Knowledge, Skills, and Abilities Project (KSAs)

What are the KSAs?

- Published in June 2001
- 12 positions were developed:
  OIM, Toolpusher, Driller Assistant, Driller, Electrician, Mechanic, Motorman, Crane Operator, Derrickman, Floorman, Roustabout, HSE
- List of minimum knowledge, skills, and abilities required to perform the job
- Available on the IADC web site

Current KSA Format

Example KSA
HEALTH, SAFETY AND ENVIRONMENT (HSE)

KNOWLEDGE	SKILLS/ABILITY	PERFORMANCE MEASUREMENT
1. HEALTH AND SAFETY ENVIRONMENTAL POLICIES AND PROCEDURES	EXPLAINS: • company health and safety policies and procedures • appropriate actions to be taken to comply with company health and safety policy and procedure • proper waste management procedures MAINTAINS: • good housekeeping practices for work area • personnel hygiene in accordance with company policy and procedure ACTIVELY PARTICIPATES IN: • all applicable safety meetings	1. Observed by supervisor to display an adequate knowledge of company policies and procedures. 2. Observed by supervisor to promote good housekeeping and personal hygiene. 3. Has attended and participated in all safety meetings to date.
2. KNOWLEDGE OF SAFETY IN THE WORKPLACE	UNDERSTANDS AND EXPLAINS: • company health and safety policies and procedures • company permit procedures • proper reporting procedures for HSE incidents • company requirements for working at heights • company requirements for working over water IDENTIFIES: • potential hazards in the workplace ACTIVELY PARTICIPATES IN: • safety meetings	1. Observed by supervisor to understand and explain company policies for safety at the workplace. 2. Observed by supervisor to be able to understand and identify workplace hazards. 3. Has attended and participated in all safety meetings to date.

KSA Project Overview

The Knowledge, Skills, and Abilities (KSA) project is IADC's major drilling industry project to develop enhanced competency guidelines for virtually all rig-based positions that can be sorted based on rig type, environment, geographic region, and equipment.

KSA Project Rationale

- Responds to both regulator and industry call for a globally accepted, recommended, and commonly used competence standard.
- Fulfills the need for industry-developed and accepted guidelines for assessing competence and evaluating performance for all rig-based positions.
- Part of an effort to address the looming talent crisis and increased staffing requirements.
- KSAs seen as a crucial step in developing workforce capabilities.

Phase 1 (complete)

- World Mapping exercise, which included in- and out-of-industry models
- Global survey of the industry, trade organizations, and regulatory bodies
- Review of survey results for best practice, templates, and implementation models
- Defining of competencies for each position identified

Phase 1 (complete)

Establishment of project workgroups that include:

- Quality, Health, Safety, and Environment
- Offshore Drilling Operations
- Onshore Drilling Operations
- Subsea Operations
- Marine Operations
- Technical Maintenance
- Process and Procedures

Phase 2 & 3

- Workgroup mapping of elements to positions and to database filters (in progress)
- Construction and beta testing of relational database for delivering on-demand, unique KSAs by position (in progress)
- Development of wiki page for continuous improvement
- Development of recommended acceptable ranges of performance for each competence

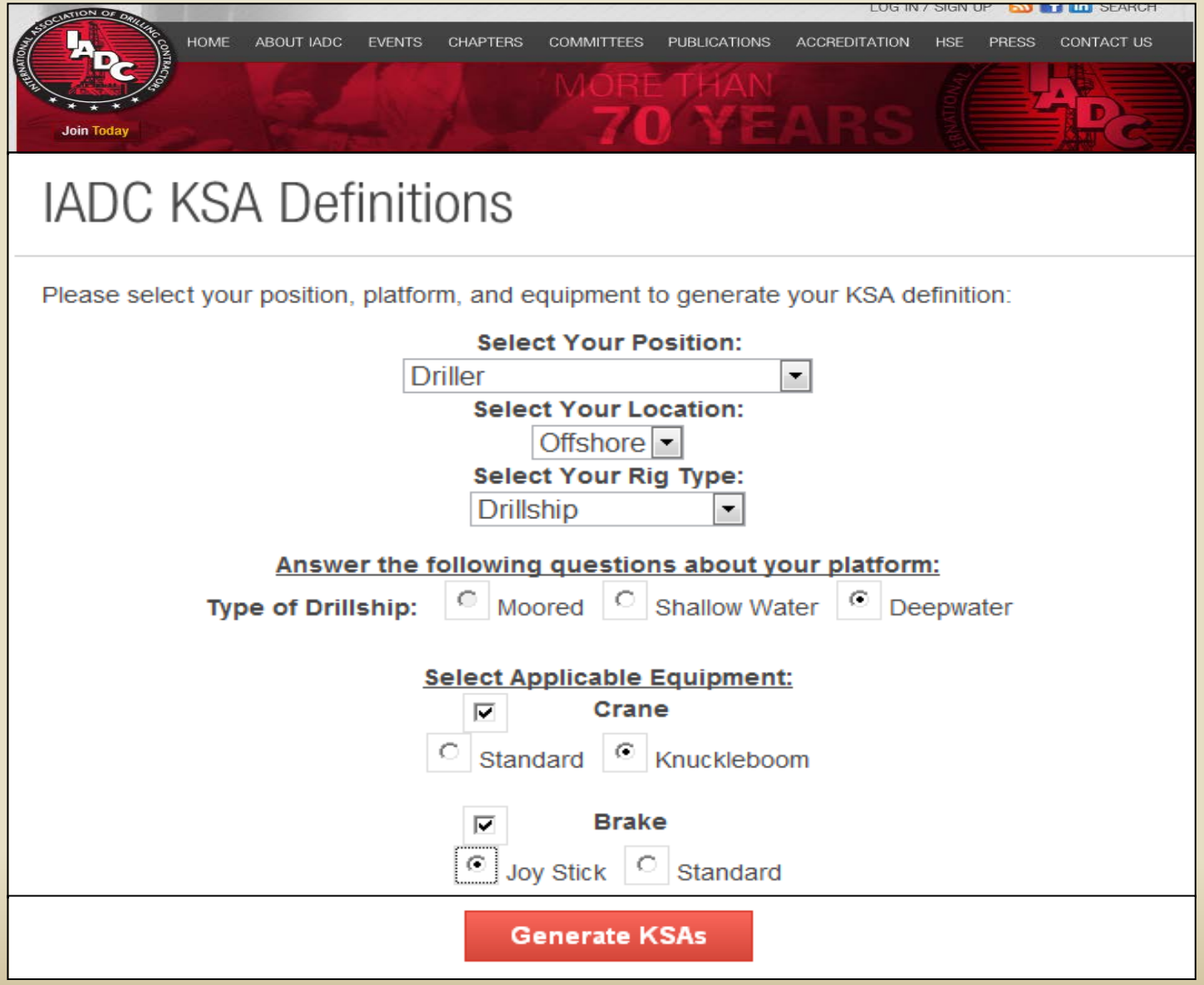
Phase 2 & 3

- Development of resource and reference libraries
- Recommendations for a variety of assessment methods for use in a competence assurance program
- Identification of additional rig-based support positions such as Mud Logger and Mud Engineer; development of KSAs for the additional positions using the same template and process

Workgroup Data Organizer

UNITS OF COMPETENCY - CORE and ADDITIONAL	ELEMENTS OF COMPETENCY (Knowledge, Demonstration (Skill and Ability))	POSITIONS (C -						A - Additional																											
		001 - Floorman	002 - Pumpman/Derrickman	003 - Assistant Driller	005 - Driller (Doeputer)	008 - Toolpusher (Doeputer)	011 - Senior Toolpusher (Doeputer)	015 - Master	017 - 2nd Mate/ Senior DPO	020 - Barge Supervisor	030 - Maintenance Supervisor (SS)	031 - Chief Mechanic (DS)	032 - Chief Mechanic (SS)	033 - Mechanic (DS)	034 - Mechanic (SS)	035 - Chief Electrician (DS)	036 - Chief Electrician (SS)	037 - Electrician (DS)	038 - Electrician (SS)	039 - Asst. Electrician (SS)	040 - Electronic Technician (DS)	041 - Electronic Technician (SS)	048 - Senior Subsea (DS)	049 - Senior Subsea (SS)	050 - Subsea (DS)	051 - Subsea (SS)	052 - Asst. Subsea (DS)	053 - Asst. Subsea (SS)	054 - Subsea Trainee (SS)	055 - Rig Superintendent (DS)	056 - Rig Superintendent (SS)	058 - HSE Advisor (DS)	059 - HSE Advisor (SS)	
Diverter System incl upper flex joint	Explain the function and operation of the diverter system.			C	C	C	C	A		A	A	A	A	A	A	A	A	A	A	A	A	C	C	C	C	C	C	C	A	A			
	Explain and demonstrate the hydraulic control circuits for the diverter system.											A	A	A	A							C	C	C	C	C	C	A	A	A			
	Explain and demonstrate how to perform PMS tasks on the diverter system.											A	A	A	A							C	C	C	C	C	C	A	A	A			
	Demonstrate all of the lubrication points on the diverter panel valves.											A	A	A	A							C	C	C	C	C	C	A	A	A			
	Demonstrate where the interlocks are on the panel.											A	A	A	A							C	C	C	C	C	C	A	A	A			
	Explain diverter packer accumulator and demonstrate how the precharge is checked.											A	A	A	A							C	C	C	C	C	C	A	A	A			
	Explain the regulators on the panel for different pressure settings. Name the systems they feed and explain the reason each of the systems are set to that particular pressure.											A	A	A	A							C	C	C	C	C	C	A	A	A			
	Explain why the rig has overboard lines on both risers.			A	C	C	C	C	C	C	C											C	C	C	C	C	C	C	C	C	A	A	
	Explain how to perform PMS tasks on the flex joints.										A											C	C	C	C	C	C	A					
Marine Riser System	Explain the make, model, size and pressure ratings for the risers in use.	A	A	A	A	C	C	A														C	C	C	C	C	C	C	C	C			
	Explain the functions of the riser adaptor.	A	A	A	A	C	C	A														C	C	C	C	C	C	C	C	C			
	Explain the riser running procedures.	A	A	C	C	C	C	A														C	C	C	C	C	C	C	C	C			
	Explain and demonstrate the function, use and makeup procedure for the risers.	A	A	C	C	C	C	A														C	C	C	C	C	C	C	C	C			
	Explain and demonstrate how to perform PMS tasks on risers.										A											C	C	C	C	C	C	A					
	Explain what to look for when visually inspecting riser buoyancy modules.	A	A	A	A	A	A															C	C	C	C	C	C	C	A	A			
	Explain the re-arm for different colored bands on the buoyancy modules.	A	A	A	C	C	C															C	C	C	C	C	C	A	A				
	Demonstrate how to perform PMS tasks on the telescopic (slip) joint.										A											C	C	C	C	A	A	A					
	Demonstrate the greasing of all necessary parts on the telescopic joint (TJ).										A											C	C	C	C	A	A	A					
	Explain the function and operation of the riser spider.	A	A	C	C	C	C	A														C	C	C	C	C	C	C					
	Demonstrate the ability to perform PMS tasks on the riser spider.										A											C	C	C	C	C	C	A					
	Explain the function and operation of the riser gimbal.	A	A	C	C	C	C	A														C	C	C	C	C	C	C	C	C			
	Demonstrate the ability to perform PMS tasks on the riser gimbal.										A											C	C	C	C	C	C	A					
	Explain the function of the auxiliary riser test plugs.	A	A	C	C	C	C	A														C	C	C	C	C	C	C	C	C			
	Demonstrate the ability to perform PMS tasks on the riser running tools.										A											C	C	C	C	C	C	A					
	Demonstrate functioning of the riser running tool and explain how the tool operates.	A	A	C	C	C	C	A														C	C	C	C	C	C	C	C	C			
	Explain the safety devices in place when the load ring is stored below the diverter housing.	A	A	C	C	C	C	A														C	C	C	C	C	C	A	C	C			
	Demonstrate the ability to perform PMS tasks on the torsion ring.										A											C	C	C	C	C	C	A					
	Explain the function and operation of an automatic riser fill-up valve.			A	C	C	C															C	C	C	C	A	A	A	C	C			
Subsea BOP Stack	**ANNULAR TYPE PREVENTERS**																																		
	Explain the make, model, size and pressure ratings for the annular BOP(s).			A	C	C	C															C	C	C	C	C	C	C	C	C			
	Describe the operation of an annular preventer.			C	C	C	C															C	C	C	C	C	C	C	C	C			
	Demonstrate the ability to identify all major components of the annular BOP.			A	A	A	A															C	C	C	C	C	C	A	C	C			
	Demonstrate the ability to perform PMS tasks on the annular BOP.										A											C	C	C	C	A	A	A	C	C			
	RAM TYPE PREVENTERS																																		
	Explain the make, model, size and pressure ratings for the ram BOP(s).			A	C	C	C															C	C	C	C	C	C	C	C	C			
	Explain the main components of the ram preventers.			C	C	C	C															C	C	C	C	C	C	C	C	C			
	Describe the operation of a ram preventer.			A	A	A	A															C	C	C	C	A	C	C	C	C			
	Explain the hydraulic operation of the Subsea RAM BOP locking systems.			A	A	A	A															C	C	C	C	A	C	C	C	C			
	Explain 'Closing Ratio'.			A	C	C	C															C	C	C	C	A	C	C	C	C			
	Explain how often the ram bonnets (doors) should be opened for inspection.			A	A	A	A															C	C	C	C	A	C	C	C	C			
	CONNECTORS																																		
	Explain the make, model, size and pressure rating of the connectors used on the BOP stack.			A	C	C	C															C	C	C	C	C	C	C	C	C			
	Explain the operation and use of the pilot-operated check valves related to the BOP connectors.				A	A	A															C	C	C	C	A	A	A	A	A			
	Describe what type of gaskets are used with each type of connector in use on your rig.			A	C	C	C															C	C	C	C	A	C	C	C	C			
	Explain the options that can be utilized to prevent hydrates affecting the operation of the connectors.			A	A	A	A															C	C	C	C	A	A	A	C	C			
	Explain and demonstrate how to perform PMS tasks on connectors.										A											C	C	C	C	A	A	A	C	C			

KSA Database



KSA Database

IADC KSAs

KNOWLEDGE SKILLS AND ABILITY

FOR RIG CREWS AND RIG SUPERVISORY PERSONNEL

2 February 2013

The following is the standard IADC competency listing based on the position of Driller (Deepwater).
Each Knowledge Item (KSA) identifies the core competencies and additonal competencies available for the KSA.
Click 'Customize Competencies' to add/remove competency items.
****Customizing competencies will result in a non-IADC standard form.*
Click 'Print KSA' to print the recommended competency listing as indicated.

Customize Competencies

Print KSA

KNOWLEDGE	SKILLS/ABILITY
1. DRILLING OPERATIONS *14 core competencies* *13 additional competencies*	**CORE COMPETENCIES (14):** • Demonstrate how to recognize early-stage mechanical problems with the rotary drill equipment. • Provide examples of minor mechanical repairs made with little to no supervision. • Show how to set alarms properly, such as PVT, flowrates, and gas alarms. • Demonstrate how to recognize fluctuation of pump pressures and how to determine their possible causes. • Demonstrate proper care of tool joints, to include tool joint cleaning, proper selection and use of pipe dope, recognize tool joint face and thread damage. • Describe the torque limits of all tubulars in the hole. • Demonstrate knowledge of the proper makeup torques for all tool joints on board. • Show how to manage drill floor housekeeping to ensure a clean, tidy and hazard-free work area. • Show how to operate and interpret the driller's console controls and instrument panel, including all rotary drilling equipment. • Explain and show the riser running procedures on your rig. • Show how to complete the IADC Daily Drilling Report or electronic drilling report. • Prepares handover notes for relief drilling staff.

KSA Database

***Customizing competencies will result in a non-IADC standard form.*

Click 'Print KSA' to print the selected competency listing.

Print KSA

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1. DRILLING OPERATIONS *14 core competencies* *13 additional competencies*	**CORE COMPETENCIES (14):** ☑ Demonstrate how to recognize early-stage mechanical problems with the rotary drill equipment. ☑ Provide examples of minor mechanical repairs made with little to no supervision. ☑ Show how to set alarms properly, such as PVT, flowrates, and gas alarms. ☑ Demonstrate how to recognize fluctuation of pump pressures and how to determine their possible causes. ☑ Demonstrate proper care of tool joints, to include tool joint cleaning, proper selection and use of pipe dope, recognize tool joint face and thread damage. ☑ Describe the torque limits of all tubulars in the hole. ☑ Demonstrate knowledge of the proper makeup torques for all tool joints on board. ☑ Show how to manage drill floor housekeeping to ensure a clean, tidy and hazard-free work area. ☑ Show how to operate and interpret the driller's console controls and instrument panel, including all rotary drilling equipment. ☑ Explain and show the riser running procedures on your rig. ☑ Show how to complete the IADC Daily Drilling Report or electronic drilling report. ☑ Prepares handover notes for relief drilling staff. ☑ Record Pipe Tallies. ☑ Demonstrate the ability to maintain accurate records of tubular and tool dimensions (i.e. ID, OD, pipe tallies, fish neck and serial numbers). **ADDITIONAL COMPETENCIES (13):** ☐ *Demonstrate an advanced level of mechanical knowledge of rotary drill equipment: travelling blocks, drawworks, top drive, rotary table, etc.* ☐ *Demonstrate how to assist the Maintenance department in diagnosing equipment problems.* ☐ *Demonstrate an advanced knowledge of mud circulating systems.* ☐ *Demonstrate knowledge of the limitations of shaker and mud cleaning systems.* ☐ *Demonstrate an advanced knowledge of Drillstring Failure Prevention and Recognition, in particular:* ☐ *Demonstrate knowledge of how to recognize drillstring washouts.*

For information regarding IADC's initiatives, contact:

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