provide some factors which would affect the selection of locations for seabed sampling.

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19 What can be done to reduce 'ringing' at the seabed on profiler data?

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20 What is the effect of rough weather on side scan sonar data?

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21 How do you recognise seismic noise on a shot record?

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22 What is a 'bubble pulse' and how so we try to minimise its effects?

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