State of California
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
AIR RESOURCES BOARD
ASD/PMB-12 (REV 04/13)

DUTY STATEMENT

EMPLOYEE NAME:		CURRENT DATE:	
CLASSIFICATION:	Air Resources Engineer	POSITION #:	
DIVISION/OFFICE:	Research	CBID:	R09
SECTION:	Climate Change Mitigation and Emissions Research		
SUPERVISOR'S NAME:	Seungju Yoon		
SUPERVISOR'S CLASS:	ARS I		

I certify that this duty statement represents an accurate description of the essential functions of this position.

Supervisor's Signature ***Date***

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

Employee's Signature ***Date***

SPECIAL REQUIREMENTS OF POSITION (IF ANY):

☒ Designated under Conflict of Interest Code.

☐ Duties performed may require annual 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: (CHECK ONE):

☒ None ☐ Lead Person

☐ Supervisor ☐ Team Leader

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:

N/A

FOR LEADPERSONS OR TEAM LEADERS ONLY: Indicate the number of positions by classification that this position LEADS:

N/A

MISSION OF SECTION:

The Climate Change Mitigation and Emissions Research Section in the Research Division develops and conducts policy-relevant in-house and extramural research to advance the science and to support CARB mobile source programs and policies. Current research includes efforts to better understand the discrepancy between certification and real-world emissions levels, achieve further NOx reductions from heavy-duty trucks and off-road equipment, investigate the effect of various regulatory options to achieve real-world emission targets using laboratory, portable emissions measurement system (PEMS), remote-sensing, and engine and activity data-logging technologies, and understand non-tailpipe emissions such as brake and tire wear particulate matters. Current research also includes to evaluate energy use, mobility options, and incentive strategies of low carbon transportation technologies and characterize emission and socioeconomic benefits of low carbon fuel and transportation technologies. The Section is also responsible for programs to reduce emissions of high global warming potential greenhouse gases from mobile air conditioners (MVAC) and transportation refrigeration units. The Section conducts large dataset and database driven technical analyses, provides expert opinions to decision-makers, networks with internal, national and international stakeholders, and publishes research findings.

CONCEPT OF POSITION:

Working independently and under the general direction of the Section Manager, the incumbent should lead multiple research efforts, complement the expertise of the Section, and enhance the scientific, analytical, and technical capacity of the Section. The incumbent should conduct technical and scientific evaluations of existing transportation research, investigate scientific methods of manipulating and interpreting large transportation datasets, identify research needs for mobile source programs and policies, initiate and conduct policy-relevant in-house and extramural research, and inform the research findings to mobile source programs and policies. The incumbent should evaluate emission modeling methods for both on-road and off-road vehicles and characterize emissions and activity patterns using the data obtained from PEMS and dynamometer laboratories, engine onboard diagnostic (OBD) control systems, telematics, and others. The incumbent should critically evaluate research proposals and reports, prepare technical research reports and documents, produce scientific papers to support emission control and greenhouse gas reduction policies for on-road vehicles and off-road equipment, and maintain productive interactions with CARB mobile source programs, regional air quality management organizations, federal governments, scientific community, as well as national, and international stakeholders.

% Of TIME	RESPONSIBILITIES OF POSITION
40%-E	Either through in-house or extramural research projects, collect multi-transportation mode large datasets, investigate cutting-edge methods of manipulating and interpreting the datasets, and provide information and service to multiple mobile source programs and regulatory efforts. Gather data broadly from internal, academic research, state government, federal government, and private stakeholder groups, and construct a comprehensive database integrating emissions from vehicles

either in the laboratory using dynamometers or in the field using PEMS or remote-sensing to large instantaneous datasets from ECU (engine control unit), VCU (vehicle control unit), and telematics data streams and large on-road and off-road engine certification and vehicle registration databases such as DOORS, DMV, R.L.Polk, and others, and analyze and interpret data to extract or identify key issues, draw conclusions, and make recommendations to the CARB mobile source programs and policies. Design research projects and data analysis plans to interpret vehicle emissions, activity characteristics, and travel behavior along with the integration of large databases such as DOORS, DMV, R.L.Polk, and others. Look for new ways to mine the data that span the interest of multiple divisions and programs and develop tools that simplify data manipulation, expedite data analysis and aid data-driven decision making. Prepare and present research findings to the stakeholder groups internally and externally in technical conferences and interest group meetings to support emission control and greenhouse gas reduction policies for on-road vehicles and off-road equipment. Complete tasks on time and make verbal and written communications of the completed tasks clearly, concisely, and appropriately for audiences with varying levels of understanding. Write and prepare clear, concise, comprehensive, and review-ready documents (e.g., memos, letters, white papers, research idea synopsis, data analysis plans, journal articles, conference and meeting presentations, and others) for proper content, format, grammar, punctuation, and sentence structure to ensure accuracy and effectiveness.

35%-E Initiate and conduct novel and independent research programs that consider the emission implications of transportation holistically to provide answers beneficial to air quality and climate change programs and policies. Design and manage extramural research projects related to mobile sources emissions testing at laboratory conditions, activity characterization with datalogger instrumentation, in-use emission measurement with PEMS, remote-sensing, and mobile laboratories. Manage the research projects by strictly following the research contract management training guide. Review the interim and draft final reports from the research projects and provide comments and recommendations proactively to ensure the research findings relevant and informative to CARB air quality and climate change programs and policies.

15%-E Participate in CARB's research planning process and workgroup meetings, coordinate with internal stakeholders to identify mobile source research needs, and initiate mobile source research projects that support mobile source programs. Interact and communicate with internal and external stakeholders to effectively translate scientific and research findings into recommendations for air quality and climate change programs. Prepare and present research concepts in the stakeholder group meetings internally and externally to support emission control and greenhouse gas reduction policies for on-road vehicles and off-road equipment.

10%-M As a CARB liaison, participate in workgroups and committees of professional organizations such as CRC, EMA, and SAE to convey CARB's perspectives on mobile source emission, fuel research, test method development, and industry-standard development. Coordinate with the professional organizations to develop research projects that are relevant to CARB programs and policies and maintain positive and productive relationships. Prepare and present Section research work at the stakeholder group meetings internally and externally to support emission control and greenhouse gas reduction policies for on-road vehicles and off-road equipment. Maintain the RD SharePoint, Section website site, Section drive, and Section database (e.g. integrated database for vehicular emissions and activity) and to share policy-relevant data and information with internal stakeholders.

State of California
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
AIR RESOURCES BOARD
ASD/PMB-12 (REV 04/13)