



Water Resources Systems Analyst I/II

DEFINITION

Under general Supervision (Water Resources Systems Analyst I) or direction (Water Resources Systems Analyst II), performs a variety of technical analysis and tasks required for extracting, organizing, and maintaining operational data from a variety of District sources to optimize water supply and production activities, meet regulatory requirements, and support infrastructure planning and water use efficiency programs.

DISTINGUISHING CHARACTERISTICS

Water Resources Systems Analyst I is the entry-level class in the Water Resources Systems Analyst series. Under general supervision, within a framework of established policies and procedures, incumbents perform less complex information technology and technical tasks related to data analysis and extraction, covering the full range of water supply operations. A basic knowledge of systems analysis, programming fundamentals, and the scientific method is required; knowledge of hydrology and water supply fundamentals is desirable. As experience and proficiency are gained, assignments become more varied and complex, and the level of independent action increases within established guidelines. Assignments are given in general terms and are subject to review upon completion by the Water Supply and Planning Manager. There is limited latitude for independent judgment and action in well-defined areas of work.

The classification is distinguished from the Water Resources Systems Analyst II in that the latter is the experienced, journey-level classification and performs the full range of work assignments and tasks. The Water Resources Analyst I and II classifications are flexibly staffed. Upon recommendation by the immediate supervisor and approval by the Department Director, incumbents in this class may advance to the Water Resources Systems Analyst II classification after two (2) years at the first level and with demonstrated proficiency to meet the job requirements of the Water Resources Systems Analyst II classification.

Water Resources Systems Analyst II is the experienced, journey-level class in the Water Resources Systems Analyst series. Under direction, within a framework of established policies and procedures, incumbents perform the full range of technological and technical tasks relating to data analysis and extraction, covering the entire range of water supply operations and other related technical disciplines. Advanced knowledge of systems analysis, programming, and scientific method is required, while a general knowledge of hydrology and water supply fundamentals is desirable. Assignments are given in general terms and are subject to review upon completion by the assigned supervisor. There is significant latitude for independent judgment and action in well-defined areas of work.

The Water Resources Systems Analyst I/II classification series differs from the Information Technology Analyst I/II classification series to the extent that the technological and technical work related to systems analysis conducted by the Water Resources Systems Analyst I/II exclusively relates to water resources management data and issues. The Water Resources Systems Analyst I/II position also involves broader water supply and regulatory analysis, administrative and technical responsibilities in addition to assigned information technology-related to systems analysis and programming duties.

TYPICAL DUTIES

TYPICAL EXAMPLES OF DUTIES MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

- Supports development and maintenance of hydrologic databases and development of hydrologic models.
- Assists in preparation, review and assessment of field reports and other monitoring data to determine impacts of upstream activities on watershed lands and, where applicable, verifies these activities follow permitted conditions protective of the district's water supply operations.
- Analyzes data and prepares a variety of routine and special reports; prepares charges, maps, graphs, and flow diagrams in support of such reports; prepares data input and develops programs for computer processing and analysis of various data concerning water supply and use.
- May represent the district at various water-related data analytics, water efficiency and other related meetings; provides information and assistance to outside agencies on water resources issues.
- Performs data collection, interpretation, econometric and trend forecasting, regression and other technical analysis and research in support of water resources planning, water supply development, environmental planning, and water management programs.
- Supports operation and maintenance of hydrologic and operational models and efforts to assist in planning system operations and in optimizing water supply management.
- Drawing from a variety of District data sources, develops, designs, and maintains databases related to water resource management, including data definitions, data schema design and implementation, application design, development, and implementation, as well as indexing and organization of system and program file organization and program documentation.
- Creates updates, enhancements and modifications to code bases, data architecture and system implementations necessary to improve functionality and reliability, including enhancement to interfaces supporting data transfers while maintaining and enhancing data integrity for future business intelligence platforms.
- Creates and maintains documentation necessary for the ongoing maintenance and enhancement of the data, application, analytical and reporting systems.
- May receive technical/functional supervision from Information Technology Supervisor related to supporting water resources-related applications programming and database development.
- Performs other related work as required.

REQUIREMENTS

Any combination of education and experience that would likely provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain the knowledge, skills, and abilities would be the equivalent of:

Possession of Baccalaureate degree from accredited college or university with a major in engineering, hydrology, physical or environmental science, computer science or a related field; and:

Water Resources Systems Analyst I: No previous work experience required.

Water Resources Systems Analyst II: Two (2) years of experience equivalent to a Water Operation Analyst I, Engineer I or Information Systems Analyst I in the Alameda County Water District Service, one year of which involved performing duties related to conducting water resources systems data analysis.

Experience with: NET Framework, C#, JavaScript, HTML and SQL Server is highly desirable.

Knowledge, Skills and Abilities:

Knowledge of: principles, procedures, standards, practices, trends and information sources in the field of water resources; hydrology fundamentals and concepts relative to water supply and water resources management; the methods, and techniques associated with collecting, measuring and testing hydrographic and meteorological data as applied to water supply and use; database design principles necessary to support both transaction and reporting systems; object oriented design and implementation principles and paradigms; coding in Python and SQL languages; dynamic data interface design for large data sets; principles of data normalization and denormalization for reporting performance; data model and system/application refactoring; ; modern office practices, methods and computer equipment and applications related to the work, including word processing, database and spreadsheet software.

Skill and Ability to: review and interpret engineering, topographic, hydrographic, hydrologic and groundwater maps, charts, graphs and tables; analyze and evaluate technical and statistical data and to reach sound conclusions; represent District interests effectively with outside agencies; coordinate and manage assigned projects; conduct studies, evaluate data and form accurate conclusions; prepare clear, concise and accurate reports, including developing associated charts, graphs, tables, forms and other documentation; exercise sound, independent judgment and initiative within established guidelines; develop sound decisions and recommendations; be proficient in SQL Server Reporting Services, SQL Alchemy, ER and Visual Studio, Excel and Power Query and dynamic data connections; create accurate documentation for end users, administrators and developers.

Additional Requirements:

- Must possess a valid California driver's license and have a satisfactory driving record.

Working Conditions/Physical Requirements:

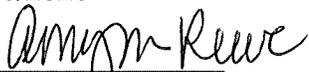
On a routine basis, sit at a desk for periods of time in front of a computer screen; intermittently twist to reach equipment or supplies surrounding desk; perform simple grasping and fine manipulation; On a routine basis, must be able to monitor weather reports and local hydrological conditions outside of normal business hours and support water control activities as needed. Use telephone and computer keyboard on a daily basis; intermittently work out of doors under varying climatic conditions or irregular terrain; climb ladders; lift access lids at groundwater

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recharge facilities; must be able to work weekends, holidays, and off-hours as necessary. Must be able to lift, push or pull up to 20 lbs. frequently and occasionally up to 55 lbs. Must have good field of vision and ability to distinguish basic colors. Incumbents must be able to perform essential job functions, including the ability to sit for extended periods of time; to reach above and below shoulder height; hear, speak and see sufficiently to perform essential job functions; periodically drive vehicle on paved as well as dirt roadways to conduct inspections.

The essential functions of these classifications require driving due to the need for frequent travel to water treatment plants, pump stations, reservoirs, field sites, meetings, and/or other agency facilities; transportation of time-sensitive/confidential materials, equipment, or water samples; and/or the ability to respond to emergencies, and service disruptions. Alternative transportation is not suitable due to security concerns, logistical challenges, and critical response time requirements.

Revised: 03/2025

Approved: 
Human Resources/Risk Manager

