

REFERENCE SYLLABUS

For

SPECIAL OILWELL OPERATOR'S

**CERTIFICATE of COMPETENCY
EXAMINATION**

AB-56

Edition 1, Revision 1, 2017-09

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GENERAL INFORMATION

Introduction:

As provided for under the Power Engineers Regulation, the Administrator in the pressure equipment discipline has established this Syllabus to identify the examination subjects for the Special Oilwell Operator's Certificate of Competency examination.

The requirements to qualify for a Special Oilwell Operator's Examination are outlined in Section 21 of the Power Engineers Regulation.

Recommended Study Program:

It is recommended that candidates use an approved Special Oilwell Operator's Course or equivalent, for study purposes, and be familiar with the Safety Codes Act and applicable Regulations.

Application to Undertake Examination:

A candidate must submit an application and the prescribed fee at least twenty-one (21) days before the date of examination.

Examination Instructions:

The examination consists of one (1) examination paper with 100 multiple-choice questions, 3 hours duration.

To pass a Special Oilwell Operator's Certificate of Competency examination, a candidate must obtain at least 65% of the total marks allotted.

A candidate is allowed to use, and may be provided, the following items in the examination room:

- The Safety Codes Act and Regulations under the Safety Codes Act;
- Handbook of Formulae and Physical Constants, Steam Tables and Refrigeration Tables are normally provided;
- A non-technical English language dictionary;
- Pens and pencils; and
- Non-programmable calculator



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Note:

- The candidate must provide picture ID to the Examiner prior to the examination.
- No cell phone or any electronic communication devices are allowed to be brought into the examination room.
- The items referenced above must be shown to the Examiner for approval.
- No other reference material is allowed.
- The information in the 1983 Edition of the ASME Boiler and Pressure Vessel Code Academic Extract is outdated. Using this 1983 Edition of the ASME Extract for any power engineering examination is not recommended. Besides using the 2004 or 2007 Edition of the ASME Academic Extract and Supplement, candidates may use the current edition of the ASME Code.

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**3 Hours
Multiple Choice
Examination**

1. Description of Boilers:

- a. i. Locomotive type boiler.
- ii. Horizontal furnace type boiler (including package boiler).
- b. Methods and purpose of staying flat boiler surfaces.
- c. Definitions of the terms: one-pass, two-pass, three-pass, and four-pass with reference to the horizontal furnace boiler.
- d. Materials of construction.
- e. Knowledge of Safety Codes Act and applicable Regulations.
- f. Introduction to CSA and ASME Codes for power and heating boilers.

2. Fittings:

- a. Knowledge of how fittings are installed in order to comply with the Regulations.
- b. Thorough knowledge of construction of gauge glass and water column.
- c. Understanding the purpose of operation of all fittings (including safety valves and all automatic controls such as low-water fuel cut off, high pressure limit control, flame failure device).

3. Combustion:

- a. Working knowledge of fuels and combustion equipment and controls.
- b. Thorough knowledge of methods of lighting gas and oil-fired boilers.
- c. Methods of cleaning coal, oil and gas fired burners.
- d. Requirements for proper combustion of fuels.
- e. Causes of furnace explosions.

4. Operation and Maintenance of Boilers:

- a. Methods of heat transfer, forms of heat energy and temperature.
- b. Lighting up procedure for oil firing.
- c. Lighting up procedure for gas firing.
- d. Methods of coal firing by hand.
- e. Knowledge of boiler water treatment, causes of corrosion, causes of scale accumulation, blowdown control, washing frequency.
- f. Working knowledge of feed water pumps and injectors.
- g. Thorough knowledge of method of proving water gauge and column to indicate correct level in boiler.
- h. Thorough knowledge of testing the low-water fuel cut-off and safety valves.
- i. Principle of operation of a programmed control on an automatic packaged type boiler.
- j. Setting a boiler up for operation.
- k. Preparing a boiler for periods of prolonged lay-up.
- l. Cleaning and preparing a boiler for inspection.
- m. Elementary repairs (tube rolling, caulking).
- n. Responsibility of the holder of a Special Oilwell Operator's Certificate of Competency.
- o. Responsibility to report any accident or damage.
- p. Qualifications required for welders employed on boiler repairs.

5. Fire Prevention and Plant Safety:

- a. Knowledge of fire fighting equipment.
- b. Safe storage of flammable materials.
- c. Good housekeeping rules applicable to boiler room operation.
- d. Confined space entry.
- e. Knowledge and acceptable methods of artificial respiration.
- f. Knowledge of CPR.
- g. Knowledge of WHMIS.

6. WATER TREATMENT:

- a. Water and its impurities.
- b. Understating water pH.
- c. Boiler water corrosion.
- d. Boiler water treatment.
- e. Boiler water problems – sludge & foaming.

7. PUMPS:

- a. Pump theory.
- b. Knowledge of different types of pumps.
- c. Pump construction.
- d. Pumping problems.