

COMPETENCY MODEL FOR STEAM PLANT OPERATOR (5624)

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

1. Reading Comprehension
3. Judgment and Decision Making
8. Safety Focus
20. Job Knowledge
24. Mechanical Aptitude
26. Electrical Understanding
35. Teamwork
53. Leadership

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.

1. READING COMPREHENSION – Comprehends and correctly applies information presented in written form. Makes correct inferences; draws accurate conclusions.

Level of Competency Required by Job:

Level 1: Concrete, specific job-related information (work orders; instructions; material/equipment labels)

Level 2: General information related to field of work and assignments; (articles in trade publications; technical/instructional manuals; memos; letters; e-mails; reports)

Level 3: Abstract/complex information (highly technical articles/ reports in specialized area; legal or other regulatory material)

Examples of Behavioral Indicators:

- Follows written instructions correctly.
- Learns information presented in writing.
- Identifies relevant written information.
- Interprets written legal regulatory material accurately.

Performance Levels:

Satisfactory

Reads instructions correctly. Learns from manual and other printed material.

Superior

Learns from manual and may answer others' questions. Explains information presented in written form to others.

3. JUDGMENT AND DECISION MAKING – Accurately assesses situations, seeks new information if necessary, and applies all available information to reach sound conclusions/formulate effective response.

Level of Competency Required by Job:

Level 1: Training and guidelines needed to respond to immediate situations within very specific function are provided (or supervisor available to assist).

Level 2: General information and guidance to assist in responding to a variety of situations across a range of circumstances are provided.

Level 3: Little guidance available for responding to a wide range of complex situations with far-reaching and/or enduring consequences.

Examples of Behavioral Indicators:

- Effectively responds to atypical situations.
- Asks questions or otherwise obtains additional relevant information to make a decision.
- Formulates a decision and necessary actions based on available facts.
- Correctly infers appropriate response based on information provided and existing policies, personal experience, and/or consultation with others.
- Discusses conclusions/possible responses with others before taking action as necessary.
- Considers impact of decisions on all affected parties.

Performance Levels:

Satisfactory

Correctly assesses routine and unusual situations and reaches appropriate conclusions for actions needed. Obtains additional information and/or consults with others as necessary.

Superior

Evaluates new situations accurately to establish an appropriate response or plan of action. Recognizes the impact on all affected parties, as well as the possible ramifications and/or repercussions of setting a precedent.

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 Focus Area

1. Knowledge of safety principles, procedures, and regulations as required by the Department of Water and Power (DWP) and California Division of Occupational Safety and Health Administration (Cal-OSHA) when working in a thermal-electric generating station including those related to the safe operation of equipment, storage and handling of batteries, hazardous compressed gases and volatile liquids, working with high voltages and in confined spaces, first aid procedures, Systems Operating Orders 1, 2, 3, 5, and 8, and use of personal protective equipment (PPE) sufficient to ensure a safe work environment for oneself and others.

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 the purpose and operation of thermal-electric generating units, equipment, and systems such as generators, synchronous condensers, circuit breakers, conductors, heat recovery steam generators, boilers, pumps, compressors, fans, blowers, valves, conventional boilers, supercritical boilers, combined cycle, simple cycle, and auxiliaries, including how to start and stop the equipment, their relationship to the system, how to return to operating parameters, and how to recognize malfunctioning equipment sufficient to ensure that corrective actions are taken, anticipate necessary actions based on certain conditions, and provide training to staff.
2. Knowledge of pneumatic, electronic, and distributed controls, such as alarms related to fuel/air ratios, emissions through stack, pressures, temperatures, flows, drum levels, and conductivity sufficient to provide training in the proper operation of a thermal-electric generating station.
3. Knowledge of thermodynamics such as the use of wet steam, dry steam, liquids, and saturates, and how to convert liquid to gas to superheat, sufficient to control the efficiency of the unit and to determine the heating value obtained from the fuel used.
4. Knowledge of chemical reactions in thermal generation that occur with salt, chlorine, oxygen, calcium, acids, and phosphates, and the consequences of improper proportions of chemicals in systems sufficient to provide training to staff.
5. Knowledge of the communication system used in a thermal-electric generating station, including the correct information to relay, the importance of the information, and emergency communications, sufficient to maintain unity in the system, to relay orders/occurrences to others, and to train staff.
6. Knowledge of the forms and logs used in plant operations such as bids, clearances, work orders, unit logs, and safety logs, including the purpose of each, the information to be included, how and when to use them, and their applicability to the job sufficient to properly complete and review the forms and logs.

24. MECHANICAL APTITUDE – Accurately predicts the impact of forces on objects and assesses the behavior of other physical phenomena (e.g., volume, weight, velocity). Readily learns work involving the application of mechanical principles.

Level of Competency Required by Job:

Level 1: Maintain a safe work environment by ensuring objects in it are stable, tools and equipment are properly used.

Level 2: Know the physical properties of objects in the work environment and correctly anticipate the action of forces upon them; performs work accordingly (correctly and safely).

Level 3: In-depth understanding of mechanical and physical phenomena sufficient to design and/or oversee the construction of systems.

Examples of Behavioral Indicators:

- Recognizes the impact of an earthquake on objects in the work environment and re-arranges them as possible to avoid possible damage or destruction and potential to cause injury.
- Uses tools properly to accomplish work correctly and safely.
- Recognizes the effects of various actions on objects and performs only those actions that will accomplish intended result and will not cause property damage or injury.
- Systems designed and/or for which construction is overseen operate as intended upon completion.

Performance Levels:

Satisfactory

Recognizes the operation of mechanical/physical phenomena sufficient to readily learn and perform work of a mechanical nature.

Superior

Displays exceptional insight into the operation of mechanical phenomena, and makes correct inferences regarding it. Promptly and accurately troubleshoots problems.

26. ELECTRICAL UNDERSTANDING – Comprehends the concept and the operation of flow of electrical current.

Level of Competency Required by Job:

Level 1: Know the properties of electricity relevant to the work environment and work to be performed in order to correctly perform work and recognize hazards that will be created by the failure to do so.

Level 2: Sufficient understanding of electricity to recognize problems and determine repair needed to prevent disaster/restore operation.

Level 3: In-depth understanding of electrical principles and phenomena sufficient to design and/or oversee the installation of complex electrical systems.

Examples of Behavioral Indicators:

- Ensures safe physical work environment by taking actions such as eliminating exposed electrical wire, faulty connections, empty sockets, and overloaded circuits.
- Recognizes the danger of fire from faulty electrical installations.
- Uses tools, equipment, and instruments properly to accomplish electrical work correctly and safely.
- Systems designed and/or for which installation is overseen perform as intended upon completion.

Performance Levels:

Satisfactory

Understands the operation of electricity sufficient to readily learn and perform electrical work.

Superior

Displays exceptional insight into the operation of electrical systems, and makes correct inferences regarding them. Promptly and accurately troubleshoots problem.

35. TEAMWORK – Interacts effectively with others to achieve mutual objectives; readily offers assistance to others to facilitate their goal accomplishment.

Level of Competency Required by Job:

Level 1: Work effectively as a member of a work unit or project team. Readily offer assistance to others when they have too much work or have too little.

Level 2: Work effectively as a team member in which different people have different roles/responsibilities and perspectives. Identify points for collaboration with co-workers; readily offer and request assistance.

Level 3: Work effectively as a part of an interdependent team (your work gets done only if the work of the whole team is done; evaluation of team performance is more relevant than individual performance).

Examples of Behavioral Indicators:

- Discusses work-related matters with co-workers.
- Offers and requests assistance readily.
- Offers and is receptive to suggestions.
- Identifies problems with workflow that will prevent team from accomplishing its goals.
- Provides constructive criticism and feedback to team members to improve overall functioning of team.
- Assigns credit to team for accomplishments.

Performance Levels:

Satisfactory

Cooperates with co-workers and fulfills responsibilities as a member of a project team. Maintains a focus on common objectives and offers and requests assistance readily.

Superior

Sees the team as a whole; acknowledges that performance of the team is what in reality is evaluated by others. If anyone fails, everyone on the team fails.

53. LEADERSHIP – Influences others toward goal accomplishment.

Level of Competency Required by Job:

Level 1: Assume responsibility for operations or a situation when necessary. Direct the actions of others or otherwise ensure required actions are taken. Remain responsible until relieved or situation is resolved.

Level 2: Motivate others to continual activity focused on goal accomplishment. Provide clear objectives and articulate individual activities necessary to achieve them; ensure resources necessary to do so are available. Monitor work progress and provide feedback; assess results.

Level 3: Articulate a vision, convey it to others, and assign responsibilities (or assure they are assigned) for achieving it. Monitor progress, make adjustments as necessary, and evaluate results.

Examples of Behavioral Indicators:

- Evaluates circumstances, determining what needs to be done, and ensuring individual responsibility for performing specific actions is assigned.
- Follows-up to ensure that specific actions have been taken and overall objective has been accomplished.
- Clearly communicates objectives and responsibility/individual actions necessary to achieve them.
- Monitors work in progress, provides feedback to those involved, and makes adjustments to work plans/processes to ensure goal attainment.
- Evaluates completed work for quality, thoroughness, and effectiveness to determine whether re-work or additional work is required to meet intended objectives and to provide learning for future assignments.

Performance Levels:

Satisfactory

Assumes responsibility for work of others when required or necessary. Ensures actions taken to achieve objectives, and evaluates results to determine any follow-up needed.

Superior

Articulates vision/states clear objectives and assigns responsibility/motivates others toward achievement. Monitors progress; gives feedback; evaluates results; ensures follow-up.