

**SEATTLE DEPARTMENT OF HUMAN RESOURCES
EXAMINATION BIBLIOGRAPHY FOR FIREBOAT ENGINEER 2019**

FINAL: March 8, 2019

The written examination for Fireboat Engineer will be held Tuesday, June 11, 2019 (time and location to be announced).

The bibliography of study materials on which the written examination and/or practical exams will be based is outlined below.

Please view the job bulletin for the Fireboat Engineer for the general scope of job duties and required knowledge, skills, and abilities.

GENERAL SCOPE: Pumps, motors, electricity/testing equipment, fuels and lubricants, the operation, maintenance and repair of diesel engines, generators, auxiliary machinery and equipment, and the systems and piping arrangements of Fire Boats #1, #2, #3 Chief Seattle and #4 Leschi (specific questions will deal with the machinery of the Seattle Fireboats) Verbal and written communication, supervision of fireboat crew, interaction with personnel and members of the public, and compliance with Citywide policies, and SFD POG. Vessel characteristics of the SFD fireboats.

Candidates who successfully pass the written will be scheduled for the practical examination, tentatively scheduled for September 9-13, 2019 (times and locations to be announced).

Please contact the Seattle Department of Human Resources Fire & Police Exams Unit at yoshiko.gracematsui@seattle.gov if you have any questions on the bibliography or the exam process.

Source Title	Contents
Allied Systems Tech Manual Telescopic Crane TC 20-55	All
AutoNav Electro Hydraulic Steering Operations and Service Manual	All
Caterpillar C18 Operation and Maintenance Manual SEBU8245-04	All
Caterpillar C18 Marine Power Display Operators Guide	All
CBRNE Crew Protection System Operation and Maintenance Manual Doc. #104086-511-11	All
Champion Air Compressor Model R15B Operation and Maintenance Manual	All
Coastal Marine Equipment Capstan Instruction Manual	All
Detroit Diesel Filter 75/900MAX and 75/1000MAX	All
Detroit Diesel Installation Instructions 18SP541 – Installation of Sea Pro 600	All
Durst Hydraulic Pump Drive Service Manual	All
Electro Guard Cathodic Protection System Installation and Operation Manual	All

Fire Fighting Systems Operations Manual Doc. # FFS003-41-070	All
Foam Pro System 3012 Installation and Operation Manual	All
Hamilton Jet Installation and Service Manual HJ364-3 Jet unit Manual R1A23	Chapters 2,3,4,7,8
Kaesar Screw Compressor Model SX Service Manual	All
Key Power KP 22/16 Hydraulic Thruster and Installation and Operation	All
Leschi Switch Board Sequence of Operation 940748 Revision A 4/25/06	All
MTU Series 10V 2000 Series M92, M93 Operating Instructions	All
MTU V 2000 M93 Maintenance Schedule	All
MTU Series 8V 4000 M71 Operating Instructions M015412/02E	All
MTU Series V 4000 Maintenance Schedule M050486/04E	All
Northern Lights Luggar OM2-2 Operators Manual for M1066T, M1064T	All
PMC Omni Chief Series 8003-1000 Instruction Manual	All
<u>Policies and Operating Guidelines</u> , SFD REV: Dec. 2018	All Policies that relate to the Guidelines listed below:
	3004 - Ethics
Race and Social Justice Initiative, SFD – RSJI Materials (binder)	Tab B: Overview Tab D: Why Lead with Race? Tab E: Race Inequity Definitions Tab F: Disparities 2011: Impacts of Institutional Racism Tab J: City of Seattle 2015-2017 RSJI Plan Tab L: Inclusive Outreach and Public Engagement Guide (pages 4 – 6)
Sexual Harassment Prevention Training Manual for Managers and Supervisors, 3rd Edition, by Paul Gibson, J.D., S.P.H.R. and Marjorie A. Johnson, J.D	All
Vessel Characteristics, Seattle Fireboats	Listed below
Workboat Engineer, Revised Edition “D”/Marine Education Textbooks	Books 1 and 2 Chapters 2, 4, 5, 7, 9, 13, 14
Wynn 1800 “Seahorse” Wipers Installation and Maintenance Manual	All
ZF Marine Gear Operating Instructions 350, 500, 3000, BW 460	All

Vessel Characteristics of the Seattle Fireboats:

Fireboat Chief Seattle: Semi-displacement hull with a gross tonnage of 108, horsepower total of 3,044 at 2,450 RPM from two MTU Model 10V2000M93, operating two independent propellers. Overall dimensions of 96’ 6” length, 23’ width, and a draft of 7’; an all-aluminum boat with speeds capable of 22 knots and a pumping capacity of 10,000 gallons a minute.

Fireboat Leschi: Length – 108'; Beam - 27' ; Draft – 10'; Speed - 14 Knots; Capacities: Fuel 20,940 gallons, Water 1200 gallons, Foam Concentrate 6,000 gallons Novacool; Propulsion - Conventional Twin Screw; Main Engines: 2 - MTU 8V4000, M71 1550 hp at 2,000 RPM, ZF W4610 gears with 72 inch 4 blade propellers; Thrusters: Key Power Hydraulic (200 hp Bow , 100 hp Stern); Electrical: 2 - 99 KW Northern Lights Generators 480VAC 3-phase; Firefighting: 4 - 5,000 GPM Fire Pumps driven by 2 MTU 8V 4000 M71 1,556hp at 2000 RPM, Pump Capacity 20,000 GPM supplying 8 - foam capable monitors, 12- 4 inch and 4- 2 1/2 inch discharges; Crane Ladder: 55 feet with pre-plumbed waterway; CBRN crew protection and decon.

Fireboat 1: Length - 50'; Beam – 16' 6"; Draft – 30"; Speed - 30 Knots; Capacities: Fuel - 486 gallons, Water - 42 gallons, Foam Concentrate - 204 gallons Novacool; Propulsion - Twin 364 Hamilton jets; Main Engines - 2 - C-18 Caterpillar 715 hp at 2300 RPM; Electrical: 2 - 270 amp engine driven alternators and 1 - 10 KW northern Lights Generator; Firefighting: 2 - 3,000 GPM Hale BG8 centrifugal pumps driven off front of main engines, 6,000 GPM total pumping capacity, 2 - 2,000 GPM Elkhart remote operated monitors, 4 - 4" discharge ports, 4 - 2 1/2" discharge ports, Bow Monitor and forward discharge ports are foam capable, CBRN crew protection and decon.

Fireboat 2: Length - 50'; Beam – 16' 9"; Draft – 30"; Speed - 42 Knots; Capacities: Fuel - 600 gallons, Water - 45 gallons, Foam Concentrate - 200 gallons Novacool; Propulsion - Twin 364 Hamilton jets; Main Engines - 2 - C-18 Caterpillar 1001 hp ; Electrical: 2 – 105 amp engine driven alternators and 1 - 9 KW northern Lights Generator; Firefighting: 2 - 3,000 GPM Hale centrifugal pumps driven off front of main engines, 6,000 GPM total capacity, 2 - 2,000 GPM Elkhart remote operated monitors, 4 - 4" discharge ports, 4 - 2 1/2" discharge ports, Bow Monitor and forward discharge ports are foam capable, CBRN crew protection and decon.

Types of vessels and physical comparisons to the Seattle fireboats:

Gross tonnage 24 to 300

Horsepower 1430 to 3100

Engines, single and double

Propulsion, twin propeller and twin jet

Speeds up to 42 knots

Operating in depths up to 800' of water with experience in congested waters; including harbors, rivers, and inland waters

Comparable vessels would be harbor tugs, patrol boats similar to Coast Guard 82 and 95' foot boats, both propeller and jet driven pilot boats, crew boats, patrol and military vessels

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