

Federal Wage System Job Grading Standard for Lock and Dam Operating, 5426

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WORK COVERED

This standard is used for grading nonsupervisory jobs which involve primarily the operation of navigation lock and dam equipment and machinery to allow river traffic to pass from one level to another because of the differences in elevation between the bodies of water, and to maintain required pool levels.

WORK NOT COVERED

Jobs involving the operation of dams at structures having no navigational facilities, such as dams concerned with flood control and hydroelectric power production; or jobs primarily concerned with the repair of lock and dam equipment and machinery.

TITLES

All jobs covered by this standard are to be titled *Lock and Dam Operator*.

GRADE LEVELS

This standard describes two grade levels, grade-6 and grade-8. The standard does not describe all possible grades for this occupation. If jobs differ substantially from this level of skill, knowledge, and responsibility described in this standard, they may be graded above or below these grades, based on the application of sound job-grading methods.

LOCK AND DAM OPERATOR, GRADE 6

General: Grade 6 lock and dam operators work at navigation lock and dam installations where the lock gate and valve machinery and other mechanisms are operated manually or by simple mechanical equipment. At these installations the river traffic consists mainly of pleasure boats, fishing boats, mail boats, and U.S. military craft. Little or no commercial traffic is involved. The dam is a fixed-crest type or is fitted with manually operated tainter gates. Operators perform rudimentary dam maintenance and routine maintenance of the lock operating equipment.

The work consists of operating lock gate and valve machinery and other mechanisms by manually turning gate winches, lifting or lowering valve actuating levers, and turning capstans, spindles, or winches containing haulage lines.

Grade 6 operators pull levers, turn control knobs or handles, and open and close switches of actuating machinery to open and close lock gates and operate valves. They make sure that gates are closed before operation of valve machinery.

They signal vessels desiring entry, and direct their approach into the locks; and they direct the maneuver of boats within the lock chambers. They handle lines from vessels, placing them on the lock wall check posts or mooring bitts, to assist crewmen in the proper mooring and movement of vessels within the lock approaches and confines.

They perform routine maintenance work on manual or simple lock operating mechanical equipment such as portable air or electric motors. Typical maintenance work includes lubricating bearings, gears, wire rope, and other moving parts by use of oil cans or pressure grease guns with predetermined types of lubricants. They scrape rust and corrosion from equipment and make simple repairs to lock operating equipment. They paint machinery, lock gates, and valves. They remove ice, drift, and debris from lock structures and approaches.

Grade 6 operators also maintain the lock premises, and assist in the repair and maintenance of dwellings, buildings, and grounds.

They read river gauges and obtain statistical data such as destination, name, draft, and contents of vessels for filling out report forms.

Skill and Knowledge: Grade 6 operators operate the lock chamber gates, and the lock chamber emptying and filling valves manually or by using simple mechanical equipment. They operate the radio, hydraulic pumps, air compressor, standby generator, and tow haulage equipment. They know methods of mooring tows under various river conditions. They know the order of lockage and how to handle lock lines.

They have a knowledge of the maneuverability of the various vessels entering the locks in order to monitor their movements. They recognize the effects of adverse currents or wind on the boats during approach and lockage operations. They obtain compliance with regulations in dealing with vessel personnel.

Responsibility: Grade 6 operators work under the general direction of a supervisor or employee of higher grade level who is in charge of the shift. Decisions and judgments are made within the framework of established regulations, procedures, and methods.

Grade 6 operators are responsible for observing and enforcing all operating and safety regulations and methods in order to avoid the creation of hazards to themselves and others, and to protect vessels, structures, and equipment from damage.

They report malfunctions and make minor repairs to lock operating equipment.

Physical Effort: Grade 6 lock and dam operators push and pull bars and levers, wind cranks and winches, lift and hold lines, walk extensively, and climb steps and ladders. They lift and carry heavy tools, materials, and equipment.

Working Conditions: Grade 6 operators work inside and outside in all kinds of weather. Work is performed on structures usually over water that is frequently turbulent, sometimes in the

proximity of moving machinery and electrical equipment, sometimes on scaffolds. Occasionally the operator works behind bulkheads below water level.

LOCK AND DAM OPERATOR, GRADE 8

General: Grade 8 operators work at navigation lock and dam installations where river traffic is heavy and consists of private and commercial vessels, including commercial tows and where either (1) the lock and dam gates, control valves, and other associated equipment are electrically and/or hydraulically controlled, or (2) the dam is a movable wicket type structure. The operation and routine maintenance of the dam, lock structure, and other associated equipment are the responsibility of the lock and dam operators.

The wicket dam operation is accomplished by the use of a maneuver boat.

The work consists of:

1. Operating electrical gate controls to open and close gates at one end of the lock chamber.
2. Operating electrically controlled valves controlling the flow of the water for the emptying and filling operation.
3. Operating the electric tow haulage unit as necessary during double lockages to move barges into and out of the lock chamber.
4. Operating electrical controls and/or electrical hoist car to raise or lower dam gates in accordance with specific instructions regarding time and degree of gate change; using a maneuver boat at wicket dams to raise and lower wickets.
5. Serving as ground person during the operation of service bridge boom crane.

Skills and Knowledge: In addition to the knowledge required of Grade 6 operators, grade 8 operators operate electrically or hydraulically controlled lock and dam gates, control valves, and other associated equipment required for passage of traffic through the lock structure and the maintenance of required pool levels. They are skilled in securing lines and slings to items to be moved by boom crane, and they know the hand signals used in directing the crane operator. They use various hand and power tools, sketches and diagrams, and follow oral instructions in performing repair and maintenance work of lock and dam machinery and equipment. They know locking procedures and policies relative to traffic rights-of-way, sequence of operations, safe passage of hazardous commodities, damaged craft, and when to contact the supervisor.

At wicket dams, they operate wicket dam operation equipment, including working from a maneuver boat in swift currents. They work as members of a crew to snub, fasten, and remove coils, wire, or manila lines for the purpose of moving a maneuver boat along the face of the dam. They make hookups, guide and stack timbers in placing or removing needles between wickets, working from a maneuver boat. They work in rotation at various positions on a maneuver boat,

performing such duties as firing boilers, operating the stern engine used to return the boat to anchorage, rigging lines on equipment and materials, mooring and tying the boat to the dam, and handling push bars for lowering wickets.

Responsibility: The operator receives assignments from a supervisor or an employee of higher grade level who checks the work by occasional observation for adherence to operating techniques and established procedures.

Grade 8 operators are responsible for watching controls and machinery to detect malfunctioning. They are required to observe and enforce all safety regulations and methods in order to avoid the creation of hazards to themselves and others, to protect vessels, structures, and equipment from damage.

Physical Effort: In addition to the physical effort described at the lower level, operators at wicket dams are required to perform strenuous muscular tasks for short periods of time while raising and lowering bear trap weirs and while placing and removing wickets.

Working Conditions: The working conditions are similar to those described at the [Grade 6 level](#), except that installations are larger, have more moving machinery and electrical equipment, and the dam structure may require working or walking in high places. The possibility of drowning exists as a result of falls while working around water, but the hazard is practically eliminated through observance of safety procedures. Lock and dam operators wear life jackets when they are working around water. Operators at wicket dam structures are exposed to hazards of working from maneuver boats, small skiffs, and rowboats.

Special Additional Responsibilities: This section provides guidance for determining the grade level of certain lock and dam operating situations. The preceding Lock and Dam Operator standard describes the normal operation. However, employees in certain lock and dam operations work under special circumstances. When positions fall within the circumstances described below, one additional grade may be added to lock and dam operator positions, whether they work alone or with a small group of employees.

Most locks and dams run on a 7 day, 3-shift schedule, and the operators alternate working hours on all three shifts and on weekends, as well as weekdays. On the night shifts and on weekends, one operator is usually in charge of the complete installation operation. As such, the operator in charge is responsible for following instructions which are supplied in writing from a supervisor or relayed by the previous shift operator. The night operator in charge or the weekend operator in charge is, therefore, required to perform additional duties which are more responsible and which require more skill and knowledge than those of the regular day shift operator where a supervisor is available to provide guidance and assistance.

For example, in the event of a breakdown or a malfunction of equipment, the night or weekend operator must determine the seriousness and decide whether to stop the locking operations until maintenance can be performed or until the Lockmaster can be located and notified. The operator may decide to make minor-repairs or to lock boats through the second lock chamber (if there are

two lock chambers). The night or weekend operators in charge must be thoroughly familiar with the entire system in order to decide whether a manual operation can be substituted for an automatic one. In large installations where a group of employees work, the night or weekend operator reschedules assignments when there is an unplanned absence of another worker. The shift operator has the responsibility for relaying instructions to the next shift operator, including problems encountered and action taken.

While these and other similar situations do not describe supervisory responsibilities, they represent a situation which indicates that the shift operator uses more skill and knowledge than shift operators who have a supervisor who is available for technical advice and guidance.

Additional credit will be given only to operators who are assigned shift responsibility on a regular and recurring basis. Credit will not be given to operators who regularly work when a supervisor is present on the same shift.