

JOB DESCRIPTION AND POSITION CLASSIFICATION

CLASSIFICATION Engineer, Water Resources		DWR POSITION NUMBER 1421-3137-023.044.045.046	SAP POSITION NUMBER 50001159 50105681.82.83	MCR 1
APPOINTEE Vacant		SAP PERSONNEL NO. TBD	DIVISION/SECTION DFO/HFO/HS/River Forecasting Unit	
COLLECTIVE BARGAINING IDENTIFIER Management Related BU: ☐ Supervisory Related BU: ☐ Confidential Related BU: ☒ Rank and File BU: R09				
RESPONSIBILITIES EXERCISED ☐ Supervisory ☐ Lead Person		IMMEDIATE SUPERVISOR (Print) Bibek Joshi	SUPERVISOR'S CLASSIFICATION Senior Engineer, Water Resources	
APPROVED BY (Personnel Analyst's Name) Sydney Mecke			DATE 09/25/2026	
<i>Percent of Time</i>	<i>Activity</i>			
35%	POSITION SUMMARY Under the direction of the River Forecasting Unit (RFU) manager, this position is a member of the State-Federal flood forecasting team and is responsible for monitoring storms, preparing river and reservoir inflow forecasts, issuing flood bulletins, and performing hydrologic and hydraulic engineering studies. Some assignments are broadly outlined, and many have short timelines with steadfast due dates. The duties will require extensive computer and scripting skills applied to the use of spreadsheets, hydrologic modeling programs, and word processing. As the incumbent progresses in experience, they will begin to take on less of an assistant role and more of a lead role in the various tasks. ESSENTIAL FUNCTIONS This position requires the incumbent to work cooperatively with others; maintain regular, consistent, predictable attendance; and exercise good judgment and initiative. This position requires the incumbent to: reason logically and creatively, utilizing a variety of analytical techniques to resolve hydrologic and hydraulic engineering problems under the direction of the unit manager; develop and evaluate alternatives; analyze data and present ideas and information effectively, both orally and in writing; consult with and advise water agencies, State and federal reservoir operators, other State and federal agencies, and the general public on hydrologic matters; gain and maintain the confidence and cooperation of those contacted during the course of work; review and edit written reports; and establish and maintain project priorities. The specific essential duties are, but are not limited to, the following: Issue hydrologic river and reservoir inflow forecasts and flood bulletins in conjunction with National Weather Service (NWS) California-Nevada River Forecast Center staff that are distributed to the emergency management community, State and federal agencies, and the general public by using NWS Community Hydrologic Prediction System (CHPS) and data acquired through the California Data Exchange Center (CDEC) and other sources. Monitor hydrologic conditions in real-time on a rotating schedule, including evenings and weekends as warranted by pending			
SUPERVISOR'S STATEMENT: I HAVE DISCUSSED THE DUTIES OF THE POSITION WITH THE EMPLOYEE.				
SUPERVISOR'S NAME (Print) Bibek Joshi		SUPERVISOR'S SIGNATURE ➤		DATE
EMPLOYEE'S STATEMENT: I HAVE DISCUSSED WITH MY SUPERVISOR THE DUTIES OF THE POSITION AND HAVE RECEIVED A COPY OF THE DUTY STATEMENT.				
EMPLOYEE'S NAME (Print) Vacant		EMPLOYEE'S SIGNATURE ➤		DATE

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	weather conditions and river forecasts. Conduct river forecasting briefings to flood, reservoir, and water managers. Provide storm and river information for Department of Water Resources (DWR) flood operations. Provide hydrologic information to other DWR programs, partner agencies, and the public.				
20%	Support the development, configuration, and enhancement of the DWR State River Forecasting System, implemented using the Delft Flood Early Warning System (FEWS) model platform and designed to operate as a complementary system to CHPS. Execute model testing, evaluation, and calibration activities to improve forecast performance. Coordinate with UC San Diego’s Center for Western Weather and Water Extremes (CW3E) on the research to operations (R2O) implementation, supporting system evaluation and operational integration. Maintain technical documentation, version control, and configuration baselines for Delft-FEWS workflows and associated model components. Coordinate with staff from California Data Exchange Technology Services and Division of Technology Services on system integration, data flow reliability, interface functionality, and infrastructure performance. Perform technical system administration of the Delft FEWS platform, including data ingestion validation, workflow configuration management, and operational troubleshooting.				
15%	Conduct hydrologic and hydraulic studies for the Sacramento River Flood Control Project, the State Water Project (SWP), and the Sacramento-San Joaquin Delta at the request of State and federal agencies by using various computer modeling programs, which leads to improvements in forecasting models and procedures. Prepare technical reports on completed studies using Microsoft Word or other word processing means as well as output from the various computer modeling programs.				
10%	Analyze hydrologic, climate, and meteorologic data for flood forecasting needs using prepackaged hydrologic modeling software and mathematical models. Develop new forecasting tools and workflows with the use of programming languages such as Python, R and Java in both Windows and Linux Operating Systems. Post-process and analyze simulation results using data visualization software such as Tableau, ArcGIS and QGIS. Ensure hydrologic and meteorologic data is accurate and that daily, weekly, and monthly data reports are updated and available within CDEC on a routine basis.				
10%	Produce reservoir inflow forecasts, including storm inflows and projected weekly runoff volumes, for several reservoirs for SWP operators by utilizing Hydrologic Engineering Center – Real Time Simulation (HEC-RTS) Model, Weather Research and Forecasting (WRF)-Hydro Model, and other hydrologic models. Review or develop new reservoir inflow simulation models, as needed.				
5%	Under the direction of the unit manager, coordinate with DWR’s regional offices and the U.S. Geologic Survey to ensure river stage and flow data is collected during high water events. In conjunction with the Snow Surveys and Water Supply Forecasting Unit staff, assist with occasional field work duties which may include summer field maintenance trips to data collection stations or winter snow survey data collection trips.				

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5%	Attend training classes, workshops, and conferences related to hydrologic modeling, forecast improvements, and California climatology. Attend meetings with partner agencies and represent RFU and DWR. Give presentations related to RFU work to a wide variety of audiences. Act for the unit manager as needed. OTHER RESPONSIBILITIES This position provides necessary support to the Division of Flood Operations, Flood Planning and Improvements, Safety of Dams, Operations and Maintenance, Engineering, and/or the Public Affairs Office during Governor declared emergencies, flood, dam, SWP, and other incidents and emergencies. Additionally, this position may participate in emergency operations in the capacity of area teams, field inspection, coordination, and assist agencies such as Governor's Office of Emergency Services and Federal Emergency Management Agency in disaster work, including performing fieldwork to complete damage survey reports for droughts, flooding, earthquakes, and other emergencies. This position may also serve in one of the sections established in the Incident Command System to assist the Department in performing its emergency preparedness, response, recovery, and mitigation functions. These functions are established in the California State Emergency Plan and the Department's Administrative Orders. The incumbent must also be able to work extended hours, callbacks, alternate shifts, and weekends when necessary, and share on-call duties with other staff. During activation of the State-Federal Flood Operations Center (FOC) under the Standardized Emergency Management System, the incumbent is assigned to the FOC's Planning and Intelligence Section, working up to 13-hour shifts to support extended or 24-hour operations. This unit coordinates with a large pool of DWR employees from other offices to staff two flood centers and interdepartmental incident command teams during emergencies. SPECIAL REQUIREMENTS All employees are responsible for contributing to an inclusive, safe, and secure work environment that values diverse cultures, perspectives, and experiences, and is free from discrimination. The Department of Water Resources is committed to its mission and employees, and we are grounded in our commitment to public safety. Regular, consistent, and predictable attendance is essential to the successful performance in this position. A necessary function of this position is to provide daily forecasts in close coordination with NWS, utilizing NWS hydrologic tools and models and accessing NWS networks and databases in the performance of these duties. Pre-employment eligibility may require successfully passing a security check and meeting applicable access requirements, as outlined in U.S. Department of Commerce Departmental Administrative Order (DAO) 207-12, NOAA Administrative Order (NAO) 207-12, and NWS Foreign National Access and Technology Transfer Directive (NWSI) 60-704, including any applicable requirements related to access by foreign nationals. Continued access to NWS networks and databases may also require periodic reverification and compliance with applicable security and access requirements.					