

**JOB DESCRIPTION AND POSITION CLASSIFICATION**

CLASSIFICATION <b>Engineer, Water Resources</b>		DWR POSITION NUMBER <b>1491-3137-040</b>	SAP POSITION NUMBER <b>50034143</b>	MCR <b>1</b>
APPOINTEE <b>Vacant</b>		SAP PERSONNEL NO.	DIVISION/SECTION <b>DFM/Technical Evaluations Unit</b>	
COLLECTIVE BARGAINING IDENTIFIER Management Related BU: <input type="checkbox"/> Supervisory Related BU: <input type="checkbox"/> Confidential Related BU: <input checked="" type="checkbox"/> Rank and File BU: <b>R09</b>				
RESPONSIBILITIES EXERCISED <input type="checkbox"/> Supervisory <input type="checkbox"/> Lead Person		IMMEDIATE SUPERVISOR (Print) <b>Weihua (Wayne) Li</b>	SUPERVISOR'S CLASSIFICATION <b>Senior Engineer, Water Resources</b>	
APPROVED BY (Personnel Analyst's Name) <b>Kimberly Balbuena</b>			DATE <b>06/03/2024</b>	
<i>Percent of Time</i>	<i>Activity</i>			
	<p><b>POSITION SUMMARY</b></p> <p>Under the direction of the Senior Engineer, Water Resources (WR)/Manager of the Technical Evaluations Unit (TEU), the Engineer, WR, conducts hydrological, hydraulic, fluid dynamics and flood risk evaluation, modeling application development, calibration and verification activities for the Floodplain Management Branch (FPMB), the Division of Flood Management (DFM), and the Department of Water Resources (DWR). The incumbent performs modeling and mapping technical analyses to support TEU's statewide risk assessment projects. This position works collaboratively with staff from FPMB, the Hydrology and Flood Operations Branch, the Flood Maintenance and Operations Branch, the Division of Safety of Dams (DSOD), the Federal Emergency Management Agency (FEMA), the California Governor's Office of Emergency Services (Cal OES), the United State Army Corps of Engineers (USACE), the Hydrologic Engineering Center (HEC), the National Weather Service, the United States Geological Survey (USGS), the United States Bureau of Reclamation, the California Geological Survey and other State, federal and local partners to provide flood modeling and mapping technical services. The incumbent performs assignments related to light detection and ranging (LIDAR), topographic, hydrographic, geomorphic, hydrological and hydraulic data collection and quality control in collaboration with DWR Division of Engineering, the Department of Conservation, USGS and private sector partners. The incumbent provides assistance to flood data and tools dissemination utilizing DWR's web based Geo-spatial applications and library.</p> <p><b>ESSENTIAL FUNCTIONS</b></p> <p>This position requires that the incumbent work cooperatively with others, maintain regular, consistent, predictable attendance, and exercise good judgment. The incumbent will use his/her special technical and analytical engineering skills to complete assignments. The incumbent must be proficient with hydrological and hydraulic modeling for flood analyses and data processing, management, mapping and visualization utilizing geographic information system and other software. Some travel to attend stakeholder involvement, public outreach, and similar meetings is required. The specific essential functions are, but are not limited to, the following:</p>			
SUPERVISOR'S STATEMENT: <b>I HAVE DISCUSSED THE DUTIES OF THE POSITION WITH THE EMPLOYEE.</b>				
SUPERVISOR'S NAME (Print) <b>Weihua (Wayne) Li</b>		SUPERVISOR'S SIGNATURE ➤		DATE
EMPLOYEE'S STATEMENT: <b>I HAVE DISCUSSED WITH MY SUPERVISOR THE DUTIES OF THE POSITION AND HAVE RECEIVED A COPY OF THE DUTY STATEMENT.</b>				
EMPLOYEE'S NAME (Print)		EMPLOYEE'S SIGNATURE ➤		DATE

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<b>APPOINTEE</b> <b>Vacant</b>	<b>SAP PERSONNEL NO.</b>	<b>DIVISION/SECTION</b> <b>DFM/Technical Evaluations Unit</b>	
<i>Percent of Time</i>	<i>Activity</i>		
<b>40%</b>	<p>Perform hydrological, hydraulic and flood damage modeling application development, calibration and verification utilizing HEC-HMS, VIC, HEC-RESIM, HEC-RAS, HEC-FDA, FLO-2D, TUFLOW, RMA2, SMS, ARCGIS and other necessary tools to upkeep DWR's foundational flood models and develop new flood modeling tools to support floodplain management, flood emergency response, flood planning and feasibility studies, flood system operations and maintenance and flood system improvements projects within the central valley and the State. Coordinate technical model development and quality control work with resource and regulatory agencies including, but not limited to, DFM internal programs, FEMA, USACE, HEC, USGS and local agencies as required during the update of existing models and new model development efforts. Identify and resolve technical modeling challenges and seek appropriate assistance from others within DWR and external agencies. Prepare charts, maps, exhibits and contents to assist the unit manager in preparation of technical reports and memorandums.</p>		
<b>40%</b>	<p>Conduct floodplain evaluation and delineation modeling and mapping analyses for coastal, alluvial fan and riverine floodplains area risk assessments which may include development of statewide advisory maps, identification of post-fire mud slide and debris flow hazard areas, high flash flood potential zones delineation in alluvial fans, sea level rise impacts, Levee Flood Protection Zone update, controlled and uncontrolled spillway flow floodplain impact zones to support statewide risk awareness, community assistance and mitigation. Coordinate risk evaluation and advisory mapping analyses work with FEMA and local floodplain management agencies as required during the analysis period and explain technical results to others. Participate in FEMA floodplain studies, and use of computer models in preparing floodplains and associated water surface profiles for various flood events or conditions. Assist in preparation of study reports and technical documentation. Participate in meetings and briefings, make presentations, and represent DWR at meetings involving the Floodplain Management Program projects and activities. Make presentations to management, staff, consultants and flood management communities.</p>		
<b>10%</b>	<p>Coordinate with DWR programs, FEMA Region IX staff, local floodplain managers, dam owners and other State, federal, and local agencies to collect necessary flood data and flood modeling tools including Flood Insurance Study and related hydrological and hydraulic models. Create an inventory and catalog all LIDAR, topographic, bathymetric, geodetic, geomorphic, flood data and tools. Provide data support and perform quality control for development, update, and population of DFM web applications and web-based model library. Provide technical assistance to local agencies and the public by disseminating flood data and tools utilizing DFM web-based tools, repository and library, providing technical guidance on modeling tools, data, flood maps and information.</p>		
<b>10%</b>	<p>Perform hydrological and hydraulic analyses to support plan performance technical analyses for the Central Valley Flood Protection Plan (CVFPP) updates. Perform technical analyses related to watershed runoff analyses, channel conveyance capacity assessments for flood system status update, riverine flood frequency update utilizing DWR Information Processing and Synthesis Tool, reservoir vulnerability analyses due to climate change, and other related analyses. Provide assistance to prepare technical reports and CVFPP appendices.</p>		

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	<p><b>OTHER RESPONSIBILITIES</b></p> <p>This position provides necessary support to the Divisions of Flood Management, Safety of Dams, Operations and Maintenance, Engineering, and/or the Public Affairs Office during Governor declared emergencies, flood, dam, State Water Project, 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 Cal OES and FEMA in disaster work, including performing field work to complete damage survey reports for droughts, flooding, earthquakes, and other emergencies. This position may also serve in one of the sections as established in the Incident Command System to assist DWR 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.</p> <p><b>SPECIAL REQUIREMENTS</b></p> <p>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 (DWR) is committed to its mission and employees, and we are grounded in our commitment to public safety. DWR offers a hybrid workplace model that is designed to support a workforce of both office-centered and remote-centered workers. Regular and consistent attendance - whether office-centered or remote-centered - is essential to the successful performance in this position.</p> <p>A valid California driver's license is required in the performance of these duties. Infrequent travel may be required. May be required to work evenings, nights, weekends, or holidays during emergencies for which CAL OES tasks DWR to assist.</p> <p>Following abilities and skills are desirable;</p> <ol style="list-style-type: none"> <li>1. Experience in hydrological, hydraulic and flood damage analysis model development tools and software such as HEC-HMS, VIC, HEC-RESIM, HEC-RAS, HEC-FDA, FLO-2D, TUFLOW, RMA2, SMS.</li> <li>2. Proficiency in utilizing ArcGIS platform for spatial data collection, analysis, processing, mapping, and database management.</li> <li>3. Knowledge in data analysis with programming languages using R, MATLAB, and/or Python.</li> <li>4. Knowledge in California watershed characteristics, water system operation and flood control facilities.</li> <li>5. Operate office computers efficiently using software such as Word, Excel, and Power Point. Use Word and Excel to effectively draft reports and correspondence.</li> <li>6. Strong written and oral presentation skills.</li> </ol>		