

EQUIPMENT MANAGER

J-255



Job Aid
July, 2004
NFES 1558



CERTIFICATION STATEMENT

on behalf of the

NATIONAL WILDFIRE COORDINATING GROUP

The following training material attains the standards prescribed for courses developed under the interagency curriculum established and coordinated by the National Wildfire Coordinating Group. The instruction is certified for interagency use and is known as:

Equipment Manager, J-255
Certified at Level I

This product is part of an established NWCWG curriculum. It meets the COURSE DEVELOPMENT AND FORMAT STANDARDS – Sixth Edition, 2003 and has received a technical review and a professional edit.

Member NWCWG and Training Working Team Liaison

Date

7/13/04

Chairperson, Training Working Team

Date

7/12/04

Description of the Performance Based System

The NWCG Wildland and Prescribed Fire Qualifications System is a “performance-based” qualifications system. In this system, the primary criterion for qualification is individual performance as observed by an evaluator using approved standards. This system differs from previous wildland fire qualifications systems which have been “training based.” Training based systems use the completion of training courses or a passing score on an examination as primary criteria for qualification.

A performance-based system has two advantages over a training based system:

- Qualification is based upon real performance, as measured on the job, versus perceived performance, as measured by an examination or classroom activities.
- Personnel who have learned skills from sources outside wildland fire suppression, such as agency specific training programs or training and work in prescribed fire, structural fire, law enforcement, search and rescue, etc., may not be required to complete specific courses in order to qualify in a wildfire position.

1. The components of the wildland fire qualifications system are as follows:

- a. Position Task Books (PTB) contain all critical tasks which are required to perform the job. PTBs have been designed in a format which will allow documentation of a trainee’s ability to perform each task. Successful completion of all tasks required of the position, as determined by an evaluator, will be the basis for recommending certification.

IMPORTANT NOTE: Training requirements include completion of all required training courses prior to obtaining a PTB. Use of the suggested training courses or job aids is recommended to prepare the employee to perform in the position.

- b. Training courses and job aids provide the specific skills and knowledge required to perform tasks as prescribed in the PTB.
- c. Agency Certification is issued in the form of an incident qualification card certifying that the individual is qualified to perform in a specified position.

2. Responsibilities

The local office is responsible for selecting trainees, proper use of task books, and certification of trainees. See Appendix A of the NWCG Wildland and Prescribed Fire Qualification System Guide, PMS 310-1, for further information.

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Sponsored for NWCG publication by the NWCG Training Working Team.

Comments regarding the content of this publication should be directed to:
National Interagency Fire Center, Fire Training, 3833 S. Development Ave.,
Boise, ID 83705.
E-mail: nwcg_standards@nifc.blm.gov.

Additional copies of this publication may be ordered from National Interagency Fire Center, ATTN: Great Basin Cache Supply Office, 3833 South Development Avenue, Boise, Idaho 83705. Order NFES 1558.

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EQUIPMENT MANAGER (EQPM) JOB AID, J-255 INTRODUCTION

The Equipment Manager provides service, repair, and fuel for all apparatus and equipment; provides transportation and support vehicle services; and maintains records of equipment use and service provided.

The Equipment Manager has been identified as a position within the Incident Command System (ICS). The J-255 job aid, which supports this position, is part of the National Wildfire Coordination Group's (NWCG), Wildland Fire Suppression Curriculum. The subjects within the performance based curriculum may be administered by either an instructor led formal training course or by the use of job aids. *It is highly suggested that the trainee have previous incident experience.*

Job aids are "how to" books that assist an individual in performing specific tasks associated with a position. They may be used by an individual, in a trainee position, who has met all of the prerequisites, but has not completed the position task book for that position. They are also used after the individual has become qualified, as an aid or refresher in doing the job.

Note: Additional logistics information can be obtained from the National Logistics website at www.fs.fed.us/logistics.

The performance based qualification system stipulates that an individual must complete a Position Task Book prior to becoming qualified for that position. Refer to the "Wildland and Prescribed Fire Qualification System Guide, PMS 310-1" for the established standards for this position. *It is recommended that this job aid be issued when the position task book is initiated.*

This job aid has been developed by an interagency development group with guidance from the National Interagency Fire Center, Fire Training under authority of the NWCG.

We appreciate the efforts of those people associated with the development and review of this package.

Sponsored for NWCG publication by the NWCG Training Working Team, July, 2004.

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Boise, Idaho 83705

I. GENERAL

Obtain and Assemble Materials Needed for Kit.

Kit will be assembled and prepared prior to receiving an assignment. Kit will contain critical items needed for functioning during the first 48 hours. Kit will be easily transportable and within agency weight limitation. Web gear or briefcase (not both) should not exceed 20 pounds.

- Proof of Incident qualifications (Red Card)
- Position Task book, NFES 2355
- Fireline Handbook, PMS 410-1, NFES 0065

Documentation Forms:

- ICS 211, Check-in List, NFES 1335
- ICS 213, General Message, NFES 1336
- ICS 214, Unit Log, NFES 1337
- ICS 218, Support Vehicle Inventory, NFES 1341
- ICS 219, Resource Status Card (T-Card), NFES 1342 and holder (optional)
- ICS 226, Individual Performance Rating, NFES 2074

- OF-296, Vehicle/Heavy Equipment Safety Inspection Checklist, NFES 1173
- OF-297, Emergency Equipment Shift Ticket, NFES 0872
- SF-261, Crew Time Report, NFES 0891 and/or OF-288 Emergency Firefighter Time Report, NFES 0866
- Emergency Rental Agreements (from local area)
- Agency specific forms (equipment inspection forms, gas/oil delivery forms, work order forms and faulty equipment report, rental equipment use record book)

Miscellaneous Items (optional):

- Assorted pens, pencils, felt tip markers, highlighters, thumb tacks, string tags, pads of paper, clipboard, masking/strapping tape, duct tape, envelopes, surveyor flagging, file system supplies, hole punch, scissors, box cutter, etc.
- Calculator
- Flashlight (extra batteries)
- Alarm clock
- Camera
- Calendar
- Tape measure
- Insect repellent

- Local area maps
- Road atlas
- Seals (used to seal the rear door on a cargo trailer)
- Shoe polish, white, water base with applicator
- Poster paint with a broad brush

II. MOBILIZATION

A. Obtain Complete Information From Local Dispatch Upon Initial Activation.

1. Obtain a copy of the order form which contains:
 - Incident/Project name.
 - Incident/Project order number.
 - Office reference number (cost code).
 - Descriptive location/response area.
 - Legal location (township, range, section).

- Incident frequencies (if available).
- Incident base/phone number (contact).
- Request number.
- Reporting date/time and location; example: Incident Command Post (ICP).
- Transportation arrangements and routes.
- Special instructions.

Retain a copy of this order form for your personal incident experience record.

2. The individual will have:

- Frameless soft pack containing personal gear, not to exceed 45 lb.
- EQPM kit, not to exceed 20 lb.

- Proper Personal Protective Equipment (PPE) for the job.

B. Gather Information

Gather all available information necessary to accurately assess incident. Make appropriate decisions about immediate needs and actions including:

- Type of incident
 - Planned operations (multiple remote camps, burnout operations, water handling operations).
- Current situation status
- Expected duration of incident
- Terrain
- Weather (current and expected)

III. INCIDENT ACTIVITIES

A. Arrive at Incident and Check In

- Locate supervisor (ground support unit leader, GSUL).
- Report to status check-in recorder.
- Report to the finance/administration section for time keeping procedures.

B. Obtain Initial Briefing from the GSUL

You are responsible for asking adequate questions that will allow satisfactory completion of all job aspects. *There are no stupid questions.* At a minimum, briefing should include:

1. Duty assignment/responsibilities:
 - Possible EQPM assignments (dozers, engines, transportation scheduling). Will you have or will you need a staff?

2. Operational work periods:
 - What is your work schedule?
3. Ordering procedures/authority:
 - Who is authorized to order equipment, supplies and personnel? Are the orders to be approved by the GSUL prior to giving them to supply?
 - How will equipment fueling be accomplished?
4. Equipment numbering system:
 - What is the numbering system for equipment? Is numbering system compatible with resource order number, or is there another system in place?
5. Special concerns:
 - Environmental, political constraints and/or security for service, repair, and fueling areas.

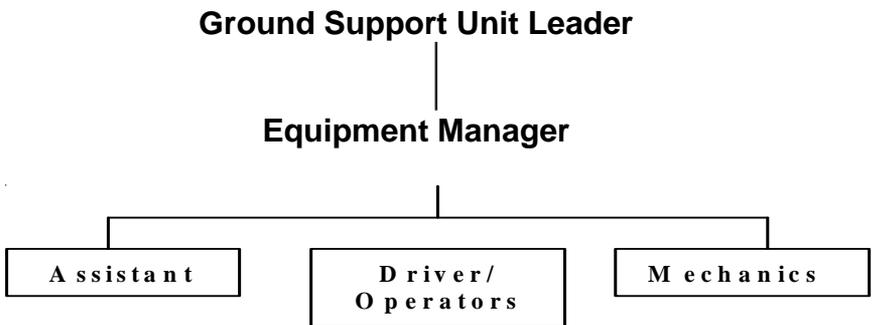
6. Work locations:

- Where to set up shop?

7. Ground support organization:

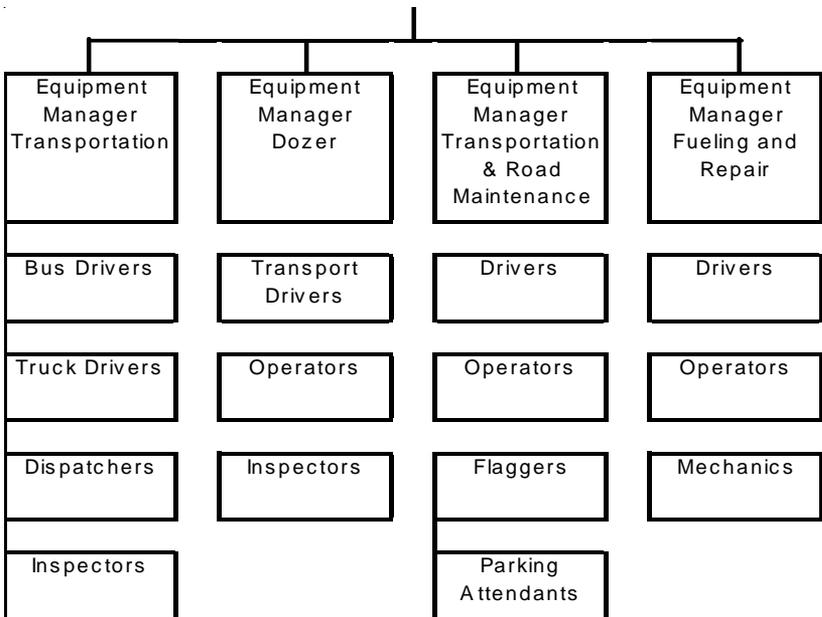
- Depending on the size and complexity of the incident, the ground support unit will vary in size.

It may be that on smaller incidents, the GSUL will handle the whole job. If there is a need, an EQPM will be ordered to assist and the organization may look like the one below.



As the need and the incident grows, becoming larger and more complex, it may look like the one below. Since the Incident Command System builds from the bottom up, there could be any number of variations and organizations between the two shown here. (Mechanics may be used as equipment inspectors if needed.)

Ground Support Unit Leader



8. Resource advisor and/or individual familiar with local area:
 - These individuals can help with the road system, travel routes and access. Will have knowledge of any special concerns (environmental and/or political constraints).

9. Current and anticipated resource commitments:
 - The expected size of and resources committed to the incident.

10. Current situation status:
 - What is going on currently?

11. Expected duration of incident:
 - How long will the incident last?

12. Local maps:

- Find out if local maps are available. Procure if possible to familiarize yourself with the area.

C. Coordinate with GSUL to Determine and Obtain Needed Equipment and Supplies.

- Determine supplies needed to maintain equipment in efficient operating condition (gasoline, diesel, oil, parts).

See Appendix B for Equipment Fuel Use Guide.

- Coordinate with supply unit for proper ordering procedures.

D. Ensure all Appropriate Safety Measures are Followed.

1. Safety:

- Provide safety training for subordinate personnel.
- Contact medical unit and determine emergency medical evacuation plan.
- Instruct operators/drivers on safety procedures and road conditions, cleaning windshields daily, lights and seat belt use.
 - Seat belts will be used by all operators and passengers.
 - Lights on while operating.

- Drivers will inspect each vehicle prior to driving. The inspection will include brakes, steering, windshield wipers, tires, lights and horn. Never drive a vehicle that is unsafe.
- Drivers will not drive continuously.
 - A break must be taken every two hours or when appropriate.
- Operators will not:
 - Exceed posted speed limits.
 - Operate a vehicle under the influence of drugs or alcohol.
 - Operate a vehicle while suffering from fatigue or stress.

2. Driver requirements:

See Appendix C for NWCG Emergency Incident Driving Regulations.

Valid state driver's license or Commercial Drivers License (CDL), as applicable, with appropriate endorsements.

3. Driver responsibilities:

- Government vehicles are constantly in the public's eye. Any report of speeding, erratic driving or uncourteous driving of a government vehicle that is reported by the public must be and will be investigated.
- Remember that driving is one of the most hazardous jobs we perform. Although we have an obligation to support national incidents, we have an

even greater obligation to public safety and to the safety of our employees. By being well prepared, safe and courteous drivers, we will accomplish all of these obligations.

- Be familiar with the transportation regulations of hazardous materials. Ensure requirements for hazardous material (hazmat) handling are addressed and complied with.
- Hazmat shipments are regulated by the Department of Transportation (DOT) 49 CFR, part 175. Proper knowledge of shipping documentation is required. Anyone transporting hazardous materials who is not familiar with those shipping requirements should contact the cache

for instructions. Non-compliance may result in civil penalties to the individual shipping the hazardous materials.

- The operator (driver) should help oversee the loading of vehicles. Check the waybill to ensure the waybill lists each item and quantity loaded. All waybills should be signed by the supply unit leader (SUPL) or receiving and distribution manager (RCDM) indicating the vehicle contains the listed items and is properly loaded. A seal should be placed on the doors of the enclosed trailer or van box if a common carrier is used. The seal number will be recorded on the waybill.

- Examples of hazMat that may be transported:
 - Fire extinguisher
 - Lantern, white gas
 - Fusee
 - Hand horn, air
 - Insect repellent

If there are any questions as to the loading of a vehicle, the driver should always have the final say.

4. Briefings:

All drivers will receive a briefing on dispatch procedures, refueling, maintenance, safety, and the specific mission.

5. Duty day:

A duty day begins when the individual arrives at his or her duty station or begins driving a government vehicle, whichever occurs first. A duty day is the total time driving plus non-driving time.

- E. Schedule Transportation to Maximize Use of Available Vehicles and Equipment Resources.
- Match the correct vehicle and operator with the job that needs to be accomplished.
 - Establish work schedules.
 - Attend necessary briefings.
 - Make daily assignments.
 - Coordinate with other units.
- F. Dispatch Vehicles and Equipment in Accordance with Incident Action Plan (IAP).
- Assign vehicles to priority positions.
 - Assign vehicles for emergency transport of personnel.
 - Assign vehicles suitable for required missions.
 - Advise drivers of assigned dropoff and pickup point location and times.

- Coordinate with the staging area manager if one is assigned to the incident.
- G. Determine Resources On Hand and, When Necessary, Order Additional Resources.
- Complete and maintain ICS 218, Support Vehicle Inventory.
 - Complete vehicle and equipment inspections.
 - Coordinate with finance/ administration to ensure contracts and rental agreements are complete and copies have been filed.
 - Order equipment and supplies through supply unit.
 - Coordinate with the supply unit on ordered equipment and supplies, such as estimated time of arrival (ETA), fill or kill, or unable to fill (UTF) orders.

1. Staffing rules:

- Every piece of heavy equipment:
 - 1 operator per operational period

- 1 - 30 engines:
 - 1 mechanic per operational period

- 31 - 50 engines:
 - 2 mechanics per operational period

- Over 50 engines:
 - 3 mechanics per operational period

- Each base/camp:
 - 1 equipment time keeper

- Each support vehicle:
 - 1 driver per operational period

2. Military involvement:

When military units are attached, they will function as a unit. The EQPMs should determine who the military contact is for job assignments and use that position to assign mission requests. Allow the military unit to function within itself to accomplish the mission. Generally, military units prefer to have their own areas or camp and function best if they are all together.

H. Maintain Equipment Use Records, Service Records, and Time Records.

- Agency specific forms.
- Maintain fuel and lubricant consumption records.

- OF-297, Emergency Equipment Shift Ticket:

See Appendix D for an example of OF-297, Emergency Equipment Shift Ticket.

- Used to record time worked on incident and time to and from point of hire.
 - Should be used to record special remarks as to down time, problems with equipment.
 - When applicable, provide both hours and mileage information.
 - The shift ticket should have the “E” number of the equipment entered on the form.
- Document repair and service costs (incident or contractor incurred).

- Coordinate with finance/ administration to determine costs liability for repairs and service.
 - Turn in daily personnel and equipment time to finance/ administration section.
- I. Establish Areas for Service, Repair, and Fueling.
- Coordinate with the facilities and ground support.
 - Ensure appropriate safety measures are being followed.
 - Comply with agency environmental policies.
 - Any left over mixed fuel becomes hazardous waste; avoid stockpiling this item.
 - Establish maintenance and fueling schedules.
 - Sign and flag fuel storage area.

- Provide fuel, lubrication, and oil.
 - Have fire extinguisher available.
 - Provide servicing area.
- J. Maintain Documentation Throughout Assignment.
- ICS 214, Unit Log.
 - ICS 218, Support Vehicle Inventory.
 - Accident/injury forms.
 - Agency specific forms.
 - Equipment/vehicle inspection forms.
 - Other forms as needed.
 - Emergency Equipment Shift Ticket.

See Appendix E, ICS 214, Unit Log example.

K. Develop and Implement Incident Transportation Plans.

- Physically inspect and sign roads and drop points.
- Provide input to the development of transportation plan.
- Issue transportation plan maps to all drivers.

L. Provide for Maintenance of Incident Roads.

- Order necessary equipment and supplies.
- Set up maintenance schedules and coordinate maintenance operations.
- Check road and bridge conditions and weight limits.
 - Ensure this information is given to the GSUL for inclusion in the transportation plan.

- Check with local unit for maintenance standards.
- Obtain required permits to move heavy equipment (local knowledge).

IV. DEMOBILIZATION

A. Provide Suggested Demobilization Priorities List to GSUL.

- Identify agency vehicles assigned to crew(s) for demobilization.
- Coordinate demobilization of crews and vehicles to destinations.
- Coordinate with SUPL for return of supplies to storage/cache facilities with demobilized vehicles.

- Complete vehicle and equipment demobilization inspections and file with finance/administration section.
 - To prevent the spread of noxious weed seeds or other biological contaminants, ensure incident and support vehicles have been thoroughly cleaned at a pre-designated area prior to release.
- Complete all vehicle and equipment use records and file with finance/administration section prior to demobilization.

B. Demobilization and Checkout.

- Receive demobilization instructions from GSUL.
- Brief subordinate staff on demobilization procedures and responsibilities.
 - Complete ICS 226, Individual Performance Rating.
- Ensure that the incident and agency demobilization procedures are followed.
- If required, ICS 221, Demobilization Check-Out is completed and turned in to the appropriate person.
- Complete the ICS 214 Unit Log.
- Ensure all personnel you are supervising are demobilized correctly and the personnel evaluations are completed.

APPENDIX A EMERGENCY EQUIPMENT RENTAL AGREEMENT, EXAMPLE

EMERGENCY EQUIPMENT RENTAL AGREEMENT

1. ORDERING OFFICE (name and address) USDA Forest Service, R-6 P. O. Box 3623 Portland, OR 97208		AGREEMENT NUMBER MUST APPEAR ON ALL PAPERS RELATING TO THIS AGREEMENT 2. AGREEMENT NUMBER 56-8173-6-0099 3. EFFECTIVE DATES a. beginning 01-01-XX b. ending 12-31-XX					
4. CONTRACTOR a. name and address Engine/Tender INC. P.O. Box 365 In Oregon, OR 97365 b. EIN/SSN:		5. POINT OF HIRE (location when hired) Equipment location at time of hire. 6. THE WORK RATE IS BASED ON ALL OPERATING SUPPLIES BEING FURNISHED BY <input checked="" type="checkbox"/> CONTRACTOR <input type="checkbox"/> GOVERNMENT					
c. telephone number (day) 555-123-3456	d. telephone number (night) 1-800-123-3456	7. OPERATOR FURNISHED BY <input checked="" type="checkbox"/> CONTRACTOR <input type="checkbox"/> GOVERNMENT					
8. TYPE OF CONTRACTOR ("X" appropriate boxes) <input checked="" type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> LARGE BUSINESS <input type="checkbox"/> SMALL DISADVANTAGED OWNED <input type="checkbox"/> WOMEN OWNED <input type="checkbox"/> LABOR SURPLUS AREA <input type="checkbox"/> GOVERNMENT EMPLOYEE							
9. ITEM DESCRIPTION (include make, model, year, serial number and accessories)		10. NUMBER OF OPERATORS	11. WORK OR DAILY a. rate b. unit		12. SPECIAL a. rate b. unit		13. GUARANTEE (8 or more hours)
a. Tender, Type 2, 4x4, 3427 Gal. Model: 1978 AUTCAR Licence: ABCD001 Vin #: ABC0000011111		1	1,470.00	Day SS	2,520.00	Day SS	Under hire 8 or less hrs. 50% of daily rate.
b. Engine, Type 4, 4x4, 913 Gal. Model: 1995 Ford Licence: ZYXW123 Vin #: ZYX1234567891		3	2,086.00	Day SS	3,576.00	Day SS	Under hire 8 or less hrs. 50% of daily rate.
c.							
d.							
e.							
f.							
g.							
14. SPECIAL PROVISIONS 1. Required personnel per shift (Block 10): Type 6 and 7 engines require 1 ENGB and 1 FFT, Type 4 and 5 engine requires 1 ENGB and 2 FFT. Tender requires 1 tender operator per shift. 2. Terms and conditions of RFQ R6-03-004 are incorporated into this agreement with the same full force and effect as if given in full text. The contractor shall carry a complete copy of the RFQ and make it available upon request. 3. Claims may be submitted to the Procurement Unit Leader or Incident Agency Contracting Officer. Contract dispute claims may be settled by any Contracting Officer actin within their authority and within any limits set by the incident agency. In the event a settlement cannot be reached, the Incident Agency Contracting Officer will make the written final decision, with a copy to the signatory Contracting Officer.							
15. CONTRACTOR'S OR AUTHORIZED AGENT'S SIGNATURE <i>Robert T. Forest</i>			16. DATE 01/10/XX	17. CONTRACTING OFFICER'S SIGNATURE <i>Susan B. Jones</i>			18. DATE 01/10/XX
19. PRINT NAME AND TITLE Robert T. Forest, Owner				20. PRINT NAME AND TITLE Susan B. Jones, Contracting Officer			

APPENDIX B FUEL USE GUIDE

Equipment	Fuel	Fuel Use Rate	Fuel Use Rate	Fuel Use Rate	Oil Use Rate
		Surface	Dirt Road	Fireline	
Sedan	Gas	5 gal/100 mi	8 gal/100 mi	-----	-----
Pickup - Compact	Gas	4 gal/100 mi	6 gal/100 mi	8 gal/100 mi	-----
Pickup - Compact	Diesel	3 gal/100 mi	5 gal/100 mi	7 gal/100 mi	-----
Pickup - Full size	Gas	5 gal/100 mi	8 gal/100 mi	10 gal/100 mi	-----
Pickup - Full size 4x4 - Compact	Diesel	5 gal/100 mi	8 gal/100 mi	10 gal/100 mi	-----
Pickup - Full size 4x4 - Compact	Gas	4 gal/100 mi	6 gal/100 mi	8 gal/100 mi	-----
Pickup - Full size 4x4 - Compact	Diesel	5 gal/100 mi	7 gal/100 mi	9 gal/100 mi	-----
Pickup - Full size 4x4 - Full size	Gas	8 gal/100 mi	10 gal/100 mi	12 gal/100 mi	-----
Pickup - Full size 4x4 - Full size	Diesel	6 gal/100 mi	8 gal/100 mi	10 gal/100 mi	-----
Heavy Equipment Transport	Gas	20 gal/100 mi	25 gal/100 mi	28 gal/100 mi	-----
Heavy Equipment Transport	Diesel	19 gal/100 mi	24 gal/100 mi	28 gal/100 mi	-----

Equipment	Fuel	Fuel Use Rate	Fuel Use Rate	Fuel Use Rate	Oil Use Rate
		Walking	Medium	Heavy	
Type 3 (light)	Diesel	3.2 gal/hr	4.2 gal/hr	4.7 gal/hr	1.6 pt/hr
Type 2 (medium)	Diesel	3.4 gal/hr	4.5 gal/hr	5.0 gal/hr	2.7 pt/hr
Type 1 (heavy)	Diesel	4.3/7.3 gal/hr	5.6/8.0 gal/hr	6.3/9.2 gal/hr	3.5/6.5 pt/hr
Pump					
Gorman					
Rupp	Gas & oil	1 gal/hr	-----	-----	.25 pt/hr
Mark III	Gas & oil	1 gal/hr	-----	-----	.25 pt/hr
Mark 26	Gas & oil	1 gal/hr	-----	-----	.25 pt/hr
Chainsaw	Gas & oil	.5 gal/hr	-----	-----	.2 pt/hr
Generator					
2 cycle	Gas & oil	1gal/hr	-----	-----	.2 pt/hr
4 cycle	Gas	1 gal/hr	-----	-----	.2 pt/hr

APPENDIX C

NWCG EMERGENCY INCIDENT DRIVING REGULATIONS



NATIONAL WILDFIRE COORDINATING GROUP

National Interagency Fire Center
3833 South Development Avenue
Boise, Idaho 83705

February 6, 2004

Memorandum

To: NWCG Members; Chairs- Working Teams and Advisory Groups

From: Chair, NWCG /s/ J L Stires

Subject: National Incident Operations Driving Standards

This memo revises the 02/26/03 NWCG interagency standards concerning emergency hours of driving, hereinafter referred to as "incident operations driving".

Further in-depth research and legal consultation has resulted in a determination that state and federal fire agencies are exempted from several requirements under Department of Transportation 49 CFR (CDL requirements). These include hours of service (duty day hours) and record of duty status (log book). These exemptions intentionally provide fire agencies the latitude for more flexibility within incident operations driving than we originally interpreted and subsequently reflected in the 02/26/03 standards.

These revised driving standards set forth limitations consistent with the new 02/06/04 NWCG work/rest standards, while allowing significantly improved operational functionality over the earlier standards. Notably, this revised standard eliminates earlier duty day hour differences between CDL and non-CDL engine operators, which resulted in serious operational difficulties for the field. These incident operations driving standards have already been adopted as policy through the "Standards for Fire and Fire Aviation Operations 2004" Handbook by federal signatory agencies.

These new driving standards will provide improved incident operations within the interagency wildland fire community. Please insure that this information is made available to your fire management personnel.

Cc: Chairs, Geographic Area Coordinating Groups

Attachment

APPENDIX C (continued)

Incident Operations Driving

These standards address driving by personnel actively engaged in wildland fire or all-risk response activities, including driving while assigned to a specific incident or during initial attack fire response (includes time required to control the fire and travel to a rest location). In the absence of more restrictive agency policy, these guidelines will be followed during mobilization and demobilization as well. Individual agency driving policies shall be consulted for all other non-incident driving.

1. Agency resources assigned to an incident or engaged in initial attack fire response will adhere to the current agency work/rest policy for determining length of duty day.
2. No driver will drive more than 10 hours (behind the wheel) within any duty-day.
3. Multiple drivers in a single vehicle may drive up to the duty-day limitation provided no driver exceeds the individual driving (behind the wheel) time limitation of 10 hours.
4. A driver shall drive only if they have had at least 8 consecutive hours off duty before beginning a shift.

Exception: Exception to the minimum off-duty hour requirement is allowed when **essential** to:

- a) accomplish **immediate** and **critical** suppression objectives, or
 - b) address **immediate** and **critical** firefighter or public safety issues.
5. As stated in the current agency work/rest policy, documentation of mitigation measures used to reduce fatigue is required for drivers who exceed 16 hour work shifts. This is required regardless of whether the driver was still compliant with the 10 hour individual (behind the wheel) driving time limitations.

APPENDIX D

EMERGENCY EQUIPMENT SHIFT TICKET, EXAMPLE

EMERGENCY EQUIPMENT SHIFT TICKET						
<i>NOTE: The responsible Government Officer will update this form each day or shift and make initial and final equipment inspections.</i>						
1. AGREEMENT NUMBER 56-8173-6-0099			2. CONTRACTOR (name) Engine/Tenders INC.			
3. INCIDENT OR PROJECT NAME Campfire		4. INCIDENT NUMBER OR-DEF-0001		5. OPERATOR (name) Bob Forest		
6. EQUIPMENT MAKE Tender, Type 2		7. EQUIPMENT MODEL 1978 AUTCAR		8. OPERATOR FURNISHED BY <input checked="" type="checkbox"/> CONTRACTOR <input type="checkbox"/> GOVERNMENT		
9. SERIAL NUMBER ABC0000011111		10. LICENSE NUMBER ABCD001		11. OPERATING SUPPLIES FURNISHED BY <input checked="" type="checkbox"/> CONTRACTOR (wet) <input type="checkbox"/> GOVERNMENT (dry)		
12. DATE MO/DAY/YR	13. EQUIPMENT USE			14. REMARKS (released, down time and cause, problems, etc.)		
	HOURS/DAY/MILES (circle one)					
	START	STOP	WORK			SPECIAL
08/02/99	0600	1800	12			
08/03/99	0600	1800	12			
08/04/99	0600	1800	12		15. EQUIPMENT STATUS <input checked="" type="checkbox"/> a. Inspected and under agreement <input type="checkbox"/> b. Released by Government <input type="checkbox"/> c. Withdrawn by Contractor	
08/05/99	0600	1800	12		16. INVOICE POSTED BY (recorder's initials) DRG	
17. CONTRACTOR'S OR AUTHORIZED AGENT'S SIGNATURE <i>Robert T. Forest</i>				18. GOVERNMENT OFFICER'S SIGNATURE <i>Dave R. Gomez</i>		
				19. DATE SIGNED 08/05/99		

FINANCE

 NSN 7540-01-119-6628
 USDA/USDI

 OPTIONAL FORM 297 (REV. 7-90)
 USDA/USDI

APPENDIX F 24-HOUR CLOCK

<i>12 Hour</i>	<i>24 Hour</i>	<i>Pronounce</i>
1:00 AM	0100	Zero-one hundred
2:00 AM	0200	Zero-two hundred
3:00 AM	0300	Zero-three hundred
4:00 AM	0400	Zero-four hundred
5:00 AM	0500	Zero-five hundred
6:00 AM	0600	Zero-six hundred
7:00 AM	0700	Zero-seven hundred
8:00 AM	0800	Zero-eight hundred
9:00 AM	0900	Zero-nine hundred
10:00 AM	1000	Ten hundred
11:00 AM	1100	Eleven hundred
12 NOON	1200	Twelve hundred
1:00 PM	1300	Thirteen hundred
2:00 PM	1400	Fourteen hundred
3:00 PM	1500	Fifteen hundred
4:00 PM	1600	Sixteen hundred
5:00 PM	1700	Seventeen hundred
6:00 PM	1800	Eighteen hundred
7:00 PM	1900	Nineteen hundred
8:00 PM	2000	Twenty hundred
9:00 PM	2100	Twenty-one hundred
10:00 PM	2200	Twenty-two hundred
11:00 PM	2300	Twenty-three hundred
12 MIDNIGHT	2400	Twenty-four hundred

Notice that you add 12 to the PM time to get the first two numbers of the hour, e.g., 8 PM is twenty hundred ($8 + 12 = 20$).

APPENDIX G

GLOSSARY OF TERMS AND ACRONYMS

For additional fireline terms, refer to Wildland Fire Terminology, PMS 205, NFES 1832

Accountable Property	Items with a purchase price of \$5,000.00 or higher. Also, items that the agency considers sensitive (cameras, chain saws, items with property numbers).
A/C	Aircraft (fixed or rotor wing).
AD	Administratively Determined (rates and pay plan for emergency workers).
AGL	Above Ground Level (altitude expressed in feet above the ground).
AIDS	Aerial Ignition Devices (usually refers to a ping pong ball machine or a helitorch).
Air Contact	Particular aviation resource to contact when reporting to a fire.

APPENDIX G (continued)

Air Show	Multiple aircraft over a fire, usually including air tankers.
Air Tactical	ICS position within the operations section. Air Tactical Group Supervisor (ATGS), synonymous with air attack.
Advanced Technology Meteorological Unit (ATMU)	A weather data collection and forecasting facility consisting of seven modules, weighing a total of 116 pounds and occupying 13.8 cubic feet of space when transported. Requires a supplemental order of helium, procured locally.
Alumigel®	Jelly-like substance produced by mixing gasoline and Alumigel® powder. It is then applied with an ignition device such as a helitorch to ignite fires.
ALS	Advanced Life Support
ATA	Actual Time of Arrival

APPENDIX G (continued)

Air Tanker	Fixed wing aircraft capable of delivering fire retardant (liquid and foam).
ATD	Actual Time of Departure
Av Gas	Fuel for aircraft with internal combustion engines (reciprocating engines).
Azimuth	The horizontal distance in angular degrees in a clockwise direction from the north point.
Back Haul	Excess supplies, equipment or trash returned from a location on an incident.
Base	The location at which primary logistical functions for an incident are coordinated and administered. There is only one base per incident; example: incident command post (ICP).
Bearing	Position of an object with reference to a point on a compass.

APPENDIX G (continued)

Backpack Pump	A collapsible backpack made of neoprene or high strength nylon fabric that carries approximately five gallons of water fitted with a hand pump (bladder bag).
BDU	Battle Dress Uniform; fire resistant pants.
Black Water/ Sewage Truck	Vehicle capable of pumping and hauling raw sewage (black water) to certified sewage treatment facility.
Booster Pump	An intermediary pump for supplying additional lift in pumping water uphill past the capacity of the first pump.
Casual (EFF)	An employee who is hired temporarily for a fire emergency (see AD). Also referred to as Emergency Fire Fighter (EFF).
Chief of Party	Person in charge of passengers while traveling.

APPENDIX G (continued)

Clamshell	Reusable battery holder for King® radios. Holds nine AA batteries. Listed as Holder, Battery, King, NFES 1034.
Compressed Air Foam System (CAFS)	A generic term used to describe foam systems consisting of an air compressor (air source), water pump and foam solution.
Commo	Communications
Consumable Property	Items that are expected to be consumed on the incident (batteries, MREs, canteens).
Coordination Center	Regional/Zone/State level center for mobilization of resources to incidents, etc. (dispatch).
Coupling, hose	A fitting on the end of a hose that connects the ends of adjacent hoses or other components of hose (male, female, quick connect, pin lug).

APPENDIX G (continued)

Coyote Tactics	A progressive line construction technique involving self-sufficient crews which build fire line until the end of the operational period, remain at or near that point while in an unavailable status and begin building fireline at that point at the start of the next operational period.
CSJRL	Cotton-Synthetic Jacketed, Rubber Lined hose.
Cubie	Cubitainer: a five gallon container used for transporting drinking water.
Demob	Demobilization, process of removing resources, usually off incidents.
DHS	Department of Homeland Security
Dispatch	Dispatch center; a facility from which resources are assigned to an incident.

APPENDIX G (continued)

Division	Incident division, usually designated by a letter; example: Division A.
DJRL	Double Jacketed Rubber Lined hose.
Dozer	A tracked vehicle with a front mounted blade used for building fireline (bulldozer).
Dozer tender	Bulldozer service unit.
Drum Lifter	A device used to transport a 55 gallon drum via a sling on a helicopter.
Durable Property	Non-accountable items, with useful life expectancy longer than one incident.
Engine	A truck mounted with a pump and tank (water), used in fire suppression.
EMS	Emergency Medical Service
EMT	Emergency Medical Technician
ETA	Estimated Time of Arrival

APPENDIX G (continued)

ETD	Estimated Time of Departure
ETE	Estimated Time En Route
Expanded Dispatch	The organization in dispatch that is activated when the complexity of logistics coordination approaches a level the initial attack dispatch organization can no longer support.
FAA	Federal Aviation Administration
FBO	Fixed Base Operator; usually the local airport.
Fill or Kill	Policy designed to indicate ability to fill an order or if it can not be filled within a reasonable amount of time (1 hour is standard), then “kill” it. Determine whether to reorder at a later time or cancel the order. This policy is referenced in the National Interagency Mobilization Guide.

APPENDIX G (continued)

Fire Cache	A supply of fire tools and equipment assembled in planned quantities or standard units at a strategic point for exclusive use in fire suppression.
Fixed Wing	Aircraft with stationary wings; an airplane.
FLE	Fire Line Explosives, used for rapid construction of fireline with a small number of specially trained personnel.
FMO	Fire Management Officer
Foam	An extinguishing agent, chemically and/or mechanically produced, that blankets and adheres to the fuels to reduce combustion. When foam products are mixed at 1% or less, the foam will remain effective at preventing ignition for 12 hours. Works with current class A foam delivery systems.

APPENDIX G (continued)

Fold-a-tank®	A portable, collapsible water tank with a tubular frame; varies in capacity from 500-1500 gallons.
FTS	Federal Telephone System
Gated Wye	A gated valve used in hose lays to allow connection of other hoses within the trunk line (1" lateral hose with nozzle).
GHT	Garden Hose Thread, 3/4 inch hose fittings.
Gorman Rupp	Small, portable water pump.
Gray Water (Grey)	Used water from the kitchen and shower units.
Greenwich Mean Time	The time at "0" longitude, Greenwich, England (Zulu time).

APPENDIX G (continued)

Hazardous Material	Substances that are identified, classified and regulated in the Code of Federal Regulations, Title 49 and Hazardous Materials Regulation 175. A hazardous material is a substance or material which has been determined by the Department of Transportation to be capable of posing an unreasonable risk to health, safety and property when transported in commerce and which has been so designated.
Head (water pressure)	Pressure due to elevation of water. Equals 0.433 pounds per square inch per foot of elevation.
Helibucket	Specially designed bucket carried by a helicopter like a sling load and used for aerial delivery of water or fire retardants.

APPENDIX G (continued)

Helitorch	An aerial ignition device slung beneath a helicopter to disperse ignited lumps of jelled gasoline (Alumigel®).
Hot Food/ Drink Cans	Nonreusable cans that are used to ship hot or cold drinks and food to remote locations.
Hot Shots, IHC	Specially trained seasonal hand crew (Type 1).
Hoverfill Tank	Large, portable tank from which helitankers can hoverfill.
IA	Initial Attack, first effort to suppress a fire.
IC	Incident Commander
Impeller	Rotating part of a centrifugal pump which imparts energy to the liquid to be moved. For shearing purposes, the impeller is on a rotating shaft within the body of liquid.

APPENDIX G (continued)

IMSR	Incident Management Situation Report (Sit Report). Daily report giving the current fire situation in the United States.
Incident	An event (fire, flood, earthquake, other disasters).
Incident Action Plan (IAP)	Contains objectives reflecting the overall incident strategy and specific control actions for the next operational period. The plan may be oral or written.
Incident Command System (ICS)	An organization used to manage an emergency incident or a non-emergency event. It can be used equally well for both small and large situations. The system has considerable internal flexibility. It can grow or shrink to meet differing needs. This makes it a cost-effective and efficient management system. The system can be applied to a wide variety of emergency and non-emergency situations.

APPENDIX G (continued)

Incident Overhead	All supervisory positions described in the incident command system.
Increaser	Increasing coupling used on hose, pump or nozzles to permit connection of a larger size of hose.
Inductor	A control mechanism that allows a regulated quantity of foam concentrate to be introduced into the main hose line.
Infrared	A heat detection system used for fire detection, mapping and heat source identification.
Inside Diameter	The internal diameter of a tube, conductor or coupling as distinguished from the outside diameter. Fire hose sizes are classified by a nominal internal diameter.
IR Scan	Infrared survey of a fire.

APPENDIX G (continued)

Iron Pipe Standard Thread	Standard system of thread for connecting various types of rigid piping. These threads are much finer and more difficult to connect in the field than National Standard threads.
Kamlock	Type of fitting that provides quick connecting/disconnecting hose.
Lead Line	Line or set of lines made of rope, webbing or cable and used in helicopter external load operations. Placed between a swivel or the cargo hook and the load.
Lead Plane	Aircraft with pilot used to make trial runs over the target area to check wind, smoke conditions, topography and lead air tankers to the target.
Lined Fire Hose	Fire hose with a smooth inner coating of rubber or plastic to reduce friction loss.

APPENDIX G (continued)

Liquid Concentrate	Liquid phosphate fertilizers used as fire retardants, usually diluted three to five times prior to application.
Live Line or Reel	Hose line or reel on a fire engine, carried connected to the pump, ready for use without making connection to pump or attaching nozzle.
Load Calculation Form	An agency form used to calculate helicopter load weight.
Local Agency	An agency having jurisdictional responsibility for all or part of an incident.
Longline	A line or set of lines, usually in 50 feet increments, used in external load operations that allow the helicopter to place loads in areas which the helicopter cannot land.
MAC	Multi-Agency Coordinating Group

APPENDIX G (continued)

MAFFS	Modular Airborne Fire Fighting System, the military's air tanker program (used when more tankers are needed than there are available on contract).
Mark III	Small, portable water pump.
Mark 26	Portable water pump (smaller than a Mark III).
Medevac	Emergency medical evacuation.
Misery Whip	Crosscut saw.
MIST	Minimum impact suppression tactics.
Mix Ratio	The ratio of liquid foam concentrate to water, usually expressed as a percent.
Monitor	Turret type nozzle usually mounted on an engine.

APPENDIX G (continued)

Mob Guides	Reference used to facilitate the mobilization of resources. Includes policies, procedures, and where to find the resources.
Mopup	Extinguish or remove burning material near control lines after an area has burned to secure the fire or to reduce residual smoke.
MRE	Meals Ready to Eat, light weight, packaged food used on fires.
Multicom	A VHF/AM aircraft radio frequency (122.9 MHz) assigned by the FAA for use in air-to-air communications.
Mud	Fire retardant.
NH	National Fire Hose, coupling threads used for fire hose 1½" and larger.

APPENDIX G (continued)

NFES Catalog	Referred to as the National Fire Equipment System Catalog. This catalog is used to order equipment and supplies from fire caches.
NICC	National Interagency Coordination Center at Boise, ID.
NIFC	National Interagency Fire Center at Boise, ID.
Nomex®	A fire resistant synthetic material used in the manufacturing of flight suits, pants and shirts for firefighters.
Nozzle Aspirated Foam System	A foam generating device that mixes air at atmospheric pressure with foam solution in a nozzle chamber.
Nozzle, Forester	Twin-tip combination nozzle for 1" hose. Combination fog/straight stream nozzle tip; low volume.

APPENDIX G (continued)

Nozzle, KK	Combination barrel nozzle. Higher volume than the Forester nozzle.
NPSH	National Pipe Straight Hose Coupling Threads (straight pipe threads for hose couplings and nipple).
NPT	National Pipe Threads/ American Standard Taper pipe threads.
NTE	Not to exceed; a personnel term used for positions that have a limited duration due to funding or project length.
Payload	Weight of passengers and/or cargo being carried by an aircraft.
PAX	Passengers

APPENDIX G (continued)

PC	Paracargo, cargo delivered by means of fixed wing aircraft and parachutes specialty packed and rigged, usually by smokejumper paracargo specialists.
PG	Personal gear bag.
Phoschek®	Long term red colored fire retardant.
PIC	Pilot in Command
Piston Pump	Positive displacement pump with 2, 4, and 6 reciprocating pistons to force water from the pump chamber in conjunction with appropriate action of inlet and discharge valves.
Probeye®	Infrared scanning device that picks up hotspots on fires.
Proportioner	A device that adds a predetermined amount of foam concentrate to water to form a foam solution.

APPENDIX G (continued)

- PSD** Plastic Sphere Dispenser; refers to a machine installed in a helicopter that dispenses plastic spheres (ping pong balls) filled with potassium permanganate. The machine injects a small amount of ethylene glycol into each sphere and then dispenses them out of the helicopter. The exothermal reaction of the two chemicals creates enough heat to ignite the plastic sphere, in 25 to 30 seconds, which in turn ignites the fuel bed. Aerial Sphere Dispenser Kit, NFES 3410.
- PTO** Power Take-Off; a supplementary mechanism enabling the engine power to be used to operate non-automotive apparatus (such as a pump).
- Pumpkin** Collapsible, soft-sided, freestanding portable water tank.

APPENDIX G (continued)

Ramp	Parking area for aircraft adjacent to a runway.
Red Card	Fire qualification card issued to personnel showing their qualifications to fill specific fire positions.
Reel	A frame on which hose is wound (3/4 to 1 inch hose) supplied by a water tank on the apparatus.
Resource	Any person, aircraft, supply or equipment available for assignment to an incident. Described by kind and type (T2 Crew, ICT1, T6 Engine).
Resource Order	Form used by dispatchers, service personnel and logistics coordinators to document the request, ordering or release of resources and the tracking of those resources on an incident.

APPENDIX G (continued)

Respirator	A simple filter mask for individual protection against smoke and fumes for use on wildland fires.
Retardant	A chemical having a retarding action on fire, usually applied with an air tanker.
Retrograde	Reversal of an order; shipping supply items from the incident back to the cache or to another incident.
Requisition	A form/procedure for purchasing supplies.
RH	Relative Humidity; a measure of moisture in the air.
Rocker Lug Coupling	Hose coupling in which the lugs used for tightening or loosening are semicircular in shape and designed to pass over obstructions.

APPENDIX G (continued)

Rotor Wash	The air turbulence caused by the movement of the rotor blades of a helicopter.
Rotorwing	Aircraft with a rotor system that rotates about an axis to provide lift and/or thrust for a helicopter.
RX	Prescribed fire
SIPT	Straight Iron Pipe Thread
Slurry	Fire retardant
SMJ or SJ	Smokejumper; fire suppression personnel who parachute to fires via fixed wing aircraft.
SOP	Standard Operating Procedures
Spotter	Smokejumper supervisor in charge of a jumper load; performs navigation, communication, and paracargo duties.
Stocking Levels	Minimum levels of supplies kept on hand at a fire cache.

APPENDIX G (continued)

Strainer	A wire or metal guard used to keep debris from clogging pipe or other openings made for pumping water. Placed on suction hose it will protect pumps from foreign materials.
Surfactant	A surface active agent. A formulation which, when added to water in proper amounts, will reduce the surface tension and increase penetration capabilities of the water (wet water, class A foam, soap).
Swamper	Assistant to an equipment operator.
T & A	Time and Attendance
Tail Number	FAA number used to identify aircraft, located on the tail of the ship. American aircraft tail numbers begin with the letter N; examples: N543TY, N67344.
Tanker	Air tanker

APPENDIX G (continued)

TFR Temporary Flight Restriction. This airspace restriction is obtained through the FAA. It is an area of airspace over an incident that is defined both laterally and vertically, which has been temporarily or partially closed to nonessential aircraft for a specific period of time.

Thread The specific dimensions of screw thread employed to couple fire hose and equipment. American National Standard Hose Thread has been adopted for fire hose couplings.

Torch, Drip A hand-held device for igniting fires by dripping flaming liquid fuel on the materials to be burned. Fuel used is generally a mixture of diesel and gasoline.

APPENDIX G (continued)

Trash Pump	Medium sized pump used for moving large amounts of liquids (grey water, retardant). These pumps are ordered as volume pumps.
UTF	Unable to fill; pertaining to resource orders.
Water Buffalo	Liquid storage unit
Water Tender	Ground vehicle capable of transporting specified quantities of water; example: Type 1 water tender, 5000 gallon capacity, 300 gallon per minute pumping capability.
WFSA	Wildland Fire Situation Analysis. An analysis tool used to determine the most appropriate management strategy for a wildfire that has escaped initial attack.
WX	Weather

APPENDIX G (continued)

Xedar®	Type of heat seeking video display unit that identifies hot spots during mopup.
100 hour	Mandatory maintenance done to aircraft every 100 hours (there is also a 50 hour, 1000 hour, etc.).

