

# Science Directorate LPR-7600-MACH-2 Safety Directive

## **Subject: Science Directorate Research Van Safety Directive**

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### **Preface**

#### **P.1 Purpose**

This Science Directorate Mobile Aerosol Characterization-2nd generation (MACH-2) Safety Directive has been developed to outline specific workplace practices and procedures to ensure that personnel are protected from health and physical hazards during field campaigns associated with the use of MACH-2.

#### **P.2 Applicability**

- a. This MACH-2 Safety Directive is applicable to all NASA Langley federal civil service personnel and contractors when working/driving the MACH-2 for field campaigns.
- b. This is applicable to contractors, grant recipients, or parties to agreements only to the extent specified or referenced in the appropriate contracts, agreements, or grants (hereafter, called employees). Where statements apply to only one group of employees, terms “civil service employee” and “contractor” are used.
- c. Non-compliance may result in appropriate disciplinary action against civil service personnel or sanctions against contractors in accordance with the terms of their contracts.

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- d. In this safety directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term “shall.” The terms “may” denotes a discretionary privilege or permission, “can” denotes statements of possibility or capability, “should” denotes a good practice, and is recommended, but not required, “will” denotes expected outcome, and “are/is” denotes descriptive material.
- e. In this safety directive, all document citations are assumed to be the latest version, unless otherwise noted.

## **P.3 Authority**

- a. Occupational Safety and Health Standards, 29 Code of Federal Regulations (CFR) 1910.
- b. Hazard Communication, 29 CFR 1910.1200.
- c. Occupational Exposure to Hazardous Chemicals in Laboratories, 29 CFR 1910.1450
- d. Toxic and Hazardous Substances, 29 CFR 1910 Subpart Z.
- e. NASA Procedural Requirement (NPR) 1800.1, NASA Occupational Health Program Procedures.
- f. NPR 8715.3, NASA General Safety Program Requirements.
- g. NPR 8715.1B, NASA Safety and Health Programs
- h. American National Standard (ANSI) Z308.1-1998 “Minimum Requirements for Workplace First-aid Kits.”
- i. 41 CFR Part 102-34 Motor Vehicle Management.

## **P.4 Applicable Documents and Forms**

- a. Langley Procedural Requirements (LPR) 1710.12, Potentially Hazardous Materials-Hazard Communication Standard.
- b. LPR 1800.1, NASA Langley Occupational Health Program.
- c. LPR 1740-2N4, Safety Program Requirements
- d. Executive Order 13043, Increasing Seat Belt Use in the United States
- e. Langley Policy Directive (LaPD) 1700.7S, Traffic Management
- f. LaPD 6000.1V, Transportation Management
- g. Langley Employee Loan Agreement System (LELAS)
- h. Field Safety Plan Outline
- i. Pre-Travel Checklist
- j. Standard Form (SF) 94 Statement of Witness
- k. SF91-20 Motor Vehicle Accident Report
- l. NASA Form (NF) 892 Property Pass Agreement and Removal Permit

# Science Directorate LPR-7600-MACH-2 Safety Directive

Prepared By:

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## 1. Introduction

1.1 This directive describes responsibilities for protecting the public and employees from hazards associated with activities and operations when using the MACH-2.

1.2 This directive describes roles and responsibilities, required safety and health programs, and Science Directorate (SD) requirements for protecting the public and employees. It is intended to be used with other applicable statutes and regulations

1.3 Institutional safety and health management is a proactive, collaborative process to find and fix hazards associated with activities and operations before someone is injured or becomes ill. It is the application of engineering and management principles, criteria, and techniques to protect the public, employees, and property from hazards created by activities and operations and to protect employees from all hazards regardless of location while performing official duties. Its objective is to keep the risk of injury and harm to these entities within acceptable limits.

1.4 Supervisors, regardless of level, shall ensure their personnel comply with this directive and shall seek help from Safety and Facility Assurance Branch (SFAB), or their Facility Safety Head (FSH) to ensure their employees' workplace is safe, as mandated by Occupational Safety and Health Administration (OSHA) and NASA requirements.

1.5 All NASA Langley personnel shall be responsible for ensuring a safe and healthy workplace.

## 2 Motor Vehicle Safety

2.1 All employees permitted to drive the MACH-2 shall use all provided safety devices, including safety belts and follow all appropriate motor vehicle manufacturer safety guidelines. The driver shall be responsible for passenger adherence to this policy.

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2.2 Avoid other potentially distracting activities such as eating, drinking, or adjusting non-critical vehicle controls while driving.

2.3 The use of handheld wireless (cellular) devices when driving government-owned vehicles is prohibited.

*Note 1: This includes cell phones, ultrahigh frequency (UHF) radios, or other hand-held wireless communication devices. When there are two individuals traveling in a vehicle, the passenger should be the person to use the hand-held communication device.*

*Note 2: Hands-free communication devices are allowed.*

2.4 Text messaging (to include reading from or entering data into any handheld or other electronic device, including for the purpose of Short Message Service (SMS) texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication) is prohibited when driving government-owned vehicles.

2.5 Observe all federal, state, and local traffic regulations.

2.6 Do not drive the MACH-2 while under the influence of alcohol or drugs (including prescription medications that may affect the ability to drive safely) nor while sick or suffering from excessive fatigue or emotional stress.

2.7 When used to transport cargo the MACH-2 must be equipped to secure equipment and materials from moving during transport.

2.8 Securing options include:

- a. Safety screen installed between the passenger compartment and cargo area
- b. Use of a cargo net
- c. Use of tie down straps/chains

2.9 A securely mounted, and easily accessible fire extinguisher is required to be on board.

2.10 Passengers shall not be carried in the cargo area unless designated occupant positions with seat belts are provided.

2.11 All employees who drive the MACH-2 while on official Government business shall:

- a. Possess a valid driver's license
- b. Notify their supervisor if their drivers license becomes suspended, restricted, revoked, or canceled
- c. Inform their supervisor of any tickets or driving violation that occur while driving official vehicles on official business (example, speeding ticket, parking fine, etc.)

*Note: You are personally responsible if you violate State or local traffic laws. If you are fined or otherwise penalized for an offense you commit while performing your official duties, but which was not required as part of your official duties, payment is your personal responsibility.*

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- d. Have supervisor's approval to drive the MACH-2.
- e. Not drive a motor vehicle for a continuous period of more than 10 hours, including a combination of personal driving and driving for official NASA business.
- f. Not drive a motor vehicle for a combined duty period that exceeds 12 hours in any 24-hour period, without at least 8 consecutive hours of rest.
- g. Avoid situations resulting in backing maneuvers.
  - 1) When backing maneuvers are necessary, conduct a walk around of the vehicle to identify obstacles that may be hidden from view when seated behind the steering wheel.
  - 2) When passengers or other employees or volunteers are present, employ them as spotters when backing the vehicle.

2.12 The "Buddy System" should be applied if the MACH-2 is to be driven more than 2 consecutive days.

## **3 Motor Vehicle Inspections**

### **3.1 Annual Inspections**

3.1.2 The Center's Office of Logistics management shall ensure that all NASA-owned motor vehicles used on, and off NASA Centers are inspected annually to the standards of the State or other jurisdiction's vehicle safety inspection requirements.

### **3.2 Routine Inspections**

3.2.1 Drivers should examine a vehicle before operation to ensure that it is safe. This examination should include a check of the following items:

- a. Tires and tire pressure
- b. Directional signals, headlights, taillights, and brake lights
- c. Fuel supply
- d. Windshield wipers

3.3 All NASA-owned vehicles shall include appropriate signage regarding:

- a. Usage of seat belts
- b. Need to remain seated while vehicles are in motion
- c. Restriction on cell phone use and other hand-held communication devices
- d. Smoking is prohibited on all government vehicles.

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## 4 Motor Vehicle Accident and Insurance Requirements

4.1 Use the following forms to report a MACH-2 accident. These forms should be carried in the MACH-2

- a. SF91, Motor Vehicle Accident Report. The motor vehicle operator should complete this form at the time and scene of the accident, if possible, even if damage to the motor vehicle is not noticeable.
- b. SF 94, Statement of Witness. This form should be completed by any witness to the accident.

4.2 Contact the Center Transportation Officer (CTO) as soon as possible after the incident.

4.3 Be sure to provide the CTO with SF 91 and SF 94 if it applies.

4.4 The U.S. government self-insures, and government employees operating government vehicles in the performance of official duties are covered by that self-insurance.

4.5 Contract employees may drive government vehicles when required as part of official contract duties, if specified in the contract.

*Note 1: Contract employees are not insured by the government, and therefore contract employees operating government-owned vehicles must have company-supplied insurance sufficient to cover loss and damage to government-owned property. Contractors are responsible for providing for injuries to their employees while on the job and must have insurance to cover third-party injuries arising out of the actions or inactions of their employees.*

*Note 2: Contractors must receive approval from their Contracting Officer (CO) or Contracting Officer Representative (COR) to use government vehicles and must restrict their use to official duties in performance of the contract. The CO or COR shall periodically check with contractor management to ensure they carry insurance for employees operating government-owned vehicles.*

## 5 Pre -Travel

5.1 Required training for drivers, passengers, and research personnel driving/operating the MACH-2 during a field campaign, are as follows:

- a. Cardiopulmonary Resuscitation (CPR)
- b. Automated External Defibrillator (AED)
- c. First Aid
- d. Blood Borne Pathogens
- e. Motor Vehicle Safety
- f. Fire Extinguisher

*Note: All employees permitted to drive the MACH-2 shall complete hands-on vehicle maneuverability training, to ensure they have the skills needed to drive the vehicle safely.*

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5.2 It is the responsibility of the Principal Investigator to complete the following:

- a. MACH-2 pre-travel checklist (Appendix A) and leave it with the FSH
- b. MACH-2 safety plan outline (Appendix B) and leave a copy with both your Supervisor and the FSH
- c. Vehicle left on site email form for each vehicle emailed to Security

5.3 MACH-2 drivers shall ensure the following:

- a. Secure all compressed gas cylinders and other heavy or large items in the vehicle
- b. Securing all hazardous materials in approved labeled containers
- c. Lead acid batteries are in approved battery boxes or original packaging

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## Appendix A

### Pre-Travel Check List

- ☐ Field Mission Name/Date of Departure \_\_\_\_\_
- ☐ Vehicle has been cleared to leave the center by NASA Langley CTO
- ☐ Check out Portable AED from the clinic
- ☐ Check out First aid kit and guide from the clinic
- ☐ Fire extinguisher onboard has been inspected, mounted, and ready for use.
- ☐ Copy of approved Field Research Safety Plan
- ☐ Verify all compressed gas cylinders regulators have been removed, capped, and secured for travel
- ☐ Verify all hazardous materials are properly packed and stowed for travel
- ☐ Verify ALL equipment onboard is secure for travel
- ☐ List of phone numbers for mechanics and towing companies
- ☐ Have an alternative communication option (e.g., radio, satellite phone, InReach device) if cell phone coverage is unreliable.
- ☐ Safety monitoring equipment working, and calibration is up to date
- ☐ List of hazardous materials has been checked by facility safety head, to ensure correct PPE is available on the MACH-2.
- ☐ Paper copy of Safety Data Sheet for each hazardous material is in central location on the MACH-2
- ☐ Employee Property Pass Agreement and Removal Permit NF892 filed with the Property Custodian
- ☐ Langley Employee Loan Agreement System (LELAS)
- ☐ Paper copies of SF 91 and SF94 on MACH-2
- ☐ If contractor is driving, do they have approval from the CO or COR to do so? Also, a copy of their company's insurance sufficient to cover loss and damage to government-owned property.
- ☐ Supervisors' approval to drive MACH-2
- ☐ If leaving a vehicle at NASA Langley security has been notified via email.
- ☐ When checklist is complete leave it with the Facility Safety Head



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## Appendix B

### MACH-2 Safety Plan Outline

Prepare a written safety plan of your trip before you leave. Provide a completed copy to each member of your team, your Branch Head, and Facility Safety Head. Include the following:

1. Field research plan
  - a. Principle Investigator/Project Lead
  - b. Departure and return dates
  - c. Route plan/ Itinerary
  - d. Location of field research
  - e. Site Information (elevation, terrain, environment. Make special note if area is isolated or remote)
2. Research team members
  - a. Contact information for each team member
  - b. Emergency contact information, for each team member
  - c. CPR/AED/First Aid expiration date, for each team member
  - d. Bloodborne pathogens expiration date, for each team member
  - e. Fire extinguisher training, for each team member
3. Communication plan
  - a. State how often will you be checking in, with whom you will be checking in , and your means of communication (phone, email, text, satellite device)
  - b. Procedure to be followed by the check-in contact, in case of a missed check-in or emergency
  - c. Location of nearest emergency medical services
  - d. To whom will you be reporting any injuries or incidents
4. List the hazards related to travel and the offsite campaign. Define your plan to mitigate any hazards (i.e., personal protective equipment).
  - a. Hazardous materials
  - b. Physical hazards
  - c. Weather
  - d. Other (wildlife)

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## Acronyms

AED	Automated External Defibrillator
ANZI	American National Standard
CFR	Code of Federal Regulations
CO	Contracting Officer
COR	Contracting Officer Representative
CPR	Cardiopulmonary Resuscitation
CTO	Center Transportation Officer
FC	Facility Coordinator
FSH	Facility Safety Head
LAPD	Langley Policy Directive
LELAS	Langley Employee Loan Agreement System
LPR	Langley Procedural Requirement
MACH-2	Mobile Aerosol Characterization-2nd generation
NF	NASA Form
NPR	NASA Procedural Requirement
PPE	Personal Protective Equipment
SD	Science Directorate
SF	Standard Form
SFAB	Safety and Facility Assurance Branch
SMS	Short Message Service
UHF	Ultrahigh Frequency