

**COMPETENCY MODEL FOR
HYDROGRAPHER (2017)
CLASS CODE 7263**

The following competencies have been identified as those that best separate superior from satisfactory job performance in the class of **HYDROGRAPHER**. (Numbers refers to the order of competencies in the Competency Bank.)

- 2. Mathematics
- 5. Learning Ability
- 7. Self Management
- 8. Safety Focus
- 12. Conscientiousness
- 20. Job Knowledge
- 21. Technology Application
- 33. Interpersonal Skills

On the following pages are descriptions of each competency, including a definition, the level of the competency required for the class (*italicized*, **bolded**, and underlined), examples of behavioral indicators, and satisfactory and superior performance levels.

2. MATHEMATICS – Performs arithmetic or higher-level mathematical computations accurately.

Level of Competency Required by Job:

- Level 1: Perform arithmetic computations (add, subtract, multiply, divide, ratios, percentages).
- Level 2: **Use algebra (substitute numbers for letters in a formula), geometry (angles, distances, area), and/or descriptive statistics (mean/median/mode, standard deviation, range).**
- Level 3: Apply and interpret calculus, inferential statistics (t-tests, correlations, ANOVA, multiple regression) or other very high level mathematics.

Examples of Behavioral Indicators:

- Quickly and accurately performs arithmetic computations.
- Appropriately selects and applies formulas for stated purpose.
- Correctly identifies an appropriate analysis for a specific purpose and selects the appropriate computer program for computation.
- Accurately interprets and presents results of mathematical/statistical computations.

Performance Levels:

Satisfactory

Knows mathematical requirements of the job and performs them correctly. Verifies work to ensure accuracy.

Superior

Identifies additional opportunities for the application of mathematics in work. Answers questions/trains others to assist them in their use of mathematics.

5. LEARNING ABILITY – Readily acquires and applies new information.

Level of Competency Required by Job:

- Level 1: Learn job-related information, rules, and procedures, and apply them correctly.
- Level 2: **Learn and apply extensive job-related information correctly. Make reasonable inferences when specific information needed in a given instance was not presented.**
- Level 3: Access new job-related information via print or electronic media, in educational/training programs, and/or by speaking with others, and apply it correctly to the job.

Examples of Behavioral Indicators:

- Recalls information presented in educational/training programs.
- Recognizes how to apply newly acquired information to the job.
- Applies new information to the job in a way that increases productivity.
- Applies “lessons learned” from prior work experiences to current work.
- Answers questions/coaches others who received the same instruction.

Performance Levels:

Satisfactory

Learns new information and applies it appropriately to situations/issues.

Superior

Readily acquires new information, makes appropriate inferences based on it, and integrates it with prior learning and experience to maximize its use in a variety of situations or with respect to a variety of issues.

7. SELF MANAGEMENT – Organizes and plans for task accomplishment; manages time and works diligently to complete assigned work/fulfill responsibilities.

Level of Competency Required by Job:

- Level 1: Order tasks for efficient performance; maintain awareness of time allotted and deadlines in order to ensure they are met.
- Level 2: Plan and perform work in a way that maximizes efficient performance; establish and adjust priorities to ensure timely completion of most critical assignments.
- Level 3: **Allot time to responsibilities proportional to their prominence, priority, and impact.**

Examples of Behavioral Indicators:

- Performs only work activities during work hours.
- Alters means of performing work when original approach proves to waste time.
- Keeps a “to do” list (with indication of priority and deadlines, if necessary).
- Requests assistance as necessary when it becomes clear that work will not be completed on time.
- Demonstrates a record of progress with respect to all assignments/responsibilities.
- Uses optimal means of communication for efficiency and effectiveness.

Performance Levels:

Satisfactory

Conducts self while at work in a manner that ensures work will be completed as scheduled, or provides explanation or secures assistance or adjustment of schedule if it will not be.

Superior

Seeks efficiencies in doing work to maximize productivity. Plans work carefully and follows the plan or makes adjustments if it is disrupted. Maintains personal responsibility for all work accomplishment.

8. SAFETY FOCUS – Performs work in a way that minimizes risk of injury to self or others.

Level of Competency Required by Job:

- Level 1: Maintain awareness of unsafe conditions and actions to avoid injury.
- Level 2: Follow safety rules/procedures; avoid known hazards in the work environment.
- Level 3: **Carefully follow safety rules and procedures and consistently use all necessary safety equipment.**

Examples of Behavioral Indicators:

- Wears seat belt.
- Ensures safe physical work environment by taking actions such as eliminating unstable stacks of materials, closing drawers so filing cabinets will not tip over, and keeping pathways clear of tripping hazards.
- Reviews safety procedures before beginning each job with known hazards.
- Follows safety procedures while performing work even when it takes more time.
- Uses safety equipment such as goggles, gloves, and earplugs as required or warranted.
- Frequently checks safety equipment for proper condition and operation.

Performance Levels:

Satisfactory

Maintains awareness of personal safety to avoid injury or property damage during all work activities.

Superior

“Safety first.” Places avoidance of injury or property damage above all other job requirements. Mentions the need to follow safe work practices to co-workers. Actively seeks ways to avoid injury.

Safety Knowledge Area

1. Knowledge of the content and purpose of Material Safety Data Sheets (MSDSs) including information about the hazards and precautions to take with chemicals such as paint thinners, and preparatory and disinfectant chemicals (e.g., chlorine, sodium hydrochloride, herbicides) in order to minimize risk of injury.

12. CONSCIENTIOUSNESS – Dependable, reliable, diligent, and attends to all aspects of assignments (the “details”).

Level of Competency Required by Job:

- Level 1: Remain on-task and make every reasonable effort to complete work in time allotted. Note discrepancies and takes action or informs appropriate person when “things don’t seem right” in information or data.
- Level 2: **Note when own work logically relates to the work of others and coordinate with them and when additional tasks must be performed to complete an assignment and perform/assign them. Recognize when, despite best efforts, work will not be done and notifies supervision.**
- Level 3: Attend to each area of responsibility, and if all are not being addressed, arrange for transfer or elimination of some of them. Ensure that all aspects of programs/projects are properly addressed to ensure success.

Examples of Behavioral Indicators:

- Seeks all necessary information to do the job well.
- Learns from experience so can recognize when things are not right.
- Maintains a high level of task-related behavior.
- Continues to work diligently in the absence of supervision.
- Fully attends to seemingly minor as well as major aspects of each work assignment.

Performance Levels:

Satisfactory

Fully attends to work at hand; notes details, errors, and discrepancies and follows-up as necessary. Reliably performs and completes work. Punctual; respectful of others’ time.

Superior

Notes relationship of own work to work of others to ensure all aspects are coordinated. Performs additional tasks and otherwise follows-up to ensure thoroughness.

20. JOB KNOWLEDGE – Knows information required to perform a specific job. Includes both widely available courses of study (for example, chemistry, human resources management, graphic arts) and City-specific information (parking regulation and ticketing practices; purchasing procedures; provisions of the City Charter).

Level of Competency Required by Job:

- Level 1: Knowledge is concrete, factual, and/or procedural and may be defined by the organization. Situations in which it is applied are quite consistent.
- Level 2: **Knowledge is substantive and may be defined by an external trade, field, or profession. Situations in which it is applied vary and, as such, require breadth and depth of understanding.**
- Level 3: Knowledge is abstract, conceptual, and/or complex and may be supported by a well-defined academic discipline or authoritative sources (e.g., laws, ordinances, government guidelines/regulations/codes). Situations in which it is applied may vary greatly or be novel.

Examples of Behavioral Indicators:

- Performs work correctly/avoids technical (job content related) errors.
- Answers technical questions about work accurately.
- Asks few technical questions about the performance of routine work activities.
- Offers advice (“coaching”) to new employees regarding their work.
- Develops training programs for other employees.
- Sought out as a source of information by others.

Performance Levels:

Satisfactory

Sufficient job knowledge to perform work correctly independently. Answers technical questions about work correctly.

Superior

Expertise in technical job information sufficient to serve as a resource to others. May develop training manuals/ programs and/or give internal and/or external presentations related to work.

Job Knowledge Areas

1. Knowledge of hydrography concepts such as ground water, hydraulic grade, and gauge height versus flow sufficient to interpret water flow, water pressure, and stage recorder charts.
2. Knowledge of hydrogeology concepts such as water table, zone of saturation, drawn down, and aquifer sufficient to understand information gathered in hydrographic work.
3. Knowledge of flow measurement structures such as weirs (e.g., V-notch, Cippoletti, broad-crested) and flumes (e.g., Parshall) and their components such as stilling wells, shaft encoders, data loggers, floats, and weights in order to accurately measure, calculate, and record water flow rates using devices such as flow meters.
4. Knowledge of water tests such as flow tests, water quality tests, and pumping/drawdown tests and the equipment necessary to perform such tests including flow tubes and pressure transducers in order to calculate water flow and determine water quality.
5. Knowledge of dam test holes, toe drains, and French drains sufficient to interpret hydrograph information such as changes in flow rates and test hole levels and record the information electronically using Microsoft Excel to be used in making operational decisions.
6. Knowledge of the operating procedures of spreading grounds (e.g., water table recharge, percolation) to determine if corrective action such as turning the dirt or building embankments is necessary for more efficient water absorption at facilities.
7. Knowledge of snow surveying methods using metal snow tubes to sample snow depth and core length and water surveying methods such as weighing snow tubes on a scale to determine snow water content and how to run a level and shoot a reading in order to properly carry out surveying activities and calculate water content.
8. Knowledge of mechanical hydrographic devices such as pressure, flow, and stage recorders sufficient to properly operate them to measure water pressure, flow, stage, and visually determine if repairs are needed such as lubricating parts and replacing or adjusting springs and gears using tools such as screwdrivers.
9. Knowledge of topographic features of maps (e.g., mountains, canyons) sufficient to locate steep areas, valleys, flat areas, and hydrographic structures and delineate catchment areas and watershed drainages in order to conduct water and snow surveying activities.
10. Knowledge of tools used in electrical work such as soldering irons, wire splicers, cutters, and strippers in order to make electrical connections of wires, and repair electrical connections on hydrographic devices such as stage recorders.

11. Knowledge of basic plumbing materials such as fittings (e.g., valves, T's) used to install hydrographic devices such as pressure recorders.
12. Knowledge of tools and materials used in carpentry work such as hammers, saws, drills, and fasteners sufficient to nail boards together for maximum strength, construct squares and triangles, and cut, stain, and paint wood to build and repair hydrographic structures such as recorder stands, and instrument shelters.

21. TECHNOLOGY APPLICATION – Correctly applies technology as required on the job; conceptualizes improvements in work through introducing and/or enhancing use of technology.

Level of Competency Required by Job:

- Level 1: **Expert in the use of technology required for own job. May identify additional applications for currently used technology to enhance own work and/or work of others.**
- Level 2: Identify additional technology to be applied to improve own work and/or work of others and/or enhanced use of current technology to improve the operations of an entire function or department.
- Level 3: Identify new technology application to improve/enhance work of an entire function, department, or organization.

Examples of Behavioral Indicators:

- Demonstrates mastery of technical applications required for current work.
- Suggests additional applications of existing technology that improve productivity.
- Identifies new technology that can be applied to improve existing operations.
- Provides convincing justification for investment in new technology versus anticipated benefits.
- Presents compelling arguments to justify purchase of existing software (with or without modification) versus in-house development.

Performance Levels:

Satisfactory

Knows and correctly applies current technology as required on the job. Extends use of current technology to improve efficiency of accomplishing additional tasks.

Superior

Recognizes opportunities to apply technology to improve work processes in a function, department, or the entire organization. Identifies and justifies specific technology for specific uses.

Technology Application Areas

1. Application of hydrographic meters and instrumentation such as flow meters, current meters, pressure recorders, odometer-type meters, telemeters, dial-type meters, dead-weight testers, pressure meters, barometer, anemometers, pitot tube, voltmeters, precipitation instruments (e.g., tipping buckets), handheld flow current metering devices, portable gas monitoring devices, hook gauges, staff gauges, propeller meters, and chart recorders sufficient to understand and correctly apply information obtained from these devices, and measure and record water flow and pressure.
2. Application of a voltmeter used to measure voltage and amperage in order to determine if there are short or open circuits or low voltage in devices with simple electric circuitry such as pressure, flow, and stage recorders, and to determine if sensors and/or programmable logic controllers need to be replaced.

33. INTERPERSONAL SKILLS – Interacts effectively and courteously with others.

Level of Competency Required by Job:

Level 1: **Interact with members of the workgroup, supervision, and/or the public in a cordial, service-oriented manner.**

Level 2: Interact across department lines and with appointed City officials, and/or members of the public, at times under adversarial circumstances, in a cordial, respectful manner.

Level 3: Interact with appointed and elected City officials, department heads, representatives of external organizations, and/or the media in a cordial, effective manner

Examples of Behavioral Indicators:

- Works well with others toward mutual objectives.
- Does not arouse hostility in others.
- “Disagrees without being disagreeable.”
- Elicits acceptance/cooperation from others.
- Affords all individuals respect, regardless of their role or status.
- Effectively addresses concerns of politicians or others who may have their “own agenda.”

Performance Levels:

Satisfactory

Behaves in a courteous, respectful, cooperative manner toward co-workers, other City employees, and members of the public.

Superior

Facilitates positive interpersonal relations within/among workgroups and toward members of the public. Adept at finding similarities and grounds for cooperation/mutual benefit.

