

DUTY STATEMENT

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Employee Name: Vacant	Current Date: June 2024
Classification: Air Resources Engineer	Position #: 673-930-3735-037
Division/Office: Mobile Source Laboratory Division/Sacramento	CBID: R09
Section: Measurement Assessment and Research	
Supervisor Name: Shaohua Hu	Supervisor Classification: Air Resources Supervisor I

I certify that this duty statement represents an accurate description of the essential functions of this position.	
Supervisor: Shaohua Hu	Date:

I have read this duty statement and agree that it represents the duties I am assigned.	
Employee:	Date:

SPECIAL REQUIREMENTS OF POSITION (IF ANY):

- Designated under Conflict of Interest Code.
- Duties performed may require pre-employment physical.
- Duties performed may require drug testing.
- Duties require participation in the DMV Pull Notice Program.
- Requires the utilization of a 32-pound self-contained breathing apparatus.
- Operates heavy motorized vehicles.
- Requires repetitive movement of heavy objects.
- Works at elevated heights or near fast moving machinery or traffic.
- Performs other duties requiring high physical demand. (Explain below):
- Duties require use of hearing protection and annual hearing examinations.

SUPERVISION EXERCISED

<input checked="" type="checkbox"/> None	<input type="checkbox"/> Lead Person
<input type="checkbox"/> Supervisor	<input type="checkbox"/> Team Leader

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FOR SUPERVISORY POSITIONS ONLY: Indicate the number of positions by classification that this position DIRECTLY supervises: N/A

Total number of positions in Section/Branch/Office for which this position is responsible:

FOR LEADPERSONS OR TEAM LEADERS ONLY: N/A

Indicate the number of positions by classification that this position LEADS: N/A

MISSION OF SECTION:

The Measurement Assessment and Research Section (MARS) oversees and provides guidance to heavy-duty (HD) testing activities occurring throughout the agency, streamlines and consolidates testing projects where necessary, and serves as a liaison between the testing facilities and client divisions. MARS operates the California Air Resources Board's (CARB) Depot Park Facility (DPF), located in Sacramento, California. The DPF includes an HD chassis dynamometer and portable emissions measurement systems that generate high quality and legally defensible data in support of the HD vehicle regulation development, emissions inventory, enforcement actions, Inspection and Maintenance program, and research projects. MARS routinely conducts an array of HD vehicle emissions measurement projects by developing test plans through coordination with multiple CARB working groups, performing emissions testing, probing new approaches for measuring in-use vehicle emissions, and analyzing emissions data. MARS delivers the results by developing final reports, briefing management and relevant stakeholders on pertinent results, publishing in peer-reviewed scientific journals, and presenting at national and international conferences. These efforts of MARS are critical underpinnings for completing test objectives to achieve reductions in criteria pollutants, greenhouse gases, and toxic air contaminants within the HD sector.

CONCEPT OF POSITION:

Under direction of the Air Resources Supervisor I (ARS I), the Air Resources Engineer (ARE) will perform complex tasks related to the conduct of in-use emissions testing of HD engines or vehicles and equipment. The duties include conceptualizing emissions research topics, developing test plans, procuring resources, managing test projects, preparing reports, and sharing the findings with CARB and the public through presentations and peer-reviewed technical publications. One of the primary tasks for the incumbent is to work on programs related to the measurement and characterization of real-world emissions from in-use HD vehicles. This project will require development, validation, and deployment of new approaches for measuring and collecting data on the road, and management and analysis of large datasets using computational methods. The ARE will routinely work both as a team member and independently in the conduct of their duties, both in a laboratory setting and in a field setting.

The incumbent's position and reporting office is located at: CARB's - Depot Park Facility, 8340 Ferguson Avenue, Sacramento, California 95828. May require Statewide travel up to 20% of the time for fieldwork, training, or meetings.

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<u>% OF TIME</u>	<u>RESPONSIBILITIES OF POSITION</u>
30% - E	Work with a team of skilled engineers and scientists to refine, validate, and deploy an in-house sampling system for roadside measurement of HD vehicle emissions. The incumbent will refine laboratory and roadside test plans, design and deploy flexible combinations of analyzers and sensors, develop analysis techniques scalable to millions of vehicle emission records, perform quick-turnaround analyses for operational needs, and write summary reports and technical papers including rich visualizations for a complex data set. The incumbent will apply a high level of scientific principles to guide selection of feasible instrumentation, refine vehicle sensing data acquisition, and improve system design and operation to maintain it as a state-of-the-art roadside measurement platform.
30% - E	The incumbent will be responsible for continued development and maintenance of a Python post-processing framework for the vehicle emissions data, as well as data management, hardware configuration, and driver development for communicating with new analyzers. The scope of this assignment will include but not limited to: application and script development in Python, design of data schema, web application development for QA/QC tools, data pipeline development, machine learning in frameworks such as Tensorflow for images and time series, and database development and SQL queries.
15% - E	Design and implement testing programs characterizing emissions and evaluating measurement methods for a range of freight-related and mobile sources. The assignment may include, but not limited to: development of test plans and standard operating procedures, equipment calibration, and emissions data analysis. Completion of these projects may require collaboration and coordination with other divisions in CARB, academic institutions, engine and vehicle manufacturers, emissions controls after-treatments suppliers, and producers of emissions measurement equipment.
10% - E	Track the latest research and testing activities of other government agencies, leading industrial and academic institutions. This will include attending technical meetings and conferences, as well as surveying relevant literature published in peer-reviewed journals. Travel may be required Statewide.
10% - E	Assist other CARB divisions in the review of local, State, or federal statutes and regulations. The incumbent will review test procedures for technical feasibility and appropriate test methods. The incumbent will prepare issues/briefing papers and answer written correspondence.
5% - M	Procure equipment (if necessary), initiate contracts, and evaluate new analytical equipment. Incidental travel to CARB's Riverside Headquarter is necessary.